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Air

EPA

Effect of Ambient Temperature On Vehicle Emissions And Performance Factors

Appendix A
Test Results for All Vehicles

Appendix B
Plots of Exhaust Gas Catalyst Out Temperatures

EPA-460/3-79-006B

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on Vehicle Emissions

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Appendix BPlots of Exhaust Gas Catalyst Out Temperatures

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APPENDIX A

TEST RESULTS FOR ALL VEHICLES

This Appendix reports the test results obtained for all 14 cars evaluated. Data are reported in the order of increasing temperatures and in the order of vehicle testing.

The test number shown at the upper left-hand corner of each page defines the car being tested, the test temperature, whether the air conditioner was used and the replicate number in that order. The last digit is the replicate. The next to the last digit is 1 if the air conditioner was on (otherwise 0). The next two digits plus a zero define the ambient temperature in °F. The first digit for 5 digit numbers or first two digits for 6 digit numbers give the order in which each car was tested wich is also the car number as indicated in the following table.

Name	Car No.
NONCATALYST CARS	
72 Chevrolet Impala	2
74 Chevrolet Impala	3
77 Honda Civic	11
CATALYST CARS - 49 STATE	
77 Ford LTD	1
77 Plymouth Fury	5
78 Buick V6 Turbocharged	12
CATALYST CARS - CALIFORNIA	
77 Plymouth Fury	4
78 Chevrolet Station Wagon	6
78 Ford Pinto	7
78 VW Rabbit	10
79 Dodge Aspen	14
PROTOTYPE CARS	
80 Mercury Prototype	8
80 Buick Regal Prototype	9
-- Datsun Prototype	13

As an example, test no. 141102 indicates that Car 14, the 1979 Dodge Aspen, was tested at an ambient temperature of 110°F without the air conditioning in operation and this was for the second test at these conditions.

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10001
DATE RUN: 10 03 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 4 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
266.	980.	1053.	847.	1089.	885.	1115.	1004.	847.	840.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4	0	2	1450		GOOD	HES M-17	STAL	HES M(2)	HES M	850.	
HOT TRANSIENT	1.3	0	0	800		GOOD					600.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: VERY HARD TO CONTROL- SURGING -VEHICLE SLIDING ON HILLS

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.29	29.29	29.29		29.28	29.28	29.28
SAMPLING TIME - SEC	510	887	507		763	1396	125
DISTANCE TRAVELLED- MILES	3.600	3.953	3.618		10.218	13.433	0.784
DILUTION FACTOR	4.56	8.59	6.40		4.39	5.47	9.01
VOLUME - VMIX (CU FT)	2668.16	4365.22	2557.57		3842.83	7053.10	627.96
FUEL ECONOMY -MILES/GAL	7.56	9.71	11.20	9.50	14.39	12.85	14.06
FUEL ECONOMY - KM/LITER	3.21	4.13	4.76	4.04	6.12	5.46	5.98

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	12.17	7.56	1.63	1.01	1.42	0.88	3.73	2.32	0.68	0.43	0.97	0.60	0.72	0.45
CARBON MONOXIDE	143.69	89.31	47.23	29.36	37.66	23.40	64.40	40.02	23.26	14.46	32.47	20.18	8.33	5.18
NOX - NO2	4.56	2.83	1.22	0.76	1.40	0.87	1.95	1.21	0.77	0.48	1.00	0.62	1.38	0.86
NOX CORRECTED	3.41	2.12	0.91	0.57	1.05	0.65	1.46	0.91	0.57	0.36	0.75	0.46	1.03	0.64
CARBON DIOXIDE	849.65	528.06	787.75	489.59	688.27	427.76	773.34	480.63	546.71	339.78	601.42	373.79	583.73	362.79

	MG/MI	MG/KM
ALDEHYDE	241.31	149.97
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	2.62	1.90
SULFATE	1.24	0.77

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	57	31	0.77	0.55	210	-	-
30 MPH STEADY STATE	14	10	0.05	0.03	18	-	-
IDLE IN DRIVE	8	11	0.01	0.03	794	550	16.5
IDLE,NEUTRAL	36	25	0.05	0.03	227	825	20.5
2500 RPM NO LOAD	100	70	0.05	0.03	110	-	-
IDLE, NEUTRAL	34	21	0.05	0.03	229	825	20.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10002
DATE RUN: 10 05 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 4 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
283.	949.	1030.	828.	1088.	864.	1137.	999.	853.	831.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.2	1	2	800		GOOD	STAL 26S	HES M	HES M	HES M	850	
HOT TRANSIENT	1.1	0	0	500		GOOD					600	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: TRACE HES FREQUENT DURING COLD START

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP				HFET	SET	FSC
	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE			
BAROMETRIC PRESSURE	29.47	29.47	29.47		29.48	29.48	29.48
SAMPLING TIME - SEC	527	868	506		NA	NA	NA
DISTANCE TRAVELLED- MILES	3.591	3.940	3.596		10.212	13.385	0.781
DILUTION FACTOR	5.07	9.09	6.48		4.51	5.88	8.97
VOLUME - VMIX (CU FT)	2676.00	4391.63	2563.91		3878.72	7126.43	631.32
FUEL ECONOMY -MILES/GAL	8.38	10.21	11.26	10.01	14.58	13.66	13.88
FUEL ECONOMY - KM/LITER	3.56	4.34	4.79	4.26	6.20	5.81	5.90

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	13.33	8.29	1.73	1.07	1.63	1.01	4.08	2.53	0.47	0.29	0.94	0.58	0.65	0.40
CARBON MONOXIDE	123.48	76.74	41.57	25.83	40.47	25.15	58.06	36.09	15.68	9.75	28.99	18.02	9.89	6.15
NOX - NO2	5.75	3.57	1.33	0.83	1.49	0.93	2.28	1.42	0.80	0.50	1.00	0.62	1.41	0.87
NOX CORRECTED	4.30	2.67	1.00	0.62	1.12	0.69	1.71	1.06	0.60	0.37	0.75	0.47	1.05	0.65
CARBON DIOXIDE	768.85	477.85	754.49	468.92	679.37	422.23	737.00	458.05	551.64	342.85	568.27	353.18	589.11	366.14

	MG/MI	MG/KM
ALDEHYDE	182.40	113.36
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	30.50	19.06
SULFATE	0.48	0.30

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX -PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	13	28	0.85	0.82	259	-	-
30 MPH STEADY STATE	2	11	0.02	0.03	169	-	-
IDLE IN DRIVE	8	10	0.02	0.03	789	575	17.0
IDLE,NEUTRAL	4	16	0.02	0.03	198	850	20.3
2500 RPM NO LOAD	9	60	0.02	0.03	108	-	-
IDLE, NEUTRAL	5	20	0.02	0.03	203	850	20.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10003
DATE RUN: 10 06 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
280.	957.	1026.	825.	1080.	856.	1130.	1000.	877.	867.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.6	0	1	1400		GOOD					850	
HOT TRANSIENT	1.8	0	0	750		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGL QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.44	29.44	29.44		29.44	29.44	29.44
SAMPLING TIME - SEC	527	868	506		763	1397	125
DISTANCE TRAVELLED- MILES	3.745	3.998	3.639		10.259	13.486	0.771
DILUTION FACTOR	4.73	8.97	6.47		4.49	5.98	8.94
VOLUME - VMIX (CU FT)	2667.36	4389.05	2560.14		3863.30	7111.07	631.01
FUEL ECONOMY -MILES/GAL	8.17	10.22	11.39	9.98	14.65	14.02	13.65
FUEL ECONOMY - KM/LITER	3.47	4.34	4.84	4.24	6.23	5.96	5.80

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	11.09	6.89	1.58	0.98	1.91	1.19	3.65	2.27	0.44	0.27	0.90	0.56	0.55	0.34
CARBON MONOXIDE	149.55	92.95	37.68	23.42	37.84	23.52	60.99	37.91	13.19	8.20	27.67	17.20	3.81	2.37
NOX - NO2	5.44	3.38	1.36	0.85	1.46	0.91	2.24	1.39	0.82	0.51	0.99	0.61	1.37	0.85
NOX CORRECTED	4.09	2.54	1.03	0.64	1.10	0.68	1.68	1.05	0.61	0.38	0.74	0.46	1.03	0.64
CARBON DIOXIDE	760.97	472.95	760.23	472.49	674.01	418.90	736.96	458.03	552.79	343.56	554.56	344.66	609.20	378.62

	MG/MI	MG/KM
ALDEHYDE	112.81	70.11
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	18.07	11.31
SULFATE	0.36	0.22

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	81	20	0.95	0.73	229	-	-
30 MPH STEADY STATE	12	10	0.02	0.03	167	-	-
IDLE IN DRIVE	8	9	0.02	0.03	754	590	16.8
IDLE,NEUTRAL	44	25	0.02	0.03	186	800	20.3
2500 RPM NO LOAD	35	22	0.02	0.03	115	-	-
IDLE, NEUTRAL	10	12	0.02	0.03	194	850	20.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10201
DATE RUN: 09 30 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 11 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
246.	962.	1072.	852.			1157.	1031.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.8	0	0	1000		FAIR	HES M	HES T			850	
HOT TRANSIENT	0.9	0	0	725		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE			
BAROMETRIC PRESSURE	29.26		29.26		29.26				29.26	
SAMPLING TIME - SEC	NA		0		NA				760	
DISTANCE TRAVELLED- MILES	3.609		3.933		3.599				10.235	
DILUTION FACTOR	4.85		9.64		6.47				4.42	
VOLUME - VMIX (CU FT)	2534.59		4364.02		2538.49				3840.29	
FUEL ECONOMY -MILES/GAL	8.55		10.94		11.41		10.45		14.53	
FUEL ECONOMY - KM/LITER	3.63		4.65		4.85		4.44		6.18	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	10.37	6.45	0.87	0.54	1.17	0.73	2.91	1.81	0.46	0.28
CARBON MONOXIDE	138.47	86.06	23.62	14.68	30.13	18.73	49.02	30.47	15.42	9.58
NOX - NO2	4.74	2.95	1.41	0.88	1.38	0.86	2.09	1.30	0.85	0.53
NOX CORRECTED	3.65	2.27	1.08	0.67	1.06	0.66	1.60	1.00	0.65	0.40
CARBON DIOXIDE	739.32	459.49	733.64	455.96	690.37	429.07	723.02	449.36	556.66	345.97
							MG/MI	MG/KM		
ALDEHYDE							171.84	106.80		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10202
DATE RUN: 10 07 77
CAR: 1977 FORD LTD 49 STATE VIN: 7H63H157057 DRIVER: G S HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
294	930	1021.	818.			1094.	940.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.1	0	1	1000		GOOD	HES M	HES M	HES M	HES M	850	
HOT TRANSIENT	1.4	0	0	700		ROUG					700	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.60	29.60	29.60		29.59
SAMPLING TIME - SEC	490	890	506		764
DISTANCE TRAVELLED- MILES	3.679	3.963	3.632		10.239
DILUTION FACTOR	4.99	9.75	6.80		4.96
VOLUME - VMIX (CU FT)	2609.46	4410.74	2577.93		3884.98
FUEL ECONOMY -MILES/GAL	8.67	11.00	11.84	10.61	16.03
FUEL ECONOMY - KM/LITER	3.69	4.68	5.03	4.51	6.82

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	7.43	4.62	1.05	0.65	1.47	0.92	2.49	1.54	0.35	0.22
CARBON MONOXIDE	144.43	89.76	27.93	17.36	31.63	19.66	53.05	32.97	9.66	6.00
NOX - NO2	4.34	2.70	1.44	0.90	1.41	0.87	2.03	1.26	0.87	0.54
NOX CORRECTED	3.30	2.05	1.10	0.68	1.07	0.66	1.54	0.96	0.66	0.41
CARBON DIOXIDE	720.82	447.99	718.54	446.57	657.24	408.48	702.30	436.48	509.16	316.45

	MG/MI	MG/KM
ALDEHYDE	135.90	84.46
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10401
DATE RUN: 09 29 77
CAR: 1977 FORD LTD 49 STATE VIN: 7H63H157057 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
312.	994.	1056.	878.	1098.	901.	1138.	1008.	935.	886.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	IDLE VAC
COLD TRANSIENT	1.5	0	1	1700		GOOD	STAL 16S				800	
HOT TRANSIENT	1.0	0	0	925		GOOD					575	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.33	29.33	29.33		29.33	29.33	29.33
SAMPLING TIME - SEC	505	873	505		760	1397	125
DISTANCE TRAVELLED- MILES	3.564	3.874	3.572		10.182	13.336	0.777
DILUTION FACTOR	5.43	9.54	6.93		4.88	6.35	7.68
VOLUME - VMIX (CU FT)	2576.28	4377.41	2543.35		3852.00	7089.45	627.38
FUEL ECONOMY -MILES/GAL	9.28	10.59	12.08	10.64	15.87	14.80	11.83
FUEL ECONOMY - KM/LITER	3.94	4.50	5.14	4.52	6.75	6.29	5.03

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	5.28	3.28	0.61	0.38	1.43	0.89	1.80	1.12	0.35	0.22	0.75	0.47	0.58	0.36
CARBON MONOXIDE	83.08	51.64	18.29	11.37	28.01	17.41	34.30	21.32	11.13	6.92	26.10	16.22	5.21	3.24
NOX - NO2	4.97	3.09	2.04	1.27	1.35	0.84	2.45	1.52	0.84	0.52	1.00	0.62	1.08	0.67
NOX CORRECTED	3.92	2.44	1.61	1.00	1.06	0.66	1.93	1.20	0.66	0.41	0.79	0.49	0.85	0.53
CARBON DIOXIDE	760.55	472.69	764.71	475.27	648.74	403.19	732.14	455.03	512.02	318.22	525.88	326.83	701.88	436.22

	MG/MI	MG/KM
ALDEHYDE	160.83	99.96
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	32.15	20.07
SULFATE	0.43	0.27

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	38	40	1.00	0.52	224	-	-
30 MPH STEADY STATE	14	10	0.25	0.03	176	-	-
IDLE IN DRIVE	10	11	0.05	0.03	167	575	16.5
IDLE,NEUTRAL	29	25	0.01	0.03	177	1850	20.0
2500 RPM NO LOAD	21	50	0.05	0.03	56	-	-
IDLE, NEUTRAL	10	28	0.01	0.03	175	825	19.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10402
DATE RUN: 10 10 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 23 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
300.	950.	1032.	822.	1070.	870.	1117.	968.	901.	854.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	11.9	1	0	1650		GOOD	HES T	HES T			825	
HOT TRANSIENT	0.8	0	0	675		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SLIGHT SLIP ON ROLLS - LAST RUN ODOMETER READING 8499,LIGHT OFF EST.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SLT	FSC
BAROMETRIC PRESSURE	29.35	29.35	29.35		29.35	29.35	29.35
SAMPLING TIME - SEC	514	868	505		763	1397	124
DISTANCE TRAVELLED- MILES	3.613	3.931	3.605		10.219	13.385	0.781
DILUTION FACTOR	5.54	9.76	6.87		4.98	6.31	9.48
VOLUME - VMIX (CU FT)	2590.14	4378.48	2546.61		3852.14	7094.95	626.81
FUEL ECONOMY -MILES/GAL	9.54	10.94	12.06	10.89	16.27	14.73	14.80
FUEL ECONOMY - KM/LITER	4.06	4.65	5.13	4.63	6.92	6.26	6.29

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SLT G/MI	SLT G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	5.07	3.15	0.83	0.52	1.37	0.85	1.85	1.15	0.43	0.27	0.91	0.57	0.54	0.34
CARBON MONOXIDE	92.97	57.78	23.54	14.63	32.17	20.00	40.19	24.98	12.58	7.82	28.34	17.61	7.44	4.62
NOX - NO2	4.84	3.01	1.48	0.92	1.32	0.82	2.13	1.32	0.80	0.50	0.94	0.58	1.10	0.68
NOX CORRECTED	3.89	2.42	1.19	0.74	1.06	0.66	1.71	1.06	0.64	0.40	0.75	0.47	0.89	0.55
CARBON DIOXIDE	720.75	447.95	730.04	453.72	643.64	400.03	704.57	437.89	496.46	308.55	524.37	325.90	555.66	345.34

	MG/MI	MG/KM
ALDEHYDE	135.96	84.50
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	19.12	11.96
SULFATE	0.34	0.21

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	66	40	0.65	0.70	190	-	-
30 MPH STEADY STATE	11	20	0.02	0.03	161	-	-
IDLE IN DRIVE	67	19	0.02	0.03	753	575	16.5
IDLE,NEUTRAL	45	42	0.02	0.03	218	825	20.0
2500 RPM NO LOAD	34	35	0.02	0.03	119	-	-
IDLE, NEUTRAL	25	28	0.02	0.03	208	800	20.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10601
DATE RUN: 09 07 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 41 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1109.	897.	1186.	944.	1235.	1097.	864.	729.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.1	0	0				HES T	STUM T				
HOT TRANSIENT	2.4	1	0									

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: INITIAL TEST - ODOMETER AT 7550.4

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.40	29.40	29.39		29.39	29.39	29.39
SAMPLING TIME - SEC	505	867	507		761	1337	125
DISTANCE TRAVELLED- MILES	3.614	3.946	3.605		10.169	13.539	0.777
DILUTION FACTOR	5.78	10.56	6.99		4.51	6.01	9.65
VOLUME - VMIX (CU FT)	2547.66	4377.95	2561.87		3844.34	7092.70	628.24
FUEL ECONOMY -MILES/GAL	10.60	12.44	12.68	12.07	15.22	14.73	15.56
FUEL ECONOMY - KM/LITER	4.51	5.29	5.39	5.13	6.47	6.26	6.61

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	3.06	1.90	0.76	0.47	1.67	1.04	1.48	0.92	0.54	0.33	0.66	0.41	0.09	0.06
CARBON MONOXIDE	66.92	41.59	23.08	14.34	35.08	21.80	35.36	21.97	19.89	12.36	29.22	18.16	9.21	5.72
NOX - NO2	2.59	1.61	1.44	0.90	1.43	0.89	1.68	1.04	0.92	0.57	1.05	0.65	1.10	0.68
NOX CORRECTED	2.24	1.39	1.24	0.77	1.23	0.77	1.44	0.90	0.80	0.50	0.90	0.56	0.95	0.59
CARBON DIOXIDE	709.86	441.18	664.27	412.85	629.03	390.95	664.05	412.71	541.22	336.37	545.51	339.04	547.17	340.07

	MG/MI	MG/KM
ALDEHYDE	177.51	110.32
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	102.52	63.98
SULFATE	1.21	0.75

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	146	80	0.70	1.20	232	-	-
30 MPH STEADY STATE	10	33	0.01	0.03	173	-	-
IDLE IN DRIVE	42	58	0.01	0.03	147	775	16.8
IDLE,NEUTRAL	7	40	0.01	0.03	656	550	16.3
2500 RPM NO LOAD	22	29	0.02	0.02	132	-	-
IDLE, NEUTRAL	20	40	0.03	0.03	167	0	0.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10602
DATE RUN: 09 28 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 38 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
141.	603.	1065.				1148.	1020.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.2	0	0	1300		GOOD	HES 160S				575	
HOT TRANSIENT	1.1	0	0	750		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.19		29.19		29.19				29.19	
SAMPLING TIME - SEC	505		870		505				764	
DISTANCE TRAVELLED- MILES	3.517		3.905		3.593				10.257	
DILUTION FACTOR	5.77		9.87		6.79				4.75	
VOLUME - VMIX (CU FT)	2533.06		4351.74		2528.62				3832.75	
FUEL ECONOMY -MILES/GAL	10.31		11.53		12.48		11.49		16.26	
FUEL ECONOMY - KM/LITER	4.38		4.90		5.30		4.88		6.91	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.80	2.36	0.71	0.44	1.54	0.96	1.57	0.98	0.32	0.20
CARBON MONOXIDE	78.03	48.49	19.64	12.21	32.05	19.92	34.93	21.71	14.48	9.00
NOX - NO2	2.48	1.54	1.54	0.96	1.30	0.81	1.66	1.03	0.78	0.48
NOX CORRECTED	2.11	1.31	1.31	0.81	1.11	0.69	1.42	0.88	0.66	0.41
CARBON DIOXIDE	713.42	443.39	725.20	450.71	645.45	401.15	701.01	435.68	513.95	319.42
							MG/MI	MG/KM		
ALDEHYDE							154.99	96.33		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10701
DATE RUN: 09 06 77
CAR: 1977 FORD LTD 49 STATE VIN: 7H63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 59 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
140.	653.	1073.	906.			1223.	1096.	989.	962.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			GOOD	HES H-4S					
HOT TRANSIENT		0	0			GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FSC CYCLE RUN WITHOUT SET CYLE - NO F3M RUN - MISTAKE IN FOLLOWING PROC.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		FSC	
BAROMETRIC PRESSURE	29.30		29.37		29.37				29.38		29.38	
SAMPLING TIME - SEC	505		873		505				762		825	
DISTANCE TRAVELLED- MILES	3.635		3.986		3.629				10.265		0.769	
DILUTION FACTOR	5.67		10.12		6.90				4.34		9.98	
VOLUME - VMIX (CU FT)	2542.75		4370.90		2544.46				3044.69		629.70	
FUEL ECONOMY -MILES/GAL	10.01		11.59		12.21		11.38		14.30		15.29	
FUEL ECONOMY - KM/LITER	4.26		4.93		5.19		4.84		6.08		6.50	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.31	2.06	0.78	0.49	1.98	1.23	1.63	1.01	0.67	0.42	0.39	0.24
CARBON MONOXIDE	76.79	47.72	24.98	15.53	39.93	24.81	39.67	24.65	25.42	15.80	10.68	6.64
NOX - NO2	2.02	1.26	1.28	0.80	1.23	0.77	1.42	0.88	0.90	0.56	1.07	0.66
NOX CORRECTED	1.88	1.17	1.19	0.74	1.15	0.71	1.32	0.82	0.84	0.52	0.99	0.62
CARBON DIOXIDE	710.47	441.56	685.09	425.79	620.66	385.74	672.79	418.14	546.89	339.90	532.85	331.17
							MG/MI	MG/KM				
ALDEHYDE							191.40	118.96				
HYDROGEN SULFIDE							NOT DETECTED					

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10702
DATE RUN: 09 27 77
CAR: 1977 FORD LTD 49 STATE VIN: 7D63M157057 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 53 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
139.	609.	1074.	883.			1198.	1050.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

EIP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.05	0	0	1275		GOOD	HES M	HES TR			575.	
HOT TRANSIENT	1.20	0	0	850.		GOOD					550.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.03		29.03		29.03				29.04	
SAMPLING TIME - SEC	504		873		504				NA	
DISTANCE TRAVELLED- MILES	3.613		3.944		3.570				10.204	
DILUTION FACTOR	5.60		9.60		6.55				4.17	
VOLUME - VMIX (CU FT)	2512.61		4333.85		2517.02				3809.98	
FUEL ECONOMY -MILES/GAL	10.32		11.29		11.90		11.23		14.24	
FUEL ECONOMY - KM/LITER	4.39		4.80		5.06		4.77		6.05	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.59	2.23	0.96	0.60	1.75	1.09	1.71	1.06	0.65	0.40
CARBON MONOXIDE	75.52	46.93	32.28	20.06	46.29	28.77	44.96	27.95	24.53	15.24
NOX - NO2	2.28	1.42	1.25	0.78	1.12	0.70	1.43	0.89	0.78	0.48
NOX CORRECTED	2.07	1.28	1.13	0.70	1.02	0.63	1.29	0.80	0.71	0.44
CARBON DIOXIDE	717.17	445.73	720.26	447.64	656.60	408.08	702.38	436.53	573.43	356.39
							MG/MI	MG/KM		
ALDEHYDE							179.71	111.69		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10801
DATE RUN: 09 09 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 86 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
133.	666.	1078.	901.	1199.	947.	1253.	1127.	864.	809.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CHANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			GOOD						
HOT TRANSIENT		0	0			GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.34		29.34		29.34				29.33		29.33		29.33	
SAMPLING TIME - SEC	506		867		505				825		1396		125	
DISTANCE TRAVELLED- MILES	3.634		3.991		3.638				10.324		13.581		0.773	
DILUTION FACTOR	5.99		10.59		6.76				4.02		5.48		8.71	
VOLUME - VMIX (CU FT)	2541.26		4373.90		2541.54				3848.92		7076.23		629.45	
FUEL ECONOMY -MILES/GAL	11.08		12.72		12.58		12.31		13.72		13.57		13.86	
FUEL ECONOMY - KM/LITER	4.71		5.41		5.35		5.23		5.84		5.77		5.89	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.14	1.95	0.77	0.48	2.31	1.44	1.67	1.04	0.82	0.51	1.17	0.73	1.75	1.09
CARBON MONOXIDE	63.79	39.64	24.97	15.52	47.84	29.73	39.14	24.33	33.10	20.57	47.86	29.75	46.91	29.16
NOX - NO2	1.98	1.23	1.19	0.74	1.18	0.73	1.35	0.84	0.80	0.50	1.03	0.64	1.02	0.63
NOX CORRECTED	2.09	1.30	1.25	0.78	1.24	0.77	1.42	0.88	0.85	0.53	1.09	0.67	1.08	0.67
CARBON DIOXIDE	678.65	421.78	645.34	401.08	612.29	380.54	643.18	399.74	582.31	361.91	565.38	351.39	551.30	342.63

	MG/MI	MG/KM
ALDEHYDE	147.70	91.79
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	89.34	55.76
SULFATE	1.12	0.69

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	212	89	1.60	1.74	224	-	-
30 MPH STEADY STATE	14	20	0.08	0.09	135	-	-
IDLE IN DRIVE	6	30	0.03	0.03	77	500	15.0
IDLE,NEUTRAL	19	22	0.03	0.03	263	725	20.3
2500 RPM NO LOAD	30	34	0.01	0.03	113	-	-
IDLE, NEUTRAL	22	30	0.02	0.03	129	0	0.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10802
DATE RUN: 09 26 77
CAR: 1977 FORD LTD 49 STATE VIN: 7D63H157057 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 65 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
144.	640.	1090.	891.	1164.	941.	1207.	1100.	884.	865.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.7	0	0	1200		GOOD	HES M-2S	HES T-			575	
HOT TRANSIENT	1.6	0	0	825		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.93	28.93	28.93		28.94	28.94	28.94
SAMPLING TIME - SEC	NA	0	504		NA	NA	125
DISTANCE TRAVELLED- MILES	3.617	3.966	3.615		10.242	13.520	0.771
DILUTION FACTOR	5.58	9.94	6.52		4.21	5.77	9.18
VOLUME - VMIX (CU FT)	2513.16	4314.01	2506.01		3798.58	6989.56	622.05
FUEL ECONOMY -MILES/GAL	10.33	11.92	12.09	11.60	14.43	14.30	14.79
FUEL ECONOMY - KM/LITER	4.39	5.07	5.14	4.93	6.14	6.08	6.29

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.17	1.97	0.78	0.48	2.16	1.35	1.65	1.02	0.74	0.46	1.13	0.70	1.14	0.71
CARBON MONOXIDE	77.78	48.34	29.12	18.10	53.78	33.43	45.80	28.47	34.05	21.16	47.44	29.49	34.37	21.36
NOX - NO2	1.81	1.12	1.14	0.71	0.99	0.61	1.24	0.77	0.66	0.41	0.83	0.52	0.82	0.51
NOX CORRECTED	1.90	1.18	1.19	0.74	1.04	0.64	1.30	0.81	0.69	0.43	0.87	0.54	0.86	0.53
CARBON DIOXIDE	713.59	443.50	685.27	425.90	631.77	392.65	676.54	420.47	549.89	341.76	533.07	331.31	533.55	331.61

	MG/MI	MG/KM
ALDEHYDE	172.63	107.41
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE		
SULFATE		

	MG/MI	MG/KM
	24.64	15.41
	0.46	0.29

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	35	80	2.12	2.00	169	-	-
30 MPH STEADY STATE	2	12	0.02	0.03	134	-	-
IDLE IN DRIVE	2	11	0.03	0.03	665	550	16.0
IDLE,NEUTRAL	5	22	0.01	0.03	117	925	20.1
2500 RPM NO LOAD	4	20	0.03	0.03	95	-	-
IDLE, NEUTRAL	4	20	0.01	0.03	132	850	19.9

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10611
DATE RUN: 09 12 77 AIR CONDITIONER USED
CAR: 1977 FORD LTD 49 STATE VIN: 7B63M157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 83 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
122.	690.	1083.	907.	1171.	926.	1197.	1082.	850.	815.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			GOOD	HES T-2S					
HOT TRANSIENT		0	0			GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.51	29.51	29.51		29.51	29.51	29.51
SAMPLING TIME - SEC	505	868	505		763	1398	125
DISTANCE TRAVELLED- MILES	3.581	3.924	3.574		10.157	13.325	0.765
DILUTION FACTOR	5.73	9.61	6.63		4.68	6.05	7.80
VOLUME - VMIX (CU FT)	2559.30	4396.00	2557.34		3868.14	7125.61	632.53
FUEL ECONOMY -MILES/GAL	10.33	11.25	11.98	11.23	15.74	14.59	12.12
FUEL ECONOMY - KM/LITER	4.39	4.78	5.10	4.77	6.69	6.20	5.15

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.30	2.05	1.08	0.67	2.31	1.43	1.87	1.16	0.73	0.45	1.14	0.71	1.64	1.02
CARBON MONOXIDE	88.57	55.05	42.92	26.68	63.10	39.21	57.77	35.90	28.73	17.86	47.24	29.36	44.98	27.96
NOX - NO2	2.12	1.32	1.45	0.90	1.35	0.84	1.56	0.97	0.72	0.45	0.96	0.60	0.89	0.55
NOX CORRECTED	2.20	1.37	1.51	0.94	1.40	0.87	1.62	1.01	0.75	0.46	1.00	0.62	0.92	0.57
CARBON DIOXIDE	696.84	433.09	706.48	439.08	622.94	387.16	681.80	423.74	508.04	315.75	521.26	323.95	645.27	401.04

	MG/MI	MG/KM
ALDEHYDE	152.90	95.03
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	38.80	24.23
SULFATE	0.56	0.35

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	226	20	1.20	2.10	24	-	-
30 MPH STEADY STATE	19	13	0.10	0.43	88	-	-
IDLE IN DRIVE	144	10	0.09	0.30	329	500	15.0
IDLE,NEUTRAL	180	120	0.90	0.74	100	800	20.3
2500 RPM NO LOAD	26	30	0.20	0.21	72	-	-
IDLE, NEUTRAL	11	15	0.02	0.03	289	700	19.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10612
DATE RUN: 09 23 77 AIR CONDITIONER USLD
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 85 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
137.	665.	1109.	913.	1184.	951.	1227.	1092.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.1	2	0	850.		GOOD	HES	HES			800.	
HOT TRANSIENT	2.2	0	0	700.		GOOD					500.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.35	29.36
SAMPLING TIME - SEC	505	842	507		760	1397
DISTANCE TRAVELLED- MILES	3.612	3.981	3.626		10.324	13.596
DILUTION FACTOR	5.88	5.98	6.27		4.36	5.94
VOLUME - VMIX (CU FT)	2430.36	4376.37	2555.49		3856.62	7094.89
FUEL ECONOMY -MILES/GAL	11.20	10.61	11.44	10.94	14.89	14.62
FUEL ECONOMY - KM/LITER	4.76	4.51	4.86	4.65	6.33	6.21

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	3.32	2.06	1.25	0.77	2.92	1.82	2.13	1.32	0.72	0.45	1.16	0.72
CARBON MONOXIDE	66.18	41.13	48.08	29.86	60.10	37.35	55.05	34.21	31.87	19.81	49.67	30.87
NOX - NO2	2.00	1.24	1.51	0.94	1.42	0.88	1.59	0.99	0.63	0.39	0.86	0.53
NOX CORRECTED	2.10	1.31	1.59	0.99	1.49	0.92	1.66	1.03	0.66	0.41	0.90	0.56
CARBON DIOXIDE	665.83	413.82	744.16	462.50	660.67	410.61	705.46	438.44	534.87	332.42	516.36	320.92

	MG/MI	MG/KM
ALDEHYDE	175.78	109.25
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE		29.09 18.20
SULFATE		0.55 0.34

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10901
DATE RUN: 09 13 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 106 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SFT		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
124.	721.	1052.	870.			1246.	1048.		

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0				GOOD						
HOT TRANSIENT		0				GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	FSC
BAROMETRIC PRESSURE	29.22	29.22	29.22		29.22	29.22
SAMPLING TIME - SEC	505	864	505		763	125
DISTANCE TRAVELLED- MILES	3.596	3.914	3.598		10.133	0.766
DILUTION FACTOR	6.00	10.68	7.17		4.63	9.71
VOLUME - VMIX (CU FT)	2516.81	4348.50	2528.20		3830.36	622.33
FUEL ECONOMY -MILES/GAL	10.92	12.37	13.04	12.21	15.56	15.35
FUEL ECONOMY - KM/LITER	4.64	5.26	5.54	5.19	6.62	6.53

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	2.59	1.61	0.81	0.50	2.08	1.29	1.52	0.95	0.69	0.43	1.24	0.77
CARBON MONOXIDE	71.05	44.16	29.04	18.05	48.27	30.00	42.94	26.69	28.48	17.70	31.95	19.86
NOX - NO2	0.84	0.52	0.96	0.60	0.86	0.53	0.91	0.56	0.58	0.36	0.65	0.41
NOX CORRECTED	0.98	0.61	1.12	0.70	1.00	0.62	1.06	0.66	0.68	0.43	0.77	0.48
CARBON DIOXIDE	680.43	422.89	658.33	409.15	588.10	365.51	643.70	400.06	514.78	319.94	515.22	320.21

	MG/MI	MG/KM
ALDEHYDE	112.65	70.01
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10902
DATE RUN: 09 22 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
	133.	723.	1080.	686.			1210.	1073.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1100		GOOD					525	
HOT TRANSIENT	2.1	0	0	750		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.43	29.43	29.43		29.43
SAMPLING TIME - SEC	505	872	510		762
DISTANCE TRAVELLED- MILES	3.667	4.002	3.647		10.274
DILUTION FACTOR	6.28	10.52	7.01		4.98
VOLUME - VMIX (CU FT)	2554.40	4374.09	2571.38		3862.11
FUEL ECONOMY -MILES/GAL	11.59	12.38	12.81	12.32	16.94
FUEL ECONOMY - KM/LITER	4.93	5.26	5.45	5.24	7.20

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.46	1.53	0.68	0.42	2.11	1.31	1.44	0.89	0.52	0.32
CARBON MONOXIDE	59.37	36.90	25.00	15.54	44.37	27.58	37.33	23.20	17.22	10.70
NOX - NO2	0.84	0.52	1.07	0.66	0.88	0.55	0.97	0.60	0.53	0.33
NOX CORRECTED	0.99	0.62	1.26	0.78	1.03	0.64	1.14	0.71	0.62	0.39
CARBON DIOXIDE	653.00	405.84	664.66	413.09	605.81	376.51	646.27	401.66	487.28	302.85

	MG/MI	MG/KM
ALDEHYDE	107.44	66.78
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10911
DATE RUN: 09 14 77 AIR CONDITIONER USED
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: G S MYER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 118 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
130.	722.	1093.	901.			1213.	1087.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			GOOD	HES M	STUM T			675	
HOT TRANSIENT		0	0			GOOD					650	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.24	29.24	29.24		29.26
SAMPLING TIME - SEC	506	872	506		763
DISTANCE TRAVELLED- MILES	3.556	3.866	3.550		10.082
DILUTION FACTOR	5.27	8.58	6.08		3.93
VOLUME - VMIX (CU FT)	2536.07	4350.14	2551.64		3834.30
FUEL ECONOMY -MILES/GAL	9.50	9.89	10.86	10.05	13.19
FUEL ECONOMY - KM/LITER	4.04	4.21	4.62	4.27	5.61

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.50	2.18	1.94	1.21	3.54	2.20	2.70	1.68	1.21	0.75
CARBON MONOXIDE	102.70	63.83	73.54	45.71	97.65	60.69	86.13	53.53	54.89	34.11
NOX - NO2	1.13	0.70	1.15	0.71	1.22	0.76	1.17	0.72	0.71	0.44
NOX CORRECTED	1.42	0.88	1.44	0.90	1.53	0.95	1.46	0.91	0.89	0.55
CARBON DIOXIDE	747.47	464.56	761.86	473.50	640.36	397.98	725.74	451.05	572.89	356.06

	MG/MI	MG/KM
ALDEHYDE	132.53	82.37
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 10912
DATE RUN: 09 21 77 AIR CONDITIONER USED
CAR: 1977 FORD LTD 49 STATE VIN: 7H63H157057 DRIVER: HYEK - WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
133.	729.	1106.	905.			1217.	1087.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.8	0	0	650.		GOOD					490.	
HOT TRANSIENT	2.7	0	0	600.		GOOD					475.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.34	29.34	29.34		29.33
SAMPLING TIME - SEC	505	870	509		764
DISTANCE TRAVELLED- MILES	3.647	4.020	3.649		10.288
DILUTION FACTOR	5.34	8.67	6.15		4.27
VOLUME - VMIX (CU FT)	2552.70	4367.20	2564.42		3848.36
FUEL ECONOMY -MILES/GAL	9.76	10.35	11.33	10.47	14.59
FUEL ECONOMY - KM/LITER	4.15	4.40	4.82	4.45	6.21

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.18	1.97	1.35	0.84	2.85	1.77	2.13	1.32	0.86	0.54
CARBON MONOXIDE	88.01	54.70	55.96	34.78	73.04	45.40	67.15	41.73	39.52	24.56
NOX - NO2	1.08	0.67	1.43	0.89	1.44	0.89	1.36	0.84	0.69	0.43
NOX CORRECTED	1.29	0.80	1.71	1.06	1.72	1.07	1.63	1.01	0.82	0.51
CARBON DIOXIDE	747.39	464.51	752.41	467.63	647.93	402.69	723.05	449.38	534.15	331.98

	MG/MI	MG/KM
ALDEHYDE	120.93	75.16
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 11101
DATE RUN: 09 15 77
CAR: 1977 FORD LTD 49 STATE VIN: 7B63H157057 DRIVER: FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 173 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
138.	686.	1055.	859.	1095.	89.	1118.	1002.	767.	750.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			ROUG	HES 1				425	
HOT TRANSIENT		0	0									

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY 1-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.55	29.55	29.55		29.56	29.56	29.56
SAMPLING TIME - SEC	502	502	508		762	1397	125
DISTANCE TRAVELLED- MILES	3.548	3.969	3.630		10.232	13.488	0.778
DILUTION FACTOR	5.97	10.21	6.85		4.11	5.82	8.53
VOLUME - VMIX (CU FT)	2582.22	4399.52	2574.91		3877.05	7130.60	632.78
FUEL ECONOMY -MILES/GAL	10.72	12.02	12.50	11.85	13.87	14.19	13.70
FUEL ECONOMY - KM/LITER	4.56	5.11	5.32	5.04	5.90	6.03	5.82

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	3.43	2.13	2.18	1.36	3.62	2.25	2.83	1.76	2.92	1.81	2.63	1.64	7.92	4.92
CARBON MONOXIDE	92.68	57.60	65.12	40.47	91.58	56.92	77.96	48.45	113.31	70.42	93.54	58.14	160.18	99.55
NOX - NO2	0.89	0.55	0.64	0.40	0.50	0.31	0.65	0.40	0.39	0.24	0.45	0.28	0.65	0.40
NOX CORRECTED	1.64	1.02	1.18	0.74	0.92	0.57	1.21	0.75	0.72	0.45	0.83	0.51	1.20	0.74
CARBON DIOXIDE	658.67	409.36	617.79	383.96	543.88	338.02	606.02	376.64	442.95	275.30	460.59	286.26	361.42	224.63

	MG/MI	MG/KM
ALDEHYDE	130.48	81.10
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	61.03	38.14
SULFATE	0.94	0.58

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	312	112	4.15	4.20	115	-	-
30 MPH STEADY STATE	316	121	4.08	3.60	83	-	-
IDLE IN DRIVE	56	50	0.14	0.23	373	890	20.5
IDLE,NEUTRAL	133	90	0.12	0.10	27	600	18.0
2500 RPM NO LOAD	365	130	2.31	1.60	80	-	-
IDLE, NEUTRAL	365	79	0.50	0.03	103	800	20.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 11102
DATE RUN: 09 20 77
CAR: 1977 FORD LTD 49 STATE VIN: 7D63H157057 DRIVER: HYEK - WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 176 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
139.	689.	1085.	869.	1130.	906.	1153.	1104.	876.	798.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			ROUG					490.	
HOT TRANSIENT		0	0			GOOD					750.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.14	29.14	29.14		29.14	29.14	29.14
SAMPLING TIME - SEC	508	869	508		NA	1398	NA
DISTANCE TRAVELLED- MILES	3.632	3.987	3.632		10.258	13.531	0.784
DILUTION FACTOR	5.94	10.06	6.54		4.36	5.66	7.86
VOLUME - VMIX (CU FT)	2541.95	4333.36	2536.96		3816.94	7029.50	623.64
FUEL ECONOMY -MILES/GAL	10.85	11.98	12.05	11.75	14.93	14.05	12.71
FUEL ECONOMY - KM/LITER	4.61	5.09	5.12	4.99	6.35	5.97	5.40

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	2.96	1.84	1.74	1.08	3.67	2.28	2.51	1.56	2.13	1.33	2.35	1.46	7.14	4.44
CARBON MONOXIDE	82.69	51.39	54.15	33.65	95.18	59.16	71.15	44.22	78.33	48.68	89.67	55.73	177.88	110.55
NOX - NO2	0.70	0.43	0.61	0.38	0.59	0.36	0.62	0.39	0.36	0.22	0.39	0.24	0.22	0.14
NOX CORRECTED	1.32	0.82	1.16	0.72	1.12	0.69	1.18	0.73	0.68	0.42	0.75	0.46	0.42	0.26
CARBON DIOXIDE	660.52	414.25	639.04	397.17	564.14	350.61	624.32	388.02	455.60	283.16	473.77	294.45	385.68	239.70

	MG/MI	MG/KM
ALDEHYDE	107.71	66.94
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	15.93	9.93
SULFATE	0.16	0.10

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	49	120	3.80	1.03	8	-	-
30 MPH STEADY STATE	59	150	2.78	0.34	2	-	-
IDLE IN DRIVE	7	22	0.10	0.03	80	550	16.5
IDLE,NEUTRAL	23	42	0.10	0.03	44	925	20.8
2500 RPM NO LOAD	63	120	2.45	0.53	1	-	-
IDLE, NEUTRAL	46	40	0.02	0.03	118	800	20.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 11111
DATE RUN: 09 16 77 AIR CONDITIONER USED
CAR: 1977 FORD LTD 49 STATE VIN: 7U63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 175 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
138.	716.	1089.	874.	1137.	907.	1177.	1085.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	0			GOOD	HES M				425.	
HOT TRANSIENT		0	0			ROUG	HES M				425.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SULFATE TEST RUN FOLLOWING PREP RUN FOR LATER TEST

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.50	29.50	29.50		29.50	29.50
SAMPLING TIME - SEC	508	867	525		NA	1337
DISTANCE TRAVELLED- MILES	3.628	3.997	3.622		10.283	13.592
DILUTION FACTOR	5.34	8.25	5.84		4.58	5.10
VOLUME - VMIX (CU FT)	2573.29	4391.40	2663.62		3868.77	7124.53
FUEL ECONOMY -MILES/GAL	9.68	9.73	10.18	9.84	15.49	12.42
FUEL ECONOMY - KM/LITER	4.12	4.14	4.33	4.18	6.59	5.28

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	3.35	2.08	3.33	2.07	6.67	4.15	4.24	2.63	2.10	1.31	3.08	1.91
CARBON MONOXIDE	104.20	64.76	120.71	75.02	144.87	90.04	123.88	76.99	78.22	48.61	130.93	81.37
NOX - NO2	0.97	0.60	0.88	0.55	0.97	0.60	0.93	0.58	0.49	0.31	0.66	0.41
NOX CORRECTED	1.84	1.14	1.67	1.04	1.83	1.14	1.75	1.09	0.93	0.58	1.24	0.77
CARBON DIOXIDE	728.63	452.84	698.44	434.08	609.54	378.83	680.53	422.95	434.77	270.21	488.62	303.68

	MG/MI	MG/KM
ALDEHYDE	131.55	81.76
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	38.63	24.10
SULFATE	0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 11112
DATE RUN: 09 19 77 AIR CONDITIONER USED
CAR: 1977 FORD LTD 49 STATE VIN: 7H63H157057 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 176 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 4440 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4705 LB DYNAMOMETER LOADING: 13.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
144.	746.	1069.	876.	1124.	902.	1153.	1025.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT		0	1			POOR	HES T					
HOT TRANSIENT		0	0			GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.11	29.11	29.11		29.10	29.10
SAMPLING TIME - SEC	NA	1385	510		763	1398
DISTANCE TRAVELLED- MILES	3.585	3.971	3.592		10.089	13.253
DILUTION FACTOR	5.29	8.06	5.72		3.52	4.52
VOLUME - VMIX (CU FT)	2584.68	4327.17	2547.04		3809.12	7015.80
FUEL ECONOMY -MILES/GAL	9.36	9.53	10.40	9.71	11.84	10.91
FUEL ECONOMY - KM/LITER	3.98	4.05	4.42	4.13	5.04	4.64

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	3.97	2.47	3.39	2.11	5.09	3.17	3.97	2.47	3.21	1.99	4.46	2.77
CARBON MONOXIDE	111.14	69.08	133.02	82.67	134.49	83.58	128.95	80.14	161.56	100.41	187.95	116.81
NOX - NO2	0.92	0.57	0.87	0.54	0.98	0.61	0.91	0.56	0.30	0.19	0.38	0.24
NOX CORRECTED	1.75	1.09	1.65	1.02	1.86	1.16	1.73	1.07	0.57	0.35	0.73	0.45
CARBON DIOXIDE	746.73	464.10	697.76	433.66	612.89	380.91	684.77	425.59	474.01	294.60	491.61	305.54

	COMPOSITE MG/MI	COMPOSITE MG/KM	SET MG/MI	SET MG/KM
ALDEHYDE	130.72	81.24		
HYDROGEN SULFIDE	NOT DETECTED			
PARTICULATE			23.66	14.77
SULFATE			0.33	0.21

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20001
DATE RUN: 11 28 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9M2J273821 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	FSC MAX	FSC MIN
		1103.	652.	1140.	772.	1135.	903.	950.	646.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.6	0	0	700		FAIR	HES H-30	HES H-45	HES H-60		750	
HOT TRANSIENT	0.8	0	0			GOOD					575	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: ROLLS ACTED SLIPPERY - AS IF COATED WITH ICE

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.51	29.51	29.51		29.52	29.52	29.52
SAMPLING TIME - SEC	510	867	507		764	1398	125
DISTANCE TRAVELLED- MILES	3.586	3.874	3.516		9.802	12.950	0.728
DILUTION FACTOR	3.88	9.02	6.87		5.13	6.48	8.69
VOLUME - VMIX (CU FT)	2588.86	4394.88	2570.91		3595.91	7135.15	631.02
FUEL ECONOMY -MILES/GAL	6.57	9.89	11.60	9.29	17.17	14.51	12.45
FUEL ECONOMY - KM/LITER	2.80	4.20	4.93	3.95	7.30	6.17	5.29

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	20.74	12.89	2.62	1.63	2.63	1.64	6.37	3.96	1.11	0.69	1.55	0.96	2.04	1.26
CARBON MONOXIDE	297.00	184.58	56.15	34.89	40.54	25.19	101.70	63.20	17.20	10.69	26.91	16.73	30.33	18.85
NOX - NO2	2.84	1.77	2.79	1.73	3.96	2.46	3.12	1.94	2.88	1.79	3.14	1.95	2.52	1.56
NOX CORRECTED	2.14	1.33	2.10	1.30	2.98	1.85	2.34	1.46	2.17	1.35	2.37	1.47	1.89	1.18
CARBON DIOXIDE	748.76	465.36	755.52	469.56	654.31	406.66	726.68	451.63	459.90	285.83	533.13	331.34	622.28	386.75

	MG/MI	MG/KM
ALDEHYDE	149.07	92.65
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	12.70	7.91
SULFATE	0.09	0.06

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	14	35	0.40	0.40	1859	-	-
30 MPH STEADY STATE	19	43	0.45	0.50	1081	-	-
IDLE IN DRIVE	30	80	0.58	0.55	185	550	16.8
IDLE,NEUTRAL	72	250	0.31	0.30	82	750	18.4
2500 RPM NO LOAD	13	15	0.20	0.80	261	-	-
IDLE, NEUTRAL	541	1750	0.26	0.30	84	675	18.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20003
DATE RUN: 12 01 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1221.	712.	1159.	755.	1140.	912.	926.	643.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.1	0	0	800		GOOD	HES M-14	HES M-37	HES T190		775	
HOT TRANSIENT	0.5	0	0	650		GOOD					575	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.69	28.69	28.69		28.69	28.69	28.69
SAMPLING TIME - SEC	508	868	507		764	1397	120
DISTANCE TRAVELLED- MILES	3.497	3.729	3.431		9.755	12.820	0.705
DILUTION FACTOR	3.68	8.89	6.80		4.99	6.27	8.55
VOLUME - VMIX (CU FT)	2503.75	4268.59	2496.67		3764.62	6930.96	594.19
FUEL ECONOMY -MILES/GAL	6.30	9.71	11.59	9.09	15.91	14.36	12.66
FUEL ECONOMY - KM/LITER	2.68	4.13	4.93	3.86	6.77	6.10	5.38

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	19.97	12.41	2.46	1.53	2.18	1.35	6.03	3.75	1.19	0.74	1.69	1.05	1.81	1.12
CARBON MONOXIDE	294.73	183.17	61.18	38.03	45.86	28.50	105.60	65.63	23.69	14.72	33.18	20.62	31.43	19.54
NOX - NO2	2.73	1.69	2.67	1.66	3.91	2.43	3.02	1.88	2.92	1.81	3.22	2.00	2.66	1.65
NOX CORRECTED	2.05	1.28	2.01	1.25	2.95	1.83	2.27	1.41	2.19	1.36	2.42	1.50	2.00	1.24
CARBON DIOXIDE	810.62	503.80	763.05	474.24	647.96	402.71	741.51	460.85	488.24	303.45	529.24	328.92	609.99	379.11

	MG/MI	MG/KM
ALDEHYDE	161.56	100.41
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	17.35	10.80
SULFATE	0.08	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	100	23	0.62	0.65	1670	-	-
30 MPH STEADY STATE	126	32	0.60	0.70	1007	-	-
IDLE IN DRIVE	203	74	0.54	0.50	174	525	15.0
IDLE,NEUTRAL	124	32	0.38	0.45	82	700	17.4
2500 RPM NO LOAD	55	13	0.90	0.85	235	-	-
IDLE, NEUTRAL	125	36	0.35	0.40	79	700	18.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20201
DATE RUN: 11 23 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 4 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
		1100.	738.			11.55	926.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.7	0	0	800		GOOD	HES T	HES M			900	
HOT TRANSIENT	0.8	0	0	700		GOOD					600	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.35	29.35	29.35		29.35
SAMPLING TIME - SEC	510	868	505		764
DISTANCE TRAVELLED- MILES	3.714	4.040	3.594		10.050
DILUTION FACTOR	5.07	9.22	6.94		5.08
VOLUME - VMIX (CU FT)	2587.35	4372.34	2550.23		3857.16
FUEL ECONOMY -MILES/GAL	8.97	10.72	12.16	10.63	16.35
FUEL ECONOMY - KM/LITER	3.81	4.56	5.17	4.52	6.95

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	11.70	7.27	2.06	1.28	2.47	1.54	4.16	2.58	1.22	0.76
CARBON MONOXIDE	146.45	91.02	40.59	25.23	36.03	22.39	61.17	38.02	20.17	12.53
NOX - NO2	3.01	1.87	2.47	1.53	3.54	2.20	2.87	1.78	2.88	1.79
NOX CORRECTED	2.25	1.40	1.85	1.15	2.66	1.65	2.15	1.34	2.16	1.34
CARBON DIOXIDE	671.81	417.53	715.71	444.81	628.11	390.37	683.16	424.59	479.55	298.04

	MG/MI	MG/KM
ALDEHYDE	166.22	103.31
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20207
DATE RUN: 12 02 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 9 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1109.	718.			1151.	924.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.8	0	0	800		GOOD	HES M				750	
HOT TRANSIENT	0.5	0	0	625		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.14	29.14	29.14		29.16
SAMPLING TIME - SEC	509	866	507		764
DISTANCE TRAVELLED- MILES	3.505	3.747	3.446		9.769
DILUTION FACTOR	4.99	9.43	7.06		5.08
VOLUME - VMIX (CU FT)	2550.05	4339.44	2538.98		3825.39
FUEL ECONOMY -MILES/GAL	8.45	10.20	11.89	10.16	15.98
FUEL ECONOMY - KM/LITER	3.59	4.34	5.06	4.32	6.79

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	11.76	7.31	2.13	1.32	2.24	1.39	4.16	2.59	1.20	0.74
CARBON MONOXIDE	239.58	148.90	45.10	28.03	35.99	22.37	83.03	51.60	21.72	13.50
NOX - NO2	3.45	2.14	2.71	1.69	4.12	2.56	3.25	2.02	3.04	1.89
NOX CORRECTED	2.63	1.64	2.07	1.29	3.14	1.95	2.48	1.54	2.32	1.44
CARBON DIOXIDE	582.83	362.23	747.78	464.75	644.51	400.56	685.30	425.92	489.29	304.09

	MG/MI	MG/KM
ALDEHYDE	160.64	99.84
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20401
DATE RUN: 11 22 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 17 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1093.	638.	1165.	816.	1136.	1098.	1017.	688.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	IDLE VAC
COLD TRANSIENT	0.7	0	0	1200		GOOD	HES T				675	
HOT TRANSIENT	0.7	0	0	700		GOOD					575	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.66	29.66	29.66		29.66	29.66	29.66
SAMPLING TIME - SEC	505	868	505		763	1398	125
DISTANCE TRAVELLED- MILES	3.604	3.906	3.558		10.111	13.310	0.764
DILUTION FACTOR	5.51	9.18	7.25		5.25	6.53	9.22
VOLUME - VMIX (CU FT)	2577.03	4419.26	2571.31		3893.62	7171.24	633.66
FUEL ECONOMY -MILES/GAL	9.51	10.15	12.46	10.54	16.82	15.02	13.91
FUEL ECONOMY - KM/LITER	4.04	4.32	5.30	4.48	7.15	6.39	5.92

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	7.26	4.51	1.80	1.12	2.74	1.70	3.18	1.98	1.25	0.77	1.81	1.12	1.80	1.12
CARBON MONOXIDE	122.01	75.83	36.87	22.91	29.58	18.38	52.46	32.60	16.40	10.19	22.90	14.23	18.90	11.75
NOX - NO2	3.83	2.38	2.71	1.69	3.68	2.28	3.20	1.99	2.75	1.71	3.21	1.99	2.48	1.54
NOX CORRECTED	3.01	1.87	2.13	1.32	2.89	1.80	2.52	1.57	2.16	1.34	2.52	1.57	1.95	1.21
CARBON DIOXIDE	670.72	416.85	765.82	475.96	620.86	385.87	706.81	439.28	471.12	292.80	518.95	322.53	569.99	354.25

	MG/MI	MG/KM
ALDEHYDE	128.00	79.55
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	15.50	9.65
SULFATE	0.09	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	127	35	0.90	0.95	1529	-	-
30 MPH STEADY STATE	273	75	2.45	3.00	695	-	-
IDLE IN DRIVE	267	100	4.00	3.20	163	600	16.3
IDLE,NEUTRAL	310	80	2.80	3.40	84	850	20.6
2500 RPM NO LOAD	261	40	3.05	3.40	159	-	-
IDLE, NEUTRAL	310	90	2.70	2.80	75	850	20.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20402
DATE RUN: 12 05 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 17 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1087.	709.	1140.	775.	1139.	904.	989.	660.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.3	0	0	1150		GOOD					800	
HOT TRANSIENT	0.4	0	0	650.		GOOD					525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FINAL ODOMETER READING - 68637 MILES

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.80	28.80	28.80		28.80	28.80	28.80
SAMPLING TIME - SEC	507	868	505		766	1397	125
DISTANCE TRAVELLED- MILES	3.167	3.726	3.461		9.778	12.842	0.703
DILUTION FACTOR	4.59	8.16	7.76		5.12	6.42	8.92
VOLUME - VMIX (CU FT)	2507.22	4288.24	2512.15		3788.88	6954.45	615.93
FUEL ECONOMY -MILES/GAL	7.14	8.84	13.32	9.26	16.27	14.67	12.73
FUEL ECONOMY - KM/LITER	3.04	3.76	5.66	3.94	6.92	6.24	5.41

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	8.50	5.28	2.31	1.44	2.17	1.35	3.49	2.17	1.28	0.79	1.91	1.19	2.09	1.30
CARBON MONOXIDE	221.45	137.63	56.31	34.99	37.36	23.22	83.73	52.04	23.92	14.86	31.27	19.44	30.65	19.05
NOX - NO2	4.48	2.78	2.53	1.57	3.49	2.17	3.18	1.98	2.68	1.66	2.91	1.81	2.36	1.46
NOX CORRECTED	3.52	2.19	1.98	1.23	2.75	1.71	2.50	1.55	2.10	1.31	2.29	1.42	1.85	1.15
CARBON DIOXIDE	804.90	500.25	856.99	532.62	566.95	352.36	767.09	476.75	476.12	295.91	518.84	322.46	606.74	377.09

	MG/MI	MG/KM
ALDEHYDE	136.82	85.03
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	12.10	7.54
SULFATE	0.09	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	125	52	1.05	1.25	1508	-	-
30 MPH STEADY STATE	241	78	1.57	1.70	788	-	-
IDLE IN DRIVE	241	95	1.40	1.15	160	575	15.4
IDLE,NEUTRAL	221	70	1.45	1.60	74	800	18.8
2500 RPM NO LOAD	190	40	2.35	2.23	182	-	-
IDLE, NEUTRAL	264	70	1.30	1.10	64	775	19.1

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20601
DATE RUN: 10 25 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
		1000.	646.			997.	815.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.7	0	0	1200		GOOD	HES T-45				1200	
HOT TRANSIENT	0.6	0	0	700		GOOD					700	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: INITIAL ODOMETER READING - 67732 MILES

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.57	29.57	29.57		29.57
SAMPLING TIME - SEC	505	927	505		763
DISTANCE TRAVELLED- MILES	3.571	3.939	3.585		10.036
DILUTION FACTOR	6.37	9.37	7.47		6.05
VOLUME - VMIX (CU FT)	2563.85	4404.80	2562.73		3882.31
FUEL ECONOMY -MILES/GAL	11.45	10.96	13.57	11.67	20.21
FUEL ECONOMY - KM/LITER	4.87	4.66	5.77	4.96	8.59

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	4.67	2.90	2.12	1.32	3.02	1.88	2.89	1.79	1.69	1.05
CARBON MONOXIDE	78.70	48.91	43.18	26.83	38.82	24.13	49.26	30.61	23.56	14.64
NOX - NO2	3.77	2.34	2.21	1.37	3.94	2.45	3.00	1.86	4.38	2.72
NOX CORRECTED	3.23	2.01	1.89	1.17	3.37	2.09	2.57	1.59	3.75	2.33
CARBON DIOXIDE	625.19	388.56	722.68	449.15	573.77	356.60	662.31	411.63	390.27	242.55

	MG/MI	MG/KM
ALDEHYDE	162.20	100.81
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20602
DATE RUN: 11 21 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 41 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1107.	741.			1156.	956.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.6	0	0	1200		GOOD	HES T-29	STUM M-31			550	
HOT TRANSIENT	0.6	0	0	675		GOOD					575	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.38		29.38		29.38				29.38	
SAMPLING TIME - SEC	505		868		505				763	
DISTANCE TRAVELLED- MILES	3.568		3.910		3.580				10.068	
DILUTION FACTOR	5.40		9.42		7.29				5.30	
VOLUME - VMIX (CU FT)	2549.53		4377.72		2552.04				3860.33	
FUEL ECONOMY -MILES/GAL	9.76		10.94		13.18		11.18		17.68	
FUEL ECONOMY - KM/LITER	4.15		4.65		5.61		4.75		7.52	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.78	3.59	2.19	1.36	2.72	1.69	3.07	1.91	1.51	0.94
CARBON MONOXIDE	84.72	52.66	40.18	24.97	33.78	20.99	47.57	29.57	23.21	14.43
NOX - NO2	3.99	2.48	2.13	1.33	3.33	2.07	2.84	1.76	2.37	1.47
NOX CORRECTED	3.44	2.14	1.84	1.14	2.87	1.78	2.45	1.52	2.04	1.27
CARBON DIOXIDE	744.42	462.66	728.74	452.91	601.32	373.72	697.24	433.34	453.17	281.64
							MG/MI	MG/KM		
ALDEHYDE							144.93	90.07		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20701
DATE RUN: 10 26 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LH DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		996.	664.			1002.	8.33

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.7	0	0	1175		GOOD	MES T	MES T			510	
HOT TRANSIENT	0.7	0	0	700.		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE MES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: INITIAL ODOMETER READING 67754 MILES

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.23		29.23		29.23				29.22	
SAMPLING TIME - SEC	505		867		505				NA	
DISTANCE TRAVELLED- MILES	3.614		3.956		3.560				10.086	
DILUTION FACTOR	6.62		9.68		7.67				5.90	
VOLUME - VMIX (CU FT)	2535.56		4355.56		2541.12				3836.17	
FUEL ECONOMY -MILES/GAL	12.19		11.53		13.96		12.24		19.97	
FUEL ECONOMY - KM/LITER	5.18		4.90		5.94		5.21		8.49	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.92	2.44	2.20	1.37	2.48	1.54	2.63	1.63	1.92	1.19
CARBON MONOXIDE	66.63	41.41	43.43	26.99	35.94	22.33	46.17	28.70	27.43	17.05
NOX - NO2	3.53	2.19	2.08	1.29	3.77	2.34	2.83	1.76	4.07	2.53
NOX CORRECTED	3.25	2.02	1.91	1.19	3.48	2.16	2.61	1.62	3.75	2.33
CARBON DIOXIDE	599.89	372.83	682.87	424.41	561.75	349.13	633.14	393.50	388.54	241.48
							MG/MI	MG/KM		
ALDEHYDE							176.73	109.84		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20702
DATE RUN: 11 18 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1095.	757.			1158.	945.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.8	0	0	800		GOOD	HES M	HES M			550	
HOT TRANSIENT	1.2	0	0	650		GOOD					525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.16	29.16	29.18		29.17
SAMPLING TIME - SEC	506	867	505		763
DISTANCE TRAVELLED- MILES	3.614	3.964	3.598		10.110
DILUTION FACTOR	5.93	9.22	7.13		5.10
VOLUME - VMIX (CU FT)	2537.90	4340.82	2536.06		3830.36
FUEL ECONOMY -MILES/GAL	10.82	10.95	13.04	11.42	17.21
FUEL ECONOMY - KM/LITER	4.60	4.66	5.55	4.86	7.32

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	4.65	2.89	2.12	1.32	2.61	1.62	2.77	1.72	1.38	0.86
CARBON MONOXIDE	73.90	45.93	42.94	26.69	35.82	22.26	47.36	29.43	25.44	15.81
NOX - NO2	2.98	1.85	1.88	1.17	2.82	1.75	2.36	1.47	2.03	1.26
NOX CORRECTED	2.75	1.71	1.74	1.08	2.60	1.62	2.18	1.35	1.87	1.16
CARBON DIOXIDE	676.68	420.56	724.17	450.07	605.58	376.37	682.27	424.03	463.57	288.11

	MG/MI	MG/KM
ALDEHYDE	141.89	88.19
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20802
DATE RUN: 11 17 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1077.	656.	1151.	816.	1162.	926.	993.	689.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.2	0	0	600.		FAIR	STAL 1.2	STAL 4.7	HES M		525	
HOT TRANSIENT	1.0	0	0	600.		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.92	28.92	28.91		28.91	28.91	28.91
SAMPLING TIME - SEC	517	869	510		763	1398	124
DISTANCE TRAVELLED- MILES	3.609	4.013	3.621		10.118	13.405	0.759
DILUTION FACTOR	6.38	9.75	7.56		5.37	6.63	9.64
VOLUME - VMIX (CU FT)	2582.66	4309.75	2539.98		3794.85	6989.39	614.24
FUEL ECONOMY -MILES/GAL	11.52	11.82	13.92	12.26	18.33	16.36	15.52
FUEL ECONOMY - KM/LITER	4.90	5.03	5.92	5.21	7.79	6.96	6.60

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	4.41	2.74	2.42	1.50	3.04	1.89	2.99	1.86	1.49	0.93	2.14	1.33	3.08	1.91
CARBON MONOXIDE	70.38	43.74	45.62	28.35	42.48	26.40	49.81	30.96	27.03	16.80	33.30	20.70	30.45	18.92
NOX - NO2	2.76	1.71	1.76	1.09	2.54	1.58	2.17	1.35	1.77	1.10	2.07	1.28	1.57	0.97
NOX CORRECTED	2.83	1.76	1.80	1.12	2.60	1.61	2.22	1.38	1.82	1.13	2.12	1.32	1.60	1.00
CARBON DIOXIDE	634.27	394.20	659.93	410.15	551.60	342.82	625.42	388.70	429.64	267.02	475.15	295.30	505.71	314.30

	MG/MI	MG/KM
ALDEHYDE	132.51	82.36
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	8.95	5.58
SULFATE	0.08	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	170	50	1.15	1.10	1106	-	-
30 MPH STEADY STATE	260	100	2.00	2.20	555	-	-
IDLE IN DRIVE	247	90	1.15	0.99	143	550	16.3
IDLE,NEUTRAL	470	80	0.75	0.87	67	750	18.3
2500 RPM NO LOAD	282	60	3.50	3.40	127	-	-
IDLE, NEUTRAL	338	100	1.65	1.80	66	750	19.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20811
DATE RUN: 0 0 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.07	0	0	1800		GOOD	HES H-23	HES T-40			500	
HOT TRANSIENT	.05	0	0	700.		GOOD					555	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DORIC TEMPERATURE RECORDER NOT OPERATING

ANALYTICAL RESULTS
FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.38	29.38	29.38		29.38	29.38
SAMPLING TIME - SEC	505	867	505		764	1397
DISTANCE TRAVELLED- MILES	3.641	4.016	3.613		10.191	13.566
DILUTION FACTOR	6.07	9.25	7.60		5.44	6.62
VOLUME - VMIX (CU FT)	2547.39	4376.60	2545.71		3857.52	7094.84
FUEL ECONOMY -MILES/GAL	11.14	11.03	13.92	11.71	18.40	16.28
FUEL ECONOMY - KM/LITER	4.74	4.69	5.92	4.98	7.82	6.92

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	4.07	2.53	2.25	1.40	3.28	2.04	2.90	1.80	2.00	1.25	2.43	1.51
CARBON MONOXIDE	73.53	45.70	48.19	29.95	45.04	27.99	52.52	32.64	28.57	17.76	42.05	26.14
NOX - NO2	4.07	2.53	2.49	1.55	3.52	2.19	3.09	1.92	5.10	3.17	4.26	2.65
NOX CORRECTED	4.11	2.55	2.52	1.56	3.56	2.21	3.12	1.94	5.14	3.20	4.30	2.67
CARBON DIOXIDE	655.96	407.68	709.37	440.88	546.75	339.81	654.55	406.81	423.77	263.38	463.03	287.78

	MG/MI	MG/KM
ALDEHYDE	205.21	127.54
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE		16.72 10.43
SULFATE		0.15 0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20812
DATE RUN: 11 16 77 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1144.	514.	1145.	830.	1181.	1000.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.0	0	1	600		FAIR	STAL 1 S	HES H-5	HES T-24		500	
HOT TRANSIENT	1.0	0	0	550		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.14		29.13		29.14				29.13		29.13	
SAMPLING TIME - SEC	521		868		507				1363		1397	
DISTANCE TRAVELLED- MILES	3.594		3.952		3.603				10.065		13.289	
DILUTION FACTOR	5.96		9.09		6.74				4.95		6.21	
VOLUME - VMIX (CU FT)	2625.06		4340.99		2537.52				3826.69		7042.00	
FUEL ECONOMY -MILES/GAL	10.49		10.76		12.32		11.08		16.65		15.07	
FUEL ECONOMY - KM/LITER	4.46		4.58		5.24		4.71		7.08		6.41	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.84	3.01	2.18	1.35	2.59	1.61	2.83	1.76	1.26	0.78	1.81	1.13
CARBON MONOXIDE	82.42	51.22	50.22	31.21	54.17	33.67	57.89	35.98	29.26	18.18	40.72	25.31
NOX - NO2	3.32	2.07	2.38	1.48	3.42	2.13	2.85	1.77	2.60	1.61	2.75	1.71
NOX CORRECTED	3.36	2.09	2.40	1.49	3.45	2.15	2.88	1.79	2.62	1.63	2.77	1.72
CARBON DIOXIDE	668.65	428.00	726.44	451.49	616.19	382.97	688.73	428.05	475.11	295.28	510.52	317.29
							MG/MI	MG/KM				
ALDEHYDE							135.81	84.41				
HYDROGEN SULFIDE							NOT DETECTED				MG/MI	MG/KM
PARTICULATE											26.27	16.35
SULFATE											0.08	0.05

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20902
DATE RUN: 11 01 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4500 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
		1000.	707.			1014.	822.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1		EVENT 2		EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.2	0	0	800		GOOD	STAL	M	HES	M	HES	HES	500	
HOT TRANSIENT	1.3	0	0	525		GOOD							525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.55	29.55	29.55		29.58
SAMPLING TIME - SEC	507	872	505		763
DISTANCE TRAVELLED- MILES	3.545	3.928	3.566		10.058
DILUTION FACTOR	6.93	9.77	7.64		5.99
VOLUME - VMIX (CU FT)	2603.48	4401.77	2571.45		3883.51
FUEL ECONOMY -MILES/GAL	12.16	11.36	13.70	12.08	19.92
FUEL ECONOMY - KM/LITER	5.17	4.83	5.82	5.14	8.47

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.18	1.97	1.90	1.18	3.10	1.93	2.49	1.55	1.89	1.17
CARBON MONOXIDE	56.59	35.17	47.80	29.71	46.37	28.82	49.20	30.58	25.99	16.15
NOX - NO2	3.22	2.00	1.52	0.94	2.93	1.82	2.25	1.40	3.44	2.14
NOX CORRECTED	3.71	2.30	1.75	1.09	3.37	2.10	2.59	1.61	3.96	2.46
CARBON DIOXIDE	619.63	385.10	688.60	427.97	555.49	345.24	638.42	396.78	392.06	243.67

	MG/MI	MG/KM
ALDEHYDE	199.98	124.29
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20903
DATE RUN: 11 15 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1093.	758.			1161.	940.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	550.		GOOD	HES T				525	
HOT TRANSIENT	1.	0	0	500		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.30		29.30		29.30				29.30	
SAMPLING TIME - SEC	507		869		506				763	
DISTANCE TRAVELLED- MILES	3.600		3.939		3.564				9.995	
DILUTION FACTOR	6.53		9.82		7.53				5.42	
VOLUME - VMIX (CU FT)	2560.03		4368.12		2549.16				3853.28	
FUEL ECONOMY -MILES/GAL	11.82		11.55		13.60		12.10		18.02	
FUEL ECONOMY - KM/LITER	5.02		4.91		5.78		5.14		7.66	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.54	2.20	2.34	1.46	2.50	1.55	2.63	1.64	1.42	0.88
CARBON MONOXIDE	62.87	39.07	47.04	29.23	43.56	27.07	49.34	30.67	28.65	17.80
NOX - NO2	2.42	1.51	1.45	0.90	2.16	1.34	1.84	1.15	1.60	0.99
NOX CORRECTED	2.85	1.77	1.71	1.06	2.54	1.58	2.17	1.35	1.88	1.17
CARBON DIOXIDE	629.64	391.32	675.66	419.93	566.17	351.88	636.56	395.63	435.61	270.73
							MG/MI	MG/KM		
ALDEHYDE							124.14	77.15		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20911
DATE RUN: 11 02 77 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
		1045.	641.			1053.	929.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPLRATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	525		GOOD	STAL 1 S	STAL 5 S			500.	
HOT TRANSIENT	1.3	0	0	500		GOOD					525.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.47	29.47	29.48		29.48
SAMPLING TIME - SEC	505	875	506		762
DISTANCE TRAVELLED- MILES	3.627	3.982	3.605		10.146
DILUTION FACTOR	6.31	8.68	7.26		5.28
VOLUME - VMIX (CU FT)	2600.06	4395.83	2570.40		3873.40
FUEL ECONOMY -MILES/GAL	11.35	10.20	13.13	11.10	17.69
FUEL ECONOMY - KM/LITER	4.83	4.33	5.58	4.72	7.52

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	4.00	2.48	2.43	1.51	2.94	1.83	2.89	1.79	1.81	1.13
CARBON MONOXIDE	68.24	42.41	65.09	40.46	51.45	31.98	62.05	38.56	32.57	20.24
NOX - NO2	4.00	2.49	2.51	1.56	3.38	2.10	3.05	1.90	4.67	2.90
NOX CORRECTED	4.61	2.86	2.89	1.80	3.89	2.42	3.51	2.18	5.38	3.34
CARBON DIOXIDE	650.28	404.15	747.40	464.51	575.57	357.72	680.96	423.22	437.36	271.82

	MG/MI	MG/KM
ALDEHYDE	190.06	118.12
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 20913
DATE RUN: 11 14 77 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S MYER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1110.	614.			1190	965.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	550		GOOD	STAL 1 S				500	
HOT TRANSIENT	1.0	0	0	500		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.56	29.56	29.56		29.56
SAMPLING TIME - SEC	509	873	508		763
DISTANCE TRAVELLED- MILES	3.547	3.889	3.556		9.996
DILUTION FACTOR	6.14	8.83	6.76		4.79
VOLUME - VMIX (CU FT)	2626.01	4400.20	2586.10		3880.84
FUEL ECONOMY -MILES/GAL	10.69	10.18	12.07	10.75	15.84
FUEL ECONOMY - KM/LITER	4.55	4.33	5.13	4.57	6.73

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.78	2.35	2.33	1.45	2.55	1.58	2.69	1.67	1.17	0.73
CARBON MONOXIDE	70.52	43.83	64.85	40.31	62.03	38.55	65.25	40.55	31.67	19.81
NOX - NO2	3.26	2.03	2.32	1.44	3.04	1.89	2.71	1.68	2.56	1.59
NOX CORRECTED	3.84	2.39	2.73	1.70	3.58	2.22	3.19	1.98	3.02	1.87
CARBON DIOXIDE	694.72	431.77	749.04	465.53	618.54	384.43	702.37	436.53	498.15	309.60

	MG/MI	MG/KM
ALDEHYDE	124.71	77.51
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 21101
DATE RUN: 11 03 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 179 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4500 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	FSC MAX	FSC MIN
		993.	669.	1098.	771.	1007.	811.	903.	669.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	550.		GOOD					550	
HOT TRANSIENT	1.2	0	0	525.		GOOD					525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.45	29.45	29.45		29.45	29.45	29.45
SAMPLING TIME - SEC	507	868	507		763	1398	125
DISTANCE TRAVELLED- MILES	3.648	3.993	3.605		10.114	13.479	0.772
DILUTION FACTOR	6.68	9.47	7.63		5.91	6.87	9.20
VOLUME - VMIX (CU FT)	2529.58	4352.68	2542.38		3835.41	7059.83	626.06
FUEL ECONOMY -MILES/GAL	12.58	11.55	13.99	12.34	20.10	16.99	14.76
FUEL ECONOMY - KM/LITER	5.35	4.91	5.95	5.25	8.55	7.23	6.28

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	3.65	2.39	2.40	1.49	2.99	1.86	2.86	1.77	2.23	1.38	2.52	1.57	3.38	2.10
CARBON MONOXIDE	61.14	38.00	70.75	43.97	64.40	40.02	67.06	41.68	40.78	25.35	54.60	33.93	74.15	46.08
NOX - NO2	2.17	1.35	0.91	0.57	1.72	1.07	1.39	0.86	1.88	1.17	1.73	1.07	0.95	0.59
NOX CORRECTED	4.24	2.63	1.79	1.11	3.37	2.09	2.72	1.69	3.68	2.29	3.38	2.10	1.87	1.16
CARBON DIOXIDE	586.75	364.67	637.80	396.40	514.33	319.66	593.93	369.13	363.78	226.09	420.59	261.40	464.82	288.89

	MG/MI	MG/KM
ALDEHYDE	220.40	136.98
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	49.74	30.95
SULFATE	0.17	0.10

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	298	90	1.51	0.53	14	-	-
30 MPH STEADY STATE	404	150	3.15	0.85	470	-	-
IDLE IN DRIVE	292	100	1.50	0.63	92	525	12.3
IDLE,NEUTRAL	374	120	1.51	0.55	50	525	15.0
2500 RPM NO LOAD	243	52	2.60	0.72	114	-	-
IDLE, NEUTRAL	430	90	1.00	1.02	48	825	18.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 21103
DATE RUN: 11 10 77
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 178 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1076.	733.	1095.	797.	1133.	942.	966.	680.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.7	0	1	400.		FAIR	STAL 20 S				510	
HOT TRANSIENT	0.8	0	0	650.		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	28.92		28.92		28.93				28.98		28.95		28.98	
SAMPLING TIME - SEC	509		871		505				762		1396		125	
DISTANCE TRAVELLED- MILES	3.584		3.874		3.560				10.103		13.338		0.762	
DILUTION FACTOR	6.21		9.32		7.00				5.29		6.34		8.77	
VOLUME - VMIX (CU FT)	2548.84		4310.02		2510.96				3804.74		7014.83		617.68	
FUEL ECONOMY -MILES/GAL	11.28		10.97		12.79		11.48		17.99		15.50		14.04	
FUEL ECONOMY - KM/LITER	4.79		4.67		5.44		4.88		7.65		6.59		5.97	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.07	2.53	2.95	1.83	3.80	2.36	3.41	2.12	1.87	1.16	2.75	1.71	3.45	2.15
CARBON MONOXIDE	74.60	46.36	98.48	61.21	88.11	54.76	90.71	56.38	49.59	30.82	70.95	44.09	93.37	58.03
NOX - NO2	1.77	1.10	0.74	0.46	1.10	0.69	1.05	0.65	0.97	0.60	0.96	0.60	0.32	0.20
NOX CORRECTED	3.44	2.14	1.43	0.89	2.14	1.33	2.04	1.27	1.88	1.17	1.86	1.15	0.61	0.38
CARBON DIOXIDE	645.17	400.98	632.49	393.09	532.89	331.20	607.92	377.83	402.14	249.93	443.91	275.89	464.73	288.83
							MG/MI	MG/KM						
ALDEHYDE							142.07	88.30						
HYDROGEN SULFIDE							NOT DETECTED							
PARTICULATE											MG/MI 18.57	MG/KM 11.56		
SULFATE											0.07	0.04		

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	276	65	2.70	2.80	482	-	-
30 MPH STEADY STATE	333	100	4.50	4.20	181	-	-
IDLE IN DRIVE	466	150	4.00	4.20	77	550	15.4
IDLE,NEUTRAL	341	100	2.90	3.20	54	775	18.6
2500 RPM NO LOAD	304	50	3.75	3.30	101	-	-
IDLE, NEUTRAL	366	120	1.45	1.80	57	750	18.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 21111
DATE RUN: 11 04 77 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 173 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1045.	711.	1091.	705.	1013.	861.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.7	0	0	500.		GOOD	STAL 2.3S				450	
HOT TRANSIENT	1.6	0	0	500.		GOOD					525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS
FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.46	29.46	29.47		29.47	29.47
SAMPLING TIME - SEC	509	868	506		762	1398
DISTANCE TRAVELLED- MILES	3.616	3.999	3.586		10.070	13.403
DILUTION FACTOR	6.18	8.33	7.20		5.86	6.83
VOLUME - VMIX (CU FT)	2585.15	4388.15	2563.91		3869.26	7120.93
FUEL ECONOMY -MILES/GAL	11.09	9.84	12.99	10.79	19.55	16.56
FUEL ECONOMY - KM/LITER	4.72	4.18	5.52	4.59	8.31	7.04

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.37	2.10	3.14	1.95	3.39	2.11	3.25	2.02	2.31	1.43	2.62	1.63
CARBON MONOXIDE	75.17	46.72	104.50	64.95	84.66	52.62	93.17	57.90	41.70	25.92	57.66	35.83
NOX - NO2	2.60	1.62	1.37	0.85	1.67	1.04	1.70	1.06	2.00	1.25	1.78	1.11
NOX CORRECTED	4.82	3.00	2.54	1.58	3.10	1.92	3.15	1.96	3.72	2.31	3.30	2.05
CARBON DIOXIDE	659.12	409.64	714.61	444.13	528.99	328.77	653.26	406.00	374.25	232.60	429.00	266.63

	MG/MI	MG/KM
ALDEHYDE	158.32	98.40
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE		18.34 11.44
SULFATE		0.19 0.12

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 21113
DATE RUN: 11 09 77 AIR CONDITIONER USED
CAR: 1972 CHEVROLET IMPALA VIN: 1MC9H2J273821 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 167 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1093.	723.	1137.	806.	1172.	999.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.8	0	1	425		FAIR	STAL 21S				490	
HOT TRANSIENT	0.9	0	0	525		GOOD					525	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.26	29.26	29.26		29.26	29.26
SAMPLING TIME - SEC	511	869	505		762	1398
DISTANCE TRAVELLED- MILES	3.545	3.863	3.542		10.058	13.296
DILUTION FACTOR	5.87	7.97	5.98		4.47	5.34
VOLUME - VMIX (CU FT)	2577.79	4359.27	2537.46		3837.76	7066.24
FUEL ECONOMY -MILES/GAL	10.36	9.14	10.71	9.76	14.97	12.86
FUEL ECONOMY - KM/LITER	4.40	3.88	4.55	4.15	6.37	5.47

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	3.77	2.34	3.80	2.36	3.53	2.19	3.72	2.31	1.79	1.11	2.50	1.55
CARBON MONOXIDE	83.51	51.90	133.52	82.98	120.20	74.71	119.60	74.33	59.00	36.67	90.93	56.51
NOX - NO2	2.26	1.41	1.35	0.84	1.69	1.05	1.63	1.01	1.68	1.04	1.57	0.97
NOX CORRECTED	3.99	2.48	2.37	1.47	2.98	1.85	2.87	1.78	2.96	1.84	2.76	1.72
CARBON DIOXIDE	700.73	435.50	735.06	456.84	616.00	382.84	695.53	432.28	485.39	301.67	528.90	328.71

	MG/MI	MG/KM
ALDEHYDE	143.83	89.39
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	39.62	24.65
SULFATE	0.14	0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30001
DATE RUN: 01 05 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1268.	735.	1148.	777.	1100.	901	970	688

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.1	0		600		POOR	STAL	HES M	HES M	HES TR	550	13.
HOT TRANSIENT	0.9	0	0	550	15	GOOD					550	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.52	29.52	29.52		29.52	29.52	29.52
SAMPLING TIME - SEC	520	868	507		763	1398	123
DISTANCE TRAVELLED- MILES	3.842	4.134	3.715		10.336	13.755	0.783
DILUTION FACTOR	3.28	7.86	6.43		4.71	5.73	8.52
VOLUME - VMIX (CU FT)	2640.86	4398.35	2571.14		3880.97	7132.93	631.30
FUEL ECONOMY -MILES/GAL	5.85	9.06	11.55	8.59	15.45	13.71	13.19
FUEL ECONOMY - KM/LITER	2.49	3.85	4.91	3.65	6.57	5.83	5.61

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	31.98	19.88	1.49	0.93	2.64	1.64	8.12	5.04	1.18	0.73	1.67	1.04	2.54	1.58
CARBON MONOXIDE	350.95	218.12	15.33	9.53	36.32	22.57	90.51	56.25	8.82	5.48	19.69	12.24	8.54	5.31
NOX - NO2	1.84	1.14	2.00	1.24	2.56	1.59	2.12	1.32	2.19	1.36	2.18	1.35	1.73	1.08
NOX CORRECTED	1.39	0.87	1.51	0.94	1.94	1.21	1.60	1.00	1.66	1.03	1.65	1.02	1.31	0.82
CARBON DIOXIDE	787.03	489.15	900.60	559.73	663.64	412.45	813.15	505.38	527.72	327.98	578.21	359.36	616.98	383.46

	MG/MI	MG/KM	MG/MI	MG/KM
ALDEHYDE	392.94	244.22		
HYDROGEN SULFIDE	NOT DETECTED			
PARTICULATE			38.55	23.97
SULFATE			0.04	0.03

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	46	30	0.65	0.68	913	-	-
30 MPH STEADY STATE	49	31	0.10	0.03	76	-	-
IDLE IN DRIVE	128	52	0.30	0.27	76	550	14.2
IDLE,NEUTRAL	124	100	0.15	0.02	42	675	16.1
2500 RPM NO LOAD	33	38	0.09	0.12	42	-	-
IDLE, NEUTRAL	74	52	0.12	0.22	42	725	17.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30002
DATE RUN: 01 06 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1210	760	1112	779	1078	888	953	684

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	EVENT 1		EVENT 2	EVENT 3		EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.8	0	1	800	14.0	POOR	HES M	STAL	HES	H		500.	9.8
HOT TRANSIENT	.6	0	0	550	15.0	GOOD						550	14.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.39	29.39	29.39		29.37	29.37	29.37
SAMPLING TIME - SEC	513	869	505		764	1397	124
DISTANCE TRAVELLED- MILES	3.783	4.127	3.745		10.387	13.880	0.783
DILUTION FACTOR	3.58	8.72	6.86		4.89	5.97	8.28
VOLUME - VMIX (CU FT)	2596.86	4378.40	2553.95		3856.61	7097.68	626.93
FUEL ECONOMY -MILES/GAL	6.38	10.27	12.47	9.53	16.20	14.43	12.91
FUEL ECONOMY - KM/LITER	2.71	4.37	5.30	4.05	6.89	6.14	5.49

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	29.62	18.41	1.31	0.81	2.60	1.62	7.48	4.65	1.15	0.71	1.67	1.04	1.87	1.16
CARBON MONOXIDE	267.10	166.01	16.48	10.24	31.29	19.44	72.04	44.77	8.72	5.42	20.77	12.91	8.22	5.11
NOX - NO2	2.96	1.84	1.89	1.17	2.49	1.55	2.27	1.41	2.18	1.35	2.13	1.32	1.61	1.00
NOX CORRECTED	2.25	1.40	1.43	0.89	1.89	1.17	1.72	1.07	1.65	1.02	1.61	1.00	1.22	0.76
CARBON DIOXIDE	806.43	501.20	789.77	490.85	617.84	383.99	746.57	464.00	502.51	312.31	545.76	339.19	633.53	393.74

	MG/MI	MG/KM
ALDEHYDE	296.17	184.07
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	31.26	19.44
SULFATE	0.05	0.03

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	41	36	0.41	0.72	833	-	-
30 MPH STEADY STATE	52	35	0.09	0.02	425	-	-
IDLE IN DRIVE	161	59	0.20	0.15	76	550	13.8
IDLE,NEUTRAL	94	100	0.14	0.03	44	700	16.2
2500 RPM NO LOAD	40	28	0.10	0.05	105	-	-
IDLE, NEUTRAL	119	50	0.13	0.14	44	700	17.1

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30201
DATE RUN: 01 09 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4500 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1111.	769			1102	932

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	2.6	0	0	950	0	FAIR	HES M				450	4.
HOT TRANSIENT	0.5	0	0	590	13.5	GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR ACCELERATION AFTER FIRST CYCLE

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	28.85	28.85	28.85		28.85
SAMPLING TIME - SEC	505	867	504		763
DISTANCE TRAVELLED- MILES	3.693	4.036	3.671		10.341
DILUTION FACTOR	3.27	7.97	6.45		4.70
VOLUME - VMIX (CU FT)	2500.79	4295.56	2494.75		3850.40
FUEL ECONOMY -MILES/GAL	5.91	9.35	11.77	8.79	15.52
FUEL ECONOMY - KM/LITER	2.51	3.97	5.01	3.74	6.60

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	36.85	22.90	1.57	0.98	2.17	1.35	8.98	5.58	1.12	0.69
CARBON MONOXIDE	301.09	187.13	13.22	8.22	29.83	18.54	76.88	47.78	10.09	6.27
NOX - NO2	2.30	1.43	1.78	1.11	2.02	1.25	1.95	1.21	2.05	1.27
NOX CORRECTED	1.74	1.08	1.35	0.84	1.52	0.95	1.47	0.92	1.55	0.96
CARBON DIOXIDE	833.99	518.33	875.38	544.05	661.65	411.22	808.85	502.70	523.32	325.24

	MG/MI	MG/KM
ALDEHYDE	332.35	206.56
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30202
DATE RUN: 01 10 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
0		1287.	782			1103	893

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1		EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.2	0	0	600	10.	FAIR	HES	TR	STAL			825	13.6
HOT TRANSIENT	0.7	0	0	550	14.	GOOD	HES	TR				550	13.7

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS
FEDERAL TEST PRUCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.25	29.25	29.25		29.27
SAMPLING TIME - SEC	505	870	505		764
DISTANCE TRAVELLED- MILES	3.644	4.030	3.665		10.298
DILUTION FACTOR	3.85	8.83	6.66		4.78
VOLUME - VMIX (CU FT)	2547.71	4357.21	2532.41		3842.16
FUEL ECONOMY -MILES/GAL	6.74	10.21	11.95	9.58	15.75
FUEL ECONOMY - KM/LITER	2.87	4.34	5.08	4.08	6.70

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	21.05	13.09	1.51	0.94	2.72	1.69	5.83	3.62	1.29	0.80
CARBON MONOXIDE	241.78	150.27	13.23	8.22	26.23	16.30	63.43	39.42	10.11	6.29
NOX - NO2	2.71	1.68	1.73	1.07	2.34	1.45	2.09	1.30	2.09	1.30
NOX CORRECTED	2.05	1.28	1.31	0.81	1.77	1.10	1.59	0.99	1.59	0.99
CARBON DIOXIDE	802.23	498.59	799.22	496.72	654.74	406.92	760.61	472.72	514.67	319.87

	MG/MI	MG/KM
ALDEHYDE	281.65	175.05
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30401
DATE RUN: 01 11 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWART/LANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 15 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
0	0	1145	779	1150	802	1095	923	969	703

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1		EVENT 2		EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	800	16.0	FAIR	HES	M-40	HES	M-56			500	14.8
HOT TRANSIENT	1.0	0	0	710		GOOD							730	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVEABILITY VERY POOR AFTER FIRST ACCELERATION DURING COLD TRANSIENT

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.67	29.67	29.67		29.67	29.67	29.67
SAMPLING TIME - SEC	504	866	505		764	1397	125
DISTANCE TRAVELLED- MILES	3.690	4.006	3.672		10.262	13.603	0.775
DILUTION FACTOR	5.32	8.83	6.63		4.90	6.07	8.59
VOLUME - VMIX (CU FT)	2564.00	4418.81	2590.24		3892.69	7171.58	633.60
FUEL ECONOMY -MILES/GAL	9.43	10.01	11.65	10.27	15.90	14.24	13.12
FUEL ECONOMY - KM/LITER	4.01	4.25	4.95	4.37	6.76	6.05	5.58

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	5.51	3.42	2.22	1.38	3.14	1.95	3.15	1.96	1.28	0.80	2.15	1.34	3.28	2.04
CARBON MONOXIDE	73.49	45.67	12.31	7.65	23.76	14.77	28.04	17.43	7.87	4.89	19.28	11.98	9.12	5.67
NOX - NO2	3.20	1.99	1.63	1.01	2.36	1.47	2.15	1.34	1.93	1.20	1.94	1.20	1.33	0.82
NOX CORRECTED	2.50	1.55	1.27	0.79	1.84	1.14	1.68	1.04	1.51	0.94	1.51	0.94	1.03	0.64
CARBON DIOXIDE	759.98	472.33	815.38	506.76	675.74	419.98	765.89	476.00	513.38	319.07	554.43	344.58	617.12	383.54

	MG/MI	MG/KM
ALDEHYDE	326.42	202.87
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	28.65	17.82
SULFATE	0.04	0.02

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	197	28	0.40	0.18	669	-	-
30 MPH STEADY STATE	117	42	0.12	0.13	368	-	-
IDLE IN DRIVE	238	75	0.19	0.22	69	580	14.6
IDLE,NEUTRAL	369	180	0.16	0.22	38	710	16.1
2500 RPM NO LOAD	43	35	0.11	0.13	93	-	-
IDLE, NEUTRAL	412	210	0.16	0.21	37	710	16.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30402
DATE RUN: 01 12 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1121.	780.	1151.	805.	1090.	931.	971.	709.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.3	0	0	730	11.5	FAIR					650	9.6
HOT TRANSIENT	0.6	0	0	590	13.7	GOOD					570	13.4

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.61		29.61		29.61				29.62		29.62		29.62	
SAMPLING TIME - SEC	500		873		505				765		1397		125	
DISTANCE TRAVELLED- MILES	3.691		4.020		3.665				10.262		13.635		0.775	
DILUTION FACTOR	4.53		8.88		6.93				5.07		6.08		8.66	
VOLUME - VMIX (CU FT)	2567.94		4413.68		2566.81				3890.39		7155.94		633.20	
FUEL ECONOMY -MILES/GAL	8.01		10.11		12.29		10.05		16.46		14.32		13.25	
FUEL ECONOMY - KM/LITER	3.41		4.30		5.22		4.27		7.00		6.09		5.63	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	17.55	10.91	2.28	1.41	2.47	1.54	5.47	3.40	1.06	0.66	2.28	1.41	2.74	1.70
CARBON MONOXIDE	206.27	128.19	12.71	7.90	22.89	14.23	55.32	34.38	7.02	4.37	18.37	11.42	6.63	4.12
NOX - NO2	2.16	1.34	1.57	0.97	1.66	1.03	1.71	1.07	1.89	1.17	1.94	1.21	1.33	0.83
NOX CORRECTED	1.70	1.06	1.24	0.77	1.31	0.81	1.35	0.84	1.49	0.93	1.53	0.95	1.05	0.65
CARBON DIOXIDE	671.34	417.24	805.89	500.86	641.74	398.84	733.57	455.92	497.29	309.07	551.92	343.02	616.71	383.29

	MG/MI	MG/KM		
ALDEHYDE	458.99	285.26		
HYDROGEN SULFIDE	NOT DETECTED			
PARTICULATE			15.29	9.53
SULFATE			0.11	0.07

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	38	30	0.40	0.50	826	-	-
30 MPH STEADY STATE	64	40	0.08	0.10	363	-	-
IDLE IN DRIVE	159	80	0.13	0.20	66	580	14.3
IDLE,NEUTRAL	371	230	0.12	0.15	38	720	16.8
2500 RPM NO LOAD	51	35	0.06	0.12	94	-	-
IDLE, NEUTRAL	288	200	0.11	0.18	37	720	16.6

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30601
DATE RUN: 12 09 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 41 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1085.	783.			1117.	942.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0			GOOD					800	
HOT TRANSIENT	0.8	0	0	700		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.07	29.10	29.10		29.12
SAMPLING TIME - SEC	507	866	505		NA
DISTANCE TRAVELLED- MILES	3.659	3.994	3.657		10.262
DILUTION FACTOR	7.42	12.26	8.86		6.61
VOLUME - VMIX (CU FT)	2528.73	4333.95	2529.45		3837.93
FUEL ECONOMY -MILES/GAL	13.86	14.86	16.63	15.08	22.73
FUEL ECONOMY - KM/LITER	5.89	6.32	7.07	6.41	9.67

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.01	3.11	1.97	1.23	3.03	1.88	2.89	1.79	1.43	0.89
CARBON MONOXIDE	65.78	40.88	10.76	6.69	23.64	14.69	25.58	15.90	7.66	4.76
NOX - NO2	2.10	1.31	1.41	0.87	1.85	1.15	1.67	1.04	1.66	1.03
NOX CORRECTED	1.81	1.13	1.21	0.75	1.59	0.99	1.44	0.89	1.43	0.89
CARBON DIOXIDE	511.25	317.74	564.92	351.10	479.00	297.70	530.48	329.70	367.97	228.69

	MG/MI	MG/KM
ALDEHYDE	223.96	139.19
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30602
DATE RUN: 01 13 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1107	774			1117	941

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.3	0	0	850.	14.8	GOOD	HES T				550	14.0
HOT TRANSIENT	0.8	0	0	570.	14.3	GOOD					570	13.6

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.26	29.26	29.26		29.26
SAMPLING TIME - SEC	505	866	505		763
DISTANCE TRAVELLED- MILES	3.642	3.982	3.652		10.560
DILUTION FACTOR	5.64	9.10	6.78		4.87
VOLUME - VMIX (CU FT)	2537.38	4352.05	2537.93		3843.63
FUEL ECONOMY -MILES/GAL	10.37	10.81	12.55	11.13	17.08
FUEL ECONOMY - KM/LITER	4.41	4.60	5.34	4.73	7.26

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.11	2.56	2.65	1.65	3.23	2.01	3.11	1.93	1.43	0.89
CARBON MONOXIDE	71.08	44.17	13.11	8.15	22.32	13.87	27.53	17.11	9.26	5.76
NOX - NO2	2.38	1.48	1.43	0.89	2.04	1.27	1.79	1.12	1.65	1.03
NOX CORRECTED	2.04	1.27	1.23	0.76	1.75	1.08	1.53	0.95	1.41	0.88
CARBON DIOXIDE	718.45	446.52	779.47	484.44	651.25	404.75	731.97	454.92	492.62	306.17

	MG/MI	MG/KM
ALDEHYDE	418.77	260.27
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30603
DATE RUN: 01 15 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169M4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 37 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1076	776			1111	906

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.3	0	1	850.	15.3	FAIR	STAL 40S	HES H			500	13.4
HOT TRANSIENT	0.7	0	0	500	14.2	FAIR					500	12.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS
FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.20	29.20	29.20		29.20
SAMPLING TIME - SEC	513	868	506		762
DISTANCE TRAVELLED- MILES	3.672	4.000	3.650		10.274
DILUTION FACTOR	5.48	8.88	6.42		4.76
VOLUME - VMIX (CU FT)	2579.58	4357.43	2542.09		3837.85
FUEL ECONOMY -MILES/GAL	9.98	10.58	11.84	10.76	16.28
FUEL ECONOMY - KM/LITER	4.24	4.50	5.03	4.57	6.92

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.23	3.25	3.96	2.46	3.06	1.90	3.98	2.47	1.39	0.87
CARBON MONOXIDE	76.34	47.44	12.77	7.94	25.39	15.78	29.29	18.20	8.57	5.33
NOx - NO2	2.26	1.40	1.33	0.83	2.06	1.28	1.72	1.07	1.58	0.98
NOX CORRECTED	1.92	1.19	1.13	0.70	1.74	1.08	1.46	0.91	1.34	0.84
CARBON DIOXIDE	739.10	459.35	793.94	493.44	688.93	428.18	754.10	468.68	519.17	322.67

	MG/MI	MG/KM
ALDEHYDE	423.75	263.36
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30701
DATE RUN: 12 12 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1096	777	1124	950		

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	1	1	825		FAIR						
HOT TRANSIENT	0.6		0	800		GOOD					700	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.57		29.57		29.56				29.55	
SAMPLING TIME - SEC	516		867		506				763	
DISTANCE TRAVELLED- MILES	3.671		4.024		3.671				10.332	
DILUTION FACTOR	5.93		9.39		7.88				5.12	
VOLUME - VMIX (CU FT)	2625.61		4403.67		2570.46				3881.06	
FUEL ECONOMY -MILES/GAL	10.63		11.16		14.55		11.79		17.43	
FUEL ECONOMY - KM/LITER	4.52		4.74		6.19		5.01		7.41	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.70	2.92	1.98	1.23	3.31	2.05	2.90	1.80	1.33	0.83
CARBON MONOXIDE	51.62	32.08	12.31	7.65	26.52	16.48	24.24	15.06	8.42	5.23
NOX - NO2	2.22	1.38	1.30	0.81	1.87	1.16	1.64	1.02	1.70	1.06
NOX CORRECTED	2.04	1.27	1.20	0.75	1.72	1.07	1.52	0.94	1.57	0.97
CARBON DIOXIDE	726.28	451.39	757.69	470.91	548.70	341.02	694.42	431.58	483.95	300.78
							MG/MI	MG/KM		
ALDEHYDE							228.96	142.30		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30702
DATE RUN: 01 14 78
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4260 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4500 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1081.	278.					1132.	920.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	900	15.3	FAIR					500	14.0
HOT TRANSIENT	0.9	0	0	500	14.2	GOOD					500	14.6

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	28.95		28.95		28.95				28.95	
SAMPLING TIME - SEC	507		868		506				764	
DISTANCE TRAVELLED- MILES	3.669		4.020		3.661				10.298	
DILUTION FACTOR	5.71		9.08		6.85				4.73	
VOLUME - VMIX (CU FT)	2520.71		4314.84		2519.61				3810.64	
FUEL ECONOMY -MILES/GAL	10.65		10.99		12.81		11.35		16.31	
FUEL ECONOMY - KM/LITER	4.53		4.67		5.45		4.83		6.93	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.05	2.52	3.31	2.06	3.17	1.97	3.42	2.13	1.62	1.01
CARBON MONOXIDE	70.13	43.58	16.06	9.98	28.68	17.83	30.58	19.01	11.77	7.31
NOX - NO2	2.07	1.29	1.30	0.81	1.74	1.08	1.58	0.98	1.54	0.96
NOX CORRECTLD	1.91	1.19	1.20	0.75	1.60	1.00	1.46	0.91	1.42	0.88
CARBON DIOXIDE	697.76	433.66	759.94	472.31	627.09	389.74	711.09	441.94	512.39	318.45
							MG/MI	MG/KM		
ALDEHYDE							418.60	260.16		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30801
DATE RUN: 12 13 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 83 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4500 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	FSC MAX	FSC MIN
		1107	786	1133	856	1141	980	990	724

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	500		FAIR	STAL	HES TR			680	
HOT TRANSIENT	0.9	0	0	700		FAIR	HES M				680	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACL M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP: COLD TRANSIENT	FTP: STABILIZED	FTP: HOT TRANSIENT	FTP: COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.42	29.42	29.42		29.40	29.41	29.40
SAMPLING TIME - SEC	505	869	505		763	1397	124
DISTANCE TRAVELLED- MILES	3.652	4.007	3.694		10.313	13.684	0.773
DILUTION FACTOR	5.92	9.49	7.56		5.06	6.24	8.57
VOLUME - VMIX (CU FT)	2569.91	4376.19	2551.29		3657.82	7106.55	625.22
FUEL ECONOMY -MILES/GAL	10.79	11.30	14.12	11.83	17.30	15.42	13.73
FUEL ECONOMY - KM/LITER	4.59	4.80	6.00	5.03	7.36	6.56	5.84

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	5.07	3.15	2.30	1.43	4.80	2.98	3.55	2.21	1.39	0.86	2.39	1.48	3.01	1.87
CARBON MONOXIDE	60.11	37.36	17.07	10.61	38.57	23.97	31.77	19.75	11.25	6.99	30.68	19.07	15.76	9.80
NOX - NO2	1.77	1.10	1.13	0.70	1.53	0.95	1.37	0.85	1.37	0.85	1.38	0.86	0.98	0.61
NOX CORRECTED	1.84	1.14	1.17	0.73	1.59	0.99	1.42	0.88	1.42	0.88	1.44	0.89	1.02	0.63
CARBON DIOXIDE	699.71	434.87	739.47	459.59	543.11	337.54	677.63	421.15	483.12	300.26	511.09	317.64	602.15	374.24

	MG/MI	MG/KM
ALDEHYDE	238.29	148.10
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	24.72	15.38
SULFATE	0.08	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	135	52	2.28	2.00	352	-	-
30 MPH STEADY STATE	2370	1200	2.58	1.51	155	-	-
IDLE IN DRIVE	2726	1400	3.25	2.60	43	500	12.3
IDLE.NEUTRAL	100	100	1.50	0.72	42	700	15.3
2500 RPM NO LOAD	73	50	0.42	0.53	70	-	-
IDLE. NEUTRAL	92	70	1.04	0.82	39	750	15.6

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30802
DATE RUN: 12 20 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169M4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 86 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	FSC MAX	FSC MIN
		1085.	776.	1130.	835.	1123.	911.	977.	714.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	1	975		FAIR	HES T-50					
HOT TRANSIENT	1.3	0	0	700		GOOD					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: ALL 3 MODE DATA OBTAINED 1-14-78 BECAUSE VACUUM + ST-W DATA IN ERROR

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.02	29.02	29.02		29.02	29.02	29.02
SAMPLING TIME - SEC	511	867	507		764	1395	125
DISTANCE TRAVELLED- MILES	3.699	4.020	3.690		10.375	13.733	0.774
DILUTION FACTOR	6.26	9.34	6.71		5.12	6.28	9.00
VOLUME - VMIX (CU FT)	2551.35	4319.62	2526.25		3812.28	7013.27	620.60
FUEL ECONOMY -MILES/GAL	11.66	11.31	12.61	11.71	17.83	15.80	14.57
FUEL ECONOMY - KM/LITER	4.96	4.81	5.36	4.98	7.58	6.72	6.19

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	3.77	2.34	2.27	1.41	4.63	2.88	3.22	2.00	1.46	0.91	2.56	1.59	3.70	2.30
CARBON MONOXIDE	41.97	26.09	24.64	15.31	37.15	23.09	31.62	19.65	9.04	5.62	20.47	12.72	10.46	6.50
NOX - NO2	1.71	1.06	1.07	0.67	1.37	0.85	1.29	0.80	1.43	0.89	1.30	0.81	0.92	0.57
NOX CORRECTED	1.80	1.12	1.13	0.70	1.45	0.90	1.36	0.84	1.51	0.94	1.38	0.85	0.97	0.60
CARBON DIOXIDE	671.62	417.42	727.27	452.00	620.30	385.52	686.62	426.74	471.50	293.04	513.15	318.93	571.87	355.42

	MG/MI	MG/KM
ALDEHYDE	339.70	211.13
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	50.37	31.32
SULFATE	0.06	0.04

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	42	34	1.00	0.80	525	-	-
30 MPH STEADY STATE	335	190	0.12	0.15	352	-	-
IDLE IN DRIVE	619	400	0.12	0.30	58	500	13.8
IDLE,NEUTRAL	727	410	0.25	0.30	37	650	15.8
2500 RPM NO LOAD	47	42	0.10	0.13	86	-	-
IDLE, NEUTRAL	796	230	0.20	0.23	34	650	15.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30901
DATE RUN: 12 14 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1098.	783.			1134.	934.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.9	1	0	600.		GOOD					700.	
HOT TRANSIENT	1.1	1	0	700		GOOD					500.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.06	29.06	29.06		29.06
SAMPLING TIME - SEC	507	863	507		763
DISTANCE TRAVELLED- MILES	3.696	4.038	3.677		10.314
DILUTION FACTOR	6.43	9.35	6.83		5.08
VOLUME - VMIX (CU FT)	2539.83	4302.48	2537.79		3815.53
FUEL ECONOMY -MILES/GAL	12.04	11.42	12.74	11.88	17.56
FUEL ECONOMY - KM/LITER	5.12	4.86	5.42	5.05	7.47

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.83	2.38	2.66	1.65	4.70	2.92	3.45	2.15	1.59	0.99
CARBON MONOXIDE	37.78	23.48	12.33	7.66	40.67	25.28	25.26	15.70	10.27	6.38
NOX - NO2	1.42	0.89	0.99	0.61	1.24	0.77	1.15	0.71	1.18	0.73
NOX CORRECTED	1.68	1.04	1.16	0.72	1.46	0.91	1.35	0.84	1.39	0.86
CARBON DIOXIDE	654.81	406.96	737.73	458.50	607.40	377.50	685.28	425.91	476.62	296.22

	MG/MI	MG/KM
ALDEHYDE	254.31	158.05
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 30902
DATE RUN: 12 19 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1098.	789.			1131.	932.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.1	0	1	925		POOR	HES M				800	
HOT TRANSIENT	1.1	0	0	600		GOOD					500	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.20	29.20	29.20		29.21
SAMPLING TIME - SEC	509	866	506		766
DISTANCE TRAVELLED- MILES	3.684	4.018	3.695		10.364
DILUTION FACTOR	6.64	9.65	6.85		4.96
VOLUME - VMIX (CU FT)	2554.28	4335.48	2542.17		3839.43
FUEL ECONOMY -MILES/GAL	12.33	11.64	12.81	12.08	17.10
FUEL ECONOMY - KM/LITER	5.24	4.95	5.45	5.13	7.27

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.49	2.17	2.30	1.43	4.74	2.95	3.21	2.00	1.37	0.85
CARBON MONOXIDE	42.19	26.22	19.41	12.06	37.18	23.11	28.95	17.99	12.17	7.56
NOX - NO2	1.39	0.86	0.87	0.54	1.25	0.78	1.08	0.67	1.14	0.71
NOX CORRECTED	1.60	0.99	1.00	0.62	1.45	0.90	1.24	0.77	1.31	0.82
CARBON DIOXIDE	631.83	392.68	713.42	443.40	609.04	378.52	668.14	415.25	487.91	303.24

	MG/MI	MG/KM
ALDEHYDE	283.85	176.42
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 31101
DATE RUN: 12 15 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 176 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
		1140	792	1153	866	1193	955	993	755

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.9	0	0	1000		FAIR					650.	
HOT TRANSIENT	0.6	0	0	625.		GOOD					500.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.30	29.30	29.30		29.31	29.31	29.31
SAMPLING TIME - SEC	505	868	503		763	1397	124
DISTANCE TRAVELLED- MILES	3.621	3.951	3.599		10.158	13.449	0.773
DILUTION FACTOR	6.40	9.16	6.84		4.88	5.73	8.40
VOLUME - VMIX (CU FT)	2546.74	4363.93	2545.35		3845.95	7083.61	625.07
FUEL ECONOMY -MILES/GAL	11.70	10.78	12.45	11.38	16.47	13.96	13.45
FUEL ECONOMY - KM/LITER	4.97	4.59	5.29	4.84	7.00	5.93	5.72

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	4.91	3.05	1.96	1.22	5.65	3.51	3.57	2.22	1.61	1.00	2.89	1.80	3.30	2.05
CARBON MONOXIDE	46.18	28.70	32.45	20.17	84.91	52.77	49.53	30.78	25.24	15.69	57.51	35.74	55.75	34.65
NOX - NO2	1.03	0.64	0.66	0.41	0.65	0.40	0.73	0.46	0.65	0.40	0.62	0.38	0.32	0.20
NOX CORRECTED	1.96	1.22	1.26	0.78	1.24	0.77	1.40	0.87	1.23	0.77	1.18	0.73	0.60	0.37
CARBON DIOXIDE	659.26	409.73	753.35	468.21	550.90	342.39	678.99	422.00	485.92	302.00	526.72	327.36	551.74	342.91

	MG/MI	MG/KM
ALDEHYDE	320.15	198.98
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	36.16	22.50
SULFATE	0.10	0.06

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	107	42	1.55	1.45	264	-	-
30 MPH STEADY STATE	104	48	1.00	0.75	161	-	-
IDLE IN DRIVE	183	78	0.36	0.50	52	600	15.8
IDLE,NEUTRAL	80	42	0.50	0.45	35	800	15.2
2500 RPM NO LOAD	39	28	0.45	0.46	55	-	-
IDLE, NEUTRAL	114	50	1.10	1.05	33	700	15.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 31102
DATE RUN: 12 16 77
CAR: 1974 CHEVROLET IMPALA VIN: 1169H4Y105643 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 176 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4280 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4505 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	FSC MAX	FSC MIN
		1131.	821.	1161.	862.	1172.	938.	980.	713.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.3	0	0	825.		GOOD					600.	
HOT TRANSIENT	0.9	0	0	550.		GOOD					500.	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.34	29.34	29.34		29.34	29.34	29.34
SAMPLING TIME - SEC	505	872	506		763	1397	125
DISTANCE TRAVELLED- MILES	3.693	4.014	3.681		10.201	13.521	0.776
DILUTION FACTOR	6.46	9.44	7.14		4.96	7.00	8.59
VOLUME - VMIX (CU FT)	2550.56	4366.36	2553.34		3851.35	7089.50	627.11
FUEL ECONOMY -MILES/GAL	12.03	11.30	13.27	11.93	16.78	17.20	13.79
FUEL ECONOMY - KM/LITER	5.11	4.80	5.64	5.07	7.14	7.31	5.86

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.41	2.74	2.25	1.40	4.80	2.99	3.39	2.11	1.34	0.84	2.21	1.37	2.38	1.48
CARBON MONOXIDE	43.98	27.34	22.99	14.29	66.81	41.52	39.26	24.40	19.19	11.93	50.50	31.39	31.74	19.73
NOX - NO2	0.63	0.39	0.65	0.41	0.73	0.46	0.67	0.42	0.78	0.49	0.68	0.42	0.53	0.33
NOX CORRECTED	1.20	0.75	1.25	0.77	1.40	0.87	1.28	0.79	1.49	0.93	1.29	0.80	1.01	0.63
CARBON DIOXIDE	643.77	400.11	730.57	454.05	538.41	334.63	660.29	410.37	486.47	302.35	421.98	262.26	576.49	358.29

	MG/MI	MG/KM
ALDEHYDE	322.35	200.34
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	26.12	16.25
SULFATE	0.08	0.05

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	66	48	1.40	1.53	325	-	-
30 MPH STEADY STATE	73	49	0.86	0.58	186	-	-
IDLE IN DRIVE	171	80	1.45	0.71	44	600	12.4
IDLE,NEUTRAL	76	82	0.90	0.63	33	700	15.0
2500 RPM NO LOAD	35	32	0.56	0.59	31	-	-
IDLE, NEUTRAL	228	82	0.56	0.59	31	675	14.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40001
DATE RUN: 02 07 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: HYECK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
133.	847.	1201.	706.	1029.	731.	921.	765.	744.	695.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.9	0	0	800.	16.	GOOD					1000	16.3
HOT TRANSIENT	2.6	0	0	750.	17.3	GOOD					700.	15.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		FSC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.37		29.37		29.37				29.37		29.37		29.37	
SAMPLING TIME - SEC	507		869		507				761		1398		125	
DISTANCE TRAVELLED- MILES	3.646		3.912		3.587				10.167		13.349		0.763	
DILUTION FACTOR	4.67		8.68		6.60				5.20		6.44		8.83	
VOLUME - VMIX (CU FT)	2564.47		4376.48		2561.40				3855.78		7098.23		630.16	
FUEL ECONOMY -MILES/GAL	8.16		9.69		11.45		9.72		16.90		15.00		13.36	
FUEL ECONOMY - KM/LITER	3.47		4.12		4.87		4.13		7.19		6.38		5.68	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	7.77	4.83	0.19	0.12	0.84	0.52	1.94	1.21	0.11	0.07	0.15	0.09	0.15	0.09
CARBON MONOXIDE	109.31	67.94	0.59	0.36	5.20	3.23	24.40	15.16	0.37	0.23	1.36	0.85	1.51	0.94
NOX - NO2	5.74	3.57	1.48	0.92	1.41	0.88	2.35	1.46	0.96	0.59	0.98	0.61	1.03	0.64
NOX CORRECTED	4.34	2.70	1.12	0.70	1.07	0.66	1.77	1.10	0.72	0.45	0.74	0.46	0.78	0.48
CARBON DIOXIDE	835.41	519.21	867.63	539.24	724.79	450.46	822.00	510.88	497.42	309.15	559.07	347.46	627.64	390.08

	MG/MI	MG/KM
ALDEHYDE	120.53	74.91
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	12.27	8.00
SULFATE	1.71	1.06

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	2	30	0.02	0.04	354	-	-
30 MPH STEADY STATE	8	28	0.01	0.02	572	-	-
IDLE IN DRIVE	7	22	0.01	0.02	80	650	14.8
IDLE,NEUTRAL	6	22	0.01	0.02	50	850	17.8
2500 RPM NO LOAD	52	55	0.01	0.02	90	-	-
IDLE, NEUTRAL	6	22	0.01	0.02	48	925	18.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40002
DATE RUN: 02 08 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
131.	826.	1198.	758.	1000.	719.	912.	765.	697.	

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.88	0	0	1400	18.2	GOOD					1100	17.
HOT TRANSIENT	2.56	1	0	725.	17.2	GOOD					700	16.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.59	29.59	29.59		29.59	29.59	29.59
SAMPLING TIME - SEC	511	871	510		764	1400	124
DISTANCE TRAVELLED- MILES	3.710	3.980	3.566		10.070	13.226	0.747
DILUTION FACTOR	4.65	8.49	6.89		5.37	6.42	8.91
VOLUME - VMIX (CU FT)	2601.71	4425.00	2595.99		3885.97	7162.92	630.29
FUEL ECONOMY -MILES/GAL	8.15	9.54	11.74	9.69	17.15	14.67	13.21
FUEL ECONOMY - KM/LITER	3.47	4.06	4.99	4.12	7.29	6.24	5.62

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	9.41	5.85	0.11	0.07	0.75	0.47	2.21	1.37	0.11	0.07	0.13	0.08	0.18	0.11
CARBON MONOXIDE	113.20	70.36	1.85	1.15	6.62	4.11	26.24	16.31	0.48	0.30	0.94	0.59	0.24	0.15
NOX - NO2	5.73	3.56	1.42	0.88	1.40	0.87	2.31	1.43	0.98	0.61	1.11	0.69	1.17	0.73
NOX CORRECTED	4.32	2.68	1.07	0.67	1.05	0.65	1.74	1.08	0.74	0.46	0.84	0.52	0.88	0.55
CARBON DIOXIDE	825.67	513.15	879.63	546.69	704.81	438.04	821.35	510.47	490.07	304.58	572.23	355.64	636.82	395.79

	MG/MI	MG/KM
ALDEHYDE	125.22	77.82
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	2.65	1.92
SULFATE	1.26	0.78

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	3	29	0.01	0.03	292	-	-
30 MPH STEADY STATE	10	22	0.01	0.03	405	-	-
IDLE IN DRIVE	7	20	0.01	0.02	98	700	15.8
IDLE,NEUTRAL	9	21	0.01	0.01	72	975	18.2
2500 RPM NO LOAD	62	60	0.01	0.01	75	-	-
IDLE, NEUTRAL	15	25	0.01	0.02	48	950	18.6

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40201
DATE RUN: 02 04 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
142.	811.	1107.	720.			965.	751.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	1225	19.8	GOOD					1050	17.8
HOT TRANSIENT	1.2	0	0	775	15.6	GOOD					700	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.60	29.60	29.80		29.80
SAMPLING TIME - SEC	507	868	507		762
DISTANCE TRAVELLED- MILES	3.571	3.798	3.562		10.145
DILUTION FACTOR	5.34	8.91	6.82		5.35
VOLUME - VMIX (CU FT)	2597.04	4448.95	2597.61		3918.37
FUEL ECONOMY -MILES/GAL	9.09	9.55	11.65	9.94	17.15
FUEL ECONOMY - KM/LITER	3.87	4.06	4.95	4.23	7.29

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.44	2.14	0.13	0.08	0.43	0.27	0.91	0.56	0.13	0.08
CARBON MONOXIDE	67.04	41.67	1.06	0.66	2.37	1.48	15.17	9.43	0.29	0.18
NOX - NO2	4.87	3.03	1.18	0.73	1.19	0.74	1.95	1.21	1.07	0.66
NOX CORRECTED	3.67	2.28	0.89	0.55	0.90	0.56	1.47	0.91	0.80	0.50
CARBON DIOXIDE	814.26	506.07	884.09	549.47	721.20	448.23	824.60	512.49	492.52	306.10

	MG/MI	MG/KM
ALDEHYDE	92.57	57.53
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40202
DATE RUN: 02 09 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
145.	804.	1162.	747.			894.	724.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1200	18.2	GOOD					750	17.2
HOT TRANSIENT	1.2	0	0	750	17.2	GOOD					700	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.47	29.47	29.46		29.46
SAMPLING TIME - SEC	507	867	506		763
DISTANCE TRAVELLED- MILES	3.575	3.798	3.565		10.147
DILUTION FACTOR	5.21	8.92	6.93		5.44
VOLUME - VMIX (CU FT)	2566.62	4389.39	2560.88		3863.15
FUEL ECONOMY -MILES/GAL	8.98	9.69	12.02	10.06	17.69
FUEL ECONOMY - KM/LITER	3.82	4.12	5.11	4.28	7.52

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.73	2.32	0.13	0.08	0.37	0.23	0.95	0.59	0.08	0.05
CARBON MONOXIDE	68.45	42.54	0.40	0.25	2.39	1.49	15.14	9.41	0.33	0.21
NOX - NO2	5.28	3.28	1.17	0.73	1.50	0.93	2.12	1.32	1.28	0.80
NOX CORRECTED	3.98	2.47	0.89	0.55	1.13	0.70	1.60	0.99	0.97	0.60
CARBON DIOXIDE	822.52	511.20	872.25	542.11	699.19	434.55	814.12	505.98	477.56	296.80

	MG/MI	MG/KM
ALDEHYDE	91.96	57.15
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40401
DATE RUN: 02 03 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 20 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
121.	869.	1060.	752.	1027.	793.	974.	812.	686.	606.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	0.8	0	0.	1500	20.5						1070	18.0
HOT TRANSIENT	1.3	0	0	950.	18.						750.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CAR RAN BETTER ON WINTER FUEL - ACCELERATIONS SMOOTHER

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.75	29.75	29.75		29.75	29.75	29.75
SAMPLING TIME - SEC	505	866	505		764	1399	125
DISTANCE TRAVELLED- MILES	3.651	3.993	3.638		10.177	13.511	0.769
DILUTION FACTOR	5.60	6.86	6.78		5.11	6.21	9.05
VOLUME - VMIX (CU FT)	2580.36	4431.76	2581.49		3907.32	7203.32	637.31
FUEL ECONOMY -MILES/GAL	9.78	9.98	11.85	10.38	10.38	14.42	13.66
FUEL ECONOMY - KM/LITER	4.16	4.24	5.04	4.41	6.97	6.13	5.81

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	1.94	1.21	0.09	0.06	0.40	0.25	0.56	0.35	0.06	0.04	0.09	0.05	0.19	0.12
CARBON MONOXIDE	45.15	28.06	0.33	0.21	2.49	1.55	10.12	6.29	0.21	0.13	0.77	0.48	2.24	1.39
NOX - NO2	3.62	2.25	1.11	0.69	1.22	0.76	1.65	1.03	0.81	0.51	0.82	0.51	0.93	0.58
NOX CORRECTED	2.88	1.79	0.88	0.55	0.97	0.60	1.31	0.82	0.65	0.40	0.65	0.41	0.74	0.46
CARBON DIOXIDE	783.81	487.14	843.44	524.20	705.44	438.44	793.69	493.28	513.56	319.18	582.74	362.17	612.56	380.71

	MG/MI	MG/KM
ALDEHYDE	91.47	56.85
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	1.57	1.61
SULFATE	2.94	1.83

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	3	20	0.08	0.02	291	-	-
30 MPH STEADY STATE	10	24	0.08	0.01	421	-	-
IDLE IN DRIVE	7	2	0.06	0.00	93	760	16.0
IDLE,NEUTRAL	5	20	0.08	0.01	47	990	18.8
2500 RPM NO LOAD	61	60	0.18	0.01	74	-	-
IDLE, NEUTRAL	6	22	0.18	0.02	46	1010	19.1

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 4040c
DATE RUN: 02 10 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.711 G/ML FUEL % CARBON: 85.39
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
142.	832.	1170.	760.	1020.	780.	953.	807.	702.	647.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.9	0	0	1150	19.6	GOOD					950.	17.8
HOT TRANSIENT	0.9			725.	17.2	GOOD					700.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP						HFET		SET		FSC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.37		29.37		29.37				29.37		29.37		29.37	
SAMPLING TIME - SEC	506		868		506				NA		NA		NA	
DISTANCE TRAVELLED- MILES	3.582		3.827		3.566				10.147		13.345		0.760	
DILUTION FACTOR	5.58		9.04		6.92				4.99		6.21		9.00	
VOLUME - VMIX (CU FT)	2559.44		4377.88		2554.42				3856.61		7099.75		630.84	
FUEL ECONOMY -MILES/GAL	9.64		9.88		11.98		10.32		16.18		14.44		13.56	
FUEL ECONOMY - KM/LITER	4.10		4.20		5.09		4.39		6.88		6.14		5.77	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.46	1.53	0.12	0.07	0.33	0.21	0.66	0.41	0.04	0.02	0.06	0.04	0.17	0.10
CARBON MONOXIDE	47.02	29.22	0.32	0.20	3.09	1.92	10.79	6.71	0.20	0.12	1.01	0.63	1.79	1.11
NOX - NO2	3.15	1.96	0.96	0.59	1.05	0.65	1.44	0.89	0.76	0.47	0.72	0.45	1.10	0.69
NOX CORRECTED	2.49	1.55	0.75	0.47	0.83	0.52	1.13	0.71	0.60	0.37	0.57	0.35	0.87	0.54
CARBON DIOXIDE	792.45	492.51	851.47	529.19	697.23	433.33	796.79	495.21	520.26	323.35	581.51	361.41	617.83	383.99
							MG/MI	MG/KM						
ALDEHYDE							72.71	45.19						
HYDROGEN SULFIDE							NOT DETECTED							
											MG/MI	MG/KM		
PARTICULATE											7.03	5.20		
SULFATE											3.86	2.40		

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	2	19	0.01	0.02	287	-	-
30 MPH STEADY STATE	8	20	0.01	0.03	436	-	-
IDLE IN DRIVE	8	15	0.01	0.02	77	675	15.0
IDLE,NEUTRAL	17	21	0.01	0.02	46	900	18.7
2500 RPM NO LOAD	67	75	0.01	0.01	77	-	-
IDLE, NEUTRAL	10	29	0.01	0.02	44	950	18.7

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40601
DATE RUN: 01 16 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946. DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 41 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
133.	675.	1059.	756			991	769

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.6	0	0	1300	19.5	GOOD	SURG				700.	14.0
HOT TRANSIENT	1.4	0	0	700.	14.0	GOOD					700.	14.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVERS AID MALFUNCTIONED-RERAN HOT TRANSIENT

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.56	29.56	29.56		29.56
SAMPLING TIME - SEC	510	867	515		764
DISTANCE TRAVELLED- MILES	3.698	4.042	3.676		10.287
DILUTION FACTOR	5.33	9.09	6.36		4.69
VOLUME - VMIX (CU FT)	2591.72	4400.76	2618.14		3884.49
FUEL ECONOMY -MILES/GAL	9.74	10.84	11.48	10.76	15.85
FUEL ECONOMY - KM/LITER	4.14	4.61	4.86	4.57	6.74

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.51	0.94	0.11	0.07	1.08	0.67	0.66	0.41	0.04	0.03
CARBON MONOXIDE	29.30	18.21	0.80	0.50	5.69	3.54	7.98	4.96	0.64	0.40
NOX - NO2	1.96	1.22	1.07	0.67	1.18	0.73	1.28	0.80	0.99	0.62
NOX CORRECTED	1.69	1.05	0.92	0.57	1.02	0.63	1.11	0.69	0.85	0.53
CARBON DIOXIDE	846.47	526.08	804.72	500.14	748.86	465.42	798.13	496.04	550.30	342.02

	MG/MI	MG/KM
ALDEHYDE	139.35	86.61
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40602
DATE RUN: 02 02 77
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 40 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
122	689	1077.	761.			986.	864.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1200	20.0	GOOD	HES M163	HES T186			1000	17.1
HOT TRANSIENT	0.9	0	0	840.	17.5	GOOD					760	15.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CAR RUNS LAZY BUT SMOOTH. MUST GO THRU DETENT FOR SOME ACCELS POOR BRAKE

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.49	29.49	29.49		29.50
SAMPLING TIME - SEC	505	866	504		764
DISTANCE TRAVELLED- MILES	3.665	4.011	3.649		10.278
DILUTION FACTOR	9.51	8.84	6.65		4.92
VOLUME - VMIX (CU FT)	2559.41	4391.29	2553.81		3876.49
FUEL ECONOMY -MILES/GAL	10.10	10.47	12.22	10.81	16.67
FUEL ECONOMY - KM/LITER	4.30	4.45	5.20	4.60	7.09

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.93	1.20	0.22	0.14	0.68	0.42	0.70	0.43	0.09	0.06
CARBON MONOXIDE	26.10	16.22	1.44	0.90	10.94	6.80	9.08	5.64	1.20	0.75
NOX - NO2	1.61	1.00	1.05	0.65	1.10	0.69	1.18	0.73	0.82	0.51
NOX CORRECTED	1.39	0.86	0.90	0.56	0.95	0.59	1.01	0.63	0.71	0.44
CARBON DIOXIDE	817.98	508.38	832.00	517.09	695.83	432.46	792.14	492.32	522.17	324.53

	MG/MI	MG/KM
ALDEHYDE	101.16	62.87
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40701
DATE RUN: 01 17 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: G S HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
106.	722.	1053.	726.			1013.	875.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	800.	16.3	GOOD					900.	17.0
HOT TRANSIENT	2.2	1	0	700.	17.0	FAIR					650.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.40	29.40	29.40		29.40
SAMPLING TIME - SEC	505	868	511		764
DISTANCE TRAVELLED- MILES	3.673	4.009	3.664		10.271
DILUTION FACTOR	5.51	10.61	6.46		4.77
VOLUME - VMIX (CU FT)	2550.73	4381.59	2586.80		3859.93
FUEL ECONOMY -MILES/GAL	10.15	12.69	11.75	11.82	16.21
FUEL ECONOMY - KM/LITER	4.32	5.39	5.00	5.03	6.89

	COLD G/MI	COLD G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT G/MI	HOT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.08	0.67	0.04	0.03	0.63	0.39	0.42	0.26	0.03	0.02
CARBON MONOXIDE	18.91	11.75	0.39	0.25	8.98	5.58	6.54	4.06	0.73	0.45
NOX - NO2	1.32	0.82	0.89	0.55	1.06	0.66	1.03	0.64	0.81	0.50
NOX CORRECTED	1.22	0.76	0.82	0.51	0.98	0.61	0.95	0.59	0.75	0.47
CARBON DIOXIDE	827.84	514.51	688.36	427.82	727.64	452.23	727.73	452.29	537.90	334.30

	MG/MI	MG/KM
ALDEHYDE	111.18	69.10
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40702
DATE RUN: 02 01 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 58 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
117.	747	1142.	801.			1048.	889.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.1	0	1	830	17.3	FAIR	STAL	HES T			960.	17.
HOT TRANSIENT	1.8	0	0	820	17.5	GOOD					790.	15.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.64	29.64	29.64		29.65
SAMPLING TIME - SEC	510	866	505		764
DISTANCE TRAVELLED- MILES	3.634	3.972	3.640		10.242
DILUTION FACTOR	5.44	8.66	6.64		4.77
VOLUME - VMIX (CU FT)	2593.78	4411.45	2568.98		3893.13
FUEL ECONOMY -MILES/GAL	9.76	10.11	12.11	10.50	16.01
FUEL ECONOMY - KM/LITER	4.15	4.30	5.15	4.47	6.81

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.66	1.65	0.22	0.14	0.59	0.37	0.82	0.51	0.09	0.05
CARBON MONOXIDE	32.66	20.30	1.69	1.05	11.67	7.25	10.77	6.70	1.13	0.70
NOX - NO2	1.15	0.71	1.05	0.65	1.08	0.67	1.08	0.67	0.78	0.48
NOX CORRECTED	1.06	0.66	0.97	0.60	1.00	0.62	1.00	0.62	0.72	0.45
CARBON DIOXIDE	836.08	519.63	861.36	535.34	701.69	436.11	812.65	505.06	544.06	338.14

	MG/MI	MG/KM
ALDEHYDE	98.39	61.15
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40801
DATE RUN: 01 18 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: HYECK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 83 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
122	727	1125	643	1133	828	1010	806	736	733

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	800	16.8	GOOD					900	16.9
HOT TRANSIENT	2.5	1	0	600	18.	GOOD					650	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.37	29.37	29.37		29.37	29.37	29.37
SAMPLING TIME - SEC	506	867	511		765	1397	124
DISTANCE TRAVELLED- MILES	3.697	4.034	3.668		10.273	13.625	0.768
DILUTION FACTOR	6.19	8.87	6.65		5.27	6.20	9.57
VOLUME - VMIX (CU.FT)	2553.39	4375.37	2581.22		3875.04	6888.20	627.65
FUEL ECONOMY -MILES/GAL	11.51	10.61	12.15	11.18	17.88	15.76	15.23
FUEL ECONOMY - KM/LITER	4.89	4.51	5.17	4.75	7.60	6.70	6.48

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	0.78	0.49	0.07	0.04	0.84	0.52	0.42	0.26	0.07	0.04	0.09	0.06	0.13	0.08
CARBON MONOXIDE	17.21	10.70	3.24	2.01	13.13	8.16	8.80	5.47	1.16	0.72	6.26	3.89	4.84	3.01
NOX - NO2	0.97	0.60	0.94	0.58	0.89	0.56	0.93	0.58	0.88	0.55	0.63	0.39	0.89	0.55
NOX CORRECTED	1.01	0.63	0.98	0.61	0.93	0.58	0.97	0.60	0.92	0.57	0.66	0.41	0.92	0.57
CARBON DIOXIDE	729.86	453.61	818.62	508.77	696.01	432.57	767.08	476.74	486.90	302.61	544.72	338.55	565.79	351.64

	MG/MI	MG/KM
ALDEHYDE	72.96	45.35
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	13.42	8.44
SULFATE	0.45	0.28

FEDERAL 3-MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	22	0.00	0.02	224	-	-
30 MPH STEADY STATE	7	23	0.00	0.02	531	-	-
IDLE IN DRIVE	9	20	0.00	0.02	74	625	14.3
IDLE,NEUTRAL	7	23	0.02	0.02	46	800	16.5
2500 RPM NO LOAD	37	45	0.01	0.02	94	-	-
IDLE, NEUTRAL	14	30	0.00	0.02	43	825	17.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40802
DATE RUN: 01 19 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: HYECK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 83 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
120	733	1094	792	1082	825	1039	872	783	709

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	800	17.3	GOOD					900	18.8
HOT TRANSIENT	1.4	1	0	800	17.	GOOD					625	14.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.53	29.53	29.53		29.53	29.53	29.53
SAMPLING TIME - SEC	506	867	510		765	1398	125
DISTANCE TRAVELLED- MILES	3.695	4.006	3.686		10.206	13.628	0.767
DILUTION FACTOR	5.58	9.20	6.65		5.08	5.94	9.30
VOLUME - VMIX (CU FT)	2567.72	4397.07	2590.46		3884.70	7146.32	633.81
FUEL ECONOMY -MILES/GAL	10.28	10.89	12.17	11.07	17.14	14.53	14.63
FUEL ECONOMY - KM/LITER	4.37	4.63	5.17	4.71	7.29	6.18	6.22

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	0.72	0.45	0.08	0.05	0.81	0.50	0.41	0.26	0.05	0.03	0.12	0.07	0.36	0.22
CARBON MONOXIDE	21.90	13.61	1.65	1.02	13.11	8.15	8.96	5.57	1.01	0.63	5.81	3.61	7.11	4.42
NOX - NO2	0.90	0.56	0.87	0.54	0.94	0.59	0.90	0.56	0.72	0.45	0.66	0.41	1.11	0.69
NOX CORRECTED	0.94	0.58	0.90	0.56	0.98	0.61	0.93	0.58	0.75	0.46	0.68	0.43	1.14	0.71
CARBON DIOXIDE	813.94	505.87	799.85	497.11	695.08	432.00	774.14	481.13	508.14	315.81	592.30	368.12	585.01	363.59

	MG/MI	MG/KM
ALDEHYDE	65.51	40.72
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	5.60	3.63
SULFATE	0.67	0.42

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	20	0.05	0.03	231	-	-
30 MPH STEADY STATE	15	21	0.02	0.02	618	-	-
IDLE IN DRIVE	10	18	0.02	0.01	78	700	14.5
IDLE,NEUTRAL	9	21	0.02	0.01	50	850	16.8
2500 RPM NO LOAD	26	25	0.02	0.02	100	-	-
IDLE, NEUTRAL	20	32	0.02	0.02	46	820	16.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40811
DATE RUN: 01 29 78 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: HYECK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 81 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
116	815	1144	665	1128	820	1039	855

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	700	14.5	GOOD					790	14.8
HOT TRANSIENT	1.2	1	0	650	14.5	FAIR					600	13.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.29	29.29	29.29		29.29	29.29
SAMPLING TIME - SEC	1220	153	510		734	1396
DISTANCE TRAVELLED- MILES	3.647	3.967	3.617		10.195	13.524
DILUTION FACTOR	5.37	6.88	6.34		4.89	5.85
VOLUME - VMIX (CU FT)	2559.88	4361.86	2570.46		3846.90	7079.69
FUEL ECONOMY -MILES/GAL	9.79	10.48	11.47	10.57	16.54	14.31
FUEL ECONOMY - KM/LITER	4.16	4.46	4.88	4.50	7.03	6.09

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	1.26	0.78	0.21	0.13	1.09	0.68	0.67	0.41	0.09	0.06	0.15	0.09
CARBON MONOXIDE	35.54	22.09	2.30	1.43	14.43	8.97	12.45	7.74	2.41	1.50	8.56	5.32
NOX - NO2	0.79	0.49	0.94	0.59	0.95	0.59	0.91	0.57	0.77	0.48	0.64	0.40
NOX CORRECTED	0.81	0.50	0.97	0.60	0.98	0.61	0.94	0.58	0.80	0.50	0.66	0.41
CARBON DIOXIDE	833.18	517.82	829.87	515.77	736.17	457.53	805.08	500.36	524.38	325.90	596.75	370.88

	MG/MI	MG/KM										
ALDEHYDE	76.22	47.37										
HYDROGEN SULFIDE	NOT DETECTED										MG/MI	MG/KM
PARTICULATE											10.35	6.46
SULFATE											0.12	0.08

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40812
DATE RUN: 01 30 79 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 60 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
115	796	1134	787	1200	833	1149	912

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.7	0	0	900	15.8	GOOD					940	15.8
HOT TRANSIENT	1.6	0	0	700	15.8	GOOD					670	14.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.56	29.56	29.56		29.53	29.53
SAMPLING TIME - SEC	505	927	505		763	1397
DISTANCE TRAVELLED- MILES	3.657	4.011	3.631		10.231	13.520
DILUTION FACTOR	5.47	8.45	6.33		4.61	5.76
VOLUME - VMIX (CU FT)	2544.88	4402.16	2563.99		3875.58	7135.20
FUEL ECONOMY -MILES/GAL	10.07	9.98	11.51	10.37	15.52	14.00
FUEL ECONOMY - KM/LITER	4.28	4.24	4.89	4.41	6.60	5.95

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	1.27	0.79	0.26	0.16	0.94	0.58	0.65	0.40	0.10	0.06	0.19	0.12
CARBON MONOXIDE	26.43	16.42	4.36	2.71	18.20	11.31	12.63	7.85	3.27	2.04	12.36	7.68
NOX - NO2	0.96	0.60	1.17	0.73	1.14	0.71	1.12	0.70	0.77	0.48	0.74	0.46
NOX CORRECTED	0.98	0.61	1.20	0.75	1.17	0.73	1.15	0.71	0.79	0.49	0.76	0.47
CARBON DIOXIDE	822.36	511.10	868.34	539.68	727.84	452.35	820.86	510.17	557.98	346.78	604.38	375.62

	COMPOSITE MG/MI	COMPOSITE MG/KM	SET MG/MI	SET MG/KM
ALDEHYDE	73.99	45.99		
HYDROGEN SULFIDE	NOT DETECTED			
PARTICULATE			7.93	4.97
SULFATE			0.20	0.12

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40901
DATE RUN: 01 21 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7H222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
122	799	1178	783			1086	889

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.8	1	0	900	16.2	GOOD					960	16.3
HOT TRANSIENT	.8	0	0	625	17.8	GOOD					650	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.33	29.33	29.33		29.34
SAMPLING TIME - SEC	515	858	505		761
DISTANCE TRAVELLED- MILES	3.742	4.053	3.697		10.366
DILUTION FACTOR	5.71	8.81	6.63		4.99
VOLUME - VMIX (CU FT)	2599.50	4346.72	2547.35		3842.16
FUEL ECONOMY -MILES/GAL	10.52	10.66	12.37	11.05	17.22
FUEL ECONOMY - KM/LITER	4.47	4.53	5.26	4.70	7.32

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.17	0.73	0.16	0.10	0.60	0.37	0.49	0.30	0.06	0.04
CARBON MONOXIDE	26.80	16.66	2.91	1.81	14.76	9.17	11.07	6.88	2.51	1.56
NOX - NO2	0.62	0.39	0.77	0.48	0.77	0.48	0.74	0.46	0.60	0.37
NOX CORRECTED	0.73	0.45	0.90	0.56	0.90	0.56	0.87	0.54	0.71	0.44
CARBON DIOXIDE	784.77	487.74	815.02	506.54	681.49	423.55	772.47	480.09	503.52	312.94

	MG/MI	MG/KM
ALDEHYDE	77.11	47.92
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40902
DATE RUN: 01 22 78
CAR: 1974 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 107 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
126.	761.	1157.	777.			1070.	885.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.7	0	0	870	16.7	GOOD	HES. T				720	15.5
HOT TRANSIENT	.9	0	0	750	15.5						725	15.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CAR RUNS LAZY ON ACCELS BRAKES GO TO STOP ON SOME DECELS

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.66		29.66		29.66				29.66	
SAMPLING TIME - SEC	505		267		505				814	
DISTANCE TRAVELLED- MILES	3.681		4.012		3.663				10.315	
DILUTION FACTOR	5.66		9.01		6.71				5.03	
VOLUME - VMIX (CU FT)	2578.44		4422.64		2575.34				3901.37	
FUEL ECONOMY -MILES/GAL	10.35		10.62		12.28		10.96		16.98	
FUEL ECONOMY - KM/LITER	4.40		4.51		5.22		4.66		7.22	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.01	0.63	0.12	0.08	0.50	0.31	0.41	0.25	0.06	0.04
CARBON MONOXIDE	24.89	15.47	1.62	1.01	16.39	10.19	10.43	6.48	1.78	1.11
NOX - NO2	0.71	0.44	0.77	0.48	0.79	0.49	0.76	0.47	0.65	0.41
NOX CORRECTED	0.83	0.52	0.91	0.56	0.93	0.58	0.90	0.56	0.77	0.48
CARBON DIOXIDE	802.24	498.59	820.52	509.95	684.41	425.36	779.73	484.60	511.83	318.11
							MG/MI	MG/KM		
ALDEHYDE							69.35	43.10		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40911
DATE RUN: 01 27 78 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 114 GR/LH FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
118	824	1192	712			1287	936

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	.7	0	0	925	17.4	SMO					575	14
HOT TRANSIENT	1.7	0	0	675	15.2	SMO					550	

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	28.87		28.87		28.88				28.89	
SAMPLING TIME - SEC	506		868		507				764	
DISTANCE TRAVELLED- MILES	3.684		3.978		3.652				10.288	
DILUTION FACTOR	5.25		8.48		5.96				4.39	
VOLUME - VMIX (CU FT)	2511.81		4302.74		2520.11				3797.29	
FUEL ECONOMY -MILES/GAL	9.85		10.15		11.08		10.32		15.15	
FUEL ECONOMY - KM/LITER	4.19		4.32		4.71		4.39		6.44	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.18	0.73	0.38	0.23	1.05	0.66	0.73	0.45	0.14	0.08
CARBON MONOXIDE	42.58	26.47	9.77	6.07	31.30	19.45	22.43	13.94	6.16	3.83
NOX - NO2	0.68	0.42	0.98	0.61	0.85	0.53	0.88	0.55	0.70	0.43
NOX CORRECTED	0.84	0.52	1.20	0.75	1.04	0.65	1.08	0.67	0.85	0.53
CARBON DIOXIDE	816.46	507.44	844.55	524.89	736.49	457.73	609.26	502.96	566.74	352.23
							MG/MI	MG/KM		
ALDEHYDE							71.08	44.18		
HYDROGEN SULFIDE							NOT DETECTED			

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 40912
DATE RUN: 0 0 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVEN: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 118 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SLC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
125.	796.	1190.	811.			1196.	931.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	825	16.0	FAIR					675	14.0
HOT TRANSIENT	2.2	0	0	625	14.5	FAIR					650	13.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.18	29.18	29.18		29.18
SAMPLING TIME - SEC	508	868	510		764
DISTANCE TRAVELLED- MILES	3.610	3.937	3.617		10.221
DILUTION FACTOR	5.18	8.40	6.05		4.13
VOLUME - VMIX (CU FT)	2550.66	4348.54	2564.25		3832.93
FUEL ECONOMY -MILES/GAL	9.37	9.85	10.95	10.02	14.02
FUEL ECONOMY - KM/LITER	3.98	4.19	4.66	4.26	5.96

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.90	1.18	0.24	0.15	0.73	0.46	0.72	0.44	0.13	0.08
CARBON MONOXIDE	56.28	34.98	8.03	4.99	29.82	18.53	23.90	14.86	5.27	3.28
NOX - NO2	0.66	0.41	0.95	0.59	0.88	0.55	0.87	0.54	0.71	0.44
NOX CORRECTED	0.82	0.51	1.19	0.74	1.11	0.69	1.09	0.68	0.89	0.55
CARBON DIOXIDE	838.81	521.33	873.91	543.14	749.24	465.66	832.67	517.51	614.84	382.13

	MG/MI	MG/KM
ALDEHYDE	89.85	55.84
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 41101
DATE RUN: 01 23 76
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 141 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
119	710	1151	751	1356	1015	1374	1027	1343	1215

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.4	0	0	1000	19.2	GOOD					600	15.1
HOT TRANSIENT	1.0	0	0	800		GOOD					650	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.75		29.75		29.75				29.76		29.76		29.76	
SAMPLING TIME - SEC	507		868		508				764		1395		124	
DISTANCE TRAVELLED- MILES	3.656		4.016		3.678				10.326		13.710		0.764	
DILUTION FACTOR	5.80		9.02		6.34				4.73		5.67		7.84	
VOLUME - VMIX (CU FT)	2586.39		4433.16		2586.39				3908.79		7188.50		634.29	
FUEL ECONOMY -MILES/GAL	10.60		10.76		11.69		10.96		16.05		13.97		12.36	
FUEL ECONOMY - KM/LITER	4.50		4.57		4.97		4.66		6.83		5.94		5.25	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.92	0.57	0.15	0.10	1.33	0.83	0.63	0.39	0.14	0.09	0.23	0.14	0.74	0.46
CARBON MONOXIDE	34.85	21.66	4.08	2.54	34.35	21.35	18.63	11.58	9.69	6.02	27.16	16.88	46.36	28.82
NOX - NO2	0.55	0.34	0.64	0.40	0.57	0.35	0.60	0.37	0.44	0.27	0.33	0.21	0.26	0.16
NOX CORRECTED	0.80	0.50	0.92	0.57	0.83	0.51	0.87	0.54	0.63	0.39	0.48	0.30	0.37	0.23
CARBON DIOXIDE	767.38	476.93	805.74	500.77	689.49	428.52	766.21	476.20	528.91	328.72	582.42	361.98	632.33	393.00

	MG/MI	MG/KM
ALDEHYDE	56.91	35.37
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	17.26	10.79
SULFATE	0.29	0.18

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	8	18	0.10	0.08	96	-	-
30 MPH STEADY STATE	9	18	0.06	0.07	259	-	-
IDLE IN DRIVE	10	15	0.02	0.01	59	675	15.4
IDLE,NEUTRAL	10	14	0.02	0.01	40	900	18.1
2500 RPM NO LOAD	12	15	0.10	0.07	52	-	-
IDLE, NEUTRAL	11	15	0.05	0.03	41	950	19.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 41102
DATE RUN: 01 26 78
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 162 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
134	667	1237	619	1441	990	1462	1340	1296	1183

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.9	1	1	675	16.1	GOOD					600	14.2
HOT TRANSIENT	1.2	0	0	675	15.2	GOOD					650	14.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.20	28.20	28.21		28.28	28.24	28.29
SAMPLING TIME - SEC	514	870	507		763	1398	125
DISTANCE TRAVELLED- MILES	3.651	3.979	3.644		10.312	13.642	0.772
DILUTION FACTOR	5.49	9.09	6.31		4.46	5.36	7.90
VOLUME - VMIX (CU FT)	2506.20	4203.18	2455.89		3718.26	6829.28	606.40
FUEL ECONOMY -MILES/GAL	10.23	11.19	12.02	11.18	15.76	13.72	13.00
FUEL ECONOMY - KM/LITER	4.35	4.76	5.11	4.76	6.70	5.83	5.53

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.86	1.16	0.25	0.15	0.94	0.59	0.77	0.48	0.37	0.23	0.58	0.36	1.33	0.82
CARBON MONOXIDE	46.27	28.75	6.92	4.30	43.20	26.85	24.90	15.48	11.84	7.36	44.43	27.61	39.92	24.81
NOX - NO2	0.60	0.37	0.59	0.37	0.48	0.30	0.56	0.35	0.26	0.16	0.31	0.19	0.21	0.13
NOX CORRECTED	1.01	0.63	1.03	0.64	0.81	0.51	0.97	0.60	0.44	0.27	0.53	0.33	0.35	0.22
CARBON DIOXIDE	775.59	482.03	769.81	478.44	656.23	407.85	740.05	459.94	534.93	332.46	565.67	351.57	605.35	376.23

	MG/MI	MG/KM
ALDEHYDE	80.95	50.31
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	23.46	14.63
SULFATE	0.20	0.13

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	265	100	6.05	6.30	42	-	-
30 MPH STEADY STATE	6	20	0.10	0.05	80	-	-
IDLE IN DRIVE	13	16	0.01	0.00	55	675	14.0
IDLE,NEUTRAL	15	20	0.00	0.00	41	875	16.5
2500 RPM NO LOAD	15	20	0.14	0.18	51	-	-
IDLE, NEUTRAL	14	20	0.01	0.02	40	900	16.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 41111
DATE RUN: 01 24 78 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 147 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
118.	727	1243	843	1286	1007	1337	1006

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	790	15.0	GOOD					620	14.0
HOT TRANSIENT	3.	0	0	520	14.8	GOOD					640	15.7

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.46	29.46	29.46		29.46	29.46
SAMPLING TIME - SEC	505	868	505		763	1398
DISTANCE TRAVELLED- MILES	3.711	4.070	3.683		10.256	13.609
DILUTION FACTOR	5.39	8.40	5.74		4.26	5.29
VOLUME - VMIX (CU FT)	2554.62	4390.95	2553.50		3870.73	7121.52
FUEL ECONOMY -MILES/GAL	10.03	10.09	10.62	10.22	14.40	12.93
FUEL ECONOMY - KM/LITER	4.26	4.29	4.51	4.34	6.12	5.50

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.60	0.99	0.33	0.21	1.47	0.91	0.90	0.56	0.20	0.12	0.34	0.21
CARBON MONOXIDE	49.65	30.86	10.98	6.82	49.97	31.06	29.47	18.31	17.23	10.71	35.95	22.34
NOX - NO2	0.56	0.35	0.77	0.48	0.61	0.38	0.68	0.42	0.49	0.31	0.45	0.28
NOX CORRECTED	0.85	0.53	1.17	0.72	0.92	0.57	1.03	0.64	0.74	0.46	0.67	0.42
CARBON DIOXIDE	788.56	490.09	848.00	527.04	740.08	459.96	806.59	501.30	579.57	360.21	618.48	384.39

	MG/MI	MG/KM
ALDEHYDE	74.87	46.53
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE		4.41 2.79
SULFATE		0.24 0.15

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 41112
DATE RUN: 0 0 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 179 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
117.	732.	1037.	972.	1318.	1110.	1334.	1052.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.5	1	0	675		GOOD					500	13.1
HOT TRANSIENT	2.9	0	0	600	14.2	GOOD					600	14.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	28.93	28.93	28.93		28.91	28.91
SAMPLING TIME - SEC	515	867	508		764	1398
DISTANCE TRAVELLED- MILES	3.688	4.039	3.647		10.300	13.617
DILUTION FACTOR	4.99	7.67	5.21		4.21	5.07
VOLUME - VMIX (CU FT)	2560.85	4314.30	2527.57		3799.41	6993.86
FUEL ECONOMY -MILES/GAL	9.18	9.28	9.63	9.35	14.53	12.61
FUEL ECONOMY - KM/LITER	3.90	3.94	4.09	3.97	6.18	5.36

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.83	1.14	0.82	0.51	2.10	1.30	1.37	0.85	0.28	0.17	0.36	0.23
CARBON MONOXIDE	84.39	52.45	49.49	30.76	79.61	49.48	64.80	40.27	21.69	13.48	53.92	33.51
NOX - NO2	0.42	0.26	0.43	0.27	0.41	0.25	0.42	0.26	0.49	0.31	0.39	0.24
NOX CORRECTED	0.83	0.51	0.84	0.52	0.80	0.50	0.83	0.52	0.96	0.60	0.77	0.48
CARBON DIOXIDE	813.68	505.71	862.07	535.76	776.04	482.31	828.87	515.15	566.49	352.08	607.15	377.34

	MG/MI	MG/KM
ALDEHYDE	93.34	58.01
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	24.97	15.58
SULFATE	0.26	0.16

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 41113
DATE RUN: 01 31 78 AIR CONDITIONER USED
CAR: 1977 PLYMOUTH FURY CALIF VIN: RL41G7A222946 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 157 GR/LB FUEL DENSITY: 0.735 G/ML FUEL % CARBON: 85.77
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.21 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
118	753	1354	956	1336	1118	1377	1103

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.2	0	0	780	16	GOOD					650	13.8
HOT TRANSIENT	1.2	0	0	700	15.8	GOOD					660	14.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CAR RAN LAZY AFTER HOT SOAK -BRAKE BARELY STOPPED CAR ON DECEL

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.43		29.43		29.43				29.43		29.43	
SAMPLING TIME - SEC	505		870		505				764		1337	
DISTANCE TRAVELLED- MILES	3.630		3.992		3.667				10.225		13.593	
DILUTION FACTOR	4.80		7.72		5.20				4.04		4.90	
VOLUME - VMIX (CU FT)	2552.72		4381.66		2550.21				3865.46		7108.57	
FUEL ECONOMY -MILES/GAL	8.72		9.09		9.56		9.13		13.61		11.97	
FUEL ECONOMY - KM/LITER	3.71		3.86		4.07		3.88		5.79		5.09	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.96	1.84	0.57	0.35	1.92	1.19	1.42	0.89	0.32	0.20	0.82	0.51
CARBON MONOXIDE	100.54	62.49	36.60	22.75	89.16	55.42	64.04	39.80	26.14	16.25	62.74	38.99
NOX - NO2	0.60	0.37	0.67	0.41	0.48	0.30	0.60	0.37	0.45	0.28	0.39	0.24
NOX CORRECTED	0.97	0.60	1.09	0.67	0.78	0.49	0.98	0.61	0.73	0.46	0.64	0.40
CARBON DIOXIDE	835.14	519.04	902.88	561.14	767.92	477.26	652.18	529.63	600.27	373.07	629.13	391.01
							MG/MI	MG/KM				
ALDEHYDE							78.97	49.08				
HYDROGEN SULFIDE							NOT DETECTED				MG/MI	MG/KM
PARTICULATE											1.80	1.18
SULFATE											0.29	0.18

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50001
DATE RUN: 06 01 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
79.	467.	860.	563.	953.	742.	1020.	817.	651.	599.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	118.	8		1000	16.2	GOOD					750	15.2
HOT TRANSIENT	1.	0	0	575.	19.0	GOOD					500	17.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: COULD NOT START IN 2 MIN CARB FLOODED VENTED RESTARTED TEST

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.30	29.30	29.30		29.30	29.30	29.30
SAMPLING TIME - SEC	507	867	506		763	1337	125
DISTANCE TRAVELLED- MILES	3.646	3.658	3.569		9.943	13.273	0.754
DILUTION FACTOR	4.55	10.02	7.51		5.24	6.57	10.18
VOLUME - VMIX (CU FT)	2531.13	4319.91	2525.33		3804.14	7011.38	622.02
FUEL ECONOMY -MILES/GAL	8.02	11.18	13.12	10.73	16.77	15.30	15.41
FUEL ECONOMY - KM/LITER	3.41	4.75	5.58	4.56	7.13	6.50	6.55

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	24.03	14.94	2.23	1.39	1.98	1.23	6.72	4.18	0.38	0.24	0.83	0.52	0.99	0.61
CARBON MONOXIDE	235.34	146.26	63.74	39.61	22.13	13.76	88.19	54.81	2.48	1.54	10.43	6.48	4.79	2.97
NOX - NO2	4.36	2.71	3.76	2.33	2.85	1.77	3.64	2.26	1.27	0.79	1.71	1.07	1.98	1.23
NOX CORRECTED	3.28	2.04	2.82	1.75	2.14	1.33	2.73	1.70	0.96	0.59	1.29	0.80	1.49	0.92
CARBON DIOXIDE	597.87	371.58	641.53	398.72	596.78	370.90	620.15	385.43	493.86	306.94	527.96	328.13	532.50	330.95

	MG/MI	MG/KM
ALDEHYDE	195.18	121.31
HYDROGEN SULFIDE	0.13	0.08

	MG/MI	MG/KM
PARTICULATE	16.62	10.38
SULFATE	0.22	0.14

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	23	0.02	0.02	532	-	-
30 MPH STEADY STATE	14	23	0.02	0.02	174	-	-
IDLE IN DRIVE	291	170	1.30	1.30	103	475	17.1
IDLE,NEUTRAL	26	30	0.02	0.01	71	625	19.0
2500 RPM NO LOAD	50	45	0.04	0.03	106	-	-
IDLE, NEUTRAL	32	32	0.04	0.05	64	775	19.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50002
DATE RUN: 06 06 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 4 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
78.	471.	993.	487.	1008.	808.	1037.	856.	740.	716.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0.	0.	900	15.	GOOD	HES H				800	14.6
HOT TRANSIENT	2.	0	0	550	18.2	GOOD					500	17.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: NO PROBLEMS GOOD PERFORMANCE AMB THERMOCOUPLE NOT TRACKING PROPERLY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.36	29.36	29.36
SAMPLING TIME - SEC	509	868	506		764	1337	125
DISTANCE TRAVELLED- MILES	3.681	3.919	3.568		10.045	13.296	0.766
DILUTION FACTOR	4.57	10.09	7.43		5.34	6.89	9.37
VOLUME - VMIX (CU FT)	2547.73	4330.84	2527.82		3814.27	7029.14	624.14
FUEL ECONOMY -MILES/GAL	8.06	11.40	12.95	10.82	17.22	16.07	14.30
FUEL ECONOMY - KM/LITER	3.43	4.85	5.51	4.60	7.32	6.83	6.08

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	21.93	13.63	1.32	0.82	1.24	0.77	5.59	3.47	0.39	0.24	0.53	0.33	1.09	0.68
CARBON MONOXIDE	220.89	137.28	17.79	11.06	12.12	7.53	58.55	36.39	1.61	1.00	6.30	3.92	3.01	1.87
NOX - NO2	4.97	3.09	2.51	1.56	2.62	1.63	3.05	1.90	1.19	0.74	1.64	1.02	1.64	1.02
NOX CORRECTED	3.73	2.32	1.88	1.17	1.97	1.22	2.29	1.42	0.90	0.56	1.23	0.76	1.23	0.76
CARBON DIOXIDE	621.19	386.07	701.88	436.22	623.28	387.37	663.72	412.51	482.24	299.71	509.10	316.41	576.83	358.50

	MG/MI	MG/KM
ALDEHYDE	173.91	108.08
HYDROGEN SULFIDE	LESS THAN 0.04	0.02

	MG/MI	MG/KM
PARTICULATE	12.51	7.82
SULFATE	0.20	0.12

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	10	20	0.04	0.03	439	-	-
30 MPH STEADY STATE	17	22	0.03	0.02	162	-	-
IDLE IN DRIVE	254	145	1.05	1.10	115	500	17.6
IDLE,NEUTRAL	24	25	0.03	0.01	83	700	19.6
2500 RPM NO LOAD	74	60	0.03	0.02	113	-	-
IDLE, NEUTRAL	29	27	0.03	0.02	83	650	19.8

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50201
DATE RUN: 05 30 76
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
128.	423.	886.	674.			999.	839.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1100	18.4	GOOD					825	15.2
HOT TRANSIENT	1.0	0	0	500.	18.0	GOOD					475	17.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: NEW BATTERY PRIOR TO TEST START AND OPERATION GOOD PREVIOUS RUN ABORTED

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.20	29.19	29.19		29.19
SAMPLING TIME - SEC	506	867	505		1363
DISTANCE TRAVELLED- MILES	3.594	3.840	3.531		9.981
DILUTION FACTOR	5.35	9.98	7.44		5.23
VOLUME - VMIX (CU FT)	2516.02	4300.40	2507.17		3789.34
FUEL ECONOMY -MILES/GAL	9.36	11.12	12.95	11.11	16.88
FUEL ECONOMY - KM/LITER	3.98	4.73	5.51	4.73	7.18

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	10.93	6.79	0.93	0.58	1.25	0.78	3.10	1.92	0.34	0.21
CARBON MONOXIDE	156.67	97.37	13.23	8.22	13.55	8.42	43.14	26.81	2.88	1.79
NOX - NO2	5.37	3.34	5.50	3.42	2.37	1.47	4.62	2.87	1.44	0.90
NOX CORRECTED	4.07	2.53	4.17	2.59	1.80	1.12	3.50	2.18	1.09	0.68
CARBON DIOXIDE	613.20	381.11	728.74	452.92	620.98	385.94	675.30	419.70	490.07	304.58
							MG/MI	MG/KM		
ALDEHYDE							184.02	114.37		
HYDROGEN SULFIDE						LESS THAN	0.05	0.03		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50202
DATE RUN: 06 07 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150063 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
115.	415.	869.	602.			904.	772.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	27.	0	0	1100	16.	GOOD	HES T				880	14.3
HOT TRANSIENT	1.	0	0	580	16.8	GOOD					570	16.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: HARD TO START DRIVEABILITY GOOD H2S AND ALDH LOST DUE TO FLOW PROBLEM

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.17	29.17	29.17		29.17
SAMPLING TIME - SEC	527	868	505		764
DISTANCE TRAVELLED- MILES	3.688	3.954	3.612		10.114
DILUTION FACTOR	5.19	10.17	7.29		5.42
VOLUME - VMIX (CU FT)	2621.90	4302.08	2504.87		3793.57
FUEL ECONOMY -MILES/GAL	8.94	11.67	12.97	11.27	17.70
FUEL ECONOMY - KM/LITER	3.80	4.96	5.52	4.79	7.52

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	16.26	10.11	1.62	1.01	1.58	0.98	4.65	2.89	0.33	0.21
CARBON MONOXIDE	180.20	111.99	16.90	10.50	16.72	10.39	50.74	31.53	2.04	1.27
NOX - NO2	4.61	2.87	2.52	1.57	2.24	1.39	2.88	1.79	1.40	0.87
NOX CORRECTED	3.51	2.18	1.92	1.19	1.71	1.06	2.19	1.36	1.07	0.66
CARBON DIOXIDE	600.71	373.34	685.39	425.97	613.74	381.44	648.32	402.93	468.55	291.20

	MG/MI	MG/KM
ALDEHYDE	0.00	0.00
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50401
DATE RUN: 05 25 78
CAR: 1977 PLYMOUTH FURY 495 VIN: RL41G7A150083 DRIVER: L J WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
128.	444.	980.	723.	989.	724.	935.	801.	668.	666.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1800	19.2	GOOD					650.	16.0
HOT TRANSIENT	1.	0	0	550	17.6	GOOD					500.	17.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: PLUGS CHANGED PRIOR TO TEST DRIVEABILITY GOOD HOT AND COLD

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.35	29.35	29.35		29.36	29.35	29.36
SAMPLING TIME - SEC	507	867	506		763	1338	125
DISTANCE TRAVELLED- MILES	3.687	3.895	3.574		10.073	13.320	0.768
DILUTION FACTOR	6.02	10.19	7.46		5.78	7.04	10.20
VOLUME - VMIX (CU FT)	2532.75	4327.13	2530.26		3816.21	7029.18	621.93
FUEL ECONOMY -MILES/GAL	10.77	11.46	13.02	11.68	18.72	16.46	15.72
FUEL ECONOMY - KM/LITER	4.58	4.87	5.54	4.97	7.96	7.00	6.69

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	4.44	2.76	0.36	0.22	0.74	0.46	1.32	0.82	0.29	0.18	0.43	0.27	0.54	0.33
CARBON MONOXIDE	95.97	59.65	4.12	2.56	6.47	4.02	23.97	14.90	1.50	0.93	6.29	3.91	2.24	1.39
NOX - NO2	3.85	2.39	1.05	0.65	1.86	1.15	1.86	1.15	1.28	0.80	1.63	1.01	1.16	0.72
NOX CORRECTED	3.04	1.89	0.83	0.51	1.47	0.91	1.46	0.91	1.01	0.63	1.29	0.80	0.92	0.57
CARBON DIOXIDE	612.02	380.37	722.86	449.26	630.17	391.65	674.40	419.14	443.68	275.75	497.20	309.01	526.91	327.48

	MG/MI	MG/KM
ALDEHYDE	165.59	102.92
HYDROGEN SULFIDE	0.16	0.10

	MG/MI	MG/KM
PARTICULATE	11.95	7.47
SULFATE	0.20	0.12

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	7	15	0.03	0.02	437	-	-
30 MPH STEADY STATE	10	18	0.02	0.02	23	-	-
IDLE IN DRIVE	18	20	0.02	0.02	210	525	17.0
IDLE,NEUTRAL	19	20	0.02	0.02	74	675	19.8
2500 RPM NO LOAD	17	22	0.03	0.02	193	-	-
IDLE, NEUTRAL	22	20	0.02	0.02	75	650	19.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50402
DATE RUN: 06 08 78
CAR: 1977 PLYMOUTH FURY 4&S VIN: RL41G7A150083 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 22 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
121.	389.	847.	597.	925.	680.	934.	789.	585.	556.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE EVENT QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1200	19.3	POOR					550	14.5
HOT TRANSIENT	1.	0	0	500	19.8	GOOD					475	16.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD START GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.07	29.07	29.07		29.07	29.07	29.07
SAMPLING TIME - SEC	506	867	506		763	1398	125
DISTANCE TRAVELLED- MILES	3.624	3.881	3.542		9.923	13.136	0.735
DILUTION FACTOR	5.05	10.10	7.87		5.77	7.21	11.22
VOLUME - VMIX (CU FT)	2500.80	4288.45	2503.26		3772.68	6957.17	617.60
FUEL ECONOMY -MILES/GAL	8.96	11.41	13.77	11.30	18.61	16.79	16.74
FUEL ECONOMY - KM/LITER	3.61	4.85	5.86	4.80	7.91	7.14	7.12

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	17.55	10.91	0.90	0.56	1.19	0.74	4.43	2.76	0.38	0.23	0.69	0.43	0.88	0.55
CARBON MONOXIDE	180.60	112.24	7.40	4.60	14.24	8.85	45.22	28.11	2.09	1.30	8.76	5.44	4.51	2.80
NOX - NO2	8.17	5.08	1.72	1.07	2.34	1.45	3.23	2.01	1.43	0.89	1.96	1.22	2.78	1.73
NOX CORRECTED	6.54	4.07	1.38	0.86	1.87	1.16	2.59	1.61	1.15	0.71	1.57	0.98	2.23	1.39
CARBON DIOXIDE	593.91	369.12	719.00	446.86	581.31	361.26	655.58	407.44	445.25	276.73	482.47	299.86	489.90	304.48

	MG/MI	MG/KM
ALDEHYDE	209.82	130.41
HYDROGEN SULFIDE	LESS THAN 0.05	0.03

	MG/MI	MG/KM
PARTICULATE	12.27	7.65
SULFATE	0.13	0.08

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	15	0.02	0.02	390	-	-
30 MPH STEADY STATE	16	19	0.02	0.01	167	-	-
IDLE IN DRIVE	21	18	0.02	0.01	149	1900	17.0
IDLE,NEUTRAL	19	19	0.02	0.02	69	625	19.5
2500 RPM NO LOAD	11	25	0.02	0.02	181	-	-
IDLE, NEUTRAL	22	28	0.02	0.02	70	625	19.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50601
DATE RUN: 05 11 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 37 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
216.	616.	937.	714.			1022.	858.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	15	2	0	1900			STA	STA	STA	STA	500	14.5
HOT TRANSIENT	1	0	0	550	12.	GOOD						

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: VACUUM HOSE PINCHE DURING COLD TRANSIENT

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.51	29.51	29.51		29.50
SAMPLING TIME - SEC	565	-565	NA		761
DISTANCE TRAVELLED- MILES	3.718	4.018	3.604		10.107
DILUTION FACTOR	6.45	11.80	7.54		5.17
VOLUME - VMIX (CU FT)	3108.02	4352.50	2541.79		3818.59
FUEL ECONOMY -MILES/GAL	9.93	14.33	13.83	13.01	17.54
FUEL ECONOMY - KM/LITER	4.22	6.09	5.88	5.53	7.46

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.60	2.24	0.45	0.28	0.93	0.58	1.23	0.76	0.24	0.15
CARBON MONOXIDE	35.80	22.25	4.04	2.51	8.63	5.37	11.84	7.36	1.93	1.20
NOX - NO2	5.00	3.11	0.88	0.55	1.50	0.93	1.90	1.18	0.95	0.59
NOX CORRECTED	4.24	2.64	0.75	0.46	1.27	0.79	1.61	1.00	0.81	0.50
CARBON DIOXIDE	813.88	505.83	603.36	374.99	616.77	383.32	650.48	404.28	495.56	307.99

	MG/MI	MG/KM
ALDEHYDE	131.09	81.47
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50602
DATE RUN: 05 24 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 45 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
130.	457.	969.	743.			1027.	847.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	1.	0.	1200	18.8	GOOD	STA	HES M	HES M		800	15.2
HOT TRANSIENT	1.	0	0	550	17.0	GOOD					500	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: ENGINE MAY BE MISFIRING WHEN ON CT. NO PROBLEM WHEN WARM

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.13		29.13		29.13				29.13	
SAMPLING TIME - SEC	524		870		506				764	
DISTANCE TRAVELLED- MILES	3.530		3.840		3.540				10.100	
DILUTION FACTOR	5.95		10.20		7.35				5.17	
VOLUME - VMIX (CU FT)	2609.47		4298.27		2511.81				3788.01	
FUEL ECONOMY -MILES/GAL	10.35		11.91		13.38		11.90		17.67	
FUEL ECONOMY - KM/LITER	4.40		5.06		5.69		5.06		7.51	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	9.68	6.01	0.62	0.39	0.85	0.53	2.55	1.59	0.20	0.12
CARBON MONOXIDE	75.29	46.79	6.75	4.20	12.90	8.02	22.55	14.01	1.94	1.20
NOX - NO2	2.80	1.74	1.43	0.89	1.58	0.98	1.75	1.09	0.94	0.58
NOX CORRECTED	2.45	1.52	1.26	0.78	1.38	0.86	1.54	0.96	0.82	0.51
CARBON DIOXIDE	696.97	433.17	722.51	449.04	631.61	392.55	692.40	430.33	491.93	305.73
							MG/MI	MG/KM		
ALDEHYDE							164.51	102.24		
HYDROGEN SULFIDE						LESS THAN	0.05	0.03		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50603
DATE RUN: 06 09 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 47 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
125.	468.	989.	718.			1078.	933.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1350	19.5	GOOD	HES M	STA	HES M	HES M	750	15.5
HOT TRANSIENT	1	0	0	500	17.3	FAIR	HES L				495	16.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS SLIGHT DRIVEABILITY PROBLEM WHEN CHOKE OPENS

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.22		29.22		29.22				29.22	
SAMPLING TIME - SEC	518		859		515				764	
DISTANCE TRAVELLED- MILES	3.707		4.108		3.709				10.380	
DILUTION FACTOR	5.91		10.91		7.34				5.14	
VOLUME - VMIX (CU FT)	2570.61		4277.10		2565.10				3799.91	
FUEL ECONOMY -MILES/GAL	10.95		13.74		13.70		13.05		17.97	
FUEL ECONOMY - KM/LITER	4.66		5.84		5.83		5.55		7.64	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.19	3.23	0.50	0.31	0.98	0.61	1.59	0.99	0.22	0.14
CARBON MONOXIDE	72.97	45.35	4.60	2.86	12.84	7.98	20.77	12.91	2.78	1.73
NOX - NO2	2.45	1.52	1.41	0.87	1.47	0.91	1.64	1.02	0.92	0.57
NOX CORRECTED	2.17	1.35	1.24	0.77	1.30	0.80	1.45	0.90	0.81	0.51
CARBON DIOXIDE	668.21	415.30	628.69	390.73	615.63	382.62	633.22	393.55	482.07	299.61
							MG/MI	MG/KM		
ALDEHYDE							104.99	65.25		
HYDROGEN SULFIDE					LESS THAN		0.04	0.03		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50701
DATE RUN: 05 12 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 55 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
123.	458.	964.	437.			1018.	847.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	23	0	1	700	15.0	GOOD	HES T	HES M			400	17.0
HOT TRANSIENT	16	0	0	500	18.2	GOOD					550.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.28	29.28	29.28		29.28
SAMPLING TIME - SEC	506	868	506		764
DISTANCE TRAVELLED- MILES	3.704	4.063	3.629		10.152
DILUTION FACTOR	6.05	10.33	7.28		5.24
VOLUME - VMIX (CU FT)	2512.82	4326.29	2523.85		3809.50
FUEL ECONOMY -MILES/GAL	11.46	12.68	13.53	12.62	17.90
FUEL ECONOMY - KM/LITER	4.87	5.39	5.75	5.37	7.61

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.12	0.70	0.10	0.06	0.34	0.21	0.37	0.23	0.10	0.06
CARBON MONOXIDE	54.61	33.94	8.80	5.47	17.23	10.71	20.46	12.72	1.65	1.03
NOX - NO2	1.95	1.21	1.34	0.84	1.44	0.90	1.49	0.93	1.02	0.63
NOX CORRECTED	1.78	1.11	1.23	0.76	1.32	0.82	1.37	0.85	0.93	0.58
CARBON DIOXIDE	674.76	419.37	676.23	420.28	619.10	384.77	660.57	410.54	486.32	302.25

	MG/MI	MG/KM
ALDEHYDE	133.17	82.76
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50702
DATE RUN: 05 23 76
CAR: 1977 PLYMOUTH FURY 495 VIN: RL41G7A150083 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
136.	433.	969.	588.			1025.	824.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1000	15.5	GOOD	HES M	HES L			800	15.5
HOT TRANSIENT	1.	0	0	575	18.2	GOOD					500	16.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DIFFICULTIES ON ORIGINAL START DRIVEABILITY GOOD AFTER START

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.33	29.33	29.33		29.33
SAMPLING TIME - SEC	506	866	506		765
DISTANCE TRAVELLED- MILES	3.583	3.847	3.545		10.095
DILUTION FACTOR	6.29	10.77	7.73		5.55
VOLUME - VMIX (CU FT)	2522.71	4324.13	2527.13		3818.04
FUEL ECONOMY -MILES/GAL	11.49	12.55	14.03	12.67	18.81
FUEL ECONOMY - KM/LITER	4.89	5.33	5.97	5.39	8.00

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.86	3.64	1.07	0.66	1.00	0.62	2.04	1.27	0.18	0.11
CARBON MONOXIDE	74.03	46.01	13.75	8.54	14.78	9.18	26.53	16.49	1.43	0.89
NOX - NO2	2.02	1.26	1.43	0.89	1.47	0.91	1.56	0.97	1.06	0.66
NOX CORRECTED	1.87	1.16	1.32	0.82	1.35	0.84	1.44	0.90	0.98	0.61
CARBON DIOXIDE	627.16	389.78	672.94	418.23	597.49	371.34	642.82	399.51	462.61	287.51

	MG/MI	MG/KM
ALDEHYDE	149.44	92.88
HYDROGEN SULFIDE	0.33	0.21

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50703
DATE RUN: 06 12 76
CAR: 1977 PLYMOUTH FURY 495 VIN: RL41G7A150083 DRIVER: L J WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
125.	497.	981.	716.			1051.	896.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1		EVENT 2		EVENT 3		EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	900.	17.8	+DOD	HES	M	HES	M	HES	M		400.	16.8
HOT TRANSIENT	1.	0	0	475.	17.8	GOOD								475.	17.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS SLIGHT DRIVEABILITY PROBLEM ON COLD ACCELS.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.28		29.28		29.28				29.28	
SAMPLING TIME - SEC	506		868		506				763	
DISTANCE TRAVELLED- MILES	3.667		4.049		3.642				10.228	
DILUTION FACTOR	5.92		10.24		7.63				5.08	
VOLUME - VMIX (CU FT)	2517.79		4316.64		2518.06				3800.67	
FUEL ECONOMY -MILES/GAL	11.09		12.55		14.27		12.62		17.51	
FUEL ECONOMY - KM/LITER	4.71		5.34		6.07		5.37		7.45	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.91	1.81	0.33	0.21	0.82	0.51	0.99	0.62	0.15	0.09
CARBON MONOXIDE	53.01	32.95	1.92	1.19	10.80	6.71	14.76	9.17	1.59	0.99
NOX - NO2	2.26	1.40	1.38	0.86	1.46	0.90	1.58	0.98	0.98	0.61
NOX CORRECTED	2.08	1.29	1.27	0.79	1.34	0.83	1.46	0.90	0.90	0.56
CARBON DIOXIDE	697.21	433.32	693.66	431.12	593.85	369.08	667.45	414.82	497.06	308.93
							MG/MI	MG/KM		
ALDEHYDE							75.40	46.86		
HYDROGEN SULFIDE							LESS THAN 0.05	0.03		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50801
DATE RUN: 05 15 78
CAR: 1977 PLYMOUTH FURY 495 VIN: RL4167A150083 DRIVER: L WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
187.	537.	956.	528.	982.	787.	976.	807.	638.	609.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	63.	0	0	500.	17.2	FAIR	STAL	STAL	STAL		700	17.0
HOT TRANSIENT	63.	0	0	1050	18.		HES M				800	17.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CHOKE DID NOT OPEN

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	28.96	28.96	28.96		28.96	28.96	28.96
SAMPLING TIME - SEC	569	867	507		764	1398	127
DISTANCE TRAVELLED- MILES	3.593	3.923	3.567		9.982	13.332	0.766
DILUTION FACTOR	7.66	10.98	7.86		5.91	6.97	11.23
VOLUME - VMIX (CU FT)	2790.06	4271.13	2497.72		3763.90	6941.39	627.77
FUEL ECONOMY -MILES/GAL	12.74	13.21	14.53	13.44	20.13	17.27	17.98
FUEL ECONOMY - KM/LITER	5.42	5.62	6.18	5.71	8.56	7.34	7.65

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	3.70	2.30	0.36	0.23	1.23	0.76	1.28	0.80	0.19	0.12	0.32	0.20	0.60	0.37
CARBON MONOXIDE	38.01	23.62	2.68	1.67	14.61	9.08	13.18	8.19	1.66	1.03	6.41	3.98	4.62	2.87
NOX - NO2	1.48	0.92	1.32	0.82	1.50	0.93	1.40	0.87	1.16	0.72	1.12	0.70	1.46	0.91
NOX CORRECTED	1.51	0.94	1.34	0.83	1.53	0.95	1.43	0.89	1.18	0.73	1.14	0.71	1.49	0.93
CARBON DIOXIDE	615.94	382.81	657.40	408.58	575.96	357.96	626.77	389.54	431.78	268.35	495.96	308.24	477.82	296.96

	MG/MI	MG/KM
ALDEHYDE	133.36	82.89
HYDROGEN SULFIDE	NOT DETECTED	
PARTICULATE	11.63	7.29
SULFATE	0.30	0.19

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	8	20	0.01	0.02	526	-	-
30 MPH STEADY STATE	33	35	0.20	0.01	2055	-	-
IDLE IN DRIVE	326	145	1.68	1.70	106	500	17.0
IDLE,NEUTRAL	463	140	3.15	2.25	61	700	20.0
2500 RPM NO LOAD	20	20	0.01	0.02	333	-	-
IDLE, NEUTRAL	304	110	1.20	1.10	61	700	20.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50802
DATE RUN: 05 22 76
CAR: 1977 PLYMOUTH FURY 495 VIN: RL41G7A150063 DRIVER: L WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4405 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
123.	463.	963.	456.	1015.	773.	1002.	833.	660.	633.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1850	18.2	GOOD	HES M				500	17.0
HOT TRANSIENT	1.	0	0	550	17.6	GOOD					500	16.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.49		29.49		29.49				29.49		29.49		29.49	
SAMPLING TIME - SEC	506		866		506				764		1397		125	
DISTANCE TRAVELLED- MILES	3.599		3.923		3.602				10.090		13.449		0.768	
DILUTION FACTOR	6.39		10.98		7.59				5.64		7.13		11.22	
VOLUME - VMIX (CU FT)	2537.44		4344.51		2543.83				3834.63		7057.70		626.52	
FUEL ECONOMY -MILES/GAL	11.66		13.00		13.90		12.92		19.03		17.53		18.05	
FUEL ECONOMY - KM/LITER	4.96		5.53		5.91		5.49		8.09		7.45		7.67	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.64	1.77	0.28	0.17	0.90	0.56	0.97	0.61	0.16	0.10	0.35	0.22	0.41	0.26
CARBON MONOXIDE	46.93	29.17	2.59	1.61	13.07	8.12	14.57	9.06	1.63	1.01	7.81	4.85	2.55	1.59
NOX - NO2	1.85	1.15	1.34	0.83	1.50	0.93	1.48	0.92	1.07	0.67	1.16	0.72	1.51	0.94
NOX CORRECTED	1.87	1.16	1.35	0.84	1.51	0.94	1.50	0.93	1.08	0.67	1.17	0.73	1.53	0.95
CARBON DIOXIDE	668.19	415.28	668.70	415.60	606.61	377.01	651.65	405.00	456.94	283.99	486.24	302.20	479.65	298.23
							MG/MI	MG/KM						
ALDEHYDE							166.06	103.21						
HYDROGEN SULFIDE					LESS THAN		0.05	0.03						
PARTICULATE											MG/MI 12.69	MG/KM 7.96		
SULFATE											0.34	0.21		

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	8	22	0.02	0.03	429	-	-
30 MPH STEADY STATE	34	25	0.01	0.01	2561	-	-
IDLE IN DRIVE	68	35	0.65	0.40	123	550	17.0
IDLE,NEUTRAL	168	80	0.60	0.52	62	700	19.3
2500 RPM NO LOAD	12	22	0.02	0.03	339	-	-
IDLE, NEUTRAL	121	35	0.58	0.50	59	700	19.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50901
DATE RUN: 05 16 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 100 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
120.	552.	967.	597.			980.	818.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1400	14.2	FAIR	STA				675.	19.
HOT TRANSIENT	2.	0	0	1200	18.1	GOOD					725.	17.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CHOKE CLOSED MANUALLY BEFORE START OF TESTS-AFTERWARD CHOKE WAS OILED.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.10	29.10	29.10		29.10
SAMPLING TIME - SEC	564	868	507		NA
DISTANCE TRAVELLED- MILES	3.591	3.944	3.559		9.988
DILUTION FACTOR	7.52	10.94	8.01		5.74
VOLUME - VMIX (CU FT)	2798.57	4291.85	2511.09		3778.29
FUEL ECONOMY -MILES/GAL	12.48	13.18	14.71	13.40	19.47
FUEL ECONOMY - KM/LITER	5.31	5.60	6.25	5.70	8.28

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.84	1.14	0.36	0.22	1.16	0.72	0.88	0.55	0.18	0.11
CARBON MONOXIDE	24.44	15.19	3.98	2.47	14.22	8.84	10.94	6.80	1.48	0.92
NOX - NO2	1.40	0.87	1.35	0.84	1.51	0.94	1.40	0.87	1.15	0.71
NOX CORRECTLD	1.59	0.99	1.53	0.95	1.71	1.07	1.59	0.99	1.30	0.81
CARBON DIOXIDE	657.30	408.51	657.08	408.36	569.32	353.84	633.40	393.66	446.95	277.78

	MG/MI	MG/KM
ALDEHYDE	142.96	88.85
HYDROGEN SULFIDE	NOT DETECTED	

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 50902
DATE RUN: 05 19 78
CAR: 1977 PLYMOUTH FURY 495 VIN: RL41G7A150083 DRIVER: SWARTZ FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
130.	478.	967.	575.			1024.	887.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	950	18.8	GOOD	HES T	HES T	0 0	0 0	540	17.7
HOT TRANSIENT	1.	0	0	580	17.2	GOOD					560	16.7

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.42	29.42	29.42		29.42
SAMPLING TIME - SEC	503	868	504		763
DISTANCE TRAVELLED- MILES	3.633	3.947	3.640		10.085
DILUTION FACTOR	6.48	11.19	7.62		5.37
VOLUME - VMIX (CU FT)	2523.38	4332.33	2520.54		3814.96
FUEL ECONOMY -MILES/GAL	12.00	13.37	14.15	13.26	18.14
FUEL ECONOMY - KM/LITER	5.10	5.68	6.02	5.64	7.71

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.33	1.45	0.47	0.29	1.09	0.68	1.02	0.64	0.25	0.15
CARBON MONOXIDE	29.18	18.13	4.94	3.07	15.61	9.70	12.86	7.99	2.42	1.51
NOX - NO2	1.57	0.97	1.36	0.85	1.38	0.85	1.41	0.87	0.93	0.58
NOX CORRECTED	1.87	1.16	1.63	1.01	1.65	1.02	1.68	1.05	1.12	0.70
CARBON DIOXIDE	676.23	420.28	645.65	401.27	590.71	367.13	636.93	395.85	478.08	297.13

	COMPOSITE MG/MI	COMPOSITE MG/KM
ALDEHYDE	161.58	100.42
HYDROGEN SULFIDE	LESS THAN 0.05	0.03

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 51101
DATE RUN: 05 17 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 162 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
129.	521.	944.	515.	977.	799.	941.	862.	676.	651.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2	0	0	1000	18.5	GOOD					450	16.2
HOT TRANSIENT	2	0	0	800	18.0	GOOD					450	16.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: CHOKE OPERATE WELL DURING TEST -IT HAD BEEN LUBRICATED AFTER LAST TEST

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.10	29.10	29.10		29.10	29.10	29.10
SAMPLING TIME - SEC	506	867	507		764	1397	170
DISTANCE TRAVELLED- MILES	3.627	3.984	3.606		10.125	13.401	0.768
DILUTION FACTOR	6.86	10.81	7.84		5.91	7.04	9.99
VOLUME - VMIX (CU FT)	2505.34	4293.77	2510.27		3788.43	6958.74	619.35
FUEL ECONOMY -MILES/GAL	12.56	12.71	14.25	13.06	19.96	17.13	15.69
FUEL ECONOMY - KM/LITER	5.34	5.40	6.06	5.55	8.49	7.28	6.67

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.36	0.85	1.53	0.95	2.04	1.27	1.63	1.01	0.46	0.29	1.14	0.71	2.66	1.65
CARBON MONOXIDE	20.20	12.56	28.10	17.47	43.41	26.98	30.63	19.04	8.41	5.23	28.96	18.00	84.84	52.73
NOX - NO2	1.23	0.76	0.98	0.61	1.17	0.72	1.08	0.67	1.12	0.69	0.87	0.54	0.44	0.27
NOX CORRECTED	2.08	1.29	1.65	1.03	1.97	1.23	1.83	1.14	1.89	1.17	1.47	0.91	0.75	0.46
CARBON DIOXIDE	661.05	410.85	640.10	397.83	539.85	335.52	617.24	383.62	424.06	263.56	461.94	287.10	416.26	258.71

	MG/MI	MG/KM
ALDEHYDE	100.97	62.75
HYDROGEN SULFIDE	NOT DETECTED	

	MG/MI	MG/KM
PARTICULATE	26.66	16.67
SULFATE	0.49	0.30

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	47	50	0.04	0.02	745	-	-
30 MPH STEADY STATE	216	200	0.80	0.60	1240	-	-
IDLE IN DRIVE	1059	850	3.05	3.00	110	450	16.3
IDLE,NEUTRAL	505	400	3.15	3.10	52	700	18.0
2500 RPM NO LOAD	260	250	2.15	2.00	68	-	-
IDLE, NEUTRAL	305	225	1.15	1.20	48	725	18.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 51102
DATE RUN: 05 18 78
CAR: 1977 PLYMOUTH FURY 49S VIN: RL41G7A150083 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 158 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4000 LB ENGINE DISPLACEMENT: 5.57 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
129.	549.	955.	545.	979.	816.	966.	836.	671.	665.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1200	18.0	GOOD					500	16.5
HOT TRANSIENT	3.	0	0	800.	18.3	GOOD					525	16.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY TACHOMETER REPAIRED PRIOR TO RUN

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.31		29.31		29.31				29.31		29.31		29.31	
SAMPLING TIME - SEC	507		866		507				761		1397		125	
DISTANCE TRAVELLED- MILES	3.693		3.996		3.619				10.181		13.551		0.770	
DILUTION FACTOR	6.96		11.05		8.04				6.06		7.03		10.26	
VOLUME - VMIX (CU FT)	2530.07		4321.96		2532.00				3807.39		7012.23		625.00	
FUEL ECONOMY -MILES/GAL	13.11		13.39		14.89		13.70		20.84		17.52		16.51	
FUEL ECONOMY - KM/LITER	5.57		5.69		6.33		5.83		8.86		7.45		7.02	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.49	0.92	1.08	0.67	2.06	1.28	1.43	0.89	0.41	0.25	0.92	0.57	2.37	1.48
CARBON MONOXIDE	24.92	15.49	19.71	12.25	38.59	23.98	25.90	16.10	6.45	4.01	23.09	14.35	60.82	37.80
NOX - NO2	1.21	0.75	1.02	0.63	1.18	0.73	1.10	0.68	1.22	0.76	0.94	0.58	0.59	0.37
NOX CORRECTED	1.98	1.23	1.67	1.04	1.93	1.20	1.80	1.12	2.00	1.24	1.54	0.96	0.97	0.60
CARBON DIOXIDE	624.19	387.94	619.41	384.97	521.01	323.81	593.74	369.01	408.80	254.07	460.72	286.34	427.12	265.45

	MG/MI	MG/KM
ALDEHYDE	138.35	85.99
HYDROGEN SULFIDE	LESS THAN 0.05	0.03

	MG/MI	MG/KM
PARTICULATE	24.94	15.60
SULFATE	0.45	0.28

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	15	22	0.02	0.01	1066	-	-
30 MPH STEADY STATE	55	45	0.02	0.01	1600	-	-
IDLE IN DRIVE	215	140	0.80	0.80	63	525	16.8
IDLE,NEUTRAL	218	100	0.58	0.50	42	700	19.0
2500 RPM NO LOAD	32	25	0.04	0.01	215	-	-
IDLE, NEUTRAL	61	40	0.07	0.10	49	725	18.3

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60001
DATE RUN: 07 27 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
276.	971.	971.	616.	936.	708.	911.	849.	732.	683.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	9.	1.	1	900	16.8	POOR	STA	HES S			950	15.1
HOT TRANSIENT	1.			1325	20.8	GOOD					500	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SEVEN STALLS AT IDLE.BATTERY DEAD.RECHARGED THEN RESTARTED TEST AS ABOVE

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		FSC	
BAROMETRIC PRESSURE	29.07		29.07		29.07				29.10		29.09		29.10	
SAMPLING TIME - SEC	531		866		506				764		1408		125	
DISTANCE TRAVELLED- MILES	3.741		4.025		3.671				10.292		13.819		0.767	
DILUTION FACTOR	4.44		8.91		6.66				4.88		6.13		8.72	
VOLUME - VMIX (CU FT)	2629.33		4275.02		2501.52				3780.05		7013.89		618.91	
FUEL ECONOMY -MILES/GAL	7.72		10.42		12.03		10.06		16.25		14.84		13.41	
FUEL ECONOMY - KM/LITER	3.28		4.43		5.11		4.28		6.91		6.31		5.70	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	25.83	16.06	0.21	0.13	0.46	0.28	5.59	3.47	0.19	0.12	0.18	0.11	0.62	0.39
CARBON MONOXIDE	71.60	44.50	0.42	0.26	1.72	1.07	15.52	9.65	0.15	0.09	0.41	0.26	0.24	0.15
NOX - NO2	2.43	1.51	1.37	0.85	1.71	1.06	1.68	1.05	1.15	0.72	1.28	0.80	0.89	0.56
NOX CORRECTED	1.84	1.15	1.04	0.65	1.30	0.81	1.28	0.79	0.87	0.54	0.97	0.60	0.68	0.42
CARBON DIOXIDE	889.65	552.92	801.62	498.21	691.63	429.85	789.95	490.95	514.22	319.59	562.69	349.72	621.62	386.34
							MG/MI	MG/KM						
ALDEHYDE							111.63	69.38						
HYDROGEN SULFIDE					LESS THAN		0.36	0.22						
PARTICULATE											23.97	18.02		
SULFATE											14.47	8.99		

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	21	0.02	0.02	506	-	-
30 MPH STEADY STATE	6	18	0.01	0.02	199	-	-
IDLE IN DRIVE	7	17	0.01	0.02	62	425	16.0
IDLE,NEUTRAL	24	28	0.01	0.02	26	525	18.0
2500 R/M NO LOAD	67	62	0.02	0.02	51	-	-
IDLE, NEUTRAL	29	32	0.01	0.02	25	525	17.9

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60002
DATE RUN: 08 03 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FULL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
226.	903.	972.	630.	951.	755.	933.	864.	803.	802.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0.	1.	1100	16.2	POOR	STA.	HES. M.	HES. M.		950.	14.7
HOT TRANSIENT	1.	0.	0.	500.	16.2	GOOD					500.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: ONE STALL AT IDLE ONE STALL ON FIRST ACCEL

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.30	29.30	29.30		29.30	29.30	29.30
SAMPLING TIME - SEC	520	867	505		763	1400	125
DISTANCE TRAVELLED- MILES	3.757	4.164	3.681		10.271	13.552	0.768
DILUTION FACTOR	4.53	9.08	6.93		4.90	6.12	9.05
VOLUME - VMIX (CU FT)	2583.89	4317.70	2517.69		3801.64	7019.21	619.77
FUEL ECONOMY -MILES/GAL	8.03	10.88	12.49	10.48	16.17	14.52	13.94
FUEL ECONOMY - KM/LITER	3.42	4.63	5.31	4.46	6.88	6.17	5.93

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	8.45	5.25	0.36	0.22	0.55	0.34	2.06	1.28	0.23	0.15	0.26	0.16	0.78	0.49
CARBON MONOXIDE	78.11	48.54	0.98	0.61	1.50	0.94	16.85	10.47	0.24	0.15	0.82	0.51	0.87	0.54
NOX - NO2	2.87	1.78	1.26	0.79	1.66	1.03	1.70	1.06	1.15	0.71	1.27	0.79	0.90	0.56
NOX CORRECTED	2.17	1.35	0.95	0.59	1.25	0.78	1.28	0.80	0.87	0.54	0.96	0.60	0.68	0.42
CARBON DIOXIDE	891.87	554.30	766.41	476.32	665.73	413.75	765.07	475.49	516.29	320.88	574.22	356.88	596.47	370.71

	MG/MI	MG/KM
ALDEHYDE	120.35	78.53
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	9.67	7.72
SULFATE	7.92	4.92

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	21	0.01	0.02	500	-	-
30 MPH STEADY STATE	7	18	0.01	0.01	180	-	-
IDLE IN DRIVE	7	18	0.01	0.01	66	490	15.0
IDLE,NEUTRAL	20	28	0.01	0.02	31	575	16.8
2500 RPM NO LOAD	68	65	0.01	0.02	52	-	-
IDLE, NEUTRAL	8	20	0.01	0.02	59	575	17.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60201
DATE RUN: 07 26 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 10 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
319.	836.	863.	639.			916.	868.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	1	1100	18.5	FAIR					925.	15.2
HOT TRANSIENT	1.	0	0	475.	16.5	GOOD					450.	16.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: STALL WHEN ENGAGED DRIVE OTHERWISE GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.22	29.22	29.22		29.22
SAMPLING TIME - SEC	515	867	506		761
DISTANCE TRAVELLED- MILES	3.667	3.994	3.635		10.313
DILUTION FACTOR	5.12	9.41	7.04		4.86
VOLUME - VMIX (CU FT)	2561.97	4304.34	2511.07		3776.10
FUEL ECONOMY -MILES/GAL	8.97	10.87	12.57	10.80	16.24
FUEL ECONOMY - KM/LITER	3.82	4.62	5.34	4.59	6.90

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	4.06	2.52	0.29	0.18	0.58	0.36	1.14	0.71	0.18	0.11
CARBON MONOXIDE	59.70	37.11	0.32	0.20	1.42	0.86	12.84	7.98	0.18	0.11
NOX - NO2	2.96	1.84	1.18	0.73	1.45	0.90	1.62	1.01	1.08	0.67
NOX CORRECTED	2.26	1.41	0.90	0.56	1.11	0.69	1.24	0.77	0.83	0.52
CARBON DIOXIDE	825.85	513.27	768.51	477.63	661.60	411.18	751.27	466.92	514.54	319.79

	MG/MI	MG/KM
ALDEHYDE	101.41	63.03
HYDROGEN SULFIDE	LESS THAN 0.36	0.22

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60202
DATE RUN: 06 04 76
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 10 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
319.	864.	892.	654.			946.	884.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	1.	1000	18.	FAIR					900.	14.9
HOT TRANSIENT	1.	0	0	425.	16.2	GOOD					400.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.44		29.44		29.44				29.44	
SAMPLING TIME - SEC	512		872		506				763	
DISTANCE TRAVELLED- MILES	3.729		4.068		3.705				10.368	
DILUTION FACTOR	5.23		9.21		6.87				4.77	
VOLUME - VMIX (CU FT)	2589.13		4338.41		2533.72				3821.63	
FUEL ECONOMY -MILES/GAL	9.21		10.74		12.38		10.76		15.81	
FUEL ECONOMY - KM/LITER	3.92		4.57		5.26		4.58		6.72	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.01	2.49	0.46	0.28	0.89	0.55	1.31	0.81	0.22	0.14
CARBON MONOXIDE	52.10	32.38	0.30	0.19	2.61	1.62	11.58	7.20	0.52	0.33
NOX - NO2	2.44	1.51	1.22	0.76	1.54	0.96	1.55	0.97	1.12	0.70
NOX CORRECTED	1.87	1.16	0.93	0.58	1.18	0.73	1.19	0.74	0.86	0.53
CARBON DIOXIDE	813.46	505.57	777.15	483.00	669.20	415.91	755.29	469.41	527.58	327.89
							MG/MI	MG/KM		
ALDEHYDE							153.11	95.16		
HYDROGEN SULFIDE						LESS THAN	0.00	0.00		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60401
DATE RUN: 07 25 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
310.	804.	922.	725.			928.	834.	818.	745.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1800	20.	GOOD					900.	15.8
HOT TRANSIENT	1.	0	0	500.	17.	GOOD					425.	16.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.35	29.35	29.35		29.35	29.35	29.35
SAMPLING TIME - SEC	506	867	505		761	1397	125
DISTANCE TRAVELLED- MILES	3.664	4.012	3.651		10.300	13.646	0.761
DILUTION FACTOR	5.67	9.82	7.39		5.10	6.46	9.21
VOLUME - VMIX (CU FT)	2524.37	4328.79	2520.77		3796.22	7019.32	620.18
FUEL ECONOMY -MILES/GAL	10.10	11.34	13.22	11.50	16.94	15.45	14.05
FUEL ECONOMY - KM/LITER	4.29	4.82	5.62	4.89	7.20	6.57	5.97

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	1.95	1.21	0.30	0.19	0.51	0.32	0.69	0.43	0.15	0.10	0.20	0.12	0.49	0.30
CARBON MONOXIDE	43.88	27.27	0.67	0.42	1.49	0.92	9.76	6.07	0.22	0.14	0.20	0.12	0.16	0.10
NOX - NO2	2.39	1.48	1.09	0.68	1.42	0.88	1.45	0.90	0.92	0.57	1.05	0.65	0.74	0.46
NOX CORRECTED	1.89	1.17	0.87	0.54	1.12	0.70	1.15	0.71	0.73	0.45	0.83	0.52	0.58	0.36
CARBON DIOXIDE	753.33	468.20	735.72	457.25	628.90	390.87	710.32	441.47	493.00	306.40	540.82	336.12	593.86	369.09

	MG/MI	MG/KM
ALDEHYDE	104.02	64.65
HYDROGEN SULFIDE	LESS THAN 0.46	0.28

	MG/MI	MG/KM
PARTICULATE	41.72	33.97
SULFATE	37.30	23.18

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	23	0.01	0.02	422	-	-
30 MPH STEADY STATE	5	19	0.01	0.02	169	-	-
IDLE IN DRIVE	7	17	0.01	0.02	55	425	15.9
IDLE, NEUTRAL	20	31	0.01	0.02	28	500	18.0
2500 RPM NO LOAD	31	50	0.01	0.02	56	-	-
IDLE, NEUTRAL	34	49	0.01	0.02	20	500	17.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60402
DATE RUN: 08 08 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
310.	831.	869.	650.	938.	764.	930.	844.	807.	736.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1300	18.	GOOD					845.	15.
HOT TRANSIENT	1.	0	0	500.	16.2	GOOD					475.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.46	29.46	29.46		29.46	29.46	29.46
SAMPLING TIME - SEC	508	867	506		764	1380	125
DISTANCE TRAVELLED- MILES	3.691	4.028	3.654		10.266	13.621	0.767
DILUTION FACTOR	5.61	9.68	7.15		5.11	6.46	9.20
VOLUME - VMIX (CU FT)	2543.88	4346.67	2533.06		3824.69	6873.06	626.26
FUEL ECONOMY -MILES/GAL	9.99	11.17	12.72	11.27	16.77	15.74	14.02
FUEL ECONOMY - KM/LITER	4.25	4.75	5.41	4.79	7.13	6.69	5.96

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	2.11	1.31	0.29	0.18	0.54	0.33	0.73	0.45	0.17	0.10	0.19	0.12	0.54	0.33
CARBON MONOXIDE	44.84	27.87	0.52	0.33	1.92	1.19	10.02	6.22	0.13	0.08	0.40	0.25	0.16	0.10
NOX - NO2	1.90	1.18	1.05	0.65	1.34	0.83	1.30	0.81	0.88	0.54	0.99	0.62	0.71	0.44
NOX CORRECTED	1.51	0.94	0.63	0.52	1.06	0.66	1.03	0.64	0.69	0.43	0.78	0.49	0.56	0.35
CARBON DIOXIDE	760.78	472.83	747.05	464.30	653.10	405.90	724.40	450.22	498.34	309.72	530.52	329.72	595.00	369.80

	MG/MI	MG/KM
ALDEHYDE	99.10	61.59
HYDROGEN SULFIDE	LESS THAN 0.41	0.26

	MG/MI	MG/KM
PARTICULATE	40.98	31.43
SULFATE	27.65	17.18

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	14	23	0.01	0.02	372	-	-
30 MPH STEADY STATE	7	18	0.01	0.02	145	-	-
IDLE IN DRIVE	8	18	0.01	0.02	50	425	16.0
IDLE,NEUTRAL	30	30	0.01	0.01	23	500	18.0
2500 RPM NO LOAD	52	60	0.01	0.02	36	-	-
IDLE, NEUTRAL	36	35	0.01	0.02	22	525	18.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60601
DATE RUN: 06 16 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DLG F HUMIDITY: 40 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DLG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
314.	798.	861.	759.			956.	884.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	670	20.5	GOOD					540.	15.7
HOT TRANSIENT	1.	0	0	500	16.5	GOOD					490.	15.7

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.54	29.54	29.54		29.54
SAMPLING TIME - SEC	506	866	506		764
DISTANCE TRAVELLED- MILES	3.732	4.092	3.690		10.360
DILUTION FACTOR	5.85	9.69	7.41		5.11
VOLUME - VMIX (CU FT)	2539.13	4355.33	2538.85		3839.43
FUEL ECONOMY -MILES/GAL	11.01	11.49	13.57	11.87	17.38
FUEL ECONOMY - KM/LITER	4.68	4.88	5.77	5.05	7.39

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.42	0.88	0.13	0.08	0.28	0.18	0.44	0.27	0.08	0.05
CARBON MONOXIDE	28.17	17.51	0.24	0.15	1.29	0.80	6.25	3.88	0.09	0.06
NOX - NO2	1.59	0.99	1.09	0.68	1.27	0.79	1.24	0.77	0.94	0.58
NOX CORRECTED	1.37	0.85	0.94	0.58	1.09	0.68	1.07	0.66	0.80	0.50
CARBON DIOXIDE	746.75	464.11	761.58	473.32	642.14	399.09	726.25	451.37	503.45	312.90

		MG/MI	MG/KM
ALDEHYDE		79.37	49.33
HYDROGEN SULFIDE	LESS THAN	0.41	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60602
DATE RUN: 07 24 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35LAS223673 DRIVER: SWANTZLANDER FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 40 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
310.	789.	853.	743.			936.	859.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1800	20.5						920.	14.8
HOT TRANSIENT	1.	0	0	610.	17.2		HES M				500.	16.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY EX STALL AT START OF HFET RESTARTED TEST

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.46	29.46	29.46		29.46
SAMPLING TIME - SEC	506	866	505		764
DISTANCE TRAVELLED- MILES	3.642	4.034	3.652		10.126
DILUTION FACTOR	5.93	9.68	7.32		5.09
VOLUME - VMIX (CU FT)	2527.05	4344.73	2527.88		3827.61
FUEL ECONOMY -MILES/GAL	10.98	11.72	13.66	12.02	17.23
FUEL ECONOMY - KM/LITER	4.67	4.98	5.81	5.11	7.33

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.02	0.63	0.33	0.20	0.32	0.20	0.47	0.29	0.10	0.06
CARBON MONOXIDE	22.69	14.10	0.28	0.17	1.33	0.82	5.13	3.19	0.11	0.07
NOX - NO2	1.62	1.01	1.11	0.69	1.40	0.87	1.29	0.80	0.91	0.57
NOX CORRECTED	1.39	0.86	0.95	0.59	1.20	0.75	1.11	0.69	0.78	0.49
CARBON DIOXIDE	758.55	471.44	745.61	463.40	637.70	396.34	719.02	446.88	507.59	315.47

	MG/MI	MG/KM
ALDEHYDE	81.65	50.74
HYDROGEN SULFIDE	LESS THAN 0.49	0.30

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60701
DATE RUN: 06 19 76
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35LBS223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
315.	776.	863.	654.			949.	887.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1400	20.2	GOOD					750.	15.
HOT TRANSIENT	1.	0	0	500.	17.2	GOOD					450.	16.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.37	29.37	29.37		29.37
SAMPLING TIME - SEC	508	868	506		763
DISTANCE TRAVELLED- MILES	3.643	3.967	3.629		10.202
DILUTION FACTOR	6.06	10.13	7.39		5.21
VOLUME - VMIX (CU FT)	2538.66	4331.79	2528.98		3812.00
FUEL ECONOMY -MILES/GAL	11.17	12.11	13.70	12.29	17.57
FUEL ECONOMY - KM/LITER	4.75	5.15	5.82	5.22	7.47

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.22	0.76	0.19	0.12	0.36	0.22	0.45	0.28	0.09	0.06
CARBON MONOXIDE	20.72	12.87	0.31	0.19	2.07	1.28	4.99	3.10	0.18	0.11
NOX - NO2	1.37	0.85	0.98	0.61	1.11	0.69	1.10	0.68	0.87	0.54
NOX CORRECTED	1.26	0.78	0.90	0.56	1.02	0.63	1.01	0.63	0.60	0.50
CARBON DIOXIDE	747.30	464.45	721.84	448.63	634.77	394.52	703.37	437.15	497.91	309.45

		MG/MI	MG/KM
ALDEHYDE		74.40	46.24
HYDROGEN SULFIDE	LESS THAN	0.44	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60702
DATE RUN: 07 21 78
CAR: 1978 CHEVROLLT ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 54 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
314.	769.	840.	638.			941.	880.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1850	20.2	GOOD					725.	15.6
HOT TRANSIENT	1.	0	0	450.	17.0	GOOD					450.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.38	29.38	29.38		29.38
SAMPLING TIME - SEC	508	866	506		764
DISTANCE TRAVELLED- MILES	3.640	3.975	3.635		10.284
DILUTION FACTOR	6.18	10.12	7.40		5.10
VOLUME - VMIX (CU FT)	2535.29	4327.75	2527.82		3815.66
FUEL ECONOMY -MILES/GAL	11.41	12.15	13.75	12.37	17.61
FUEL ECONOMY - KM/LITER	4.85	5.16	5.85	5.26	7.49

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.28	0.79	0.18	0.11	0.36	0.22	0.46	0.28	0.11	0.07
CARBON MONOXIDE	19.75	12.27	0.39	0.25	1.46	0.91	4.66	2.90	0.30	0.19
NOX - NO2	1.49	0.92	1.03	0.64	1.19	0.74	1.17	0.73	0.87	0.54
NOX CORRECTED	1.35	0.84	0.94	0.58	1.09	0.68	1.06	0.66	0.79	0.49
CARBON DIOXIDE	732.42	455.20	719.72	447.31	633.44	393.68	698.84	434.33	496.30	308.45

		MG/MI	MG/KM
ALDEHYDE		92.27	57.35
HYDROGEN SULFIDE	LESS THAN	0.48	0.30

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60801
DATE RUN: 06 21 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 75 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
326.	761.	850.	649.	973.	766.	955.	864.	834.	764.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1400	20.3	GOOD					725.	15.8
HOT TRANSIENT	1.	0	0	500.	17.8	GOOD					450.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND GOOD DRIVEABILITY SULFATE DATA OUT OF RANGE

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.23	29.23	29.23		29.24	29.23	29.24
SAMPLING TIME - SEC	508	867	506		763	1397	125
DISTANCE TRAVELLED- MILES	3.622	3.958	3.620		10.150	13.519	0.773
DILUTION FACTOR	6.36	10.13	7.40		5.19	6.57	9.68
VOLUME - VMIX (CU FT)	2516.44	4312.17	2515.62		3795.39	6992.14	623.48
FUEL ECONOMY -MILES/GAL	11.76	12.14	13.75	12.46	17.79	16.36	15.65
FUEL ECONOMY - KM/LITER	5.01	5.16	5.85	5.30	7.57	6.96	6.65

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	0.98	0.61	0.18	0.11	0.38	0.23	0.40	0.25	0.11	0.07	0.12	0.08	0.26	0.16
CARBON MONOXIDE	15.21	9.45	0.51	0.19	1.56	0.97	3.71	2.31	0.84	0.52	1.06	0.66	0.23	0.14
NOX - NO2	1.30	0.81	0.84	0.52	1.03	0.64	0.99	0.61	0.77	0.48	0.83	0.52	0.68	0.42
NOX CORRECTED	1.30	0.81	0.84	0.52	1.03	0.64	0.99	0.61	0.77	0.48	0.83	0.52	0.68	0.42
CARBON DIOXIDE	716.10	445.06	720.21	447.61	632.99	393.41	695.61	432.33	490.45	304.82	533.02	331.27	558.37	347.03

	MG/MI	MG/KM
ALDEHYDE	71.12	44.20
HYDROGEN SULFIDE	2.10	1.30

	MG/MI	MG/KM
PARTICULATE	18.17	14.12
SULFATE	13.13	8.16

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	7	20	0.01	0.04	317	-	-
30 MPH STEADY STATE	5	15	0.01	0.04	181	-	-
IDLE IN DRIVE	5	11	0.01	0.03	69	425	16.0
IDLE,NEUTRAL	15	20	0.01	0.03	30	500	18.0
2500 RPM NO LOAD	12	20	0.01	0.02	73	-	-
IDLE, NEUTRAL	21	19	0.01	0.02	29	10	18.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60802
DATE RUN: 06 20 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35LNS223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
319.	753.	846.	641.	946.	758.	962.	847.	841.	763.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.			1600	20.5	GOOD					425.	16.8
HOT TRANSIENT	1.			450.	15.8	GOOD					425.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	FSC
BAROMETRIC PRESSURE	29.42		29.42		29.42				29.42		29.42	29.42
SAMPLING TIME - SEC	510		867		506				764		1397	125
DISTANCE TRAVELLED- MILES	3.556		3.906		3.597				10.297		13.472	0.754
DILUTION FACTOR	6.59		10.28		7.52				5.26		6.68	9.68
VOLUME - VMIX (CU FT)	2552.65		4335.13		2529.38				3819.01		7033.34	627.50
FUEL ECONOMY -MILES/GAL	11.83		12.10		13.82		12.47		18.18		16.48	15.17
FUEL ECONOMY - KM/LITER	5.03		5.15		5.88		5.30		7.73		7.01	6.45
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.10	0.68	0.28	0.18	0.43	0.27	0.49	0.30	0.10	0.06	0.16	0.10	0.33	0.21
CARBON MONOXIDE	12.38	7.70	0.28	0.18	1.58	0.98	3.12	1.94	0.48	0.30	0.66	0.41	0.11	0.07
NOX - NO2	1.25	0.78	0.92	0.57	1.06	0.66	1.03	0.64	0.72	0.45	0.87	0.54	0.66	0.41
NOX CORRECTED	1.28	0.80	0.95	0.59	1.09	0.67	1.05	0.65	0.74	0.46	0.89	0.56	0.68	0.42
CARBON DIOXIDE	717.45	445.90	722.13	448.81	629.54	391.26	695.87	432.49	480.66	298.73	529.88	329.32	576.13	358.07

	MG/MI	MG/KM
ALDEHYDE	91.20	56.68
HYDROGEN SULFIDE	LESS THAN 0.43	0.27
PARTICULATE	10.06	9.15
SULFATE	13.43	8.35

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	4	14	0.02	0.01	365	-	-
30 MPH STEADY STATE	4	13	0.02	0.00	189	-	-
IDLE IN DRIVE	4	11	0.02	0.01	63	425	16.0
IDLE,NEUTRAL	10	18	0.02	0.01	31	550	18.0
2500 RPM NO LOAD	11	21	0.02	0.02	69	-	-
IDLE, NEUTRAL	21	29	0.02	0.02	26	550	18.0

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60811
DATE RUN: 06 22 78 AIR CONDITIONER USED
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
331.	813.	905.	790.	994.	799.	980.	878.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	0	1100	18.6	GOOD					650	14.8
HOT TRANSIENT	1.	0	0	625	16.8	GOOD					600	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.37	29.37
SAMPLING TIME - SEC	509	869	506		763	1396
DISTANCE TRAVELLED- MILES	3.708	4.071	3.695		10.271	13.625
DILUTION FACTOR	5.93	8.91	6.76		5.04	6.18
VOLUME - VMIX (CU FT)	2548.84	4331.67	2528.93		3814.62	7026.90
FUEL ECONOMY -MILES/GAL	11.09	10.88	12.72	11.37	17.38	15.41
FUEL ECONOMY - KM/LITER	4.71	4.63	5.41	4.83	7.39	6.55

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.16	0.72	0.13	0.08	0.32	0.20	0.40	0.25	0.07	0.04	0.10	0.06
CARBON MONOXIDE	17.55	10.90	0.80	0.49	4.31	2.68	5.18	3.22	0.64	0.40	2.74	1.70
NOX - NO2	1.89	1.17	1.27	0.79	1.26	0.78	1.40	0.87	0.98	0.61	1.00	0.62
NOX CORRECTED	1.91	1.18	1.29	0.80	1.27	0.79	1.41	0.88	0.99	0.62	1.01	0.63
CARBON DIOXIDE	758.59	471.47	803.06	499.11	680.43	422.89	760.69	472.77	502.59	312.36	563.72	350.36

	MG/MI	MG/KM
ALDEHYDE	62.95	39.12
HYDROGEN SULFIDE	15.41	9.58

	MG/MI	MG/KM
PARTICULATE	18.54	12.60
SULFATE	5.00	3.11

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60812
DATE RUN: 07 19 78 AIR CONDITIONER USED
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
329.	814.	893.	677.	980.	770.	960.	809.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	8.	0	0	1200	19.	GOOD					650.	14.8
HOT TRANSIENT	1.	0	0	625.	15.2	GOOD	HES M				550.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVEABILITY GOOD POSSIBLE HES OR SUR ON HOT TRANSIENT

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.46		29.46		29.46				29.46		29.46	
SAMPLING TIME - SEC	513		867		506				764		1397	
DISTANCE TRAVELLED- MILES	3.656		4.015		3.642				10.256		13.530	
DILUTION FACTOR	5.93		9.03		6.82				5.10		6.14	
VOLUME - VMIX (CU FT)	2568.11		4343.90		2533.43				3825.12		7240.91	
FUEL ECONOMY -MILES/GAL	10.85		10.86		12.65		11.29		17.50		14.76	
FUEL ECONOMY - KM/LITER	4.61		4.62		5.38		4.80		7.44		6.27	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.27	0.79	0.18	0.11	0.29	0.18	0.43	0.27	0.13	0.08	0.13	0.08
CARBON MONOXIDE	17.70	11.00	0.40	0.25	2.18	1.35	4.42	2.75	0.71	0.44	1.53	0.95
NOX - NO2	1.76	1.09	1.25	0.78	1.32	0.82	1.37	0.85	0.95	0.59	1.07	0.67
NOX CORRECTED	1.80	1.12	1.28	0.79	1.35	0.84	1.41	0.87	0.97	0.60	1.10	0.68
CARBON DIOXIDE	775.20	481.79	805.30	500.50	667.93	427.55	767.31	476.89	498.69	310.06	590.53	367.02
							MG/MI	MG/KM				
ALDEHYDE							94.64	58.82				
HYDROGEN SULFIDE						LESS THAN	0.45	0.28				
											MG/MI	MG/KM
PARTICULATE											10.57	8.23
SULFATE											7.68	4.77

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60901
DATE RUN: 06 23 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L85223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 106 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
310.	775.	909.	772.			975.	847.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	7.	0	0	1500	20.6	GOOD					400.	16.2
HOT TRANSIENT	1.	0	0	475.	16.1	GOOD					425	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.41	29.41	29.41		29.41
SAMPLING TIME - SEC	512	927	506		763
DISTANCE TRAVELLED- MILES	3.715	4.104	3.668		10.333
DILUTION FACTOR	6.49	10.05	7.53		5.29
VOLUME - VMIX (CU FT)	2562.85	4338.34	2533.21		3821.01
FUEL ECONOMY -MILES/GAL	12.11	12.41	14.16	12.77	18.31
FUEL ECONOMY - KM/LITER	5.15	5.28	6.02	5.43	7.79

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.28	0.79	0.16	0.10	0.46	0.29	0.47	0.29	0.08	0.05
CARBON MONOXIDE	11.79	7.33	0.47	0.29	3.41	2.12	3.58	2.22	0.33	0.21
NOX - NO2	1.15	0.71	0.82	0.51	0.95	0.59	0.92	0.57	0.75	0.46
NOX CORRECTED	1.34	0.83	0.95	0.59	1.12	0.69	1.08	0.67	0.87	0.54
CARBON DIOXIDE	700.26	435.21	704.30	437.73	611.38	379.97	678.41	421.63	477.31	296.65

		MG/MI	MG/KM
ALDEHYDE		56.66	35.22
HYDROGEN SULFIDE	LESS THAN	0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60902
DATE RUN: 07 18 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
324.	766.	874.	667.			958.	812.

*. DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	8.	1.	0.	1950	20.4	GOOD					400.	16.
HOT TRANSIENT	1.	0.	0.	450.	16.2	GOOD	STU T				425.	16.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FAIR STARTS FAIR DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.41		29.41		29.41				29.41	
SAMPLING TIME - SEC	515		867		506				763	
DISTANCE TRAVELLED- MILES	3.625		4.010		3.640				10.101	
DILUTION FACTOR	6.62		9.98		7.42				5.08	
VOLUME - VMIX (CU FT)	2570.15		4333.35		2528.32				3816.17	
FUEL ECONOMY -MILES/GAL	11.92		12.22		13.94		12.58		17.34	
FUEL ECONOMY - KM/LITER	5.07		5.20		5.93		5.35		7.37	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.18	0.73	0.22	0.13	0.51	0.32	0.49	0.31	0.08	0.05
CARBON MONOXIDE	7.91	4.91	0.20	0.12	2.19	1.36	2.31	1.44	0.40	0.25
NOX - NO2	1.10	0.68	0.80	0.50	1.02	0.64	0.92	0.57	0.81	0.50
NOX CORRECTED	1.31	0.82	0.96	0.59	1.23	0.76	1.10	0.68	0.96	0.60
CARBON DIOXIDE	716.53	446.57	715.52	444.70	622.85	387.10	691.00	429.46	504.17	313.35
							MG/MI	MG/KM		
ALDEHYDE							95.15	59.14		
HYDROGEN SULFIDE					LESS THAN		0.44	0.27		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60911
DATE RUN: 06 26 76 AIR CONDITIONER USED
CAR: 1976 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 106 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
321.	853.	978.	852.			1034.	978.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	0	940	16.2	GOOD					625	15.3
HOT TRANSIENT	1.	0	0	490	15.2	GOOD					590	14.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.20	29.20	29.20		29.20
SAMPLING TIME - SEC	507	867	508		764
DISTANCE TRAVELLED- MILES	3.658	4.058	3.720		10.228
DILUTION FACTOR	5.97	8.47	6.29		4.63
VOLUME - VMIX (CU FT)	2505.29	4314.82	2519.59		3793.69
FUEL ECONOMY -MILES/GAL	11.19	10.33	11.94	10.90	15.95
FUEL ECONOMY - KM/LITER	4.76	4.39	5.07	4.64	6.78

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.36	0.84	0.17	0.10	0.29	0.18	0.45	0.28	0.08	0.05
CARBON MONOXIDE	11.82	7.34	3.61	2.24	13.03	8.10	7.85	4.88	1.57	0.98
NOX - NO2	1.35	0.84	1.09	0.68	0.99	0.61	1.11	0.69	0.92	0.57
NOX CORRECTED	1.58	0.98	1.28	0.79	1.16	0.72	1.30	0.81	1.08	0.67
CARBON DIOXIDE	759.36	471.95	841.25	522.84	712.19	442.63	789.37	490.60	546.34	339.55

	MG/MI	MG/KM
ALDEHYDE	59.93	37.25
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 60912
DATE RUN: 07 13 76 AIR CONDITIONER USED
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L85223673 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 108 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
322.	828.	938.	803.			1023.	914.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	7.	0	0	1000	18.	GOOD					550.	15.
HOT TRANSIENT	1.	0	0	600.	16.4	GOOD	HES M				550.	14.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.32	29.32	29.32		29.32
SAMPLING TIME - SEC	513	861	505		763
DISTANCE TRAVELLED- MILES	3.669	3.991	3.629		10.065
DILUTION FACTOR	5.93	8.50	6.91		4.76
VOLUME - VMIX (CU FT)	2558.01	4293.91	2521.56		3805.12
FUEL ECONOMY -MILES/GAL	10.93	10.25	12.83	10.99	16.12
FUEL ECONOMY - KM/LITER	4.65	4.36	5.45	4.67	6.85

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.28	0.80	0.09	0.06	0.20	0.12	0.36	0.23	0.07	0.04
CARBON MONOXIDE	15.27	9.49	1.63	1.01	3.62	2.25	4.98	3.09	1.26	0.79
NOX - NO2	1.60	0.99	1.25	0.78	1.07	0.66	1.27	0.79	1.02	0.63
NOX CORRECTED	1.89	1.18	1.48	0.92	1.26	0.78	1.51	0.94	1.20	0.75
CARBON DIOXIDE	773.03	480.44	851.22	529.04	676.31	420.33	787.64	489.52	541.12	336.31

	MG/MI	MG/KM
ALDEHYDE	102.27	63.56
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 61101
DATE RUN: 06 27 78
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 173 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
310.	800.	967.	797.	1092.	918.	1071.	985.	983.	923.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0	0	820.	17.5	GOOD					460.	15.3
HOT TRANSIENT	1.	0	0	510.	16.4	GOOD					470.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.26	29.26	29.26		29.26	29.26	29.26
SAMPLING TIME - SEC	510	866	508		764	1397	125
DISTANCE TRAVELLED- MILES	3.641	3.934	3.629		10.072	13.491	0.763
DILUTION FACTOR	6.64	9.82	7.12		4.78	6.17	6.34
VOLUME - VMIX (CU FT)	2532.02	4312.26	2524.86		3798.86	6992.99	620.05
FUEL ECONOMY -MILES/GAL	12.30	11.69	13.20	12.20	16.21	15.31	10.04
FUEL ECONOMY - KM/LITER	5.23	4.97	5.61	5.19	6.89	6.51	4.27

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	2.18	1.35	0.28	0.18	0.39	0.24	0.70	0.44	0.14	0.08	0.21	0.13	1.74	1.08
CARBON MONOXIDE	15.51	9.64	4.01	2.49	13.38	8.31	8.95	5.56	6.08	3.78	16.60	10.32	18.57	11.54
NOX - NO2	0.81	0.50	0.63	0.39	0.59	0.37	0.66	0.41	0.62	0.39	0.48	0.30	0.23	0.14
NOX CORRECTED	1.50	0.93	1.17	0.73	1.10	0.68	1.22	0.76	1.15	0.72	0.90	0.56	0.43	0.27
CARBON DIOXIDE	680.60	422.99	741.75	461.00	641.05	398.42	701.57	436.03	530.06	329.44	545.08	338.77	837.62	520.58

	MG/MI	MG/KM
ALDEHYDE	49.80	30.95
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

	MG/MI	MG/KM
PARTICULATE	13.76	8.82
SULFATE	1.25	0.78

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	9	22	0.01	0.02	144	-	-
30 MPH STEADY STATE	8	20	0.01	0.01	96	-	-
IDLE IN DRIVE	3	15	0.01	0.01	61	485	16.0
IDLE,NEUTRAL	9	20	0.01	0.02	31	580	17.8
2500 RPM NO LOAD	13	20	0.01	0.02	46	-	-
IDLE, NEUTRAL	13	22	0.01	0.02	74	570	17.2

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 61102
DATE RUN: 06 30 76
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 166 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
309.	782.	979.	780.	1064.	893.	1049.	978.	947.	887.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	880.	18.5	GOOD					480.	15.7
HOT TRANSIENT	1.	0	0	490.	16.5	GOOD					480.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	FSC
BAROMETRIC PRESSURE	29.30	29.30	29.30		29.30	29.30	29.30
SAMPLING TIME - SEC	504	868	500		764	1397	124
DISTANCE TRAVELLED- MILES	3.715	4.072	3.686		10.349	13.727	0.767
DILUTION FACTOR	6.38	9.53	6.96		4.76	6.10	8.95
VOLUME - VMIX (CU FT)	2511.53	4320.74	2513.19		3806.07	7008.16	617.33
FUEL ECONOMY -MILES/GAL	12.13	11.69	13.16	12.15	16.56	15.35	14.45
FUEL ECONOMY - KM/LITER	5.16	4.97	5.59	5.17	7.04	6.53	6.14

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	FSC G/MI	FSC G/KM
HYDROCARBON	1.24	0.77	0.24	0.15	0.50	0.31	0.51	0.32	0.19	0.12	0.23	0.14	0.30	0.19
CARBON MONOXIDE	15.51	9.64	1.49	0.92	13.69	8.51	7.67	4.77	7.21	4.48	12.36	7.68	11.78	7.32
NOX - NO2	0.86	0.53	0.67	0.42	0.68	0.42	0.71	0.44	0.69	0.43	0.57	0.35	0.31	0.19
NOX CORRECTED	1.52	0.94	1.19	0.74	1.21	0.75	1.26	0.79	1.23	0.77	1.00	0.62	0.55	0.34
CARBON DIOXIDE	693.30	430.89	745.62	463.41	642.42	399.27	706.94	439.36	516.86	321.23	550.13	341.91	586.58	364.56

	MG/MI	MG/KM
ALDEHYDE	65.66	40.81
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

	MG/MI	MG/KM
PARTICULATE	18.69	11.72
SULFATE	0.48	0.30

FEDERAL 3 MODE

	HYDROCARBON PPMC6 BECKMAN	HYDROCARBON PPMC6 ST-WARNER	CARBON MONOXIDE % BECKMAN	CARBON MONOXIDE % ST-WARNER	NOX PPM BECKMAN	RPM	VAC
50 MPH STEADY STATE	34	20	0.00	0.02	198	-	-
30 MPH STEADY STATE	38	18	0.00	0.01	132	-	-
IDLE IN DRIVE	19	16	0.00	0.01	55	485	15.7
IDLE,NEUTRAL	105	25	0.00	0.01	27	570	17.3
2500 RPM NO LOAD	47	20	0.00	0.01	54	-	-
IDLE, NEUTRAL	162	40	0.00	0.01	25	585	17.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 6111
DATE RUN: 06 28 78 AIR CONDITIONER USED
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 162 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
327.	837.	990.	836.	1119.	961.	1158.	1042.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	6.	0	0	780.	16.3	GOOD					625.	15=
HOT TRANSIENT	1.	0	0	630.	15.8	GOOD					620.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY SLIGHT TEMP HUMIDITY VARIATION

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.36		29.36		29.36				29.36		29.36	
SAMPLING TIME - SEC	511		867		505				763		1398	
DISTANCE TRAVELLED- MILES	3.689		4.035		3.649				10.240		13.720	
DILUTION FACTOR	5.65		7.80		6.10				4.19		5.26	
VOLUME - VMIX (CU FT)	2550.22		4328.63		2519.25				3813.72		7023.10	
FUEL ECONOMY -MILES/GAL	10.49		9.41		11.36		10.09		14.35		13.16	
FUEL ECONOMY - KM/LITER	4.46		4.00		4.83		4.29		6.10		5.60	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.50	0.93	0.28	0.17	0.38	0.24	0.56	0.35	0.16	0.10	0.15	0.09
CARBON MONOXIDE	40.38	25.10	30.17	18.75	34.45	21.41	33.43	20.77	23.87	14.83	31.28	19.44
NOX - NO2	1.07	0.67	0.86	0.53	0.97	0.60	0.93	0.58	0.64	0.40	0.70	0.44
NOX CORRECTED	1.81	1.13	1.45	0.90	1.65	1.02	1.58	0.98	1.13	0.71	0.96	0.59
CARBON DIOXIDE	766.65	476.48	882.41	548.42	715.29	444.56	813.40	505.53	571.97	355.48	615.63	382.62
							MG/MI	MG/KM				
ALDEHYDE							88.48	54.99				
HYDROGEN SULFIDE							LESS THAN 0.42	0.26				
											MG/MI	MG/KM
PARTICULATE											0.18	0.28
SULFATE											0.77	0.48

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 61112
DATE RUN: 06 29 78 AIR CONDITIONER USED
CAR: 1978 CHEVROLET ST W-CALIF VIN: 1L35L8S223673 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 157 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4160 LB ENGINE DISPLACEMENT: 5.74 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
327.	809.	1029.	807.	1135	999.	1124.	1043.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0	0	690.	15.3	GOOD					620.	15.1
HOT TRANSIENT	1.	0	0	670.	16.8	GOOD					570.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS GOOD DRIVEABILITY TEMP VARIATION ON SOAK

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.35	29.35	29.34		29.33	29.34
SAMPLING TIME - SEC	509	865	505		764	1337
DISTANCE TRAVELLED- MILES	3.700	4.076	3.700		10.344	13.769
DILUTION FACTOR	6.01	8.03	5.81		4.17	5.22
VOLUME - VMIX (CU FT)	2532.48	4325.75	2518.34		3808.93	7015.55
FUEL ECONOMY -MILES/GAL	11.29	9.80	10.95	10.38	14.47	13.11
FUEL ECONOMY - KM/LITER	4.80	4.17	4.66	4.41	6.15	5.58

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.28	0.80	0.24	0.15	0.58	0.36	0.55	0.34	0.21	0.13	0.30	0.19
CARBON MONOXIDE	26.03	16.18	16.03	9.96	45.18	28.08	25.98	16.15	18.85	11.71	34.30	21.32
NOX - NO2	1.09	0.68	0.91	0.57	0.78	0.49	0.91	0.57	0.72	0.45	0.67	0.42
NOX CURRECTED	1.78	1.10	1.49	0.92	1.27	0.79	1.49	0.93	1.17	0.73	1.10	0.68
CARBON DIOXIDE	730.47	453.99	867.35	539.06	726.50	451.52	801.14	497.91	575.06	357.40	612.80	380.86

	MG/MI	MG/KM	MG/MI	MG/KM
ALDEHYDE	81.87	50.88		
HYDROGEN SULFIDE	LESS THAN 0.42	0.26		
PARTICULATE			35.94	22.48
SULFATE			0.68	0.42

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70001
DATE RUN: 08 14 76
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
120.	744.	1146.	718.	1029.	835.	972.	865.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	0	1500	14.6	GOOD					850.	11.1
HOT TRANSIENT	1.	0	0	1950	15.5	GOOD					775.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY HAD TO USE BAT CHARGER TO START CAR

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.42	29.42	29.42		29.42	29.42
SAMPLING TIME - SEC	509	867	506		764	1398
DISTANCE TRAVELLED- MILES	3.827	4.234	3.751		10.469	13.706
DILUTION FACTOR	5.51	12.21	8.79		6.34	7.98
VOLUME - VMIX (CU FT)	2566.10	4372.88	2551.85		3847.19	7089.55
FUEL ECONOMY -MILES/GAL	10.07	14.87	16.04	13.79	21.20	19.08
FUEL ECONOMY - KM/LITER	4.28	6.32	6.82	5.87	9.01	8.11

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	13.46	8.36	0.62	0.38	0.65	0.41	3.25	2.02	0.13	0.08	0.29	0.18
CARBON MONOXIDE	154.48	96.01	4.53	2.82	1.68	1.04	34.38	21.37	0.21	0.13	0.96	0.59
NOX - NO2	1.25	0.78	1.08	0.67	2.22	1.38	1.42	0.88	2.16	1.34	1.98	1.23
NOX CORRECTED	0.94	0.58	0.81	0.50	1.67	1.04	1.07	0.66	1.62	1.01	1.49	0.92
CARBON DIOXIDE	545.52	339.04	553.77	344.17	517.01	321.32	542.24	337.00	394.02	244.88	436.16	271.08

	COMPOSITE MG/MI	COMPOSITE MG/KM
ALDEHYDE	117.69	73.14
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

	SET MG/MI	SET MG/KM
PARTICULATE	14.34	8.96
SULFATE	0.24	0.15

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70002
DATE RUN: 08 15 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
120.	670.	1038.	614.	965.	742.	890.	773.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1600	14.8	GOOD					875.	15.
HOT TRANSIENT	1.	0	0	1800	19.	GOOD					700.	13.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY HAD TO USE BAT CHARGER TO START

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.37	29.37	29.37		29.38	29.38
SAMPLING TIME - SEC	508	866	506		763	1397
DISTANCE TRAVELLED- MILES	3.573	3.919	3.561		10.025	13.264
DILUTION FACTOR	5.79	12.91	9.19		6.96	8.30
VOLUME - VMIX (CU FT)	2551.81	4362.53	2547.06		3691.06	7083.42
FUEL ECONOMY -MILES/GAL	9.95	14.64	15.98	13.63	23.30	19.26
FUEL ECONOMY - KM/LITER	4.23	6.23	6.79	5.80	9.91	8.19

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	14.51	9.02	1.63	1.01	0.71	0.44	4.02	2.50	0.17	0.10	0.31	0.19
CARBON MONOXIDE	173.99	108.14	43.04	26.75	7.14	4.44	60.15	37.38	0.16	0.10	1.60	1.00
NOX - NO2	1.42	0.89	0.69	0.43	1.89	1.18	1.17	0.72	1.84	1.15	1.81	1.12
NOX CORRECTED	1.07	0.67	0.52	0.32	1.43	0.89	0.88	0.55	1.39	0.86	1.36	0.85
CARBON DIOXIDE	521.63	324.20	498.61	309.89	510.10	317.03	506.45	314.76	358.36	222.72	430.86	267.78

	MG/MI	MG/KM
ALDEHYDE	112.36	69.83
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

	MG/MI	MG/KM
PARTICULATE	21.67	13.53
SULFATE	0.27	0.17

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70003
DATE RUN: 08 16 78
CAR: 1970 FORD PINTO CAL 3 WAY VIN: 8R11Y146568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2600 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
130.	785.	1106.	622.	966.	765.	928.	798.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	18.			1600	15.	GOOD					800.	14.6
HOT TRANSIENT	1.			1800	19.	GOOD					700.	14.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: HARD TO START HAD TO USE BAT CHARGER AFTER 60SEC CRANK DRIVEABILITYGOOD

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.28		29.28		29.27				29.26		29.27	
SAMPLING TIME - SEC	523		868		506				763		1397	
DISTANCE TRAVELLED- MILES	3.600		3.820		3.562				10.338		13.347	
DILUTION FACTOR	5.21		12.45		8.63				6.45		7.97	
VOLUME - VMIX (CU FT)	2627.55		4352.27		2538.52				3823.83		7050.48	
FUEL ECONOMY -MILES/GAL	8.74		13.77		15.03		12.55		21.44		18.68	
FUEL ECONOMY - KM/LITER	3.72		5.86		6.39		5.34		9.11		7.94	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	19.32	12.01	1.36	0.84	0.65	0.40	4.91	3.05	0.18	0.11	0.30	0.19
CARBON MONOXIDE	177.78	110.49	36.54	22.71	1.24	0.77	56.30	34.99	0.55	0.34	0.98	0.61
NOX - NO2	1.62	1.01	0.77	0.48	2.12	1.32	1.32	0.82	1.99	1.24	1.82	1.13
NOX CORRECTED	1.22	0.76	0.58	0.36	1.60	1.00	1.00	0.62	1.50	0.93	1.37	0.85
CARBON DIOXIDE	616.70	383.28	545.86	339.25	552.72	343.52	562.53	349.61	388.89	241.70	445.43	276.83
							MG/MI	MG/KM				
ALDEHYDE							136.77	85.00				
HYDROGEN SULFIDE						LESS THAN	0.40	0.25			MG/MI	MG/KM
PARTICULATE											27.76	17.35
SULFATE											0.44	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70201
DATE RUN: 08 18 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
250.	994.	894.	629.			930.	817.	816.	642.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	900.	15.	GOOD					950.	13.5
HOT TRANSIENT	1.	0	0	1700	19.1	GOOD					700.	14.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: AFTER CARB MAINTENANCE CAR STARTED & DROVE WELL - NO CHANGER NEEDED.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP						HFET		NYCC	
	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE						
BAROMETRIC PRESSURE	29.33	29.33	29.33				29.33		29.33	
SAMPLING TIME - SEC	508	868	506				763		600	
DISTANCE TRAVELLED- MILES	3.641	3.919	3.586				10.141		1.181	
DILUTION FACTOR	6.55	13.22	9.62				6.91		17.66	
VOLUME - VMIX (CU FT)	2554.58	4365.12	2544.83				3839.95		3017.94	
FUEL ECONOMY -MILES/GAL	11.49	15.00	16.88	14.52			22.50		8.89	
FUEL ECONOMY - KM/LITER	4.89	6.38	7.18	6.18			9.56		3.78	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	7.47	4.64	0.86	0.53	0.72	0.45	2.19	1.36	0.28	0.17	1.64	1.02
CARBON MONOXIDE	122.35	76.04	2.67	1.66	1.31	0.81	27.08	16.83	0.35	0.22	2.98	1.85
NOX - NO2	1.03	0.64	0.97	0.60	1.66	1.03	1.17	0.72	1.68	1.05	1.43	0.89
NOX CORRECTED	0.78	0.49	0.73	0.46	1.26	0.78	0.89	0.55	1.28	0.79	1.08	0.67
CARBON DIOXIDE	512.08	318.26	550.83	342.34	491.30	305.34	526.59	327.28	370.53	230.28	931.24	578.77
							MG/MI	MG/KM				
ALDEHYDE							91.99	57.17				
HYDROGEN SULFIDE					LESS THAN		0.41	0.26				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70202
DATE RUN: 08 21 78
CAR: 1978 FORD PINTO CAL 3 dAY VIN: 8R11Y140568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
189.	526.	1007.	676.			1066.	940.	841.	712.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	4.	1.	1.	1400	14.	GOOD	STA				1000	14.
HOT TRANSIENT	1.	0.	0.	1400	17.9	GOOD					725.	14.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVEABILITY GOOD

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.59	29.59	29.59		29.59	29.59
SAMPLING TIME - SEC	542	868	506		764	599
DISTANCE TRAVELLED- MILES	3.595	3.929	3.600		10.144	1.175
DILUTION FACTOR	7.27	12.85	9.62		6.77	17.35
VOLUME - VMIX (CU FT)	2757.71	4407.56	2572.93		3884.42	3047.12
FUEL ECONOMY -MILES/GAL	11.72	14.46	16.78	14.31	21.79	8.60
FUEL ECONOMY - KM/LITER	4.98	6.15	7.13	6.09	9.26	3.66

	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	11.36	7.06	1.07	0.66	0.86	0.54	3.13	1.94	0.22	0.13	3.13	1.95
CARBON MONOXIDE	125.98	78.29	27.77	17.26	12.58	7.82	43.81	27.23	2.93	1.82	54.32	33.76
NOX - NO2	0.99	0.62	0.46	0.28	1.63	1.01	0.89	0.55	0.97	0.61	1.12	0.70
NOX CORRECTED	0.75	0.47	0.35	0.22	1.24	0.77	0.67	0.42	0.74	0.46	0.85	0.53
CARBON DIOXIDE	480.02	298.33	531.57	330.37	476.26	296.00	505.90	314.42	378.71	235.37	877.88	545.61

		MG/MI	MG/KM
ALDEHYDE		98.38	61.14
HYDROGEN SULFIDE	LESS THAN	0.41	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70401
DATE RUN: 08 11 76
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		FSC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
294.	965.	967.	599.	958.	776.	904.	796.	643.	601.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.			1700	15.	GOOD					900.	14.6
HOT TRANSIENT	1.			750.	14.8	GOOD					725.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY STEADY STATE RUNS HAD DYNO LOAD PROBLEM

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP						HFET		SET		FSC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.32		29.32		29.32				29.32		29.32	
SAMPLING TIME - SEC	507		867		506				762		1397	
DISTANCE TRAVELLED- MILES	3.691		4.028		3.654				10.266		13.621	
DILUTION FACTOR	8.50		13.34		9.64				6.93		8.29	
VOLUME - VMIX (CU FT)	2548.04		4361.38		2546.93				3829.16		7073.89	
FUEL ECONOMY -MILES/GAL	15.28		15.58		17.23		15.93		23.00		19.88	
FUEL ECONOMY - KM/LITER	6.50		6.62		7.33		6.77		9.78		8.45	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.22	3.24	0.38	0.24	0.48	0.30	1.40	0.87	0.11	0.07	0.21	0.13
CARBON MONOXIDE	33.71	20.95	0.30	0.19	1.03	0.64	7.37	4.58	0.11	0.07	0.56	0.35
NOX - NO2	1.29	0.80	0.76	0.47	1.58	0.98	1.09	0.68	1.78	1.11	1.68	1.04
NOX CORRECTED	1.02	0.64	0.60	0.38	1.25	0.78	0.87	0.54	1.41	0.88	1.33	0.83
CARBON DIOXIDE	478.17	297.18	535.45	332.78	482.55	299.90	509.33	316.55	363.33	225.81	419.33	260.61

							MG/MI	MG/KM						
ALDEHYDE							109.69	68.17						
HYDROGEN SULFIDE						LESS THAN	0.41	0.25						
PARTICULATE													MG/MI	MG/KM
SULFATE													19.79	12.37
													0.35	0.22

FEDERAL 3 MODE

	HYDROCARBON PPMC6		CARBON MONOXIDE %		NOX PPM	RPM	VAC
	BECKMAN	ST-WARNER	BECKMAN	ST-WARNER	BECKMAN		
50 MPH STEADY STATE	17	15	0.22	0.35	457	-	-
30 MPH STEADY STATE	6	13	0.02	0.02	1090	-	-
IDLE IN DRIVE	15	13	0.02	0.02	63	800	15.0
IDLE,NEUTRAL	17	13	0.02	0.02	43	1000	18.0
2500 RPM NO LOAD	20	21	0.01	0.01	37	-	-
IDLE, NEUTRAL	6	13	0.01	0.02	32	950	17.5

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70402
DATE RUN: 08 22 78
CAR: 1976 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
272.	1008.	1015.	669.	1054.	839.	1064.	856.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

EIP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	1.	0.	1100	16.5	GOOD					900.	14.
HOT TRANSIENT	1.	0.	0.	700.	14.8	GOOD					700.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVER AID INK PEN MALFUNCTION TEST CONTINUE

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.49		29.49		29.49				29.49		29.49	
SAMPLING TIME - SEC	516		868		508				823		1396	
DISTANCE TRAVELLED- MILES	3.604		3.978		3.630				10.193		13.479	
DILUTION FACTOR	7.10		13.62		10.00				7.09		9.97	
VOLUME - VMIX (CU FT)	2615.73		4389.90		2574.55				3866.03		7102.45	
FUEL ECONOMY -MILES/GAL	12.08		15.63		17.59		15.18		23.06		23.60	
FUEL ECONOMY - KM/LITER	5.13		6.64		7.48		6.45		9.81		10.03	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	6.35	3.95	0.85	0.53	0.78	0.48	1.96	1.22	0.37	0.23	0.55	0.34
CARBON MONOXIDE	107.95	67.09	17.30	10.75	9.72	6.04	33.76	20.98	2.75	1.71	8.09	5.03
NOX - NO2	1.07	0.67	0.44	0.27	1.09	0.68	0.75	0.46	0.79	0.49	0.79	0.49
NOX CORRECTED	0.85	0.53	0.35	0.22	0.87	0.54	0.59	0.37	0.62	0.39	0.63	0.39
CARBON DIOXIDE	503.15	312.71	505.63	314.25	457.84	284.55	492.12	305.86	357.34	222.09	340.15	211.41
							MG/MI	MG/KM				
ALDEHYDE							73.06	45.40				
HYDROGEN SULFIDE						LESS THAN	0.39	0.24			MG/MI	MG/KM
PARTICULATE											40.60	25.33
SULFATE											0.46	0.29

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70601
DATE RUN: 11 07 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y146568 DRIVER: SWARTZ FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
117.	824.	1167.	722.			1041.	853.	867.	737.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0.	0.	2200	18.	GOOD					1100	15.0
HOT TRANSIENT	1.	0.	0.	840	16.1	GOOD					860.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVER AID CALIB. OFF RECALIB. AFTER TEST.STARTS AND DRIVEABILITY GOOD

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.29		29.29		29.29				29.29		29.29	
SAMPLING TIME - SEC	505		867		505				763		600	
DISTANCE TRAVELLED- MILES	3.786		4.262		3.776				10.442		1.409	
DILUTION FACTOR	7.25		13.19		9.25				6.76		16.52	
VOLUME - VMIX (CU FT)	2566.36		4408.48		2558.47				3849.54		3049.28	
FUEL ECONOMY -MILES/GAL	13.51		16.15		17.26		15.80		23.16		9.69	
FUEL ECONOMY - KM/LITER	5.74		6.87		7.34		6.72		9.85		4.12	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.85	1.15	0.44	0.27	0.56	0.35	0.76	0.47	0.23	0.14	1.17	0.73
CARBON MONOXIDE	31.64	19.66	0.93	0.58	2.96	1.84	7.69	4.78	1.04	0.65	4.80	2.98
NOX - NO2	2.41	1.50	1.22	0.76	2.47	1.54	1.80	1.12	1.94	1.20	1.62	1.01
NOX CORRECTED	2.06	1.28	1.05	0.65	2.11	1.31	1.54	0.96	1.66	1.03	1.38	0.86
CARBON DIOXIDE	592.47	368.22	539.20	335.12	500.81	311.26	539.70	335.42	375.75	233.53	892.42	554.64
							MG/MI	MG/KM				
ALDEHYDE							102.31	63.59				
HYDROGEN SULFIDE					LESS THAN		0.38	0.23				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70602
DATE RUN: 11 08 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 38 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2600 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
126.	815.	1091.	709.			978.	848.	799.	681.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	2.	0.	1400	18.5	GOOD	HES M	HES T	HES M		1150	15.2
HOT TRANSIENT	5.	0.	2.	1000	17.1	GOOD					900.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SLIGHT PROBLEMS WITH STARTS AND CeTe DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.41		29.41		29.41				29.41		29.42	
SAMPLING TIME - SEC	512		867		513				764		600	
DISTANCE TRAVELLED- MILES	3.673		4.101		3.646				10.201		1.319	
DILUTION FACTOR	7.54		13.42		9.76				7.13		17.36	
VOLUME - VMIX (CU FT)	2615.68		4425.99		2623.88				3901.89		3061.97	
FUEL ECONOMY -MILES/GAL	13.68		16.45		17.57		16.07		23.95		10.05	
FUEL ECONOMY - KM/LITER	5.82		7.00		7.47		6.83		10.18		4.28	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.93	1.82	0.58	0.36	0.94	0.58	1.15	0.72	0.19	0.12	1.62	1.00
CARBON MONOXIDE	30.83	19.16	1.44	0.90	3.29	2.04	7.91	4.91	0.58	0.36	4.86	3.02
NOX - NO2	2.49	1.55	1.46	0.91	2.26	1.40	1.88	1.17	1.89	1.17	1.66	1.03
NOX CORRECTED	2.12	1.32	1.24	0.77	1.92	1.20	1.60	1.00	1.61	1.00	1.41	0.88
CARBON DIOXIDE	582.16	361.81	528.10	328.22	490.35	304.75	528.95	328.75	364.05	226.26	858.07	533.29
							MG/MI	MG/KM				
ALDEHYDE							109.34	67.95				
HYDROGEN SULFIDE						LESS THAN	0.41	0.25				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70701
DATE RUN: 11 06 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y146568 DRIVER: HYER FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
125.	704.	1111.	698.			940.	829.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1		EVENT 2		EVENT 3		EVENT 4		1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	2400	18.5	GOOD	HES	H	HES	H	HES	H	HES	H	800.	15.
HOT TRANSIENT	1.	0	0	650.	15.5	GOOD	HES	M							850.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.SLIGHT DIFFICULTIES ON C.T. ACCELS.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.36		29.36		29.36				29.35	
SAMPLING TIME - SEC	507		867		507				764	
DISTANCE TRAVELLED- MILES	3.689		4.113		3.724				10.395	
DILUTION FACTOR	7.87		13.86		9.70				7.07	
VOLUME - VMIX (CU FT)	2579.55		4418.34		2580.96				3893.24	
FUEL ECONOMY -MILES/GAL	14.58		17.10		18.25		16.80		24.34	
FUEL ECONOMY - KM/LITER	6.20		7.27		7.76		7.14		10.35	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.30	1.43	0.50	0.31	0.66	0.41	0.91	0.57	0.12	0.08
CARBON MONOXIDE	27.73	17.24	1.01	0.63	3.29	2.04	7.06	4.39	0.41	0.26
NOX - NO2	1.94	1.20	0.94	0.58	1.76	1.09	1.36	0.85	1.59	0.99
NOX CORRECTED	1.78	1.11	0.86	0.53	1.61	1.00	1.25	0.78	1.46	0.91
CARBON DIOXIDE	549.77	341.69	508.87	316.27	472.60	293.73	507.36	315.33	358.69	222.93
							MG/MI	MG/KM		
ALDEHYDE							81.43	50.61		
HYDROGEN SULFIDE						LESS THAN	0.41	0.25		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70702
DATE RUN: 11 09 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
140.	592.	1009.	592.			894.	786.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	6.	0.	1.	2500	18.2	GOOD	HES H	HES H			800.	14.5
HOT TRANSIENT	3.	0.	1.	900.	15.9						850.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SLIGHT PROBLEM ON STARTS AND C.T. DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.37
SAMPLING TIME - SEC	512	865	509		764
DISTANCE TRAVELLED- MILES	3.654	4.037	3.589		10.097
DILUTION FACTOR	8.41	15.14	10.73		7.73
VOLUME - VMIX (CU FT)	2606.64	4408.75	2590.84		3895.65
FUEL ECONOMY -MILES/GAL	15.20	18.26	19.32	17.79	25.77
FUEL ECONOMY - KM/LITER	6.46	7.76	8.21	7.56	10.96

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.86	1.16	0.49	0.30	0.83	0.51	0.86	0.53	0.10	0.06
CARBON MONOXIDE	22.65	14.08	0.56	0.35	2.40	1.49	5.56	3.46	0.21	0.13
NOX - NO2	2.09	1.30	0.72	0.45	1.48	0.92	1.21	0.75	1.34	0.83
NOX CORRECTED	1.91	1.19	0.66	0.41	1.36	0.85	1.11	0.69	1.23	0.77
CARBON DIOXIDE	534.39	332.12	477.14	296.55	446.81	277.69	480.70	298.76	339.12	210.76

	COMPOSITE MG/MI	COMPOSITE MG/KM
ALDEHYDE	124.37	77.29
HYDROGEN SULFIDE	LESS THAN 0.41	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70831
DATE RUN: 11 02 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD--HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
151.	601.	1087.	606.	1068.	752.	939.	821.	833.	697.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	7.	2.	0	1450	19.2	GOOD	HES M	HES M	H T		700.	15.
HOT TRANSIENT	1.	0	0	725.	15.3	GOOD					750.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: MODERATE PROBLEMS ON COLD STARTS AND CT CYCLE.CHANGE DRIVER FOR CYCLE 2.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.55		29.55		29.55				29.55		29.55		29.55	
SAMPLING TIME - SEC	515		867		507				765		1398		600	
DISTANCE TRAVELLED- MILES	3.676		4.062		3.660				10.325		13.767		1.387	
DILUTION FACTOR	8.53		14.56		10.56				7.50		9.05		18.14	
VOLUME - VMIX (CU FT)	2641.30		4444.85		2603.24				3922.04		7214.62		3075.79	
FUEL ECONOMY -MILES/GAL	15.41		17.69		19.42		17.58		25.51		22.47		11.04	
FUEL ECONOMY - KM/LITER	6.55		7.52		8.26		7.48		10.85		9.55		4.69	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.67	1.66	0.66	0.41	0.72	0.45	1.08	0.67	0.13	0.08	0.32	0.20	1.70	1.06
CARBON MONUXIDE	20.64	12.83	1.83	1.14	5.11	3.18	6.56	4.08	0.51	0.31	2.56	1.59	9.11	5.66
NOX - NO2	1.86	1.16	0.81	0.50	1.41	0.87	1.19	0.74	1.29	0.80	1.30	0.81	1.01	0.63
NOX CORRECTED	1.90	1.18	0.83	0.51	1.43	0.89	1.21	0.75	1.32	0.82	1.32	0.82	1.03	0.64
CARBON DIUXIDE	527.49	327.83	489.89	304.47	440.61	273.84	484.25	300.97	342.05	212.58	384.64	239.05	773.55	480.76
							MG/MI	MG/KM						
ALDEHYDE							53.45	33.22						
HYDROGEN SULFIDE							LESS THAN 0.37	0.23						
PARTICULATE											MG/MI 34.67	MG/KM 21.67		
SULFATE											0.58	0.36		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70H02
DATE RUN: 11 13 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
189.	628.	951.	587.	925.	742.	899.	778.	790.	652.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	2400	18.5	GOOD	HES H				800.	15.3
HOT TRANSIENT	1.	0 0		900.	16.	GOOD					850.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.51	29.51	29.51		29.50	29.51	29.49
SAMPLING TIME - SEC	508	866	506		765	1397	600
DISTANCE TRAVELLED- MILES	3.680	4.083	3.650		10.231	13.755	1.391
DILUTION FACTOR	8.93	15.13	10.57		7.68	9.43	18.87
VOLUME - VMIX (CU FT)	2557.49	4361.41	2545.79		3847.03	7084.39	3017.19
FUEL ECONOMY -MILES/GAL	16.70	18.88	19.83	18.62	26.41	23.86	11.77
FUEL ECONOMY - KM/LITER	7.10	8.03	8.43	7.92	11.23	10.14	5.00

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	0.92	0.57	0.51	0.31	0.45	0.28	0.58	0.36	0.10	0.06	0.18	0.11	0.94	0.59
CARBON MONOXIDE	14.14	8.79	0.41	0.26	2.85	1.77	3.86	2.40	0.29	0.18	1.17	0.73	4.47	2.78
NOX - NO2	1.83	1.14	0.68	0.42	1.23	0.76	1.06	0.66	1.18	0.73	1.23	0.76	1.11	0.69
NOX CORRECTED	1.86	1.16	0.69	0.43	1.25	0.78	1.08	0.67	1.20	0.75	1.25	0.78	1.13	0.70
CARBON DIOXIDE	499.29	310.31	461.53	286.84	435.68	270.78	462.27	287.30	330.76	205.57	364.60	226.60	734.02	456.19

	COMPOSITE MG/MI	COMPOSITE MG/KM
ALDEHYDE	75.74	47.07
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	13.06	8.52
SULFATE	1.86	1.15

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70811
DATE RUN: 11 03 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: HYCK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 83 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SLC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
135.	697.	1085.	691.	1114.	881.	1076.	917.	893.	727.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0.	1.	1100	16.3	POOR	HES. T	HES. M	HES M	HES M	750	12.8
HOT TRANSIENT	1.	0.	0.	700	13.8	GOOD	HES. M				800	12.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVABILITY ON CT VERY POOR ALSO FIRST TWO MIN. OF HT

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.54		29.54		29.54				29.54		29.54		29.54	
SAMPLING TIME - SEC	511		867		506				765		1397		600	
DISTANCE TRAVELLED- MILES	3.652		4.092		3.667				10.351		13.883		1.407	
DILUTION FACTOR	7.70		13.27		8.88				6.66		7.93		15.90	
VOLUME - VMIX (CU FT)	2622.79		4442.19		2596.95				3924.67		7214.36		3076.15	
FUEL ECONOMY -MILES/GAL	13.56		15.51		15.86		15.16		22.21		19.31		9.24	
FUEL ECONOMY - KM/LITER	5.76		6.60		6.75		6.45		9.44		8.21		3.93	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.18	1.35	0.62	0.38	0.69	0.43	0.95	0.59	0.22	0.14	0.39	0.24	1.65	1.02
CARBON MONOXIDE	24.01	14.92	1.77	1.10	7.33	4.55	7.78	4.83	2.10	1.31	5.72	3.56	12.00	7.46
NOX - NO2	2.15	1.34	1.17	0.73	1.63	1.01	1.49	0.93	1.78	1.11	1.61	1.00	1.48	0.92
NOX CORRECTED	2.24	1.39	1.22	0.76	1.69	1.05	1.55	0.96	1.85	1.15	1.67	1.04	1.53	0.95
CARBON DIOXIDE	601.30	373.71	559.75	347.89	537.83	334.26	562.27	349.45	390.22	242.52	443.16	275.43	923.18	573.76

	MG/MI	MG/KM
ALDEHYDE	51.35	31.92
HYDROGEN SULFIDE	LESS THAN 0.38	0.24
PARTICULATE	76.99	48.05
SULFATE	0.94	0.58

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70812
DATE RUN: 11 10 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
160.	566.	1036.	566.	979.	813.	955.	837.	828.	662.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	1.	0.	1100	16.	GOOD	HES T	HES T			800.	13.2
HOT TRANSIENT	1.	0.	0.	825.	13.9	GOOD					800.	12.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP															
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.47		29.47		29.47				29.47		29.47		29.47	
SAMPLING TIME - SEC	510		867		507				824		1397		600	
DISTANCE TRAVELLED- MILES	3.643		4.025		3.635				10.219		13.650		1.344	
DILUTION FACTOR	8.53		13.61		9.93				7.00		8.68		17.33	
VOLUME - VMIX (CU FT)	2611.85		4438.00		2595.99				3912.11		7203.87		3069.73	
FUEL ECONOMY -MILES/GAL	15.45		16.34		18.15		16.59		23.58		21.36		10.20	
FUEL ECONOMY - KM/LITER	6.57		6.95		7.71		7.06		10.02		9.08		4.34	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.48	0.92	0.44	0.27	0.45	0.28	0.66	0.41	0.12	0.07	0.21	0.13	1.16	0.72
CARBON MONOXIDE	13.33	8.28	0.35	0.22	3.36	2.09	3.82	2.37	0.25	0.16	1.77	1.10	6.59	4.09
NOX - NO2	2.16	1.34	1.01	0.63	1.75	1.09	1.45	0.90	1.69	1.05	1.51	0.94	1.18	0.73
NOX CORRECTED	2.21	1.38	1.04	0.64	1.80	1.12	1.48	0.92	1.73	1.07	1.55	0.96	1.21	0.75
CARBON DIOXIDE	541.13	336.31	533.78	331.75	475.84	295.74	519.61	322.94	370.60	230.33	406.55	252.67	844.37	524.78
							MG/MI	MG/KM						
ALDEHYDE							91.75	57.02						
HYDROGEN SULFIDE					LESS THAN		0.39	0.24						
											MG/MI	MG/KM		
PARTICULATE											19.05	12.15		
SULFATE											1.44	0.89		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70901
DATE RUN: 08 23 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 105 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
311.	894.	922.	635.			937.	835.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0	0	1300	18.9	GOOD					650.	13.5
HOT TRANSIENT	1.	0.	0.	700.	15.						700.	14.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: MALFUNCTION DURING HFET,TEST REPEATED NOX ISTR. MALFUNCTIONED

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.45	29.45	29.45		29.45
SAMPLING TIME - SEC	511	867	506		763
DISTANCE TRAVELLED- MILES	3.613	3.950	3.597		10.589
DILUTION FACTOR	9.42	14.75	10.09		6.96
VOLUME - VMIX (CU FT)	2583.85	4377.98	2555.33		3854.67
FUEL ECONOMY -MILES/GAL	17.15	17.70	18.53	17.80	24.66
FUEL ECONOMY - KM/LITER	7.29	7.52	7.88	7.57	10.48

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.24	0.77	0.60	0.37	0.50	0.31	0.71	0.44	0.14	0.09
CARBON MONOXIDE	7.40	4.60	1.55	0.96	5.50	3.42	3.82	2.38	0.22	0.13
NOX - NO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NOX CORRECTED	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CARBON DIOXIDE	495.14	307.73	490.42	304.80	462.26	287.30	483.74	300.65	354.31	220.21

		MG/MI	MG/KM
ALDEHYDE		81.04	50.37
HYDROGEN SULFIDE	LESS THAN	0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70902
DATE RUN: 08 25 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8N11Y148568 DRIVER: MYER FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 109 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
260.	987.	987.	637.			896.	813.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0.	1.	1450	18.5	GOOD	STA M				700.	14.5
HOT TRANSIENT	1.	0.	0.	750.	15.	GOOD					700.	14.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVER AID OPER. ERRATIC

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.29	29.29	29.29		29.29
SAMPLING TIME - SEC	514	868	505		763
DISTANCE TRAVELLED- MILES	3.636	4.146	3.603		9.923
DILUTION FACTOR	9.27	14.17	10.52		7.59
VOLUME - VMIX (CU FT)	2582.80	4352.38	2535.83		3833.48
FUEL ECONOMY -MILES/GAL	16.99	17.92	19.55	18.12	25.41
FUEL ECONOMY - KM/LITER	7.22	7.62	8.31	7.70	10.80

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.05	0.65	0.37	0.23	0.38	0.24	0.51	0.32	0.11	0.07
CARBON MONOXIDE	5.90	3.66	0.74	0.46	2.08	1.29	2.13	1.33	0.28	0.17
NOX - NO2	1.30	0.81	0.46	0.29	0.88	0.55	0.74	0.46	0.84	0.52
NOX CORRECTED	1.54	0.96	0.55	0.34	1.05	0.65	0.88	0.55	1.00	0.62
CARBON DIOXIDE	502.89	312.55	486.36	302.27	443.29	275.51	478.27	297.24	343.85	213.70

	MG/MI	MG/KM
ALDEHYDE	71.54	44.46
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70903
DATE RUN: 10 24 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
307.	917.	994.	639.			915.	815.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1300	18.	GOOD					775	13.2
HOT TRANSIENT	1.	0	0	725.	13.	GOOD					750.	13.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.FIRST TEST AFTER 2 MONTH DELAY.100MILLS RUN

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.48	29.48	29.48		29.49
SAMPLING TIME - SEC	508	867	506		764
DISTANCE TRAVELLED- MILES	3.698	4.138	3.682		10.285
DILUTION FACTOR	9.40	15.50	10.73		7.68
VOLUME - VMIX (CU FT)	2596.01	4432.74	2587.25		3910.97
FUEL ECONOMY -MILES/GAL	17.43	19.31	19.96	19.06	26.13
FUEL ECONOMY - KM/LITER	7.41	8.21	8.50	8.11	11.11

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	0.67	0.42	0.28	0.18	0.28	0.17	0.36	0.22	0.09	0.05
CARBON MONOXIDE	4.24	2.63	0.58	0.36	1.27	0.79	1.51	0.94	0.19	0.12
NOX - NO2	1.27	0.79	0.56	0.34	1.02	0.64	0.83	0.51	1.07	0.67
NOX CORRECTED	1.47	0.91	0.64	0.40	1.18	0.73	0.95	0.59	1.23	0.77
CARBON DIOXIDE	493.70	306.84	451.69	280.73	435.26	270.52	455.81	283.28	334.49	207.89

	MG/MI	MG/KM
ALDEHYDE	48.18	29.95
HYDROGEN SULFIDE	LESS THAN 0.44	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70911
DATE RUN: 08 24 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 101 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
156.	559.	1041.	711.			1050.	900.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	0	2300	18.	GOOD	HES M				625.	15.0
HOT TRANSIENT	1.	0	0	700.	14.	GOOD					625.	12.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVEABILITY FAIR. DRIVERS AID CHANGED CALIB OVERNIGHT -RESET AFTER RUN

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.38	29.38	29.38		29.38
SAMPLING TIME - SEC	508	867	505		764
DISTANCE TRAVELLED- MILES	3.807	4.335	3.831		10.621
DILUTION FACTOR	7.88	11.98	8.43		6.23
VOLUME - VMIX (CU FT)	2561.42	4365.16	2547.48		3843.39
FUEL ECONOMY -MILES/GAL	15.16	15.66	16.44	15.76	22.14
FUEL ECONOMY - KM/LITER	6.44	6.66	6.99	6.70	9.41

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	0.80	0.50	0.33	0.20	0.36	0.22	0.43	0.27	0.14	0.09
CARBON MONOXIDE	7.20	4.48	1.51	0.94	3.42	2.12	3.17	1.97	0.87	0.54
NOX - NO2	1.57	0.97	0.84	0.52	1.39	0.87	1.13	0.70	1.37	0.85
NOX CORRECTED	1.79	1.11	0.95	0.59	1.59	0.99	1.29	0.80	1.56	0.97
CARBON DIOXIDE	563.87	350.45	555.61	345.31	526.12	326.98	549.38	341.44	393.65	244.65

		MG/MI	MG/KM
ALDEHYDE		61.84	38.43
HYDROGEN SULFIDE	LESS THAN	0.37	0.23

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 70912
DATE RUN: 10 25 76 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 105 GR/LB FUEL DENSITY: 0.734 G/ML FULL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS+1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
187.	756.	1041.	681.			995.	856.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1100	14.2	GOOD	HES H	HES T			725.	11.1
HOT TRANSIENT	4.	0	2.	800.	11.8	GOOD					725.	11.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SLIGHT DIFFICULTIES ON STARTS AND IDLE AND CT CYCLE

ANALYTICAL RESULTS
FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.24	29.24	29.23		29.23
SAMPLING TIME - SEC	508	866	511		765
DISTANCE TRAVELLED- MILES	3.529	3.921	3.577		10.060
DILUTION FACTOR	8.89	14.04	9.88		7.03
VOLUME - VMIX (CU FT)	2575.38	4398.29	2587.69		3878.16
FUEL ECONOMY -MILES/GAL	15.38	15.80	17.24	16.08	23.01
FUEL ECONOMY - KM/LITER	6.54	6.72	7.33	6.84	9.78

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	0.82	0.51	0.28	0.17	0.44	0.27	0.43	0.27	0.09	0.06
CARBON MONOXIDE	6.92	4.30	0.69	0.43	2.55	1.58	2.46	1.53	0.38	0.24
NOX - NO2	1.42	0.88	0.68	0.42	1.29	0.80	1.00	0.62	1.37	0.85
NOX CORRECTED	1.65	1.03	0.79	0.49	1.50	0.93	1.16	0.72	1.60	0.99
CARBON DIOXIDE	556.00	345.55	552.16	343.17	502.39	312.24	539.41	335.24	379.66	235.96

	MG/MI	MG/KM
ALDEHYDE	50.92	31.64
HYDROGEN SULFIDE	LESS THAN 0.45	0.28

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 71101
DATE RUN: 10 26 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 170 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
329.	870.	965.	693.	976.	788.	928.	804.	1043.	911.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	27.	3.	1.	1200	16.0	GOOD					700.	13.9
HOT TRANSIENT	1.	0	1.	725.	14.0	GOOD					750.	13.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DIFFICULTIES ON COLD START. DRIVEABILITY GOOD.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.06	29.06	29.06		29.07	29.06	29.07
SAMPLING TIME - SEC	532	867	508		764	1397	600
DISTANCE TRAVELLED- MILES	3.548	4.007	3.573		9.991	13.538	1.384
DILUTION FACTOR	10.21	15.84	10.75		7.93	10.17	16.97
VOLUME - VMIX (CU FT)	2676.77	4368.24	2562.89		3853.78	7091.65	3023.10
FUEL ECONOMY -MILES/GAL	17.07	18.34	18.91	18.21	25.93	24.49	9.81
FUEL ECONOMY - KM/LITER	7.26	7.80	8.04	7.74	11.02	10.41	4.17

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.12	1.94	0.36	0.22	0.62	0.39	0.99	0.62	0.14	0.08	0.27	0.17	5.57	3.46
CARBON MONOXIDE	9.07	5.64	1.13	0.70	4.84	3.01	3.73	2.32	0.85	0.53	2.38	1.48	52.53	32.65
NOX - NO2	0.72	0.45	0.42	0.26	0.66	0.41	0.55	0.34	0.56	0.35	0.53	0.33	0.45	0.28
NOX CORRECTED	1.31	0.81	0.75	0.47	1.20	0.74	0.99	0.61	1.00	0.62	0.95	0.59	0.81	0.50
CARBON DIOXIDE	488.80	303.79	474.54	294.93	453.57	281.90	471.78	293.22	335.91	208.77	352.97	219.37	792.27	492.40

	MG/MI	MG/KM
ALDEHYDE	68.13	42.35
HYDROGEN SULFIDE	LESS THAN 0.43	0.27
PARTICULATE	20.17	12.76
SULFATE	1.03	0.64

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 71102
DATE RUN: 11 01 78
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 165 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
318.	933.	963.	683.	1035.	792.	954.	834.	997.	834.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	15.	0	0	600.	13.	POOR	STA	HES S	HES S		750.	14.
HOT TRANSIENT	1.	0	0	750.	13.	GOOD					750.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR COLD START.POOR CT DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.58	29.58	29.58		29.57	29.58	29.57
SAMPLING TIME - SEC	521	868	507		765	1397	600
DISTANCE TRAVELLED- MILES	3.651	4.021	3.640		10.255	13.531	1.424
DILUTION FACTOR	9.80	15.22	10.89		7.74	9.19	16.97
VOLUME - VMIX (CU FT)	2677.28	4449.72	2626.11		3923.04	7215.60	3077.90
FUEL ECONOMY -MILES/GAL	17.31	18.12	19.61	18.32	26.04	22.27	10.41
FUEL ECONOMY - KM/LITER	7.36	7.71	8.34	7.79	11.07	9.47	4.43

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.23	0.76	0.63	0.39	0.77	0.48	0.79	0.49	0.18	0.11	0.36	0.23	3.63	2.25
CARBON MONOXIDE	11.14	6.92	2.17	1.35	7.98	4.96	5.58	3.47	0.92	0.57	4.15	2.58	41.37	25.71
NOX - NO2	0.99	0.61	0.50	0.31	1.00	0.62	0.74	0.46	0.93	0.58	0.84	0.52	0.65	0.41
NOX CORRECTED	1.71	1.06	0.87	0.54	1.74	1.08	1.28	0.79	1.61	1.00	1.45	0.90	1.13	0.70
CARBON DIOXIDE	484.43	301.07	477.75	296.92	431.56	268.22	466.61	290.00	334.26	207.74	385.53	239.61	764.73	475.28

	MG/MI	MG/KM
ALDEHYDE	55.60	34.56
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	33.41	20.89
SULFATE	0.59	0.37

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 71111
DATE RUN: 10 27 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 162 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
245.	1124.	1127.	753.				

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	1.	0.	600.	14.0	GOOD					600.	10.5
HOT TRANSIENT	1.	0.	0.	700.	11.0	GOOD					725.	11.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: VEHICLE MALFUNCTION DURING SET.TEST DISCONTINUED.ENGINE STARVING FORFUEL

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP							
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE	
BAROMETRIC PRESSURE	29.37		29.37		29.37			
SAMPLING TIME - SEC	509		667		505			
DISTANCE TRAVELLED- MILES	3.577		4.036		3.551			
DILUTION FACTOR	9.10		13.49		9.70			
VOLUME - VMIX (CU FT)	2595.47		4419.90		2576.56			
FUEL ECONOMY -MILES/GAL	16.32		16.30		17.43		16.59	
FUEL ECONOMY - KM/LITER	6.94		6.93		7.41		7.05	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.87	0.54	0.31	0.19	0.54	0.34	0.49	0.30
CARBON MONOXIDE	8.00	4.97	3.80	2.36	8.50	5.29	5.91	3.67
NOX - NO2	1.03	0.64	0.66	0.41	1.00	0.62	0.82	0.51
NOX CORRECTED	1.74	1.08	1.11	0.69	1.69	1.05	1.39	0.87
CARBON DIOXIDE	521.25	323.96	530.18	329.51	487.26	302.83	516.92	321.27
							MG/MI	MG/KM
ALDEHYDE							73.49	45.67
HYDROGEN SULFIDE						LESS THAN	0.41	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 71112
DATE RUN: 10 30 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 155 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
308.	875.	922.	688.	1050.	834.	991.	870.	967.	723.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0	0	620.	14.	GOOD	HES S	HES M			710.	13.9
HOT TRANSIENT	1.	0	0	730.	11.2	POOR					760.	12.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR STARTS WITH ROUGH HOT IDLES.FAIRLY GOOD DRIVEABILITY.
ENGINE STALLED ON NYC.PRIOR TO TEST THE CARB.WAS OPENED UP AND PARTICLES
FROM THE HOME MADE GASKET WERE BLOCKING JETS.OBSTRUCTIONS REMOVED.
NEW FACTORY MADE GASKETS INSTALLED. CARBURETOR RESET WITH PROPANE

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.78	29.78	29.78		29.78	29.78	29.78
SAMPLING TIME - SEC	506	868	505		644	1397	601
DISTANCE TRAVELLED- MILES	3.551	3.993	3.489		9.876	13.232	1.348
DILUTION FACTOR	10.34	13.85	10.05		7.37	8.94	15.66
VOLUME - VMIX (CU FT)	2613.91	4489.45	2609.62		3951.21	7274.11	3105.77
FUEL ECONOMY -MILES/GAL	18.35	16.16	17.42	16.89	23.67	21.02	8.97
FUEL ECONOMY - KM/LITER	7.80	6.87	7.41	7.18	10.06	8.94	3.81

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.97	0.60	0.30	0.19	0.43	0.27	0.47	0.29	0.11	0.07	0.20	0.13	3.58	2.23
CARBON MONOXIDE	4.14	2.58	1.87	1.16	4.51	2.80	3.03	1.88	0.78	0.48	2.72	1.69	49.57	30.81
NOX - NO2	0.99	0.61	0.85	0.53	1.49	0.92	1.05	0.65	1.25	0.78	1.13	0.70	0.98	0.61
NOX CORRECTED	1.59	0.99	1.37	0.85	2.38	1.48	1.68	1.05	2.00	1.24	1.81	1.13	1.57	0.98
CARBON DIOXIDE	467.48	290.54	538.01	334.38	494.07	307.06	512.06	318.24	368.30	228.90	411.73	255.89	887.07	551.32

	MG/MI	MG/KM
ALDEHYDE	50.00	31.08
HYDROGEN SULFIDE	LESS THAN 0.44	0.27

	MG/MI	MG/KM
PARTICULATE	15.09	9.82
SULFATE	2.03	1.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 71113
DATE RUN: 10 31 78 AIR CONDITIONER USED
CAR: 1978 FORD PINTO CAL 3 WAY VIN: 8R11Y148568 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 146 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 2800 LB ENGINE DISPLACEMENT: 2.30 LITERS
DYNAMOMETER INERTIA WEIGHT: 3075 LB DYNAMOMETER LOADING: 10.3HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
190.	812.	1141.	755.	1129.	955.	1101.	888.	1107.	1011.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	700.	13.3	GOOD	STA	HES S			700.	11.8
HOT TRANSIENT	1.	0	0	800.	11.8	GOOD					750.	11.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: NO PROBLEM ON STARTS SLIGHT DIFFICULTIES ON COLD TRAN.AND NYC CYCLES

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.64		29.64		29.64				29.63		29.63		29.63	
SAMPLING TIME - SEC	513		867		507				765		1337		600	
DISTANCE TRAVELLED- MILES	3.601		4.098		3.652				10.255		13.760		1.409	
DILUTION FACTOR	8.54		14.00		9.79				6.98		8.14		5.13	
VOLUME - VMIX (CU FT)	2637.80		4460.89		2607.60				3933.98		7231.15		3085.96	
FUEL ECONOMY -MILES/GAL	15.05		16.89		17.88		16.73		23.36		19.97		2.99	
FUEL ECONOMY - KM/LITER	6.40		7.18		7.60		7.11		9.93		8.49		1.27	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.28	0.80	0.55	0.34	0.72	0.45	0.74	0.46	0.24	0.15	0.43	0.26	11.69	7.26
CARBON MONOXIDE	16.13	10.03	4.54	2.82	9.84	6.12	8.30	5.16	3.15	1.96	8.51	5.29	1284.58	798.37
NOX - NO2	1.28	0.79	0.86	0.53	1.12	0.70	1.01	0.63	1.47	0.91	1.14	0.71	0.83	0.52
NOX CORRECTED	1.92	1.19	1.28	0.80	1.69	1.05	1.52	0.94	2.20	1.37	1.71	1.06	1.25	0.78
CARBON DIOXIDE	552.50	343.38	509.59	316.71	472.07	293.39	508.14	315.81	369.11	229.41	423.69	263.32	871.92	541.90
							MG/MI	MG/KM						
ALDEHYDE							130.64	81.20						
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM		
PARTICULATE											83.68	52.26		
SULFATE											1.15	0.72		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80201
DATE RUN: 08 30 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN			700.	569.			751.	653.	629.	564.
CATALYST 1 OUT	NO		424.	196.			464.	392.	407.	383.
CATALYST 2 OUT	336.	361.	462.	387.			485.	399.	510.	422.
LEFT BANK										
CATALYST 1 IN			689.	555.			760.	650.	619.	552.
CATALYST 1 OUT	NO		460.	378.			511.	438.	429.	401.
CATALYST 2 OUT	576.	424.	437.	379.			477.	399.	480.	401.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1000	16.2	GOOD					875.	14.
HOT TRANSIENT	3.	1.	0	850.	19.	GOOD					600.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.37		29.37		29.37				29.37		29.37	
SAMPLING TIME - SEC	508		867		511				765		600	
DISTANCE TRAVELLED- MILES	3.739		4.000		3.670				10.395		1.207	
DILUTION FACTOR	4.60		9.62		7.04				5.37		11.69	
VOLUME - VMIX (CU FT)	2554.87		4357.23		2573.54				3843.86		3015.28	
FUEL ECONOMY -MILES/GAL	8.22		11.00		12.38		10.58		17.81		5.88	
FUEL ECONOMY - KM/LITER	3.50		4.68		5.26		4.50		7.57		2.50	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	11.25	6.99	0.47	0.29	1.53	0.95	3.00	1.86	0.21	0.13	1.27	0.79
CARBON MONOXIDE	194.19	120.69	3.33	2.07	6.71	4.17	43.90	27.29	0.98	0.61	9.86	6.13
NOX - NO2	1.20	0.75	0.92	0.57	1.15	0.72	1.04	0.65	0.63	0.39	1.93	1.20
NOX CORRECTED	0.91	0.57	0.70	0.44	0.88	0.54	0.79	0.49	0.48	0.30	1.47	0.91
CARBON DIOXIDE	677.01	420.76	754.13	468.69	660.68	410.62	712.62	442.90	467.69	290.67	1404.46	872.88
							MG/MI	MG/KM				
ALDEHYDE							77.43	48.12				
HYDROGEN SULFIDE							LESS THAN 0.40	0.25				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80202
DATE RUN: 08 31 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 9 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN			705.	566.			746.	652.	596.	528.
CATALYST 1 OUT	NO		424.	193.			459.	396.	387.	372.
CATALYST 2 OUT	316.	363.	476.	410.			484.	405.	452.	399.
LEFT BANK										
CATALYST 1 IN			695.	553.			757.	651.	578.	531.
CATALYST 1 OUT	NO		462.	378.			510.	443.	402.	387.
CATALYST 2 OUT	567.	441.	442.	387.			477.	404.	416.	381.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	900.	14.2	GOOD					875.	14.9
HOT TRANSIENT	2.	0	0	900.	19.	GOOD					650.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.29	29.29	29.29		29.29	29.29
SAMPLING TIME - SEC	507	867	509		764	600
DISTANCE TRAVELLED- MILES	3.732	4.025	3.692		10.473	1.184
DILUTION FACTOR	4.73	9.84	7.33		5.53	12.19
VOLUME - VMIX (CU FT)	2545.56	4348.77	2556.68		3837.65	3010.53
FUEL ECONOMY -MILES/GAL	8.48	11.36	13.07	10.98	18.50	6.03
FUEL ECONOMY - KM/LITER	3.61	4.83	5.56	4.67	7.86	2.57

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	12.25	7.61	0.40	0.25	1.41	0.88	3.13	1.94	0.29	0.18	1.83	1.14
CARBON MONOXIDE	188.67	117.26	2.66	1.66	5.37	3.34	41.88	26.03	0.84	0.52	11.12	6.91
NOX - NO2	1.29	0.80	0.95	0.59	1.05	0.65	1.05	0.65	0.55	0.34	1.74	1.08
NOX CORRECTED	0.98	0.61	0.73	0.45	0.80	0.50	0.80	0.50	0.42	0.26	1.32	0.82
CARBON DIOXIDE	650.94	404.56	731.11	454.39	627.21	389.81	686.19	426.47	450.11	279.74	1363.34	847.32

	MG/MI	MG/KM
ALDEHYDE	84.45	52.49
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80401
DATE RUN: 08 29 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8M92F579951 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
RIGHT BANK								
CATALYST 1 IN			680.	566.	728.	598.	743.	650.
CATALYST 1 OUT	NO		419.	352.	466.	402.	469.	400.
CATALYST 2 OUT	310.	375.	466.	404.	517.	408.	474.	416.
LEFT BANK								
CATALYST 1 IN			673.	375.	735.	587.	754.	647.
CATALYST 1 OUT	NO		458.	385.	505.	415.	516.	444.
CATALYST 2 OUT	427.	418.	436.	379.	495.	392.	472.	410.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	700.	17.8	GOOD					775.	16.
HOT TRANSIENT	3.	1.	0.	775.	16.	GOOD					600.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP COLD TRANSIENT		FTP STABILIZED		FTP HOT TRANSIENT		FTP COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.20		29.20		29.21				29.23		29.22	
SAMPLING TIME - SEC	508		867		510				764		1397	
DISTANCE TRAVELLED- MILES	3.643		3.930		3.623				10.322		13.652	
DILUTION FACTOR	5.76		10.81		7.68				6.01		7.13	
VOLUME - VMIX (CU FT)	2538.53		4339.32		2555.77				3825.64		7041.85	
FUEL ECONOMY -MILES/GAL	10.14		12.25		13.46		12.03		19.91		17.04	
FUEL ECONOMY - KM/LITER	4.31		5.21		5.72		5.11		8.46		7.24	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.92	3.68	0.41	0.25	1.57	0.98	1.87	1.16	0.19	0.12	0.32	0.20
CARBON MONOXIDE	108.94	67.71	2.14	1.33	6.84	4.25	25.51	15.86	0.74	0.46	2.67	1.66
NOX - NO2	1.39	0.87	0.81	0.50	1.01	0.63	0.99	0.61	0.50	0.31	0.83	0.51
NOX CORRECTED	1.10	0.69	0.64	0.40	0.80	0.50	0.78	0.48	0.39	0.25	0.65	0.41
CARBON DIOXIDE	635.42	394.91	678.20	421.50	605.89	376.56	649.58	403.72	418.61	260.17	485.96	302.02
							MG/MI	MG/KM				
ALDEHYDE							100.17	62.25				
HYDROGEN SULFIDE					LESS THAN		0.43	0.27			MG/MI	MG/KM
PARTICULATE											18.79	12.04
SULFATE											1.68	1.04

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80601
DATE RUN: 09 15 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8M92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 41 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SFET MAX	SFET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	679.	571.			745.	654.	622.	564.
CATALYST 1 OUT	NO		425.	343.			466.	403.	410.	396.
CATALYST 2 OUT	195.	352.	461.	365.			457.	380.	409.	334.
LEFT BANK										
CATALYST 1 IN	-	-	655.	549.			743.	645.	604.	557.
CATALYST 1 OUT	NO		470.	382.			515.	447.	433.	412.
CATALYST 2 OUT	336.	439.	446.	299.			458.	370.	381.	332.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1400	19.0	GOOD	HES H				1000	13.8
HOT TRANSIENT	1.	0	0	825.	18.2	GOOD					650.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.31	29.31	29.31		29.31	29.31
SAMPLING TIME - SEC	507	867	506		764	600
DISTANCE TRAVELLED- MILES	3.677	4.083	3.677		10.171	1.391
DILUTION FACTOR	6.41	11.12	7.96		6.01	12.53
VOLUME - VMIX (CU FT)	2541.99	4344.25	2536.16		3830.47	3005.53
FUEL ECONOMY -MILES/GAL	11.94	13.71	14.93	13.60	20.52	7.65
FUEL ECONOMY - KM/LITER	5.08	5.83	6.35	5.78	8.72	3.25

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.92	1.19	0.24	0.15	0.80	0.50	0.74	0.46	0.13	0.08	0.60	0.37
CARBON MONOXIDE	25.28	15.71	0.76	0.47	3.66	2.27	6.54	4.06	0.62	0.38	4.47	2.78
NOX - NO2	1.38	0.86	0.61	0.38	0.79	0.49	0.81	0.51	0.55	0.34	3.09	1.92
NOX CORRECTED	1.19	0.74	0.53	0.33	0.68	0.42	0.70	0.44	0.48	0.30	2.67	1.66
CARBON DIOXIDE	687.43	427.24	636.91	395.84	578.03	359.25	631.30	392.35	425.36	264.36	1136.00	706.03
							MG/MI	MG/KM				
ALDEHYDE							104.18	64.75				
HYDROGEN SULFIDE					LESS THAN		0.41	0.25				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80701
DATE RUN: 09 14 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8M92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 58 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
RIGHT BANK								
CATALYST 1 IN	-	-	672.	409.			744.	656.
CATALYST 1 OUT	NO		410.	294.			465.	403.
CATALYST 2 OUT	192.	312.	452.	370.			459.	384.
LEFT BANK								
CATALYST 1 IN	-	-	655.	365.			740.	646.
CATALYST 1 OUT	NO		455.	337.			512.	448.
CATALYST 2 OUT	396.	436.	436.	353.			459.	380.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1600	19.2	GOOD					600.	15.9
HOT TRANSIENT	1.	0	0	800.	18.4	GOOD					600.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.38	29.39	29.39		29.39
SAMPLING TIME - SEC	507	868	508		764
DISTANCE TRAVELLED- MILES	3.622	4.060	3.662		10.262
DILUTION FACTOR	7.27	11.35	8.35		6.29
VOLUME - VMIX (CU FT)	2547.90	4358.29	2555.18		3836.39
FUEL ECONOMY -MILES/GAL	13.34	13.88	15.53	14.17	21.67
FUEL ECONOMY - KM/LITER	5.67	5.90	6.60	6.02	9.21

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.12	0.70	0.27	0.17	0.78	0.48	0.58	0.36	0.21	0.13
CARBON MONOXIDE	9.93	6.17	0.94	0.59	3.56	2.22	3.47	2.16	0.39	0.24
NOX - NO2	1.50	0.93	0.60	0.37	0.79	0.49	0.83	0.52	0.44	0.27
NOX CORRECTED	1.39	0.86	0.55	0.34	0.73	0.46	0.77	0.48	0.40	0.25
CARBON DIOXIDE	637.15	395.99	628.62	390.69	555.70	345.37	610.64	379.51	402.78	250.33

	MG/MI	MG/KM
ALDEHYDE	95.03	59.06
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80702
DATE RUN: 09 18 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WAHD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
RIGHT BANK								
CATALYST 1 IN	-	-	673.	404.			750.	656.
CATALYST 1 OUT	NO		425.	304.			471.	407.
CATALYST 2 OUT	270.	419.	447.	375.			469.	389.
LEFT BANK								
CATALYST 1 IN	-	-	652.	364.			744.	645.
CATALYST 1 OUT	NO		469.	347.			518.	451.
CATALYST 2 OUT	401.	431.	432.	352.			468.	375.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1500	19.2	GOOD	HES H				625.	18.9
HOT TRANSIENT	1.	0	0	850.	18.9	GOOD					650.	15.4

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.35		29.36		29.36				29.36	
SAMPLING TIME - SEC	507		867		505				765	
DISTANCE TRAVELLED- MILES	3.590		4.017		3.600				10.077	
DILUTION FACTOR	7.17		11.50		8.41				6.29	
VOLUME - VMIX (CU FT)	2537.29		4345.95		2532.62				3837.56	
FUEL ECONOMY -MILES/GAL	13.10		13.96		15.50		14.15		21.24	
FUEL ECONOMY - KM/LITER	5.57		5.93		6.59		6.02		9.03	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.65	1.02	0.25	0.15	0.42	0.26	0.58	0.36	0.15	0.09
CARBON MONOXIDE	14.77	9.18	0.91	0.57	4.50	2.79	4.69	2.92	0.93	0.58
NOX - NO2	1.76	1.09	0.54	0.34	0.77	0.48	0.85	0.53	0.48	0.30
NOX CORRECTED	1.61	1.00	0.50	0.31	0.71	0.44	0.78	0.49	0.44	0.27
CARBON DIOXIDE	640.19	397.88	625.10	388.50	556.62	345.94	609.72	378.94	410.31	255.01
							MG/MI	MG/KM		
ALDEHYDE							121.76	75.68		
HYDROGEN SULFIDE						LESS THAN	0.43	0.27		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80801
DATE RUN: 09 11 76
CAR: 1980 MERCURY PROTOTYPE VIN: 8M92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	681.	404.	729.	610.	743.	659.	620.	567.
CATALYST 1 OUT	NO		426.	284.	469.	412.	475.	414.	420.	404.
CATALYST 2 OUT	279.	409.	441.	374.	486.	384.	474.	395.	416.	342.
LEFT BANK										
CATALYST 1 IN	-	-	666.	358.	727.	597.	745.	651.	604.	556.
CATALYST 1 OUT	NO		466.	322.	515.	434.	525.	459.	442.	420.
CATALYST 2 OUT	NO		424.	350.	478.	373.	473.	399.	385.	346.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0.	0.	1500	19.2	GOOD					600.	15.2
HOT TRANSIENT	5.	1.	0.	1500	19.	GOOD					625.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: DRIVEABILITY GOOD LONGER CRANK ON BAG3 HIGH HC ON BAG3

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP: COLD TRANSIENT	FTP: STABILIZED	FTP: HOT TRANSIENT	FTP: COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.27	29.27	29.27		29.27	29.27	29.27
SAMPLING TIME - SEC	508	866	515		764	1397	600
DISTANCE TRAVELLED- MILES	3.558	3.982	3.600		10.083	13.604	1.401
DILUTION FACTOR	7.40	11.51	8.00		6.33	7.56	13.18
VOLUME - VMIX (CU FT)	2542.58	4340.74	2579.79		3829.83	7048.13	3004.89
FUEL ECONOMY -MILES/GAL	13.38	13.86	14.45	13.91	21.44	18.88	8.12
FUEL ECONOMY - KM/LITER	5.69	5.89	6.14	5.92	9.12	8.03	3.45

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.23	0.77	0.22	0.14	5.61	3.49	1.89	1.17	0.12	0.07	0.22	0.13	0.97	0.61
CARBON MONOXIDE	9.16	5.70	0.67	0.42	6.35	3.95	3.93	2.44	0.48	0.30	1.30	0.81	9.02	5.60
NOX - NO2	1.30	0.81	0.52	0.32	0.74	0.46	0.74	0.46	0.35	0.22	0.54	0.33	0.79	0.49
NOX CORRECTED	1.33	0.82	0.53	0.33	0.76	0.47	0.75	0.47	0.36	0.22	0.55	0.34	0.80	0.50
CARBON DIOXIDE	636.10	395.34	629.84	391.45	578.24	359.38	617.14	383.56	407.26	253.11	461.13	286.60	1060.70	659.23

	MG/MI	MG/KM
ALDEHYDE	66.76	41.49
HYDROGEN SULFIDE	LESS THAN 0.41	0.26

	MG/MI	MG/KM
PARTICULATE	30.96	22.07
SULFATE	13.12	8.16

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80802
DATE RUN: 08 19 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	686.	412.	740.	617.	755.	669.	616.	545.
CATALYST 1 OUT	NO		426.	287.	478.	417.	482.	420.	418.	402.
CATALYST 2 OUT	200.	333.	448.	386.	506.	379.	494.	389.	394.	303.
LEFT BANK										
CATALYST 1 IN	-	-	662.	365.	730.	594.	750.	656.	599.	551.
CATALYST 1 OUT	NO		469.	328.	513.	436.	526.	460.	438.	419.
CATALYST 2 OUT	NO		424.	356.	495.	370.	487.	384.	372.	298.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1550	19.3	GOOD	HES M				600.	15.8
HOT TRANSIENT	3.	0	0	800.	18.3	GOOD					650.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.41	29.41	29.41		29.42	29.42	29.42
SAMPLING TIME - SEC	507	868	509		764	1337	600
DISTANCE TRAVELLED- MILES	3.569	3.986	3.584		10.124	13.536	1.442
DILUTION FACTOR	7.19	11.37	8.35		6.23	7.50	13.11
VOLUME - VMIX (CU FT)	2545.83	4359.07	2560.03		3840.82	7066.46	3014.95
FUEL ECONOMY -MILES/GAL	13.01	13.65	15.16	13.88	21.12	18.56	8.29
FUEL ECONOMY - KM/LITER	5.53	5.80	6.44	5.90	8.98	7.89	3.52

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.16	0.72	0.34	0.21	1.10	0.69	0.71	0.44	0.19	0.12	0.28	0.17	0.72	0.45
CARBON MONOXIDE	10.07	6.26	1.82	1.13	5.79	3.60	4.57	2.84	0.88	0.55	2.31	1.43	6.10	3.79
NOX - NO2	1.44	0.89	0.59	0.37	0.74	0.46	0.80	0.50	0.45	0.28	0.62	0.39	0.80	0.50
NOX CORRECTED	1.47	0.91	0.60	0.38	0.75	0.47	0.82	0.51	0.46	0.29	0.64	0.40	0.82	0.51
CARBON DIOXIDE	653.52	406.16	637.56	396.25	565.17	351.25	621.27	386.12	412.70	256.49	467.38	290.48	1044.85	649.38

	MG/MI	MG/KM
ALDEHYDE	60.86	37.83
HYDROGEN SULFIDE	LESS THAN 0.41	0.25

	MG/MI	MG/KM
PARTICULATE	15.40	10.95
SULFATE	6.40	3.98

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80H11
DATE RUN: 09 12 78 AIR CONDITIONER USED
CAR: 1980 MERCURY PROTOTYPE VIN: 6H92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
RIGHT BANK										
CATALYST 1 IN	-	-	695.	403.	739.	621.	764.	675.	623.	559.
CATALYST 1 OUT	NO		435.	274.	487.	419.	493.	429.	420.	405.
CATALYST 2 OUT	302.	415.	443.	380.	493.	403.	487.	405.	402.	347.
LEFT BANK										
CATALYST 1 IN	-	-	681.	358.	745.	606.	765.	670.	605.	555.
CATALYST 1 OUT	NO		480.	315.	532.	447.	546.	477.	447.	425.
CATALYST 2 OUT	NO		423.	362.	482.	390.	492.	409.	379.	349.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1400	18.2	GOOD					550.	14.5
HOT TRANSIENT	1.	0	0	725.	17.	GOOD					575.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP					HFET	SET	NYCC
	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE				
BAROMETRIC PRESSURE	29.17	29.17	29.17			29.17	29.17	29.17
SAMPLING TIME - SEC	506	866	506			764	1397	599
DISTANCE TRAVELLED- MILES	3.613	4.052	3.654			10.161	13.627	1.415
DILUTION FACTOR	7.12	10.92	7.91			5.98	7.30	12.87
VOLUME - VMIX (CU FT)	2529.86	4325.36	2526.82			3817.34	7023.46	2990.57
FUEL ECONOMY -MILES/GAL	13.13	13.40	14.81	13.70		20.47	18.29	8.04
FUEL ECONOMY - KM/LITER	5.58	5.70	6.30	5.82		8.70	7.77	3.42

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.32	0.82	0.29	0.18	0.63	0.39	0.59	0.37	0.14	0.09	0.28	0.17	0.69	0.43
CARBON MONOXIDE	11.30	7.02	1.40	0.87	3.79	2.36	4.05	2.52	0.71	0.44	1.99	1.24	5.63	3.50
NOX - NO2	1.54	0.96	0.69	0.43	0.95	0.59	0.93	0.58	0.48	0.30	0.70	0.44	0.95	0.59
NOX CORRECTED	1.57	0.98	0.70	0.44	0.96	0.60	0.95	0.59	0.49	0.31	0.72	0.45	0.97	0.60
CARBON DIOXIDE	645.16	400.97	650.11	404.04	583.12	362.41	631.00	392.17	426.28	264.93	474.84	295.12	1078.18	670.09

		MG/MI	MG/KM
ALDEHYDE		88.42	54.96
HYDROGEN SULFIDE	LESS THAN	0.42	0.26
PARTICULATE		21.91	16.69
SULFATE		14.26	8.86

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80901
DATE RUN: 09 01 76
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 86 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
RIGHT BANK								
CATALYST 1 IN			691.	422.			755.	672.
CATALYST 1 OUT	NO		449.	260.			495.	434.
CATALYST 2 OUT	306.	407.	460.	392.			483.	411.
LEFT BANK								
CATALYST 1 IN			679.	378.			762.	669.
CATALYST 1 OUT	NO		482.	287.			545.	481.
CATALYST 2 OUT	NO		438.	372.			483.	406.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0.	0.	1400	19.	GOOD					500.	15.2
HOT TRANSIENT	2.	0.	0.	800.	18.	GOOD					600.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.47	29.47	29.48		29.48
SAMPLING TIME - SEC	508	867	507		764
DISTANCE TRAVELLED- MILES	3.658	4.063	3.661		10.362
DILUTION FACTOR	7.43	11.29	8.13		6.20
VOLUME - VMIX (CU FT)	2564.74	4374.02	2557.24		3858.09
FUEL ECONOMY -MILES/GAL	13.70	13.76	15.08	14.08	21.43
FUEL ECONOMY - KM/LITER	5.82	5.85	6.41	5.99	9.11

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.86	1.16	0.36	0.22	1.08	0.67	0.86	0.53	0.26	0.16
CARBON MONOXIDE	12.74	7.92	1.16	0.72	4.03	2.50	4.29	2.67	0.55	0.34
NOX - NO2	1.40	0.87	0.57	0.36	0.83	0.51	0.81	0.50	0.41	0.25
NOX CORRECTED	1.47	0.92	0.60	0.38	0.87	0.54	0.85	0.53	0.43	0.27
CARBON DIOXIDE	613.19	381.10	633.23	393.55	570.84	354.78	612.29	380.54	406.97	252.93

		MG/MI	MG/KM
ALDEHYDE		92.89	57.73
HYDROGEN SULFIDE	LESS THAN	0.41	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 80911
DATE RUN: 08 05 78 AIR CONDITIONER USED
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 108 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN
RIGHT BANK								
CATALYST 1 IN			714.	422.			784.	695.
CATALYST 1 OUT	ND		459.	252.			513.	449.
CATALYST 2 OUT	306.	427.	475.	421.			502.	438.
LEFT BANK								
CATALYST 1 IN			697.	375.			791.	695.
CATALYST 1 OUT	ND		498.	281.			571.	503.
CATALYST 2 OUT	ND		452.	389.			504.	448.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE.

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1500	19.8	GOOD					525.	15.
HOT TRANSIENT	2.	1.	0	700.	16.5	GOOD					575.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.38	29.38	29.38		29.38
SAMPLING TIME - SEC	506	867	509		765
DISTANCE TRAVELLED- MILES	3.666	4.083	3.657		10.237
DILUTION FACTOR	7.04	10.56	8.07		5.71
VOLUME - VMIX (CU FT)	2545.34	4367.94	2565.69		3849.23
FUEL ECONOMY -MILES/GAL	13.10	12.93	14.90	13.44	19.51
FUEL ECONOMY - KM/LITER	5.57	5.50	6.34	5.71	8.30

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.11	1.31	0.24	0.15	1.26	0.78	0.90	0.56	0.31	0.19
CARBON MONOXIDE	14.06	8.74	1.82	1.13	4.18	2.60	4.95	3.07	1.02	0.63
NOX - NO2	1.31	0.81	0.71	0.44	0.93	0.58	0.89	0.55	0.55	0.34
NOX CORRECTED	1.55	0.96	0.84	0.52	1.10	0.68	1.05	0.65	0.65	0.40
CARBON DIOXIDE	639.75	397.61	673.79	418.77	577.01	358.62	640.80	398.26	446.22	277.33

	MG/MI	MG/KM
ALDEHYDE	66.09	41.08
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 81101
DATE RUN: 09 07 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 157 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	700.	419.	752.	640.	765.	684.	648.	596.
CATALYST 1 OUT	NO		459.	372.	506.	451.	507.	447.	466.	447.
CATALYST 2 OUT	311.	395.	460.	392.	509.	417.	500.	440.	437.	398.
LEFT BANK										
CATALYST 1 IN	-	-	686.	378.	752.	626.	770.	680.	633.	583.
CATALYST 1 OUT	NO		494.	421.	546.	476.	558.	494.	484.	462.
CATALYST 2 OUT	NO		440.	370.	497.	401.	497.	436.	417.	388.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	700.	19.5	GOOD	HES H				550.	15.5
HOT TRANSIENT	5.	0	0	800.	17.5	GOOD					650.	14.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: SLIGHTLY SLOWER ON STARTS DRIVEABILITY GOOD

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.28	29.28	29.28		29.27	29.27	29.27
SAMPLING TIME - SEC	509	867	510		764	1398	600
DISTANCE TRAVELLED- MILES	3.608	4.076	3.605		10.100	13.543	1.407
DILUTION FACTOR	7.79	11.69	8.57		6.45	7.82	13.23
VOLUME - VMIX (CU FT)	2551.34	4348.09	2559.12		3828.04	7053.86	3005.39
FUEL ECONOMY -MILES/GAL	14.26	14.41	15.68	14.69	21.91	19.43	8.20
FUEL ECONOMY - KM/LITER	6.06	6.12	6.67	6.25	9.32	8.26	3.48

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.41	2.12	0.24	0.15	1.86	1.16	1.32	0.82	0.11	0.07	0.24	0.15	0.97	0.61
CARBON MONOXIDE	13.83	8.59	1.15	0.71	3.67	2.28	4.38	2.72	0.51	0.32	1.63	1.01	5.74	3.57
NOX - NO2	0.95	0.59	0.46	0.29	0.71	0.44	0.63	0.39	0.37	0.23	0.50	0.31	0.68	0.42
NOX CORRECTED	1.55	0.96	0.75	0.47	1.15	0.71	1.02	0.63	0.61	0.38	0.81	0.50	1.11	0.69
CARBON DIOXIDE	581.66	361.50	605.26	376.17	546.90	339.90	584.88	363.50	396.49	247.66	447.33	278.02	1056.34	656.52

	MG/MI	MG/KM
ALDEHYDE	101.15	62.87
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

	MG/MI	MG/KM
PARTICULATE	11.97	8.82
SULFATE	6.39	3.97

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 81102
DATE RUN: 09 08 78
CAR: 1980 MERCURY PROTOTYPE VIN: 8M92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 157 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	704.	426.	758.	644.	776.	696.	646.	588.
CATALYST 1 OUT	NO		462.	233.	507.	452.	514.	454.	450.	433.
CATALYST 2 OUT	311.	412.	458.	395.	516.	420.	495.	439.	421.	368.
LEFT BANK										
CATALYST 1 IN	-	-	689.	360.	758.	625.	776.	689.	630.	578.
CATALYST 1 OUT	NO		497.	434.	553.	472.	564.	499.	473.	449.
CATALYST 2 OUT	NO		441.	377.	507.	403.	494.	437.	395.	370.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	1	0	800.	18.2	GOOD	HES. M				600.	14.8
HOT TRANSIENT	1.	0	0	750.	17.5	GOOD					650.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP COLD TRANSIENT	FTP STABILIZED	FTP HOT TRANSIENT	FTP COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.26	29.26	29.26		29.26	29.26	29.26
SAMPLING TIME - SEC	510	866	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.616	4.073	3.646		10.226	13.790	1.444
DILUTION FACTOR	7.72	11.70	8.24		6.30	7.56	13.21
VOLUME - VMIX (CU FT)	2551.69	4342.56	2535.03		3827.67	7044.46	3005.79
FUEL ECONOMY -MILES/GAL	14.15	14.43	15.37	14.61	21.66	19.14	8.39
FUEL ECONOMY - KM/LITER	6.02	6.13	6.53	6.21	9.21	8.14	3.57

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	2.77	1.72	0.28	0.17	0.73	0.45	0.90	0.56	0.14	0.09	0.21	0.13	0.92	0.57
CARBON MONOXIDE	11.70	7.27	0.76	0.47	4.08	2.53	3.87	2.40	0.34	0.21	1.37	0.85	7.11	4.42
NOX - NO2	0.83	0.52	0.39	0.24	0.67	0.41	0.55	0.34	0.33	0.20	0.51	0.32	0.58	0.36
NOX CORRECTED	1.35	0.84	0.63	0.39	1.09	0.67	0.90	0.56	0.53	0.33	0.84	0.52	0.95	0.59
CARBON DIOXIDE	591.45	367.59	604.93	375.97	560.97	346.65	590.37	366.92	403.28	250.64	454.68	282.58	1029.42	639.79

	MG/MI	MG/KM
ALDEHYDE	63.42	39.42
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

	MG/MI	MG/KM
PARTICULATE	21.24	16.34
SULFATE	14.57	9.06

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 81111
DATE RUN: 09 06 78 AIR CONDITIONER USED
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 165 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	727.	447.	783.	657.	799.	717.	659.	599.
CATALYST 1 OUT	NO		485.	253.	541.	470.	544.	482.	470.	452.
CATALYST 2 OUT	315.	423.	488.	417.	554.	434.	544.	480.	466.	414.
LEFT BANK										
CATALYST 1 IN	-	-	712.	400.	786.	637.	806.	714.	638.	584.
CATALYST 1 OUT	NO		517.	457.	584.	491.	597.	532.	493.	470.
CATALYST 2 OUT	NO		467.	398.	539.	420.	536.	497.	436.	400.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1250	18.	GOOD					540.	13.9
HOT TRANSIENT	1.	0	0	530.	14.8	GOOD					530.	13.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.37	29.37	29.37		29.37	29.37	29.37
SAMPLING TIME - SEC	505	869	505		764	1338	600
DISTANCE TRAVELLED- MILES	3.678	4.109	3.651		10.118	13.658	1.291
DILUTION FACTOR	7.06	10.56	7.74		5.70	7.00	12.33
VOLUME - VMIX (CU FT)	2536.94	4370.33	2539.17		3842.32	7076.36	3017.02
FUEL ECONOMY -MILES/GAL	13.21	13.00	14.41	13.40	19.26	17.45	6.96
FUEL ECONOMY - KM/LITER	5.62	5.53	6.13	5.70	8.19	7.42	2.96

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.49	0.93	0.24	0.15	1.01	0.63	0.70	0.44	0.22	0.13	0.33	0.20	0.79	0.49
CARBON MONOXIDE	12.07	7.50	1.76	1.09	4.54	2.82	4.60	2.86	2.04	1.27	4.57	2.84	9.62	5.98
NOX - NO2	1.12	0.69	0.62	0.39	0.82	0.51	0.78	0.48	0.47	0.29	0.63	0.39	0.98	0.61
NOX CORRECTED	1.93	1.20	1.08	0.67	1.41	0.88	1.34	0.83	0.81	0.50	1.10	0.68	1.70	1.06
CARBON DIOXIDE	639.13	397.22	669.90	416.34	597.32	371.24	644.18	400.36	450.66	280.09	493.53	306.73	1240.86	771.20

	MG/MI	MG/KM
ALDEHYDE	72.29	44.93
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

	MG/MI	MG/KM
PARTICULATE	12.18	8.37
SULFATE	3.68	2.29

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 61112
DATE RUN: 09 13 78 AIR CONDITIONER USED
CAR: 1980 MERCURY PROTOTYPE VIN: 8H92F579951 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 160 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 4100 LB ENGINE DISPLACEMENT: 5.77 LITERS
DYNAMOMETER INERTIA WEIGHT: 4305 LB DYNAMOMETER LOADING: 12.7HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
RIGHT BANK										
CATALYST 1 IN	-	-	729.	440.	782.	649.	797.	709.	653.	584.
CATALYST 1 OUT	NO		467.	252.	525.	448.	526.	462.	452.	432.
CATALYST 2 OUT	305.	436.	464.	399.	535.	424.	504.	450.	432.	382.
LEFT BANK										
CATALYST 1 IN	-	-	714.	392.	780.	634.	797.	705.	635.	575.
CATALYST 1 OUT	NO		517.	274.	567.	480.	580.	514.	483.	457.
CATALYST 2 OUT	NO		446.	381.	519.	408.	506.	453.	413.	383.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1250	17.8	GOOD	HES H	HES H			500.	13.2
HOT TRANSIENT	1.	0	0	650.	15.4	GOOD					525.	13.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.39	29.39	29.39		29.39	29.39	29.39
SAMPLING TIME - SEC	507	870	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.624	4.123	3.643		10.216	13.768	1.418
DILUTION FACTOR	7.21	10.43	7.88		5.98	7.13	12.85
VOLUME - VMIX (CU FT)	2550.13	4365.55	2546.50		3849.73	7085.65	3019.95
FUEL ECONOMY -MILES/GAL	13.23	12.88	14.59	13.37	20.38	17.89	7.97
FUEL ECONOMY - KM/LITER	5.63	5.48	6.20	5.68	8.67	7.61	3.39

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.67	1.04	0.18	0.11	0.65	0.40	0.61	0.38	0.32	0.20	0.34	0.21	0.77	0.48
CARBON MONOXIDE	14.46	8.98	0.89	0.55	5.57	3.46	4.87	3.03	0.61	0.38	2.21	1.37	6.08	3.78
NOX - NO2	1.09	0.68	0.64	0.40	0.89	0.55	0.80	0.50	0.49	0.31	0.79	0.49	0.98	0.61
NOX CORRECTED	1.62	1.13	1.07	0.66	1.48	0.92	1.33	0.83	0.82	0.51	1.31	0.81	1.63	1.01
CARBON DIOXIDE	633.73	393.87	677.91	421.32	589.45	366.35	645.37	401.10	427.58	265.74	484.86	301.34	1086.47	675.25

	MG/MI	MG/KM
ALDEHYDE	92.88	57.73
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

	MG/MI	MG/KM
PARTICULATE	14.88	11.07
SULFATE	8.45	5.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90201
DATE RUN: 09 26 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47AHH196638 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
408.	506.	561.	456.			664.	549.	513.	430.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1500	17.9	GOOD					925.	13.9
HOT TRANSIENT	1.	0	0	1200		GOOD					600.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENT ON RUN 9-040-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.56		29.56		29.56				29.56		29.56	
SAMPLING TIME - SEC	505		867		506				764		600	
DISTANCE TRAVELLED- MILES	3.638		3.976		3.651				10.240		1.315	
DILUTION FACTOR	6.59		14.31		9.65				7.05		18.95	
VOLUME - VMIX (CU FT)	2549.09		4380.62		2555.52				3859.16		3026.90	
FUEL ECONOMY -MILES/GAL	11.57		16.48		17.06		15.29		23.08		10.48	
FUEL ECONOMY - KM/LITER	4.92		7.01		7.25		6.50		9.81		4.46	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.77	2.96	0.24	0.15	0.58	0.36	1.26	0.78	0.11	0.07	0.63	0.39
CARBON MONOXIDE	101.91	63.34	1.52	0.95	9.80	6.09	24.41	15.17	0.83	0.52	3.73	2.32
NOX - NO2	2.06	1.28	0.08	0.05	2.28	1.42	1.09	0.67	1.80	1.12	3.19	1.98
NOX CORRECTED	1.57	0.96	0.06	0.04	1.73	1.08	0.83	0.51	1.37	0.85	2.42	1.51
CARBON DIOXIDE	547.71	340.41	504.71	313.68	473.31	294.16	504.98	313.84	360.93	224.32	790.23	491.13
							MG/MI	MG/KM				
ALDEHYDE							95.24	59.19				
HYDROGEN SULFIDE						LESS THAN	0.43	0.27				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90202
DATE RUN: 09 28 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 9 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
399.	503.	555.	389.			653.	537.	508.	422.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1300	17.0	GOOD					900.	13.8
HOT TRANSIENT	2.	1.	0	2000	20.8	GOOD					550.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENT ON RUN 9-040-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.36		29.37		29.38				29.39		29.39	
SAMPLING TIME - SEC	508		866		507				764		600	
DISTANCE TRAVELLED- MILES	3.742		4.181		3.707				10.230		1.429	
DILUTION FACTOR	6.55		13.58		9.31				6.92		17.97	
VOLUME - VMIX (CU FT)	2540.22		4348.01		2545.04				3835.84		3009.99	
FUEL ECONOMY -MILES/GAL	11.93		16.68		16.98		15.50		22.84		11.14	
FUEL ECONOMY - KM/LITER	5.07		7.09		7.22		6.59		9.71		4.74	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.15	2.58	0.16	0.10	0.87	0.54	1.16	0.72	0.09	0.06	0.36	0.23
CARBON MONOXIDE	82.03	50.98	1.67	1.04	11.38	7.07	20.59	12.80	0.48	0.30	2.46	1.53
NOX - NO2	2.46	1.53	1.86	1.15	2.01	1.25	2.02	1.26	1.72	1.07	2.96	1.84
NOX CORRECTED	1.88	1.17	1.42	0.88	1.54	0.95	1.54	0.96	1.31	0.82	2.26	1.41
CARBON DIOXIDE	559.35	347.64	498.46	309.79	472.18	293.46	503.78	313.10	365.24	227.00	746.31	463.83
							MG/MI	MG/KM				
ALDEHYDE							65.58	40.76				
HYDROGEN SULFIDE						LESS THAN	0.46	0.29				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90401
DATE RUN: 09 25 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
407.	514.	574.	458.	651.	490.	661.	565.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	2.	0	0	1500	-	GOOD					900.	14.0
HOT TRANSIENT	1.	0	0	1100	19.2	GOOD					600.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.CATALYST SKIN TEMPERATURE USED.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.42		29.42		29.42				29.43		29.43	
SAMPLING TIME - SEC	503		867		506				764		1392	
DISTANCE TRAVELLED- MILES	3.672		4.013		3.671				10.243		13.811	
DILUTION FACTOR	6.60		14.17		9.85				7.28		8.98	
VOLUME - VMIX (CU FT)	2526.25		4354.16		2540.16				3837.45		7046.30	
FUEL ECONOMY -MILES/GAL	11.82		16.60		17.76		15.58		24.01		21.89	
FUEL ECONOMY - KM/LITER	5.02		7.06		7.55		6.62		10.21		9.31	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.69	2.30	0.02	0.01	0.44	0.27	0.89	0.55	0.06	0.04	0.06	0.04
CARBON MONOXIDE	80.50	50.03	0.92	0.57	5.56	3.46	18.53	11.52	0.78	0.48	1.46	0.91
NOX - NO2	1.76	1.09	2.24	1.39	1.81	1.13	2.02	1.26	1.35	0.84	1.45	0.90
NOX CORRECTED	1.39	0.86	1.77	1.10	1.43	0.89	1.60	0.99	1.07	0.67	1.15	0.71
CARBON DIOXIDE	569.88	354.18	502.68	312.42	461.06	286.55	505.15	313.95	347.10	215.72	379.76	236.02

	MG/MI	MG/KM			MG/MI	MG/KM
ALDEHYDE	85.09	52.88				
HYDROGEN SULFIDE	LESS THAN 0.41	0.26				
PARTICULATE					35.23	22.00
SULFATE					0.49	0.30

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90601
DATE RUN: 10 13 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
394.	511.	552.	464.			684.	565.	543.	459.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	1.	0	1250	18.5	GOOD					700.	15.
HOT TRANSIENT	1.	0	0	800.	19.	GOOD					600.	16.4

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.28	29.28	29.29		29.30	29.30
SAMPLING TIME - SEC	510	867	506		764	598
DISTANCE TRAVELLED- MILES	3.655	4.052	3.645		10.270	1.356
DILUTION FACTOR	8.33	14.64	10.35		7.25	18.99
VOLUME - VMIX (CU FT)	2553.14	4339.72	2533.77		3830.43	2992.29
FUEL ECONOMY -MILES/GAL	15.46	18.17	19.46	17.85	25.10	11.64
FUEL ECONOMY - KM/LITER	6.57	7.73	8.27	7.59	10.67	4.95

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.16	1.34	0.10	0.06	0.33	0.21	0.58	0.36	0.07	0.04	0.25	0.15
CARBON MONOXIDE	22.87	14.21	1.29	0.80	7.01	4.36	7.23	4.50	0.76	0.47	3.01	1.87
NOX - NO2	2.05	1.27	1.95	1.21	1.86	1.16	1.95	1.21	1.24	0.77	2.79	1.73
NOX CORRECTED	1.75	1.09	1.67	1.04	1.59	0.99	1.67	1.04	1.06	0.66	2.39	1.48
CARBON DIOXIDE	523.73	325.50	479.47	297.99	437.86	272.13	477.26	296.62	347.49	215.97	746.73	464.09

		MG/MI	MG/KM
ALDEHYDE		37.03	23.01
HYDROGEN SULFIDE	LESS THAN	0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90701
DATE RUN: 10 12 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
398.	507.	568.	470.			683.	565.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1100	15.9	GOOD					500.	15.3
HOT TRANSIENT	1.	0	0	750.	18.8	GOOD					600.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.17	29.17	29.17		29.17
SAMPLING TIME - SEC	507	866	506		764
DISTANCE TRAVELLED- MILES	3.677	4.018	3.617		10.178
DILUTION FACTOR	8.37	14.96	10.59		7.32
VOLUME - VMIX (CU FT)	2525.95	4322.54	2521.07		3811.04
FUEL ECONOMY -MILES/GAL	15.79	18.52	19.88	18.21	25.24
FUEL ECONOMY - KM/LITER	6.72	7.87	8.45	7.74	10.73

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.27	0.79	0.10	0.06	0.35	0.22	0.41	0.25	0.12	0.07
CARBON MONOXIDE	22.49	13.98	1.36	0.85	7.14	4.44	7.26	4.51	3.51	2.18
NOX - NO2	1.92	1.19	1.80	1.12	1.66	1.03	1.79	1.11	0.96	0.60
NOX CORRECTED	1.76	1.09	1.65	1.03	1.52	0.95	1.64	1.02	0.88	0.55
CARBON DIOXIDE	515.04	320.10	470.41	292.36	428.16	266.10	468.17	290.97	341.08	211.98

	MG/MI	MG/KM
ALDEHYDE	67.08	41.69
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90702
DATE RUN: 10 16 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8M196638 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
399.	522.	564.	477.			693.	571.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	4.	1.	0	1050	16.5	GOOD					550.	14.8
HOT TRANSIENT	2.	0	0	750.	18.5	GOOD					600.	16.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.28		29.28		29.28				29.29	
SAMPLING TIME - SEC	510		867		511				765	
DISTANCE TRAVELLED- MILES	3.700		4.065		3.637				10.190	
DILUTION FACTOR	8.37		14.98		10.37				7.45	
VOLUME - VMIX (CU FT)	2546.83		4323.59		2552.09				3815.50	
FUEL ECONOMY -MILES/GAL	15.78		18.75		19.32		18.19		25.57	
FUEL ECONOMY - KM/LITER	6.71		7.97		8.21		7.73		10.87	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.19	0.74	0.10	0.06	0.41	0.26	0.41	0.25	0.06	0.04
CARBON MONOXIDE	17.81	11.07	1.10	0.68	6.30	3.92	5.92	3.68	0.92	0.57
NOX - NO2	2.04	1.27	1.94	1.21	1.64	1.02	1.88	1.17	0.93	0.58
NOX CORRECTED	1.87	1.16	1.78	1.11	1.51	0.94	1.73	1.07	0.86	0.53
CARBON DIOXIDE	523.21	325.17	465.09	289.05	441.99	274.70	470.78	292.59	340.80	211.81
							MG/MI	MG/KM		
ALDEHYDE							43.17	26.83		
HYDROGEN SULFIDE					LESS THAN		0.42	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90801
DATE RUN: 10 10 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
407.	498.	559.	471.	665.	516.	688.	589.	548.	474.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	1.	0	1600	17.0	GOOD					500.	15.5
HOT TRANSIENT	1.	0	0	625.	18.2	GOOD					575.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.58		29.58		29.58				29.58		29.58		29.58	
SAMPLING TIME - SEC	509		867		506				764		1397		600	
DISTANCE TRAVELLED- MILES	3.512		3.870		3.578				10.149		13.498		1.262	
DILUTION FACTOR	8.94		15.13		10.46				7.66		9.62		18.69	
VOLUME - VMIX (CU FT)	2568.12		4375.25		2551.35				3859.31		7103.48		3029.34	
FUEL ECONOMY -MILES/GAL	15.99		18.03		19.33		17.89		26.04		23.83		10.53	
FUEL ECONOMY - KM/LITER	6.80		7.67		8.22		7.61		11.07		10.13		4.48	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.18	0.73	0.13	0.08	0.31	0.19	0.39	0.24	0.08	0.05	0.11	0.07	0.32	0.20
CARBON MONOXIDE	16.41	10.20	1.39	0.87	3.94	2.45	5.16	3.21	0.98	0.61	1.80	1.12	3.76	2.34
NOX - NO2	1.69	1.05	1.68	1.04	1.36	0.84	1.59	0.99	0.77	0.48	0.88	0.55	2.25	1.40
NOX CORRECTED	1.72	1.07	1.71	1.06	1.38	0.86	1.62	1.01	0.79	0.49	0.90	0.56	2.29	1.42
CARBON DIOXIDE	518.19	322.05	483.00	300.19	445.79	277.06	480.01	298.33	334.50	207.89	364.33	226.43	824.78	512.60
							MG/MI	MG/KM						
ALDEHYDE							80.72	50.17						
HYDROGEN SULFIDE						LESS THAN	0.43	0.27						
PARTICULATE											MG/MI	MG/KM		
SULFATE											5.67	3.56		
											0.17	0.11		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90802
DATE RUN: 10 17 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8M196638 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
404.	519.	564.	482.	677.	520.	694.	598.	550.	474.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	10.	0	0	1500	17.5	GOOD	MES T				550.	14.8
HOT TRANSIENT	2.	0	0	700.	18.5						600.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE MES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: HARD START ON COLD TRANSIENT. OTHER STARTS AND DRIVEABILITY GOOD.
SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.67	29.67	29.67		29.68	29.68	29.69
SAMPLING TIME - SEC	516	868	507		764	1398	600
DISTANCE TRAVELLED- MILES	3.670	4.063	3.658		10.263	13.791	1.366
DILUTION FACTOR	8.97	15.62	10.68		7.70	9.49	19.01
VOLUME - VMIX (CU FT)	2608.92	4380.37	2560.23		3866.02	7115.10	3033.23
FUEL ECONOMY -MILES/GAL	15.91	18.29	19.24	17.98	25.79	23.21	10.81
FUEL ECONOMY - KM/LITER	6.76	7.78	8.18	7.64	10.97	9.87	4.59

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.10	0.68	0.11	0.07	0.33	0.20	0.37	0.23	0.06	0.04	0.10	0.06	0.20	0.12
CARBON MONOXIDE	15.10	9.39	2.22	1.38	4.97	3.09	5.59	3.47	0.93	0.58	1.60	0.99	2.66	1.65
NOX - NO2	1.69	1.05	1.61	1.00	1.53	0.95	1.60	1.00	0.81	0.51	1.03	0.64	2.26	1.40
NOX CORRECTED	1.73	1.08	1.65	1.02	1.57	0.97	1.64	1.02	0.83	0.52	1.06	0.66	2.31	1.44
CARBON DIOXIDE	523.30	325.23	474.94	295.18	446.23	277.33	477.06	296.49	337.83	209.96	374.41	232.70	805.50	500.62

		MG/MI	MG/KM
ALDEHYDE		86.54	53.78
HYDROGEN SULFIDE	LESS THAN	0.43	0.26

	MG/MI	MG/KM
PARTICULATE	16.98	10.58
SULFATE	0.11	0.07

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90811
DATE RUN: 10 11 78 AIR CONDITIONER USED
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMNER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
380.	570.	608.	512.	714.	548.	730.	631.	569.	490.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	1ST CYCLE VAC
COLD TRANSIENT	3.	1	0	1100	16.2	GOOD					460.	14.2
HOT TRANSIENT	1.	0	0	600.	16.9	GOOD					500.	14.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.41		29.41		29.40				29.39		29.40		29.39	
SAMPLING TIME - SEC	509		867		506				764		1397		600	
DISTANCE TRAVELLED- MILES	3.594		3.906		3.607				10.163		13.527		1.235	
DILUTION FACTOR	8.14		13.58		9.52				6.93		8.46		17.25	
VOLUME - VMIX (CU FT)	2552.88		4356.55		2540.40				3841.80		7066.61		3009.56	
FUEL ECONOMY -MILES/GAL	14.92		16.27		17.60		16.31		23.65		21.12		9.64	
FUEL ECONOMY - KM/LITER	6.34		6.92		7.48		6.93		10.05		8.98		4.10	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.57	0.97	0.09	0.06	0.24	0.15	0.44	0.27	0.07	0.04	0.08	0.05	0.31	0.19
CARBON MONOXIDE	14.59	9.07	2.00	1.25	5.82	3.62	5.64	3.51	1.35	0.84	2.20	1.37	3.97	2.47
NOX - NO2	2.12	1.32	1.91	1.19	1.55	0.97	1.85	1.15	0.90	0.56	1.14	0.71	2.96	1.84
NOX CORRECTED	2.14	1.33	1.93	1.20	1.57	0.97	1.87	1.16	0.91	0.56	1.15	0.72	2.99	1.86
CARBON DIOXIDE	558.85	347.33	534.60	332.26	487.60	303.05	526.74	327.37	367.94	228.67	410.93	255.40	901.50	560.29
							MG/MI	MG/KM						
ALDEHYDE							30.88	19.19						
HYDROGEN SULFIDE						LESS THAN	0.45	0.28						
PARTICULATE											MG/MI 9.96	MG/KM 6.24		
SULFATE											0.24	0.15		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90901
DATE RUN: 10 02 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8M196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 97 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
401.	530.	562.	478.			691.	573.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	1.	0	1200	17.9	POOR					500.	15.5
HOT TRANSIENT	1.	0	0	650.	18.0	GOOD					550.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. CATALYST SKIN TEMPERATURES USED.
ENGINE WATER TEMP ON CHANNEL 2 IS SAME AS RUNS AT 20 AND 40 DEGREES
NEW THERMOCOUPLE INSTALLED IN WATER PUMP BY-PASS HOSE READS ON CHANNEL 8

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.41		29.41		29.41				29.42	
SAMPLING TIME - SEC	510		867		505				764	
DISTANCE TRAVELLED- MILES	3.669		4.098		3.654				10.208	
DILUTION FACTOR	9.02		16.07		10.73				7.45	
VOLUME - VMIX (CU FT)	2561.88		4352.65		2537.96				3837.05	
FUEL ECONOMY -MILES/GAL	16.79		20.23		20.22		19.42		25.59	
FUEL ECONOMY - KM/LITER	7.14		8.60		8.60		8.26		10.88	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.27	0.79	0.15	0.09	0.29	0.18	0.41	0.26	0.11	0.07
CARBON MONOXIDE	19.35	12.03	0.71	0.44	3.49	2.17	5.24	3.26	0.85	0.53
NOX - NO2	1.18	0.73	1.33	0.83	1.06	0.66	1.23	0.76	0.61	0.38
NOX CORRECTED	1.32	0.82	1.48	0.92	1.18	0.73	1.37	0.85	0.68	0.42
CARBON DIOXIDE	487.14	302.76	431.27	268.04	426.64	265.16	441.38	274.32	340.43	211.58
							MG/MI	MG/KM		
ALDEHYDE							68.84	42.79		
HYDROGEN SULFIDE							LESS THAN 0.44	0.28		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 90911
DATE RUN: 10 03 78 AIR CONDITIONER USED
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 97 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
388.	576.						

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	1ST CYCLE VAC
COLD TRANSIENT	2.	1.	0	850.	16.2	GOOD					425.	14.5
HOT TRANSIENT	1.	0	0	550.	16.8	GOOD					500.	14.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.31		29.31		29.31				29.31	
SAMPLING TIME - SEC	510		867		506				765	
DISTANCE TRAVELLED- MILES	3.638		4.050		3.672				10.274	
DILUTION FACTOR	7.98		13.33		9.28				6.49	
VOLUME - VMIX (CU FT)	2550.50		4340.33		2532.21				3829.07	
FUEL ECONOMY -MILES/GAL	14.73		16.45		17.52		16.33		22.42	
FUEL ECONOMY - KM/LITER	6.26		6.99		7.45		6.94		9.53	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.23	0.77	0.10	0.06	0.29	0.18	0.38	0.24	0.07	0.05
CARBON MONOXIDE	22.72	14.12	1.22	0.76	4.48	2.78	6.48	4.03	1.51	0.94
NOX - NO2	1.55	0.96	1.58	0.98	1.24	0.77	1.48	0.92	0.77	0.48
NOX CORRECTED	1.73	1.07	1.76	1.09	1.38	0.86	1.65	1.03	0.86	0.53
CARBON DIOXIDE	554.81	344.81	529.97	329.38	491.78	305.64	524.67	326.09	387.97	241.13
							MG/MI	MG/KM		
ALDEHYDE							82.31	51.15		
HYDROGEN SULFIDE							LESS THAN 0.44	0.27		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 91101
DATE RUN: 10 04 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 179 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF *		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
419.	531.	578.	502.	685.	524.	709.	599.	579.	503.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	1.	800.	18.2	GOOD					500.	15.0
HOT TRANSIENT	1.	0	0	700.	18.0	GOOD					550.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1
DRIVERS AID STOPPED DURING SET. REPAIRED AND CALIBRATED THEN STABILIZED
VEHICLE TEMPERATURES AND RE-RAN SET PLUS OTHER TESTS.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.24		29.24		29.24				29.25		29.25		29.25	
SAMPLING TIME - SEC	509		867		506				765		1397		600	
DISTANCE TRAVELLED- MILES	3.702		4.154		3.699				10.552		14.140		1.463	
DILUTION FACTOR	9.39		15.43		10.64				7.37		9.15		18.41	
VOLUME - VMIX (CU FT)	2539.31		4326.71		2525.21				3816.93		7023.93		2995.91	
FUEL ECONOMY -MILES/GAL	17.71		19.54		20.25		19.32		26.20		23.96		11.97	
FUEL ECONOMY - KM/LITER	7.53		8.31		8.61		8.21		11.14		10.19		5.09	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.27	0.79	0.14	0.09	0.60	0.37	0.49	0.31	0.30	0.19	0.30	0.19	0.35	0.22
CARBON MONOXIDE	14.54	9.04	2.19	1.36	9.59	5.96	6.68	4.15	4.95	3.07	6.53	4.06	31.08	19.31
NOX - NO2	0.83	0.52	0.33	0.21	0.37	0.23	0.44	0.28	0.26	0.16	0.33	0.21	0.13	0.08
NOX CORRECTED	1.63	1.01	0.65	0.40	0.72	0.45	0.87	0.54	0.50	0.31	0.65	0.40	0.25	0.16
CARBON DIOXIDE	467.42	290.50	444.25	276.10	415.47	258.22	441.22	274.22	325.49	202.29	354.27	220.18	681.84	423.77

	MG/MI	MG/KM
ALDEHYDE	91.36	56.78
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

	MG/MI	MG/KM
PARTICULATE	12.58	7.89
SULFATE	0.33	0.21

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 91102
DATE RUN: 10 09 78
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8H196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 184 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
405.	519.	590.	504.	682.	543.	703.	604.	568.	496.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	725.	16.9	GOOD					475.	15.0
HOT TRANSIENT	1.	0	0	600.	18.0	GOOD					500.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.60		29.60		29.60				29.60		29.60		29.60	
SAMPLING TIME - SEC	506		867		505				764		1397		600	
DISTANCE TRAVELLED- MILES	3.641		4.101		3.671				10.280		13.757		1.398	
DILUTION FACTOR	9.11		15.10		10.21				7.52		9.53		18.69	
VOLUME - VMIX (CU FT)	2553.66		4377.70		2553.01				3860.72		7108.48		3027.72	
FUEL ECONOMY -MILES/GAL	16.90		18.84		19.18		18.50		25.88		24.03		11.66	
FUEL ECONOMY - KM/LITER	7.18		8.01		8.15		7.86		11.00		10.22		4.96	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.93	0.58	0.11	0.07	0.42	0.26	0.36	0.23	0.12	0.07	0.18	0.11	0.65	0.40
CARBON MONOXIDE	14.24	8.85	2.02	1.26	6.32	3.93	5.65	3.51	2.38	1.48	3.88	2.41	17.30	10.75
NOX - NO2	0.59	0.36	0.34	0.21	0.40	0.25	0.41	0.25	0.27	0.17	0.37	0.23	0.35	0.22
NOX CORRECTED	1.20	0.75	0.69	0.43	0.83	0.51	0.83	0.52	0.56	0.35	0.75	0.47	0.72	0.45
CARBON DIOXIDE	492.93	306.36	461.22	286.65	445.29	276.75	463.35	287.97	334.28	207.75	357.74	222.33	721.69	448.53

		MG/MI	MG/KM
ALDEHYDE		63.01	39.16
HYDROGEN SULFIDE	LESS THAN	0.41	0.25

	MG/MI	MG/KM
PARTICULATE	12.46	7.80
SULFATE	0.27	0.17

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 91111
DATE RUN: 10 05 78 AIR CONDITIONER USED
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47AHH196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 184 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
406.	553.	618.	528.	731.	559.	745.	648.	597.	511.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	1.	0.	650.	16.0	GOOD					425.	14.0
HOT TRANSIENT	1.	0.	0.	525.	16.5	GOOD					450.	14.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.33	29.33	29.33		29.33	29.33	29.33
SAMPLING TIME - SEC	507	869	505		764	1397	600
DISTANCE TRAVELLED- MILES	3.640	4.063	3.657		10.305	13.792	1.375
DILUTION FACTOR	8.42	12.76	8.48		6.39	7.88	16.43
VOLUME - VMIX (CU FT)	2594.87	4429.72	2582.42		3903.33	7185.71	3064.40
FUEL ECONOMY -MILES/GAL	15.32	15.44	15.59	15.46	21.72	19.58	9.87
FUEL ECONOMY - KM/LITER	6.51	6.57	6.63	6.57	9.23	8.33	4.20

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.20	0.74	0.27	0.17	0.58	0.36	0.55	0.34	0.30	0.19	0.45	0.28	1.77	1.10
CARBON MONOXIDE	18.77	11.67	6.27	3.90	12.45	7.74	10.48	6.51	7.55	4.70	10.90	6.78	58.52	36.37
NOX - NO2	1.25	0.77	0.37	0.23	0.50	0.31	0.58	0.36	0.46	0.29	0.62	0.38	0.32	0.20
NOX CORRECTED	2.55	1.59	0.77	0.48	1.02	0.63	1.20	0.74	0.94	0.59	1.27	0.79	0.66	0.41
CARBON DIOXIDE	538.15	334.46	556.21	345.69	540.39	335.85	548.27	340.75	390.40	242.64	428.54	266.34	789.30	490.55

	MG/MI	MG/KM
ALDEHYDE	87.46	54.36
HYDROGEN SULFIDE	LESS THAN 0.61	0.38

	MG/MI	MG/KM
PARTICULATE	16.25	10.24
SULFATE	0.64	0.40

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 91112
DATE RUN: 10 06 78 AIR CONDITIONER USED
CAR: 1980 BUICK REGAL PROTOTYP VIN: 4J47A8M196638 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 175 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3625 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
403.	560.	626.	536.	732.	566.	751.	645.	596.	513.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	625.	14.8	GOOD	HES MOD				400.	13.0
HOT TRANSIENT	1.	0	0	500.	15.8	GOOD					450.	14.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SEE COMMENTS ON RUN 9-090-1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP														HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE													
BAROMETRIC PRESSURE	29.12		29.12		29.12										29.12		29.12		29.12	
SAMPLING TIME - SEC	505		867		505										764		1398		600	
DISTANCE TRAVELLED- MILES	3.674		4.162		3.696										10.298		13.844		1.461	
DILUTION FACTOR	8.03		12.75		8.78										6.28		7.70		16.06	
VOLUME - VMIX (CU FT)	2517.91		4308.89		2514.60										3805.37		7001.72		2985.35	
FUEL ECONOMY -MILES/GAL	15.17		16.26		16.76		16.15								21.86		19.69		10.51	
FUEL ECONOMY - KM/LITER	6.45		6.91		7.13		6.87								9.30		8.37		4.47	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.44	0.27	0.26	0.16	0.75	0.47	0.52	0.32	0.23	0.14	0.40	0.25	1.39	0.86						
CARBON MONOXIDE	20.42	12.69	6.16	3.83	22.07	13.72	13.30	8.27	5.90	3.67	10.74	6.67	33.24	20.66						
NOX - NO2	1.34	0.83	0.37	0.23	0.55	0.34	0.62	0.38	0.46	0.29	0.57	0.35	0.28	0.17						
NOX CORRECTED	2.52	1.57	0.70	0.44	1.04	0.65	1.16	0.72	0.87	0.54	1.07	0.67	0.53	0.33						
CARBON DIOXIDE	542.34	337.06	528.17	328.26	485.30	301.61	519.53	322.89	390.47	242.68	426.52	265.09	776.72	482.74						
							MG/MI	MG/KM												
ALDEHYDE							164.14	102.01												
HYDROGEN SULFIDE						LESS THAN	0.39	0.24												
PARTICULATE																	MG/MI	MG/KM		
SULFATE																	19.90	12.45		
																	0.39	0.25		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100001
DATE RUN: 12 13 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
151.	791.	1149.	787.	1150.	906.	1173.	1073.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	14.0		4.	1200	8.5	POOR					650.	7.9
HOT TRANSIENT	1.5	0	0	1250	14.5	GOOD					950.	9.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.FOUR COLD IDLE STALLS. POOR FIRST COLD ACCEL.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.25		29.25		29.25				29.25		29.25	
SAMPLING TIME - SEC	527		868		506				764		1397	
DISTANCE TRAVELLED- MILES	3.612		3.985		3.592				10.081		13.282	
DILUTION FACTOR	7.43		13.48		9.70				6.98		8.76	
VOLUME - VMIX (CU FT)	2677.96		4401.23		2569.17				3878.63		7141.70	
FUEL ECONOMY -MILES/GAL	12.36		15.28		16.77		14.92		22.25		20.09	
FUEL ECONOMY - KM/LITER	5.26		6.50		7.13		6.34		9.46		8.54	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.73	3.56	0.53	0.33	0.56	0.35	1.60	1.00	0.09	0.06	0.34	0.21
CARBON MONOXIDE	70.05	43.54	18.40	11.44	10.98	6.82	26.95	16.75	1.06	0.66	8.08	5.02
NOX - NO2	2.65	1.65	1.57	0.97	2.08	1.29	1.93	1.20	1.95	1.21	1.76	1.10
NOX CORRECTED	2.00	1.24	1.18	0.73	1.57	0.97	1.45	0.90	1.46	0.91	1.33	0.83
CARBON DIOXIDE	548.46	340.87	517.09	321.37	479.93	298.28	513.46	319.12	374.19	232.56	402.74	250.30
							MG/MI	MG/KM				
ALDEHYDE							82.29	51.15				
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM
PARTICULATE											40.75	25.46
SULFATE											0.61	0.38

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100002
DATE RUN: 12 14 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
140.	820.	1168.	816.	1182.	930.	1184.	1081.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	9.	0	4.	1250	8.5	POOR	HES M				1050	8.
HOT TRANSIENT	1.5	0	0	1200	14.1	GOOD					900.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.FOUR STALLS ON COLD IDLE.CANNOT FOLLOW TRACE ON COLD ACCELS.
IDLE SPEED READJUSTED PRIOR TO TEST BY EPA REQUEST
ORIGINALLY SET AT 925 RPM IN DRIVE.
NOW SET AT 925 RPM IN NEUTRAL WITH HEADLIGHTS ON.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.48		29.49		29.49				29.50		29.50	
SAMPLING TIME - SEC	519		868		506				764		1397	
DISTANCE TRAVELLED- MILES	3.649		3.998		3.621				10.077		13.377	
DILUTION FACTOR	7.26		12.90		9.64				6.91		8.60	
VOLUME - VMIX (CU FT)	2655.73		4439.93		2588.04				3912.61		7202.73	
FUEL ECONOMY -MILES/GAL	12.24		14.52		16.68		14.48		21.82		19.69	
FUEL ECONOMY - KM/LITER	5.21		6.17		7.09		6.16		9.28		8.37	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.38	3.34	1.67	1.04	0.69	0.43	2.17	1.35	0.09	0.06	0.32	0.20
CARBON MONOXIDE	69.72	43.33	50.73	31.53	14.93	9.28	44.93	27.92	0.97	0.60	7.83	4.86
NOX - NO2	2.66	1.65	1.23	0.77	1.70	1.06	1.65	1.03	1.83	1.14	1.71	1.06
NOX CORRECTED	2.00	1.24	0.93	0.58	1.28	0.80	1.24	0.77	1.38	0.86	1.29	0.80
CARBON DIOXIDE	556.80	346.05	491.23	305.30	475.89	295.77	500.53	311.08	381.66	237.20	411.70	255.87
							MG/MI	MG/KM				
ALDEHYDE							97.61	60.66				
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM
PARTICULATE											39.63	24.75
SULFATE											0.54	0.33

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100201
DATE RUN: 12 12 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
132.	774.	1145.	773.			1153.	1045.	878.	751.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	1	1150	9.1	T					1050	8.2
HOT TRANSIENT	1.	0	0	1150	13.9	GOOD					900.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.ONE COLD IDLE STALL.CANNOT FOLLOW TRACE ON FIRST COLD ACCEL.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.62		29.61		29.61				29.61		29.61	
SAMPLING TIME - SEC	511		867		506				764		599	
DISTANCE TRAVELLED- MILES	3.651		3.998		3.609				10.152		1.208	
DILUTION FACTOR	7.75		14.35		10.67				7.36		20.55	
VOLUME - VMIX (CU FT)	2627.83		4455.72		2600.74				3929.71		3081.21	
FUEL ECONOMY -MILES/GAL	13.31		16.33		18.51		16.10		23.45		10.48	
FUEL ECONOMY - KM/LITER	5.66		6.94		7.87		6.84		9.97		4.46	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.34	2.08	0.20	0.13	0.48	0.30	0.92	0.57	0.10	0.06	0.54	0.34
CARBON MONOXIDE	66.28	41.19	4.39	2.73	9.83	6.11	18.56	11.54	1.17	0.73	8.35	5.19
NOX - NO2	2.07	1.29	1.63	1.01	1.86	1.16	1.78	1.11	2.04	1.27	2.24	1.39
NOX CORRECTED	1.57	0.97	1.24	0.77	1.41	0.88	1.35	0.84	1.55	0.96	1.70	1.06
CARBON DIOXIDE	513.68	319.26	504.75	313.71	435.18	270.47	487.77	303.15	354.60	220.39	783.51	486.95
							MG/MI	MG/KM				
ALDEHYDE							77.41	48.11				
HYDROGEN SULFIDE					LESS THAN		0.43	0.27				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100203
DATE RUN: 12 18 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
131.	760.	1143.	857.			1146.	1045.	874.	752.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1200	9.5	GOOD					1075	8.
HOT TRANSIENT	1.	0	0	1200	12.9	GOOD					900.	9.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.
FRONT RESTRAINING CABLES LOOSENED ONE TURN EACH TO REDUCE TIRE TENSION.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.39		29.39		29.38				29.38		29.38	
SAMPLING TIME - SEC	507		868		506				765		600	
DISTANCE TRAVELLED- MILES	3.651		3.991		3.607				10.076		1.231	
DILUTION FACTOR	8.14		14.73		10.62				7.47		20.16	
VOLUME - VMIX (CU FT)	2586.09		4422.65		2578.71				3897.14		3057.52	
FUEL ECONOMY -MILES/GAL	14.16		16.70		18.44		16.51		23.72		10.39	
FUEL ECONOMY - KM/LITER	6.02		7.10		7.84		7.02		10.09		4.42	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.13	1.95	0.15	0.09	0.49	0.30	0.85	0.53	0.11	0.07	0.64	0.40
CARBON MONOXIDE	53.12	33.02	3.01	1.87	8.62	5.36	14.82	9.21	1.49	0.93	9.86	6.13
NOX - NO2	2.37	1.47	1.61	1.00	2.06	1.28	1.88	1.17	1.89	1.17	1.96	1.22
NOX CORRECTED	1.79	1.11	1.22	0.76	1.56	0.97	1.43	0.89	1.43	0.89	1.49	0.93
CARBON DIOXIDE	497.61	309.27	495.70	308.08	438.80	272.72	480.70	298.75	350.02	217.54	788.13	489.83
							MG/MI	MG/KM				
ALDEHYDE							122.81	76.32				
HYDROGEN SULFIDE						LESS THAN	0.39	0.24				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100401
DATE RUN: 12 06 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 16 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
131.	737	1133.	736.	1133.	885.	1145.	1050.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1150	9.8	GOOD					950	7.5
HOT TRANSIENT	1.	0	0	1050	13.9	GOOD					900.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.22		29.22		29.20				29.19		29.20	
SAMPLING TIME - SEC	507		867		506				764		1397	
DISTANCE TRAVELLED- MILES	3.641		4.003		3.645				10.155		13.472	
DILUTION FACTOR	6.63		15.32		10.63				7.65		9.56	
VOLUME - VMIX (CU FT)	2570.98		4395.52		2564.99				3872.79		7130.63	
FUEL ECONOMY -MILES/GAL	15.16		17.78		18.89		17.44		24.78		22.48	
FUEL ECONOMY - KM/LITER	6.45		7.56		8.03		7.42		10.54		9.56	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.11	1.31	0.21	0.13	0.50	0.31	0.68	0.42	0.10	0.06	0.32	0.20
CARBON MONOXIDE	40.32	25.06	4.47	2.78	10.39	6.46	13.42	8.34	1.20	0.74	8.25	5.13
NOX - NO2	1.80	1.12	1.31	0.82	1.50	0.93	1.46	0.91	1.78	1.11	1.38	0.86
NOX CORRECTED	1.41	0.87	1.03	0.64	1.17	0.73	1.14	0.71	1.39	0.87	1.08	0.67
CARBON DIOXIDE	481.74	299.40	463.03	287.77	424.96	264.12	456.52	283.73	335.47	208.50	358.20	222.63
							MG/MI	MG/KM				
ALDEHYDE							93.00	57.80				
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM
PARTICULATE											38.14	23.81
SULFATE											0.50	0.31

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100402
DATE RUN: 12 19 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 17 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
133.	745.	1131.	844.	1112.	878.	1134.	1032.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1300	10.4	GOOD					1000	7.8
HOT TRANSIENT	1.	0	0	1100	12.9	GOOD					900.	9.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.36	29.35	29.34		29.34	29.34
SAMPLING TIME - SEC	507	867	506		764	1397
DISTANCE TRAVELLED- MILES	3.654	3.996	3.658		10.157	13.491
DILUTION FACTOR	8.71	14.91	10.68		7.65	9.54
VOLUME - VMIX (CU FT)	2583.97	4415.68	2578.24		3893.15	7166.38
FUEL ECONOMY -MILES/GAL	15.19	16.97	18.81	17.01	24.54	22.22
FUEL ECONOMY - KM/LITER	6.46	7.21	8.00	7.23	10.43	9.45

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	2.14	1.33	0.14	0.09	0.49	0.31	0.65	0.40	0.10	0.06	0.33	0.21
CARBON MONOXIDE	37.20	23.12	2.64	1.64	9.19	5.71	11.52	7.16	1.11	0.69	8.68	5.39
NOX - NO2	1.89	1.18	1.57	0.98	1.90	1.18	1.73	1.07	1.97	1.23	1.63	1.01
NOX CORRECTED	1.49	0.93	1.24	0.77	1.49	0.93	1.36	0.84	1.55	0.96	1.28	0.79
CARBON DIOXIDE	485.68	301.85	488.55	303.64	428.94	266.59	471.72	293.16	338.90	210.63	361.96	224.96

	MG/MI	MG/KM
ALDEHYDE	92.52	57.50
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	11.10	6.95
SULFATE	0.22	0.14

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100601
DATE RUN: 11 21 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 38 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
139.	668.	1114.	819.			1133.	1036.	845.	748.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1150	10.5						900.	8.9
HOT TRANSIENT	1.	0	0	1150	14.2						800.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.66		29.66		29.66				29.67		29.67	
SAMPLING TIME - SEC	507		867		506				764		600	
DISTANCE TRAVELLED- MILES	3.575		3.999		3.603				10.091		1.228	
DILUTION FACTOR	9.59		16.44		11.69				8.18		21.80	
VOLUME - VMIX (CU FT)	2609.48		4463.66		2605.77				3937.24		3091.83	
FUEL ECONOMY -MILES/GAL	17.00		19.48		21.06		19.30		27.02		11.65	
FUEL ECONOMY - KM/LITER	7.23		8.28		8.95		8.20		11.49		4.95	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.32	0.82	0.22	0.14	0.48	0.30	0.51	0.32	0.11	0.07	0.45	0.28
CARBON MONOXIDE	27.93	17.36	4.87	3.03	9.91	6.16	10.91	6.78	1.96	1.22	10.73	6.67
NOX - NO2	1.44	0.89	0.95	0.59	1.19	0.74	1.11	0.69	1.30	0.81	1.08	0.67
NOX CORRECTED	1.22	0.76	0.81	0.50	1.02	0.63	0.95	0.59	1.11	0.69	0.92	0.57
CARBON DIOXIDE	467.09	290.30	441.26	274.24	398.77	247.84	435.02	270.37	320.63	199.27	733.46	455.85
							MG/MI	MG/KM				
ALDEHYDE							156.53	97.28				
HYDROGEN SULFIDE						LESS THAN	0.42	0.26				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100602
DATE RUN: 12 07 76
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
137.	690.	1113.	828.			1151.	1058.	850.	755.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1200	11.5	GOOD					900.	8.0
HOT TRANSIENT	1.	0	0	750.	14.	GOOD					800.	10.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.46		29.46		29.45				29.44		29.43	
SAMPLING TIME - SEC	507		866		506				764		599	
DISTANCE TRAVELLED- MILES	3.652		4.061		3.672				10.277		1.234	
DILUTION FACTOR	9.32		15.79		11.10				7.58		21.55	
VOLUME - VMIX (CU FT)	2587.26		4428.54		2584.38				3901.55		3058.56	
FUEL ECONOMY -MILES/GAL	17.12		19.34		20.67		19.17		25.83		11.90	
FUEL ECONOMY - KM/LITER	7.28		8.22		8.79		8.15		10.98		5.06	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.71	1.06	0.24	0.15	0.65	0.41	0.65	0.40	0.17	0.10	0.67	0.42
CARBON MONOXIDE	30.86	19.18	5.81	3.61	14.06	8.74	13.14	8.17	2.90	1.80	15.00	9.32
NOX - NO2	1.60	0.99	1.14	0.71	1.26	0.78	1.27	0.79	1.57	0.97	1.31	0.82
NOX CORRECTED	1.36	0.85	0.98	0.61	1.08	0.67	1.08	0.67	1.34	0.83	1.12	0.70
CARBON DIOXIDE	457.46	284.31	442.82	275.22	399.41	248.24	434.05	269.77	333.96	207.56	709.81	441.15
							MG/MI	MG/KM				
ALDEHYDE							272.70	169.48				
HYDROGEN SULFIDE					LESS THAN		0.42	0.26				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100701
DATE RUN: 11 22 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WAND FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 54 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
141.	667.	1105.	831.			1163.	1055.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1150	11.1	GOOD					850.	8.2
HOT TRANSIENT	1.	0	0	1100	14.9	GOOD					600.	10.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.62	29.62	29.62		29.62
SAMPLING TIME - SEC	507	867	507		764
DISTANCE TRAVELLED- MILES	3.563	3.968	3.576		10.047
DILUTION FACTOR	9.82	16.80	11.46		8.04
VOLUME - VMIX (CU FT)	2604.10	4456.98	2604.39		3928.93
FUEL ECONOMY -MILES/GAL	17.41	19.81	20.49	19.44	26.47
FUEL ECONOMY - KM/LITER	7.40	8.42	8.71	8.26	11.25

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.42	0.88	0.26	0.16	0.71	0.44	0.61	0.38	0.15	0.09
CARBON MONOXIDE	26.88	16.71	5.64	3.51	17.42	10.83	13.14	8.17	3.10	1.93
NOX - NO2	1.50	0.94	0.89	0.56	0.86	0.54	1.01	0.63	1.09	0.68
NOX CORRECTED	1.37	0.85	0.81	0.51	0.78	0.49	0.92	0.57	1.00	0.62
CARBON DIOXIDE	456.29	283.59	432.36	268.71	397.82	247.25	427.90	265.94	325.43	202.25

	MG/MI	MG/KM
ALDEHYDE	159.13	98.90
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100702
DATE RUN: 12 06 76
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FULL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
138.	683.	1101.	824.			1151.	1054.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1150	11.5	GOOD					950.	8.2
HOT TRANSIENT	1.	0	0	1050	14.	GOOD					800.	10.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.30		29.30		29.31				29.32	
SAMPLING TIME - SEC	507		867		506				764	
DISTANCE TRAVELLED- MILES	3.656		4.007		3.642				10.193	
DILUTION FACTOR	9.56		16.72		11.43				7.80	
VOLUME - VMIX (CU FT)	2574.10		4407.47		2570.21				3889.04	
FUEL ECONOMY -MILES/GAL	17.57		20.13		21.07		19.78		26.30	
FUEL ECONOMY - KM/LITER	7.47		8.56		8.96		8.41		11.18	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.47	0.91	0.30	0.19	0.72	0.45	0.65	0.41	0.21	0.13
CARBON MONOXIDE	29.84	18.55	6.83	4.24	17.65	10.97	14.49	9.00	4.35	2.70
NOX - NO2	1.47	0.92	0.67	0.42	0.92	0.57	0.90	0.56	1.00	0.62
NOX CORRECTED	1.35	0.84	0.61	0.38	0.85	0.53	0.83	0.51	0.92	0.57
CARBON DIOXIDE	446.90	277.75	423.40	263.15	385.49	239.58	417.93	259.75	325.45	202.27
							MG/MI	MG/KM		
ALDEHYDE							94.46	58.71		
HYDROGEN SULFIDE							LESS THAN 0.42	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100801
DATE RUN: 11 28 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
144.	652.	1102.	826.	1119.	891.	1154.	1058.	857.	761.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	IDLE VAC
COLD TRANSIENT	2.	0	0	1000	11.2	GOOD					750.	8.
HOT TRANSIENT	1.	0	0	1100	13.9	GOOD					750.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP															
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.19		29.19		29.20				29.23		29.21		29.24	
SAMPLING TIME - SEC	508		866		506				764		1397		600	
DISTANCE TRAVELLED- MILES	3.607		3.976		3.612				10.086		13.412		1.223	
DILUTION FACTOR	10.17		16.56		11.33				7.84		9.95		22.23	
VOLUME - VMIX (CU FT)	2569.42		4395.70		2565.55				3879.44		7140.57		3044.95	
FUEL ECONOMY -MILES/GAL	18.51		19.82		20.93		19.82		26.24		24.21		12.04	
FUEL ECONOMY - KM/LITER	7.87		8.43		8.90		8.43		11.16		10.30		5.12	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.26	0.78	0.40	0.25	0.93	0.58	0.72	0.45	0.30	0.18	0.57	0.35	0.79	0.49
CARBON MONOXIDE	24.91	15.48	9.49	5.90	21.91	13.61	16.01	9.95	5.50	3.42	15.70	9.76	16.28	10.12
NOX - NO2	1.37	0.85	0.50	0.31	0.69	0.43	0.73	0.45	0.53	0.33	0.62	0.38	0.77	0.48
NOX CORRECTED	1.38	0.86	0.50	0.31	0.70	0.43	0.74	0.46	0.54	0.34	0.62	0.39	0.78	0.48
CARBON DIOXIDE	429.90	267.18	425.58	264.50	380.96	236.77	414.35	257.52	324.10	201.43	335.13	208.28	699.42	434.70
							MG/MI	MG/KM						
ALDEHYDE							112.87	70.15						
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM		
PARTICULATE											8.98	5.63		
SULFATE											0.21	0.13		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100802
DATE RUN: 12 05 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
143.	648	1094.	805.	1119.	833.	1141.	1045.	830.	744.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1000	11.2	GOOD					750.	8.5
HOT TRANSIENT	1.	0	0	1100	13.8	GOOD					800.	9.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.03	29.03	29.03		29.05	29.04	29.06
SAMPLING TIME - SEC	507	867	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.555	3.908	3.514		9.880	13.170	1.206
DILUTION FACTOR	10.15	16.81	11.64		8.13	10.07	23.03
VOLUME - VMIX (CU FT)	2507.17	4290.95	2503.88		3787.24	6969.37	2971.99
FUEL ECONOMY -MILES/GAL	18.65	20.27	21.29	20.17	27.47	24.84	12.86
FUEL ECONOMY - KM/LITER	7.93	8.62	9.05	8.58	11.68	10.56	5.47

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.44	0.90	0.44	0.27	0.87	0.54	0.76	0.47	0.33	0.20	0.56	0.35	0.73	0.45
CARBON MONOXIDE	25.01	15.54	8.70	5.41	19.39	12.05	14.93	9.28	5.40	3.35	14.53	9.03	15.38	9.56
NOX - NO2	1.13	0.70	0.40	0.25	0.73	0.46	0.64	0.40	0.51	0.32	0.62	0.39	0.62	0.39
NOX CORRECTED	1.15	0.71	0.41	0.25	0.75	0.47	0.65	0.40	0.52	0.32	0.63	0.39	0.63	0.39
CARBON DIOXIDE	425.62	264.53	416.95	259.14	378.11	235.00	408.24	253.73	309.29	192.23	327.88	203.78	654.43	406.73

	MG/MI	MG/KM
ALDEHYDE	106.75	66.34
HYDROGEN SULFIDE	LESS THAN 0.43	0.26

	MG/MI	MG/KM
PARTICULATE	11.79	7.38
SULFATE	0.26	0.16

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100821
DATE RUN: 12 20 78
CAR: 1978 VW RABBIT CAL FU_INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
147.	630.	1078.	795	1088.	864.	1115.	1030.	842.	753.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1050	11.9	GOOD					800.	8.0
HOT TRANSIENT	1.	0	0	1100	13.9	GOOD					800.	9.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. ACCELS IMPROVED WITH MODIFIED LOAD.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	28.94	28.94	28.94		28.91	28.93	28.91
SAMPLING TIME - SEC	507	867	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.620	3.955	3.627		10.134	13.430	1.206
DILUTION FACTOR	10.36	17.19	11.62		8.21	10.31	21.90
VOLUME - VMIX (CU FT)	2544.00	4355.77	2540.38		3835.58	7065.76	3006.91
FUEL ECONOMY -MILES/GAL	19.12	20.97	21.78	20.77	28.12	25.62	12.03
FUEL ECONOMY - KM/LITER	8.13	8.91	9.26	8.83	11.96	10.89	5.11

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.32	0.82	0.61	0.38	1.08	0.67	0.88	0.55	0.37	0.23	0.77	0.48	0.81	0.50
CARBON MONOXIDE	23.49	14.60	9.09	5.65	21.56	13.40	15.45	9.60	5.59	3.47	17.22	10.70	15.48	9.62
NOX - NO2	1.09	0.67	0.29	0.18	0.71	0.44	0.57	0.35	0.40	0.25	0.55	0.34	0.65	0.40
NOX CORRECTED	1.11	0.69	0.30	0.18	0.72	0.45	0.58	0.36	0.41	0.26	0.56	0.35	0.66	0.41
CARBON DIOXIDE	416.80	259.04	401.39	249.47	364.72	226.68	394.56	245.22	301.45	187.35	312.30	194.10	701.05	435.70

	MG/MI	MG/KM
ALDEHYDE	61.86	38.45
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	13.09	8.17
SULFATE	0.18	0.11

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100901
DATE RUN: 11 29 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
153.	636.	1104.	817.			1131.	1043.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1000	11.1	GOOD					725.	8.2
HOT TRANSIENT	1.	0	0	1050	13.5	GOOD					750.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.41		29.41		29.40				29.39	
SAMPLING TIME - SEC	506		867		506				764	
DISTANCE TRAVELLED- MILES	3.598		3.960		3.599				10.072	
DILUTION FACTOR	10.32		16.52		11.54				7.95	
VOLUME - VMIX (CU FT)	2536.93		4347.51		2535.77				3829.26	
FUEL ECONOMY -MILES/GAL	19.13		20.16		21.34		20.24		26.94	
FUEL ECONOMY - KM/LITER	8.13		8.57		9.07		8.61		11.45	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.17	0.72	0.50	0.31	0.97	0.60	0.76	0.48	0.56	0.35
CARBON MONOXIDE	24.94	15.50	9.79	6.09	21.27	13.22	16.01	9.95	9.41	5.85
NOX - NO2	1.11	0.69	0.40	0.25	0.65	0.41	0.62	0.38	0.49	0.30
NOX CORRECTED	1.28	0.79	0.46	0.29	0.75	0.47	0.71	0.44	0.56	0.35
CARBON DIOXIDE	414.89	257.85	417.27	259.33	373.89	232.38	405.01	251.71	308.51	191.74
							MG/MI	MG/KM		
ALDEHYDE							125.79	78.18		
HYDROGEN SULFIDE							LESS THAN 0.43	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 100902
DATE RUN: 12 04 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 105 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
150.	619.	1069.	799.			1111.	1027.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	950.	11.1	GOOD					800.	8.2
HOT TRANSIENT	1.	0	0	1000	13.	GOOD					750.	9.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	28.79	29.80	29.80		29.80
SAMPLING TIME - SEC	507	867	506		1364
DISTANCE TRAVELLED- MILES	3.471	3.871	3.509		9.905
DILUTION FACTOR	10.46	17.08	11.66		7.84
VOLUME - VMIX (CU FT)	2530.76	4484.22	2616.47		3952.91
FUEL ECONOMY -MILES/GAL	18.75	19.79	20.58	19.77	25.43
FUEL ECONOMY - KM/LITER	7.97	8.41	8.75	8.41	10.81

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.46	0.91	0.83	0.52	1.18	0.73	1.05	0.66	0.80	0.50
CARBON MONOXIDE	30.86	19.18	15.03	9.34	26.15	16.25	21.26	13.21	15.18	9.44
NOX - NO2	0.98	0.61	0.29	0.18	0.68	0.42	0.53	0.33	0.60	0.38
NOX CORRECTED	1.14	0.71	0.34	0.21	0.79	0.49	0.62	0.39	0.70	0.44
CARBON DIOXIDE	413.88	257.23	416.20	258.67	380.54	236.51	406.06	252.37	317.91	197.58

		MG/MI	MG/KM
ALDEHYDE		85.27	53.00
HYDROGEN SULFIDE	LESS THAN	0.43	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 101101
DATE RUN: 11 30 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 156 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
151.	655.	1026.	812.	1045.	802.	1050.	955.	792.	692.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	800.	10.1	GOOD					750.	8.2
HOT TRANSIENT	1.	0	0	850.	11.9	GOOD					750.	9.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.26		29.26		29.27				29.27		29.27		29.27	
SAMPLING TIME - SEC	507		867		506				764		1397		600	
DISTANCE TRAVELLED- MILES	3.601		4.019		3.576				10.019		13.427		1.251	
DILUTION FACTOR	10.45		10.93		11.57				8.17		9.84		21.63	
VOLUME - VMIX (CU FT)	2571.65		4402.48		2571.70				3881.02		7148.66		3046.44	
FUEL ECONOMY -MILES/GAL	19.13		20.73		21.14		20.49		27.34		24.12		12.15	
FUEL ECONOMY - KM/LITER	8.13		8.82		8.99		8.71		11.62		10.26		5.17	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.75	1.09	1.27	0.79	1.82	1.13	1.51	0.94	1.36	0.85	1.56	0.97	2.93	1.82
CARBON MONOXIDE	36.80	22.87	19.34	12.02	45.37	28.20	29.87	18.57	32.87	20.43	44.28	27.52	89.31	55.51
NOX - NO2	0.78	0.48	0.39	0.24	0.64	0.40	0.53	0.33	0.59	0.37	0.55	0.34	0.47	0.29
NOX CORRECTED	1.25	0.78	0.62	0.39	1.04	0.64	0.86	0.54	0.96	0.60	0.88	0.55	0.75	0.47
CARBON DIOXIDE	394.27	245.04	387.90	241.08	337.20	209.57	375.59	233.43	264.34	164.29	288.50	179.30	571.11	354.95
							MG/MI	MG/KM						
ALDEHYDE							134.54	83.62						
HYDROGEN SULFIDE							LESS THAN 0.41	0.26						
PARTICULATE											MG/MI	MG/KM		
SULFATE											16.18	10.11		
											0.26	0.16		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 101102
DATE RUN: 12 01 78
CAR: 1978 VW RABBIT CAL FU-INJ VIN: 1783344616 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 170 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 2100 LB ENGINE DISPLACEMENT: 1.50 LITERS
DYNAMOMETER INERTIA WEIGHT: 2475 LB DYNAMOMETER LOADING: 9.4HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
158.	639.	1028.	813.	1058.	868.	1084.	988.	806.	707.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	800.	9.9	GOOD					700.	8.
HOT TRANSIENT	1.	0	0	850.	11.5	GOOD					750.	9.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.35	29.34	29.34		29.34	29.34	29.34
SAMPLING TIME - SEC	507	867	506		764	1397	599
DISTANCE TRAVELLED- MILES	3.552	3.911	3.567		9.964	13.269	1.210
DILUTION FACTOR	10.45	16.71	11.31		7.95	9.71	21.73
VOLUME - VMIX (CU FT)	2577.44	4415.56	2576.54		3890.90	7163.87	3051.31
FUEL ECONOMY -MILES/GAL	18.83	19.85	20.55	19.82	26.36	23.45	11.80
FUEL ECONOMY - KM/LITER	8.01	8.44	8.74	8.43	11.21	9.97	5.02

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	2.03	1.26	1.33	0.83	1.91	1.19	1.63	1.01	1.31	0.81	1.60	0.99	3.16	1.96
CARBON MONOXIDE	44.09	27.40	19.83	12.32	49.32	30.65	32.81	20.39	26.86	17.93	44.70	27.78	81.18	50.46
NOX - NO2	0.65	0.40	0.35	0.22	0.54	0.33	0.46	0.29	0.59	0.36	0.49	0.31	0.30	0.19
NOX CORRECTED	1.17	0.72	0.63	0.39	0.97	0.60	0.83	0.52	1.06	0.66	0.89	0.55	0.55	0.34
CARBON DIOXIDE	389.33	241.97	405.67	252.13	342.48	212.85	385.14	239.37	282.71	175.71	298.17	185.32	604.47	375.68

	MG/MI	MG/KM
ALDEHYDE	85.54	53.16
HYDROGEN SULFIDE	LESS THAN 0.43	0.26

	MG/MI	MG/KM
PARTICULATE	23.42	14.63
SULFATE	0.33	0.21

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110001
DATE RUN: 01 23 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: HB-63010105 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1366.	836	1414.	935.	1441.	1055.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	6.	0	2.	1700	15.	M.	HES. M.	HES. M.	HES. M	HES. M.	1200	13.5
HOT TRANSIENT	1.	0	0	900.	17.2	GOOD					900.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY WITH TWO STALLS.GOOD HOT DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.25	29.24	29.24		29.22	29.23
SAMPLING TIME - SEC	517	267	506		764	1397
DISTANCE TRAVELLED- MILES	3.701	4.116	3.623		9.991	13.329
DILUTION FACTOR	7.03	10.23	11.87		8.67	10.47
VOLUME - VMIX (CU FT)	2622.47	4398.02	2565.93		3874.43	7138.02
FUEL ECONOMY -MILES/GAL	12.18	19.18	21.06	17.55	27.75	24.44
FUEL ECONOMY - KM/LITER	5.18	8.16	8.96	7.46	11.80	10.39

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	19.14	11.89	3.74	2.32	1.66	1.03	6.32	3.93	0.29	0.18	0.97	0.60
CARBON MONOXIDE	144.74	89.96	40.00	24.86	21.80	13.55	56.47	35.09	5.00	3.11	15.43	9.59
NOX - NO2	3.50	2.18	3.81	2.37	5.23	3.25	4.13	2.57	3.38	2.10	4.05	2.51
NOX CORRECTED	2.63	1.64	2.86	1.78	3.93	2.44	3.10	1.93	2.54	1.58	3.04	1.89
CARBON DIOXIDE	398.88	247.91	361.48	224.66	357.75	222.34	368.10	228.78	292.71	181.92	315.09	195.83

	MG/MI	MG/KM
ALDEHYDE	446.06	277.23
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

	MG/MI	MG/KM
PARTICULATE	52.18	32.58
SULFATE	0.68	0.42

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110002
DATE RUN: 01 24 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-63010105 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
		1394.	812.	1413.	928.	1444.	1065.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	12.	0	1.	1600	14.0	M.	HES H	HES H	HES H	HES H	1200	13.8
HOT TRANSIENT	1.	0	0	1200	20.	GOOD					900.	17.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	28.58	28.56	28.55		28.53	28.54
SAMPLING TIME - SEC	520	868	506		764	1397
DISTANCE TRAVELLED- MILES	3.720	4.128	3.637		9.938	13.297
DILUTION FACTOR	6.93	15.77	11.79		8.60	10.21
VOLUME - VMIX (CU FT)	2582.39	4296.25	2505.03		3784.06	6966.63
FUEL ECONOMY -MILES/GAL	12.30	19.34	21.51	17.75	28.02	24.32
FUEL ECONOMY - KM/LITER	5.23	8.22	9.14	7.55	11.91	10.34

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	21.04	13.08	4.11	2.55	1.69	1.05	6.91	4.30	0.41	0.26	1.23	0.77
CARBON MONOXIDE	150.44	93.50	46.10	28.65	22.79	14.16	61.14	38.00	6.32	3.93	16.82	10.45
NOX - NO2	3.13	1.94	3.95	2.45	4.93	3.06	4.04	2.51	3.34	2.08	4.04	2.51
NOX CORRECTED	2.36	1.47	2.99	1.86	3.73	2.32	3.06	1.90	2.53	1.57	3.05	1.90
CARBON DIOXIDE	376.93	234.26	347.08	215.71	347.92	216.24	353.39	219.63	287.42	178.63	313.73	194.99

	MG/MI	MG/KM
ALDEHYDE	435.80	270.85
HYDROGEN SULFIDE	LESS THAN 0.37	0.23

	MG/MI	MG/KM
PARTICULATE	22.91	14.29
SULFATE	0.25	0.16

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110201
DATE RUN: 01 22 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-H3010105 DRIVER: SWARTZLANDER FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1393.	810.			1450.	1042.	950.	766.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1700	N.O.	M.	HES. M.	HES. M.	HES. M.	HES. M.	900.	17.
HOT TRANSIENT	1.	0	0	1000	19.2	GOOD					820.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY WITH 3 STALLS. GOOD HOT DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	28.97		28.97		28.99				28.99		29.00	
SAMPLING TIME - SEC	512		867		506				764		600	
DISTANCE TRAVELLED- MILES	3.592		4.056		3.580				10.103		1.228	
DILUTION FACTOR	7.37		17.42		12.59				8.65		23.67	
VOLUME - VMIX (CU FT)	2571.34		4355.89		2542.23				3845.10		3018.43	
FUEL ECONOMY -MILES/GAL	12.71		20.84		22.34		18.76		28.20		12.69	
FUEL ECONOMY - KM/LITER	5.40		8.86		9.50		7.97		11.99		5.40	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	27.35	17.00	4.27	2.66	1.50	0.93	8.19	5.09	0.49	0.30	3.86	2.40
CARBON MONOXIDE	123.53	76.77	26.15	16.25	18.81	11.69	43.85	27.25	7.51	4.67	28.79	17.90
NOX - NO2	3.02	1.88	4.35	2.70	5.06	3.15	4.27	2.65	3.88	2.41	7.38	4.59
NOX CORRECTED	2.29	1.42	3.29	2.05	3.84	2.38	3.24	2.01	2.94	1.83	5.59	3.47
CARBON DIOXIDE	377.40	234.56	346.84	215.56	340.20	211.44	351.24	218.29	283.33	176.09	601.70	373.96
							MG/MI	MG/KM				
ALDEHYDE							518.81	322.44				
HYDROGEN SULFIDE						LESS THAN	0.40	0.25				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110202
DATE RUN: 01 25 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
-	-	1371.	806.			1439.	1051.	922.	737.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPLRATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1900	16.5	M.	HES M	HES M	HES M	HES M	STAL	
HOT TRANSIENT	1.	0	0	1150	20.0	GOOD					825.	16.8

NOTE: EVENT CODLS STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE M-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY WITH 1 IDLE STALL. GOOD HOT DRIVE.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	28.78	28.79	28.80		28.81	28.82
SAMPLING TIME - SEC	511	867	506		764	600
DISTANCE TRAVELLED- MILES	3.606	4.008	3.596		10.029	1.276
DILUTION FACTOR	7.65	17.20	13.05		8.84	25.92
VOLUME - VMIX (CU FT)	2551.54	4330.05	2527.61		3821.27	2999.33
FUEL ECONOMY -MILES/GAL	13.30	20.18	23.23	18.86	28.64	14.38
FUEL ECONOMY - KM/LITER	5.66	8.58	9.88	8.02	12.18	6.11

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	14.48	9.00	3.66	2.27	1.28	0.80	5.22	3.24	0.24	0.15	2.80	1.74
CARBON MONOXIDE	122.31	76.02	34.64	21.53	14.89	9.26	47.17	29.32	3.83	2.38	22.27	13.84
NOX - NO2	3.89	2.42	3.46	2.15	4.85	3.01	3.92	2.44	3.35	2.08	4.97	3.09
NOX CORRECTED	2.95	1.83	2.62	1.63	3.68	2.29	2.98	1.85	2.54	1.58	3.77	2.35
CARBON DIOXIDE	390.81	242.89	348.60	216.66	332.77	206.82	352.93	219.35	285.38	177.36	538.14	334.46

	MG/MI	MG/KM
ALDEHYDE	398.41	247.61
HYDROGEN SULFIDE	LESS THAN 0.37	0.23

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110401
DATE RUN: 01 19 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1314.	790.	1359.	903.	1389.	1037.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	1.	1800	18.2	1.	STA.	HES. M.	HES. M.	HES. M.	900.	17.1
HOT TRANSIENT	1.	0.	0.	1000	19.5	GOOD					800.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS,POOR COLD DRIVEABILITY,GOOD HOT DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.59		29.59		29.59				29.59		29.59	
SAMPLING TIME - SEC	512		867		505				764		1397	
DISTANCE TRAVELLED- MILES	3.588		3.917		3.576				9.969		13.238	
DILUTION FACTOR	10.68		20.98		13.82				9.62		12.10	
VOLUME - VMIX (CU FT)	2627.97		4453.52		2592.98				3925.03		7226.80	
FUEL ECONOMY -MILES/GAL	18.09		23.67		23.89		22.31		30.23		27.64	
FUEL ECONOMY - KM/LITER	7.69		10.06		10.16		9.49		12.85		11.75	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.61	3.49	0.70	0.43	1.20	0.74	1.84	1.15	0.16	0.10	0.52	0.32
CARBON MONOXIDE	42.87	26.65	5.26	3.27	11.60	7.21	14.72	9.15	2.51	1.56	7.30	4.54
NOX - NO2	4.48	2.79	3.14	1.95	4.22	2.62	3.71	2.30	2.77	1.72	3.57	2.22
NOX CORRECTED	3.54	2.20	2.47	1.54	3.32	2.07	2.92	1.82	2.18	1.36	2.82	1.75
CARBON DIOXIDE	377.39	234.55	343.05	213.20	328.18	203.97	346.06	215.08	272.36	169.27	289.65	180.02
							MG/MI	MG/KM				
ALDEHYDE							310.27	192.83				
HYDROGEN SULFIDE					LESS THAN		0.42	0.26			MG/MI	MG/KM
PARTICULATE											22.07	13.82
SULFATE											0.49	0.30

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110402
DATE RUN: 01 26 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1318.	797.	1360.	901.	1400.	1034.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	1.	1900	16.	M.	HES. M.	HES. M	HES. M.	HES. M.	STA.	
HOT TRANSIENT	1.	0.	0.	1100	20.	GOOD					825.	17.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS,POOR COLD DRIVEABILITY GOOD HOT DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.09		29.09		29.09				29.09		29.09	
SAMPLING TIME - SEC	512		866		506				764		1397	
DISTANCE TRAVELLED- MILES	3.624		4.026		3.616				9.997		13.292	
DILUTION FACTOR	7.79		20.25		13.63				9.52		11.96	
VOLUME - VMIX (CU FT)	2580.60		4376.21		2552.65				3856.79		7102.35	
FUEL ECONOMY -MILES/GAL	13.45		23.87		24.19		20.68		30.51		27.89	
FUEL ECONOMY - KM/LITER	5.72		10.15		10.29		8.79		12.97		11.86	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	27.49	17.09	0.86	0.53	1.33	0.83	6.41	3.98	0.20	0.12	0.61	0.38
CARBON MONOXIDE	125.33	77.89	5.56	3.46	14.09	8.76	32.25	20.04	2.99	1.86	9.24	5.74
NOX - NO2	2.63	1.63	3.19	1.98	4.09	2.54	3.32	2.06	2.81	1.75	3.48	2.16
NOX CORRECTED	2.07	1.29	2.51	1.56	3.22	2.00	2.62	1.63	2.22	1.38	2.75	1.71
CARBON DIOXIDE	337.88	210.00	339.11	210.76	319.52	198.58	333.57	207.32	268.89	167.11	283.52	176.21
							MG/MI	MG/KM				
ALDEHYDE							438.13	272.30				
HYDROGEN SULFIDE						LESS THAN	0.37	0.23			MG/MI	MG/KM
PARTICULATE											12.14	7.60
SULFATE											0.24	0.15

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110601
DATE RUN: 01 05 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-H3010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 38 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1327.	708.			1427.	1060.	921.	746.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2o.	0	4.	N.A.	N.A.	POOR	HES. H.	HES. H	HES. M.		900.	17.3
HOT TRANSIENT	1.5	0	0	1000	20.1	GOOD					800.	17.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR COLD OPERATION.GOOD PERFORMANCE WHEN WARMED UP.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.88	29.87	29.85		29.84	29.83
SAMPLING TIME - SEC	541	867	507		764	600
DISTANCE TRAVELLED- MILES	3.561	3.912	3.566		9.995	1.212
DILUTION FACTOR	11.81	20.34	13.62		9.38	26.73
VOLUME - VMIX (CU FT)	2806.27	4492.92	2620.93		3958.02	3105.99
FUEL ECONOMY -MILES/GAL	19.70	24.09	24.91	23.24	30.84	14.56
FUEL ECONOMY - KM/LITER	8.38	10.24	10.59	9.88	13.11	6.19

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	4.66	2.89	0.70	0.44	1.20	0.74	1.65	1.02	0.23	0.14	3.81	2.37
CARBON MONOXIDE	38.33	23.83	5.35	3.32	11.88	7.39	13.88	8.63	3.14	1.95	26.63	16.55
NOX - NO2	3.66	2.27	2.98	1.85	4.10	2.55	3.42	2.13	2.72	1.69	3.80	2.36
NOX CORRECTED	3.12	1.94	2.54	1.58	3.49	2.17	2.91	1.81	2.31	1.44	3.24	2.01
CARBON DIOXIDE	369.48	229.63	352.81	219.27	329.11	204.54	349.78	217.39	278.28	172.95	547.28	340.13

	MG/MI	MG/KM
ALDEHYDE	444.71	276.39
HYDROGEN SULFIDE	LESS THAN 0.43	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110602
DATE RUN: 01 18 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-B3010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1343.	826.			1429.	1066.	916.	750.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	5.	0	1.	NO	NO	M.	HES H	HES H	HES H	HES M	900.	17.5
HOT TRANSIENT	1.	0	0	1000	20.						825.	17.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS,POOR COLD DRIVEABILITY,GOOD HOT DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.49	29.49	29.51		29.52	29.53
SAMPLING TIME - SEC	511	866	506		764	600
DISTANCE TRAVELLED- MILES	3.653	4.048	3.669		10.109	1.249
DILUTION FACTOR	11.08	19.67	13.28		9.40	26.96
VOLUME - VMIX (CU FT)	2610.34	4435.39	2590.30		3911.90	3072.82
FUEL ECONOMY -MILES/GAL	20.16	23.98	24.87	23.31	31.42	15.32
FUEL ECONOMY - KM/LITER	8.57	10.20	10.57	9.91	13.36	6.51

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.05	3.14	0.84	0.52	1.54	0.95	1.89	1.17	0.19	0.12	3.51	2.18
CARBON MONOXIDE	41.36	25.70	5.75	3.58	15.10	9.38	15.55	9.66	2.78	1.73	22.25	13.83
NOX - NO2	3.95	2.45	3.31	2.06	4.14	2.57	3.66	2.28	3.03	1.88	5.08	3.16
NOX CORRECTED	3.37	2.10	2.83	1.76	3.54	2.20	3.13	1.95	2.59	1.61	4.34	2.70
CARBON DIOXIDE	353.32	219.59	353.39	219.63	323.51	201.06	345.28	214.59	273.73	170.12	525.37	326.52

		MG/MI	MG/KM
ALDEHYDE		345.24	214.57
HYDROGEN SULFIDE	LESS THAN	0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110701
DATE RUN: 01 08 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 58 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1322.	816.			1425.	1060.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	NA	NA	POOR	HES M				900.	17.3
HOT TRANSIENT	1.	0	0	900.	19.5	GOOD					800.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR COLD IDLE.FAIR COLD DRIVEABILITY.GOOD HOT DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.30	29.31	29.31		29.31
SAMPLING TIME - SEC	508	867	506		765
DISTANCE TRAVELLED- MILES	3.597	3.949	3.591		10.054
DILUTION FACTOR	11.42	20.97	13.65		9.25
VOLUME - VMIX (CU FT)	2581.98	4408.72	2570.85		3889.66
FUEL ECONOMY -MILES/GAL	20.87	25.62	25.25	24.39	30.91
FUEL ECONOMY - KM/LITER	8.88	10.89	10.74	10.37	13.14

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.64	2.26	0.81	0.50	1.60	1.00	1.61	1.00	0.22	0.14
CARBON MONOXIDE	33.55	20.85	5.02	3.12	13.42	8.34	13.15	8.17	3.11	1.93
NOX - NO2	3.65	2.27	2.86	1.78	3.78	2.35	3.27	2.03	2.63	1.64
NOX CORRECTED	3.38	2.10	2.65	1.65	3.50	2.17	3.03	1.88	2.44	1.51
CARBON DIOXIDE	355.21	220.76	331.33	205.92	320.59	199.25	333.31	207.15	277.69	172.58

	MG/MI	MG/KM
ALDEHYDE	227.35	141.30
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110702
DATE RUN: 01 17 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 55 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1313.	814.			1414.	1056.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	900.	15.2	H					900.	17.2
HOT TRANSIENT	1.	0	0	1000	19.8	GOOD					800.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS:

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.24	29.23	29.22		29.22
SAMPLING TIME - SEC	507	867	506		764
DISTANCE TRAVELLED- MILES	3.649	4.069	3.656		10.101
DILUTION FACTOR	11.46	20.25	13.66		9.44
VOLUME - VMIX (CU FT)	2568.74	4397.33	2563.30		3876.40
FUEL ECONOMY -MILES/GAL	21.37	25.49	25.81	24.61	32.04
FUEL ECONOMY - KM/LITER	9.09	10.84	10.97	10.46	13.62

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.51	2.18	0.82	0.51	1.29	0.80	1.49	0.93	0.21	0.13
CARBON MONOXIDE	31.95	19.86	5.68	3.53	13.49	8.38	13.13	8.16	3.13	1.95
NOX - NO2	3.91	2.43	3.13	1.95	3.86	2.40	3.49	2.17	2.83	1.76
NOX CORRECTED	3.58	2.22	2.86	1.78	3.53	2.19	3.19	1.98	2.58	1.61
CARBON DIOXIDE	348.34	216.50	331.98	206.33	313.97	195.13	330.45	205.38	267.69	166.37

	MG/MI	MG/KM
ALDEHYDE	379.54	235.88
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110801
DATE RUN: 01 09 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-83010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 72 GR/LB FUEL DENSITY: 0.734 G/ML FULL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF* SEC	LIGHT OFF* TEMP	FTP MAX	FTP MIN	SET MAX	SET MIN	HFET MAX	HFET MIN	NYCC MAX	NYCC MIN
-	-	1323.	816.	1397.	928.	1379.	1057.	919.	737.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1500	17.5	GOOD					850.	17.2
HOT TRANSIENT	1.	0	0	900.	19.2	GOOD					800.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.62	29.62	29.62		29.61	29.62	29.60
SAMPLING TIME - SEC	507	867	506		764	1337	600
DISTANCE TRAVELLED- MILES	3.627	4.028	3.635		10.035	13.378	1.211
DILUTION FACTOR	11.80	20.97	13.64		9.44	11.98	28.06
VOLUME - VMIX (CU FT)	2603.53	4456.98	2599.26		3926.44	7230.04	3083.92
FUEL ECONOMY -MILES/GAL	21.42	25.42	25.00	24.39	31.22	28.91	15.13
FUEL ECONOMY - KM/LITER	9.11	10.81	10.63	10.37	13.27	12.29	6.43

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	2.73	1.70	0.81	0.50	1.41	0.88	1.36	0.85	0.23	0.15	0.64	0.40	3.73	2.32
CARBON MONOXIDE	28.76	17.88	5.08	3.16	16.39	10.19	12.96	8.06	3.18	1.98	9.01	5.60	23.44	14.57
NOX - NO2	3.62	2.25	2.57	1.60	3.50	2.18	3.04	1.89	2.43	1.51	2.92	1.82	4.01	2.49
NOX CORRECTED	3.57	2.22	2.53	1.58	3.45	2.15	2.99	1.86	2.39	1.49	2.88	1.79	3.95	2.46
CARBON DIOXIDE	354.84	220.54	333.85	207.49	319.94	198.85	334.37	207.81	274.74	170.75	286.76	178.22	530.05	329.43

	MG/MI	MG/KM
ALDEHYDE	275.04	170.94
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	24.44	15.26
SULFATE	0.33	0.20

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110802
DATE RUN: 01 16 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-63010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1313.	816.	1377.	917.	1427.	1063.	891.	733.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1300	18.2	GOOD					900.	17.8
HOT TRANSIENT	1.	0	0	950.	19.2	GOOD					825.	17.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.64	29.64	29.65		29.65	29.65	29.65
SAMPLING TIME - SEC	506	867	506		764	1397	598
DISTANCE TRAVELLED- MILES	3.663	4.014	3.647		10.033	13.423	1.221
DILUTION FACTOR	11.65	20.97	14.02		9.53	12.12	28.28
VOLUME - VMIX (CU FT)	2601.05	4458.61	2603.65		3932.69	7238.61	3072.69
FUEL ECONOMY -MILES/GAL	21.37	25.33	25.77	24.51	31.45	29.33	15.44
FUEL ECONOMY - KM/LITER	9.09	10.77	10.96	10.42	13.37	12.47	6.57

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.26	2.02	0.78	0.48	1.24	0.77	1.41	0.88	0.21	0.13	0.61	0.38	3.41	2.12
CARBON MONOXIDE	30.80	19.14	5.14	3.19	12.84	7.98	12.49	7.76	2.89	1.80	8.45	5.25	20.59	12.80
NOX - NO2	3.76	2.33	2.70	1.68	3.42	2.12	3.11	1.93	2.36	1.47	2.86	1.78	3.89	2.42
NOX CORRECTED	3.79	2.36	2.72	1.69	3.45	2.14	3.14	1.95	2.39	1.48	2.89	1.80	3.93	2.44
CARBON DIOXIDE	351.04	218.17	335.14	208.29	315.70	196.21	333.12	207.04	273.19	169.79	283.33	176.09	523.77	325.53

	MG/MI	MG/KM
ALDEHYDE	286.63	179.38
HYDROGEN SULFIDE	LESS THAN 0.41	0.25

	MG/MI	MG/KM
PARTICULATE	18.76	11.73
SULFATE	0.35	0.21

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110901
DATE RUN: 01 10 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-63010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 101 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1317.	814.			1419.	1077.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1600	19.	GOOD					850.	17.1
HOT TRANSIENT	1.	0	0	900.	18.9	GOOD					800.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.63	29.64	29.64		29.64
SAMPLING TIME - SEC	506	867	506		764
DISTANCE TRAVELLED- MILES	3.619	4.000	3.636		10.078
DILUTION FACTOR	12.19	20.97	13.66		9.39
VOLUME - VMIX (CU FT)	2601.01	4459.47	2600.77		3929.35
FUEL ECONOMY -MILES/GAL	22.15	25.24	25.42	24.59	31.14
FUEL ECONOMY - KM/LITER	9.42	10.73	10.81	10.45	13.24

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.12	1.32	0.85	0.53	1.46	0.91	1.27	0.79	0.23	0.14
CARBON MONOXIDE	25.96	16.13	4.97	3.09	14.98	9.31	11.97	7.44	2.98	1.85
NOX - NO2	3.29	2.04	2.59	1.61	3.27	2.03	2.92	1.81	2.29	1.42
NOX CORRECTED	3.74	2.33	2.95	1.83	3.72	2.31	3.32	2.06	2.61	1.62
CARBON DIOXIDE	347.79	216.15	336.38	209.06	316.31	196.59	333.26	207.12	275.80	171.41

		MG/MI	MG/KM
ALDEHYDE		245.38	152.50
HYDROGEN SULFIDE	LESS THAN	0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 110902
DATE RUN: 01 15 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-63010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1325.	818.			1422.	1080.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1700	18.9	GOOD					900.	17.1
HOT TRANSIENT	1.	0	0	950.	19.1	GOOD					800.	17.4

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.71	29.71	29.72		29.72
SAMPLING TIME - SEC	506	867	506		765
DISTANCE TRAVELLED- MILES	3.646	4.012	3.642		10.096
DILUTION FACTOR	12.06	20.96	13.97		9.35
VOLUME - VMIX (CU FT)	2609.58	4468.46	2609.61		3944.98
FUEL ECONOMY -MILES/GAL	22.17	25.65	25.84	24.90	31.16
FUEL ECONOMY - KM/LITER	9.43	10.91	10.99	10.59	13.25

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.11	1.31	0.84	0.52	1.29	0.80	1.22	0.76	0.24	0.15
CARBON MONOXIDE	24.13	15.00	5.19	3.22	13.57	8.44	11.34	7.05	3.62	2.25
NOX - NO2	3.23	2.01	2.29	1.42	3.16	1.96	2.72	1.69	2.28	1.42
NOX CORRECTED	3.86	2.40	2.74	1.70	3.78	2.35	3.25	2.02	2.73	1.70
CARBON DIOXIDE	350.38	217.76	330.55	205.44	313.41	194.78	329.96	205.07	274.60	170.66
							MG/MI	MG/KM		
ALDEHYDE							282.46	175.55		
HYDROGEN SULFIDE						LESS THAN	0.41	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 111101
DATE RUN: 01 11 78
CAR: 1977 HONDA CIVIC 49 STATE VIN: WB-63010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 151 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1328.	819.	1409.	925.	1452.	1087.	912.	735.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	800.	18.2	GOOD	HES H				750.	17.5
HOT TRANSIENT	1.	0	0	900.	18.5	GOOD					775.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.DELAY BETWEEN FTP AND SET TO REPAIR D.AID.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP						HFET	SET	NYCC
	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE					
BAROMETRIC PRESSURE	29.81	29.82	29.82				29.83	29.83	29.83
SAMPLING TIME - SEC	506	667	506				764	1397	600
DISTANCE TRAVELLED- MILES	3.649	4.009	3.630				10.032	13.494	1.253
DILUTION FACTOR	12.74	21.23	13.66				9.57	11.90	26.88
VOLUME - VMIX (CU FT)	2614.78	4482.70	2619.68				3956.67	7280.86	3104.27
FUEL ECONOMY -MILES/GAL	23.45	25.92	25.44	25.25			31.61	29.01	15.17
FUEL ECONOMY - KM/LITER	9.97	11.02	10.82	10.73			13.44	12.33	6.45

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.79	1.11	1.14	0.71	1.51	0.94	1.37	0.85	0.32	0.20	0.84	0.52	4.51	2.80
CARBON MONOXIDE	17.96	11.17	5.17	3.21	15.07	9.37	10.47	6.51	4.47	2.78	11.63	7.23	46.01	28.59
NOX - NO2	3.13	1.94	2.90	1.80	3.12	1.94	3.01	1.87	2.40	1.49	2.64	1.64	2.90	1.80
NOX CORRECTED	4.86	3.02	4.52	2.81	4.85	3.01	4.68	2.91	3.73	2.32	4.11	2.56	4.52	2.81
CARBON DIOXIDE	339.56	211.04	326.03	202.63	315.67	196.19	326.00	202.61	268.96	167.16	280.94	174.60	490.52	304.86

	MG/MI	MG/KM
ALDEHYDE	274.86	170.83
HYDROGEN SULFIDE	LESS THAN 0.40	0.25
PARTICULATE	35.32	22.04
SULFATE	0.41	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 111102
DATE RUN: 01 12 79
CAR: 1977 HONDA CIVIC 49 STATE VIN: WH-83010105 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 154 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 1980 LB ENGINE DISPLACEMENT: 1.49 LITERS
DYNAMOMETER INERTIA WEIGHT: 2275 LB DYNAMOMETER LOADING: 8.8HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)**

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-	-	1321.	808.	1395.	906.	1423.	1087.	889.	730.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
** EXHAUST TEMPERATURES NO CATALYST IN CAR

EIP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	01.	0	0	800.	18.2	GOOD	HES. T.				800.	17.2
HOT TRANSIENT	01.	0	0	900.	18.8	GOOD					800.	17.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.53	29.53	29.53		29.53	29.53	29.53
SAMPLING TIME - SEC	505	868	506		825	1397	600
DISTANCE TRAVELLED- MILES	3.652	3.998	3.602		10.092	13.405	1.258
DILUTION FACTOR	11.63	19.10	13.19		9.45	10.99	26.86
VOLUME - VMIX (CU FT)	2582.69	4442.64	2592.75		3919.49	7210.47	3074.45
FUEL ECONOMY -MILES/GAL	21.42	22.93	23.99	22.87	31.69	26.78	15.37
FUEL ECONOMY - KM/LITER	9.11	9.75	10.20	9.72	13.47	11.39	6.54

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.80	1.12	1.01	0.63	1.55	0.96	1.32	0.82	0.28	0.18	0.85	0.53	4.60	2.86
CARBON MONOXIDE	17.66	10.98	5.58	3.47	14.70	9.13	10.52	6.54	4.13	2.57	12.11	7.53	37.25	23.15
NOX - NO2	3.00	1.87	2.60	1.62	2.96	1.84	2.78	1.73	2.27	1.41	2.63	1.63	3.26	2.03
NOX CORRECTED	4.78	2.97	4.14	2.57	4.71	2.93	4.42	2.75	3.62	2.25	4.18	2.60	5.18	3.22
CARBON DIOXIDE	375.28	233.24	369.95	229.93	337.03	209.47	362.15	225.08	268.89	167.12	305.27	189.72	496.56	308.61

	MG/MI	MG/KM
ALDEHYDE	314.13	195.23
HYDROGEN SULFIDE	LESS THAN 0.41	0.25
PARTICULATE	14.59	9.13
SULFATE	0.28	0.17

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120001
DATE RUN: 03 05 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K473BH156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 3 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
315.	681.	845.	703.	767.	682.	748.	686.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1500	14.8		STA.	HES H	STU M	HES M	1100	11.8
HOT TRANSIENT	1.	0	0	2400	17.0						700.	16.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: BATTERY NOT CRANKING ENG.PROPERLY.RESTARTED TEST WITH AID OF BOOSTER.
POOR COLD DRIVEABILITY WITH ONE STALL. BATTERY REMOVED FOR RECHARGE
AFTER TEST. FTP DECLARED INVALID BECAUSE OF DRIVER ERROR ON STALL.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.36		29.36		29.36				29.36		29.36	
SAMPLING TIME - SEC	509		868		506				763		1397	
DISTANCE TRAVELLED- MILES	3.642		3.966		3.643				10.004		13.328	
DILUTION FACTOR	4.10		11.75		8.04				6.44		7.83	
VOLUME - VMIX (CU FT)	2549.92		4341.94		2533.00				3823.91		7046.61	
FUEL ECONOMY -MILES/GAL	7.15		13.44		14.32		11.55		20.73		18.31	
FUEL ECONOMY - KM/LITER	3.04		5.71		6.09		4.91		8.81		7.78	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	49.65	30.86	0.58	0.36	2.34	1.45	11.13	6.92	0.27	0.17	0.42	0.26
CARBON MONOXIDE	235.28	146.23	2.11	1.31	7.82	4.86	51.54	32.03	0.59	0.36	2.78	1.73
NOX - NO2	2.99	1.86	1.46	0.91	2.24	1.39	1.99	1.24	1.99	1.24	2.06	1.28
NOX CORRECTED	2.23	1.39	1.09	0.68	1.67	1.04	1.49	0.92	1.49	0.92	1.54	0.95
CARBON DIOXIDE	643.34	399.84	617.55	383.81	564.65	350.93	608.45	378.15	401.88	249.77	451.33	280.50
							MG/MI	MG/KM				
ALDEHYDE							125.10	77.75				
HYDROGEN SULFIDE						LESS THAN	0.38	0.24			MG/MI	MG/KM
PARTICULATE											4.07	2.61
SULFATE											0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120002
DATE RUN: 03 06 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738M156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 3 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SLT		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
345.	679.	1054.	690.	782.	715.	759.	689.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	14.	0	1	1400	15.0		STA	STA			2300	16.0
HOT TRANSIENT	26.	0	1.	1100	11.9						400.	5.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: LONG CRANK ON COLD START.POOR COLD DRIVEABILITY WITH TWO STALLS.
VERY DIFFICULT HOT START.POSSIBLE FLOODING OF CARB.
BATTERY BOOSTER USED TO MAKE HOT START.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.31	29.31	29.31		29.30	29.31
SAMPLING TIME - SEC	525	669	542		764	1397
DISTANCE TRAVELLED- MILES	3.732	4.091	3.666		10.041	13.381
DILUTION FACTOR	4.54	11.49	7.42		6.46	7.93
VOLUME - VMIX (CU FT)	2676.91	4416.33	2759.75		3887.49	7162.17
FUEL ECONOMY -MILES/GAL	7.70	13.24	12.16	11.30	20.43	18.22
FUEL ECONOMY - KM/LITER	3.28	5.63	5.17	4.81	8.69	7.75

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	36.08	22.42	0.61	0.38	14.40	8.95	11.60	7.21	0.31	0.19	0.35	0.22
CARBON MONOXIDE	221.02	137.37	0.76	0.47	19.50	12.12	50.99	31.69	1.12	0.70	0.97	0.60
NOX - NO2	3.16	1.96	1.63	1.02	2.26	1.40	2.11	1.31	2.03	1.26	2.12	1.32
NOX CORRECTED	2.36	1.47	1.22	0.76	1.69	1.05	1.58	0.98	1.51	0.94	1.59	0.99
CARBON DIOXIDE	624.37	388.05	628.85	390.83	611.54	380.07	623.27	387.36	406.74	252.79	456.54	283.74

	MG/MI	MG/KM
ALDEHYDE	192.31	119.52
HYDROGEN SULFIDE	28.84	17.93

	MG/MI	MG/KM
PARTICULATE	2.29	1.49
SULFATE	0.28	0.18

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120003
DATE RUN: 03 08 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 3 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
311.	695.	837.	655.	799.	709.	741.	673.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	6.	0	1.	2000	14.8		HES M				1100	13.5
HOT TRANSIENT	9.	0	3.	NO	NO						875.	7.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: POOR COLD START WITH 1 STALL. FAIR DRIVEABILITY.
DIFFICULT HOT START WITH 3 STALLS.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.09	29.09	29.09		29.09	29.09
SAMPLING TIME - SEC	513	868	516		764	1397
DISTANCE TRAVELLED- MILES	3.735	4.079	3.662		10.010	13.350
DILUTION FACTOR	4.19	10.92	7.10		6.32	7.64
VOLUME - VMIX (CU FT)	2545.88	4303.56	2560.44		3790.93	6980.68
FUEL ECONOMY -MILES/GAL	7.48	12.86	12.48	11.12	20.45	17.97
FUEL ECONOMY - KM/LITER	3.18	5.47	5.30	4.73	8.69	7.64

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	40.00	24.86	0.65	0.40	13.37	8.31	12.16	7.56	0.32	0.20	0.40	0.25
CARBON MONOXIDE	231.29	143.75	0.66	0.41	24.77	15.39	54.56	33.91	0.33	0.21	1.30	0.81
NOX - NO2	2.64	1.64	1.50	0.93	2.30	1.43	1.95	1.21	1.97	1.23	2.00	1.25
NOX CORRECTED	1.97	1.22	1.12	0.70	1.72	1.07	1.46	0.91	1.47	0.92	1.50	0.93
CARBON DIOXIDE	628.93	390.89	647.52	402.43	589.34	366.28	628.01	390.31	407.71	253.40	462.33	287.34

	MG/MI	MG/KM
ALDEHYDE	179.26	111.41
HYDROGEN SULFIDE	LESS THAN 0.35	0.22

	MG/MI	MG/KM
PARTICULATE	4.92	3.14
SULFATE	0.39	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120201
DATE RUN: 03 02 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0.	1.	1900	17.	FAIR	STA.	STA.			1100	12.5
HOT TRANSIENT	1.	0.		2300	17.						700.	17.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD COLD START,STALL ON FIRST ACCEL. SECOND STALL AT APPROX. 400 SEC.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE					
BAROMETRIC PRESSURE	29.61		29.61		29.61				29.61		29.61	
SAMPLING TIME - SEC	525		868		506				764		598	
DISTANCE TRAVELLED- MILES	3.653		4.011		3.642				10.079		1.286	
DILUTION FACTOR	5.37		11.90		8.33				6.44		15.85	
VOLUME - VMIX (CU FT)	2703.78		4454.02		2600.45				3930.00		3076.94	
FUEL ECONOMY -MILES/GAL	8.85		13.35		14.37		12.31		20.23		8.35	
FUEL ECONOMY - KM/LITER	3.76		5.68		6.11		5.23		8.60		3.55	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	26.85	16.69	0.58	0.36	1.67	1.04	6.26	3.89	0.23	0.15	1.30	0.81
CARBON MONOXIDE	162.18	100.80	0.64	0.40	10.25	6.37	36.36	22.60	0.72	0.45	9.10	5.65
NOX - NO2	3.18	1.98	1.33	0.83	2.09	1.30	1.92	1.19	1.90	1.18	2.16	1.34
NOX CORRECTED	2.41	1.50	1.01	0.63	1.59	0.99	1.45	0.90	1.44	0.89	1.64	1.02
CARBON DIOXIDE	605.38	376.24	623.77	387.67	560.81	348.54	602.92	374.72	411.67	255.85	983.19	611.06
							MG/MI	MG/KM				
ALDEHYDE							191.09	118.76				
HYDROGEN SULFIDE					LESS THAN		0.40	0.25				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120203
DATE RUN: 03 12 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
321.	633.	860.	723.			884.	831.	767.	726.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	2000	16.2	GOOD					1100	13.
HOT TRANSIENT	1.	0	0	1800	16.8	GOOD					700.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.44	29.44	29.45		29.45	29.45
SAMPLING TIME - SEC	508	866	507		764	600
DISTANCE TRAVELLED- MILES	3.722	4.108	3.683		10.092	1.341
DILUTION FACTOR	5.26	11.68	8.29		6.38	15.30
VOLUME - VMIX (CU FT)	2593.30	4428.88	2589.38		3908.00	3066.77
FUEL ECONOMY -MILES/GAL	9.21	13.48	14.52	12.54	20.19	8.43
FUEL ECONOMY - KM/LITER	3.92	5.73	6.17	5.33	8.58	3.58

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	22.99	14.29	0.48	0.30	0.98	0.61	5.21	3.24	0.20	0.12	1.43	0.89
CARBON MONOXIDE	152.67	94.88	1.40	0.87	6.43	4.00	33.68	20.93	0.65	0.40	15.93	9.90
NOX - NO2	3.66	2.27	0.99	0.62	1.78	1.11	1.75	1.09	1.35	0.84	1.57	0.98
NOX CORRECTED	2.78	1.73	0.76	0.47	1.36	0.84	1.33	0.83	1.02	0.64	1.20	0.74
CARBON DIOXIDE	595.22	369.93	616.81	383.35	563.15	350.00	597.94	371.62	412.86	256.60	963.57	598.87

	MG/MI	MG/KM
ALDEHYDE	179.21	111.38
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120401
DATE RUN: 03 01 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K473EH156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 25 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
344.	543.	836.	712.	883.	760.	833.	746.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	2000	16.5	GOOD	STA				1000	15.0
HOT TRANSIENT	1.	0	0	1800	17.2	GOOD					700.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.31		29.31		29.32				29.33		29.32	
SAMPLING TIME - SEC	511		867		506				764		1397	
DISTANCE TRAVELLED- MILES	3.654		4.012		3.628				9.982		13.320	
DILUTION FACTOR	5.97		11.67		8.52				6.49		7.88	
VOLUME - VMIX (CU FT)	2601.11		4412.67		2573.54				3895.49		7162.39	
FUEL ECONOMY -MILES/GAL	10.30		13.44		14.81		12.96		20.45		18.12	
FUEL ECONOMY - KM/LITER	4.38		5.72		6.29		5.51		8.70		7.70	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	12.62	7.84	0.59	0.36	0.93	0.58	3.14	1.95	0.24	0.15	0.37	0.23
CARBON MONOXIDE	123.04	76.47	1.72	1.07	7.94	4.94	28.27	17.57	1.34	0.84	2.84	1.77
NOX - NO2	3.13	1.95	0.95	0.59	1.53	0.95	1.55	0.97	1.30	0.81	1.38	0.86
NOX CORRECTED	2.54	1.58	0.77	0.48	1.24	0.77	1.26	0.78	1.05	0.65	1.12	0.70
CARBON DIOXIDE	578.88	359.78	617.83	383.98	549.75	341.67	591.42	367.57	406.25	252.49	456.22	283.55
							MG/MI	MG/KM				
ALDEHYDE							101.33	62.98				
HYDROGEN SULFIDE						LESS THAN	0.39	0.24			MG/MI	MG/KM
PARTICULATE											7.58	4.85
SULFATE											0.66	0.41

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120402
DATE RUN: 03 13 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738M156902 DRIVER: WARD FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
320.	616.	950.	613.	958.	857.	885.	808.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	800.	8.5	POOR	HES H				900.	15.0
HOT TRANSIENT	1.	0	0	1900	17.2	GOOD					700.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. FAIR COLD DRIVEABILITY. GOOD HOT DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.37	29.36	29.36		29.35	29.35
SAMPLING TIME - SEC	507	867	506		764	1397
DISTANCE TRAVELLED- MILES	3.618	3.963	3.578		9.930	13.224
DILUTION FACTOR	5.61	11.85	8.45		6.67	7.98
VOLUME - VMIX (CU FT)	2587.60	4420.60	2582.19		3896.77	7172.91
FUEL ECONOMY -MILES/GAL	9.59	13.23	14.43	12.54	20.82	18.12
FUEL ECONOMY - KM/LITER	4.08	5.63	6.14	5.33	8.85	7.70

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	26.17	16.27	0.46	0.28	1.15	0.72	5.92	3.68	0.22	0.14	0.26	0.16
CARBON MONOXIDE	129.97	80.78	2.81	1.75	10.66	6.62	31.03	19.28	0.73	0.45	2.51	1.56
NOX - NO2	3.02	1.88	0.73	0.45	1.06	0.66	1.29	0.80	1.19	0.74	1.18	0.73
NOX CORRECTED	2.39	1.49	0.58	0.36	0.84	0.52	1.02	0.63	0.94	0.59	0.93	0.58
CARBON DIOXIDE	584.85	363.49	626.59	389.43	559.32	347.62	599.83	372.80	400.03	248.62	457.02	284.04

	MG/MI	MG/KM
ALDEHYDE	103.63	64.40
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	6.57	4.20
SULFATE	0.54	0.34

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120602
DATE RUN: 02 01 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 38 GR/LH FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
332.	566.	866.	565.			884.	810.	776.	730.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	1800	15.5	GOOD					975.	15.0
HOT TRANSIENT	1.	0	0	800.	19.2	GOOD					600.	17.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.19	29.20	29.20		29.21	29.21
SAMPLING TIME - SEC	507	865	506		764	600
DISTANCE TRAVELLED- MILES	3.656	4.067	3.639		10.097	1.315
DILUTION FACTOR	6.67	12.79	8.80		6.46	15.76
VOLUME - VMIX (CU FT)	2568.12	4383.49	2563.12		3873.67	3041.09
FUEL ECONOMY -MILES/GAL	12.18	15.51	16.14	14.84	21.57	8.99
FUEL ECONOMY - KM/LITER	5.18	6.59	6.86	6.31	9.17	3.82

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	6.66	4.14	0.34	0.21	0.61	0.38	1.70	1.06	0.15	0.09	1.57	0.97
CARBON MONOXIDE	78.64	48.88	1.90	1.18	8.37	5.20	19.26	11.97	0.30	0.19	26.94	16.74
NOX - NO2	2.47	1.54	0.70	0.43	1.17	0.73	1.19	0.74	1.17	0.73	1.20	0.75
NOX CORRECTED	2.11	1.31	0.60	0.37	1.00	0.62	1.01	0.63	0.99	0.62	1.02	0.64
CARBON DIOXIDE	574.00	356.74	560.60	348.41	527.55	327.88	554.43	344.58	405.04	251.73	926.34	575.73

	MG/MI	MG/KM
ALDEHYDE	236.34	146.89
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120603
DATE RUN: 02 28 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 39 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
339.	530.								

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	2000	17.	GOOD	STA				1000	15.0
HOT TRANSIENT	1.	0	0	1700	17.2	GOOD					650.	17.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY EXCEPT ONE STALL AT 335 SEC. DECEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.49	29.49	29.48		29.48	© 29.48
SAMPLING TIME - SEC	511	867	506		764	599
DISTANCE TRAVELLED- MILES	3.640	4.030	3.648		10.114	1.322
DILUTION FACTOR	6.89	12.19	8.54		6.37	14.96
VOLUME - VMIX (CU FT)	2614.79	4441.05	2589.79		3913.74	3066.26
FUEL ECONOMY -MILES/GAL	12.37	14.56	15.62	14.31	21.17	8.58
FUEL ECONOMY - KM/LITER	5.26	6.19	6.64	6.08	9.00	3.65

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	6.05	3.76	0.40	0.25	0.81	0.51	1.66	1.03	0.20	0.13	3.03	1.88
CARBON MONOXIDE	73.75	45.84	2.13	1.32	11.80	7.33	19.36	12.04	1.34	0.83	35.82	22.26
NOX - NO2	2.62	1.63	0.73	0.45	1.28	0.80	1.27	0.79	1.26	0.78	1.42	0.88
NOX CORRECTED	2.24	1.39	0.62	0.39	1.10	0.68	1.08	0.67	1.08	0.67	1.22	0.76
CARBON DIOXIDE	572.57	355.86	596.58	370.76	539.57	335.35	576.24	358.14	410.88	255.36	954.08	592.97

	MG/MI	MG/KM
ALDEHYDE	96.58	60.03
HYDROGEN SULFIDE	LESS THAN 0.41	0.26

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120701
DATE RUN: 02 02 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 55 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
326.	592.	864.	590.			889.	769.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1900	16.9	GOOD	HES. M				1000	14.9
HOT TRANSIENT	1.	0.	0.	800.	19.2	GOOD					600.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD COLD STARTS.GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.49	29.49	29.49		29.49
SAMPLING TIME - SEC	505	868	506		764
DISTANCE TRAVELLED- MILES	3.654	4.042	3.624		10.081
DILUTION FACTOR	6.91	13.27	9.11		6.49
VOLUME - VMIX (CU FT)	2587.85	4438.22	2588.99		3912.26
FUEL ECONOMY -MILES/GAL	12.51	15.83	16.48	15.17	21.44
FUEL ECONOMY - KM/LITER	5.32	6.73	7.01	6.45	9.12

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	5.35	3.32	0.32	0.20	0.64	0.40	1.43	0.89	0.18	0.11
CARBON MONOXIDE	70.88	44.06	2.51	1.56	10.54	6.55	18.63	11.58	1.34	0.83
NOX - NO2	2.10	1.30	0.67	0.42	1.10	0.69	1.08	0.67	1.12	0.70
NOX CORRECTED	1.92	1.19	0.62	0.38	1.01	0.63	0.99	0.61	1.02	0.64
CARBON DIOXIDE	571.31	355.07	548.27	340.75	512.80	318.71	543.42	337.73	405.69	252.14

	MG/MI	MG/KM
ALDEHYDE	276.36	171.76
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120702
DATE RUN: 02 27 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
332.	562.	850.	742.			885.	782.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	2000	17.0	GOOD					1000	14.5
HOT TRANSIENT	1.	0	0	800.	19.3	GOOD					650.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.27		29.27		29.27				29.28	
SAMPLING TIME - SEC	507		867		506				764	
DISTANCE TRAVELLED- MILES	3.622		3.977		3.594				10.068	
DILUTION FACTOR	7.03		12.53		8.81				6.39	
VOLUME - VMIX (CU FT)	2574.71		4404.02		2571.61				3887.89	
FUEL ECONOMY -MILES/GAL	12.76		14.91		16.00		14.68		21.28	
FUEL ECONOMY - KM/LITER	5.43		6.34		6.80		6.24		9.05	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.38	2.72	0.39	0.24	0.84	0.52	1.33	0.83	0.18	0.11
CARBON MONOXIDE	67.16	41.74	2.39	1.49	12.36	7.68	18.36	11.41	0.54	0.33
NOX - NO2	2.13	1.33	0.61	0.38	0.48	0.30	0.89	0.55	1.07	0.67
NOX CORRECTED	1.97	1.22	0.57	0.35	0.44	0.28	0.82	0.51	0.99	0.61
CARBON DIOXIDE	566.54	352.11	582.21	361.84	525.22	326.42	563.57	350.26	410.03	254.83
							MG/MI	MG/KM		
ALDEHYDE							106.78	66.36		
HYDROGEN SULFIDE						LESS THAN	0.43	0.27		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120801
DATE RUN: 02 05 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738M156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
328.	573.	888.	792.	921.	838.	865.	832.	778.	737.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1800	18.2	GOOD					550.	17.2
HOT TRANSIENT	1.	0	0	750.	19.5	T.					600.	17.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.48	29.49	29.49		29.49	29.49	29.49
SAMPLING TIME - SEC	506	868	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.597	3.985	3.597		10.028	13.367	1.267
DILUTION FACTOR	7.48	13.24	9.15		6.74	8.21	16.31
VOLUME - VMIX (CU FT)	2589.79	4438.50	2588.42		3911.83	7203.23	3071.07
FUEL ECONOMY -MILES/GAL	13.37	15.56	16.43	15.27	22.15	19.64	8.90
FUEL ECONOMY - KM/LITER	5.68	6.62	6.99	6.49	9.42	8.35	3.78

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.91	2.43	0.33	0.20	0.66	0.41	1.15	0.71	0.16	0.10	0.23	0.14	1.66	1.03
CARBON MONOXIDE	58.53	36.38	3.43	2.13	6.73	4.18	15.56	9.67	0.82	0.51	3.24	2.02	29.19	18.14
NOX - NO2	1.68	1.05	0.53	0.33	0.88	0.55	0.86	0.53	0.95	0.59	0.89	0.56	0.96	0.59
NOX CORRECTED	1.72	1.07	0.54	0.34	0.90	0.56	0.88	0.55	0.96	0.60	0.91	0.57	0.97	0.61
CARBON DIOXIDE	550.77	342.30	556.15	345.65	520.26	323.34	545.35	338.94	393.59	244.62	440.03	273.48	933.10	579.93

	MG/MI	MG/KM
ALDEHYDE	221.45	137.63
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

	MG/MI	MG/KM
PARTICULATE	6.98	4.42
SULFATE	0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120802
DATE RUN: 02 26 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 82 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
334.	551.	898.	550.	964.	854.	925.	866.	805.	761.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	2200	17.2	GOOD					600.	16.8
HOT TRANSIENT	1.	0	0	800.	19.	GOOD					650.	17.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	28.94	28.94	28.94		28.94	28.94	28.94
SAMPLING TIME - SEC	506	867	506		764	1397	599
DISTANCE TRAVELLED- MILES	3.584	3.933	3.592		10.030	13.358	1.277
DILUTION FACTOR	7.37	12.52	8.49		6.42	7.78	15.59
VOLUME - VMIX (CU FT)	2544.66	4357.46	2543.82		3841.74	7073.33	3010.30
FUEL ECONOMY -MILES/GAL	13.41	14.89	15.56	14.73	21.57	19.02	8.82
FUEL ECONOMY - KM/LITER	5.70	6.33	6.61	6.26	9.17	8.09	3.75

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.42	2.12	0.37	0.23	1.35	0.84	1.26	0.79	0.22	0.13	0.36	0.22	1.24	0.77
CARBON MONOXIDE	55.59	34.55	2.79	1.74	19.94	12.39	18.28	11.36	1.61	1.00	6.34	3.94	27.63	17.17
NOX - NO2	1.58	0.98	0.50	0.31	0.78	0.49	0.80	0.50	0.82	0.51	0.82	0.51	0.95	0.59
NOX CORRECTED	1.63	1.01	0.52	0.32	0.81	0.50	0.83	0.51	0.85	0.53	0.85	0.53	0.98	0.61
CARBON DIOXIDE	554.70	344.75	582.50	362.02	527.25	327.69	561.77	349.14	402.71	250.29	449.29	279.24	945.07	587.37

	MG/MI	MG/KM
ALDEHYDE	112.98	70.22
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

	MG/MI	MG/KM
PARTICULATE	2.28	1.48
SULFATE	0.31	0.19

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120811
DATE RUN: 02 06 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738M156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
330.	596.	879.	592.	986.	858.	947.	874.	904.	820.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1900	16.8	GOOD					500.	16.
HOT TRANSIENT	1.	0.	0.	600.	17.5	GOOD					525.	16.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD HOT STARTS GOOD DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.50	29.50	29.50		29.50	29.50	29.50
SAMPLING TIME - SEC	505	868	505		764	1397	599
DISTANCE TRAVELLED- MILES	3.627	3.993	3.598		10.096	13.368	1.247
DILUTION FACTOR	6.44	10.91	7.65		5.42	6.45	13.28
VOLUME - VMIX (CU FT)	2590.07	4440.04	2587.52		3913.18	7205.65	3070.15
FUEL ECONOMY -MILES/GAL	11.55	12.75	13.68	12.71	17.85	15.34	7.06
FUEL ECONOMY - KM/LITER	4.91	5.42	5.82	5.40	7.59	6.52	3.00

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.70	2.30	0.33	0.21	0.82	0.51	1.15	0.72	0.18	0.11	0.36	0.23	1.84	1.14
CARBON MONOXIDE	68.18	42.37	2.14	1.33	10.57	6.57	17.93	11.15	1.32	0.82	12.90	8.02	59.69	37.10
NOX - NO2	1.85	1.15	0.70	0.43	1.29	0.80	1.09	0.68	1.16	0.72	0.95	0.59	0.98	0.61
NOX CORRECTED	1.89	1.17	0.71	0.44	1.32	0.82	1.12	0.69	1.18	0.74	0.96	0.60	1.00	0.62
CARBON DIOXIDE	639.16	397.24	682.44	424.14	620.93	385.91	656.96	408.31	487.83	303.19	549.52	341.53	139.98	708.50

	MG/MI	MG/KM
ALDEHYDE	222.98	138.58
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	7.08	4.50
SULFATE	0.47	0.29

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120812
DATE RUN: 02 23 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 82 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
337.	569.	892.	568.	952.	849.	907.	844.	861.	759.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1500	17.0	GOOD					500.	16.1
HOT TRANSIENT	1.	0	0	650.	16.5	GOOD					575.	16.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND COLD DRIVEABILITY.POOR HOT DRIVE.WITH 4 STALLS ON NYCC.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.39		29.39		29.39				29.38		29.38		29.38	
SAMPLING TIME - SEC	506		867		506				764		1397		625	
DISTANCE TRAVELLED- MILES	3.592		3.962		3.569				9.978		13.241		1.249	
DILUTION FACTOR	6.87		11.22		8.29				6.02		7.38		14.09	
VOLUME - VMIX (CU FT)	2582.52		4425.47		2581.10				3900.11		7175.65		3186.79	
FUEL ECONOMY -MILES/GAL	12.32		13.17		14.85		13.39		19.80		17.60		7.33	
FUEL ECONOMY - KM/LITER	5.24		5.60		6.32		5.69		8.42		7.48		3.11	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.34	2.08	0.43	0.27	0.88	0.55	1.15	0.71	0.18	0.11	0.30	0.19	5.31	3.30
CARBON MONOXIDE	64.37	40.01	4.07	2.53	13.96	8.68	19.07	11.85	1.48	0.92	8.99	5.59	65.07	40.44
NOX - NO2	1.93	1.20	0.79	0.49	1.15	0.72	1.12	0.70	1.25	0.77	1.06	0.66	1.39	0.87
NOX CORRECTED	1.99	1.24	0.81	0.51	1.19	0.74	1.16	0.72	1.29	0.80	1.10	0.68	1.44	0.89
CARBON DIOXIDE	599.16	372.38	657.02	408.34	564.73	350.98	620.26	385.50	439.44	273.11	482.39	299.81	1076.27	668.91
							MG/MI	MG/KM						
ALDEHYDE							153.83	95.60						
HYDROGEN SULFIDE					LESS THAN		0.43	0.27						
PARTICULATE											MG/MI 7.39	MG/KM 4.66		
SULFATE											0.32	0.20		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120902
DATE RUN: 02 12 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K473BM156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 108 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
347.	522.	865.	731.			964.	903.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	2000	19.	GOOD					550.	17.2
HOT TRANSIENT	1.	0	0	850.	19.5	GOOD					600.	17.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.36	29.35	29.34		29.33
SAMPLING TIME - SEC	507	866	506		764
DISTANCE TRAVELLED- MILES	3.599	3.988	3.599		10.109
DILUTION FACTOR	8.12	13.80	9.22		6.57
VOLUME - VMIX (CU FT)	2581.53	4414.55	2578.33		3890.54
FUEL ECONOMY -MILES/GAL	14.66	16.52	16.75	16.16	21.97
FUEL ECONOMY - KM/LITER	6.23	7.02	7.12	6.87	9.34

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	2.44	1.52	0.37	0.23	1.03	0.64	0.97	0.60	0.20	0.12
CARBON MONOXIDE	49.46	30.74	2.90	1.81	12.54	7.79	15.00	9.33	0.84	0.52
NOX - NO2	1.30	0.81	0.42	0.26	0.69	0.43	0.67	0.42	0.60	0.37
NOX CORRECTED	1.54	0.96	0.50	0.31	0.81	0.50	0.80	0.50	0.70	0.44
CARBON DIOXIDE	511.81	318.09	524.38	325.91	499.76	310.60	515.16	320.17	396.63	246.51

	MG/MI	MG/KM
ALDEHYDE	219.64	136.51
HYDROGEN SULFIDE	LESS THAN 0.43	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120903
DATE RUN: 02 22 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
347.	525.	838.	711.			893.	794.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	2000	19.	GOOD					600.	17.2
HOT TRANSIENT	1.	0	0	800.	19.5	GOOD					600.	17.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.61	29.61	29.62		29.63
SAMPLING TIME - SEC	506	867	506		764
DISTANCE TRAVELLED- MILES	3.581	3.909	3.565		9.959
DILUTION FACTOR	6.21	13.20	9.12		6.53
VOLUME - VMIX (CU FT)	2602.16	4456.01	2602.49		3932.70
FUEL ECONOMY -MILES/GAL	14.56	15.16	16.25	15.31	21.29
FUEL ECONOMY - KM/LITER	6.19	6.44	6.91	6.51	9.05

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.79	1.74	0.64	0.40	1.21	0.75	1.24	0.77	0.33	0.21
CARBON MONOXIDE	40.32	25.06	4.15	2.58	13.90	8.64	14.24	8.85	3.32	2.07
NOX - NO2	1.54	0.96	0.51	0.31	0.86	0.54	0.81	0.51	0.78	0.48
NOX CORRECTED	1.77	1.10	0.58	0.36	0.99	0.62	0.94	0.58	0.90	0.56
CARBON DIOXIDE	529.32	328.97	569.21	353.76	513.06	318.87	545.74	339.18	404.92	251.66

	MG/MI	MG/KM
ALDEHYDE	185.24	115.13
HYDROGEN SULFIDE	LESS THAN 0.44	0.27

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120911
DATE RUN: 02 13 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
338.	579.	944.	578.			1023.	950.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1700	17.8	GOOD					500.	16.
HOT TRANSIENT	1.5	0.	0.	550.	16.8	GOOD					500.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.61		29.60		29.60				29.59	
SAMPLING TIME - SEC	506		867		507				764	
DISTANCE TRAVELLED- MILES	3.559		3.907		3.535				9.933	
DILUTION FACTOR	7.40		11.64		8.07				5.63	
VOLUME - VMIX (CU FT)	2599.32		4454.48		2604.40				3926.73	
FUEL ECONOMY -MILES/GAL	13.10		13.41		14.20		13.55		18.29	
FUEL ECONOMY - KM/LITER	5.57		5.70		6.04		5.76		7.78	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.36	1.47	0.40	0.25	1.13	0.70	1.00	0.62	0.20	0.13
CARBON MONOXIDE	50.40	31.32	6.79	4.22	24.10	14.98	20.42	12.69	1.81	1.12
NOX - NO2	1.60	0.99	0.61	0.38	0.89	0.55	0.89	0.55	0.94	0.58
NOX CORRECTED	1.91	1.19	0.73	0.45	1.06	0.66	1.06	0.66	1.12	0.70
CARBON DIOXIDE	581.95	361.68	640.99	398.38	575.37	357.59	611.12	379.81	475.31	295.41
							MG/MI	MG/KM		
ALDEHYDE							218.35	135.71		
HYDROGEN SULFIDE							LESS THAN 0.47	0.29		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 120912
DATE RUN: 02 20 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K473RH156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 103 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
338.	593.	931.	592.			972.	898.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	2100	18.9	GOOD					500.	16.2
HOT TRANSIENT	1.	0	0	600.	17.1	GOOD					550.	15.9

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.69	29.69	29.68		29.68
SAMPLING TIME - SEC	506	867	506		764
DISTANCE TRAVELLED- MILES	3.548	3.909	3.534		9.994
DILUTION FACTOR	7.16	11.16	7.94		5.63
VOLUME - VMIX (CU FT)	2606.25	4470.52	2608.50		3938.16
FUEL ECONOMY -MILES/GAL	12.59	12.79	13.92	13.03	18.34
FUEL ECONOMY - KM/LITER	5.35	5.44	5.92	5.54	7.80

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	3.19	1.98	0.38	0.24	1.18	0.73	1.17	0.73	0.19	0.12
CARBON MONOXIDE	63.79	39.65	6.70	4.16	23.75	14.76	22.99	14.29	2.01	1.25
NOX - NO2	1.64	1.02	0.65	0.40	0.94	0.58	0.93	0.58	1.08	0.67
NOX CORRECTED	1.89	1.18	0.75	0.46	1.08	0.67	1.07	0.67	1.25	0.77
CARBON DIOXIDE	585.40	363.83	672.73	418.10	587.96	365.42	631.92	392.74	473.78	294.46

		MG/MI	MG/KM
ALDEHYDE		145.26	90.28
HYDROGEN SULFIDE	LESS THAN	0.46	0.28

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 121101
DATE RUN: 02 14 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 162 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
344.	537.	1079.	773.	1241.	1067.	1290.	1181.	1162.	1054.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	2000	19.2	GOOD					600.	17.
HOT TRANSIENT	1.	0	0	800.	18.5	M					600.	17.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.47		29.46		29.44				29.43		29.44		29.43	
SAMPLING TIME - SEC	506		867		506				764		1398		600	
DISTANCE TRAVELLED- MILES	3.559		3.865		3.565				9.893		13.094		1.233	
DILUTION FACTOR	8.51		13.01		7.89				5.88		6.74		11.46	
VOLUME - VMIX (CU FT)	2585.69		4433.35		2583.30				3905.44		7194.31		3064.72	
FUEL ECONOMY -MILES/GAL	15.12		14.84		14.02		14.66		19.06		15.75		6.01	
FUEL ECONOMY - KM/LITER	6.43		6.31		5.96		6.23		8.11		6.70		2.55	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.95	1.21	0.69	0.43	3.00	1.86	1.58	0.98	0.45	0.28	1.33	0.83	22.93	14.25
CARBON MONOXIDE	32.65	20.29	32.24	20.04	74.61	46.37	43.91	27.29	28.68	17.82	60.03	37.31	312.45	194.19
NOX - NO2	0.88	0.55	0.23	0.14	0.24	0.15	0.37	0.23	0.18	0.11	0.21	0.13	0.22	0.14
NOX CORRECTED	1.49	0.93	0.38	0.24	0.41	0.26	0.62	0.38	0.30	0.18	0.35	0.22	0.38	0.24
CARBON DIOXIDE	521.62	324.19	537.10	333.81	497.85	309.42	523.17	325.16	412.81	256.56	457.50	284.34	893.75	555.47
							MG/MI	MG/KM						
ALDEHYDE							253.11	157.31						
HYDROGEN SULFIDE							16.19	10.06						
											MG/MI	MG/KM		
PARTICULATE											18.51	11.64		
SULFATE											0.63	0.39		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 121102
DATE RUN: 02 19 79
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4Z38H156902 DRIVER: SWANTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 160 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
327.	644.	1006.	640.	1156.	963.	1136.	1022.	1037.	969.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1675	17.5	GOOD	STA.	HES. H.			560.	16.8
HOT TRANSIENT	1.	0.	0.	680.		GOOD					530.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR DRIVEABILITY.STALL ON FIRST DECEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.63	29.63	29.63		29.63	29.63	29.63
SAMPLING TIME - SEC	505	866	505		765	1396	600
DISTANCE TRAVELLED- MILES	3.557	3.909	3.554		9.798	13.137	1.233
DILUTION FACTOR	7.36	11.34	7.68		6.54	6.73	13.44
VOLUME - VMIX (CU FT)	2594.35	4458.20	2594.64		3935.40	7234.67	3086.10
FUEL ECONOMY -MILES/GAL	12.97	12.94	13.54	13.10	20.86	15.68	7.04
FUEL ECONOMY - KM/LITER	5.51	5.50	5.76	5.57	8.87	6.67	2.99

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	4.65	2.89	0.52	0.32	1.39	0.86	1.60	1.00	0.31	0.19	0.90	0.56	6.78	4.21
CARBON MONOXIDE	72.52	45.07	21.71	13.49	36.48	22.67	36.13	22.45	8.55	5.31	36.24	22.52	189.42	117.72
NOX - NO2	0.96	0.60	0.43	0.27	0.64	0.40	0.60	0.37	0.32	0.20	0.45	0.28	0.33	0.21
NOX CORRECTED	1.59	0.99	0.72	0.45	1.06	0.66	0.99	0.62	0.53	0.33	0.75	0.46	0.56	0.35
CARBON DIOXIDE	546.63	339.73	640.74	398.22	584.92	363.53	606.31	376.82	405.29	251.89	498.54	309.84	925.27	575.06

	MG/MI	MG/KM
ALDEHYDE	150.19	93.34
HYDROGEN SULFIDE	LESS THAN 0.46	0.29

	MG/MI	MG/KM
PARTICULATE	38.42	24.00
SULFATE	0.54	0.34

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 121111
DATE RUN: 02 15 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: WARD FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 172 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
324.	652	1100.	648.	1220.	1049.	1269.	1135.	1141.	996.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1600	17.	GOOD	STA				500.	15.0
HOT TRANSIENT	1.5	0	1	550.	15.2	M					500.	15.1

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: STALL ON 2MIN. IDLE. STALL ON INITIAL HOT IDLE.NEAR STALLS ON NYCC.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.19		29.19		29.20				29.20		29.20		29.20	
SAMPLING TIME - SEC	506		867		507				764		1397		600	
DISTANCE TRAVELLED- MILES	3.601		3.970		3.585				9.915		13.224		1.214	
DILUTION FACTOR	7.04		10.19		6.70				5.07		6.09		10.04	
VOLUME - VMIX (CU FT)	2562.41		4391.21		2572.00				3872.74		7132.85		3041.50	
FUEL ECONOMY -MILES/GAL	12.77		12.03		12.03		12.17		16.60		14.51		5.23	
FUEL ECONOMY - KM/LITER	5.43		5.11		5.11		5.18		7.06		6.17		2.22	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.34	1.45	0.59	0.37	3.84	2.39	1.83	1.14	0.26	0.16	0.99	0.62	33.76	20.98
CARBON MONOXIDE	63.67	39.57	47.91	29.77	105.81	65.76	66.79	41.51	28.38	17.64	60.17	37.39	471.74	293.19
NOX - NO2	0.74	0.46	0.27	0.17	0.27	0.17	0.37	0.23	0.24	0.15	0.26	0.16	0.25	0.16
NOX CORRECTED	1.35	0.84	0.50	0.31	0.50	0.31	0.68	0.42	0.44	0.28	0.47	0.29	0.46	0.29
CARBON DIOXIDE	578.19	359.35	650.88	404.53	549.60	341.58	608.62	378.26	481.98	299.55	505.71	314.30	824.86	512.65
							MG/MI	MG/KM						
ALDEHYDE							205.24	127.56						
HYDROGEN SULFIDE					LESS THAN		0.47	0.29						
PARTICULATE											MG/MI	MG/KM		
SULFATE											13.25	8.30		
											0.32	0.20		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 121112
DATE RUN: 02 16 79 AIR CONDITIONER USED
CAR: 1978 BUICK V6 TURBOCHARGE VIN: 4K4738H156902 DRIVER: SWARTZLANDER FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 160 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3240 LB ENGINE DISPLACEMENT: 3.78 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
330.	629.	1056.	626.	1159.	1022.	1209.	1022.	1107.	992.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1600	16.9	GOOD					520.	15.3
HOT TRANSIENT	1.	0.	0.	850.	16.	GOOD					520.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.VERY POOR DRIVEABILITY ON SET AND NYCC. CAN NOT FOLLOW TRACE

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.41		29.41		29.41				29.41		29.41		29.41	
SAMPLING TIME - SEC	505		867		505				759		1456		600	
DISTANCE TRAVELLED- MILES	3.578		3.934		3.576				9.835		13.215		1.254	
DILUTION FACTOR	7.27		10.23		7.01				5.13		6.06		11.74	
VOLUME - VMIX (CU FT)	2576.39		4424.86		2574.69				3878.15		7178.18		3060.06	
FUEL ECONOMY -MILES/GAL	12.97		11.79		12.50		12.21		16.60		14.28		6.27	
FUEL ECONOMY - KM/LITER	5.52		5.01		5.32		5.19		7.06		6.07		2.66	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.12	1.31	0.53	0.33	1.89	1.17	1.22	0.76	0.36	0.22	0.95	0.59	5.34	3.32
CARBON MONOXIDE	50.94	31.66	35.80	22.25	62.80	39.03	46.23	28.73	13.86	8.61	39.50	24.55	215.25	133.78
NOX - NO2	1.05	0.66	0.34	0.21	0.42	0.26	0.51	0.32	0.47	0.29	0.47	0.29	0.40	0.25
NOX CORRECTED	1.76	1.09	0.57	0.36	0.71	0.44	0.85	0.53	0.78	0.48	0.78	0.49	0.67	0.42
CARBON DIOXIDE	588.22	365.58	684.62	425.49	595.70	370.23	640.74	398.22	504.55	313.58	548.24	340.74	1041.83	647.50
							MG/MI	MG/KM						
ALDEHYDE							198.19	123.17						
HYDROGEN SULFIDE						LESS THAN	0.44	0.28						
PARTICULATE											MG/MI	MG/KM		
SULFATE											12.54	7.84		
											0.20	0.12		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130001
DATE RUN: 04 09 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LH FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
169.	269.	653.	515.	591.	491.	513.	462.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	13.	0	1.	1900	17.5	POOR	STA.	STA.	STA.	STA.	2100	20.0
HOT TRANSIENT	1.	0	0	1600	21.0	GOOD					650.	18.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FAIR STARTS.POOR COLD DRIVEABILITY.VERY HARD TO SHIFT WITH STIFF GEARBOX
SLIGHT MISSING AFTER ENGINE WARMED UP. SEVERE MISSING DURING SET AND
HFET. INITIAL COLD ACCELERATIONS VERY DIFFICULT WITH FOUR STALLS.
BATTERY BOOSTER REQUIRED FOR INITIAL START.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	28.53	28.53	28.53		28.53	28.52
SAMPLING TIME - SEC	533	867	506		765	1398
DISTANCE TRAVELLED- MILES	3.618	4.047	3.615		10.081	13.406
DILUTION FACTOR	8.12	16.24	12.43		10.11	11.70
VOLUME - VMIX (CU FT)	2638.10	4288.10	2504.07		3786.80	6966.57
FUEL ECONOMY -MILES/GAL	13.80	19.36	22.60	18.56	33.60	28.27
FUEL ECONOMY - KM/LITER	5.87	8.23	9.61	7.89	14.28	12.02

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	6.92	4.30	0.25	0.15	0.45	0.28	1.65	1.03	0.14	0.09	0.24	0.15
CARBON MONOXIDE	64.98	40.39	0.95	0.59	2.99	1.86	14.50	9.01	0.18	0.11	1.93	1.20
NOX - NO2	3.20	1.99	1.50	0.93	3.31	2.06	2.34	1.45	1.79	1.11	2.00	1.25
NOX CORRECTED	2.42	1.50	1.14	0.71	2.50	1.56	1.76	1.10	1.35	0.84	1.51	0.94
CARBON DIOXIDE	482.47	299.86	429.88	267.17	364.20	226.35	422.89	262.83	248.32	154.33	292.15	181.57

	MG/MI	MG/KM
ALDEHYDE	85.31	53.02
HYDROGEN SULFIDE	LESS THAN 0.37	0.23

	MG/MI	MG/KM
PARTICULATE	6.49	4.06
SULFATE	0.14	0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130002
DATE RUN: 04 10 79
CAR: DATSUN PROTOTYPE VIN: KMLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 7 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
165.	276.	665.	517.	589.	490.	504.	466.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	8.	0	2.	1900	18.0	POOR	STA.	STA.	STA.	HES. M.	1950	20.0
HOT TRANSIENT	1.	0	0	1700	21.8	GOOD					700.	19.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FAIR STARTS.POOR COLD DRIVEABILITY.NO POWER ON EARLY ACCELS.WITH 3 STALL
MODERATE TO HEAVY MISSING ON REMAINDER OF TEST WITH WARMED UP ENGINE.
VERY DIFFICULT GEAR SHIFTING WITH COLD GEAR BOX.
BATTERY BOOSTER REQUIRED FOR INITIAL START.

ANALYTICAL RESULTS
FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.28	29.29	29.30		29.31	29.31
SAMPLING TIME - SEC	559	866	506		764	1398
DISTANCE TRAVELLED- MILES	3.638	4.049	3.634		10.089	13.428
DILUTION FACTOR	8.80	16.66	12.80		10.43	12.17
VOLUME - VMIX (CU FT)	2837.78	4403.41	2572.51		3884.75	7161.20
FUEL ECONOMY -MILES/GAL	13.93	19.38	22.60	18.61	33.58	28.47
FUEL ECONOMY - KM/LITER	5.92	8.24	9.61	7.91	14.28	12.10

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.99	3.72	0.29	0.18	0.53	0.33	1.51	0.94	0.19	0.12	0.19	0.12
CARBON MONOXIDE	60.25	37.45	0.62	0.39	2.54	1.58	13.27	8.25	0.16	0.10	1.33	0.83
NOX - NO2	3.45	2.15	1.24	0.77	3.07	1.91	2.18	1.36	1.86	1.16	2.02	1.26
NUX CORRECTED	2.61	1.62	0.94	0.58	2.32	1.44	1.65	1.03	1.41	0.87	1.53	0.95
CARBON DIOXIDE	487.18	302.78	429.91	267.19	364.52	226.55	423.93	263.48	248.33	154.34	291.25	181.01

	MG/MI	MG/KM
ALDEHYDE	100.83	62.66
HYDROGEN SULFIDE	LESS THAN 0.40	0.25
PARTICULATE	4.39	2.75
SULFATE	0.10	0.06

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130201
DATE RUN: 04 06 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 9 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
122.	292.	638.	498.			535.	494.	507.	490.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	1.	2000	18.5	FAIR	STA.	HES. H.	STU. H		2000	20.5
HOT TRANSIENT	1.	0.	0.	650.	20.	GOOD					700.	20.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY.VERY STIFF GEAR BOX. HARD TO SHIFT.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.25	29.25	29.25		29.25	29.25
SAMPLING TIME - SEC	505	871	506		764	599
DISTANCE TRAVELLED- MILES	3.704	4.116	3.687		10.291	1.309
DILUTION FACTOR	9.05	17.50	13.51		10.11	26.46
VOLUME - VMIX (CU FT)	2587.16	4398.14	2566.64		3882.85	3043.14
FUEL ECONOMY -MILES/GAL	16.00	20.77	24.30	20.33	33.19	14.86
FUEL ECONOMY - KM/LITER	6.80	8.83	10.33	8.64	14.11	6.32

	COLD G/MI	COLD G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT G/MI	HOT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	3.73	2.32	0.23	0.14	0.34	0.21	0.97	0.61	0.11	0.07	0.58	0.36
CARBON MONOXIDE	40.83	25.37	1.25	0.78	1.80	1.12	9.46	5.88	0.34	0.21	3.09	1.92
NOX - NO2	2.96	1.84	0.92	0.57	2.15	1.34	1.66	1.03	1.82	1.13	1.97	1.22
NOX CORRECTED	2.25	1.40	0.70	0.43	1.64	1.02	1.27	0.79	1.39	0.86	1.50	0.93
CARBON DIOXIDE	447.06	277.85	400.18	248.71	340.36	211.53	393.61	244.63	251.18	156.11	556.31	345.75

	MG/MI	MG/KM
ALDEHYDE	162.18	100.80
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130202
DATE RUN: 04 11 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 10 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
191.	300.	618.	504.			538.	485.	500.	485.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1900	18.5	GOOD	STA.				2000	20.5
HOT TRANSIENT	1.	0	0	650.	20.0	GOOD					700.	19.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY.NO POWER ON EARLY ACCELS.MOD.TO HEAVY
MISSING WITH WARMED UP ENGINE.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.47	29.48	29.47		29.48	29.48
SAMPLING TIME - SEC	511	867	506		765	600
DISTANCE TRAVELLED- MILES	3.589	4.019	3.651		10.177	1.242
DILUTION FACTOR	9.56	17.53	13.75		10.43	27.51
VOLUME - VMIX (CU FT)	2615.15	4430.46	2586.83		3912.47	3067.46
FUEL ECONOMY -MILES/GAL	16.22	19.91	24.32	19.97	33.65	14.61
FUEL ECONOMY - KM/LITER	6.90	8.46	10.34	8.49	14.31	6.21

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	4.40	2.74	0.27	0.17	0.44	0.28	1.16	0.72	0.14	0.09	0.85	0.53
CARBON MONOXIDE	41.91	26.05	0.77	0.48	2.26	1.40	9.52	5.92	0.16	0.10	3.04	1.89
NOX - NO2	3.29	2.04	1.00	0.62	2.12	1.32	1.77	1.10	1.73	1.08	2.07	1.29
NOX CORRECTED	2.52	1.57	0.77	0.48	1.63	1.01	1.36	0.84	1.33	0.83	1.59	0.99
CARBON DIOXIDE	436.06	271.01	418.23	259.93	339.05	210.72	400.37	248.83	247.94	154.09	565.32	351.35

	MG/MI	MG/KM
ALDEHYDE	80.41	49.97
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPLRATURE ON VEHICLE EMISSIONS AND PERFORMANCL FACTORS

TEST NU.: 130401
DATE RUN: 04 05 79
CAR: DATSUN PRUTUTYPF VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 40 DLG F HUMIDITY: 20 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
138.	299.	582.	515.	607.	525.	542.	502.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1800	17.3	GOOD					2150	21.
HOT TRANSIENT	1.	0	0	650.	20.	GOOD					700.	20.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.TRACE MISSING ON C.T. MODERATE ON S.AND HT.
DIFFICULT TO SHIFT ON EARLY GEAR CHANGES HECAUSE OF STIFF GEAR BOX.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.16	29.17	29.18		29.19	29.18
SAMPLING TIME - SEC	506	868	506		764	1397
DISTANCE TRAVELLED- MILES	3.647	4.048	3.693		10.225	13.563
DILUTION FACTOR	10.59	19.53	14.32		10.59	12.85
VOLUME - VMIX (CU FT)	2558.89	4393.21	2564.04		3871.67	7126.63
FUEL ECONOMY -MILES/GAL	18.86	23.32	26.17	22.89	34.97	30.83
FUEL ECONOMY - KM/LITER	8.02	9.91	11.13	9.73	14.87	13.11

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	2.56	1.59	0.27	0.17	0.38	0.23	0.77	0.48	0.13	0.08	0.15	0.10
CARBON MONOXIDE	32.95	20.48	1.30	0.81	2.62	1.63	8.11	5.04	0.26	0.16	1.81	1.12
NOX - NO2	3.01	1.87	0.88	0.54	1.89	1.18	1.59	0.99	1.64	1.02	1.64	1.02
NOX CORRECTED	2.39	1.49	0.70	0.43	1.50	0.93	1.26	0.78	1.31	0.81	1.30	0.81
CARBON DIOXIDE	383.71	238.48	355.95	221.23	314.45	195.43	350.32	217.73	238.48	148.22	268.06	166.60

	MG/MI	MG/KM
ALDEHYDE	122.60	76.32
HYDROGEN SULFIDE	LESS THAN 0.38	0.24
PARTICULATE	10.71	6.69
SULFATE	0.15	0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130402
DATE RUN: 04 12 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 19 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
129.	256.	605.	512.	608.	525.	544.	503.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1500	18.5	GOOD	HES H	STU H			1700	20.3
HOT TRANSIENT	1.	0	0	650.	20.5	GOOD					690.	20.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. FAIR DRIVEABILITY. CAR WHEELS SLIPPING ON WET ROLLS ON FIRST TWO ACCELERATIONS. SLIGHT MISSING ON FIRST ACCEL. TEST LATER DECLARED INVALID BECAUSE OF WET ROLLS CAUSING SLIP ON ACCEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.36	29.35	29.36		29.35	29.36
SAMPLING TIME - SEC	506	865	507		764	1398
DISTANCE TRAVELLED- MILES	3.518	3.961	3.637		10.209	13.400
DILUTION FACTOR	10.57	18.99	16.10		10.76	13.10
VOLUME - VMIX (CU FT)	2576.73	4402.14	2585.20		3892.39	7170.88
FUEL ECONOMY -MILES/GAL	17.91	22.10	28.95	22.49	35.32	30.92
FUEL ECONOMY - KM/LITER	7.61	9.40	12.31	9.56	15.02	13.15

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	2.45	1.52	0.24	0.15	0.39	0.24	0.73	0.45	0.12	0.08	0.14	0.09
CARBON MONOXIDE	25.66	15.95	1.08	0.67	1.80	1.12	6.25	3.88	0.22	0.14	1.76	1.09
NOX - NO2	3.45	2.14	0.83	0.52	1.78	1.11	1.62	1.01	1.55	0.97	1.52	0.95
NOX CORRECTED	2.73	1.70	0.66	0.41	1.41	0.88	1.28	0.80	1.23	0.76	1.21	0.75
CARBON DIOXIDE	419.18	260.53	376.08	233.73	284.93	177.09	359.93	223.70	236.17	146.78	267.43	166.21

	COMPOSITE MG/MI	COMPOSITE MG/KM
ALDEHYDE	91.73	57.01
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

	MG/MI	MG/KM
PARTICULATE	5.41	3.39
SULFATE	0.14	0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130403
DATE RUN: 04 19 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 18 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
146.	275.	576.	508.	600.	517.	532.	491.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1600	18.3	GOOD	HES. H.	HES. H.	STU. T		2200	21.
HOT TRANSIENT	1.	0	0	600.	20.	GOOD					700.	19.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND HOT DRIVEABILITY. FAIR COLD DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.55		29.55		29.55				29.55		29.55	
SAMPLING TIME - SEC	506		868		506				764		1397	
DISTANCE TRAVELLED- MILES	3.660		4.021		3.649				10.175		13.512	
DILUTION FACTOR	10.45		19.54		14.36				10.95		13.25	
VOLUME - VMIX (CU FT)	2596.81		4445.41		2594.25				3920.63		7218.66	
FUEL ECONOMY -MILES/GAL	18.41		22.89		25.62		22.42		35.55		31.32	
FUEL ECONOMY - KM/LITER	7.83		9.73		10.89		9.53		15.11		13.32	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.25	1.40	0.26	0.16	0.42	0.26	0.71	0.44	0.13	0.08	0.14	0.09
CARBON MONOXIDE	30.79	19.14	1.32	0.82	2.07	1.29	7.56	4.70	0.18	0.11	1.59	0.99
NOX - NO2	3.15	1.96	0.87	0.54	2.01	1.25	1.65	1.02	1.61	1.00	1.56	0.97
NOX CORRECTED	2.49	1.55	0.68	0.43	1.58	0.98	1.30	0.81	1.27	0.79	1.23	0.76
CARBON DIOXIDE	399.07	248.02	362.60	225.36	321.99	200.12	359.06	223.16	234.66	145.84	264.20	164.20
							MG/MI	MG/KM				
ALDEHYDE							130.07	80.84				
HYDROGEN SULFIDE						LESS THAN	0.40	0.25			MG/MI	MG/KM
PARTICULATE											10.28	6.42
SULFATE											0.14	0.09

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130601
DATE RUN: 03 22 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 43 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
163.	285	616.	503.			602.	552.	564.	544.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL.	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0.	0.	2000	19.5	GOOD					1400	20.3
HOT TRANSIENT	1.	0	0	700.	19.8	GOOD					625.	19.3

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SLIGHT MISSING FELT DURING CYCLING.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.39	29.39	29.38		29.38	29.38
SAMPLING TIME - SEC	508	266	508		764	600
DISTANCE TRAVELLED- MILES	3.659	4.179	3.711		10.418	1.256
DILUTION FACTOR	11.00	19.36	14.55		10.49	27.30
VOLUME - VMIX (CU FT)	2586.17	4423.50	2590.84		3896.29	3058.08
FUEL ECONOMY -MILES/GAL	20.39	24.80	27.71	24.43	36.68	15.72
FUEL ECONOMY - KM/LITER	8.67	10.55	11.78	10.39	15.59	6.68

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.91	1.19	0.28	0.18	0.46	0.29	0.66	0.41	0.14	0.09	0.70	0.44
CARBON MONOXIDE	25.63	15.93	3.16	1.96	3.56	2.21	7.78	4.83	0.50	0.31	6.20	3.86
NOX - NO2	2.82	1.75	0.81	0.50	1.68	1.05	1.45	0.90	1.44	0.89	1.71	1.07
NOX CORRECTED	2.45	1.52	0.70	0.44	1.46	0.91	1.26	0.78	1.25	0.78	1.49	0.93
CARBON DIOXIDE	383.09	238.09	347.18	215.78	308.94	192.01	344.14	213.88	237.50	147.61	545.16	338.82

	MG/MI	MG/KM
ALDEHYDE	91.81	57.06
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130602
DATE RUN: 04 04 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 40 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
165.	282.	606.	495.			602.	530.	568.	546.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1900	19.8	GOOD					1500	20.5
HOT TRANSIENT	1.	0	0	600.	19.5	GOOD					725.	20.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. SLIGHT MISS ON COLD TEST ACCEL. GOOD HOT TEST DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.22	29.21	29.21		29.21	29.19
SAMPLING TIME - SEC	507	867	508		764	600
DISTANCE TRAVELLED- MILES	3.679	4.066	3.698		10.272	1.289
DILUTION FACTOR	11.34	19.41	14.26		10.58	26.21
VOLUME + VMIX (CU FT)	2570.70	4392.87	2572.90		3874.92	3036.51
FUEL ECONOMY -MILES/GAL	21.12	24.01	26.93	24.05	36.44	15.20
FUEL ECONOMY - KM/LITER	8.98	10.21	11.45	10.22	15.49	6.46

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.52	0.95	0.25	0.16	0.37	0.23	0.54	0.34	0.11	0.07	0.64	0.40
CARBON MONOXIDE	17.82	11.08	2.65	1.65	3.55	2.20	5.99	3.73	0.36	0.22	6.48	4.02
NOX - NO2	2.77	1.72	0.69	0.43	1.67	1.04	1.38	0.86	1.45	0.90	1.88	1.17
NOX CORRECTED	2.38	1.48	0.60	0.37	1.43	0.89	1.19	0.74	1.25	0.78	1.61	1.00
CARBON DIOXIDE	381.69	237.22	359.67	223.54	318.47	197.93	352.98	219.38	239.36	148.77	563.73	350.36
							MG/MI	MG/KM				
ALDEHYDE							153.88	95.64				
HYDROGEN SULFIDE						LESS THAN	0.41	0.26				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130701
DATE RUN: 03 23 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 58 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
198.	340.	625.	542.			626.	577.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1800	20.	GOOD					550.	17.
HOT TRANSIENT	1.	0.	0.	600.	19.8	GOOD					625.	19.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.SEE COMMENTS ON 13 060 1

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.06		29.06		29.06				29.06	
SAMPLING TIME - SEC	506		866		506				764	
DISTANCE TRAVELLED- MILES	3.710		4.086		3.723				10.404	
DILUTION FACTOR	12.15		19.42		14.77				10.42	
VOLUME - VMIX (CU FT)	2553.15		4369.96		2553.98				3855.98	
FUEL ECONOMY -MILES/GAL	23.05		24.25		28.34		24.96		36.47	
FUEL ECONOMY - KM/LITER	9.80		10.31		12.05		10.61		15.51	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.16	0.72	0.22	0.14	0.30	0.19	0.43	0.27	0.10	0.06
CARBON MONOXIDE	16.17	10.05	2.72	1.69	3.02	1.87	5.55	3.45	0.47	0.29
NOX - NO2	2.62	1.63	0.64	0.40	1.42	0.88	1.26	0.78	1.25	0.78
NOX CORRECTED	2.43	1.51	0.59	0.37	1.31	0.82	1.16	0.72	1.16	0.72
CARBON DIOXIDE	350.86	218.06	356.04	221.28	303.30	188.50	340.65	211.72	239.03	148.56
							MG/MI	MG/KM		
ALDEHYDE							73.31	45.56		
HYDROGEN SULFIDE							LESS THAN 0.41	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130702
DATE RUN: 04 03 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 57 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
183.	310.	612.	549.			585.	538.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1900	20.5	GOOD					590.	17.5
HOT TRANSIENT	1.	0	0	600.	20.0	GOOD					650.	20.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. MISSING ON COLD TEST ACCEL. GOOD HOT TEST DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.45	29.45	29.46		29.47
SAMPLING TIME - SEC	506	867	506		765
DISTANCE TRAVELLED- MILES	3.690	4.068	3.698		10.278
DILUTION FACTOR	12.35	19.51	14.66		10.59
VOLUME - VMIX (CU FT)	2589.01	4428.71	2589.33		3911.40
FUEL ECONOMY -MILES/GAL	22.97	23.94	27.52	24.60	36.13
FUEL ECONOMY - KM/LITER	9.77	10.18	11.70	10.46	15.36

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.26	0.78	0.21	0.13	0.27	0.17	0.44	0.27	0.10	0.06
CARBON MONOXIDE	12.41	7.71	1.73	1.08	2.57	1.60	4.14	2.57	0.34	0.21
NOX - NO2	2.57	1.60	0.64	0.40	1.43	0.89	1.25	0.78	1.30	0.81
NOX CORRECTED	2.37	1.47	0.59	0.37	1.32	0.82	1.15	0.72	1.20	0.74
CARBON DIOXIDE	357.70	222.31	362.42	225.25	313.22	194.66	348.10	216.35	241.48	150.08

	MG/MI	MG/KM
ALDEHYDE	121.29	75.38
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130801
DATE RUN: 03 26 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS, 1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
198.	341.	627.	564.	671	587	615.	569.	581.	525.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE RPM	1ST CYCLE VAC
COLD TRANSIENT	2.	0	0	1825	20.8	M					650.	17.3
HOT TRANSIENT	1.	0	0	575.	19.5	GOOD					650	19.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND HOT DRIVEABILITY. ENG MISSING ON FIRST COLD ACCEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.19	29.19	29.20		29.22	29.21	29.22
SAMPLING TIME - SEC	507	867	507		764	1396	600
DISTANCE TRAVELLED- MILES	3.677	4.031	3.665		10.186	13.549	1.285
DILUTION FACTOR	12.59	20.01	14.93		11.29	13.59	27.20
VOLUME - VMIX (CU FT)	2568.30	4390.38	2569.76		3875.15	7127.49	3042.77
FUEL ECONOMY -MILES/GAL	23.76	24.59	28.33	25.32	38.61	34.18	15.74
FUEL ECONOMY - KM/LITER	10.10	10.45	12.05	10.76	16.42	14.53	6.69

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	0.94	0.59	0.20	0.13	0.28	0.17	0.38	0.23	0.11	0.07	0.14	0.08	0.63	0.39
CARBON MONOXIDE	12.77	7.94	2.67	1.66	3.29	2.05	4.91	3.05	0.54	0.34	2.42	1.50	7.75	4.82
NOX - NO2	2.15	1.34	0.47	0.29	1.20	0.75	1.02	0.63	1.03	0.64	0.90	0.56	1.39	0.87
NOX CORRECTED	2.19	1.36	0.48	0.30	1.22	0.76	1.03	0.64	1.05	0.65	0.92	0.57	1.42	0.88
CARBON DIOXIDE	345.49	214.72	351.26	218.31	302.97	188.29	336.97	209.43	225.57	140.19	251.94	156.58	542.02	336.87

	MG/MI	MG/KM
ALDEHYDE	64.63	40.17
HYDROGEN SULFIDE	LESS THAN 0.40	0.25

	MG/MI	MG/KM
PARTICULATE	14.80	9.24
SULFATE	0.19	0.12

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130H02
DATE RUN: 04 02 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 82 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
191.	309.	626.	559.	670.	574.	604.	555.	582.	560.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1850	20.5	M					590.	17.9
HOT TRANSIENT	1.	0	0	590.	19.5	GOOD					700.	20.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.HEAVY MISSING ON FIRST ACCEL.AND MOD.TO HVY.MISSING THRU C.T

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.06		29.06		29.06				29.06		29.05		29.07	
SAMPLING TIME - SEC	505		867		506				764		1397		600	
DISTANCE TRAVELLED- MILES	3.646		4.013		3.647				10.187		13.553		1.256	
DILUTION FACTOR	12.68		19.95		15.00				11.10		13.23		28.31	
VOLUME - VMIX (CU FT)	2551.65		4370.22		2551.65				3854.70		7095.91		3026.90	
FUEL ECONOMY -MILES/GAL	23.69		24.51		28.22		25.23		38.15		33.09		16.15	
FUEL ECONOMY - KM/LITER	10.07		10.42		12.00		10.73		16.22		14.07		6.87	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.08	0.67	0.21	0.13	0.31	0.19	0.42	0.26	0.09	0.06	0.13	0.08	0.58	0.36
CARBON MONOXIDE	12.96	8.05	3.42	2.13	4.60	2.86	5.69	3.54	0.57	0.36	3.52	2.19	8.68	5.39
NOX - NO2	2.07	1.29	0.47	0.29	1.07	0.67	0.96	0.60	0.97	0.61	0.92	0.57	1.36	0.85
NOX CORRECTED	2.14	1.33	0.48	0.30	1.11	0.69	0.99	0.62	1.01	0.63	0.95	0.59	1.41	0.88
CARBON DIOXIDE	345.87	214.96	351.22	218.28	302.07	187.74	336.79	209.31	228.30	141.89	258.72	160.79	526.58	327.27
							MG/MI	MG/KM						
ALDEHYDE							180.86	112.41						
HYDROGEN SULFIDE						LESS THAN	0.40	0.25						
PARTICULATE											MG/MI	MG/KM		
SULFATE											19.15	11.95		
											0.25	0.15		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130901
DATE RUN: 03 27 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 99 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
198.	349.	643.	585.				

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1900	20.5	M					595.	18.0
HOT TRANSIENT	1.	0	0	600.	19.8						700.	20.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.POOR COLD DRIVEABILITY DUE TO HEAVY MISSING

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.50		29.50		29.52				29.52	
SAMPLING TIME - SEC	507		867		506				764	
DISTANCE TRAVELLED- MILES	3.700		4.074		3.674				10.250	
DILUTION FACTOR	13.08		20.27		14.81				10.91	
VOLUME - VMIX (CU FT)	2594.04		4437.77		2591.57				3916.44	
FUEL ECONOMY -MILES/GAL	24.42		24.92		27.61		25.48		37.09	
FUEL ECONOMY - KM/LITER	10.38		10.59		11.74		10.83		15.77	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.78	0.48	0.20	0.12	0.25	0.16	0.33	0.21	0.09	0.06
CARBON MONOXIDE	8.45	5.25	3.28	2.04	5.15	3.20	4.84	3.01	0.81	0.50
NOX - NO2	1.65	1.02	0.44	0.27	1.00	0.62	0.84	0.52	0.90	0.56
NOX CORRECTED	1.86	1.15	0.49	0.31	1.13	0.70	0.94	0.59	1.01	0.63
CARBON DIOXIDE	342.82	213.06	345.64	214.82	308.21	191.55	334.95	208.17	234.50	145.74
							MG/MI	MG/KM		
ALDEHYDE							241.78	150.27		
HYDROGEN SULFIDE							LESS THAN 0.37	0.23		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 130902
DATE RUN: 03 30 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
192.	328.	645.	570.			634.	566.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1100	19.	GOOD					590.	17.8
HOT TRANSIENT	1.	0.	0.	590.	20.G	OOD					700.	20.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: STARTS AND DRIVEABILITY GOOD. MISSING ON COLD ACCELS.NOT ON HOT.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.44		29.44		29.44				29.44	
SAMPLING TIME - SEC	505		868		506				764	
DISTANCE TRAVELLED- MILES	3.677		4.068		3.674				10.257	
DILUTION FACTOR	12.92		19.06		14.06				10.65	
VOLUME - VMIX (CU FT)	2584.43		4430.58		2585.56				3907.35	
FUEL ECONOMY -MILES/GAL	24.05		23.35		26.23		24.21		36.32	
FUEL ECONOMY - KM/LITER	10.23		9.93		11.15		10.29		15.44	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.78	0.48	0.20	0.13	0.26	0.16	0.34	0.21	0.09	0.06
CARBON MONOXIDE	9.12	5.67	3.89	2.42	4.61	2.86	5.15	3.20	0.67	0.42
NOX - NO2	1.59	0.99	0.46	0.29	0.98	0.61	0.83	0.52	0.83	0.52
NOX CORRECTED	1.90	1.18	0.55	0.34	1.17	0.73	1.00	0.62	0.99	0.62
CARBON DIOXIDE	347.29	215.85	368.25	228.87	325.82	202.50	352.49	219.08	239.74	149.00
							MG/MI	MG/KM		
ALDEHYDE							202.46	125.83		
HYDROGEN SULFIDE						LESS THAN	0.41	0.26		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 131101
DATE RUN: 03 28 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 158 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
209.	397.	677.	513.	758.	644.	738.	650.	663.	643.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1100	20.3	M					590.	18.3
HOT TRANSIENT	1.	0	0	590.	20.0	GOOD					600.	19.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS.SLIGHT MISS ON ACCELS OF C.T. 3 RERUNS ON SET AND 1 ON NYCC

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.66	29.65	29.65		29.58	29.61	29.55
SAMPLING TIME - SEC	507	866	511		764	1397	600
DISTANCE TRAVELLED- MILES	3.681	4.058	3.678		13.582	10.192	1.231
DILUTION FACTOR	13.71	24.80	14.71		10.41	12.07	25.39
VOLUME - VMIX (CU FT)	2607.77	4458.42	2630.25		3925.38	7230.04	3074.58
FUEL ECONOMY -MILES/GAL	25.38	30.68	27.05	28.43	46.75	22.21	13.84
FUEL ECONOMY - KM/LITER	10.79	13.04	11.50	12.09	19.88	9.44	5.89

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	0.81	0.50	0.23	0.14	0.45	0.28	0.41	0.25	0.08	0.05	1.09	0.68	3.00	1.87
CARBON MONOXIDE	6.86	4.26	6.60	4.10	10.97	6.82	7.84	4.87	17.59	10.93	46.65	28.99	57.25	35.58
NOX - NO2	1.10	0.68	0.22	0.13	0.73	0.45	0.54	0.33	0.40	0.25	0.29	0.18	0.41	0.25
NOX CORRECTED	1.80	1.12	0.35	0.22	1.20	0.75	0.88	0.55	0.66	0.41	0.48	0.30	0.67	0.42
CARBON DIOXIDE	331.67	206.13	274.36	170.51	305.06	189.60	294.40	182.97	159.42	99.08	317.54	197.35	533.00	331.26

	MG/MI	MG/KM
ALDEHYDE	103.34	64.23
HYDROGEN SULFIDE	LESS THAN 0.41	0.25

	MG/MI	MG/KM
PARTICULATE	42.78	26.71
SULFATE	0.55	0.34

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 131102
DATE RUN: 03 29 79
CAR: DATSUN PROTOTYPE VIN: KHLA10-004508 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 180 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): -- LB ENGINE DISPLACEMENT: 1.95 LITERS
DYNAMOMETER INERTIA WEIGHT: 2675 LB DYNAMOMETER LOADING: 9.6HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

LIGHT OFF*		FTP		SET		HFET		NYCC	
SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
197.	346.	683.	618.	737.	645.	716.	639.	663.	642.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1200	20.	GOOD					590.	18.
HOT TRANSIENT	1.	0	0	590.	19.5	GOOD					600.	19.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.MISS DETECTED ON COLD ACCELS NOT ON HOT.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.35	29.35	29.35		29.35	29.35	29.35
SAMPLING TIME - SEC	507	867	506		764	1397	600
DISTANCE TRAVELLED- MILES	3.650	4.039	3.676		10.245	13.597	1.238
DILUTION FACTOR	13.95	19.70	14.45		10.67	12.90	25.42
VOLUME - VMIX (CU FT)	2583.46	4416.81	2577.81		3892.39	7165.45	3054.56
FUEL ECONOMY -MILES/GAL	26.12	24.45	27.37	25.53	36.73	32.30	14.31
FUEL ECONOMY - KM/LITER	11.11	10.40	11.64	10.85	15.62	13.73	6.09

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	0.74	0.46	0.22	0.13	0.32	0.20	0.35	0.22	0.11	0.07	0.16	0.10	1.92	1.19
CARBON MONOXIDE	7.78	4.84	6.43	4.00	10.07	6.26	7.69	4.78	4.20	2.61	8.09	5.03	50.05	31.10
NOX - NO2	0.85	0.53	0.24	0.15	0.57	0.36	0.45	0.28	0.36	0.22	0.42	0.26	0.34	0.21
NOX CORRECTED	1.69	1.05	0.47	0.29	1.13	0.70	0.90	0.56	0.71	0.44	0.82	0.51	0.67	0.42
CARBON DIOXIDE	320.60	199.25	347.31	215.85	303.05	188.34	329.84	204.99	231.41	143.82	257.91	160.29	527.03	327.55

	MG/MI	MG/KM												
ALDEHYDE	45.12	28.04												
HYDROGEN SULFIDE	LESS THAN 0.40	0.25												
PARTICULATE											27.91	17.43		
SULFATE											0.38	0.24		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140001
DATE RUN: 05 24 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	75.	414.	1168.	559.	824.	589.	821.	676.
2ND CATALYST	678.	544.	544.	396.	524.	396.	452.	371.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	13.	0	0	2200	14.0	FAIR					1000	10.0
HOT TRANSIENT	1.	0	0	800.	18.0	GOOD					700.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: FAIR COLD START. GOOD HOT START. POOR COLD ACCELERATIONS

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.01	29.01	29.01		29.01	29.01
SAMPLING TIME - SEC	520	867	506		765	1397
DISTANCE TRAVELLED- MILES	3.688	4.088	3.681		10.184	13.501
DILUTION FACTOR	4.40	11.26	7.66		5.80	7.31
VOLUME - VMIX (CU FT)	2622.02	4356.73	2544.78		3847.00	7077.43
FUEL ECONOMY -MILES/GAL	7.54	13.24	13.69	11.56	18.82	17.13
FUEL ECONOMY - KM/LITER	3.21	5.63	5.82	4.92	8.00	7.28

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	17.01	10.57	0.48	0.30	0.45	0.28	3.84	2.39	0.19	0.12	0.28	0.17
CARBON MONOXIDE	180.85	112.40	2.20	1.37	5.53	3.44	39.53	24.57	1.01	0.63	1.49	0.92
NOX - NO2	1.18	0.73	1.85	1.15	3.06	1.90	2.04	1.27	1.61	1.00	1.55	0.97
NOX CORRECTED	0.89	0.55	1.39	0.87	2.30	1.43	1.53	0.95	1.21	0.75	1.17	0.73
CARBON DIOXIDE	770.95	479.15	626.87	389.60	600.96	373.50	649.26	403.52	442.38	274.94	485.30	301.62

	MG/MI	MG/KM
ALDEHYDE	187.93	116.80
HYDROGEN SULFIDE	LESS THAN 0.41	0.25
PARTICULATE	6.32	4.00
SULFATE	0.32	0.20

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140002
DATE RUN: 05 25 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 0 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	67.	355.	1164.	573.	825.	608.	816.	675.
2ND CATALYST	612.	600.	600.	441.	504.	378.	448.	374.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	6.	0	0	1800	14.5	FAIR					1000	10.5
HOT TRANSIENT	1.	0	0	900.	19.0	GOOD					700.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. POOR COLD HOT ACCELERATION.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	28.82	28.82	28.82		28.82	28.82
SAMPLING TIME - SEC	511	868	507		765	1397
DISTANCE TRAVELLED- MILES	3.637	4.014	3.563		10.042	13.395
DILUTION FACTOR	4.53	11.07	7.85		5.85	7.31
VOLUME - VMIX (CU FT)	2563.85	4335.77	2534.21		3826.10	7040.07
FUEL ECONOMY -MILES/GAL	7.87	12.94	13.71	11.59	18.90	17.25
FUEL ECONOMY - KM/LITER	3.35	5.50	5.83	4.93	8.03	7.33

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	11.95	7.43	0.52	0.32	0.46	0.29	2.84	1.77	0.18	0.11	0.26	0.16
CARBON MONOXIDE	165.60	102.92	2.20	1.37	3.05	1.89	35.83	22.27	1.05	0.65	1.51	0.94
NOX - NO2	1.23	0.77	1.37	0.85	2.97	1.85	1.77	1.10	1.62	1.00	1.57	0.97
NOX CORRECTED	0.93	0.58	1.04	0.64	2.24	1.39	1.34	0.83	1.22	0.76	1.18	0.73
CARBON DIOXIDE	765.10	475.51	641.51	398.70	603.94	375.35	656.70	408.14	440.60	273.83	481.85	299.47

	MG/MI	MG/KM
ALDEHYDE	128.28	79.73
HYDROGEN SULFIDE	LESS THAN 0.37	0.23

	MG/MI	MG/KM
PARTICULATE	9.24	5.80
SULFATE	0.28	0.18

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140201
DATE RUN: 05 23 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 6 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	75.	365.	1161.	548.			834.	653.	584.	499.
2ND CATALYST	451.	648.	660.	270.			469.	395.	354.	330.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	7.	0	0	1200	14.0	GOOD					1000	15.0
HOT TRANSIENT	1.	0	0	800.	18.5	GOOD					700.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND HOT TEST DRIVEABILITY. POOR COLD WOT ACCEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.25	29.25	29.25		29.25	29.24
SAMPLING TIME - SEC	511	867	506		765	600
DISTANCE TRAVELLED- MILES	3.691	3.981	3.651		10.218	1.255
DILUTION FACTOR	4.93	11.62	8.12		5.79	15.93
VOLUME - VMIX (CU FT)	2590.07	4397.59	2563.92		3882.72	3042.02
FUEL ECONOMY -MILES/GAL	8.59	13.10	14.31	12.07	18.71	8.30
FUEL ECONOMY - KM/LITER	3.65	5.57	6.09	5.13	7.96	3.53

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	11.30	7.02	0.56	0.35	0.54	0.33	2.78	1.73	0.18	0.11	1.93	1.20
CARBON MONOXIDE	138.40	86.02	3.12	1.94	3.41	2.12	31.19	19.38	1.03	0.64	19.56	12.16
NOX - NO2	1.24	0.77	1.11	0.69	2.55	1.59	1.53	0.95	1.66	1.03	0.69	0.43
NOX CURRECTED	0.93	0.58	0.84	0.52	1.92	1.19	1.15	0.72	1.25	0.78	0.52	0.32
CARBON DIOXIDE	720.46	447.77	632.00	392.79	577.55	358.95	635.45	394.94	445.00	276.57	970.89	603.41

	MG/MI	MG/KM
ALDEHYDE	179.81	111.75
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140202
DATE RUN: 05 30 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 20 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	68.	365.	1115.	622.			836.	696.	597.	503.
2ND CATALYST	442.	639.	639.	338.			445.	389.	311.	284.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	2100	17.2	GOOD					1050	14.8
HOT TRANSIENT	1.	0	0	850.	19.0	GOOD					750.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.27		29.27		29.26				29.26		29.26	
SAMPLING TIME - SEC	507		867		506				765		600	
DISTANCE TRAVELLED- MILES	3.709		4.073		3.664				10.214		1.258	
DILUTION FACTOR	5.21		12.12		8.24				5.86		16.15	
VOLUME - VMIX (CU FT)	2575.17		4401.48		2567.25				3882.23		3042.51	
FUEL ECONOMY -MILES/GAL	9.18		14.11		14.57		12.81		18.92		8.53	
FUEL ECONOMY - KM/LITER	3.90		6.00		6.19		5.45		8.05		3.63	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	4.63	2.88	0.34	0.21	0.63	0.39	1.30	0.81	0.17	0.10	1.62	1.01
CARBON MONOXIDE	91.87	57.10	0.91	0.57	2.15	1.33	19.89	12.36	0.29	0.18	17.27	10.73
NOX - NO2	2.39	1.49	1.99	1.23	2.74	1.70	2.27	1.41	3.20	1.99	1.89	1.17
NOX CORRECTED	1.82	1.13	1.51	0.94	2.08	1.29	1.73	1.07	2.43	1.51	1.43	0.89
CARBON DIOXIDE	752.25	467.53	590.64	367.09	568.95	353.60	617.91	384.03	441.16	274.18	948.15	589.28
							MG/MI	MG/KM				
ALDEHYDE							114.98	71.46				
HYDROGEN SULFIDE					LESS THAN		0.39	0.24				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140401
DATE RUN: 05 22 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 5 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS.1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	71.	349.	1138.	598.	832.	622.	835.	697.
2ND CATALYST	382.	678.	678.	376.	476.	375.	464.	395.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. ND = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	1500	18.8	GOOD					1000	15.0
HOT TRANSIENT	1.	0	0	750.	17.5	GOOD					650.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET	
BAROMETRIC PRESSURE	29.42		29.42		29.42				29.42		29.42	
SAMPLING TIME - SEC	508		867		506				765		1398	
DISTANCE TRAVELLED- MILES	3.734		4.092		3.655				10.175		13.400	
DILUTION FACTOR	5.77		12.55		8.74				6.32		8.12	
VOLUME - VMIX (CU FT)	2589.25		4422.14		2580.48				3902.26		7180.72	
FUEL ECONOMY -MILES/GAL	10.24		14.77		15.45		13.69		20.35		18.86	
FUEL ECONOMY - KM/LITER	4.35		6.28		6.57		5.82		8.65		8.02	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	5.46	3.39	0.39	0.24	0.53	0.33	1.47	0.91	0.14	0.09	0.22	0.13
CARBON MONOXIDE	74.11	46.06	1.56	0.97	4.16	2.59	17.14	10.66	0.71	0.44	1.22	0.76
NOX - NO2	1.48	0.92	0.79	0.49	2.00	1.24	1.26	0.78	1.56	0.97	1.37	0.85
NOX CORRECTED	1.11	0.69	0.59	0.37	1.51	0.94	0.94	0.59	1.17	0.73	1.03	0.64
CARBON DIOXIDE	683.27	424.66	563.01	349.91	533.31	331.46	579.70	360.28	409.53	254.53	441.06	274.12
							MG/MI	MG/KM				
ALDEHYDE							155.02	96.35				
HYDROGEN SULFIDE					LESS THAN		0.39	0.24			MG/MI	MG/KM
PARTICULATE											10.71	6.74
SULFATE											0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140402
DATE RUN: 05 31 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: WINTER

AMBIENT TEMP: 40 DEG F HUMIDITY: 8 GR/LB FUEL DENSITY: 0.707 G/ML FUEL % CARBON: 85.34
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	75.	366.	1119.	603.	830.	622.	800.	679.
2ND CATALYST	396.	672.	672.	325.	488.	360.	462.	380.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	4.	0	0	2000	17.5	GOOD					1000	14.9
HOT TRANSIENT	1.	0	0	800.	18.0	GOOD					700.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.35	29.36
SAMPLING TIME - SEC	508	867	506		765	1396
DISTANCE TRAVELLED- MILES	3.641	4.033	3.626		10.079	13.328
DILUTION FACTOR	5.30	12.45	8.32		6.01	7.64
VOLUME - VMIX (CU FT)	2585.76	4409.59	2577.86		3896.06	7112.05
FUEL ECONOMY -MILES/GAL	9.14	14.21	14.50	12.83	19.02	17.70
FUEL ECONOMY - KM/LITER	3.89	6.04	6.17	5.46	8.09	7.53

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM
HYDROCARBON	7.41	4.60	0.30	0.19	0.72	0.45	1.86	1.16	0.20	0.12	0.26	0.16
CARBON MUNOXIDE	112.98	70.22	1.28	0.79	5.37	3.34	25.17	15.64	0.72	0.45	1.55	0.96
NOX - NO2	1.27	0.79	1.78	1.11	2.44	1.52	1.86	1.15	2.95	1.83	2.16	1.34
NOX CORRECTED	0.97	0.60	1.36	0.84	1.86	1.15	1.41	0.88	2.24	1.39	1.65	1.02
CARBON DIOXIDE	714.15	443.85	585.74	364.04	566.20	351.90	606.67	377.05	438.26	272.38	469.44	291.76

	MG/MI	MG/KM
ALDEHYDE	116.09	72.15
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

	MG/MI	MG/KM
PARTICULATE	72.63	45.39
SULFATE	1.14	0.71

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140601
DATE RUN: 04 25 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 47 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	83	373	1005	601			851	754	616	587
2ND CATALYST	420	572	576	381			491	433	419	368

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.5	0	0	1500	18.5	GOOD					900.	15.5
HOT TRANSIENT	1.	1.	0	750.	18.	GOOD					700.	15.8

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	NYCC
BAROMETRIC PRESSURE	29.29	29.29	29.29		29.28	29.28
SAMPLING TIME - SEC	507	866	510		764	600
DISTANCE TRAVELLED- MILES	3.638	3.947	3.566		10.140	1.312
DILUTION FACTOR	6.72	12.92	8.77		5.96	15.73
VOLUME - VMIX (CU FT)	2573.30	4402.57	2591.04		3883.82	3047.88
FUEL ECONOMY -MILES/GAL	12.24	15.29	15.67	14.63	19.98	9.04
FUEL ECONOMY - KM/LITER	5.20	6.50	6.66	6.22	8.50	3.84

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.78	1.11	0.40	0.25	0.42	0.26	0.69	0.43	0.13	0.08	1.30	0.81
CARBON MONOXIDE	27.59	17.15	1.56	0.97	3.27	2.04	7.39	4.59	0.73	0.46	13.28	8.26
NOX - NO2	1.54	0.95	0.55	0.34	1.34	0.83	0.97	0.60	1.35	0.84	0.70	0.44
NOX CORRECTED	1.36	0.84	0.48	0.30	1.18	0.74	0.85	0.53	1.19	0.74	0.62	0.39
CARBON DIOXIDE	666.56	414.27	569.02	353.65	552.19	343.19	584.58	363.32	436.59	271.34	943.35	586.30

	MG/MI	MG/KM
ALDEHYDE	124.28	77.24
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140602
DATE RUN: 05 21 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 60 DEG F HUMIDITY: 42 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3160 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	72.	368.	998.	622.			851.	697.	616.	542.
2ND CATALYST	365.	570.	580.	393.			499.	429.	405.	368.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	2200	18.0	GOOD					900.	15.3
HOT TRANSIENT	2.	0	0	800.	18.2	GOOD					700.	15.5

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP											
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		NYCC	
BAROMETRIC PRESSURE	29.19		29.18		29.18				29.18		29.18	
SAMPLING TIME - SEC	509		867		507				765		600	
DISTANCE TRAVELLED- MILES	3.685		4.082		3.644				10.234		1.224	
DILUTION FACTOR	6.56		12.31		8.39				5.91		15.43	
VOLUME - VMIX (CU FT)	2576.54		4382.96		2563.58				3870.47		3031.47	
FUEL ECONOMY -MILES/GAL	12.14		15.24		15.55		14.56		20.14		8.40	
FUEL ECONOMY - KM/LITER	5.16		6.48		6.61		6.19		8.56		3.57	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	2.54	1.58	0.39	0.24	0.72	0.45	0.92	0.57	0.15	0.09	1.59	0.99
CARBON MONOXIDE	29.58	18.38	1.83	1.14	2.32	1.44	7.62	4.74	0.62	0.38	23.24	14.44
NOX - NO2	1.78	1.11	0.62	0.39	1.68	1.04	1.14	0.71	1.42	0.88	0.68	0.42
NOX CORRECTED	1.54	0.96	0.54	0.33	1.45	0.90	0.99	0.61	1.23	0.76	0.59	0.37
CARBON DIOXIDE	666.75	414.39	570.58	354.62	557.06	346.21	586.56	364.55	433.40	269.36	1000.22	621.64
							MG/MI	MG/KM				
ALDEHYDE							155.19	96.45				
HYDROGEN SULFIDE					LESS THAN		0.38	0.24				

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140701
DATE RUN: 04 26 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 70 DEG F HUMIDITY: 56 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	76.	359	994	608			858	699
2ND CATALYST	314	591	633	399			490	441

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1875	16.5	GOOD					800.	16.2
HOT TRANSIENT	1.	0	0	800.	18.0	GOOD					700.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.05		29.05		29.04				29.04	
SAMPLING TIME - SEC	506		867		508				765	
DISTANCE TRAVELLED- MILES	3.648		4.081		3.694				10.277	
DILUTION FACTOR	6.89		12.79		8.49				5.96	
VOLUME - VMIX (CU FT)	2551.31		4366.46		2556.84				3851.16	
FUEL ECONOMY -MILES/GAL	12.70		15.77		15.91		15.07		20.43	
FUEL ECONOMY - KM/LITER	5.40		6.71		6.76		6.41		8.69	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.03	0.64	0.37	0.23	0.54	0.34	0.55	0.34	0.13	0.08
CARBON MONOXIDE	17.21	10.70	1.64	1.02	2.99	1.86	5.17	3.21	0.66	0.41
NOX - NO2	1.35	0.84	0.62	0.38	1.44	0.90	0.99	0.61	1.30	0.81
NOX CORRECTED	1.24	0.77	0.56	0.35	1.32	0.82	0.91	0.56	1.19	0.74
CARBON DIOXIDE	658.98	409.56	551.39	342.69	544.03	338.12	571.23	355.02	427.15	265.47
							MG/MI	MG/KM		
ALDEHYDE							117.81	73.22		
HYDROGEN SULFIDE							LESS THAN 0.37	0.23		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140702
DATE RUN: 05 18 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: LR24867

AMBIENT TEMP: 70 DEG F HUMIDITY: 54 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	69.	384.	978.	620.			859.	766.
2ND CATALYST	320.	586.	586.	396.			496.	429.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	2350	19.0	GOOD	HES M	HES M	HES M	HES M	850.	16.9
HOT TRANSIENT	1.	0	0	850.	18.5	GOOD					800.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS. SLIGHT PROBLEMS WITH COLD ACCEL.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	COLD STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.55	29.55	29.55		29.55
SAMPLING TIME - SEC	509	867	504		765
DISTANCE TRAVELLED- MILES	3.643	4.027	3.630		10.214
DILUTION FACTOR	6.64	12.91	8.51		6.03
VOLUME - VMIX (CU FT)	2608.73	4441.44	2584.31		3920.20
FUEL ECONOMY -MILES/GAL	11.95	15.45	15.43	14.57	20.10
FUEL ECONOMY - KM/LITER	5.08	6.57	6.56	6.20	8.55

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	COLD STABILIZED G/MI	COLD STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	4.45	2.76	0.38	0.24	0.56	0.35	1.26	0.78	0.17	0.11
CARBON MONOXIDE	35.00	21.75	1.73	1.08	6.57	4.08	9.83	6.11	1.16	0.72
NOX - NO2	1.75	1.09	0.63	0.39	1.48	0.92	1.09	0.68	1.30	0.81
NOX CORRECTED	1.60	0.99	0.57	0.35	1.35	0.84	0.99	0.61	1.18	0.74
CARBON DIOXIDE	663.70	412.49	562.64	349.68	555.44	345.21	581.33	361.30	433.16	269.21

	MG/MI	MG/KM
ALDEHYDE	155.11	96.40
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140601
DATE RUN: 04 27 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9H158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 77 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	96.	426.	956.	619.	863.	647.	861.	727.	629.	588.
2ND CATALYST	289.	564.	586.	411.	550.	436.	497.	448.	471.	378.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	1150	19.5	GOOD					800.	16.3
HOT TRANSIENT	1.	0.	0.	700.	16.	POOR					700.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: IDLE ROUGH AT START OF BAG 3. DRIVEABILITY GOOD OTHERWISE.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	28.98	28.98	28.98		28.98	28.98	28.98
SAMPLING TIME - SEC	505	867	507		765	1398	538
DISTANCE TRAVELLED- MILES	3.725	4.117	3.707		10.313	13.737	1.328
DILUTION FACTOR	7.08	12.56	8.34		6.13	7.74	15.83
VOLUME - VMIX (CU FT)	2540.05	4357.71	2548.13		3847.26	7082.73	3010.13
FUEL ECONOMY -MILES/GAL	13.33	15.51	15.63	15.04	20.94	19.11	9.22
FUEL ECONOMY - KM/LITER	5.67	6.59	6.65	6.39	8.90	8.13	3.92

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	0.80	0.50	0.31	0.19	0.59	0.37	0.49	0.30	0.11	0.07	0.19	0.12	1.26	0.79
CARBON MONOXIDE	14.54	9.03	1.40	0.87	4.88	3.03	5.02	3.12	0.66	0.41	1.47	0.91	16.60	10.32
NOX - NO2	1.37	0.85	0.58	0.36	1.18	0.74	0.90	0.56	1.23	0.77	1.05	0.65	0.66	0.41
NOX CORRECTED	1.38	0.86	0.59	0.36	1.20	0.74	0.91	0.57	1.24	0.77	1.06	0.66	0.67	0.41
CARBON DIOXIDE	631.34	392.38	561.54	349.00	550.58	342.19	572.83	356.02	416.81	259.05	455.16	282.89	919.68	571.58

	MG/MI	MG/KM
ALDEHYDE	129.99	80.79
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

	MG/MI	MG/KM
PARTICULATE	10.32	7.00
SULFATE	2.72	1.69

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140802
DATE RUN: 05 17 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9U158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 80 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	88.	397.	956.	620.	861.	653.	853.	736.	628.	561.
2ND CATALYST	292.	567.	578.	408.	534.	425.	494.	445.	429.	390.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	950.	20.5	GOOD	STA	HES H			850.	17.0
HOT TRANSIENT	1.	0 0		800.	18.0	FAIR					700.	16.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY AFTER STALL ON C.T. FAIR HOT TEST IDLES.
ENGINE DIESELED AFTER SHUT DOWN ON H.F.E.T.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.71		29.71		29.71				29.71		29.71		29.70	
SAMPLING TIME - SEC	509		866		507				765		1397		600	
DISTANCE TRAVELLED- MILES	3.677		4.028		3.649				10.234		13.584		1.263	
DILUTION FACTOR	7.02		12.66		8.55				6.19		7.78		16.09	
VOLUME - VMIX (CU FT)	2615.95		4465.88		2610.52				3940.34		7249.65		3089.01	
FUEL ECONOMY -MILES/GAL	12.72		15.06		15.51		14.63		20.66		18.86		8.80	
FUEL ECONOMY - KM/LITER	5.41		6.40		6.59		6.22		8.78		8.02		3.74	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	3.24	2.01	0.35	0.22	0.60	0.37	1.01	0.63	0.15	0.09	0.22	0.14	1.28	0.79
CARBON MONOXIDE	23.63	14.68	1.93	1.20	7.34	4.56	7.85	4.88	1.57	0.98	1.61	1.00	14.81	9.21
NOX - NO2	1.71	1.07	0.60	0.38	1.41	0.88	1.05	0.65	1.24	0.77	1.09	0.67	0.69	0.43
NOX CORRECTED	1.76	1.09	0.62	0.38	1.45	0.90	1.08	0.67	1.27	0.79	1.11	0.69	0.71	0.44
CARBON DIOXIDE	640.79	398.25	577.13	358.69	551.16	342.55	583.16	362.44	420.85	261.56	461.13	286.60	967.72	601.44
							MG/MI	MG/KM						
ALDEHYDE							146.30	90.93						
HYDROGEN SULFIDE					LESS THAN		0.43	0.27			MG/MI	MG/KM		
PARTICULATE											17.35	11.95		
SULFATE											5.40	3.36		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140811
DATE RUN: 05 02 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 79 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	99.	441.	938.	633.	868.	655.	867.	732.	625.	588.
2ND CATALYST	282.	553.	561.	421.	561.	445.	494.	451.	469.	392.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1000	18.5	GOOD					800.	16.5
HOT TRANSIENT	1.	0	0	550.	14.5	FAIR					600.	14.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.52	29.52	29.52		29.51	29.51	29.51
SAMPLING TIME - SEC	505	867	507		765	1398	600
DISTANCE TRAVELLED- MILES	3.739	4.102	3.692		10.232	13.694	1.281
DILUTION FACTOR	7.09	12.32	8.31		6.04	7.55	15.67
VOLUME - VMIX (CU FT)	2589.30	4438.84	2594.41		3917.93	7207.63	3070.35
FUEL ECONOMY -MILES/GAL	13.21	15.00	15.33	14.68	20.27	18.53	8.72
FUEL ECONOMY - KM/LITER	5.61	6.38	6.52	6.24	8.62	7.88	3.71

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	1.04	0.64	0.35	0.22	0.62	0.38	0.56	0.35	0.12	0.08	0.21	0.13	1.29	0.80
CARBON MONOXIDE	16.09	10.00	1.52	0.95	8.45	5.25	6.38	3.97	0.67	0.42	2.10	1.30	16.70	10.38
NOX - NO2	1.61	1.00	0.68	0.42	1.31	0.81	1.04	0.65	1.37	0.85	1.18	0.74	0.75	0.46
NOX CORRECTED	1.64	1.02	0.69	0.43	1.33	0.83	1.06	0.66	1.40	0.87	1.21	0.75	0.76	0.47
CARBON DIOXIDE	634.49	394.34	580.19	360.59	556.01	345.56	584.79	363.45	430.49	267.55	468.47	291.16	973.32	604.92

	MG/MI	MG/KM
ALDEHYDE	207.76	129.12
HYDROGEN SULFIDE	LESS THAN 0.36	0.22
PARTICULATE	15.83	10.17
SULFATE	1.53	0.95

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140812
DATE RUN: 05 16 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 80 DEG F HUMIDITY: 78 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	107.	420.	954.	634.	874.	672.	858.	741.	636.	570.
2ND CATALYST	293.	563.	583.	413.	579.	468.	496.	445.	439.	398.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	2.	0	0	850.	19.	GOOD	STA.				850.	17.
HOT TRANSIENT	2.	0	0	700.	17.5	GOOD					600.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY AFTER STALL ON COLD ACCEL.
ENGINE DIESELED ON SHUTDOWN AFTER H.F.E.T.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET	SET	NYCC
BAROMETRIC PRESSURE	29.61	29.61	29.61		29.62	29.61	29.62
SAMPLING TIME - SEC	511	866	507		764	1398	600
DISTANCE TRAVELLED- MILES	3.663	3.974	3.653		10.244	13.591	1.249
DILUTION FACTOR	6.87	12.56	8.28		5.96	7.56	15.59
VOLUME - VMIX (CU FT)	2622.09	4444.91	2601.59		3927.93	7226.52	3078.00
FUEL ECONOMY -MILES/GAL	12.38	14.81	15.08	14.30	19.97	18.37	8.44
FUEL ECONOMY - KM/LITER	5.26	6.30	6.41	6.08	8.49	7.81	3.59

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM	SET G/MI	SET G/KM	NYCC G/MI	NYCC G/KM
HYDROCARBON	2.64	1.64	0.33	0.21	0.64	0.40	0.89	0.55	0.12	0.08	0.19	0.12	1.36	0.85
CARBON MONOXIDE	29.87	18.57	1.46	0.91	7.35	4.57	8.93	5.55	0.66	0.41	1.75	1.09	20.35	12.65
NOX - NO2	1.83	1.14	0.66	0.41	1.46	0.91	1.12	0.69	1.41	0.88	1.17	0.73	0.76	0.47
NOX CORRECTED	1.85	1.15	0.67	0.42	1.48	0.92	1.13	0.70	1.43	0.89	1.19	0.74	0.77	0.48
CARBON DIOXIDE	652.23	405.36	588.05	365.47	567.20	352.52	595.59	370.16	437.07	271.64	473.26	294.13	1000.76	621.98

	MG/MI	MG/KM
ALDEHYDE	143.32	89.07
HYDROGEN SULFIDE	LESS THAN 0.42	0.26

	MG/MI	MG/KM
PARTICULATE	16.56	11.01
SULFATE	3.34	2.07

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140901
DATE RUN: 05 03 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVEN: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 110 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3160 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	100.	429.	806.	625.			868.	720.
2ND CATALYST	241.	460.	601.	416.			504.	458.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1200	19.5	GOOD					800.	16.5
HOT TRANSIENT	1.	0	0	650.	15.5	FAIR					650.	15.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. FAIR HOT IDLE.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.18	29.18	29.17		29.17
SAMPLING TIME - SEC	506	867	507		765
DISTANCE TRAVELLED- MILES	3.718	4.075	3.684		10.310
DILUTION FACTOR	7.27	12.90	8.50		6.07
VOLUME - VMIX (CU FT)	2559.56	4388.57	2565.67		3871.22
FUEL ECONOMY -MILES/GAL	13.64	15.66	15.85	15.25	20.69
FUEL ECONOMY - KM/LITER	5.80	6.66	6.74	6.48	8.80

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	0.88	0.55	0.36	0.22	0.66	0.41	0.55	0.34	0.12	0.07
CARBON MONOXIDE	14.62	9.08	2.11	1.31	6.59	4.10	5.89	3.66	0.67	0.42
NOX - NO2	1.15	0.72	0.48	0.30	0.89	0.56	0.73	0.45	1.14	0.71
NOX CORRECTED	1.38	0.86	0.57	0.35	1.07	0.66	0.87	0.54	1.37	0.85
CARBON DIOXIDE	616.40	383.10	554.55	344.65	540.17	335.71	563.34	350.12	421.81	262.16

	MG/MI	MG/KM
ALDEHYDE	227.09	141.14
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140902
DATE RUN: 05 14 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 102 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	103.	435.	811.	613.			871.	726.
2ND CATALYST	239.	460.	584.	421.			516.	468.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1200	20.0	GOOD					800.	15.6
HOT TRANSIENT	1.	0	0	800.	17.2	FAIR					700.	15.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. SLIGHTLY ROUGH IDLE ON HOT CYCLE.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.36	29.36	29.36		29.36
SAMPLING TIME - SEC	504	867	507		765
DISTANCE TRAVELLED- MILES	3.683	4.036	3.654		10.210
DILUTION FACTOR	7.19	12.80	8.45		6.07
VOLUME - VMIX (CU FT)	2567.14	4412.98	2578.99		3892.61
FUEL ECONOMY -MILES/GAL	13.37	15.59	15.53	15.06	20.38
FUEL ECONOMY - KM/LITER	5.69	6.63	6.60	6.40	8.67

	COLD TRANSIENT G/MI	COLD TRANSIENT G/KM	STABILIZED G/MI	STABILIZED G/KM	HOT TRANSIENT G/MI	HOT TRANSIENT G/KM	COMPOSITE G/MI	COMPOSITE G/KM	HFET G/MI	HFET G/KM
HYDROCARBON	1.17	0.73	0.33	0.21	0.63	0.39	0.59	0.36	0.11	0.07
CARBON MONOXIDE	19.11	11.87	1.57	0.97	9.14	5.68	7.22	4.48	0.64	0.40
NOX - NO2	1.48	0.92	0.53	0.33	1.01	0.63	0.85	0.53	3.00	1.87
NOX CORRECTED	1.70	1.06	0.61	0.38	1.15	0.72	0.98	0.61	3.44	2.14
CARBON DIOXIDE	621.02	385.97	558.25	346.95	547.44	340.24	568.20	353.14	428.29	266.19

	MG/MI	MG/KM
ALDEHYDE	133.15	82.75
HYDROGEN SULFIDE	LESS THAN 0.39	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140911
DATE RUN: 05 04 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 105 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	76.	411.	827.	640.			885.	720.
2ND CATALYST	228.	467.	579.	435.			517.	473.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	2300	18.	GOOD					800.	16.3
HOT TRANSIENT	1.	0.	0.	650.	16.	GOOD					600.	14.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: COLD AND HOT IDLE GOOD. GOOD DRIVEABILITY.

ANALYTICAL RESULTS

FEDERAL TEST PROCEDURE FTP

	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	COMPOSITE	HFET
BAROMETRIC PRESSURE	29.28	29.28	29.28		29.28
SAMPLING TIME - SEC	505	868	506		765
DISTANCE TRAVELLED- MILES	3.718	4.124	3.699		10.338
DILUTION FACTOR	6.98	12.21	8.34		5.71
VOLUME - VMIX (CU FT)	2565.38	4405.82	2568.75		3886.33
FUEL ECONOMY -MILES/GAL	12.99	14.91	15.48	14.62	19.40
FUEL ECONOMY - KM/LITER	5.52	6.34	6.58	6.21	8.25

	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.66	0.41	0.32	0.20	0.39	0.24	0.41	0.25	0.11	0.07
CARBON MONOXIDE	12.07	7.50	1.71	1.06	7.45	4.63	5.37	3.34	0.78	0.48
NOX - NO2	1.24	0.77	0.64	0.40	1.22	0.76	0.92	0.57	1.40	0.87
NOX CORRECTED	1.44	0.90	0.74	0.46	1.42	0.88	1.07	0.66	1.64	1.02
CARBON DIOXIDE	653.17	405.95	583.44	362.61	552.63	343.46	589.35	366.29	449.68	279.48

	MG/MI	MG/KM
ALDEHYDE	159.54	99.15
HYDROGEN SULFIDE	LESS THAN 0.38	0.24

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 140912
DATE RUN: 05 11 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 90 DEG F HUMIDITY: 108 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	80.	422.	850.	635.			888.	702.
2ND CATALYST	228.	465.	566.	432.			535.	467.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED, NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0.	0.	2300	18.	GOOD					750.	15.8
HOT TRANSIENT	1.	0.	0.	700.	16.	FAIR					700.	15.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD DRIVEABILITY.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP									
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET	
BAROMETRIC PRESSURE	29.24		29.24		29.24				29.24	
SAMPLING TIME - SEC	506		868		506				762	
DISTANCE TRAVELLED- MILES	3.663		4.059		3.691				10.288	
DILUTION FACTOR	6.77		12.19		7.90				5.67	
VOLUME - VMIX (CU FT)	2573.90		4398.30		2567.15				3868.01	
FUEL ECONOMY -MILES/GAL	12.41		14.83		14.71		14.23		19.36	
FUEL ECONOMY - KM/LITER	5.28		6.30		6.25		6.05		8.23	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.04	0.65	0.35	0.22	0.65	0.41	0.57	0.36	0.13	0.08
CARBON MONOXIDE	25.52	15.86	1.76	1.09	11.21	6.96	9.17	5.70	1.11	0.69
NOX - NO2	1.54	0.96	0.52	0.32	1.15	0.72	0.90	0.56	1.22	0.76
NOX CORRECTED	1.83	1.14	0.62	0.38	1.37	0.85	1.07	0.66	1.45	0.90
CARBON DIOXIDE	662.14	411.52	586.62	364.59	575.68	357.78	599.05	372.31	450.08	279.73
							MG/MI	MG/KM		
ALDEHYDE							162.83	101.20		
HYDROGEN SULFIDE							LESS THAN 0.36	0.23		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 141101
DATE RUN: 05 07 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 190 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	99.	422.	850.	667.	904.	707.	868.	786.	665.	646.
2ND CATALYST	215.	384.	649.	448.	610.	499.	545.	493.	544.	429.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	950.	19.5	GOOD					800.	16.0
HOT TRANSIENT	1.	0	0	750.	15.5	GOOD					600.	14.2

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. ALDEHYDE RESULT ESTIMATED.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.31		29.31		29.31				29.31		29.31		29.31	
SAMPLING TIME - SEC	506		867		507				765		1399		600	
DISTANCE TRAVELLED- MILES	3.715		4.076		3.664				10.279		13.638		1.290	
DILUTION FACTOR	7.01		12.54		8.08				6.04		7.54		15.61	
VOLUME - VMIX (CU FT)	2571.71		4409.00		2575.65				3891.79		7161.97		3050.33	
FUEL ECONOMY -MILES/GAL	13.13		15.29		14.97		14.71		20.50		18.66		8.82	
FUEL ECONOMY - KM/LITER	5.58		6.50		6.36		6.25		8.72		7.93		3.75	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	0.96	0.60	0.47	0.29	0.64	0.40	0.62	0.38	0.18	0.11	0.28	0.17	1.91	1.19
CARBON MONOXIDE	20.80	12.93	1.56	0.97	16.76	10.41	9.61	5.97	1.76	1.09	5.56	3.46	32.79	20.38
NOX - NO2	0.68	0.43	0.36	0.23	0.53	0.33	0.47	0.29	0.37	0.23	0.54	0.33	0.39	0.24
NOX CORRECTED	1.49	0.93	0.79	0.49	1.16	0.72	1.03	0.64	0.80	0.49	1.17	0.73	0.85	0.53
CARBON DIOXIDE	631.20	392.29	568.70	353.45	556.73	346.01	578.29	359.41	423.70	263.33	459.61	285.65	935.72	581.55
							MG/MI	MG/KM						
ALDEHYDE							185.39	115.22						
HYDROGEN SULFIDE					LESS THAN		0.36	0.23			MG/MI	MG/KM		
PARTICULATE											19.90	12.49		
SULFATE											0.56	0.35		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 141102
DATE RUN: 05 10 79
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 190 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	102.	438.	866.	656.	908.	705.	898.	783.	677.	618.
2ND CATALYST	215.	384.	594.	454.	657.	481.	556.	501.	515.	435.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	1000	20.0	GOOD					800.	16.0
HOT TRANSIENT	1.	0	0	700.	16.5	POOR					625.	14.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. POOR IDLE ON HOT CYCLE.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.31		29.31		29.31				29.30		29.31		29.30	
SAMPLING TIME - SEC	506		867		507				765		1397		599	
DISTANCE TRAVELLED- MILES	3.715		4.130		3.675				10.259		13.649		1.312	
DILUTION FACTOR	7.22		12.38		8.05				5.89		7.41		15.54	
VOLUME - VMIX (CU FT)	2573.12		4407.88		2573.12				3888.75		7155.19		3045.61	
FUEL ECONOMY -MILES/GAL	13.46		15.43		14.98		14.86		19.87		18.28		8.84	
FUEL ECONOMY - KM/LITER	5.72		6.56		6.37		6.32		8.45		7.77		3.76	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.07	0.66	0.40	0.25	0.54	0.34	0.58	0.36	0.15	0.10	0.25	0.15	1.62	1.01
CARBON MONOXIDE	19.44	12.08	2.98	1.85	18.11	11.26	10.39	6.46	1.59	0.99	5.66	3.52	27.84	17.30
NOX - NO2	0.83	0.52	0.37	0.23	0.54	0.33	0.51	0.32	0.67	0.42	0.53	0.33	0.41	0.26
NOX CORRECTED	1.80	1.12	0.81	0.50	1.17	0.72	1.11	0.69	1.46	0.91	1.16	0.72	0.90	0.56
CARBON DIOXIDE	616.60	383.22	561.60	349.04	554.52	344.64	570.90	354.82	437.66	272.01	469.35	291.70	941.92	585.41
							MG/MI	MG/KM						
ALDEHYDE							181.86	113.03						
HYDROGEN SULFIDE					LESS THAN		0.35	0.22			MG/MI	MG/KM		
PARTICULATE											14.06	8.86		
SULFATE											0.56	0.35		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 141111
DATE RUN: 05 08 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 187 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	93.	422.	864.	666.	922.	713.	915.	789.	667.	626.
2ND CATALYST	208.	396.	653.	495.	668.	544.	578.	519.	533.	452.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	3.	0	0	800.	18.	GOOD					825.	15.
HOT TRANSIENT	2.	0	0	500.	14.	H.					550.	12.

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. POOR HOT IDLES.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP								HFET		SET		NYCC	
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE							
BAROMETRIC PRESSURE	29.34		29.34		29.34				29.34		29.34		29.34	
SAMPLING TIME - SEC	508		865		507				765		1398		600	
DISTANCE TRAVELLED- MILES	3.751		4.128		3.676				10.230		13.678		1.280	
DILUTION FACTOR	6.63		11.46		7.46				5.61		7.00		15.06	
VOLUME - VMIX (CU FT)	2576.07		4410.21		2575.79				3895.84		7166.88		3053.22	
FUEL ECONOMY -MILES/GAL	12.43		14.09		13.77		13.63		18.88		17.23		8.41	
FUEL ECONOMY - KM/LITER	5.29		5.99		5.85		5.80		8.03		7.32		3.58	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.14	0.71	0.38	0.24	0.68	0.42	0.62	0.38	0.17	0.10	0.29	0.18	2.03	1.26
CARBON MONOXIDE	34.00	21.13	5.48	3.41	24.98	15.53	16.56	10.29	3.35	2.08	8.73	5.42	42.04	26.13
NOX - NO2	0.82	0.51	0.40	0.25	0.56	0.35	0.53	0.33	0.79	0.49	0.63	0.39	0.44	0.27
NOX CORRECTED	1.74	1.08	0.85	0.53	1.19	0.74	1.12	0.70	1.67	1.04	1.32	0.82	0.93	0.58
CARBON DIOXIDE	647.21	402.24	611.76	380.21	594.64	369.57	614.42	381.86	457.89	284.58	493.68	306.82	968.81	602.12
							MG/MI	MG/KM						
ALDEHYDE							169.87	105.58						
HYDROGEN SULFIDE						LESS THAN	0.37	0.23						
PARTICULATE											MG/MI 21.84	MG/KM 13.71		
SULFATE											0.64	0.40		

EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS

TEST NO.: 141112
DATE RUN: 05 09 79 AIR CONDITIONER USED
CAR: 1979 DODGE ASPEN CALIF. VIN: NL29C9B158640 DRIVER: HYEK FUEL: SUMMER

AMBIENT TEMP: 110 DEG F HUMIDITY: 190 GR/LB FUEL DENSITY: 0.734 G/ML FUEL % CARBON: 86.09
CAR WEIGHT (NO PASSENGERS,1/4 TANK GAS): 3180 LB ENGINE DISPLACEMENT: 3.69 LITERS
DYNAMOMETER INERTIA WEIGHT: 3425 LB DYNAMOMETER LOADING: 11.2HP(50 MPH)

ANALYSIS OF CATALYST TEMPERATURES (DEG F)

	LIGHT OFF*		FTP		SET		HFET		NYCC	
	SEC	TEMP	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1ST CATALYST	98.	430.	863.	650.	905.	689.	903.	768.	671.	624.
2ND CATALYST	210.	386.	649.	478.	639.	513.	575.	507.	516.	423.

* DEFINED BY TEMP OUT GREATER THAN TEMP IN. NO = NOT OBSERVED
SURFACE THERMOCOUPLE USED. NOT AN ACCURATE GAS TEMPERATURE

FTP DRIVEABILITY REPORT

	CRANK TIME	FALSE STARTS	STALLS IDLE	IDLE RPM	IDLE VAC	IDLE QUAL	EVENT 1	EVENT 2	EVENT 3	EVENT 4	1ST CYCLE IDLE RPM	1ST CYCLE IDLE VAC
COLD TRANSIENT	1.	0	0	850.	18.0	GOOD					750.	16.0
HOT TRANSIENT	1.	0	0	600.	14.0	POOR					650.	12.0

NOTE: EVENT CODES STA-STALL STU-STUMBLE HES-HESITATION SUR-SURGE QUALITY T-TRACE M-MODERATE H-HEAVY S-SEVERE
COMMENTS: GOOD STARTS AND DRIVEABILITY. POOR HOT IDLES.

ANALYTICAL RESULTS

	FEDERAL TEST PROCEDURE FTP													
	COLD TRANSIENT		STABILIZED		HOT TRANSIENT		COMPOSITE		HFET		SET		NYCC	
BAROMETRIC PRESSURE	29.34		29.34		29.34				29.34		29.34		29.34	
SAMPLING TIME - SEC	506		868		505				765		1398		600	
DISTANCE TRAVELLED- MILES	3.731		4.152		3.700				10.281		13.722		1.289	
DILUTION FACTOR	6.71		12.00		7.74				5.77		7.29		15.62	
VOLUME - VMIX (CU FT)	2574.67		4416.41		2572.97				3894.15		7123.78		3051.81	
FUEL ECONOMY -MILES/GAL	12.52		14.72		14.33		14.12		19.49		18.04		8.71	
FUEL ECONOMY - KM/LITER	5.32		6.26		6.09		6.00		8.29		7.67		3.70	
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
HYDROCARBON	1.19	0.74	0.36	0.22	0.66	0.41	0.61	0.38	0.11	0.07	0.20	0.13	1.32	0.82
CARBON MONOXIDE	33.29	20.69	4.55	2.83	21.39	13.30	14.92	9.28	1.17	0.72	4.36	2.71	25.88	16.09
NOX - NO2	0.86	0.53	0.44	0.27	0.66	0.41	0.58	0.36	0.89	0.56	0.69	0.43	0.54	0.33
NOX CORRECTED	1.86	1.16	0.95	0.59	1.45	0.90	1.27	0.79	1.94	1.21	1.49	0.93	1.17	0.73
CARBON DIOXIDE	643.13	399.71	586.45	364.48	575.16	357.46	594.95	369.76	447.17	277.92	477.92	297.03	960.66	597.06
							MG/MI	MG/KM						
ALDEHYDE							222.25	138.13						
HYDROGEN SULFIDE					LESS THAN		0.36	0.22			MG/MI	MG/KM		
PARTICULATE											26.43	16.92		
SULFATE											2.26	1.40		

APPENDIX B

PLOTS OF EXHAUST GAS CATALYST OUT TEMPERATURES

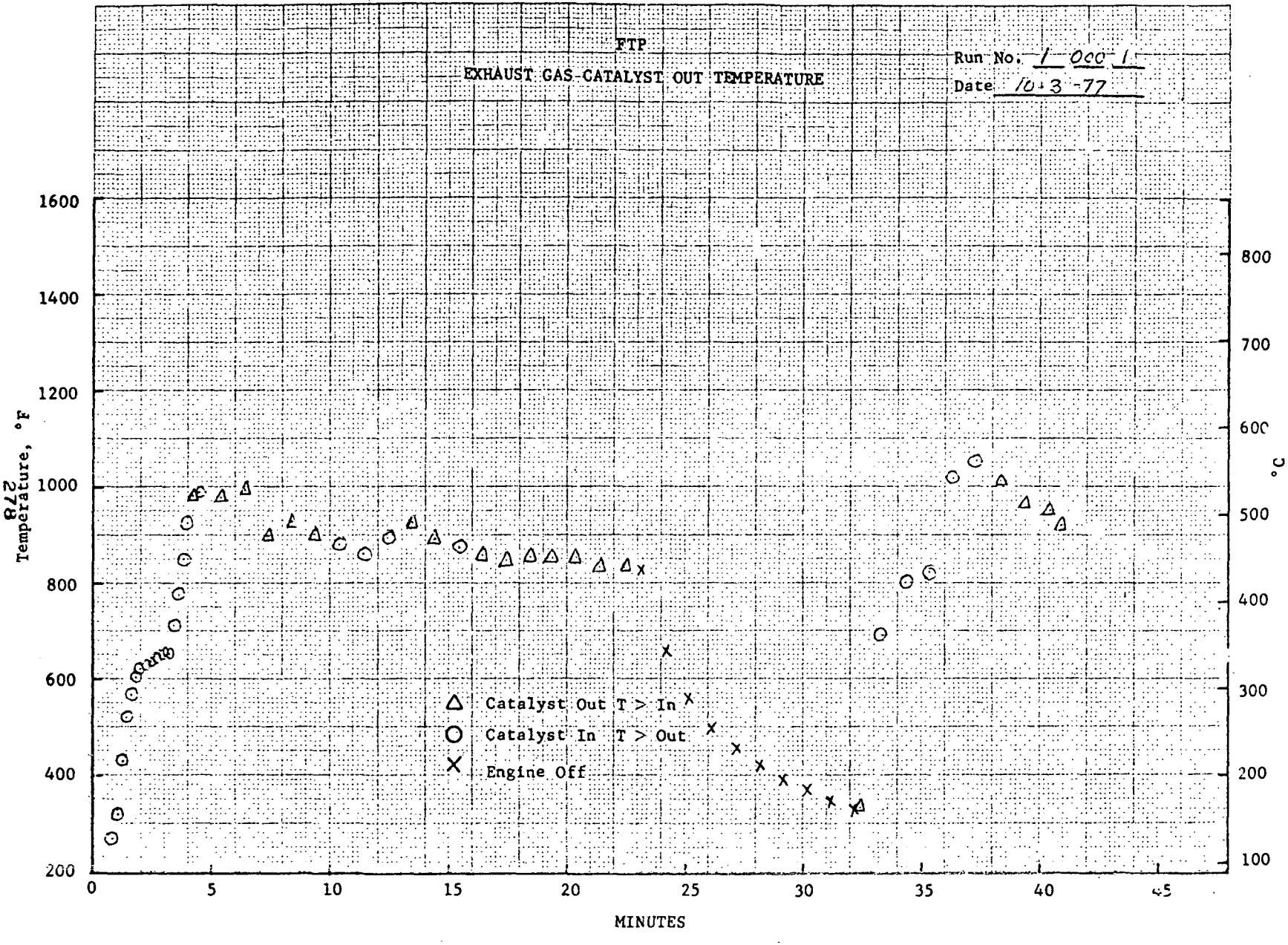
This Appendix contains the plotted exhaust gas temperature data for the catalyst cars run using the Federal Test Procedure. No exhaust gas temperature data were plotted for the noncatalyst cars. A triangle indicates that a temperature rise occurred across the catalyst while a circle indicates a temperature fall occurred across the catalyst. X's are used to plot the temperature data during the 10-minute soak with the engine off.

The 1980 Mercury prototype (car 8) had a reducing catalyst followed by an oxidizing catalyst close together in the exhaust from each bank of the engine. The plotted data for this case are for the exit temperatures of the two oxidizing catalysts.

The 1979 Dodge Aspen (car 14) had the two catalysts separated by several feet. The first catalyst served as an oxidizing catalyst initially but later became a reducing catalyst (air injection was switched). The second catalyst operated only as an oxidizing catalyst. The exhaust gas catalyst out temperatures were plotted for both catalysts.

Light off is defined as the time interval from the start of the FTP when the temperature out of the catalyst exceeds the temperature in. All temperature data were recorded at 2-second intervals until light off occurred. After light off, the temperatures were recorded at 1-minute intervals.

The 1979 Dodge Aspen and the three prototype cars used surface thermocouples rather than thermocouples located in the exhaust gas stream. All of the other cars used gas stream thermocouples.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Run No. 1 000 1
Date 10-3-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Run 8
278
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
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25
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40
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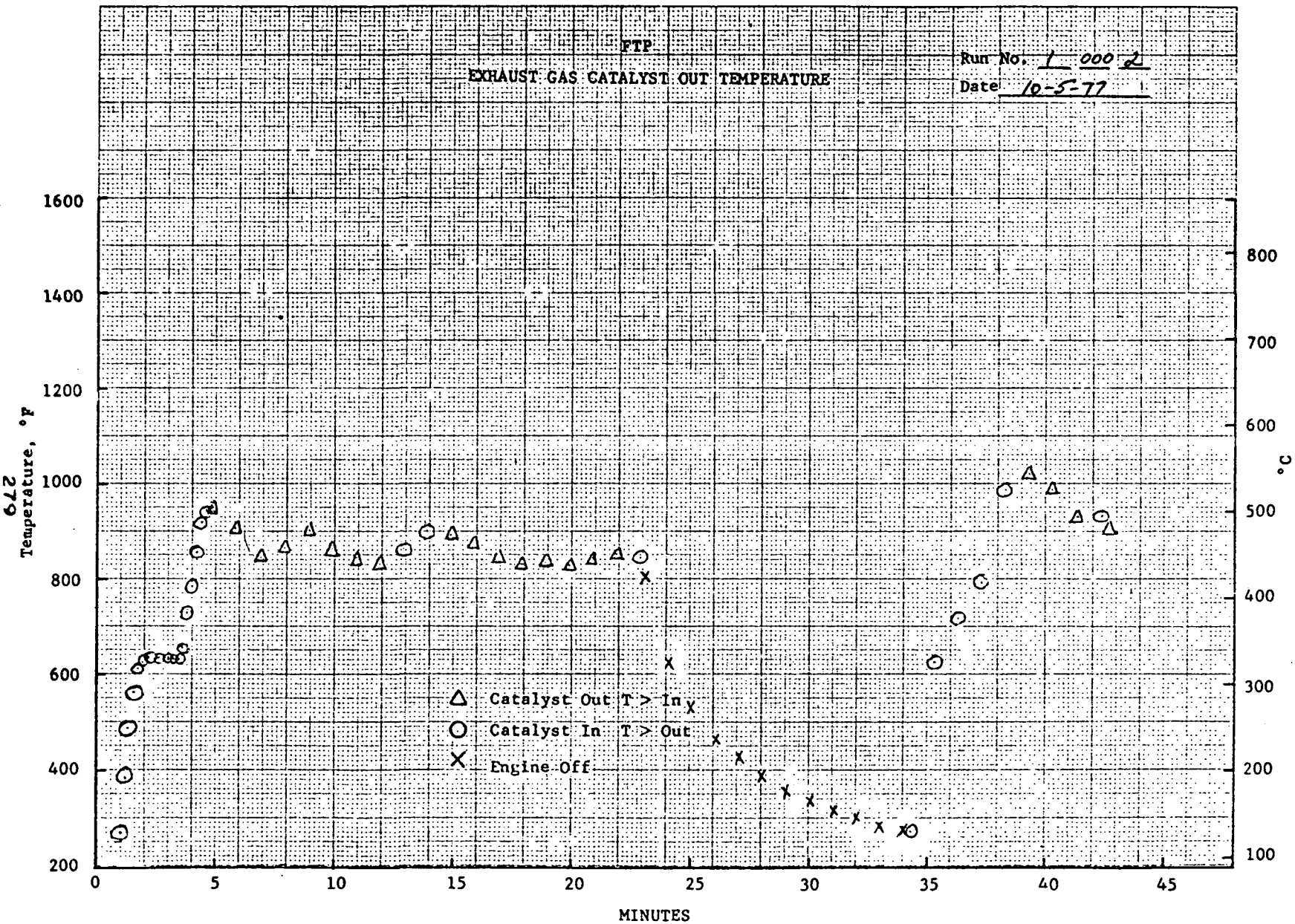
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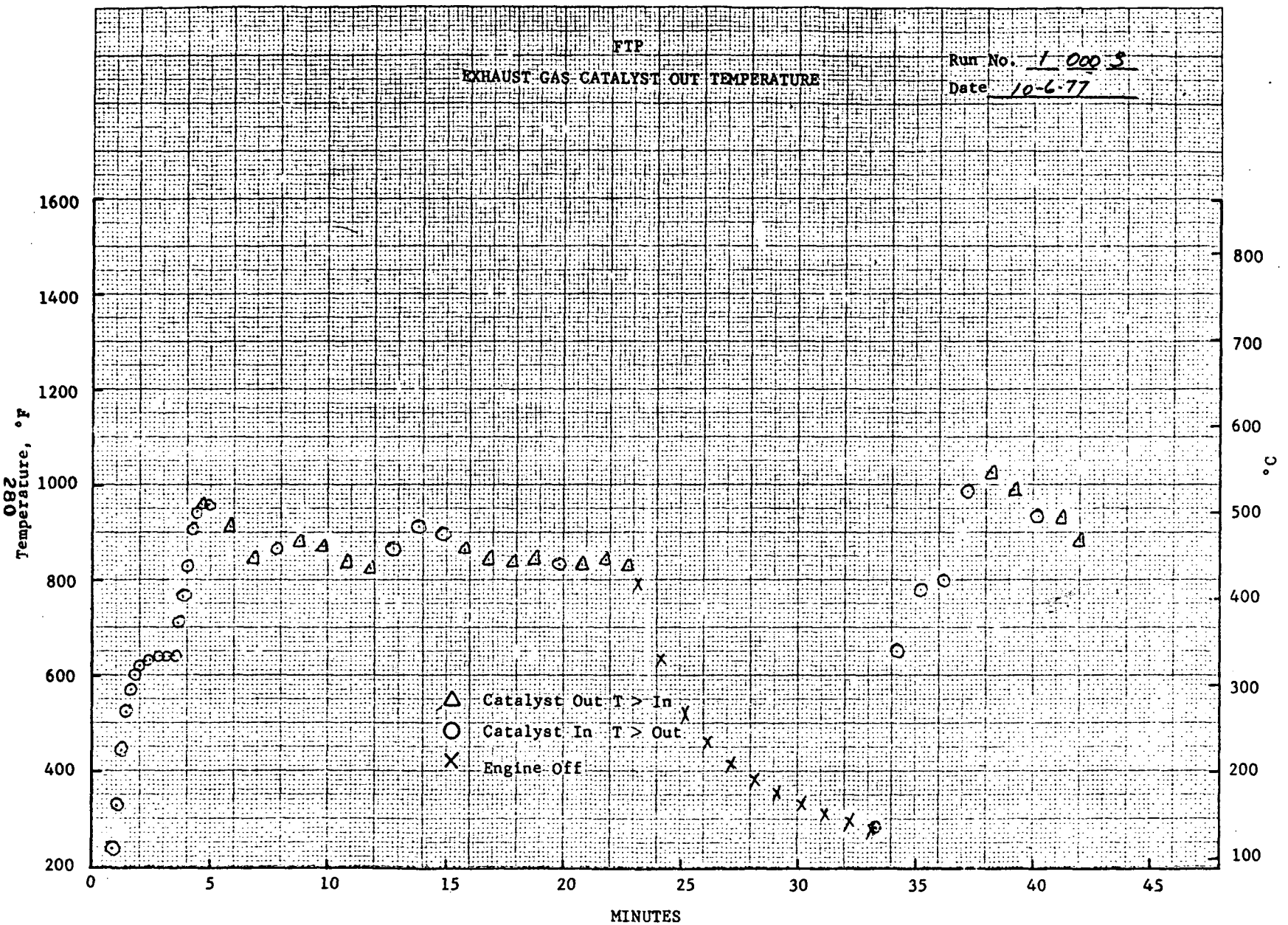
Run No. 1 000 2
Date 10-5-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45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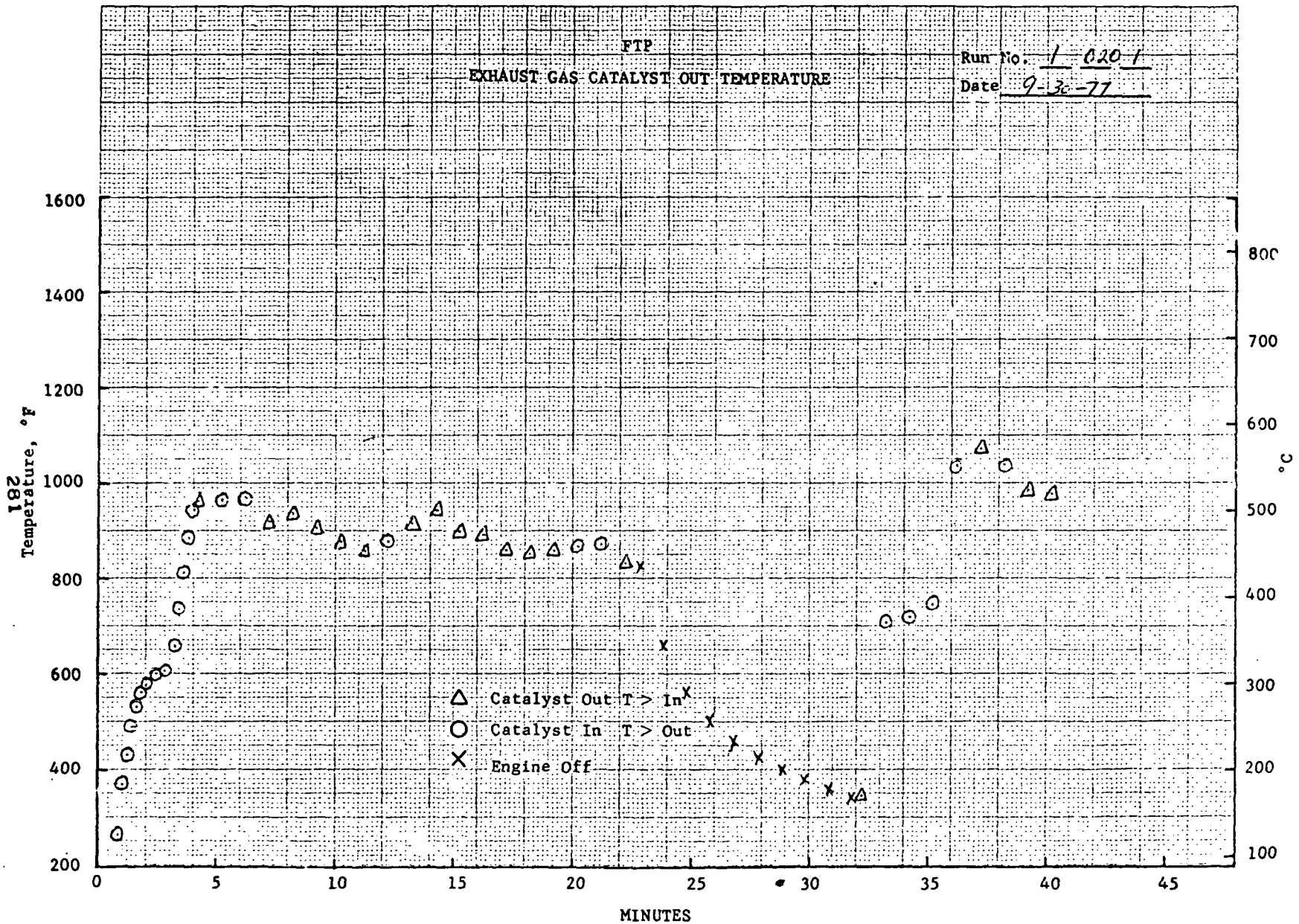
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 000 5
Date 10-6-77
280
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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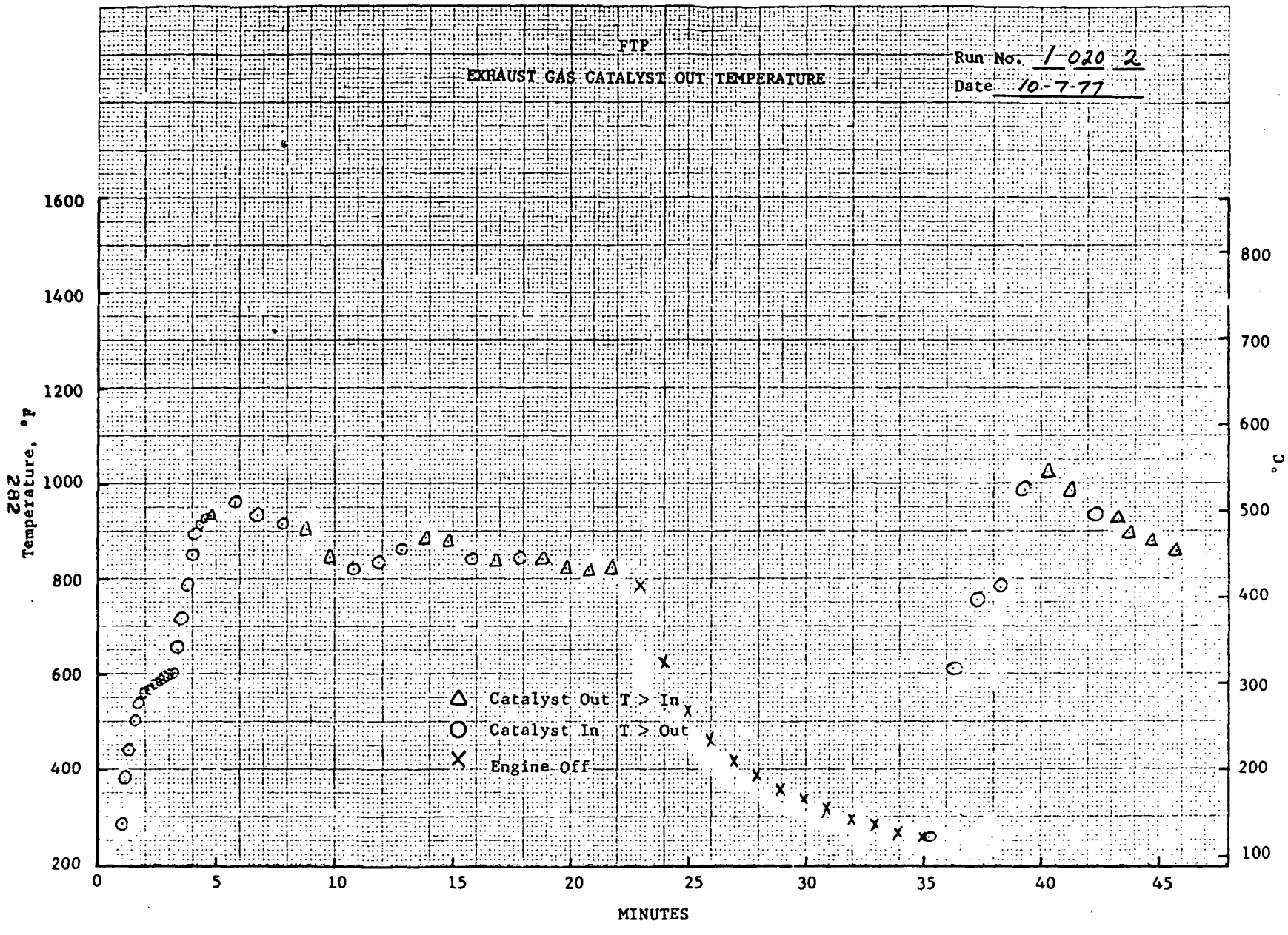
Run No. 1 020 1
Date 9-30-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45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Run No. 1-020 2
Date 10-7-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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300
200
100
0
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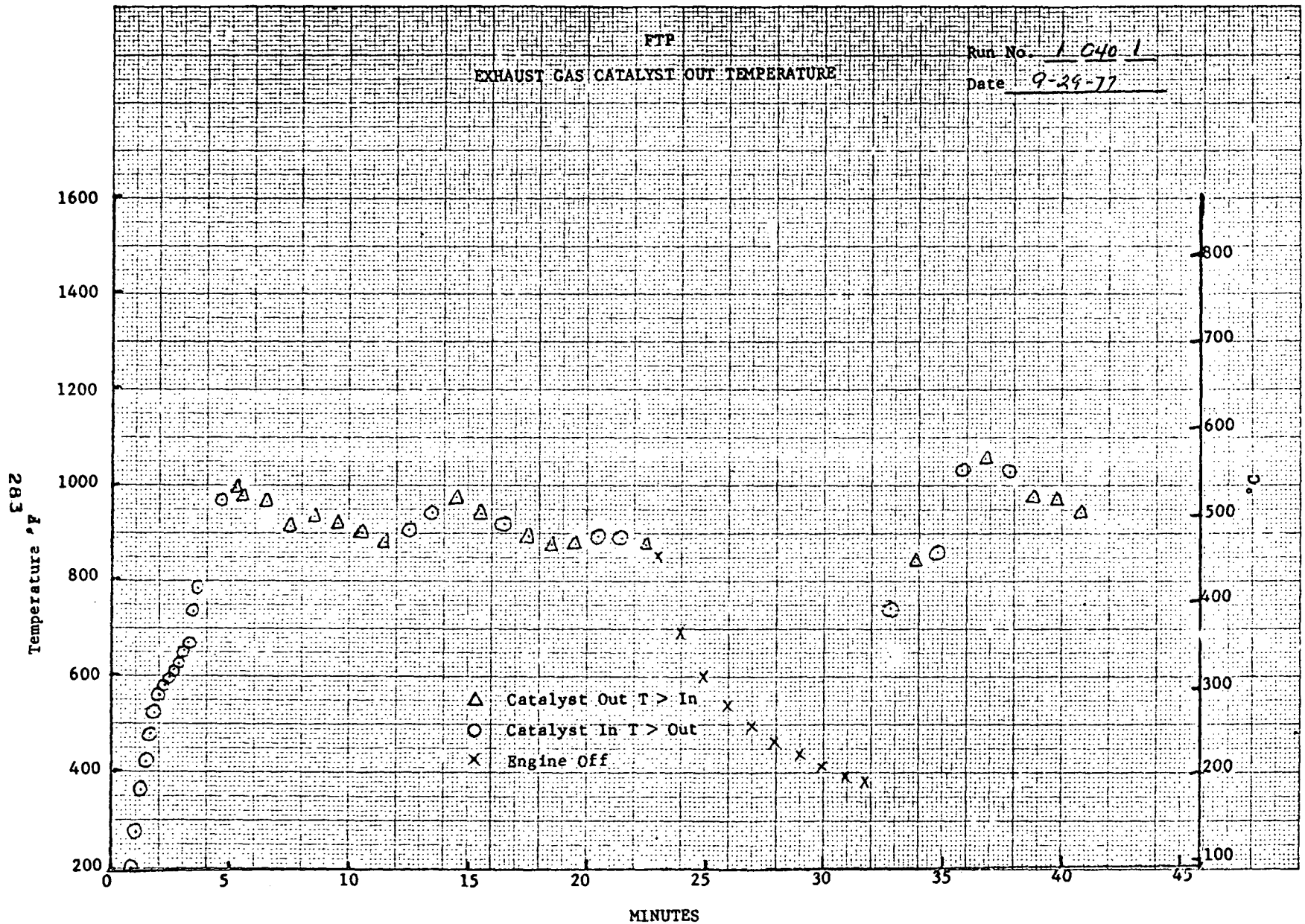
30
35
40
45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Date 9-29-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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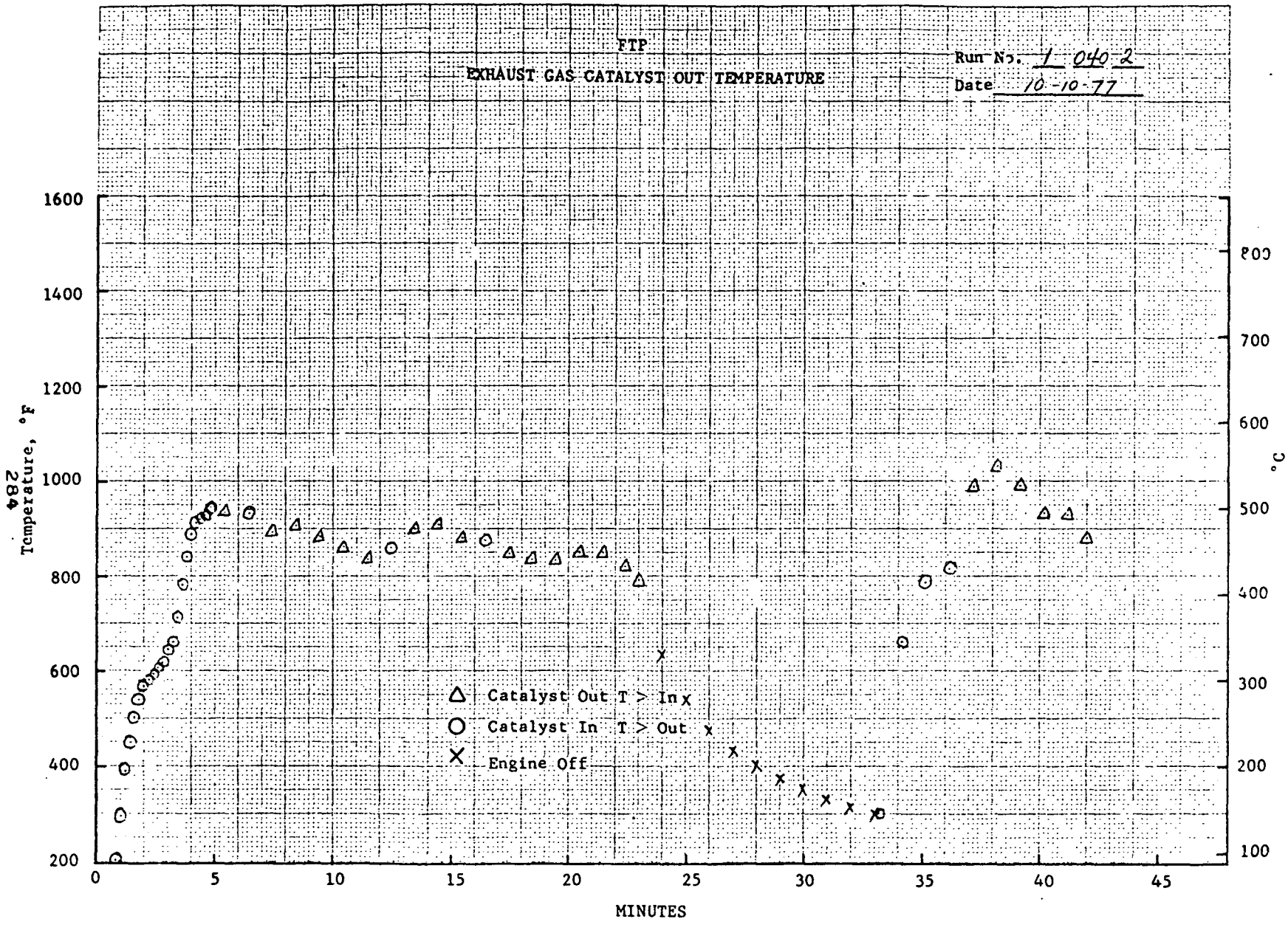
30
35
40
45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Date 10-10-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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300
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100
0
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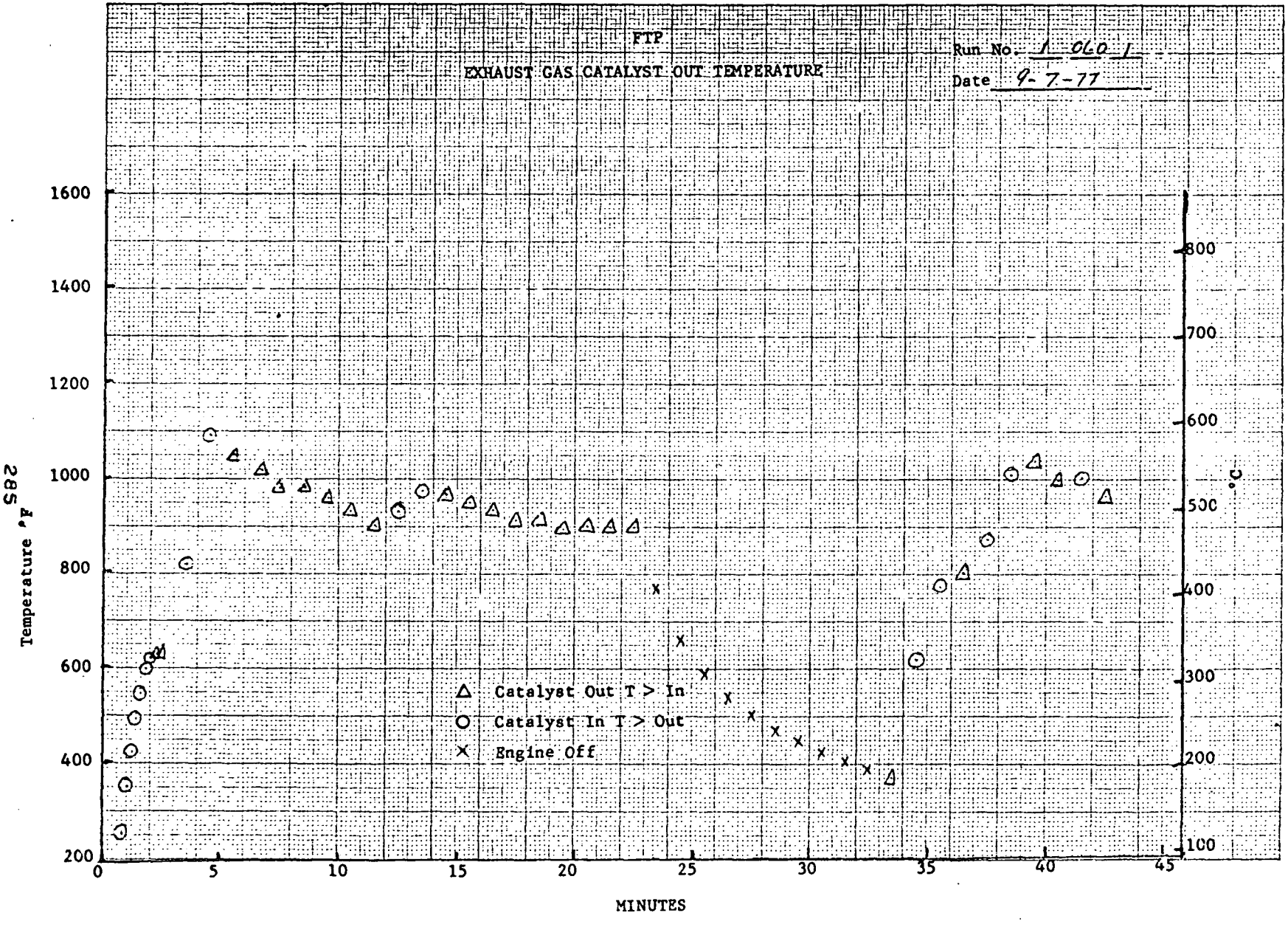
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Run No. 1 060 1
Date 9-7-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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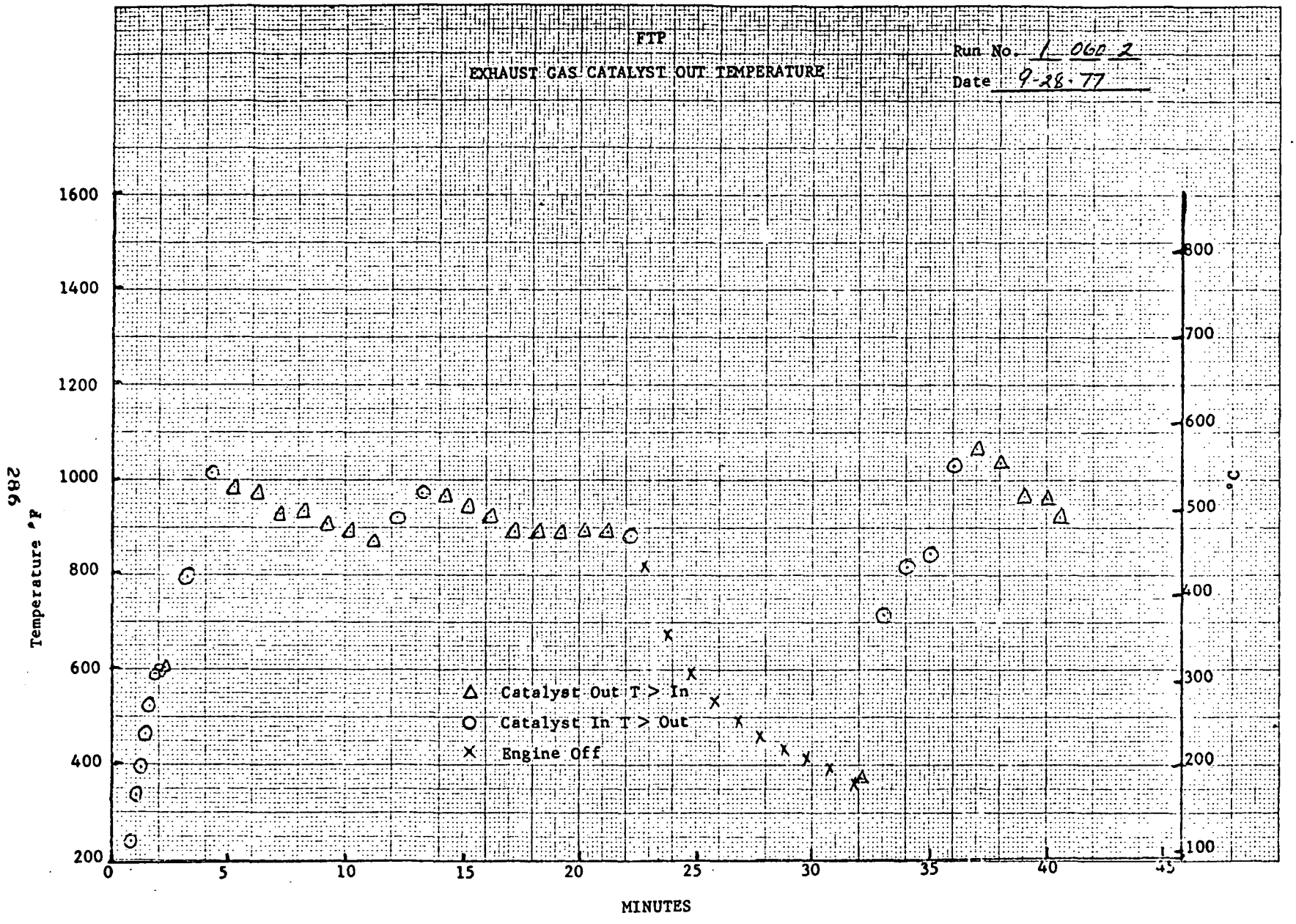
30
35
40
45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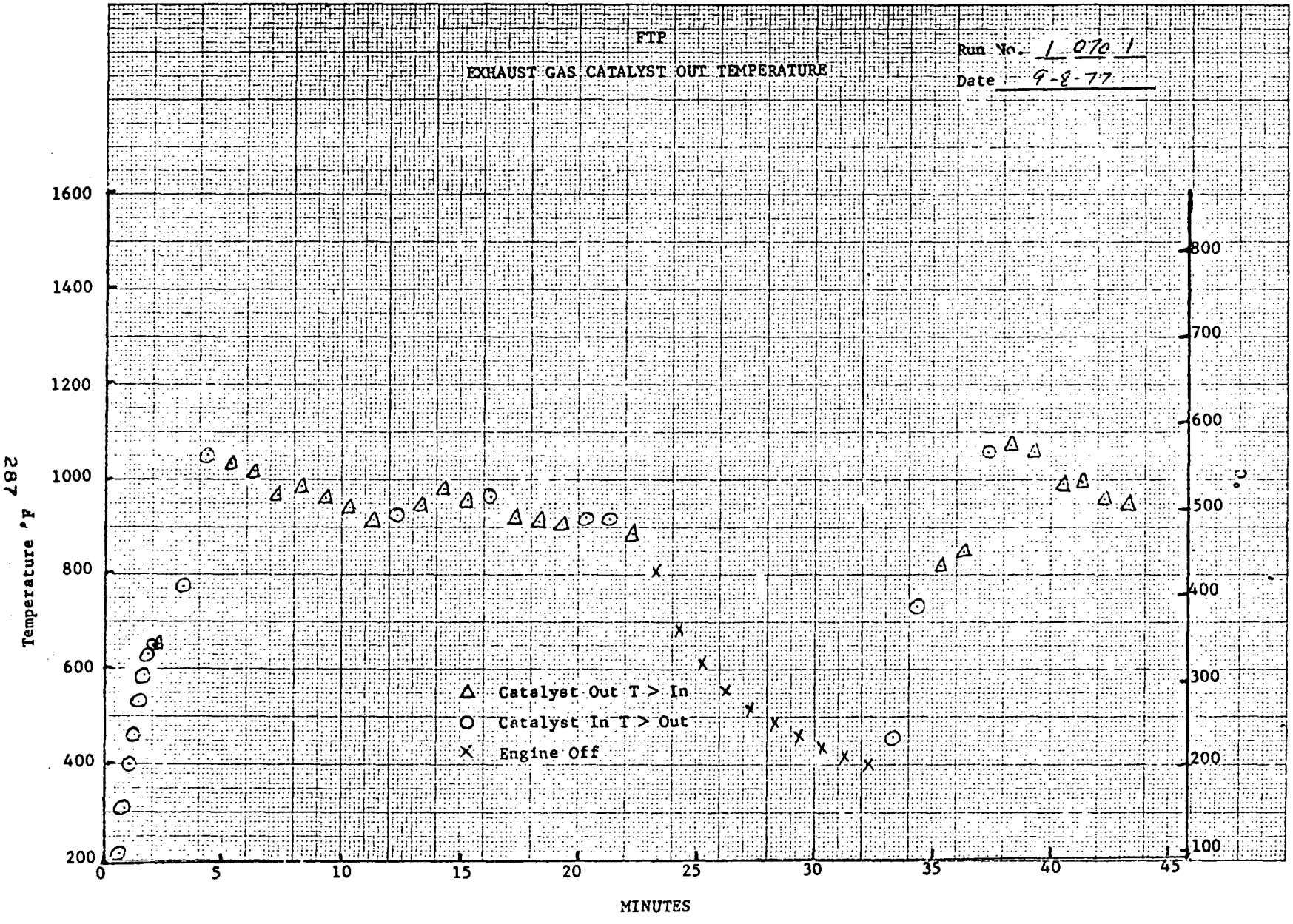
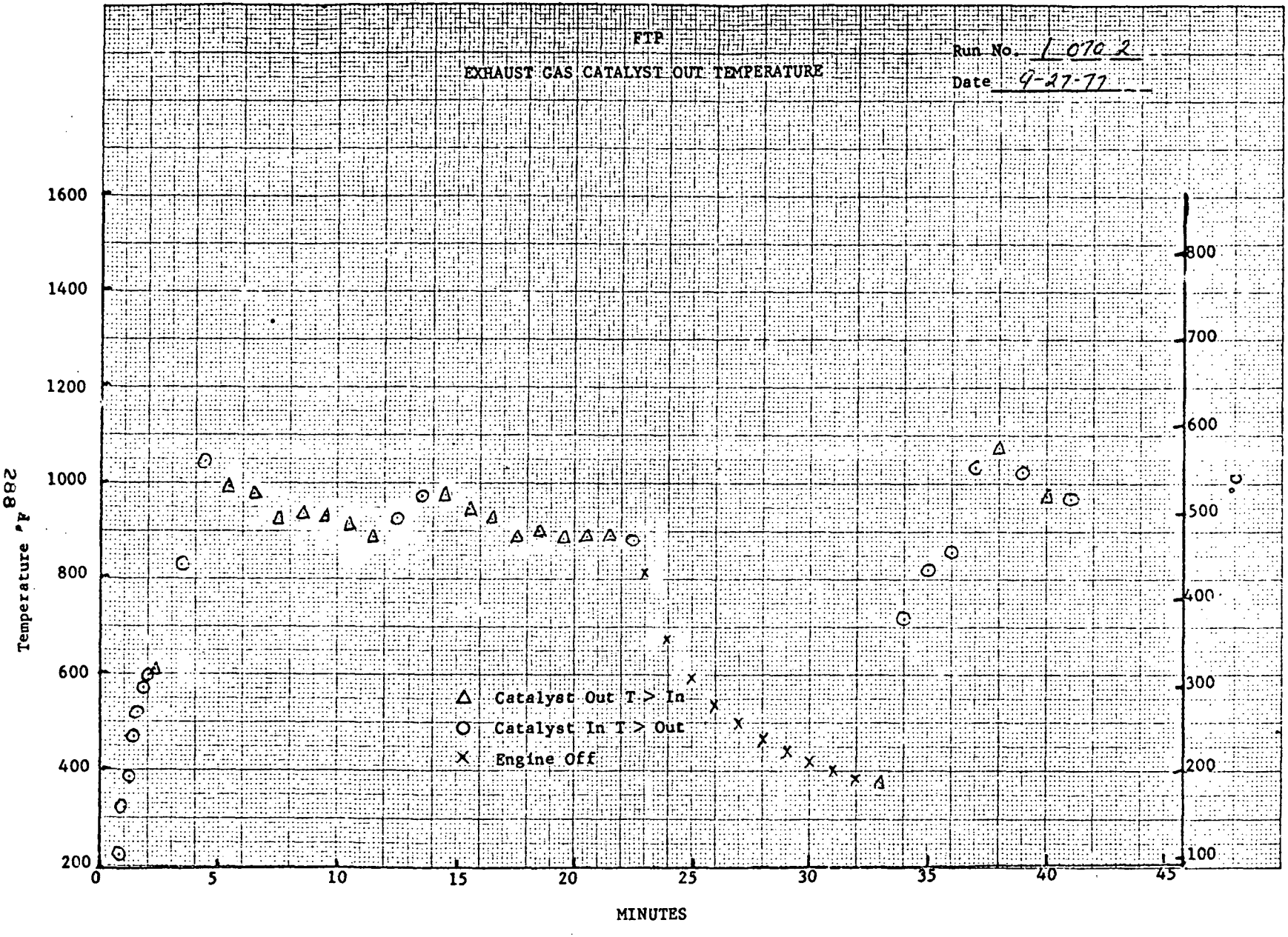
Date 9-28-77
Temperature °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 070 1
Date 9-8-77
Temperature °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1070 2
Date 9-27-71
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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200
100
0
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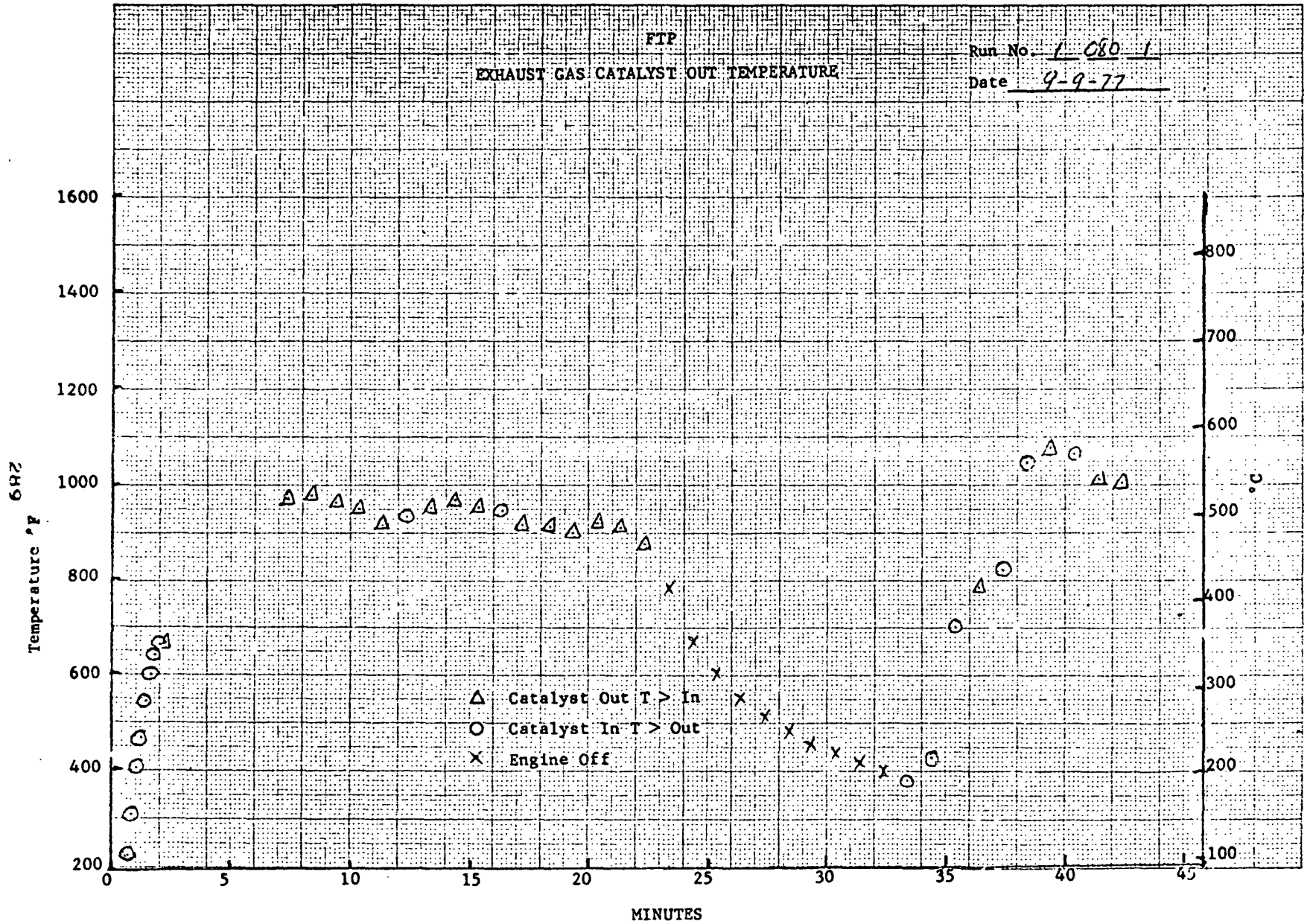
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 080 1
Date 9-9-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
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200
100
0
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40
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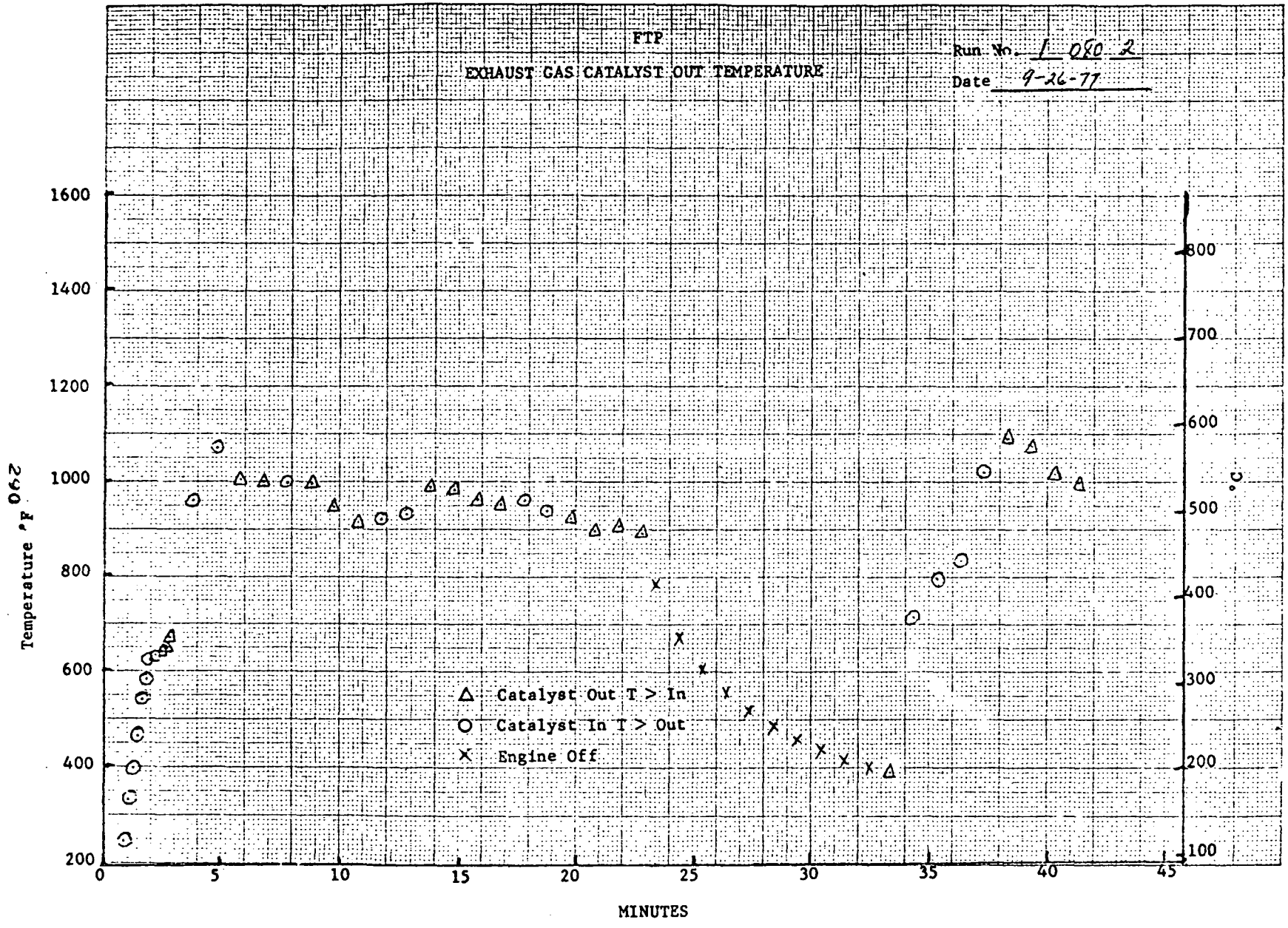
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 080 2
Date 9-26-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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500
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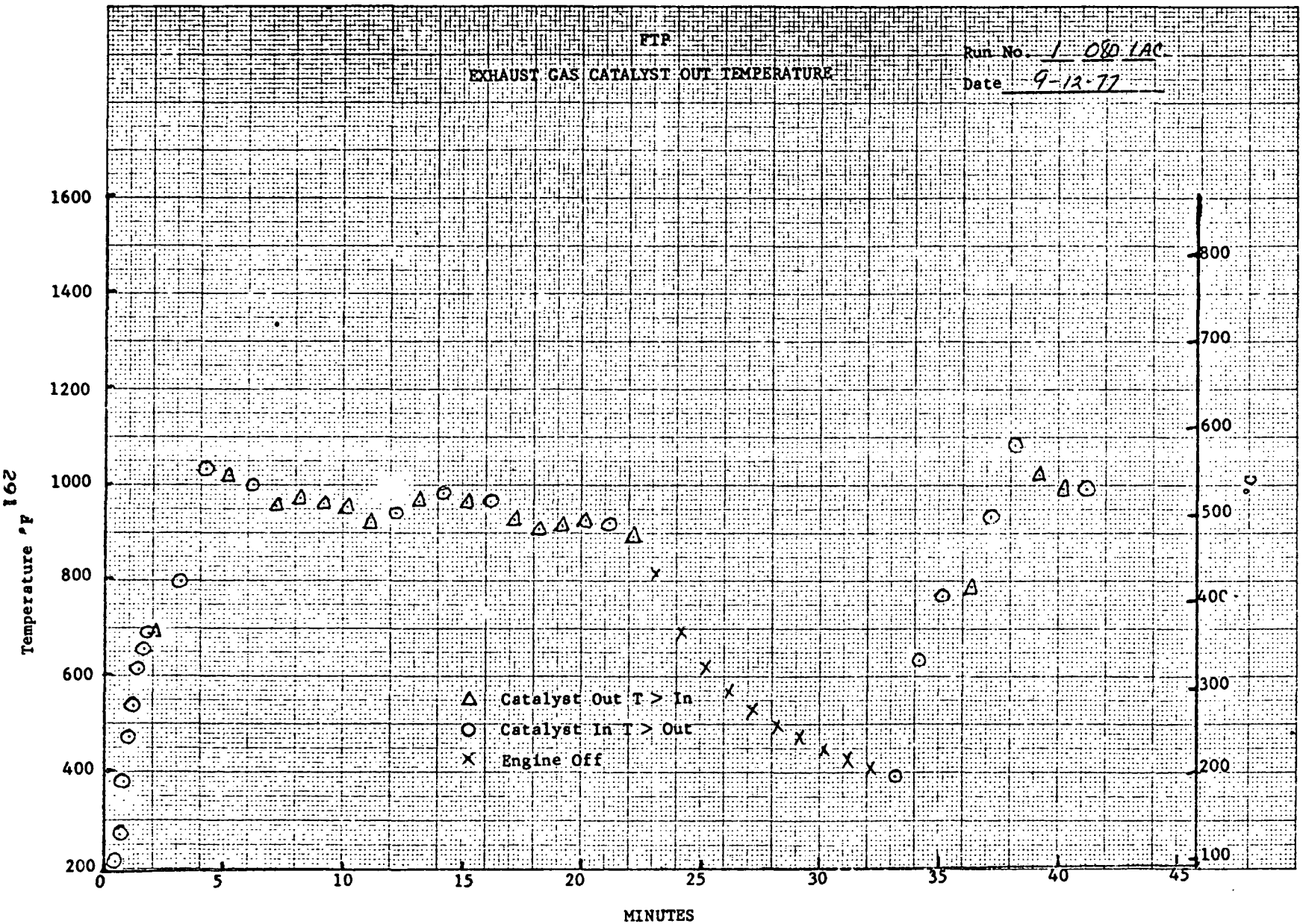
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 080 1AC
Date 9-12-77
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
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5
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20
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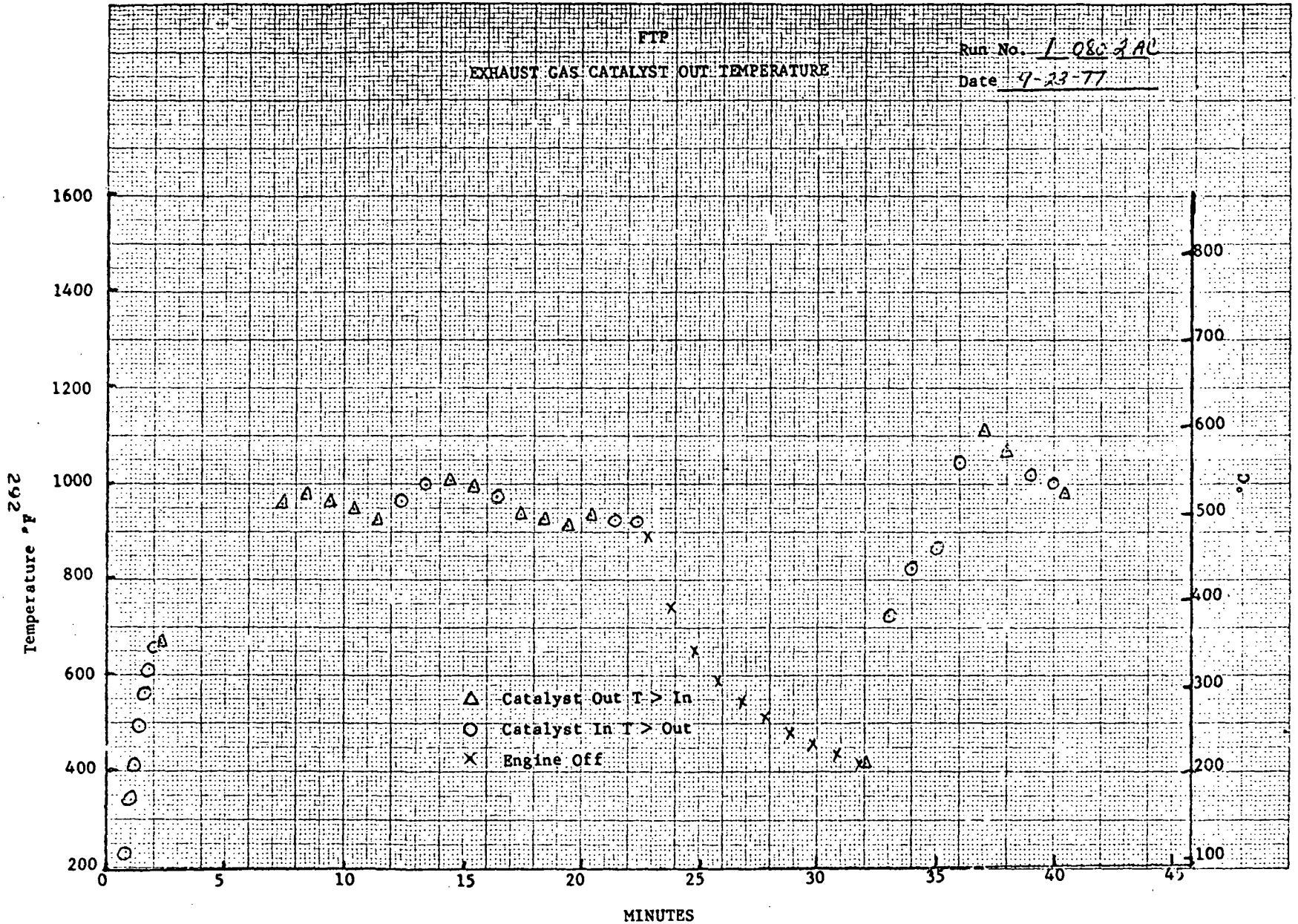
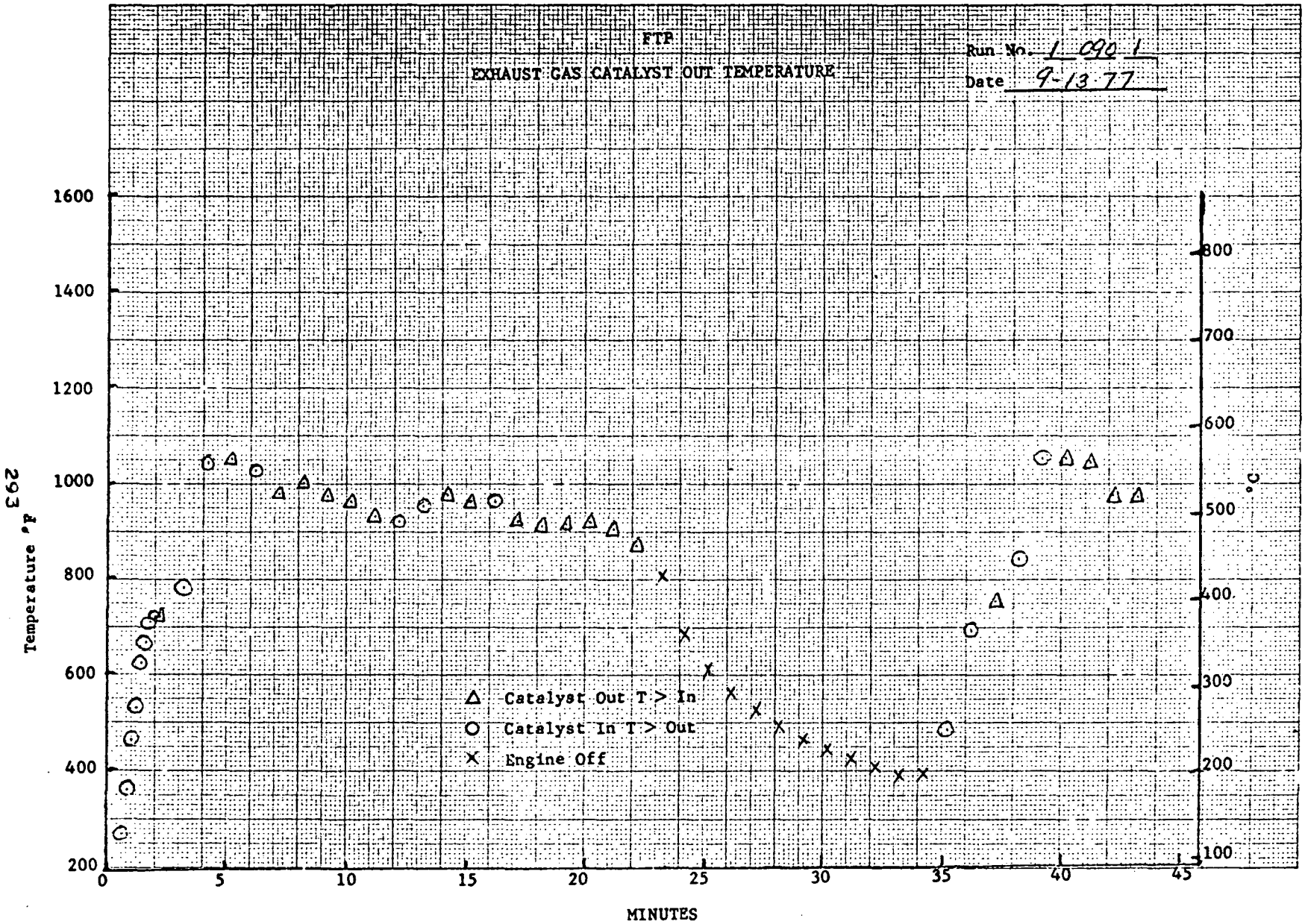
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 080 2 AC
Date 4-23-77
Temperature °F
292
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 090 1
Date 9-13-77
Temperature °F
293
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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40
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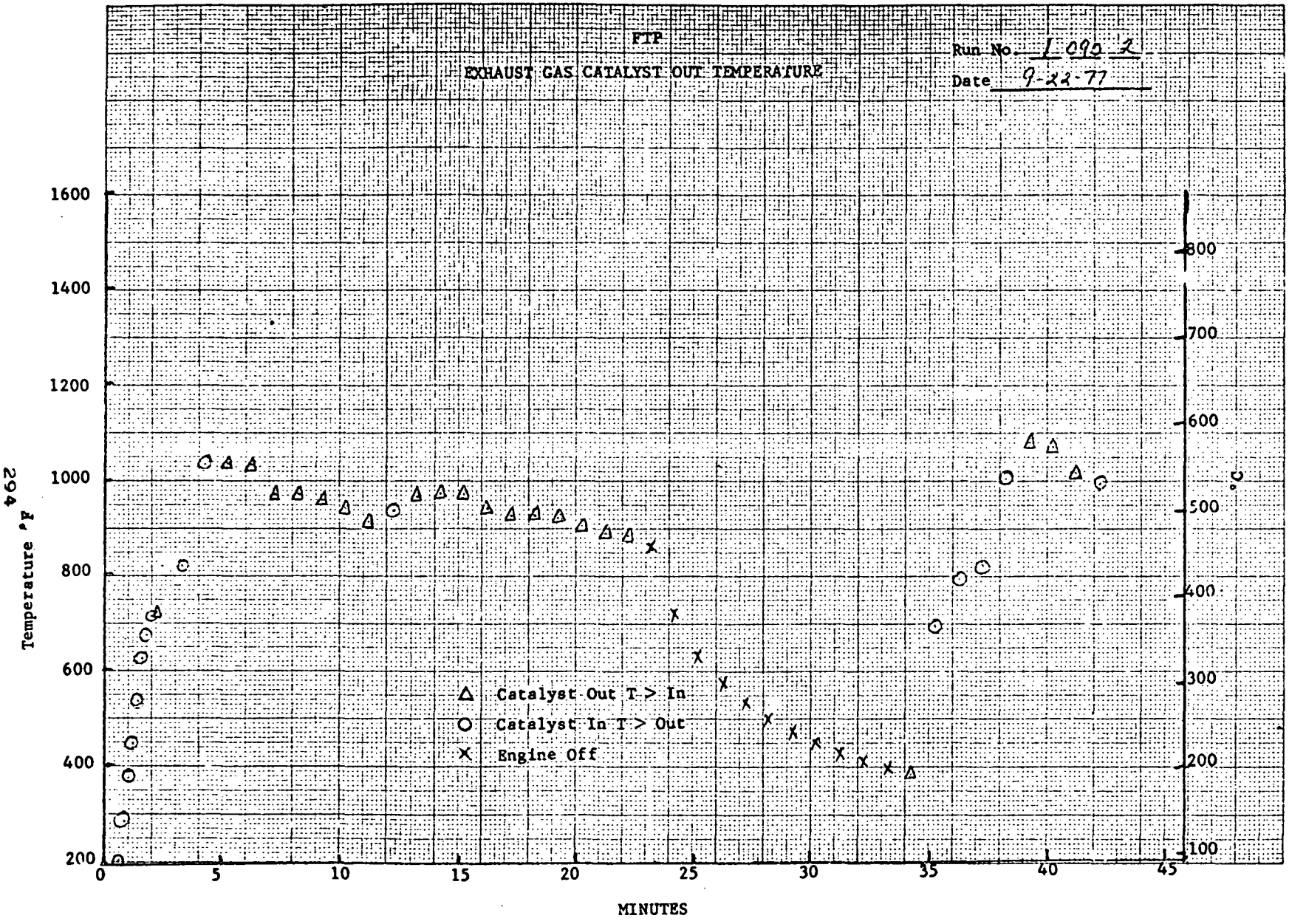
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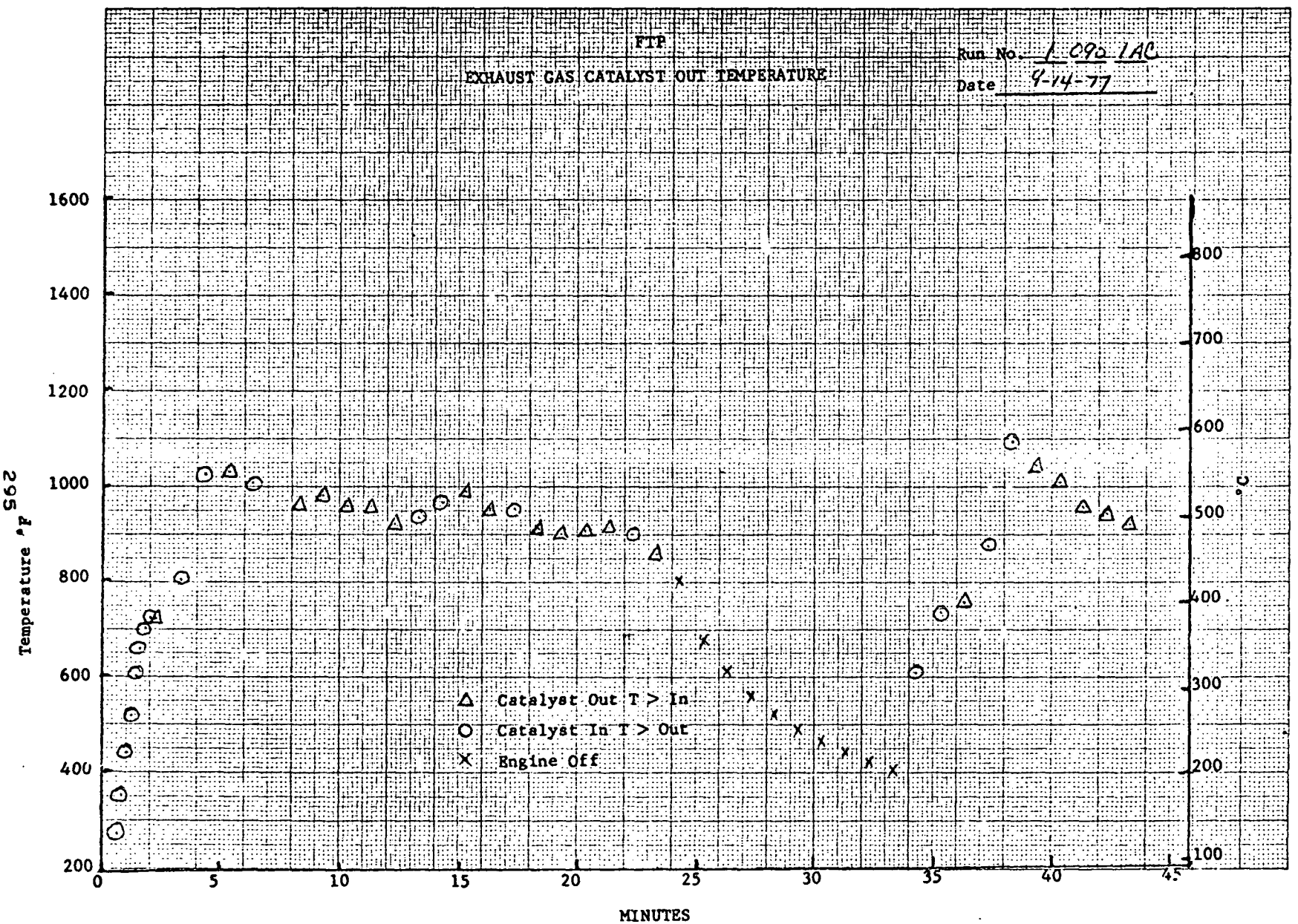
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 090 2
Date 9-22-77
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off
294


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 C9S 1AC
Date 9-14-77
Temperature °F
1600
1400
1200
1000
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600
400
200
°C
800
700
600
500
400
300
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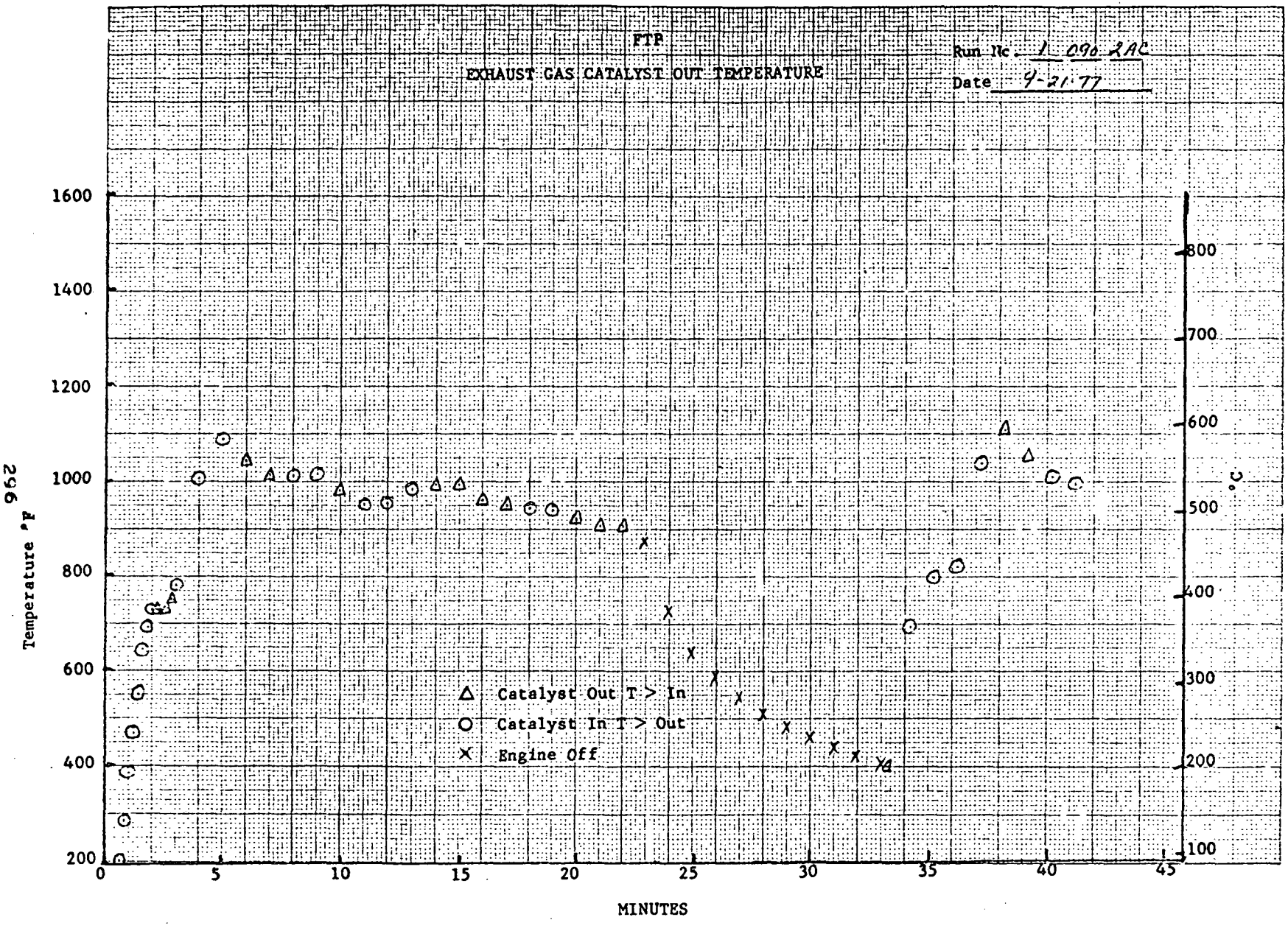
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 090 2AC
Date 9-21-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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500
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100
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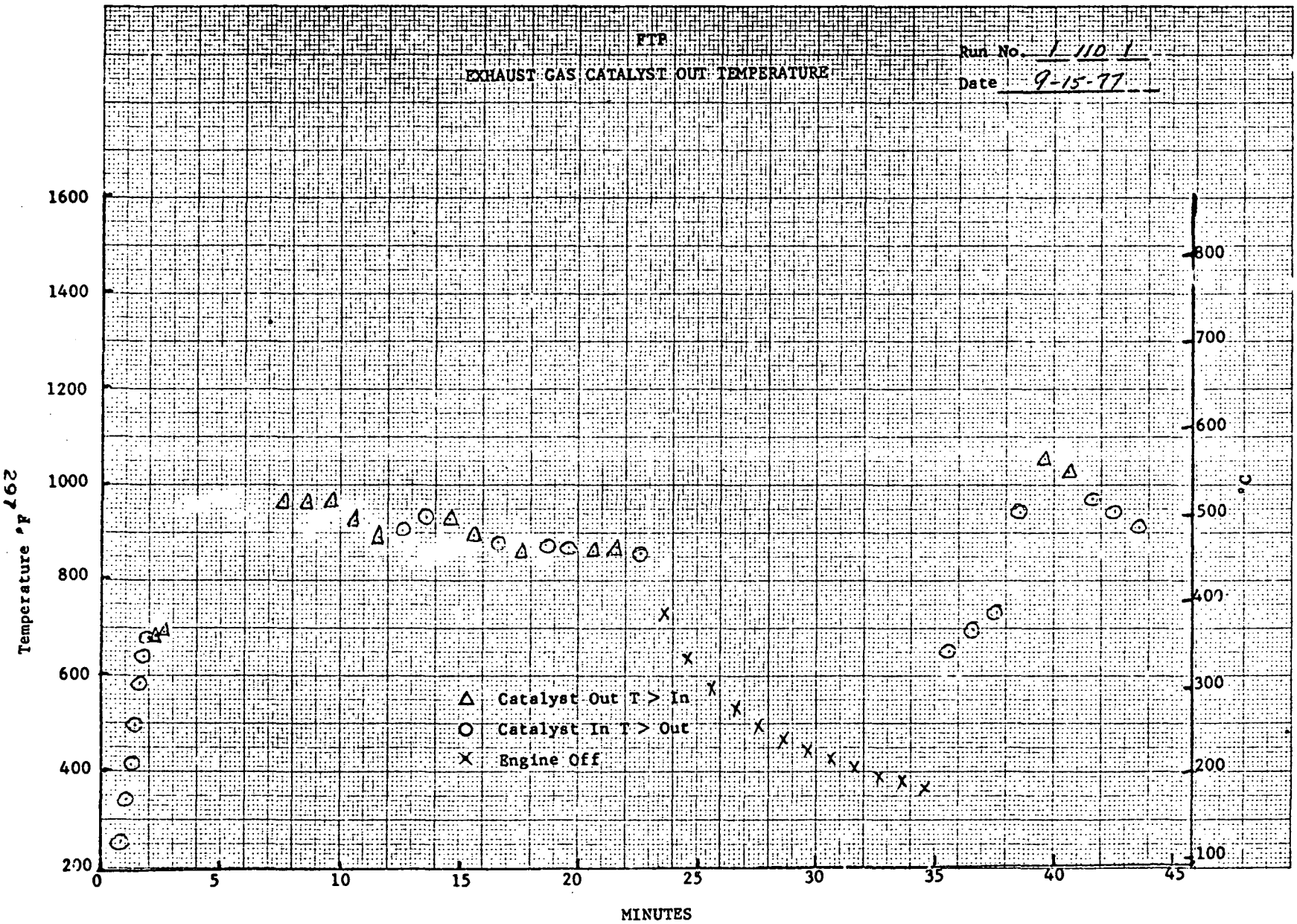
40
45


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 110 1
Date 9-15-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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500
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300
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100
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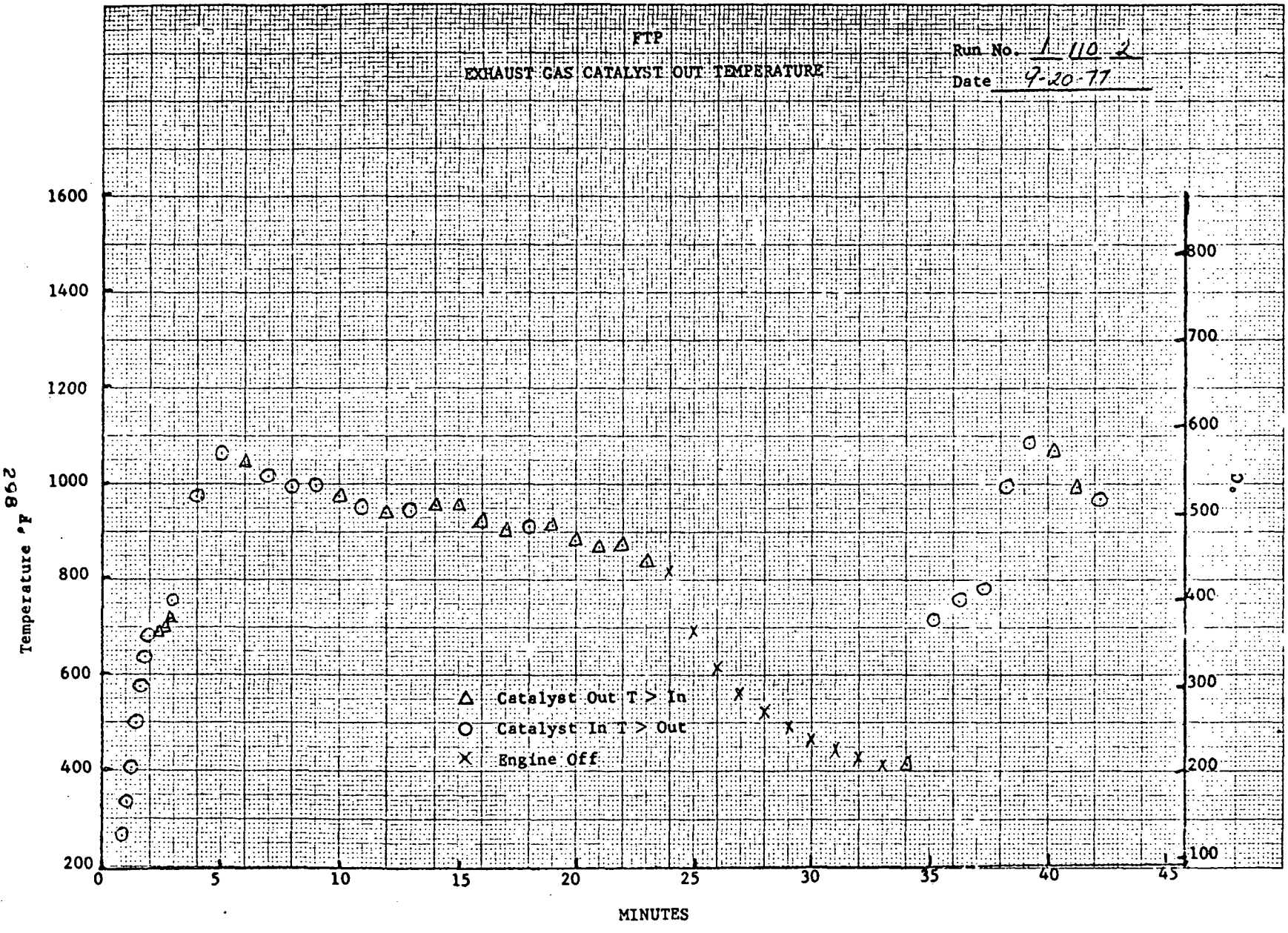
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 1 110 2
Date 9-20-77
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
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100
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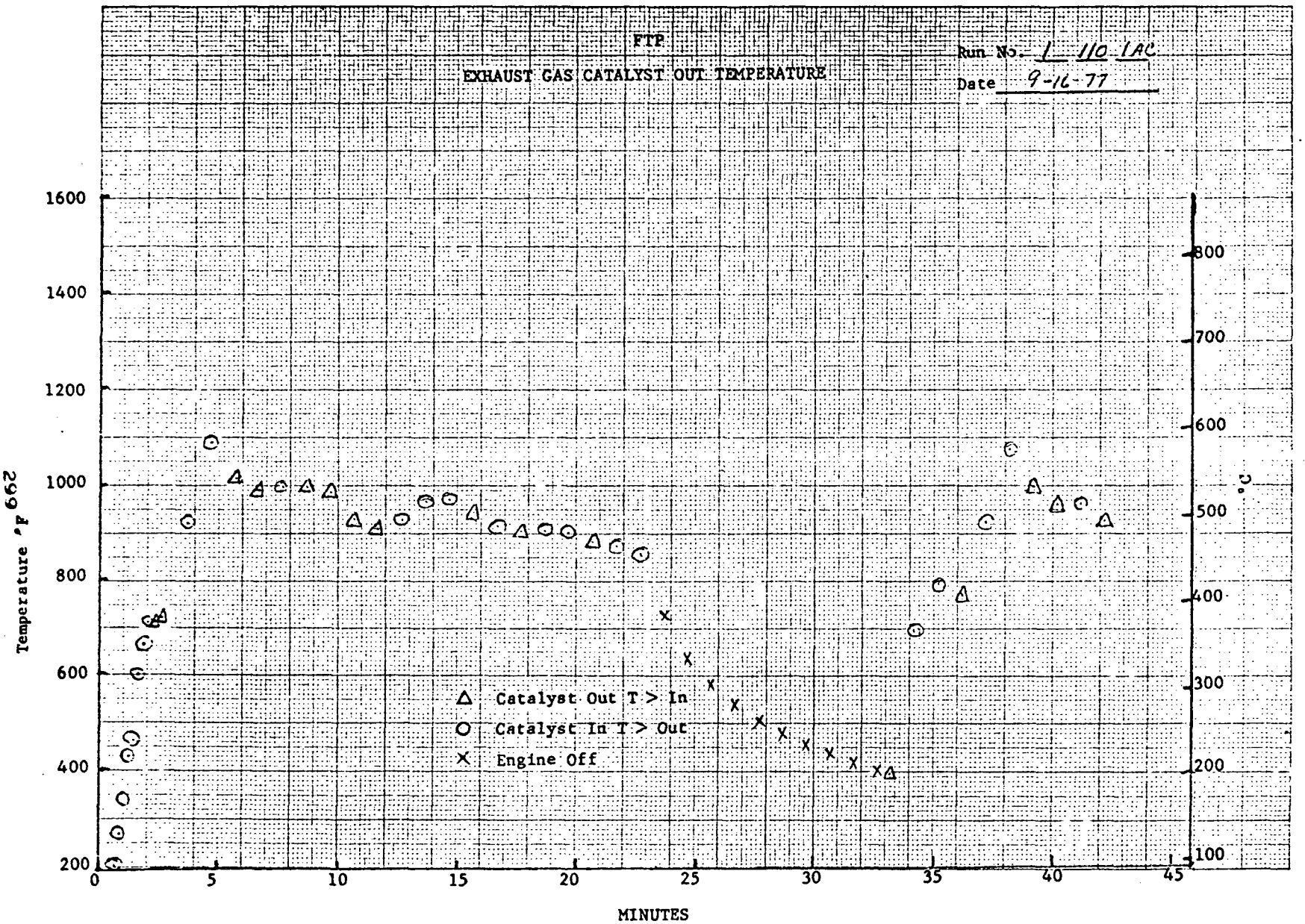
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. L 110 1AC
Date 9-16-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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500
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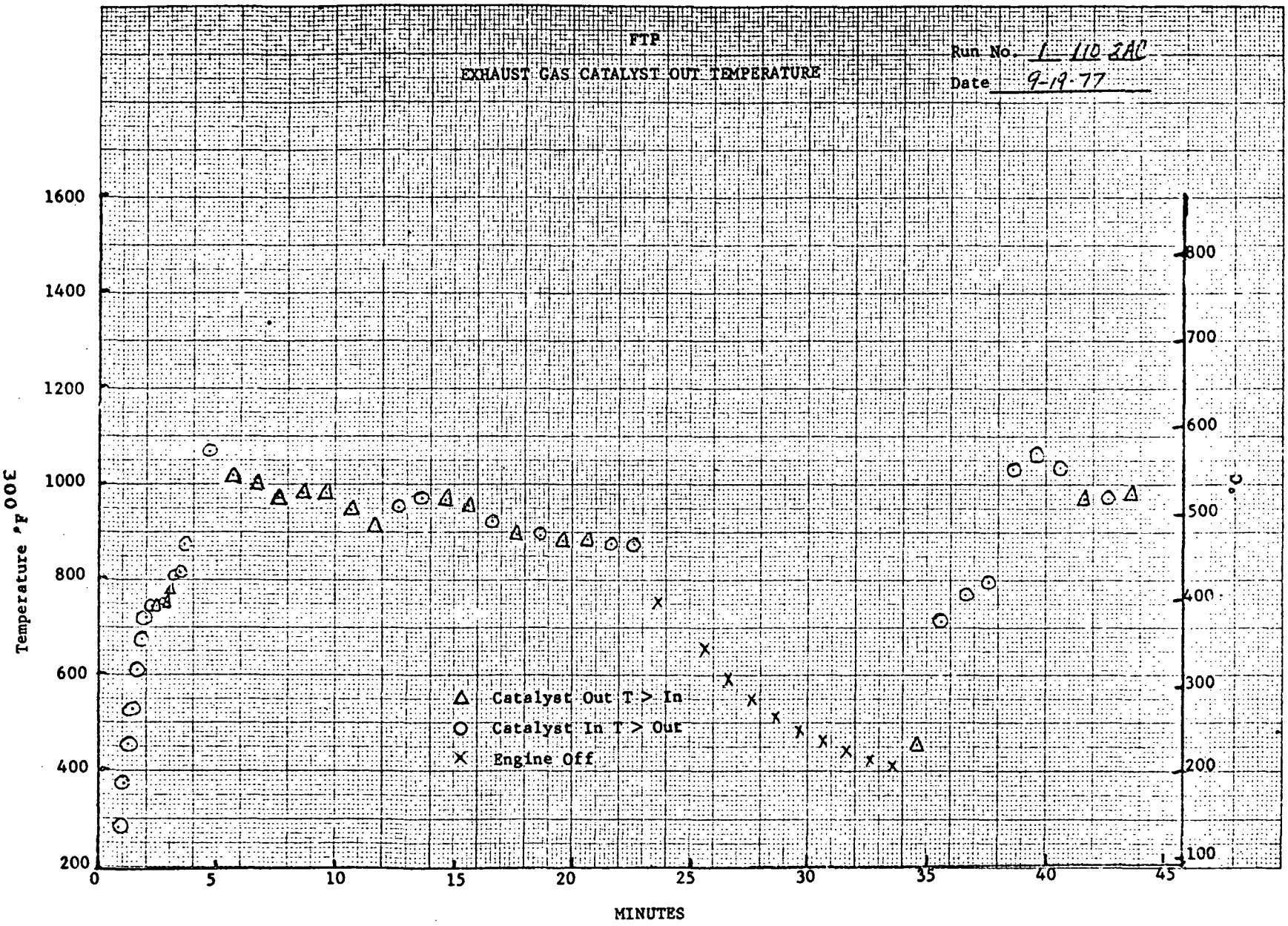
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. L 110 2AC
Date 9-19-77
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
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800
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500
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200
100
0
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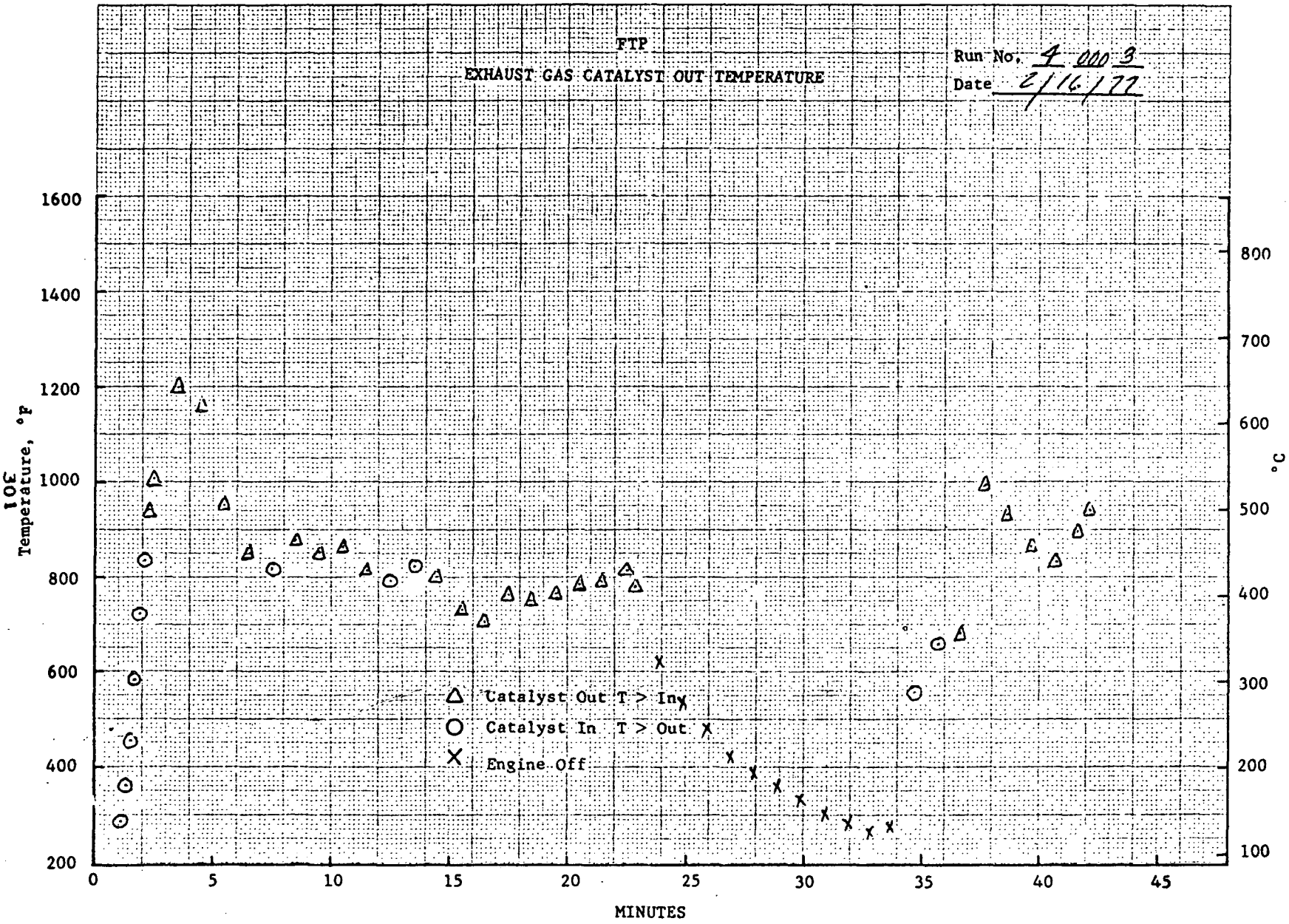
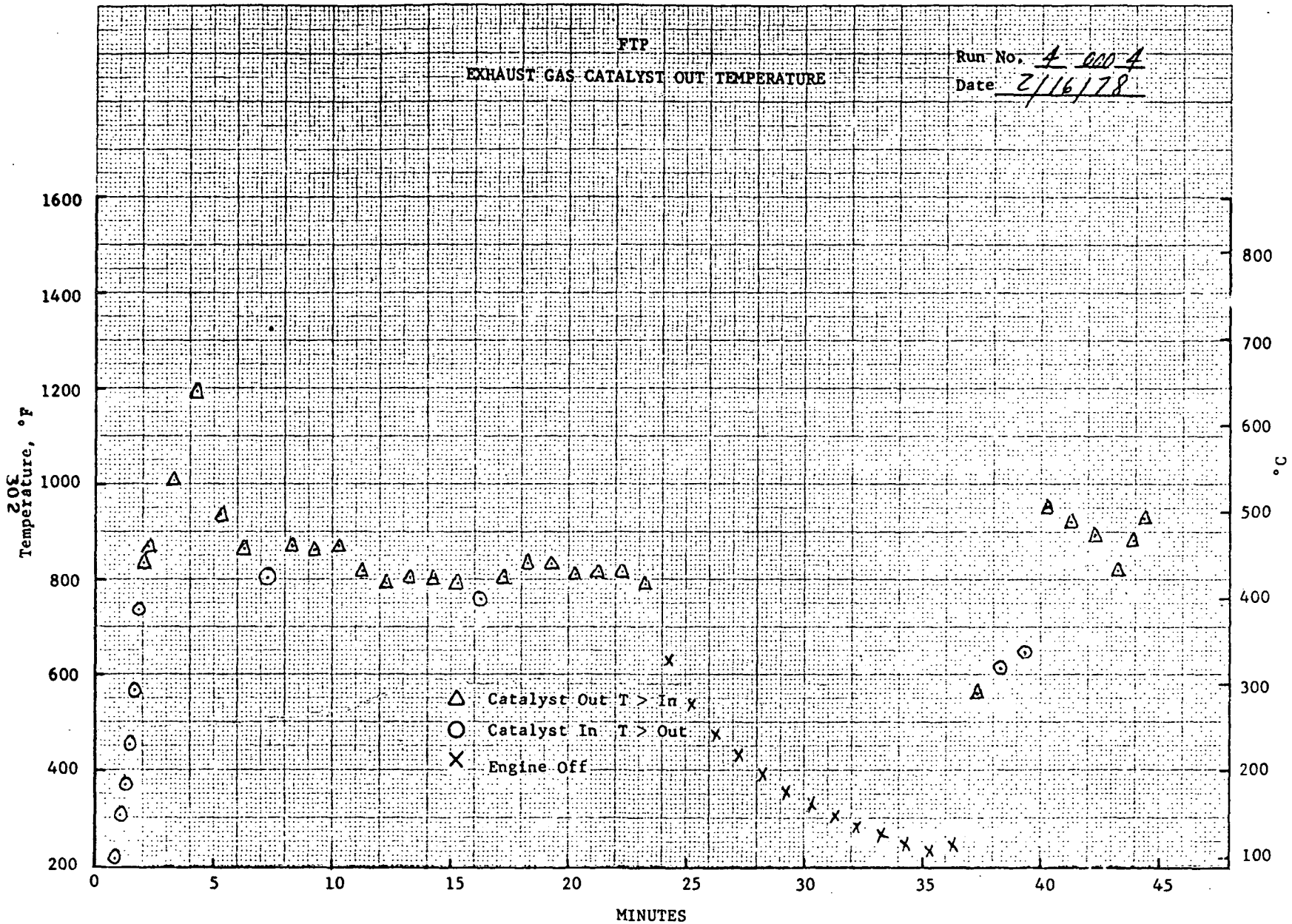
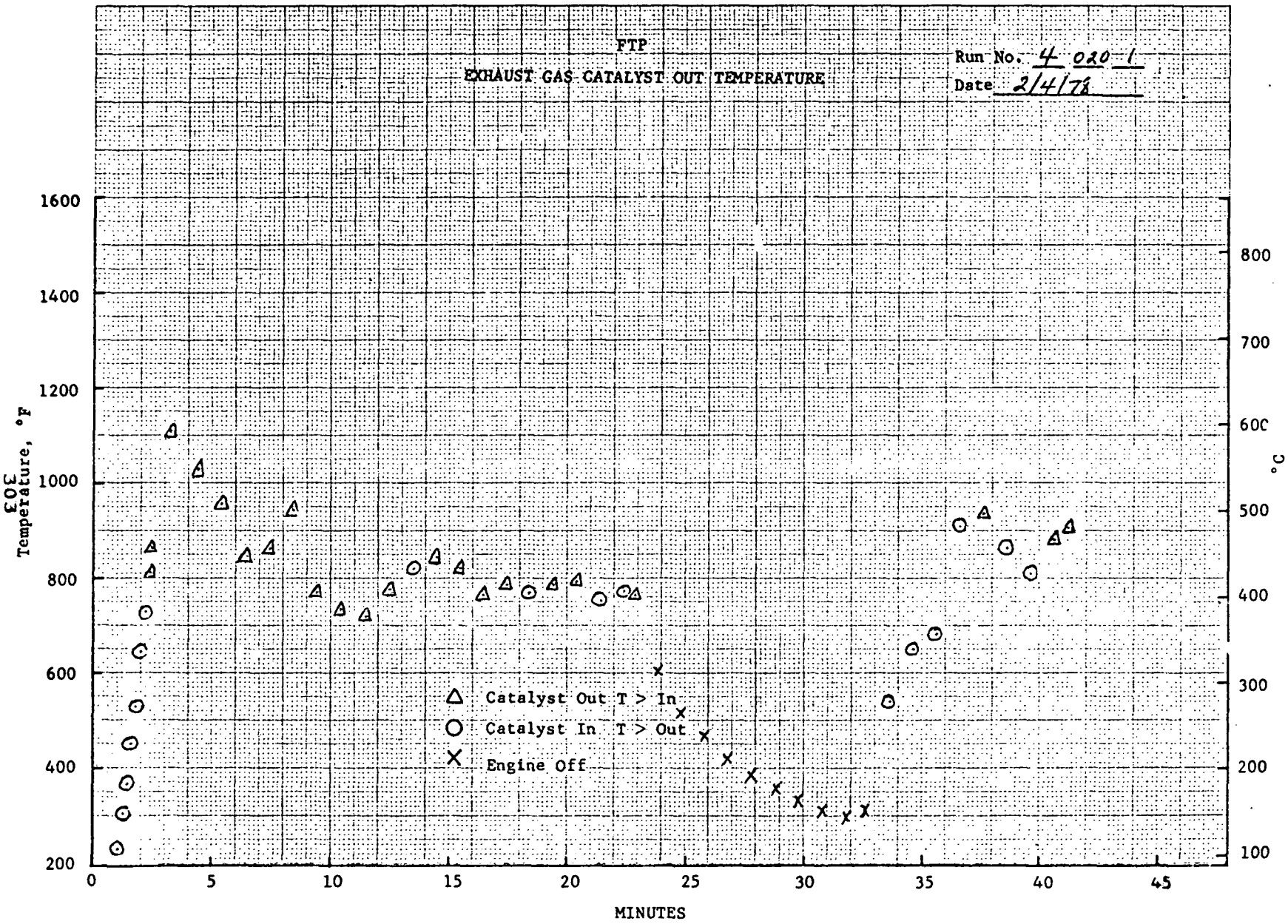

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 000 3
Date 2/16/72
301
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 600 4
Date 2/16/78
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
Temperature, °F
302
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 020 1
Date 2/4/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
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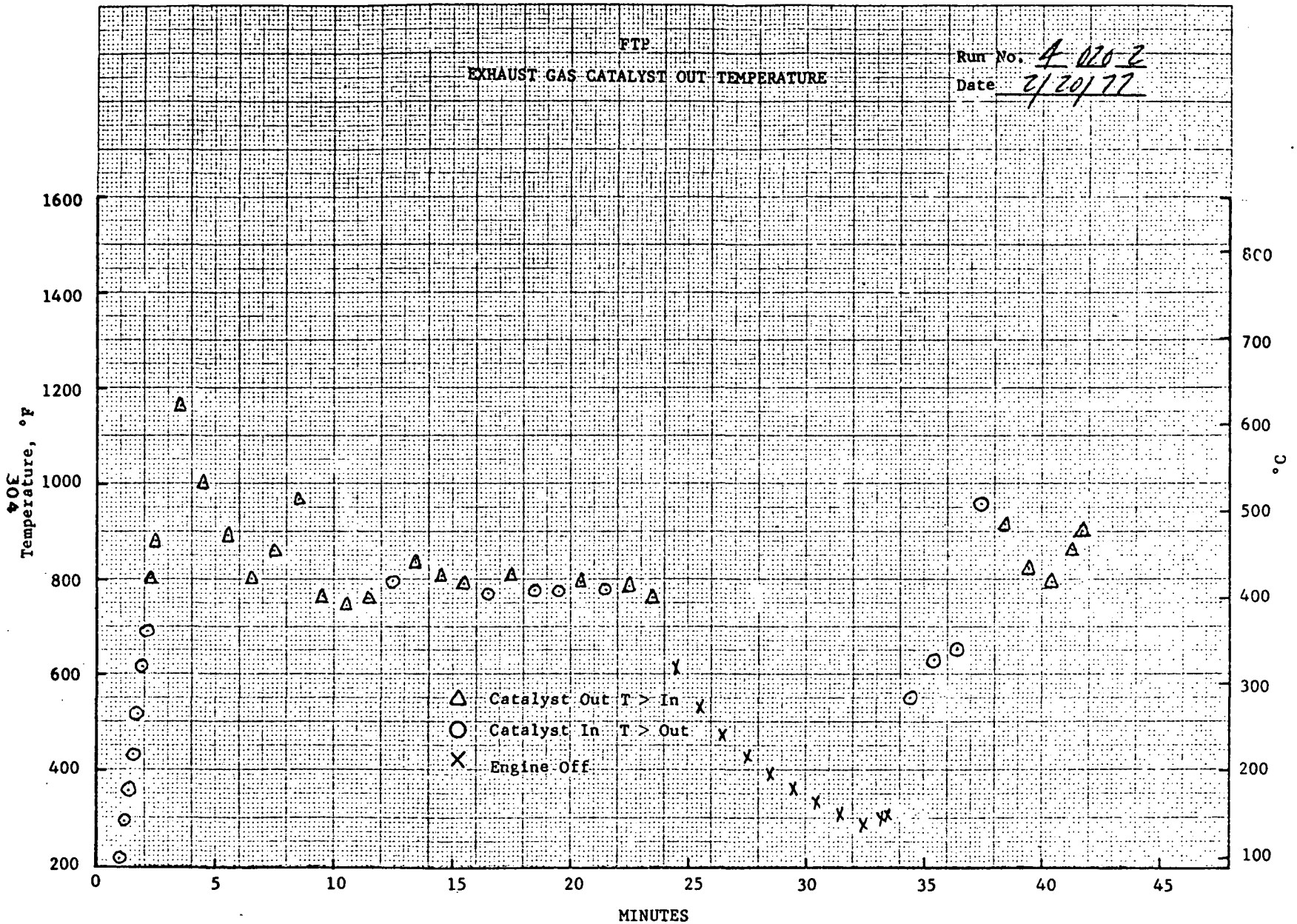
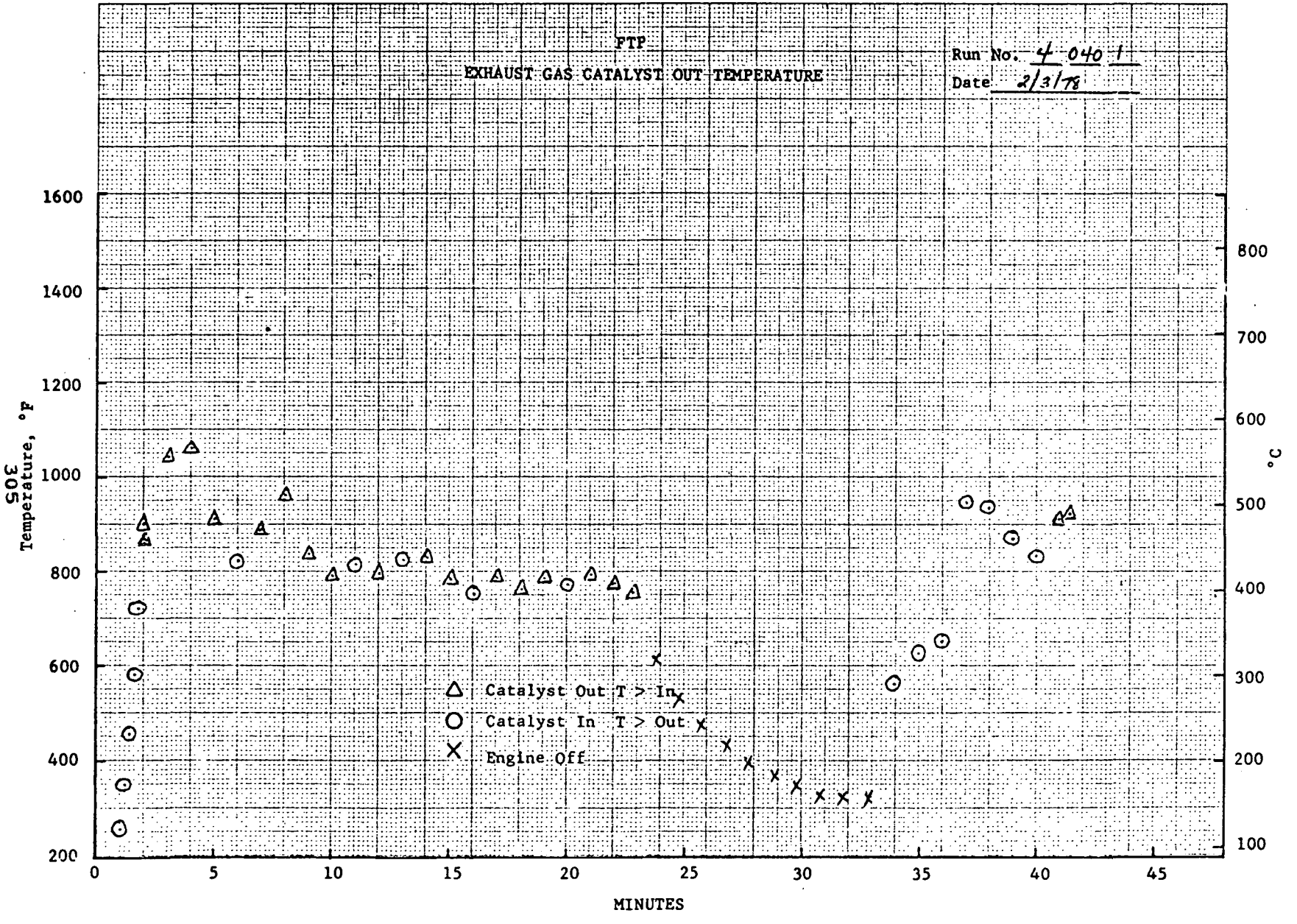
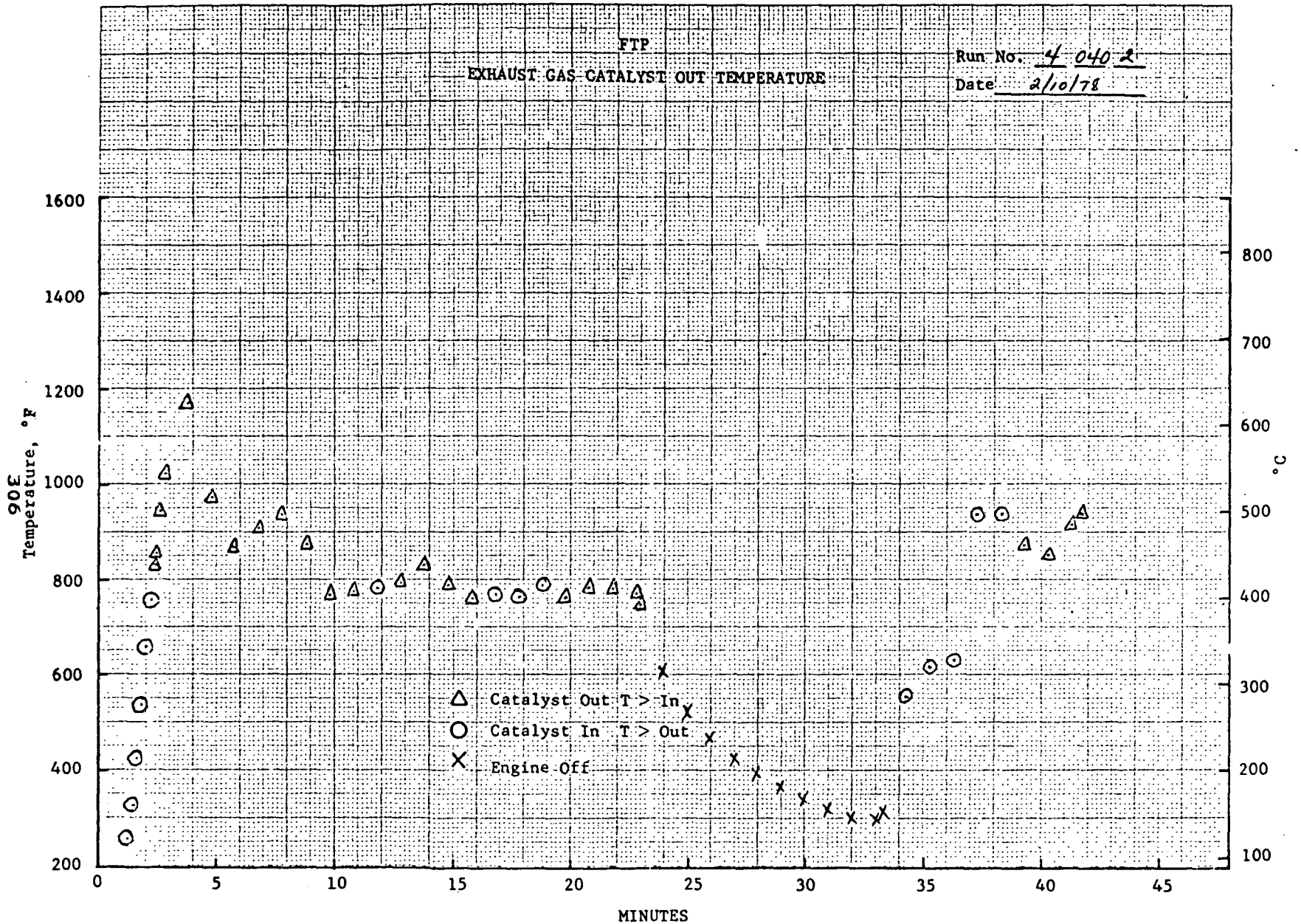
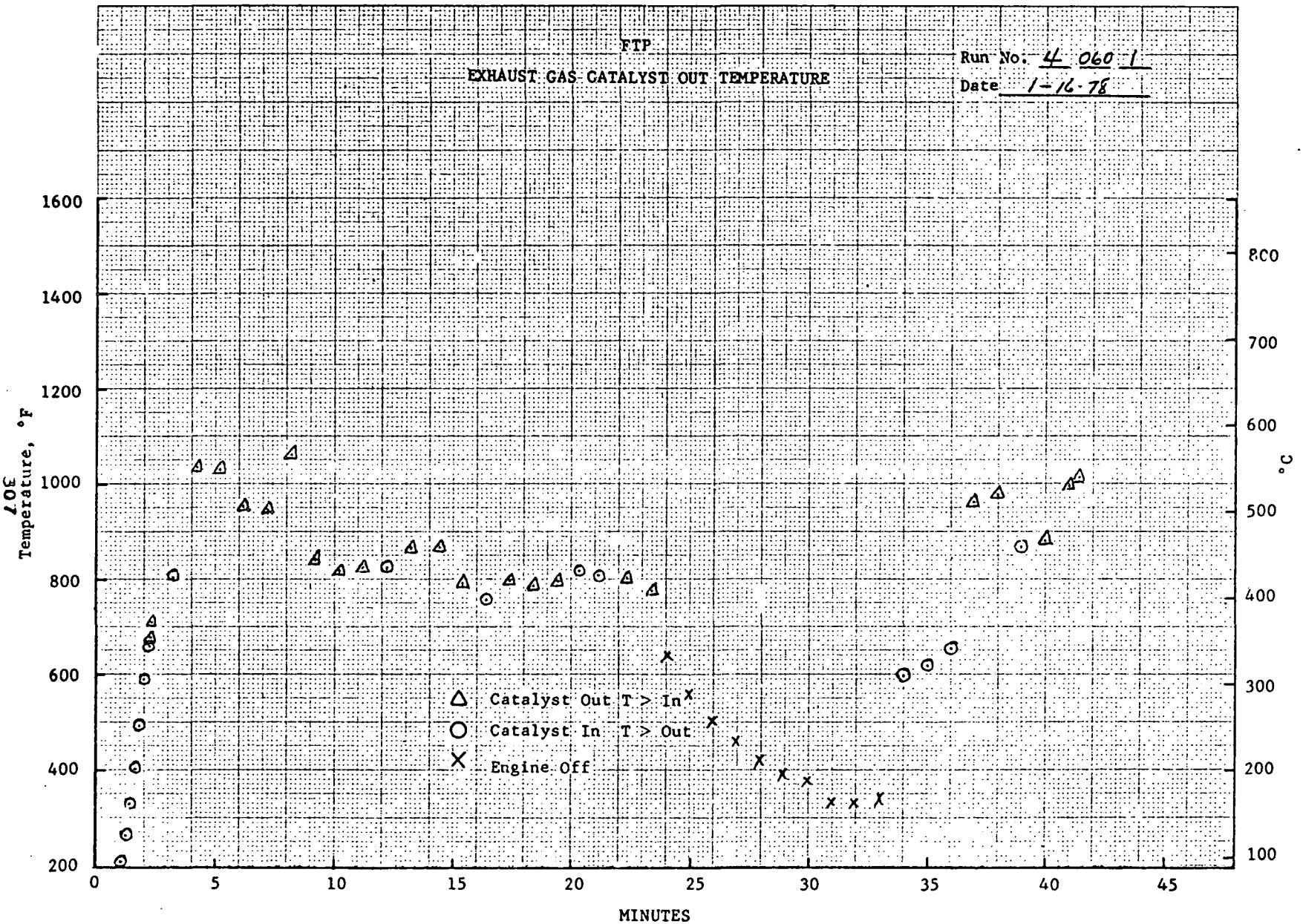
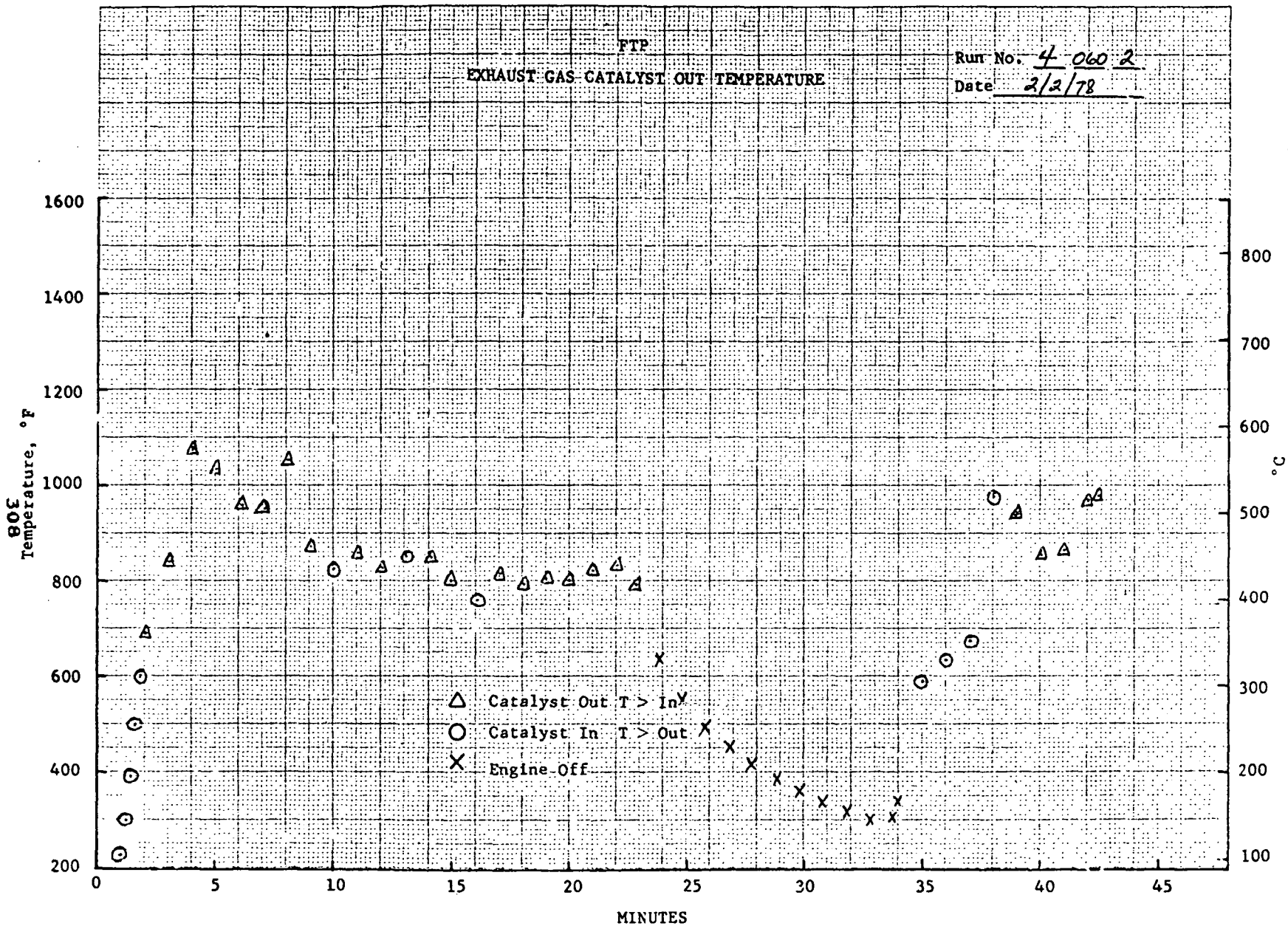
20
25
30
35
40
45


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 020 2
Date 2/20/72
Temperature, °F
304
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 040 1
Date 2/3/78
305
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 040 2
Date 2/10/78
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
Temperature, °F
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No: 4 060 1
Date 1-16-78
Temperature, °F
307
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 060 2
Date 2/2/78
Temperature, °F
308
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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500
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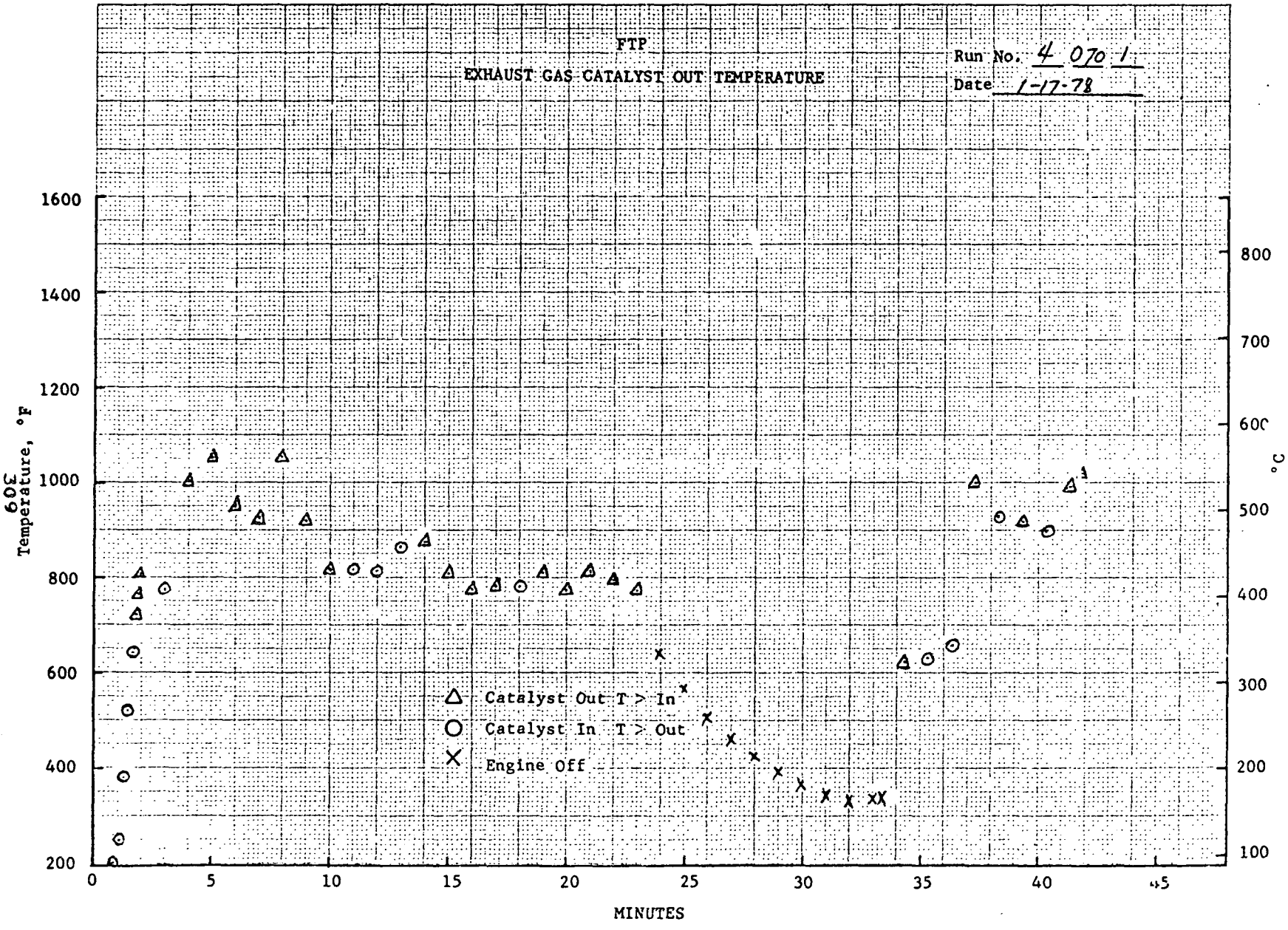
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 070 1
Date 1-17-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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500
400
300
200
100
0
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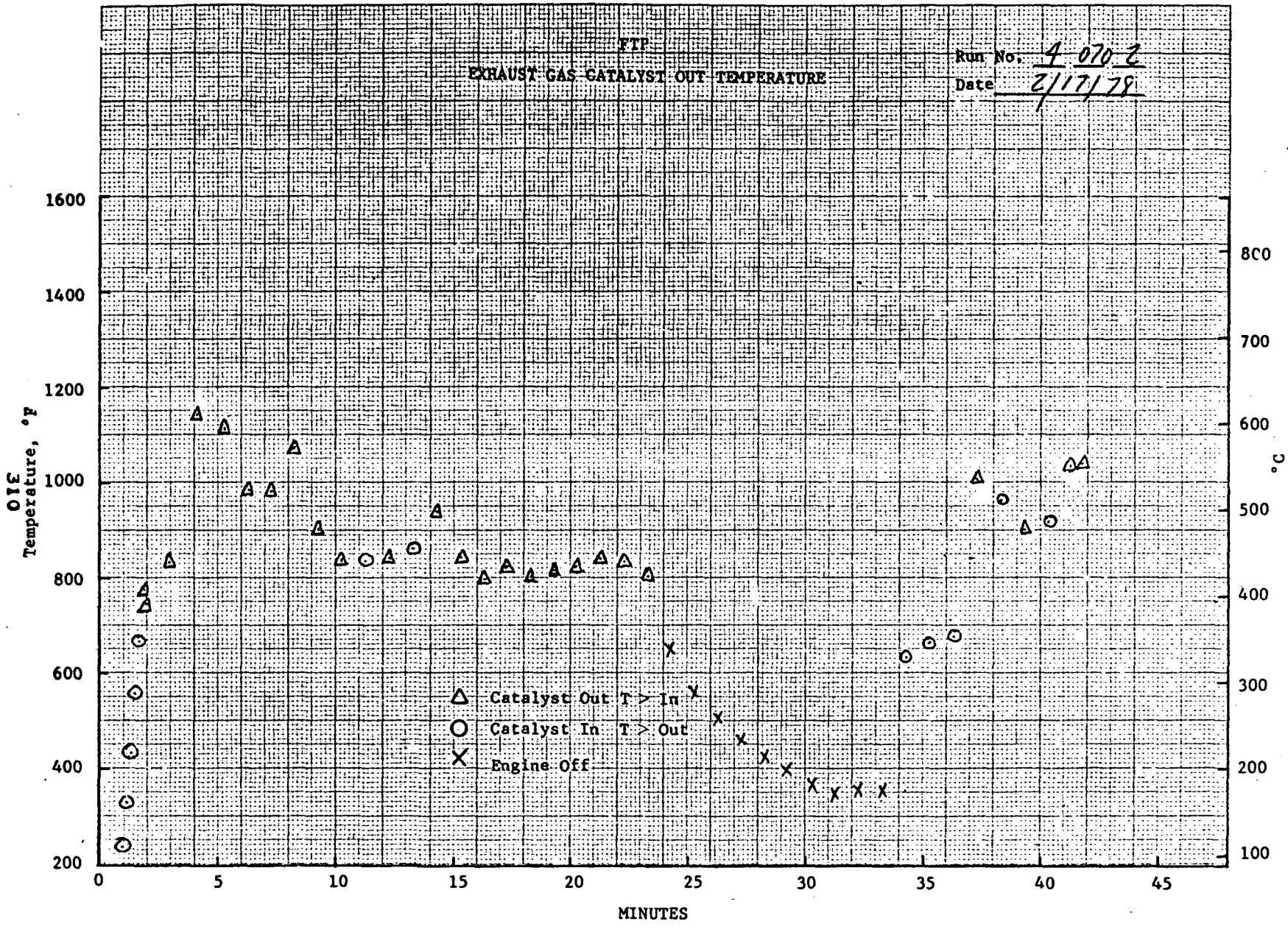
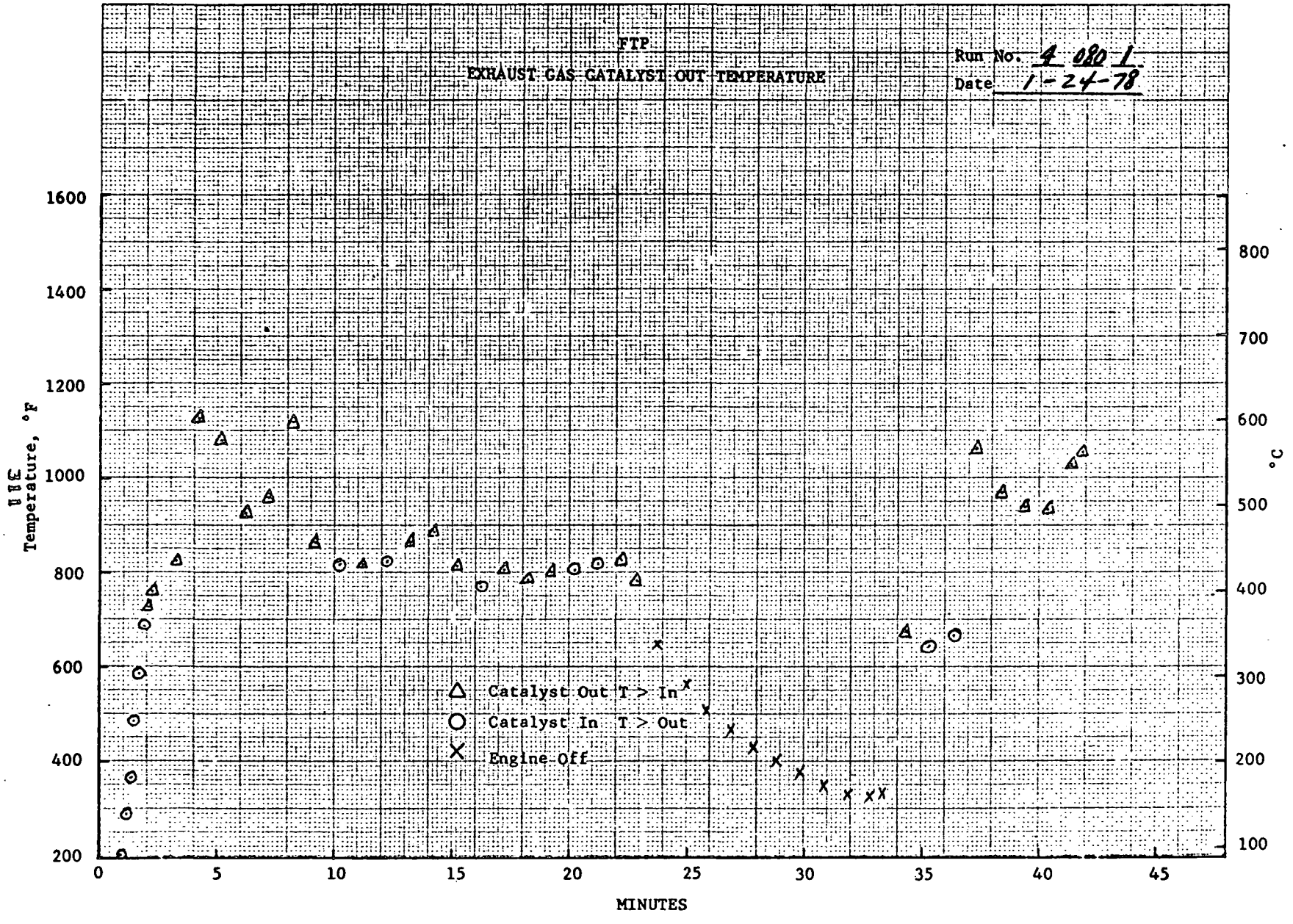
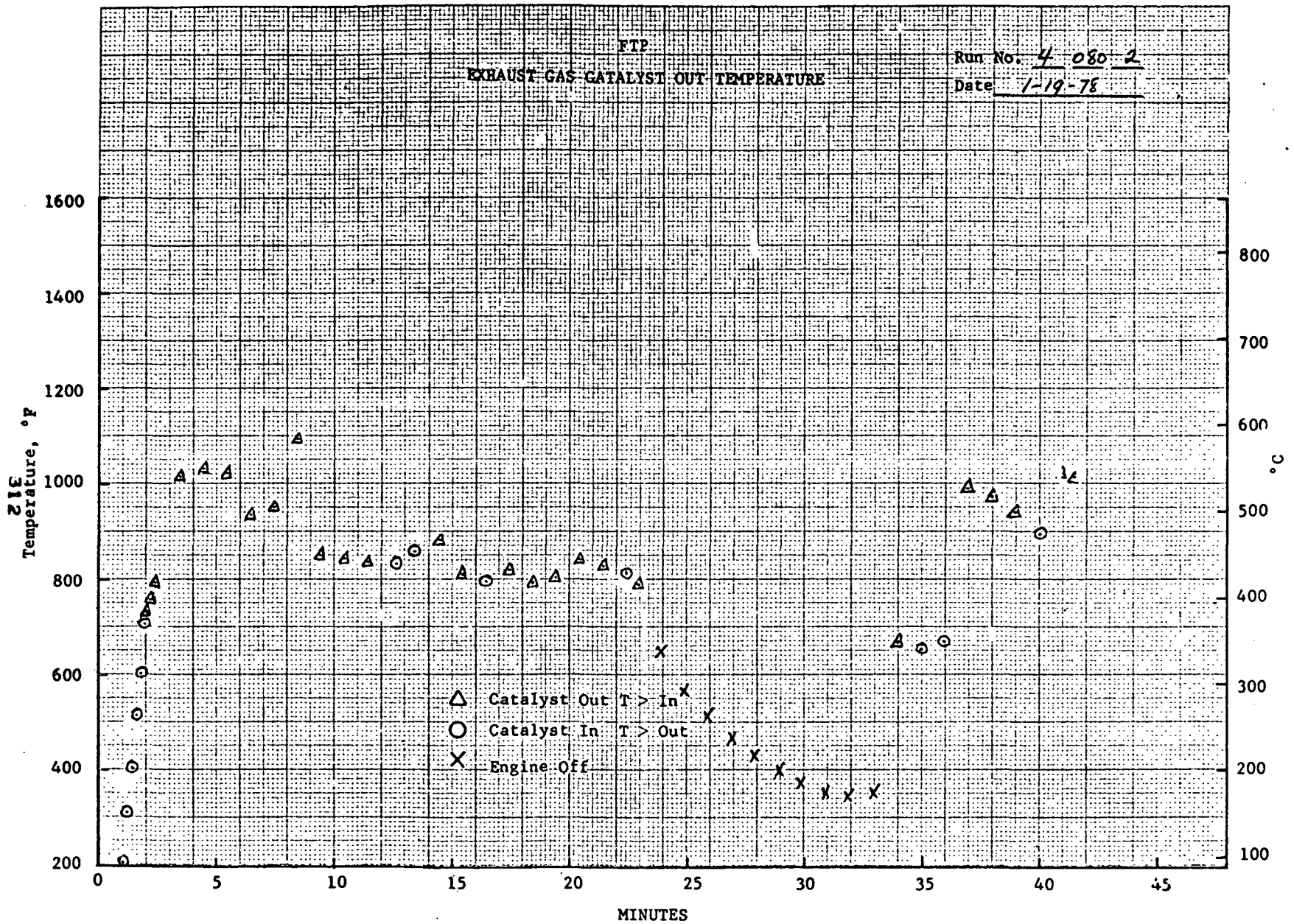

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 070 2
Date 2/17/78
310
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 080 1
Date 1-24-78
1600
1400
1200
1000
800
600
400
200
Temperature, °F
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 080 2
Date 1-19-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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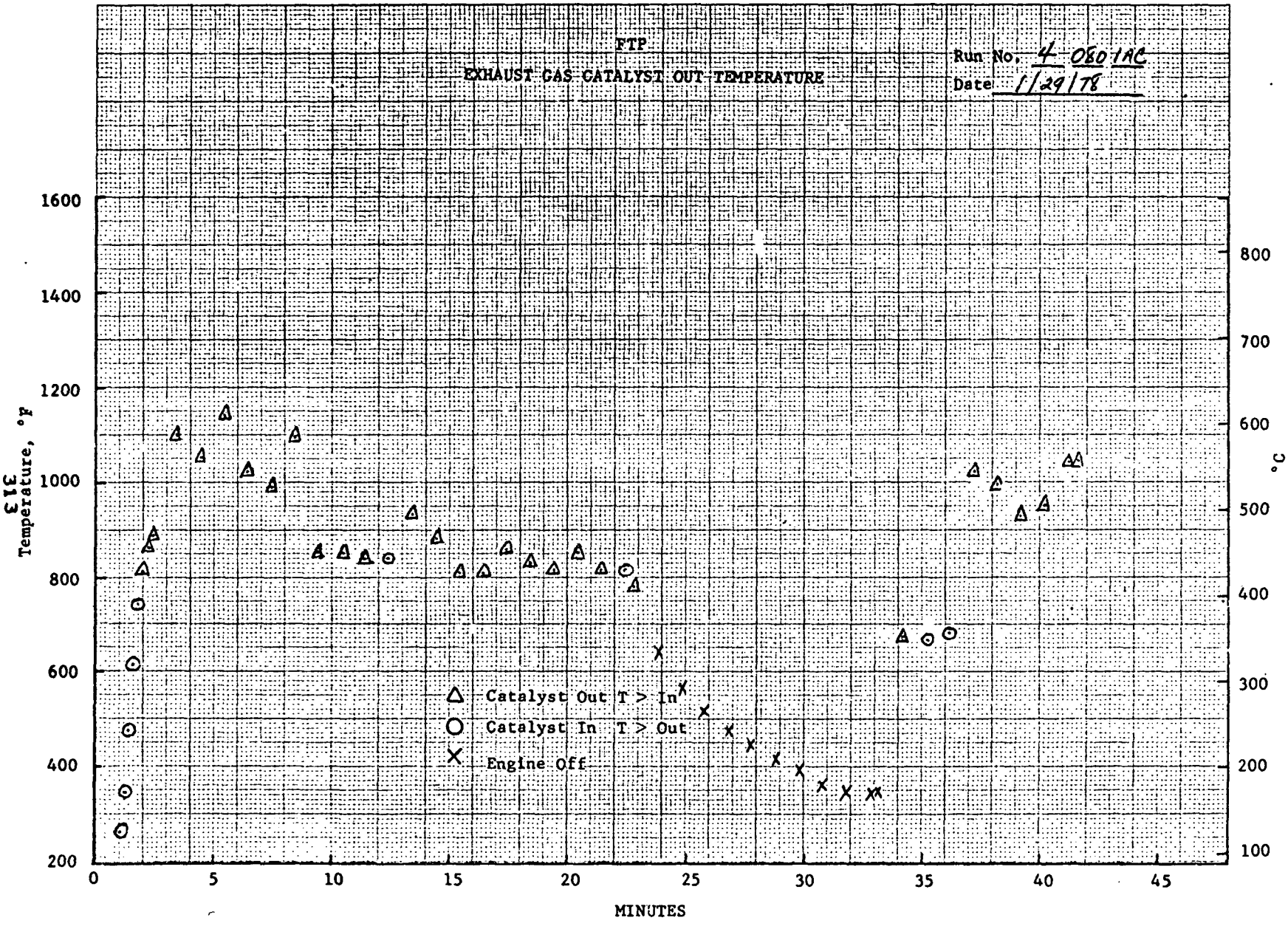
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 080 1AC
Date 1/29/78
313
Temperature, °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
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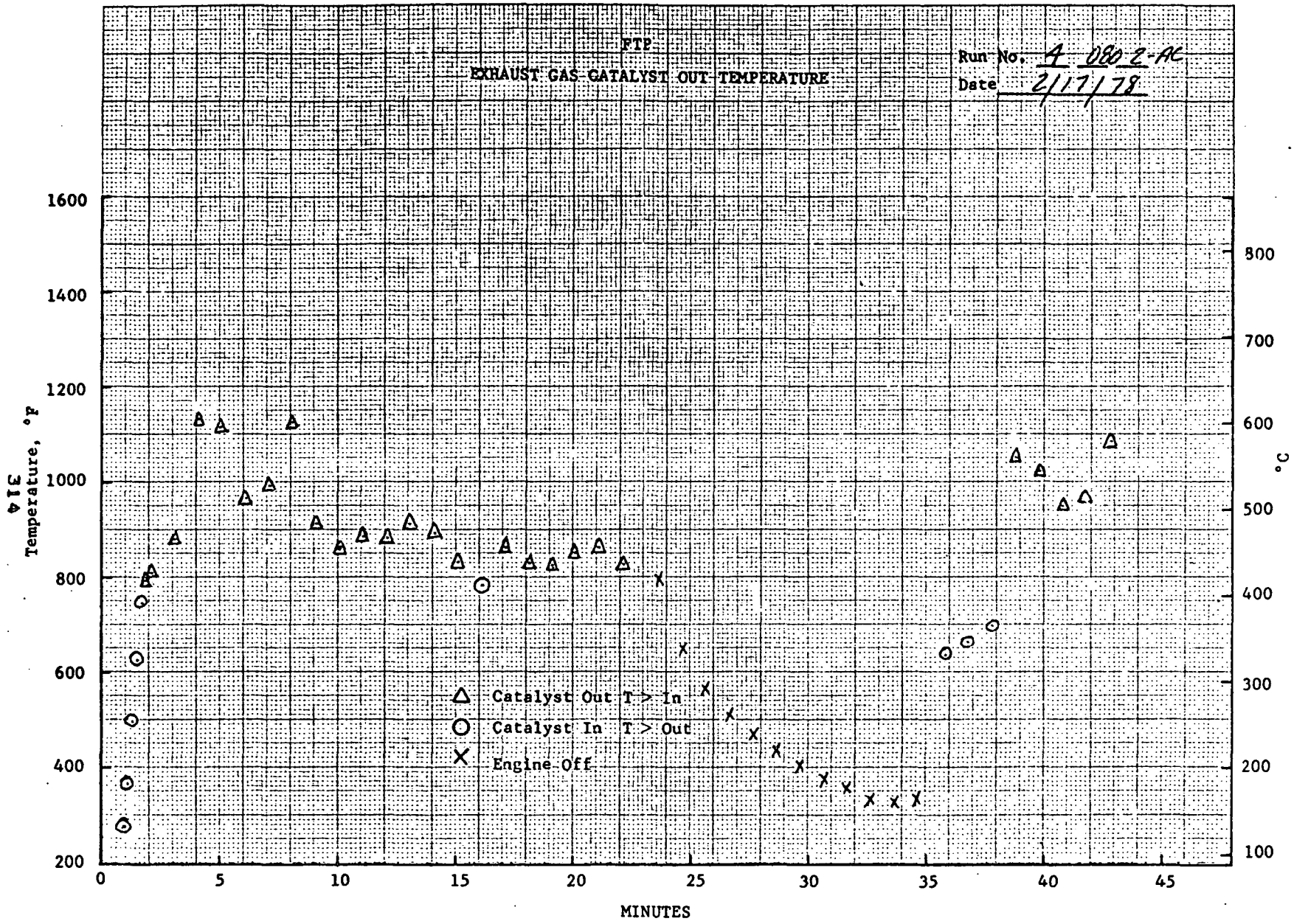
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT-TEMPERATURE
Run No. 4 080 2-AC
Date 2/17/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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10
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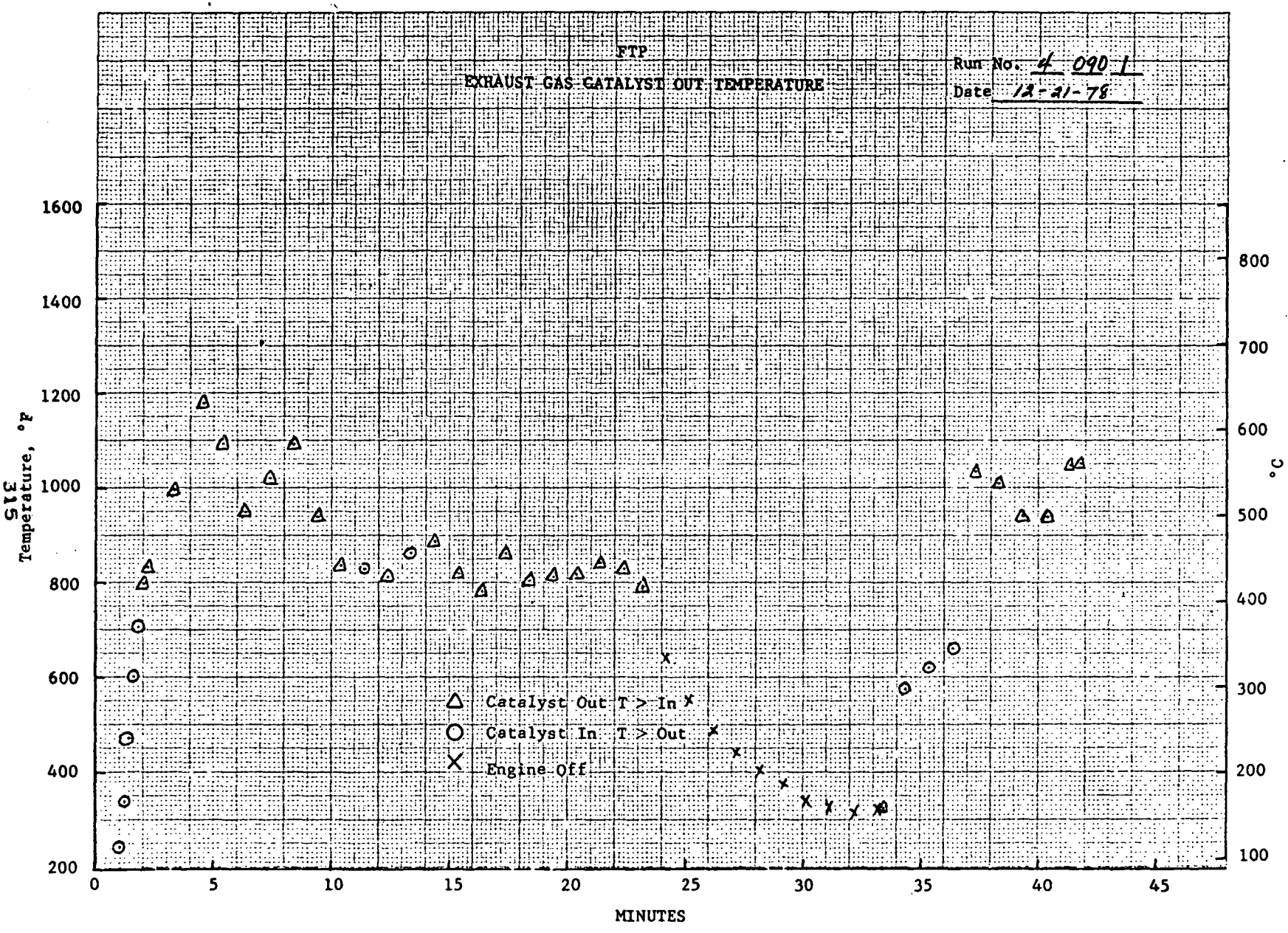
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 090 L
Date 12-21-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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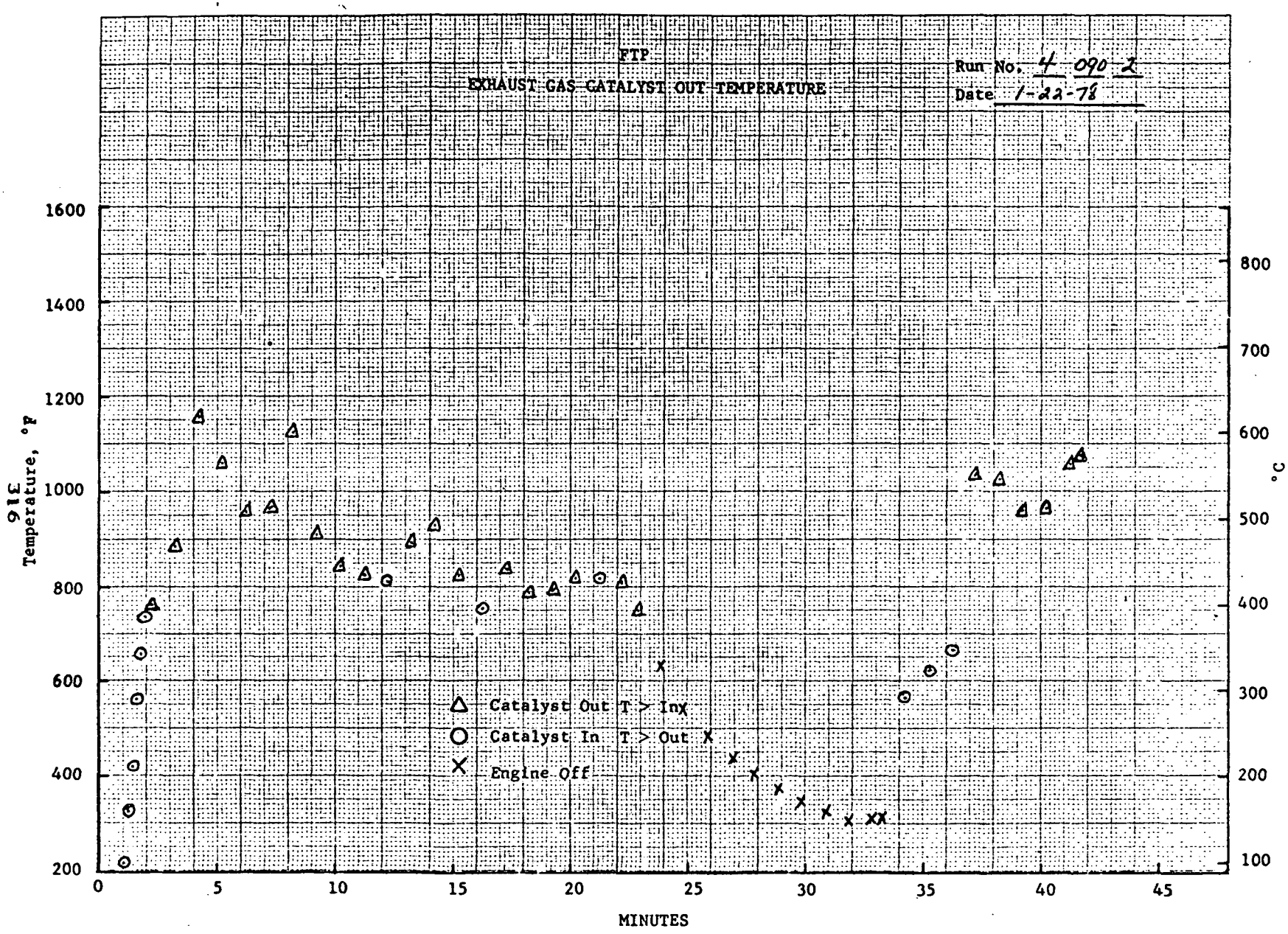
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 090 2
Date 1-22-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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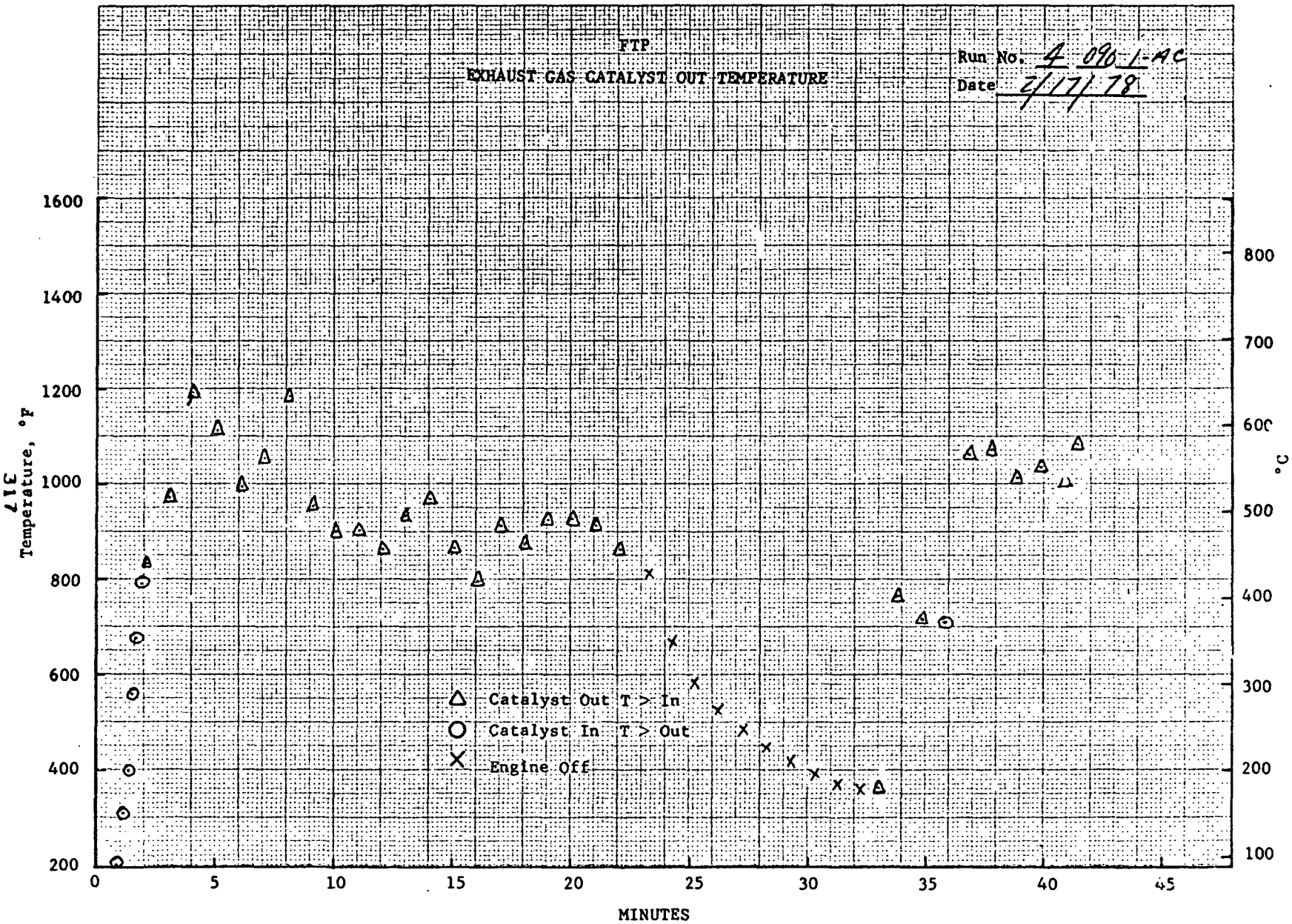
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 090 1-AC
Date 2/17/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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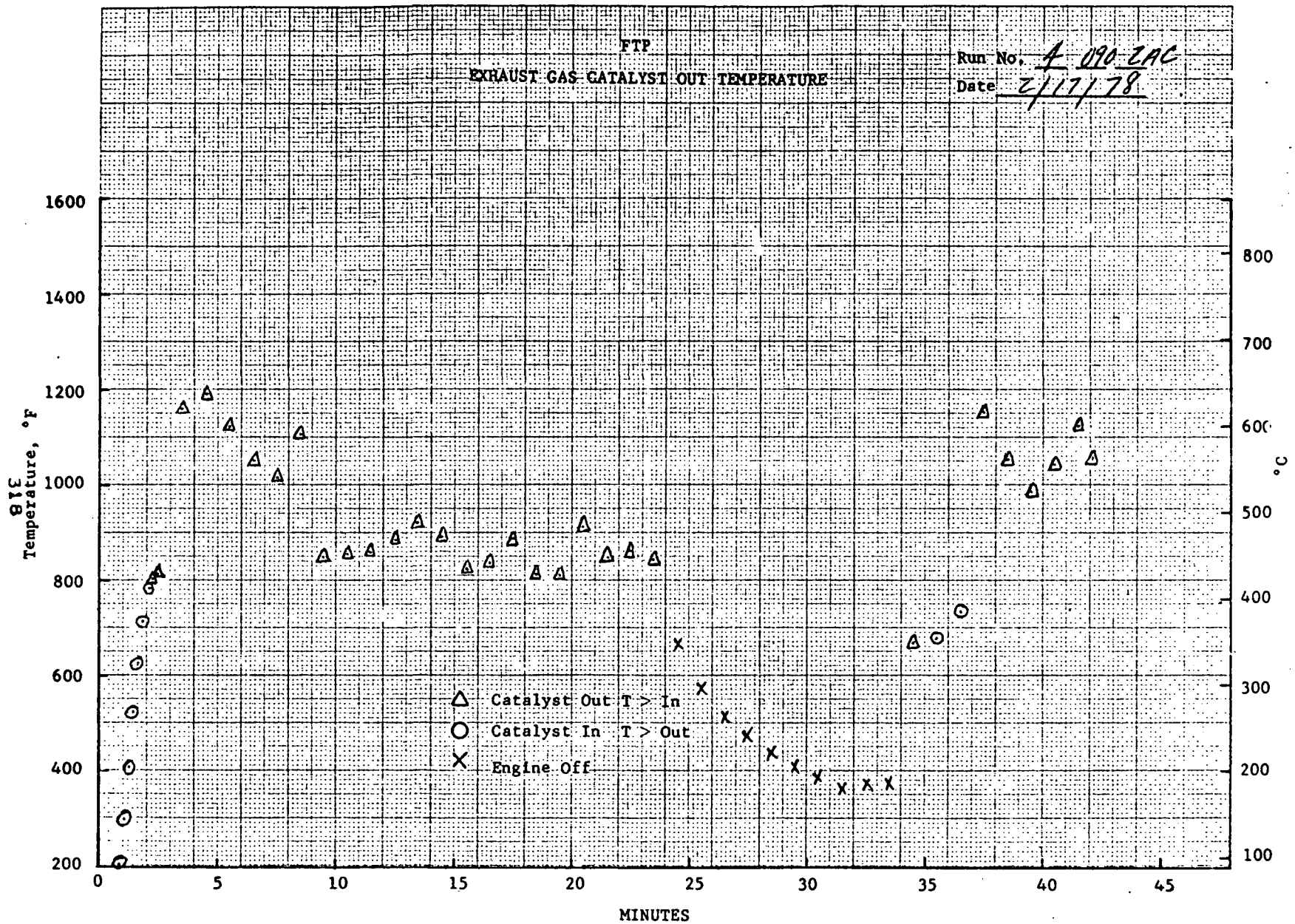
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 090 IAC
Date 2/17/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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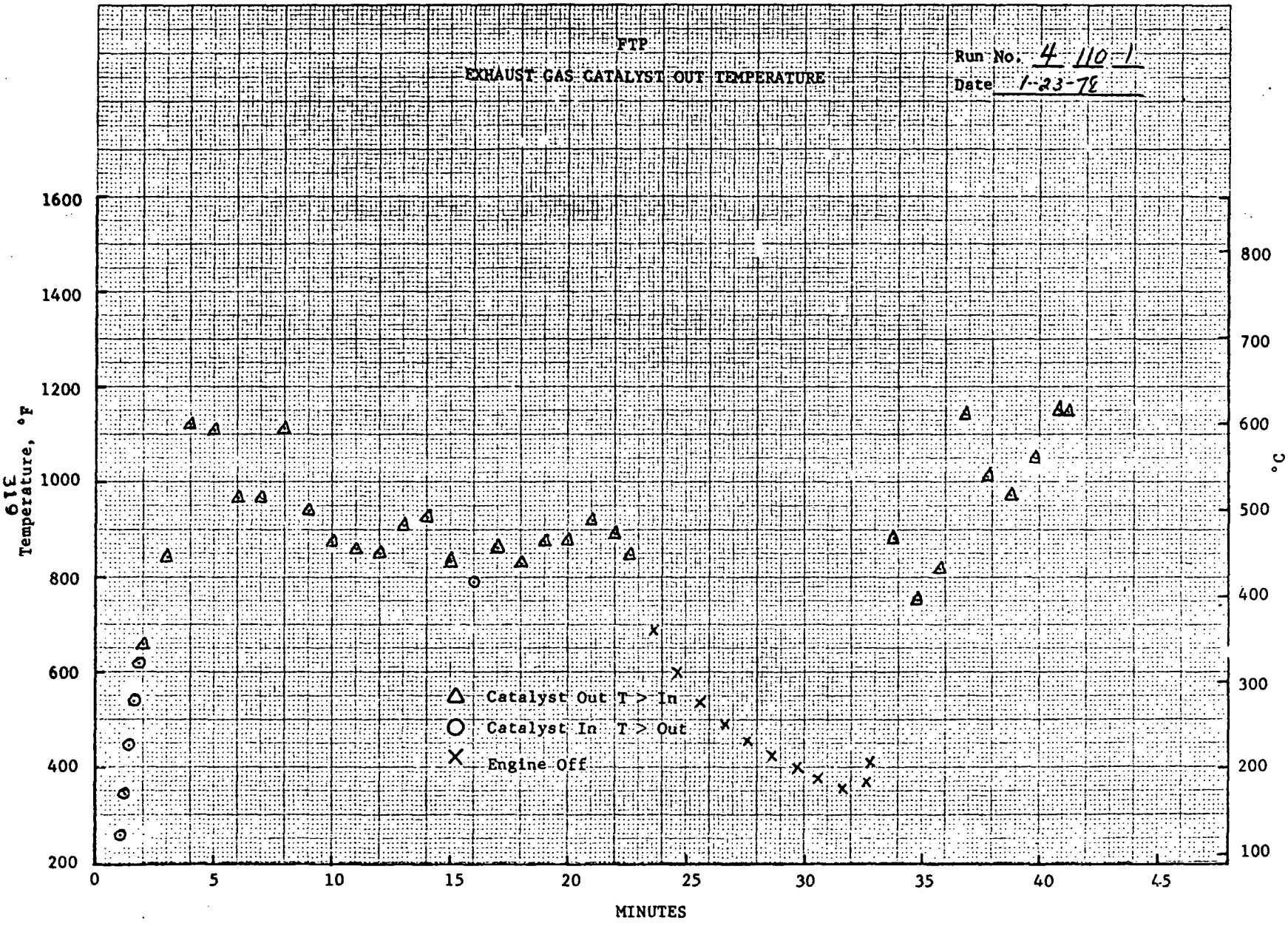
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 110 1
Date 1-23-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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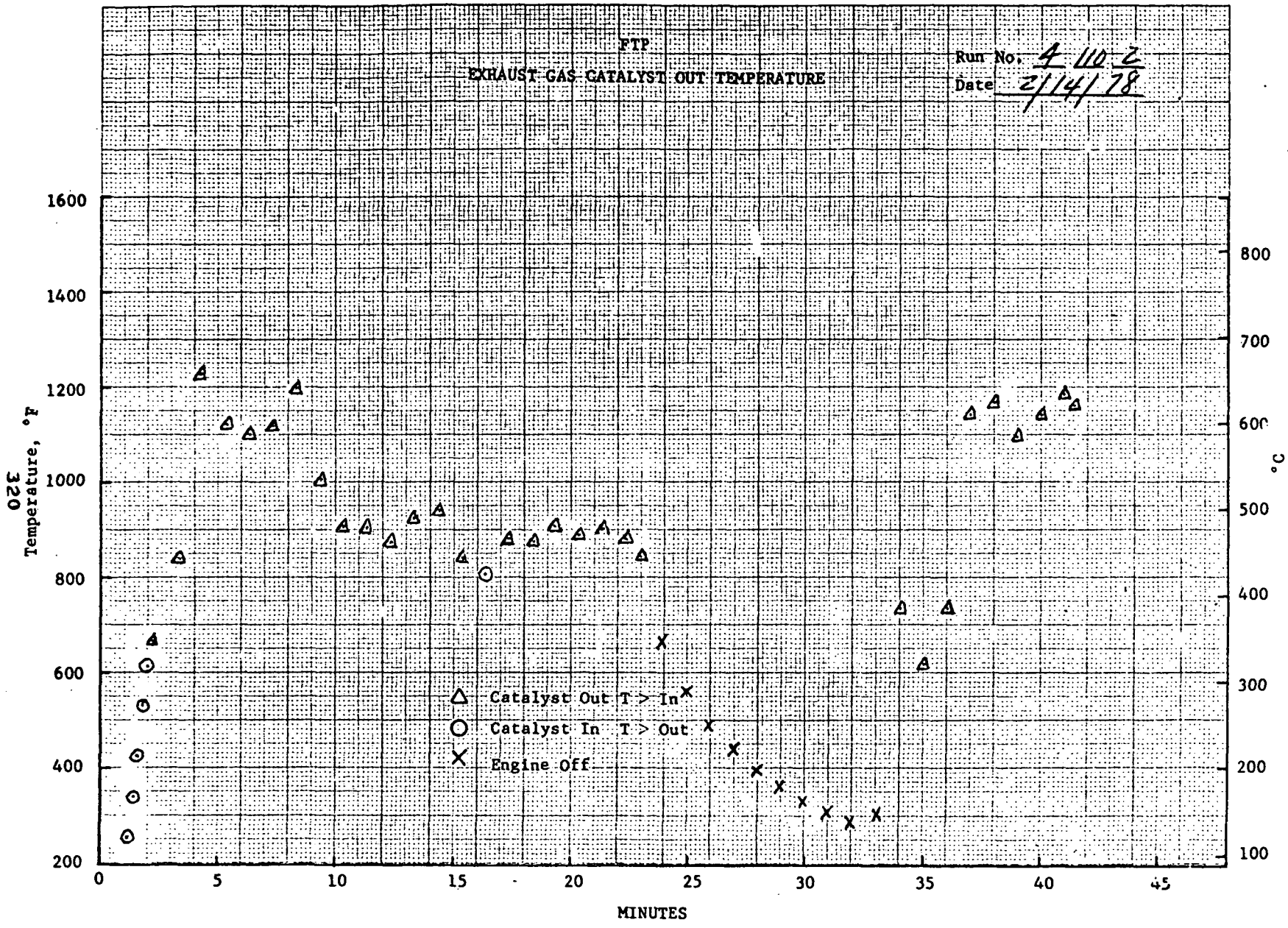
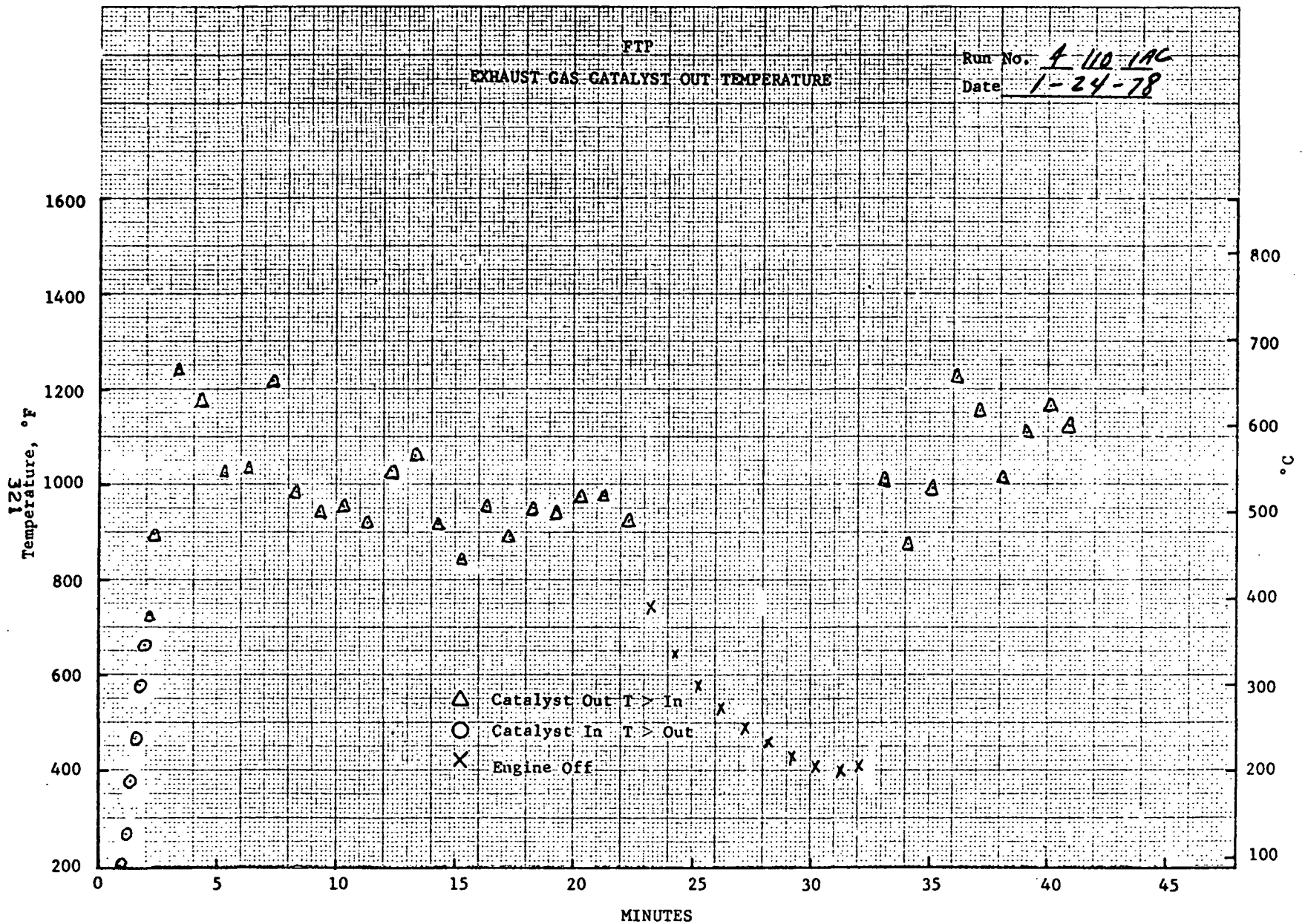

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No: 4 110 2
Date 2/14/78
320
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 110 1AC
Date 1-24-78
Temperature, °F
321
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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30
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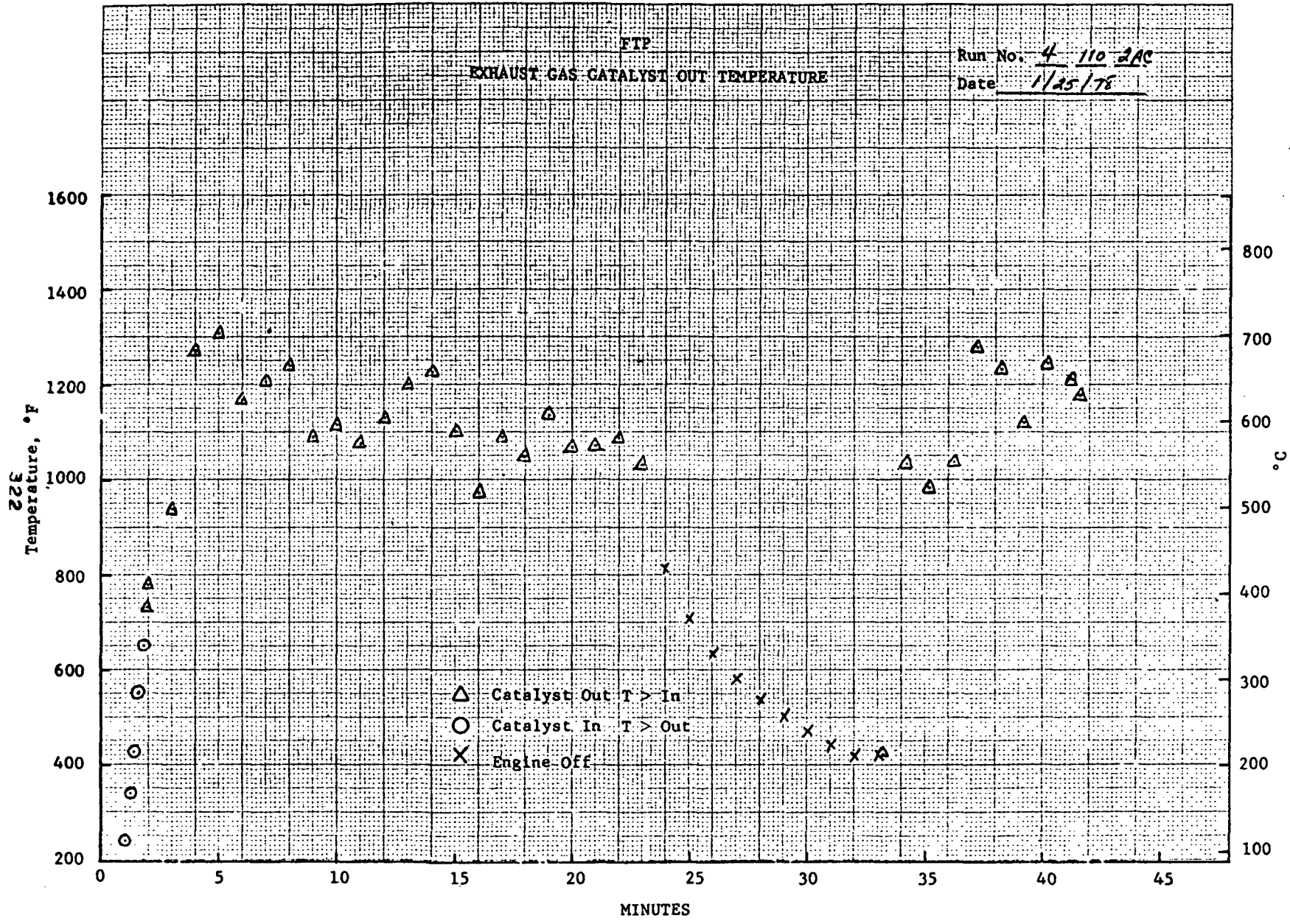
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 110 2AC
Date 1/25/78
Temperature, °F
322
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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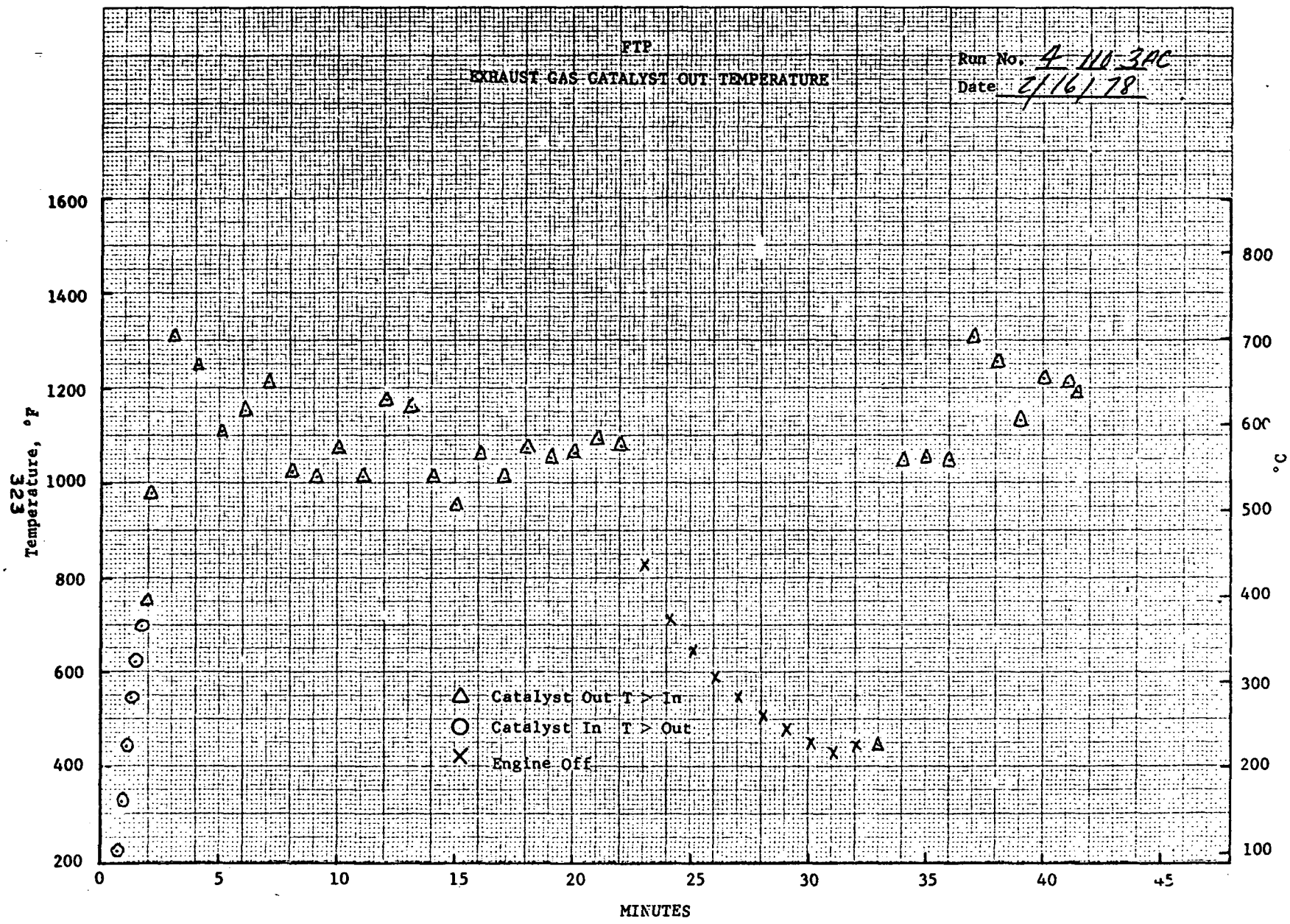
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 4 110-3AC
Date 2/16/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
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100
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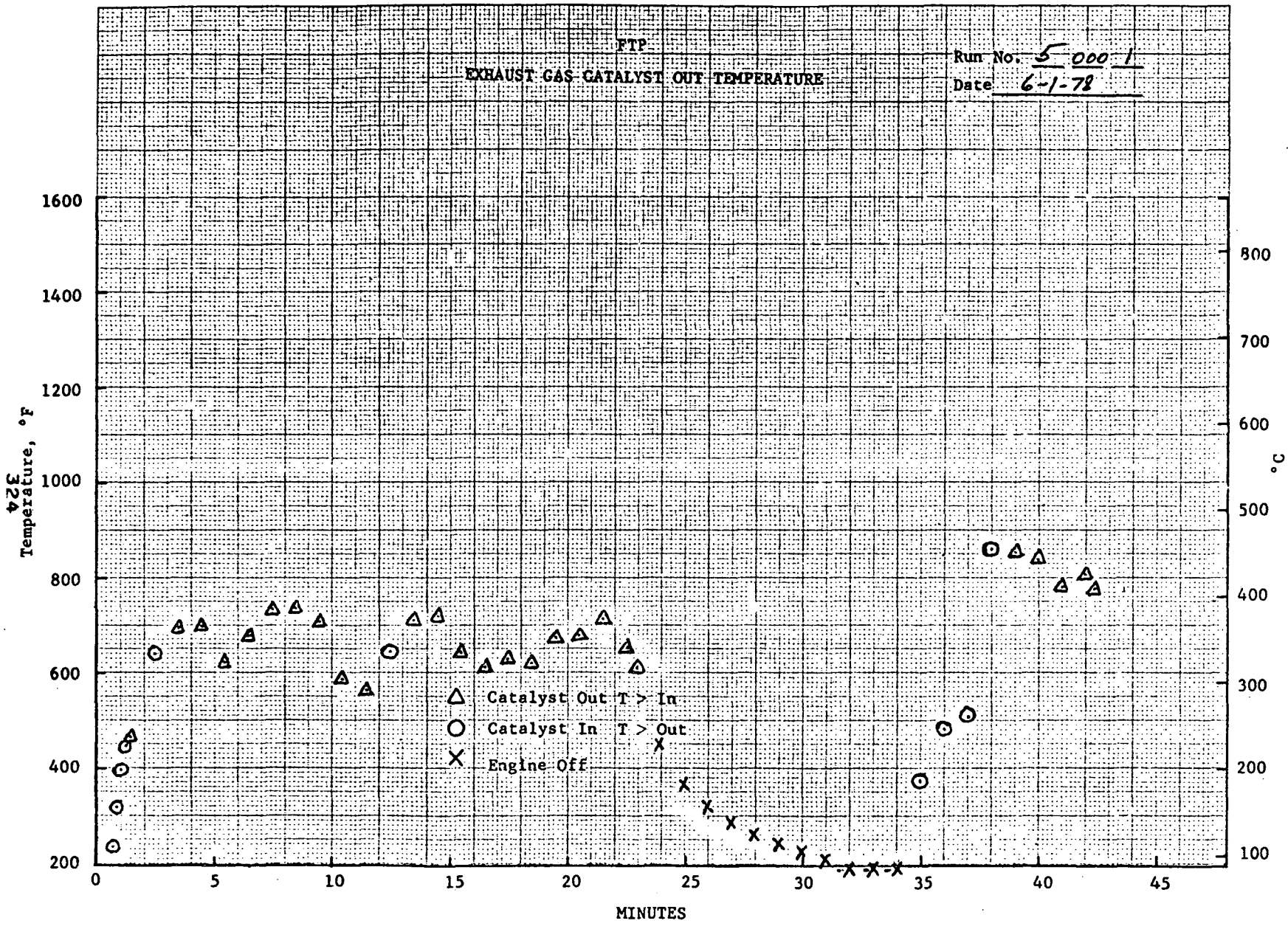
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 000 1
Date 6-1-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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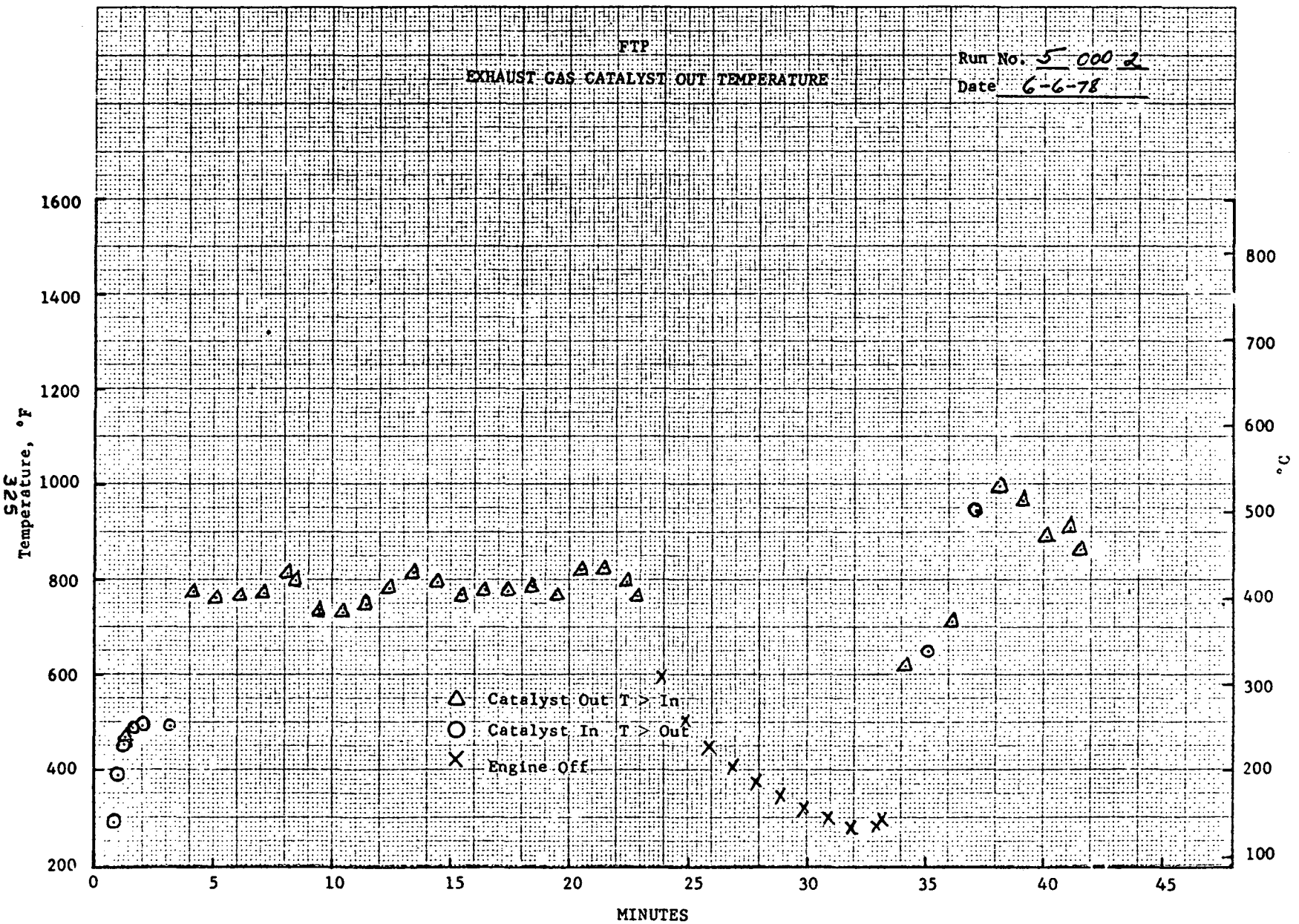
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 000 2
Date 6-6-78
Temperature, °F
325
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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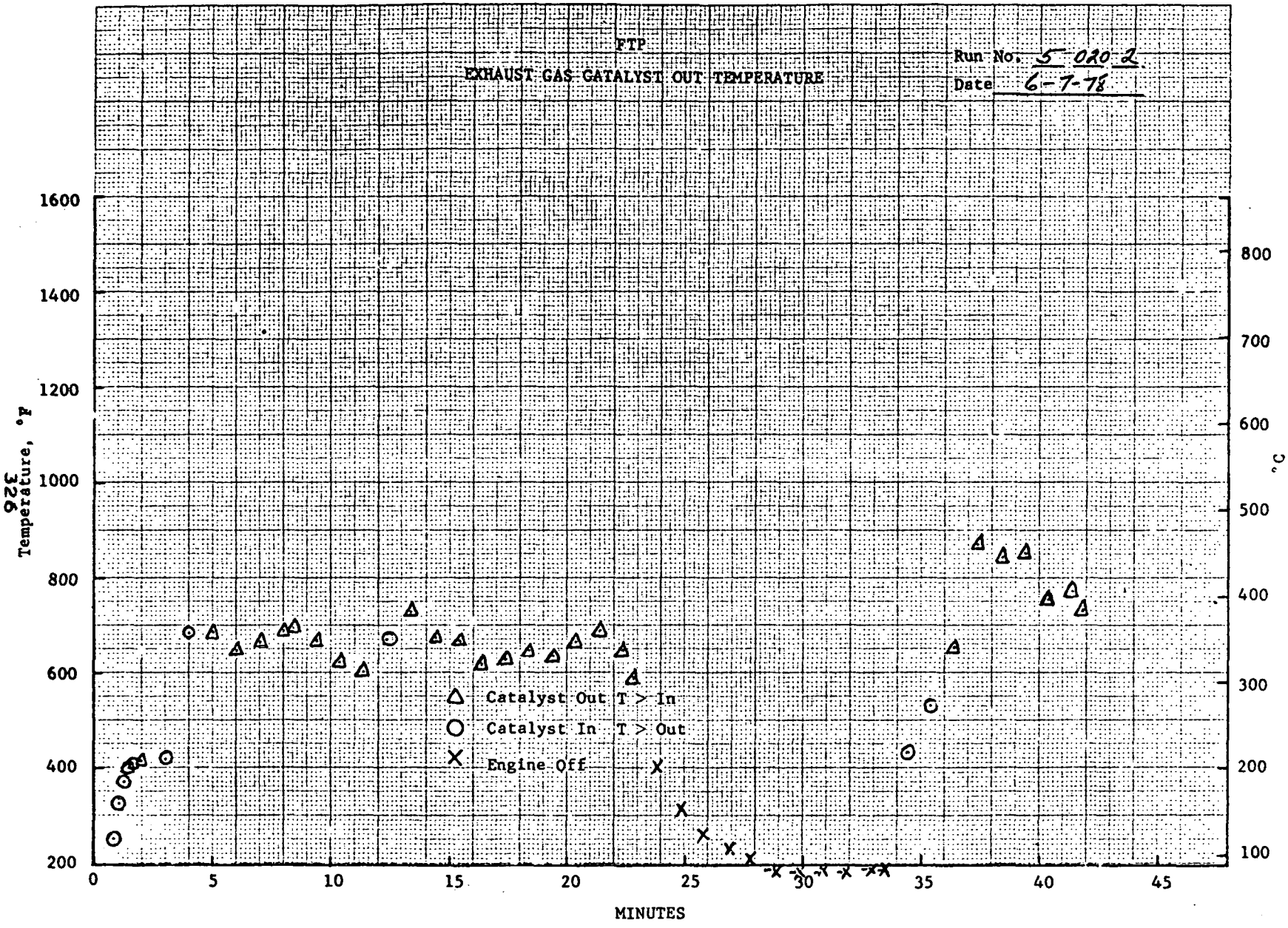
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 020 2
Date 6-7-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
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300
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100
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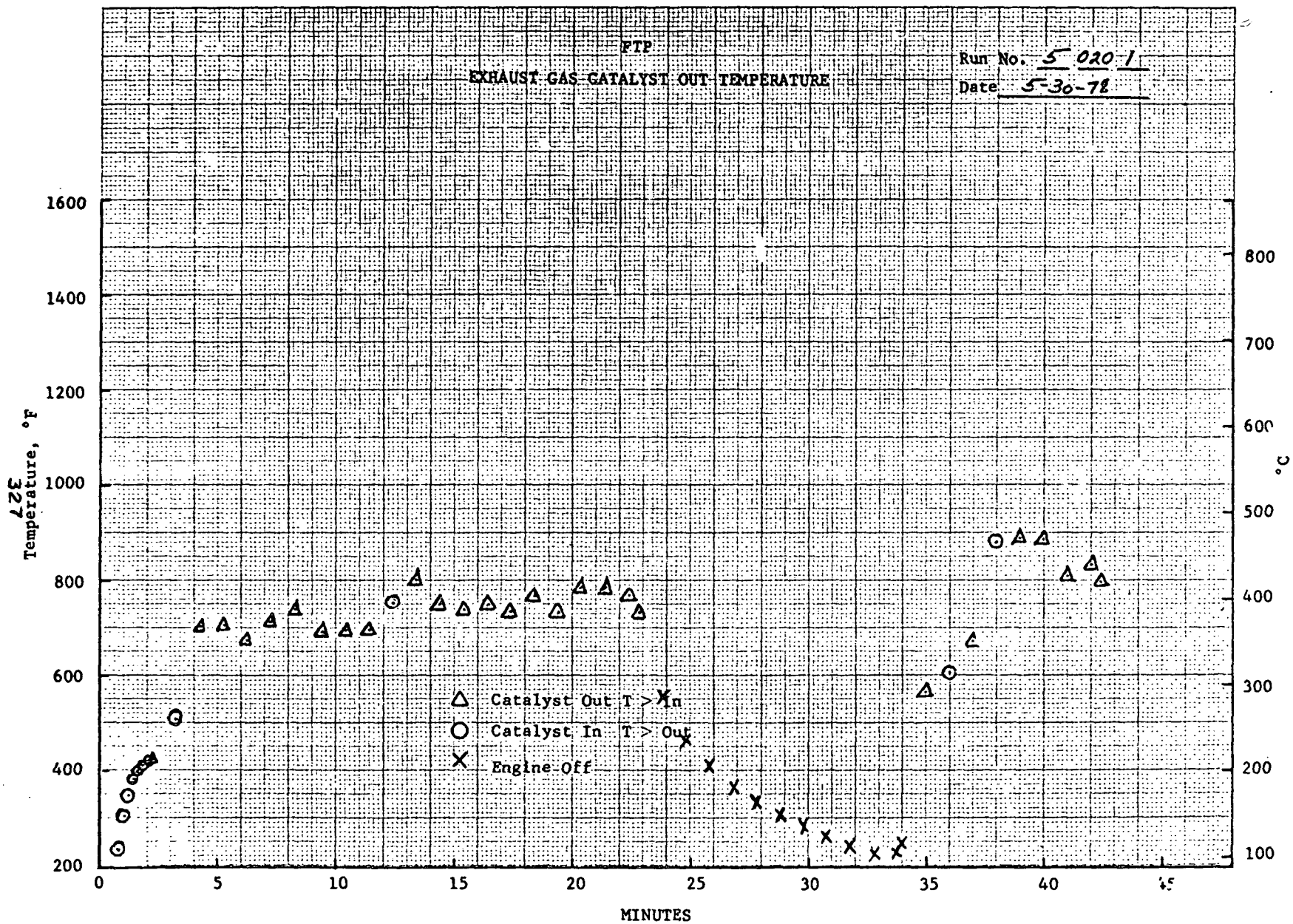
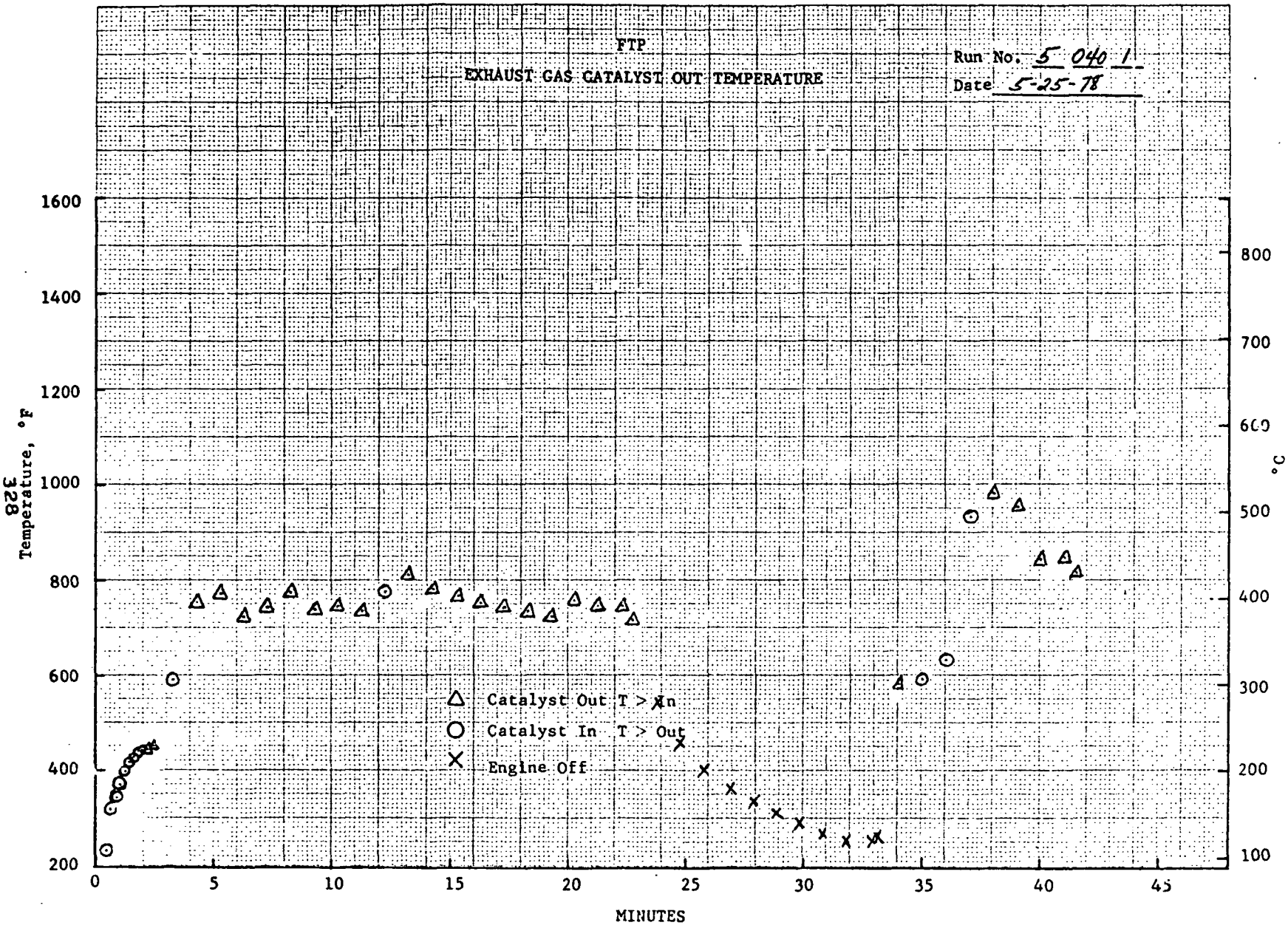

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 020 1
Date 5-30-78
Temperature, °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 040 1
Date 5-25-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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10
15
20
25
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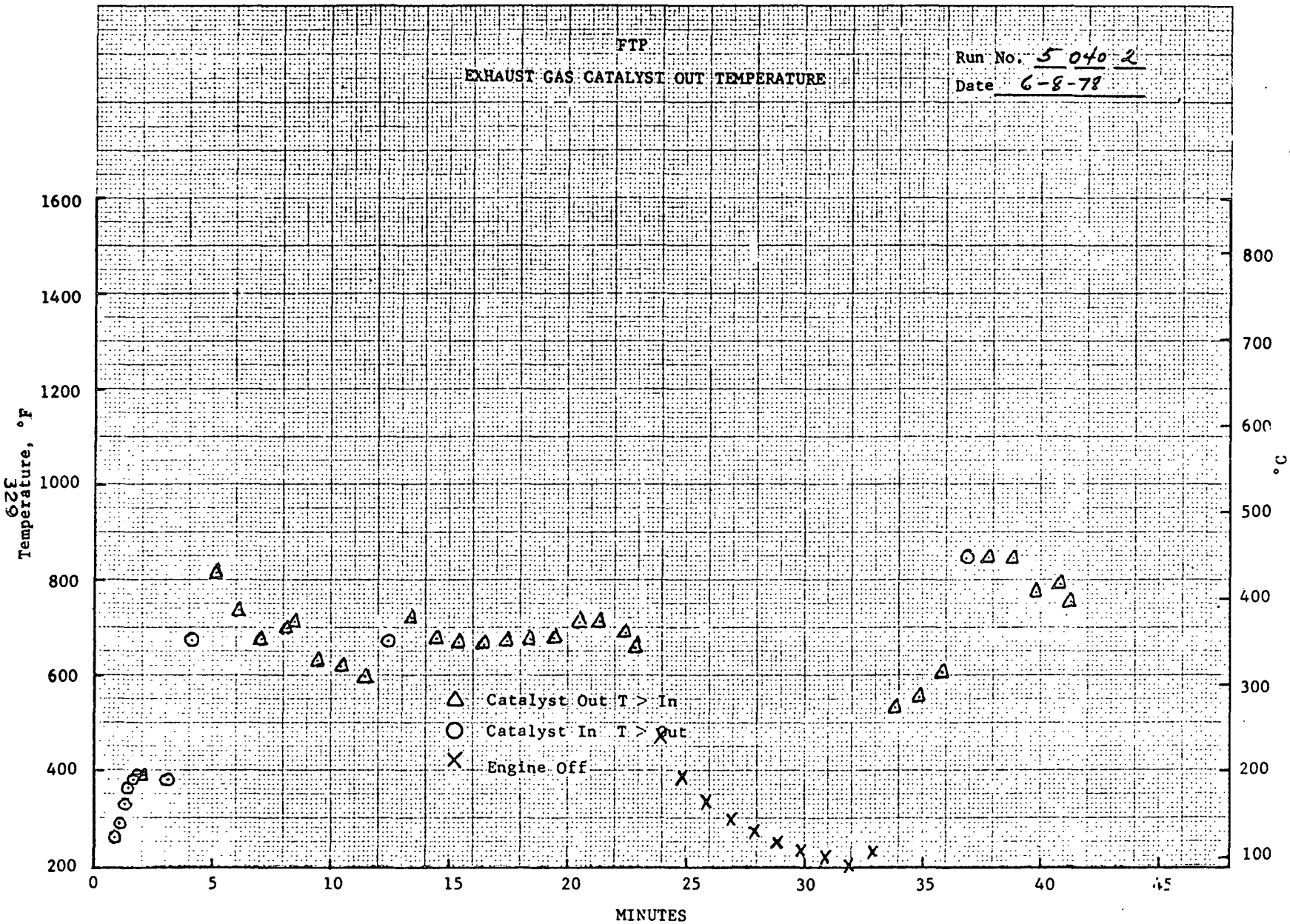
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 040 2
Date 6-8-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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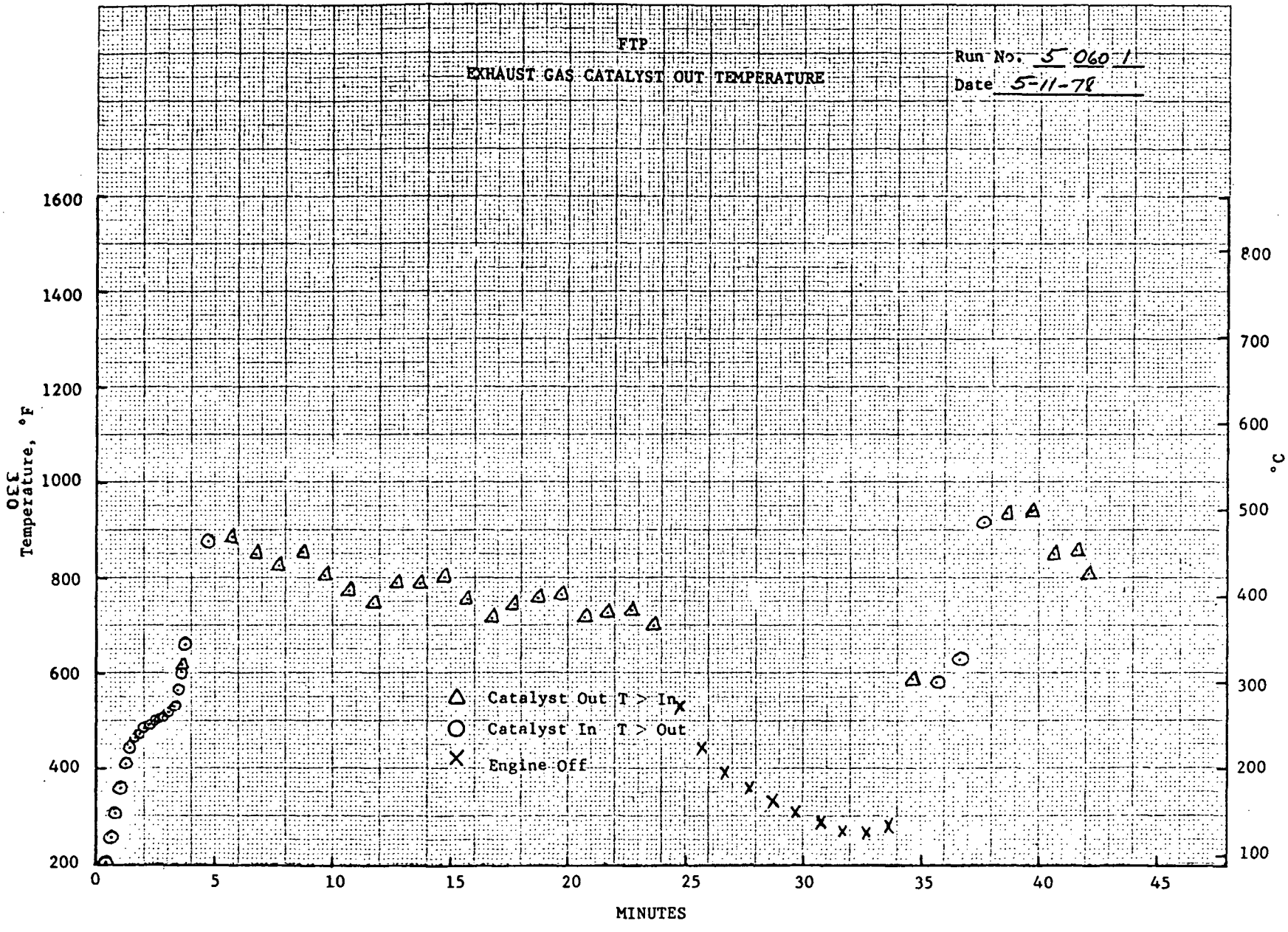
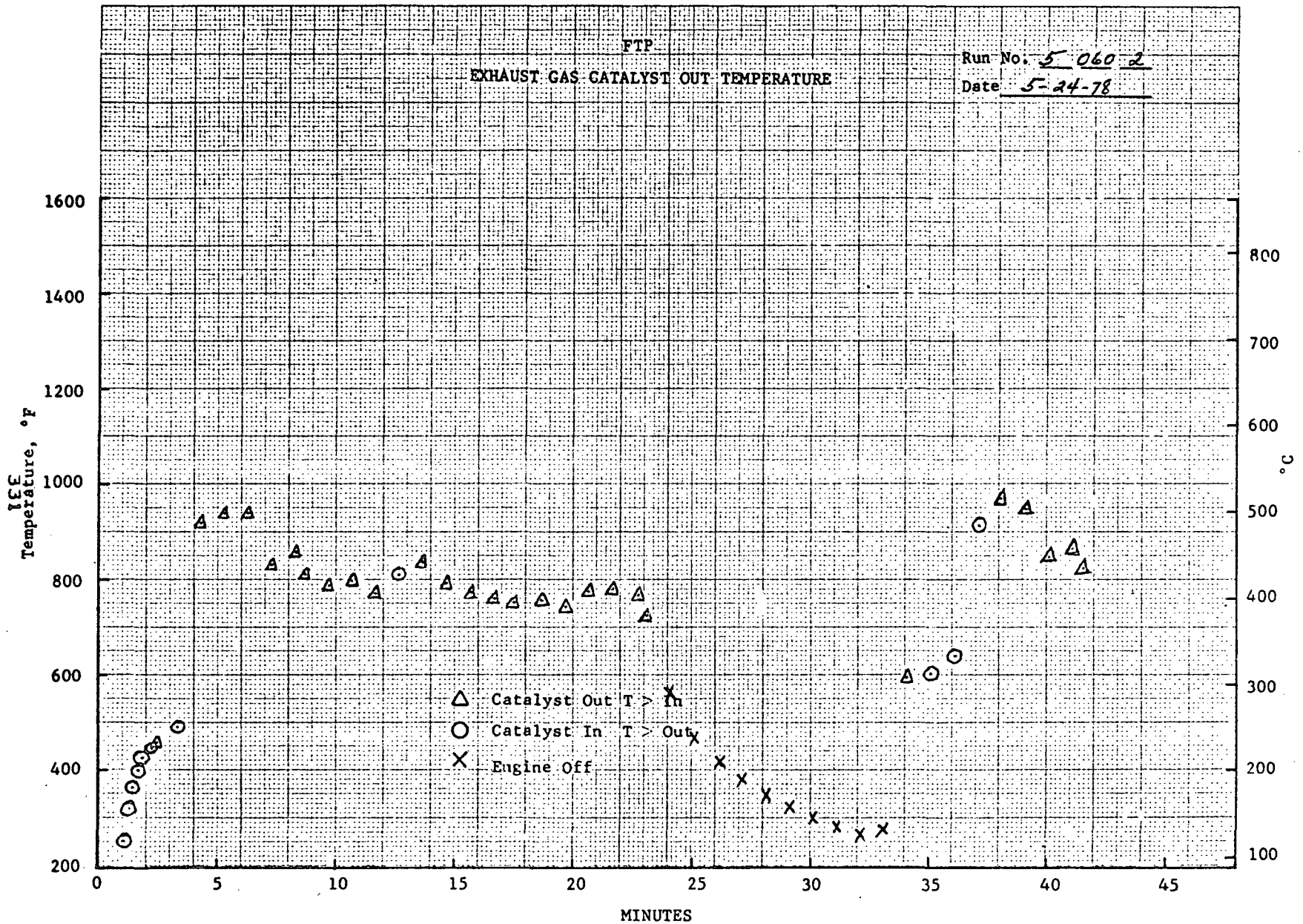

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 060 1
Date 5-11-78
Temperature, °F
330
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 060 2
Date 5-24-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
15
20
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30
35
40
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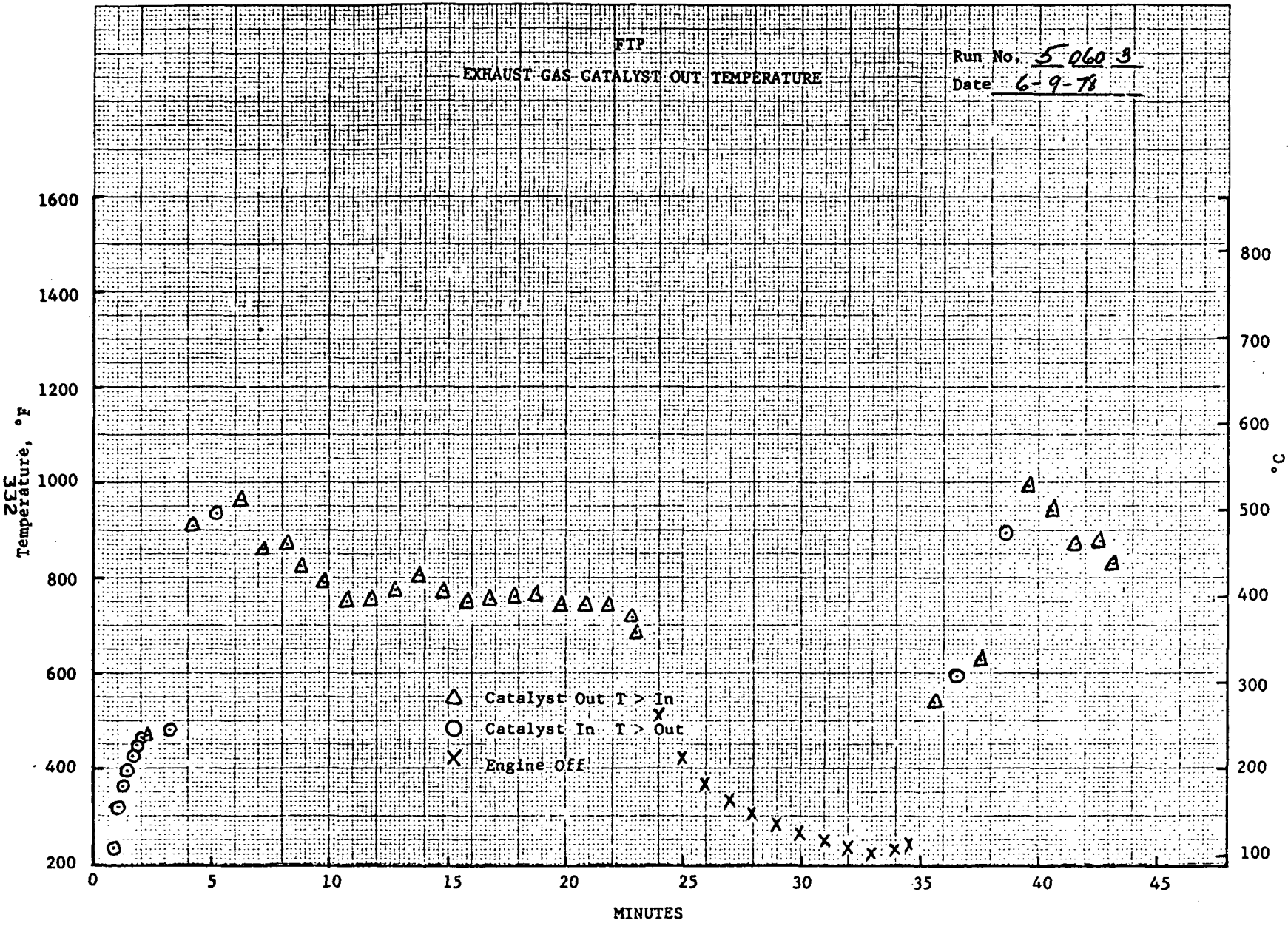
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 060 3
Date 6-9-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
600
500
400
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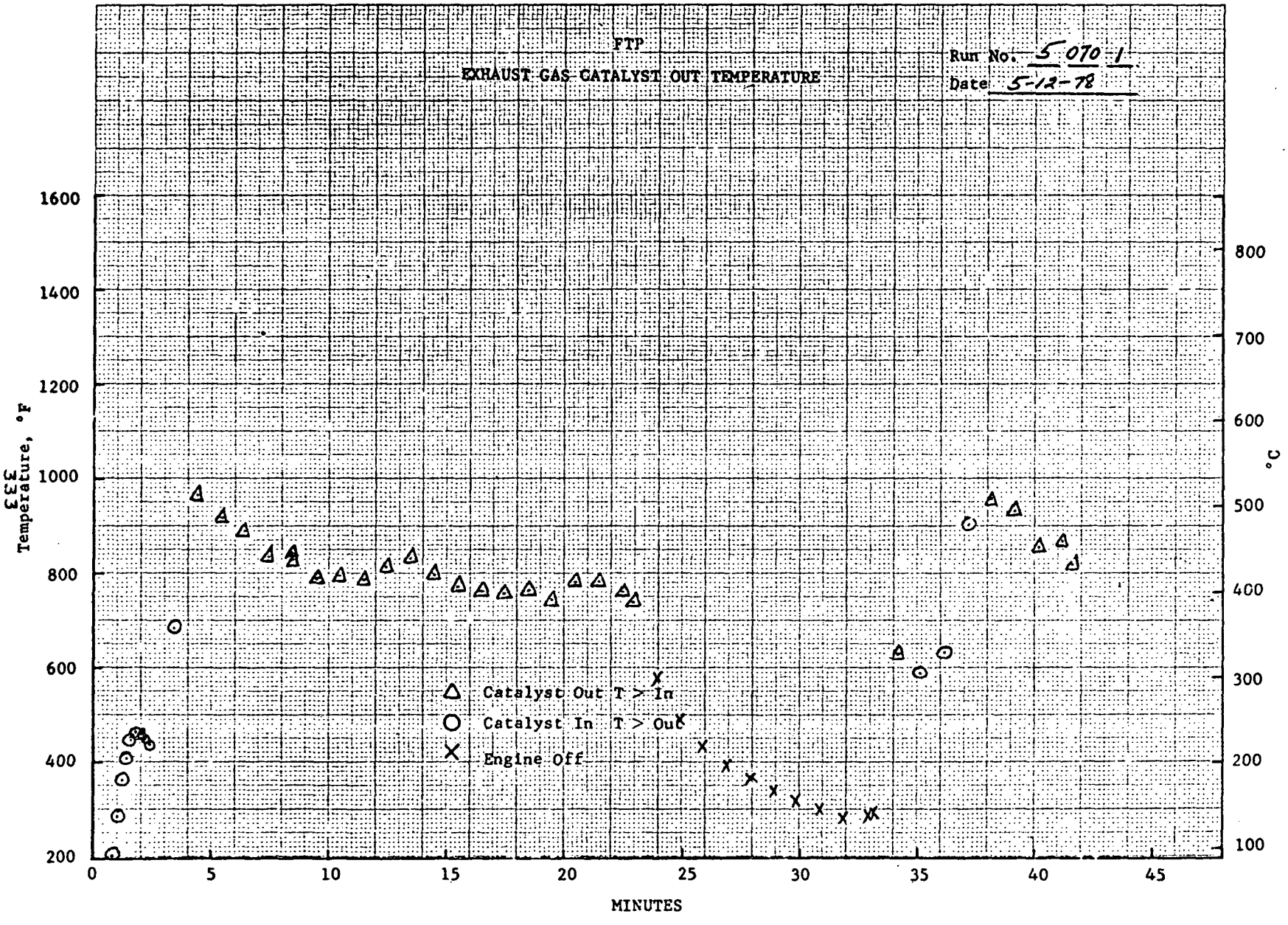
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 070 1
Date 5-12-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
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20
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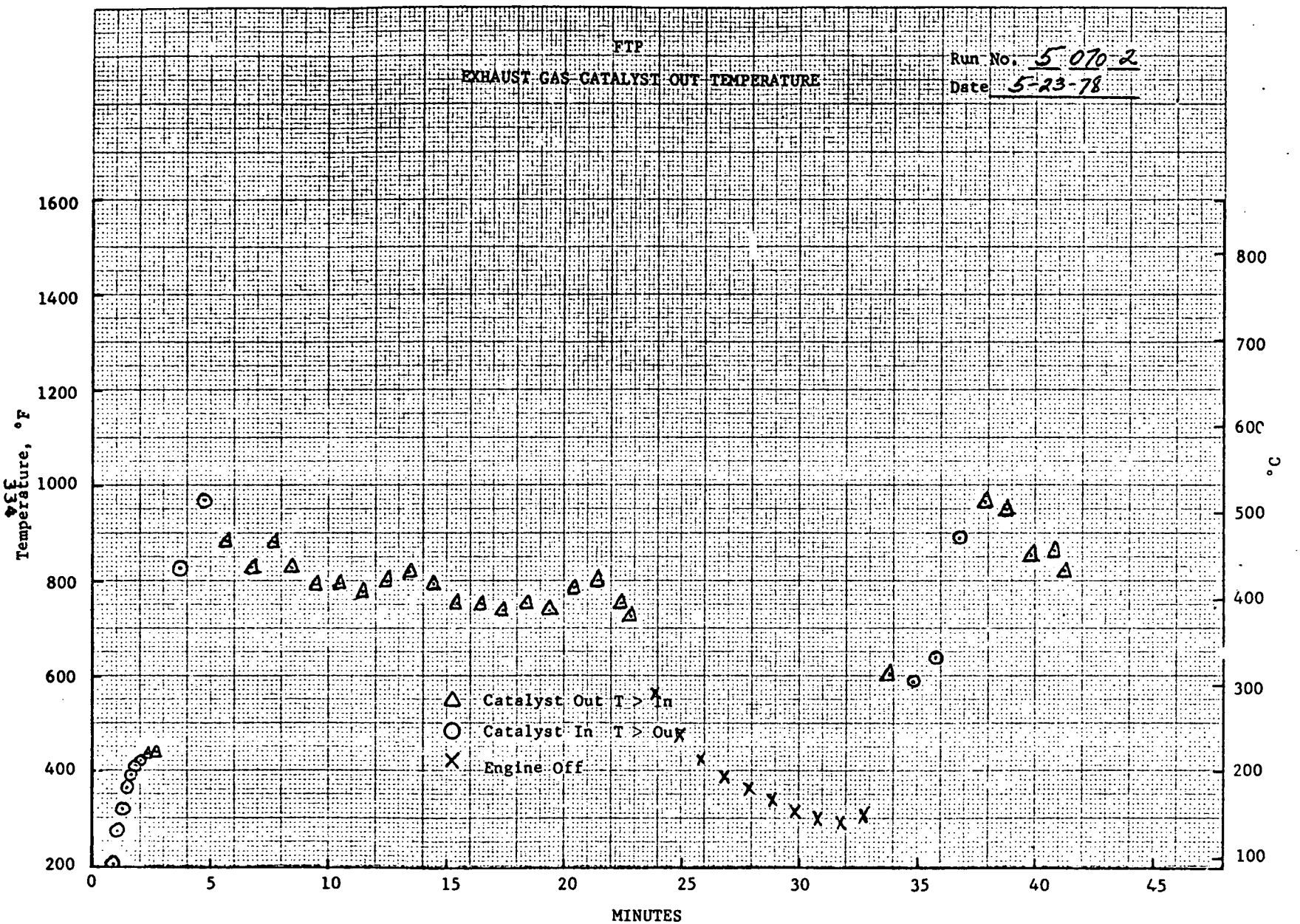
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 070 2
Date 5-23-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
15
20
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40
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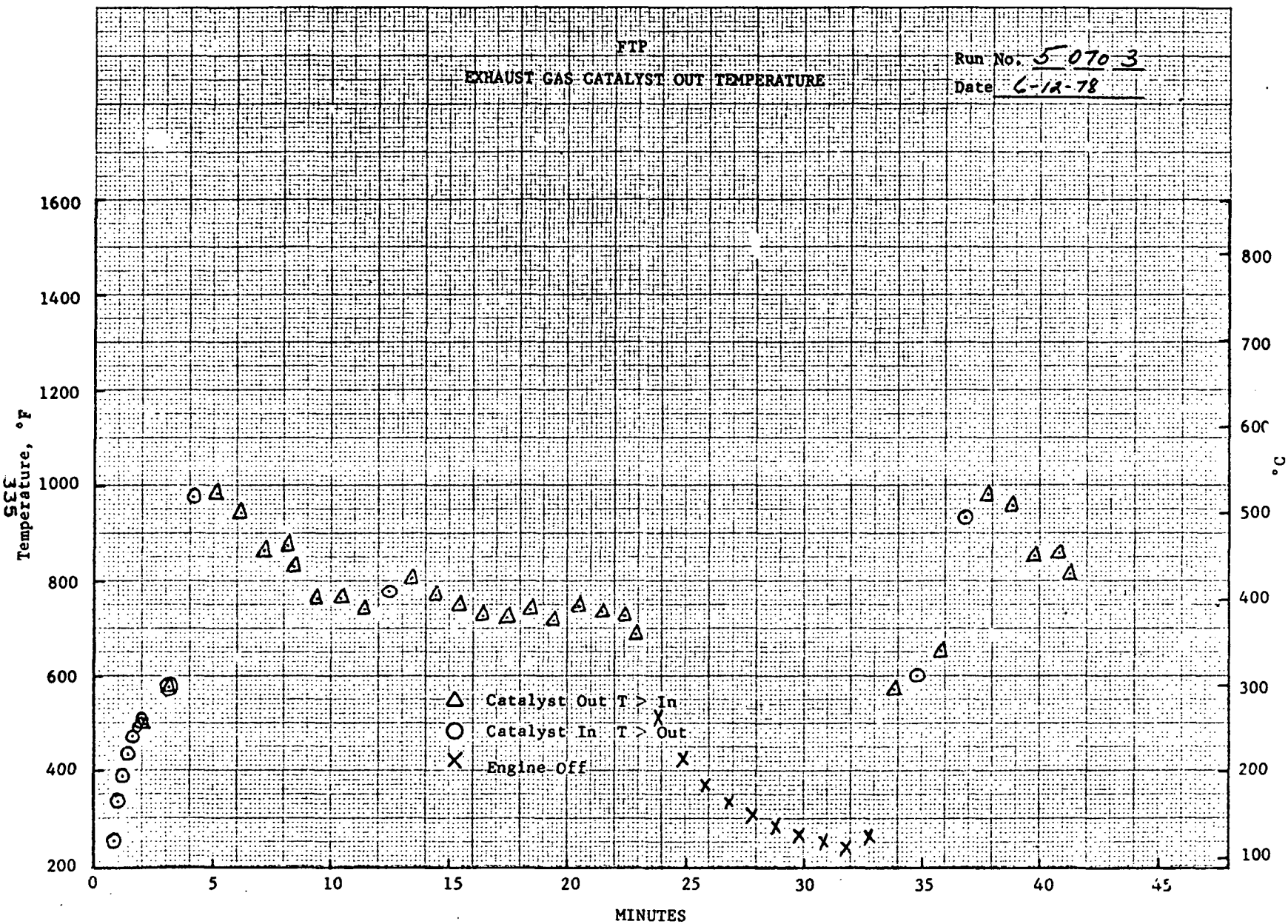
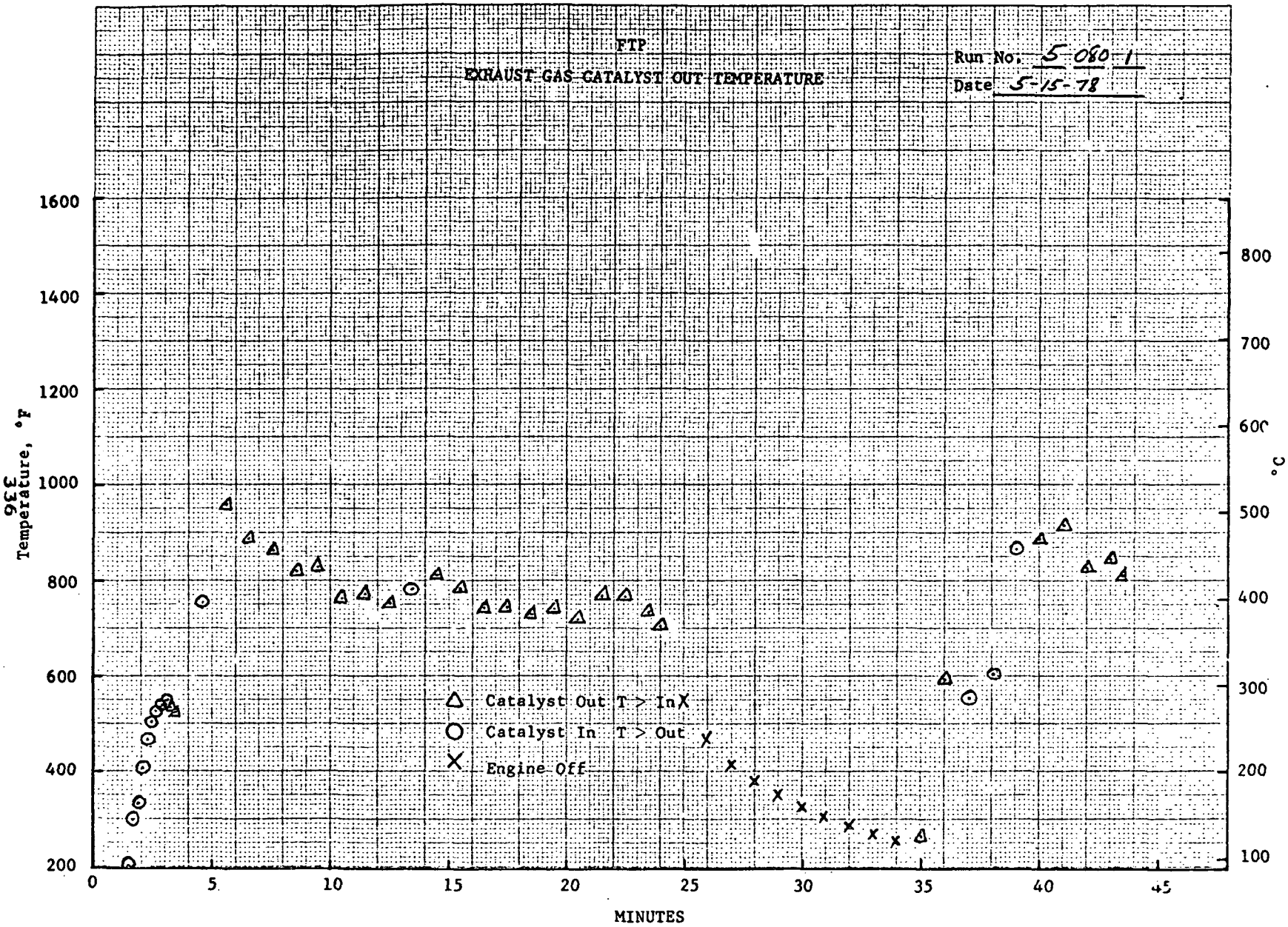

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 070 3
Date 6-12-78
Temperature, °F
335
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 080 1
Date 5-15-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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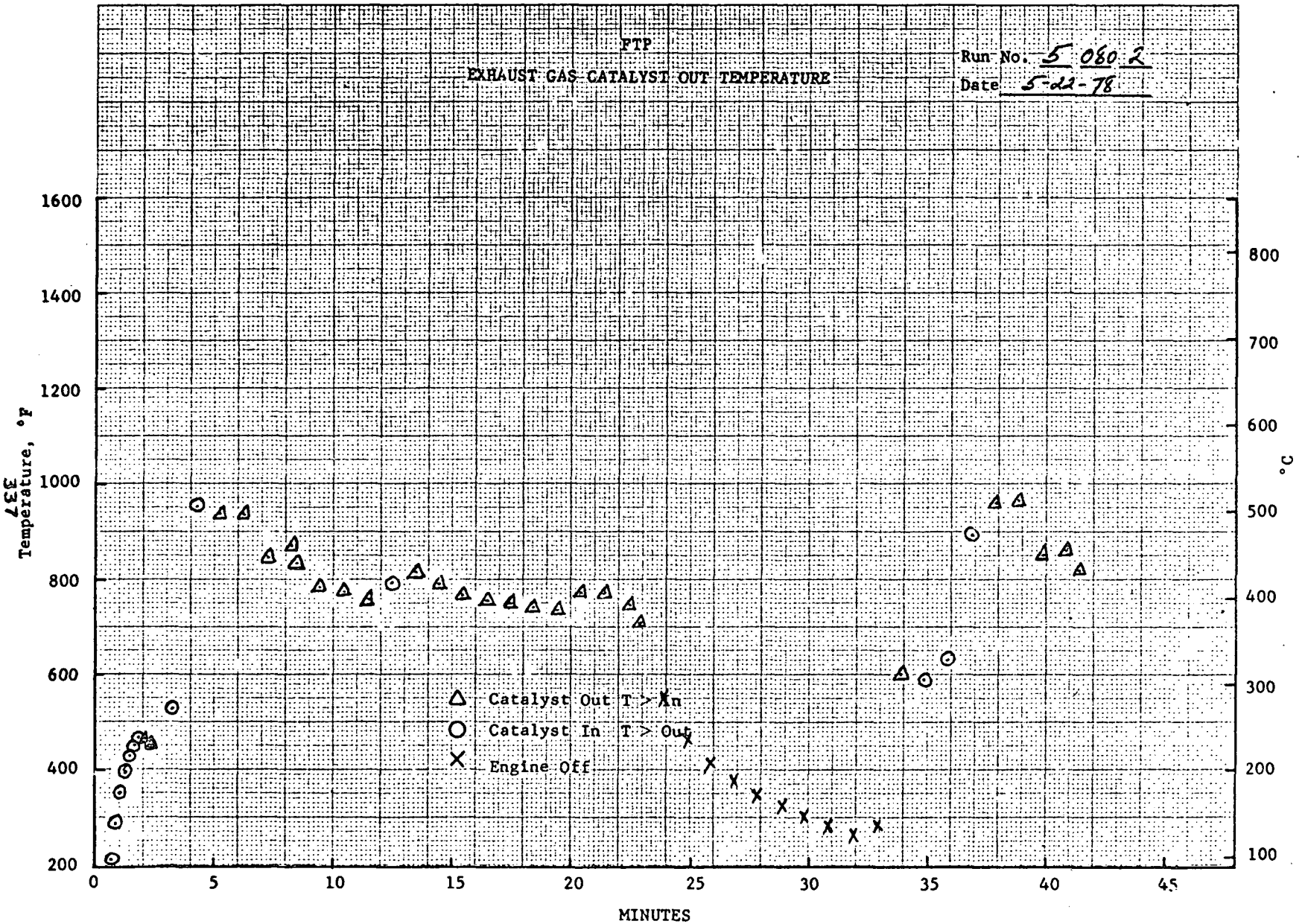
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 080 2
Date 5-22-78
Temperature, °F
337
°C
MINUTES
Catalyst Out T > Xn
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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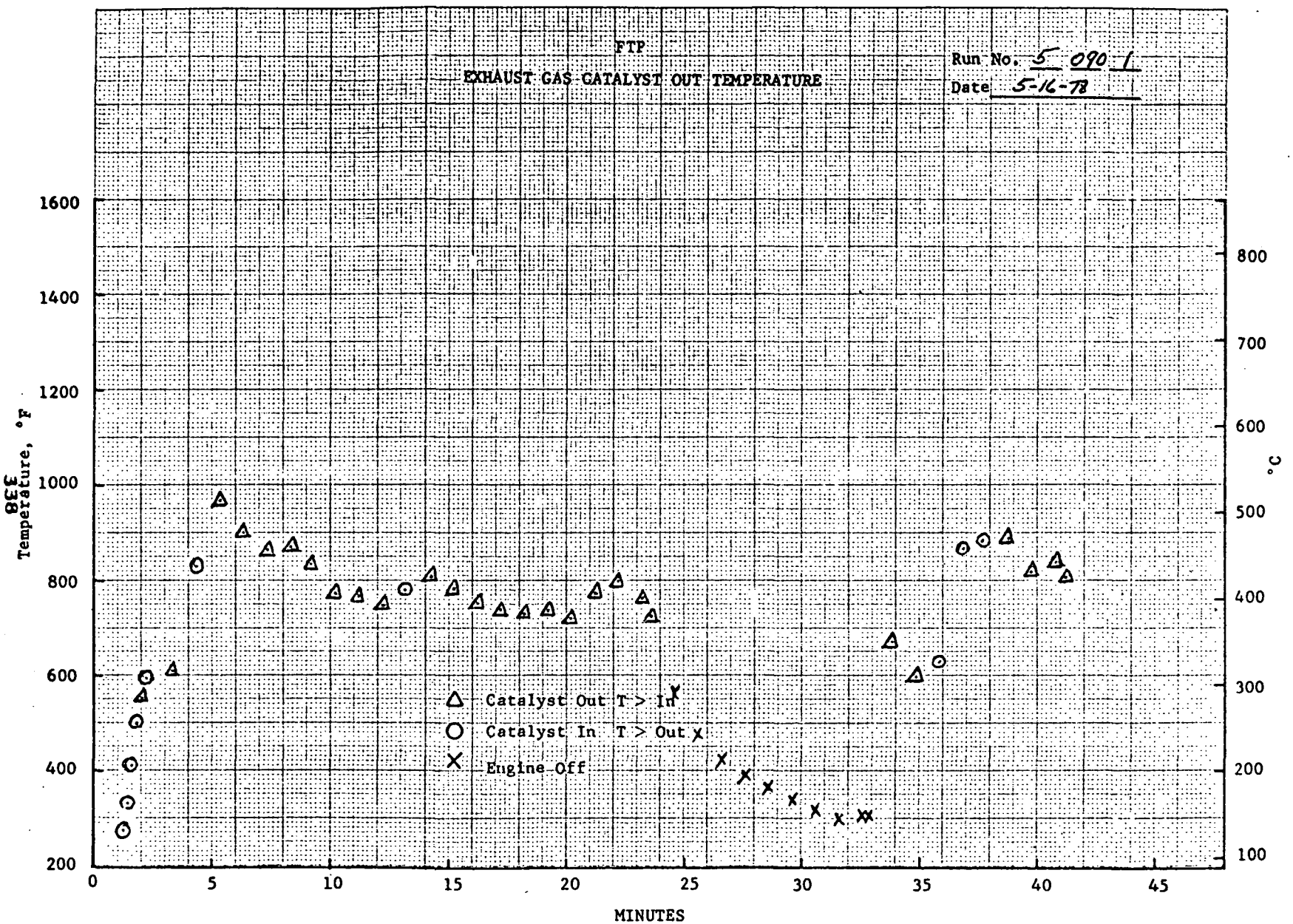
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 090 1
Date 5-16-78
BEE Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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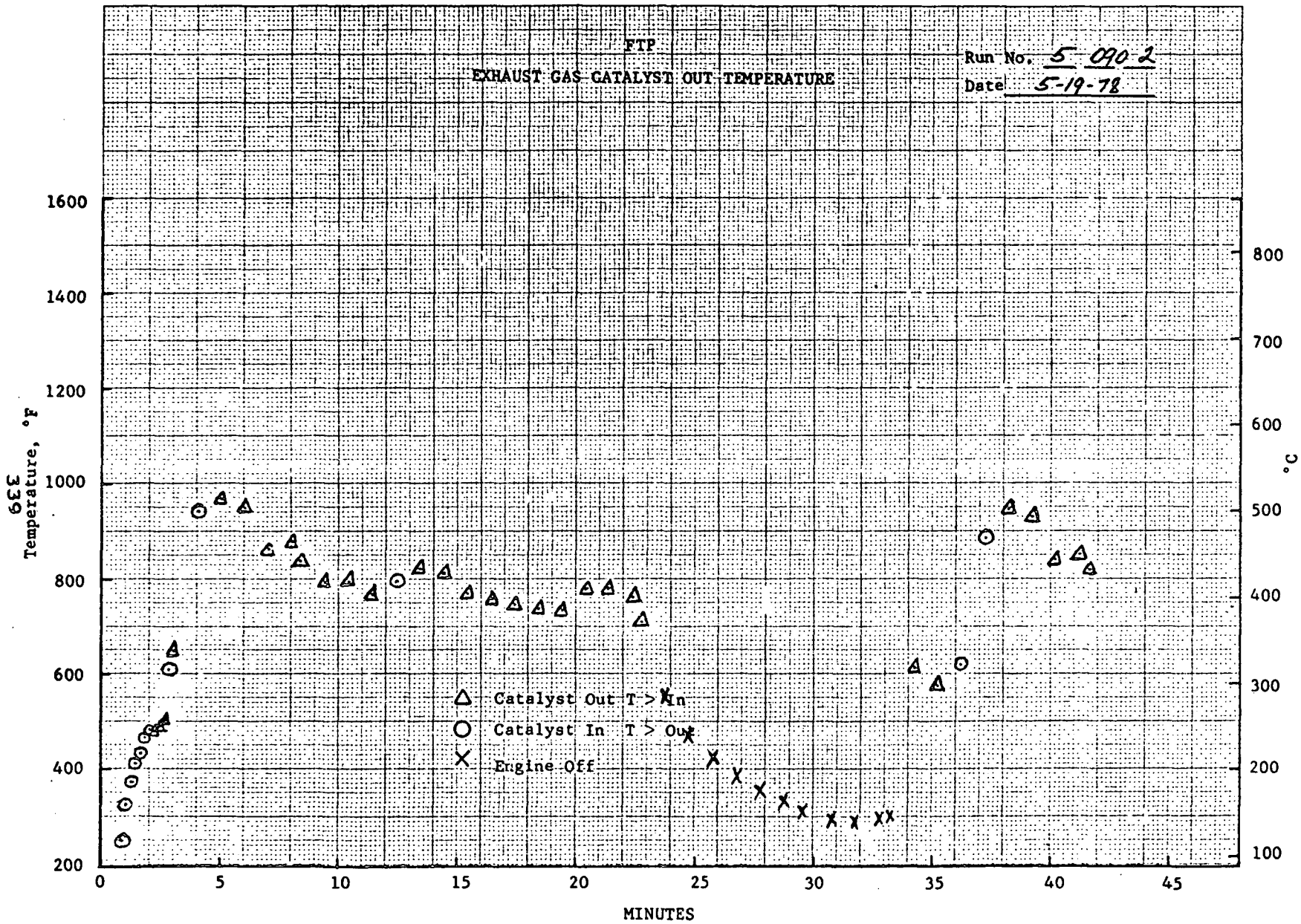
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 090 2
Date 5-19-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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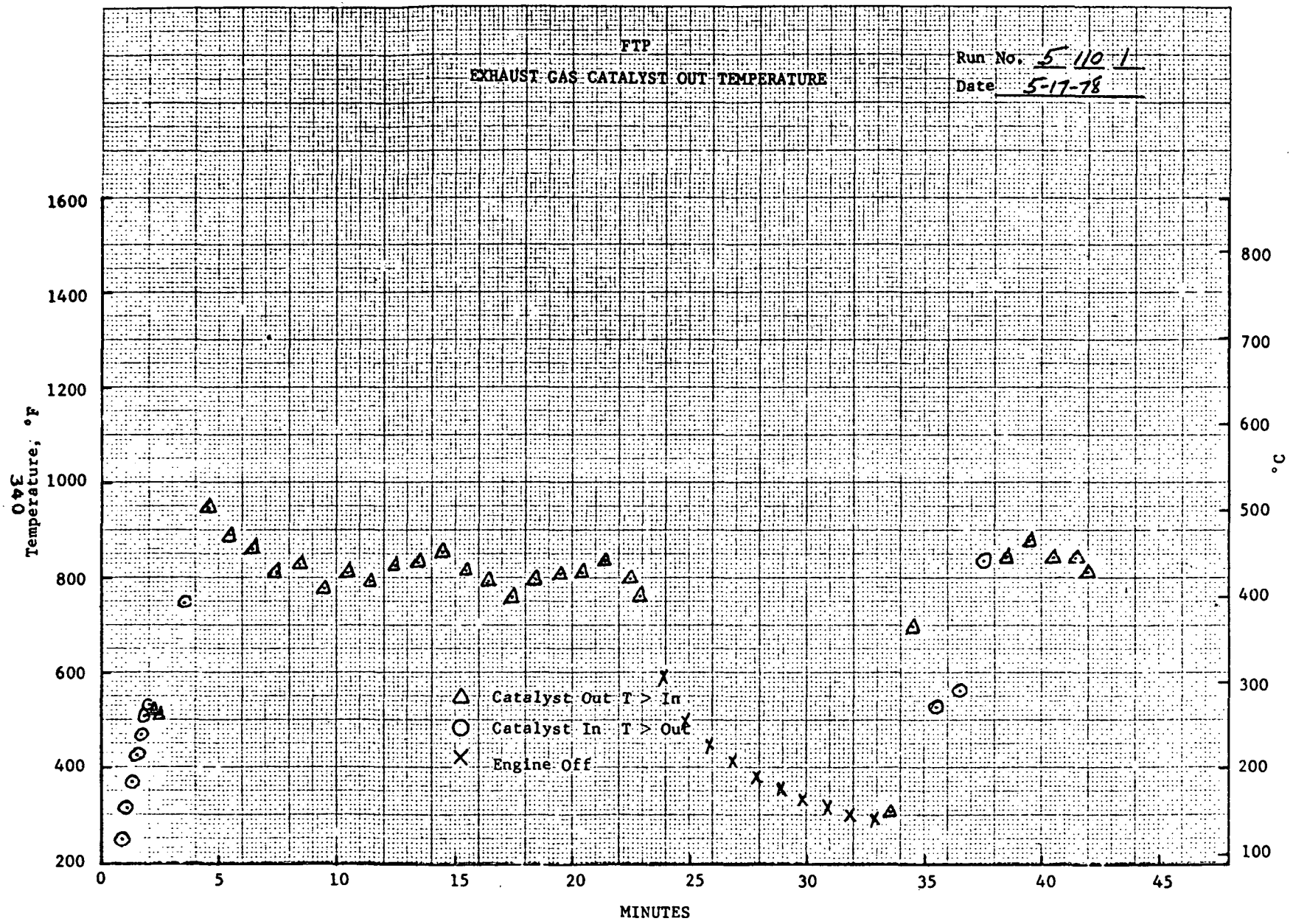
339


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5 110 1
Date 5-17-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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200
800
700
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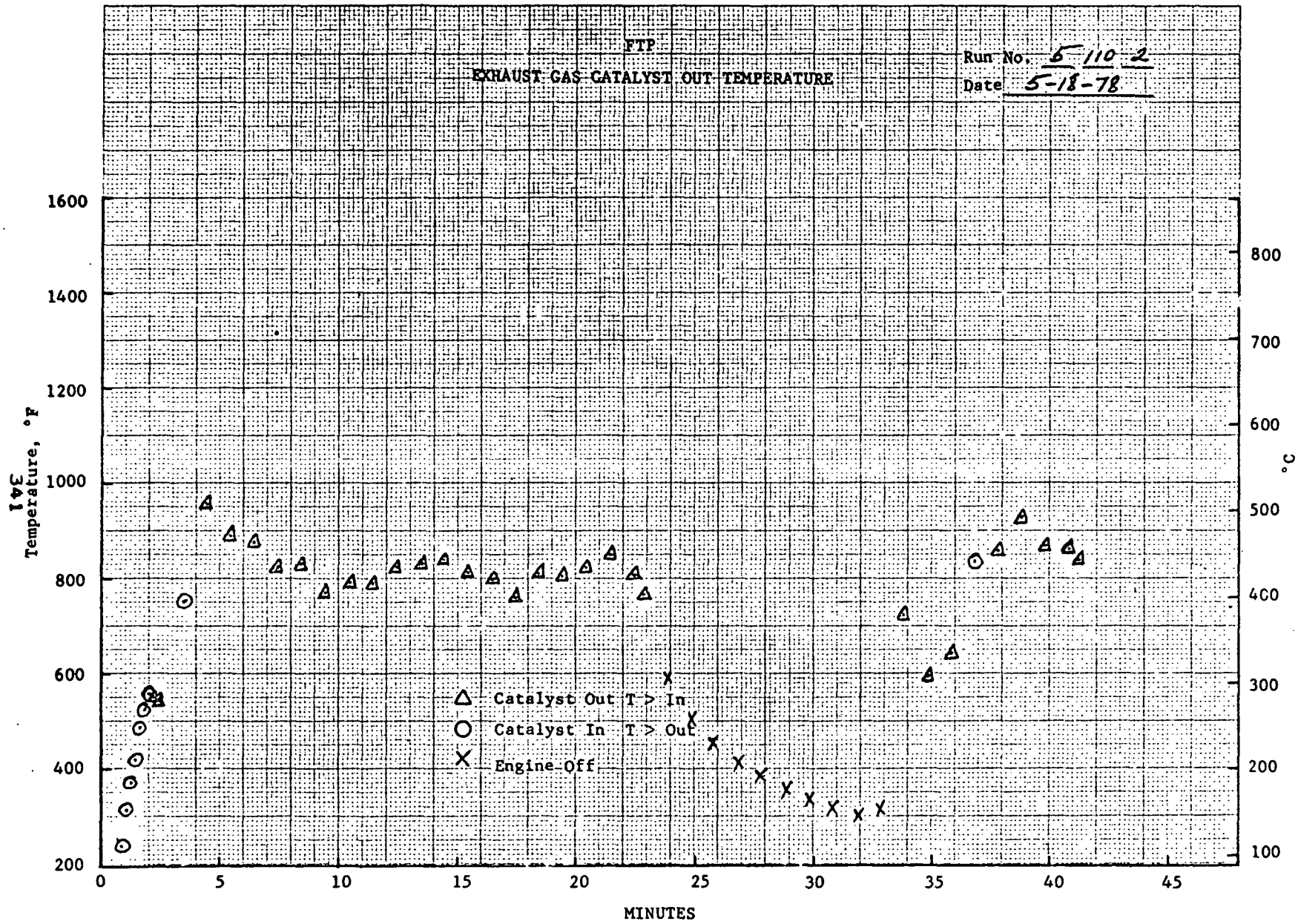
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 5-110-2
Date 5-18-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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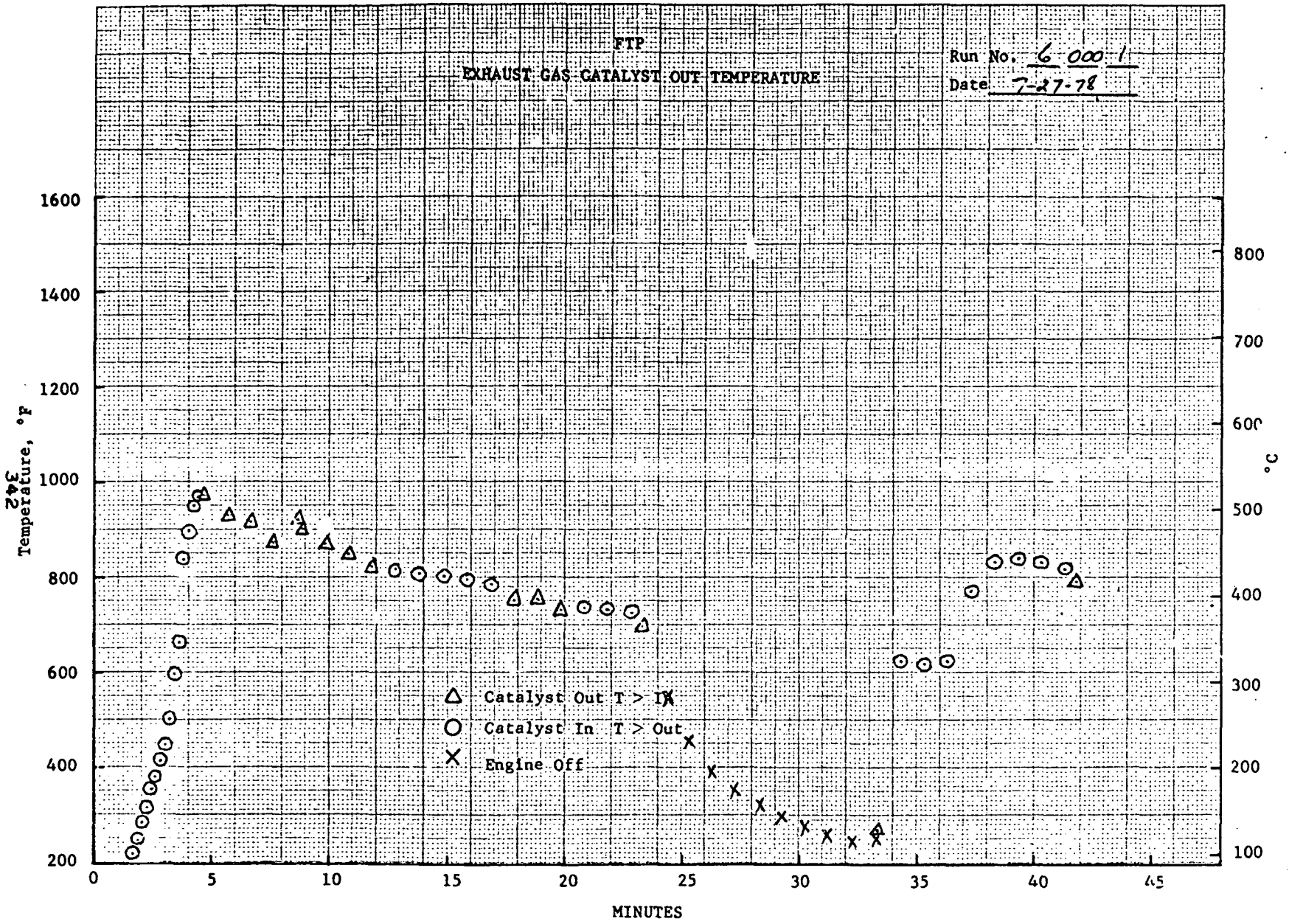
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 000 1
Date 7-27-78
Temperature, °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
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20
25
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35
40
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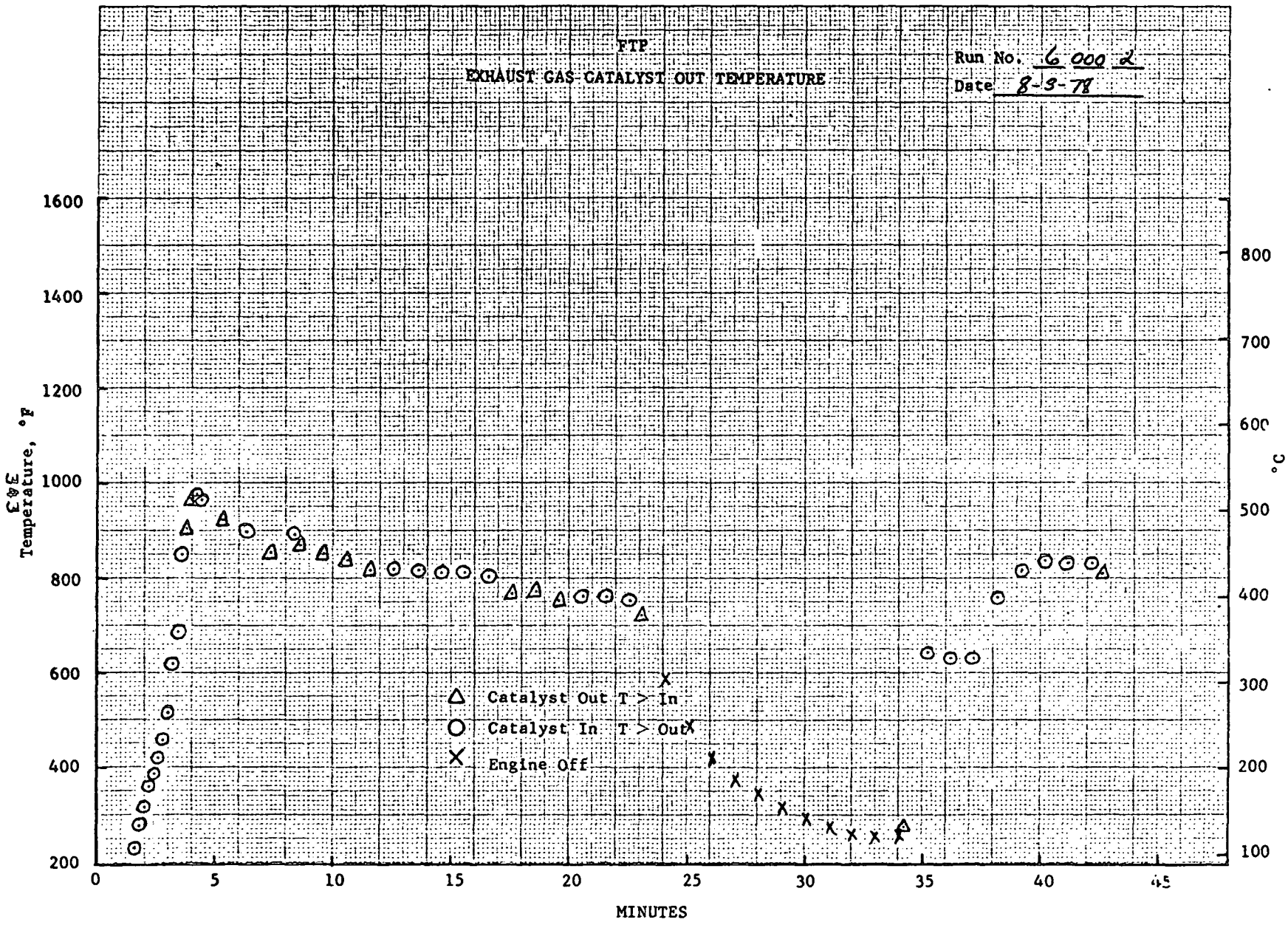
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS-CATALYST OUT TEMPERATURE
Run No. 6 000 2
Date 8-3-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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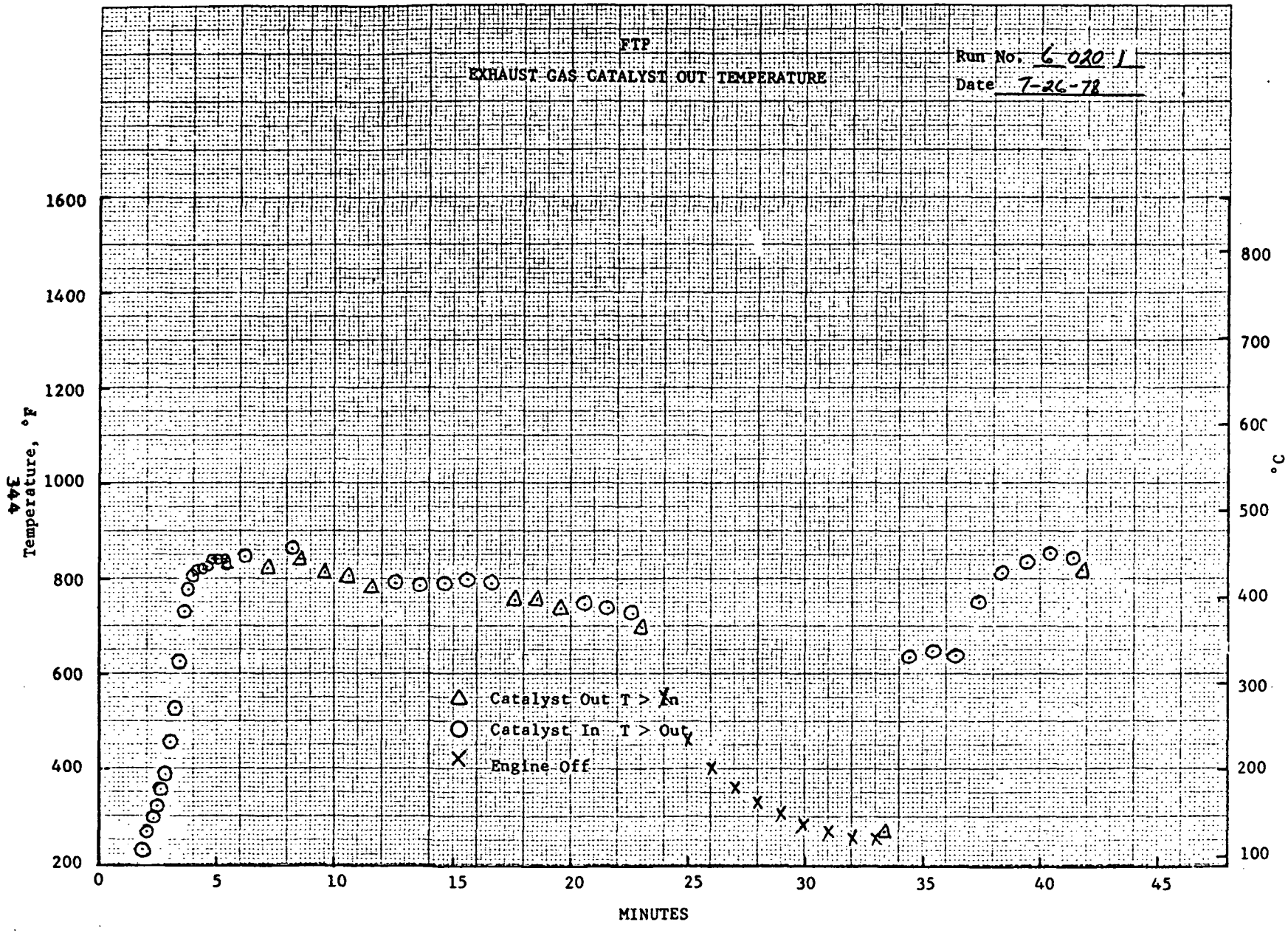
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 020 1
Date 7-26-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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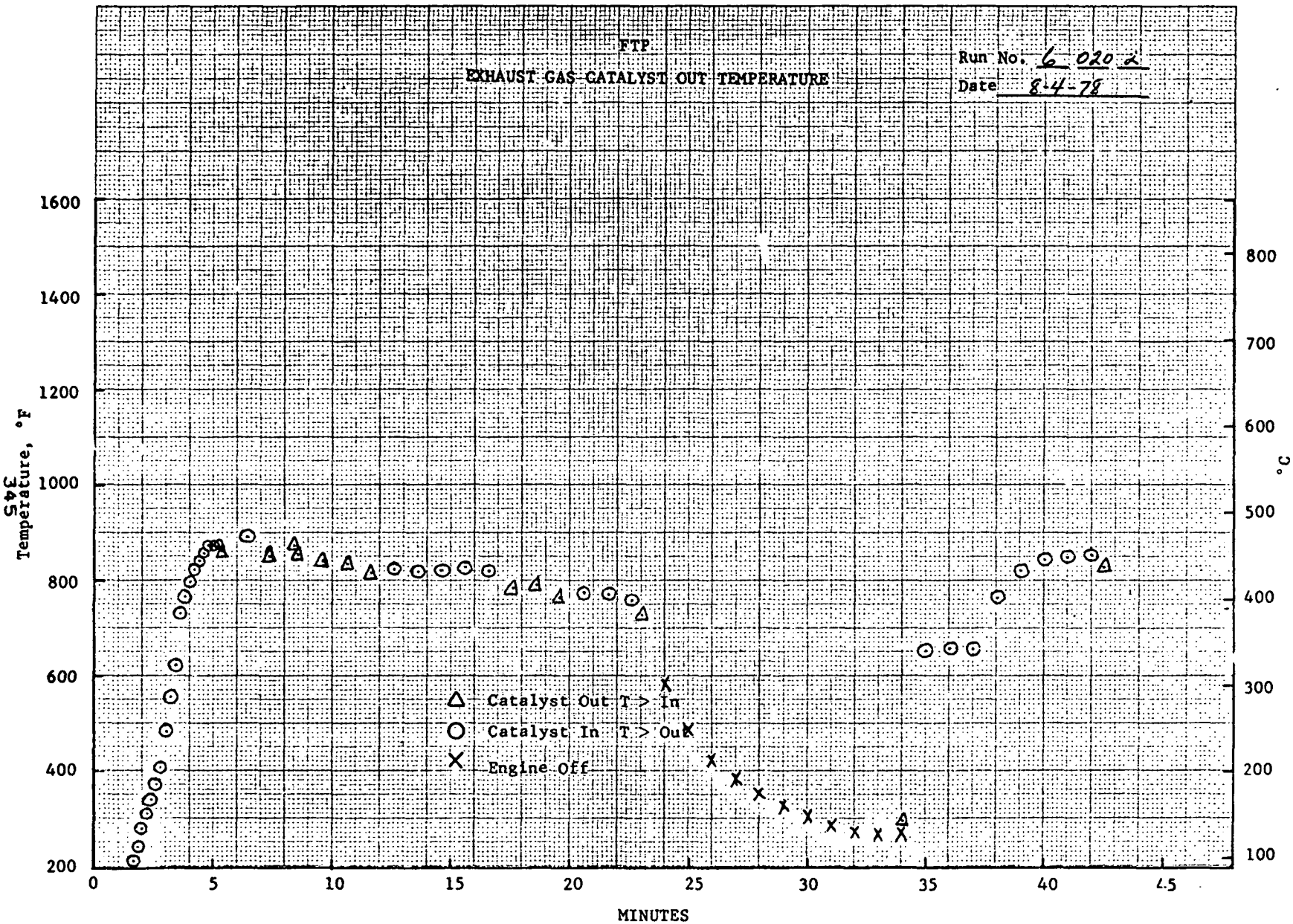
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 020 2
Date 8-4-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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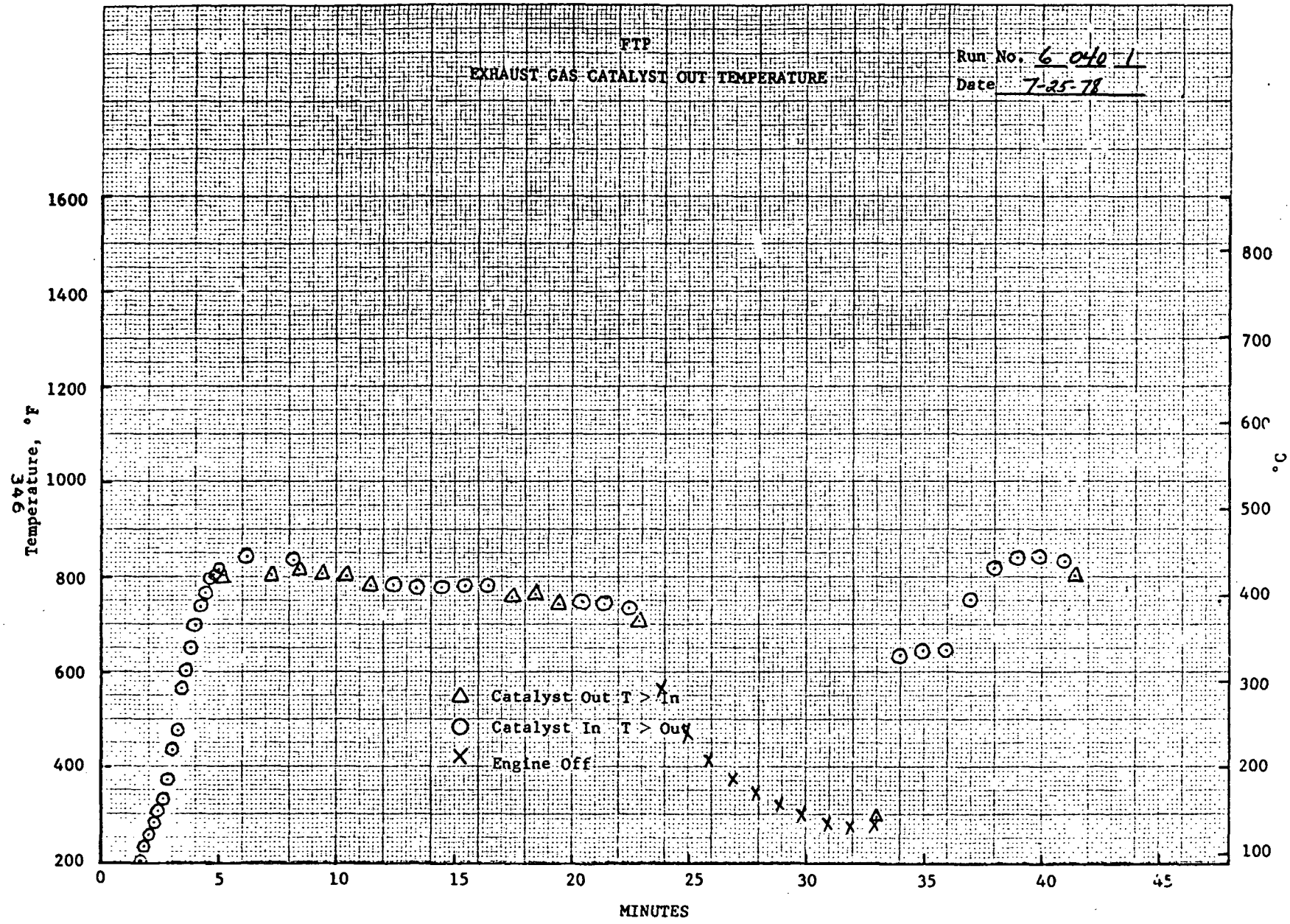
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 040 1
Date 7-25-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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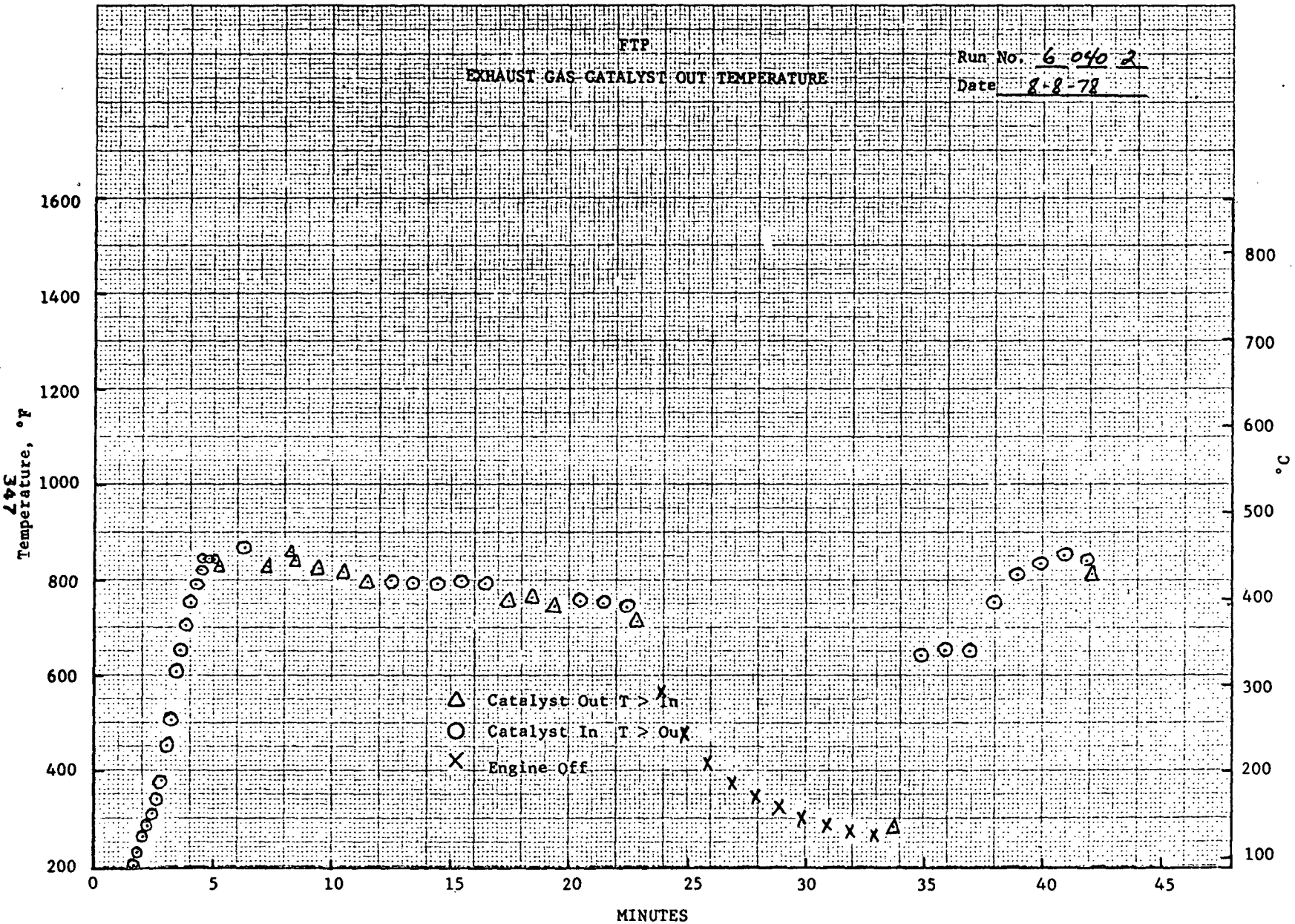
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 040 2
Date 8-8-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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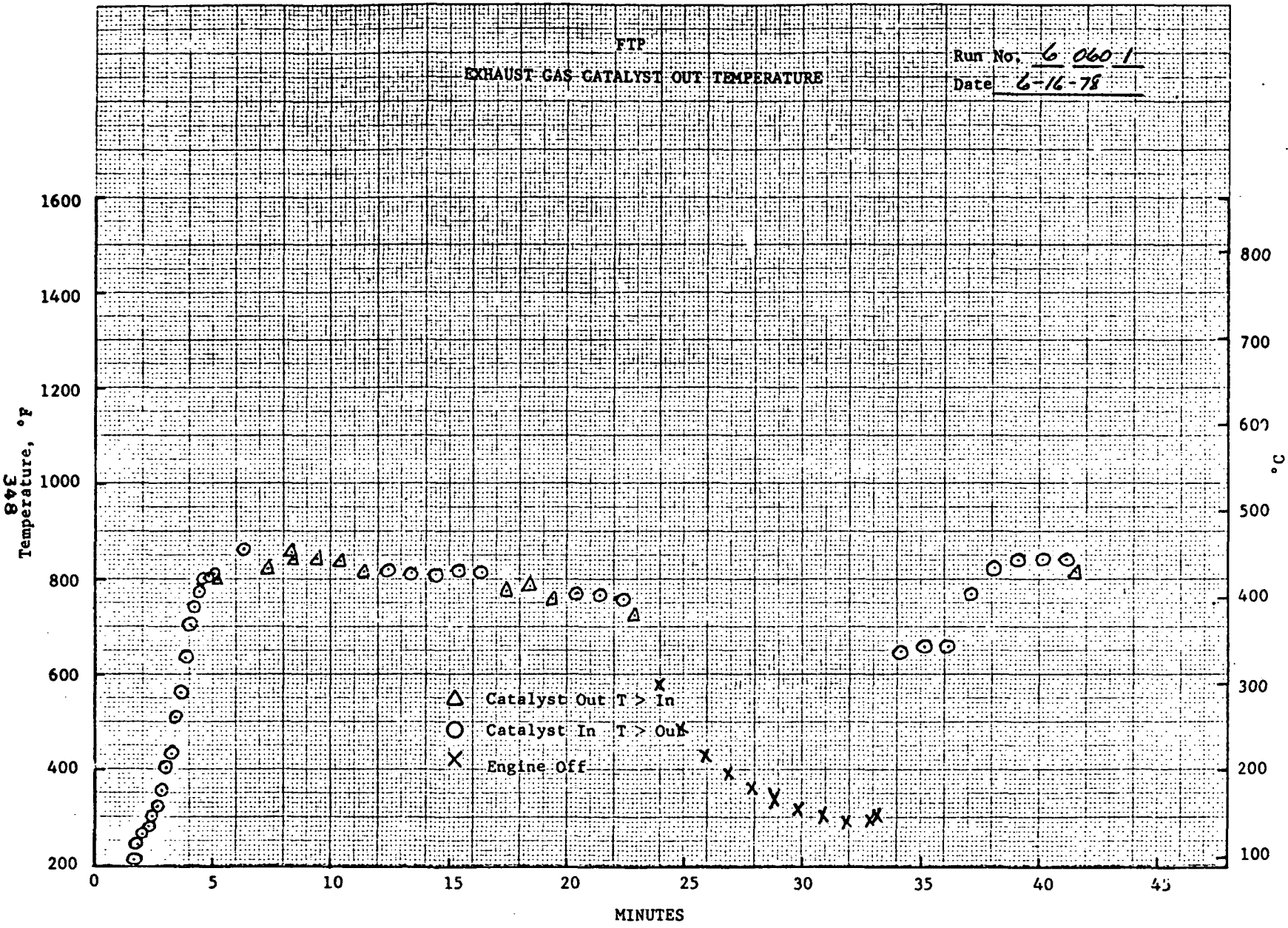
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 060 1
Date 6-16-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
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500
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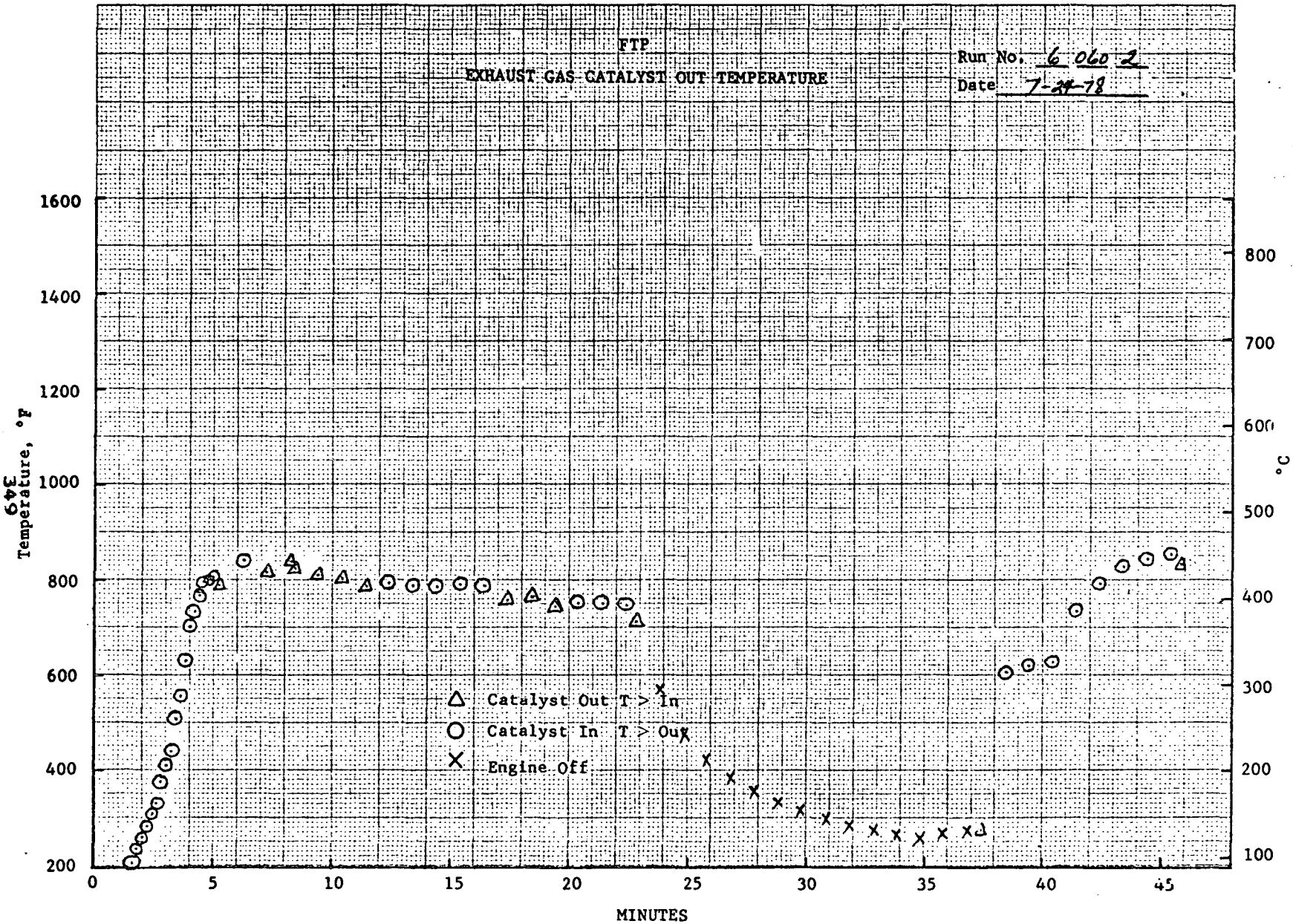
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 060 2
Date 7-24-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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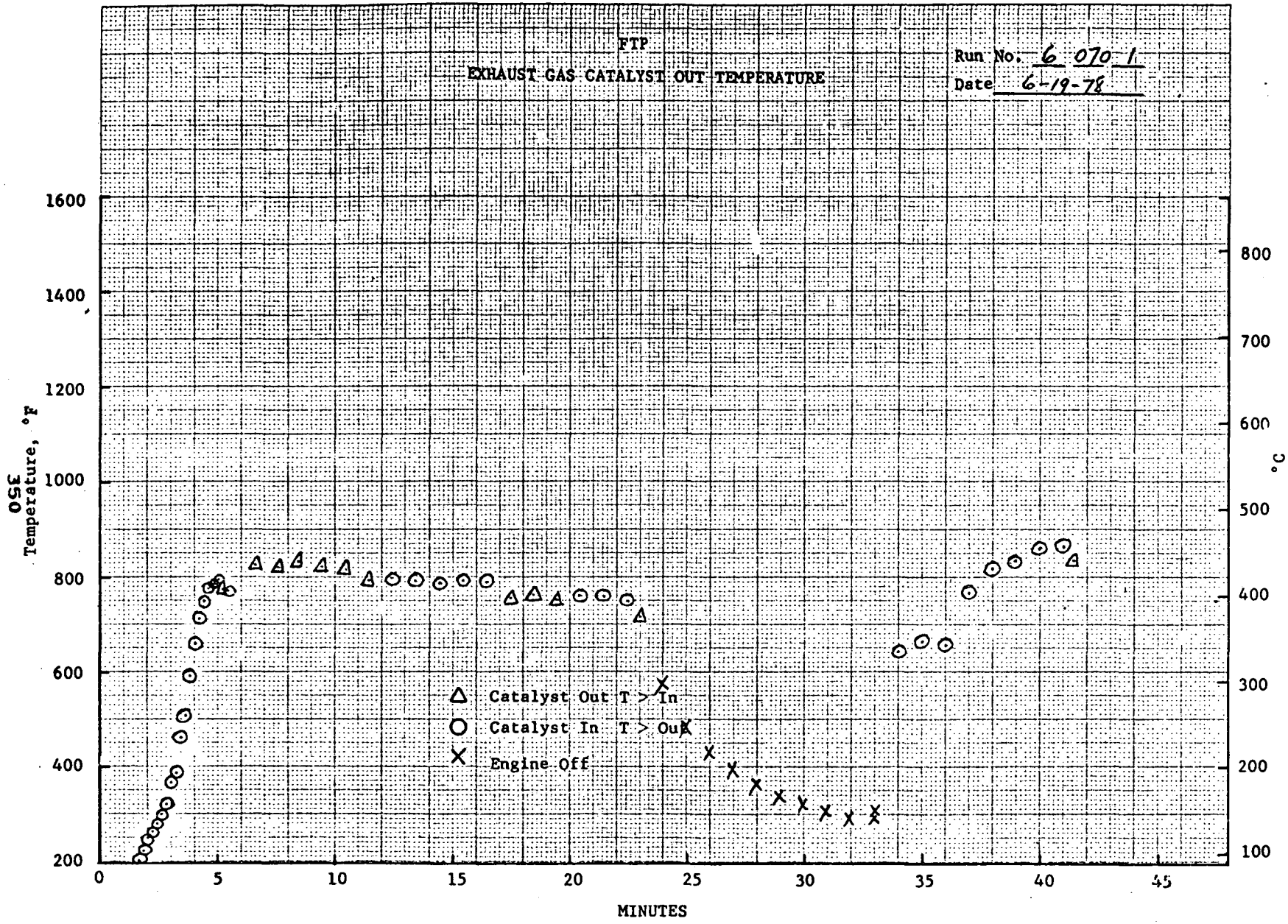
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 070 1
Date 6-19-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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400
300
200
100
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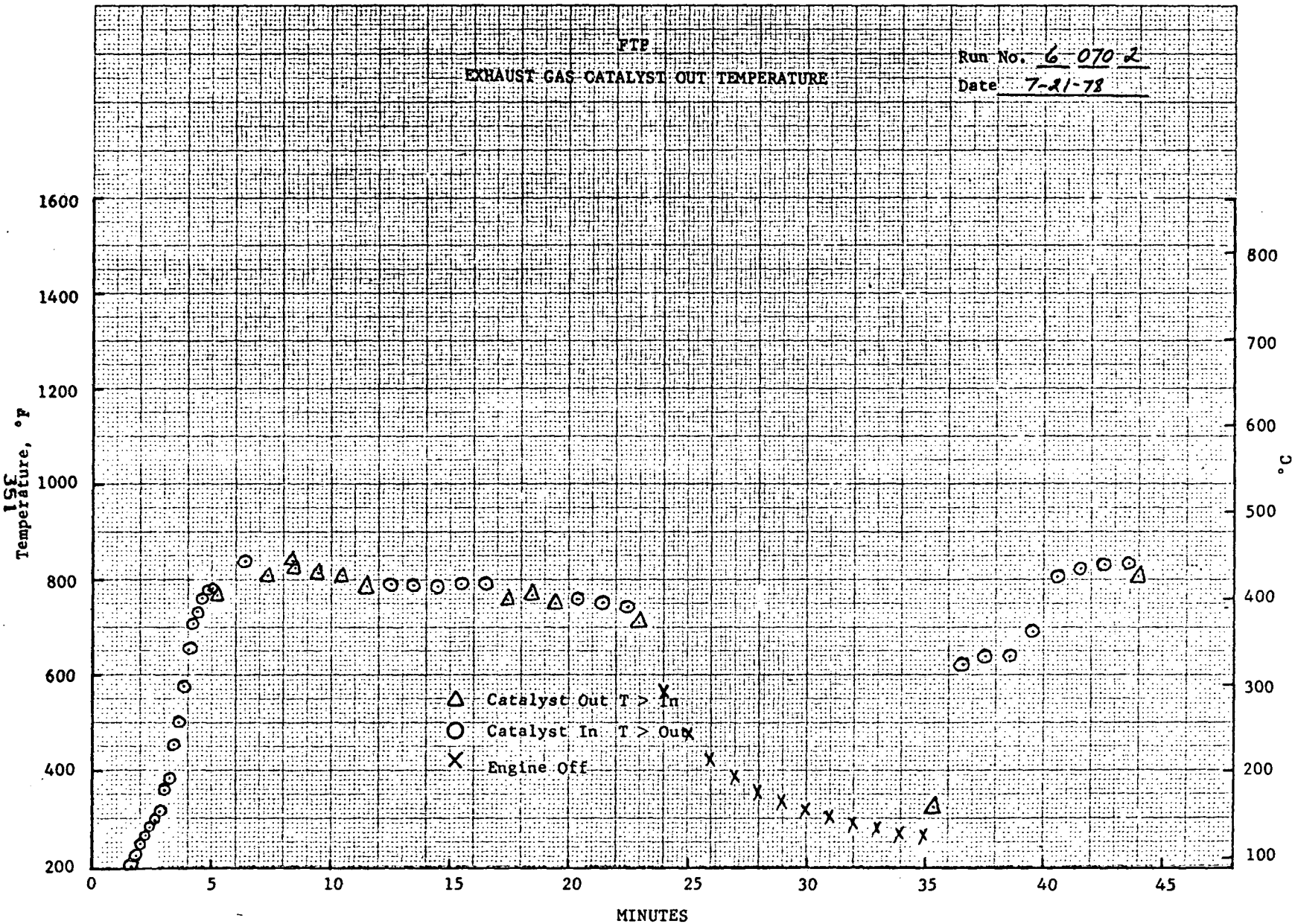
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 070 2
Date 7-21-78
Temperature, °F
351
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
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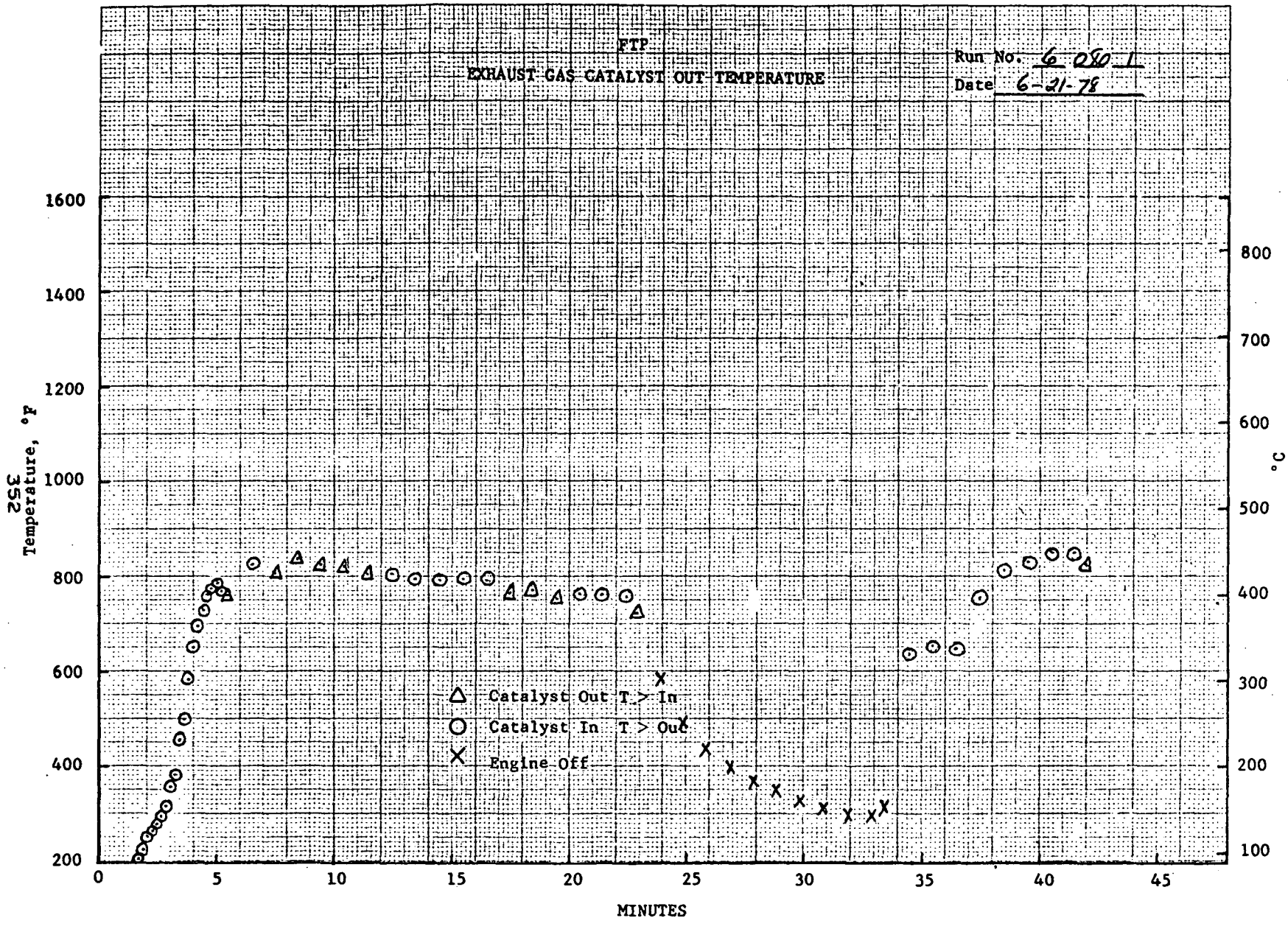
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 080 1
Date 6-21-78
352
Temperature, °F
°C
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
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0
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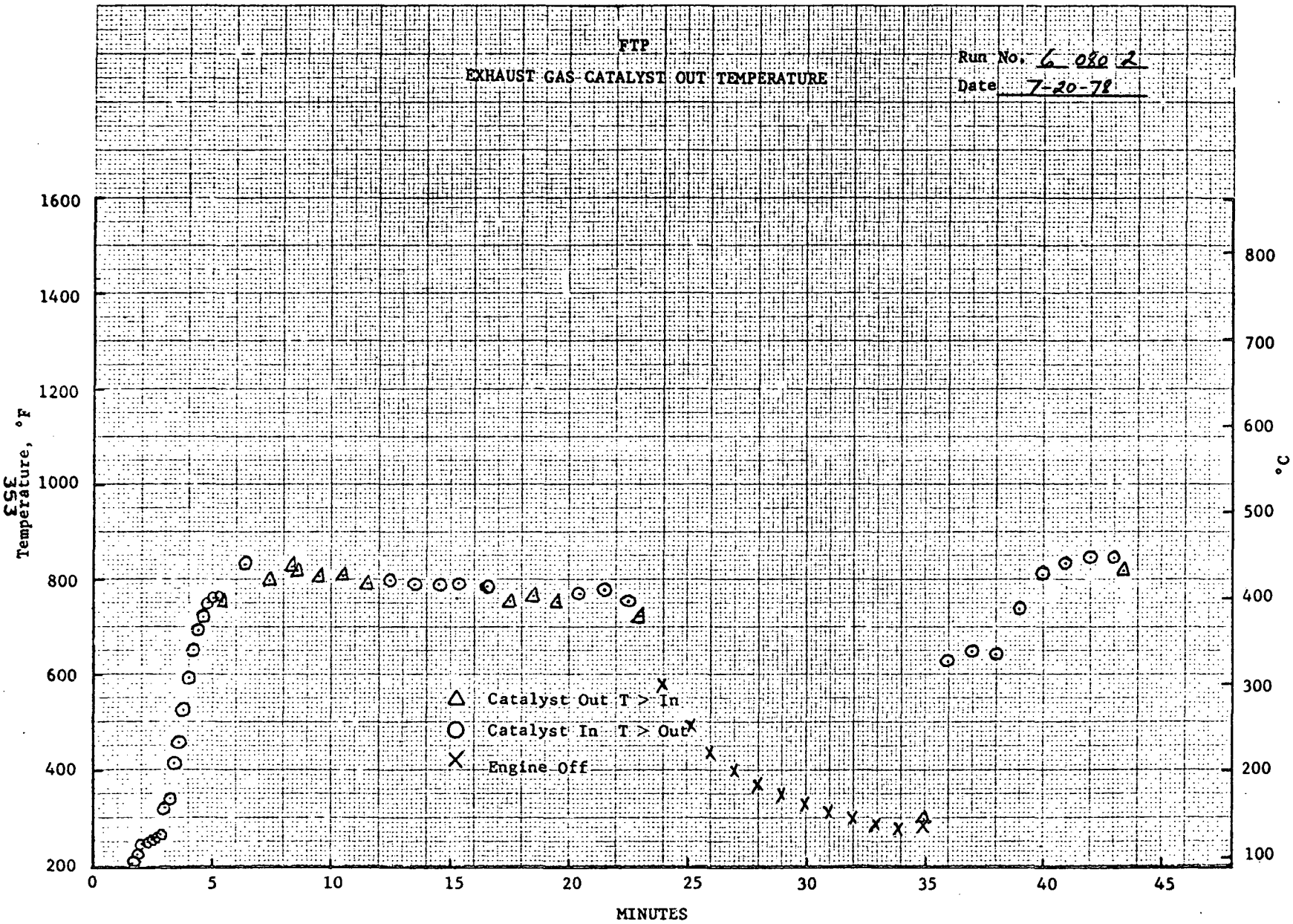
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 080 2
Date 7-20-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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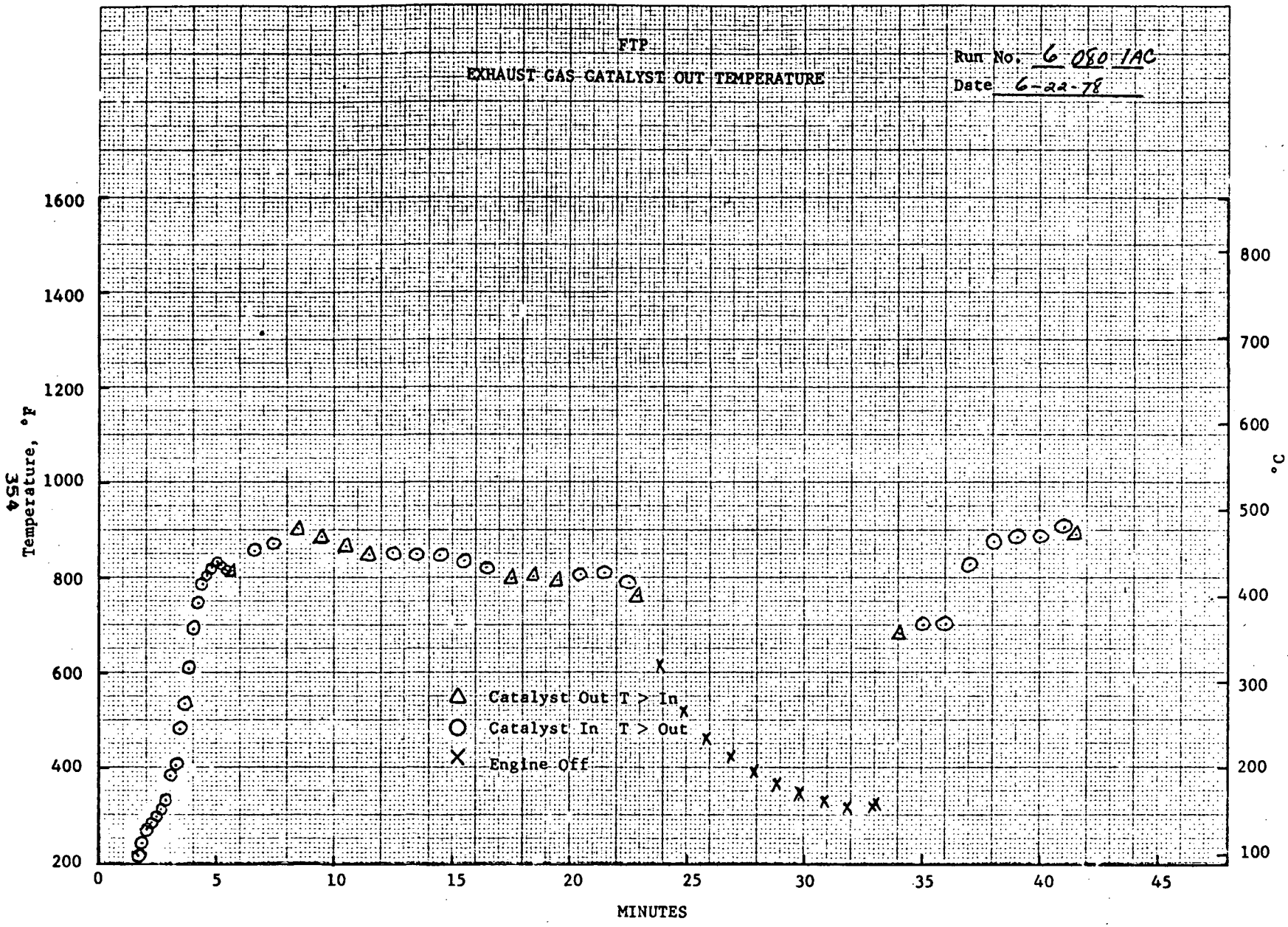
FTP
EXHAUST GAS GATALYST OUT TEMPERATURE
Run No. 6 080 1AC
Date 6-22-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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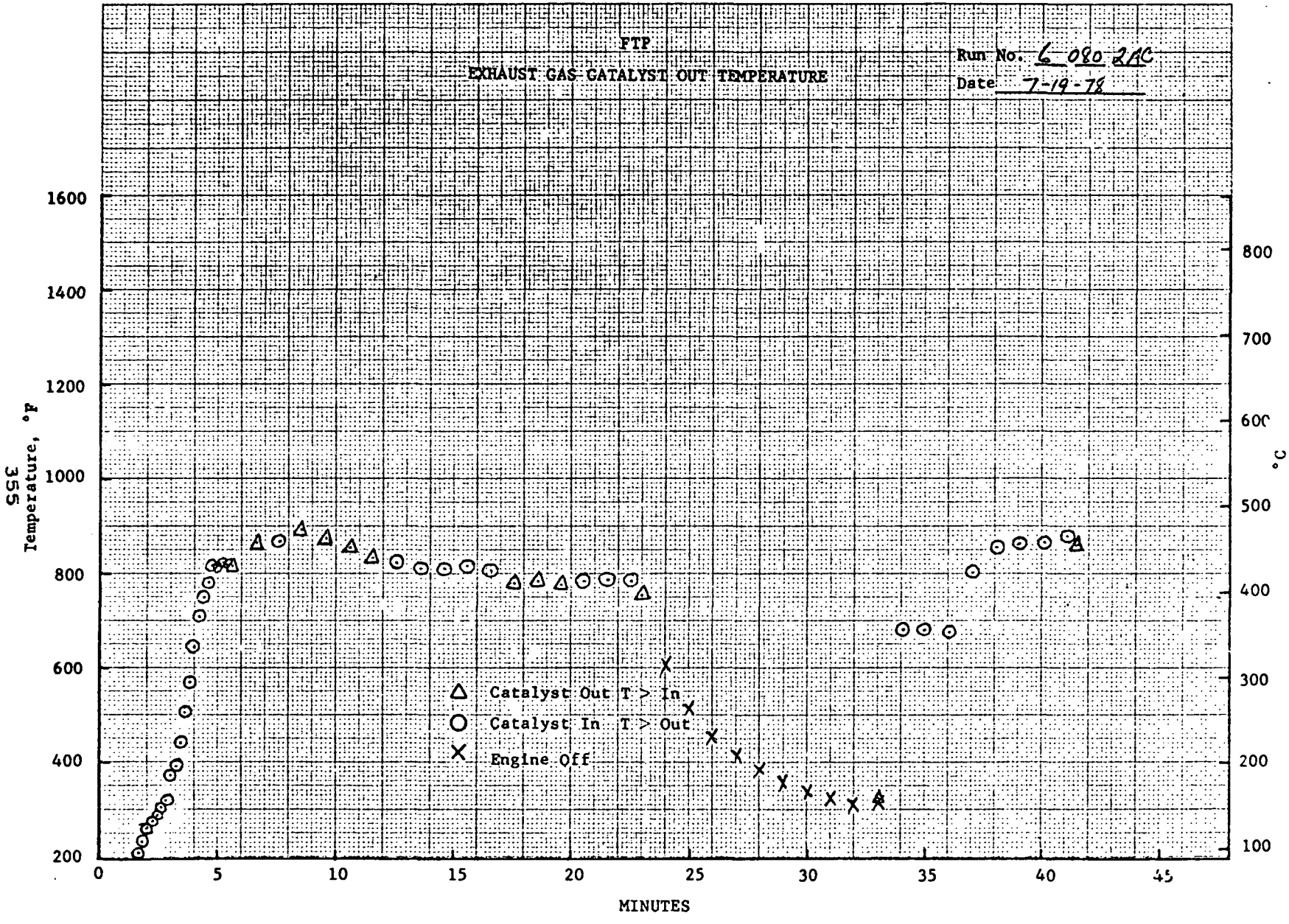
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 080 2AC
Date 7-19-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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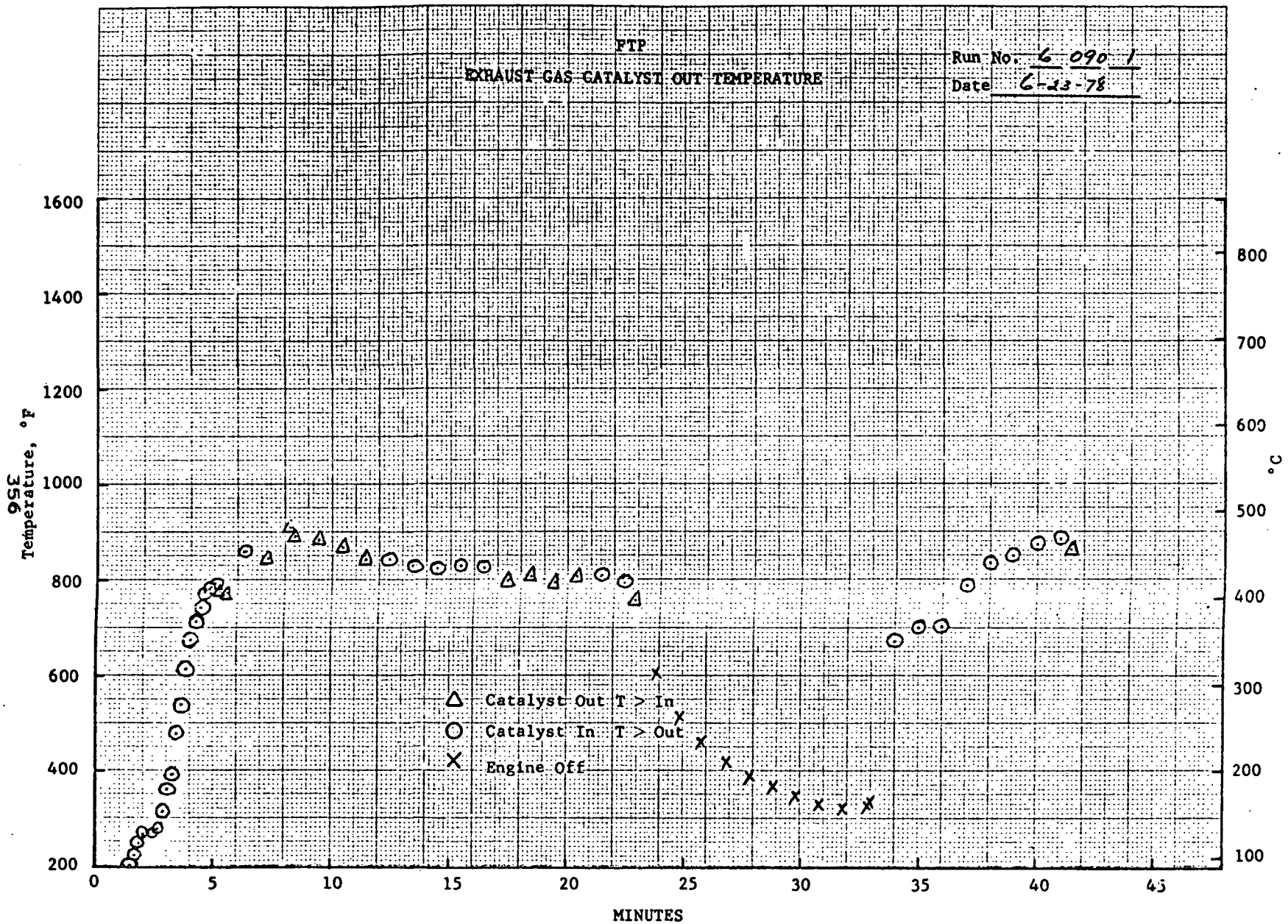
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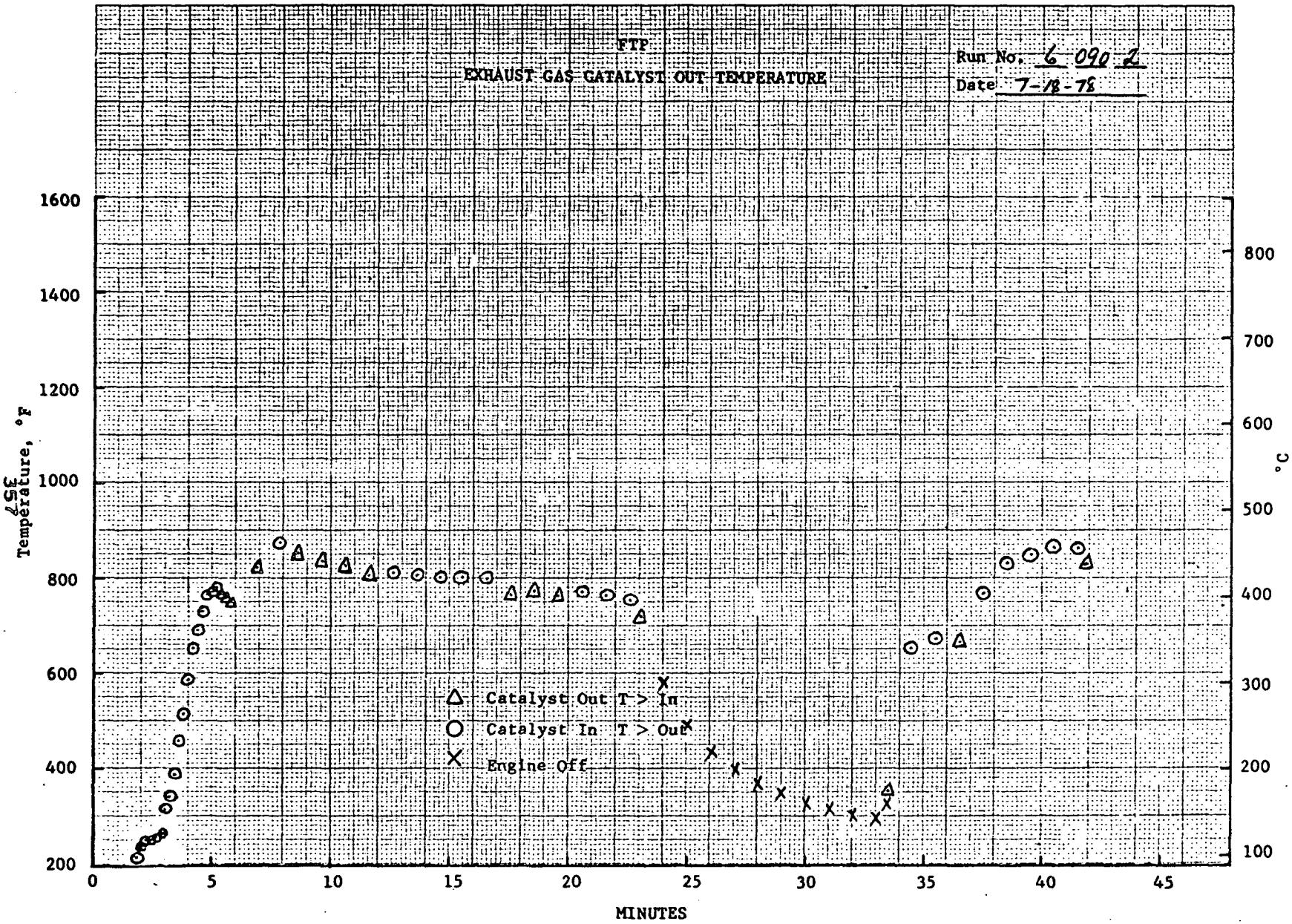
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 090 1
Date 6-13-78
356
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 090 2
Date 7-18-75
Temperature, °F
357
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
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20
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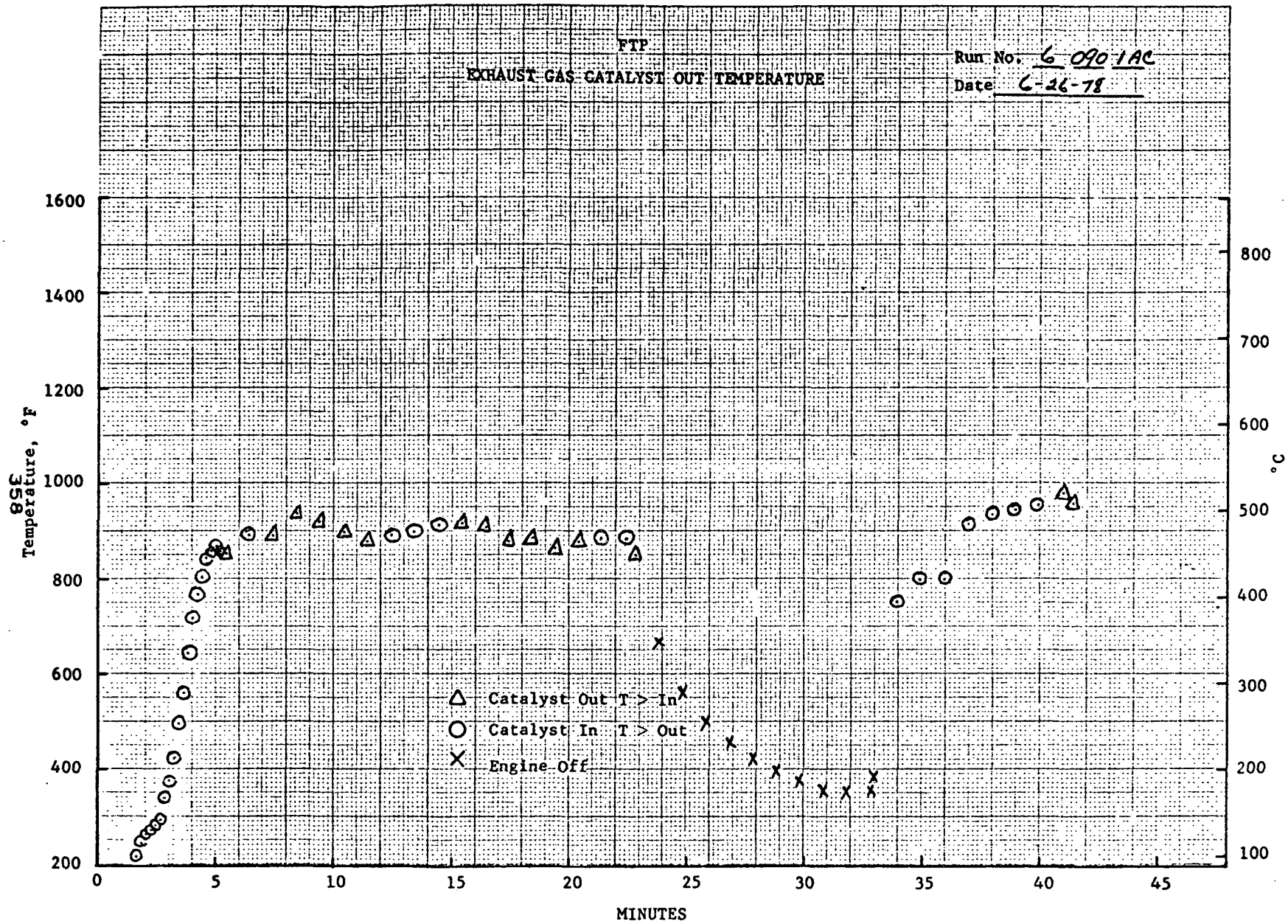
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 090 1AC
Date 6-26-78
BSE Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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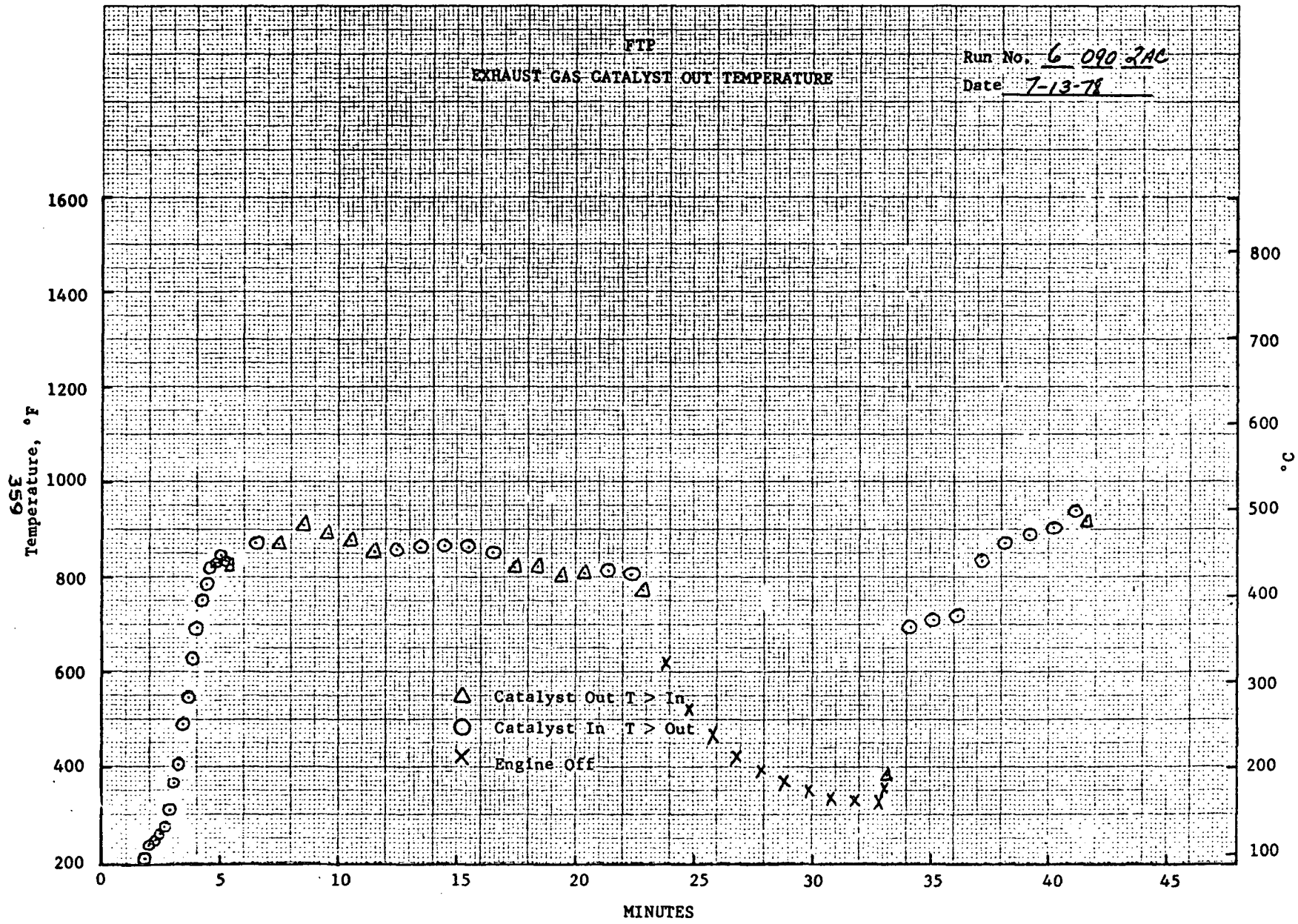
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 090 2AC
Date 7-13-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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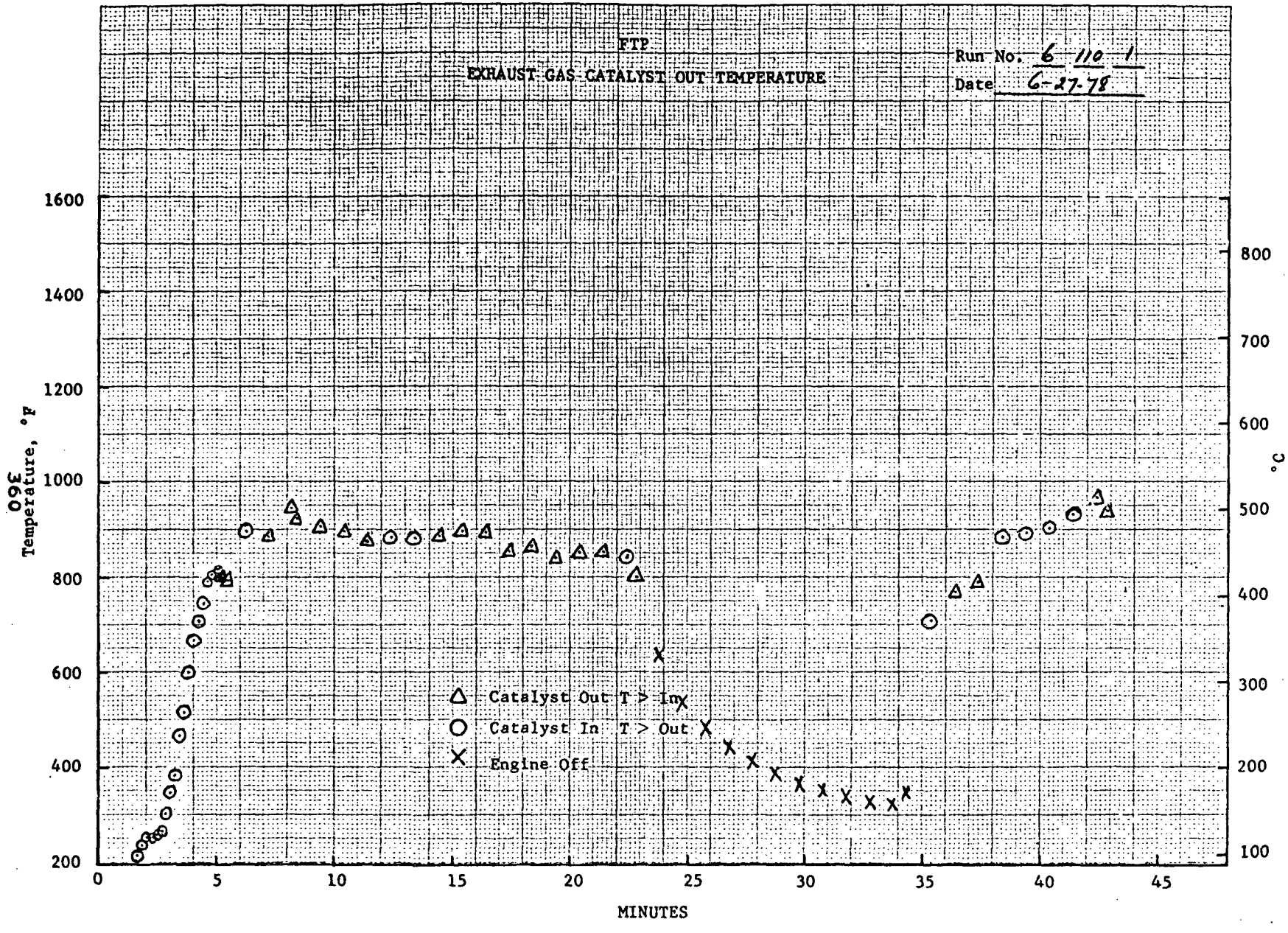
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 110 1
Date 6-27-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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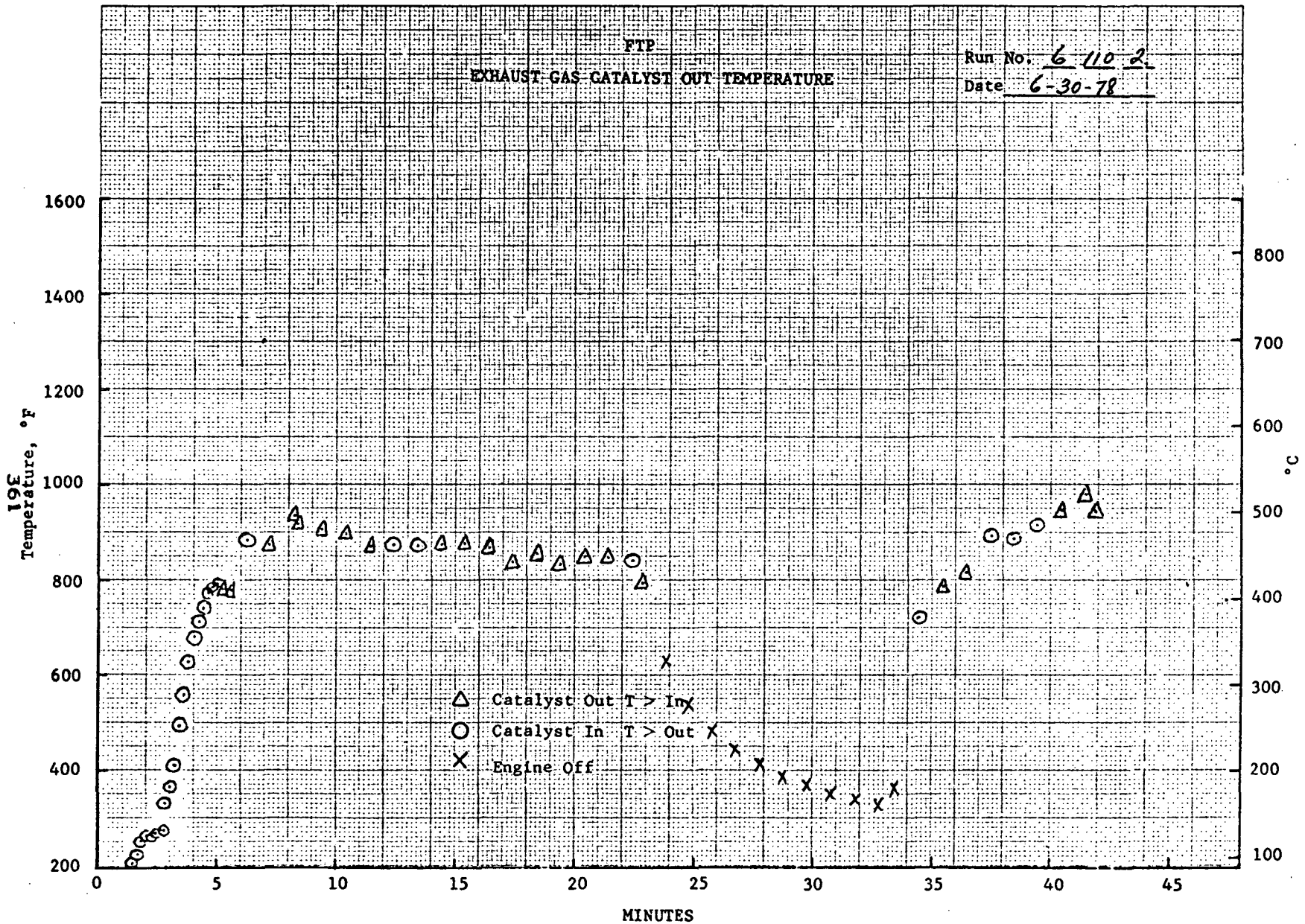
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 110 2
Date 6-30-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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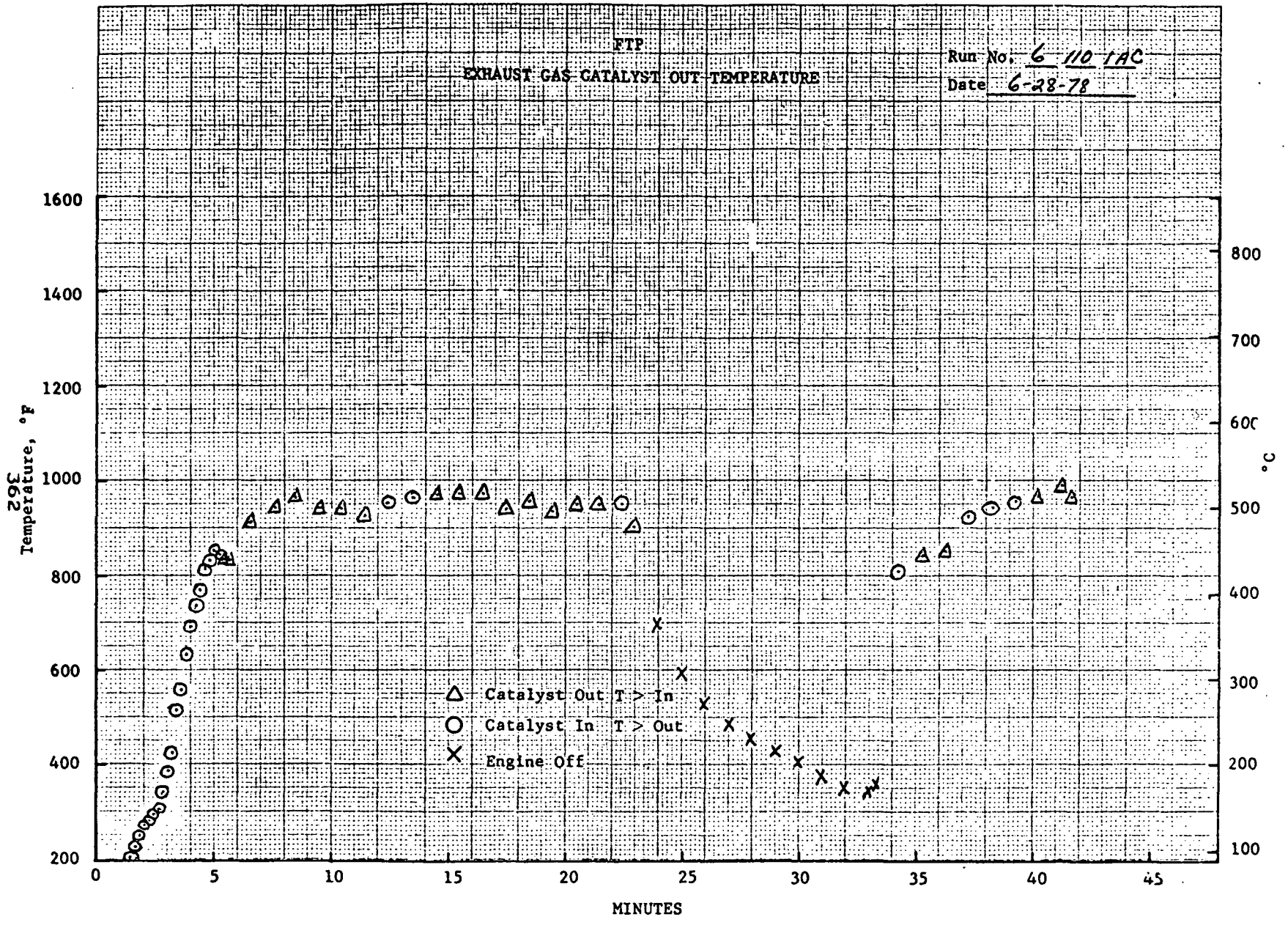
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 110 IAC
Date 6-28-78
Temperature, °F
362
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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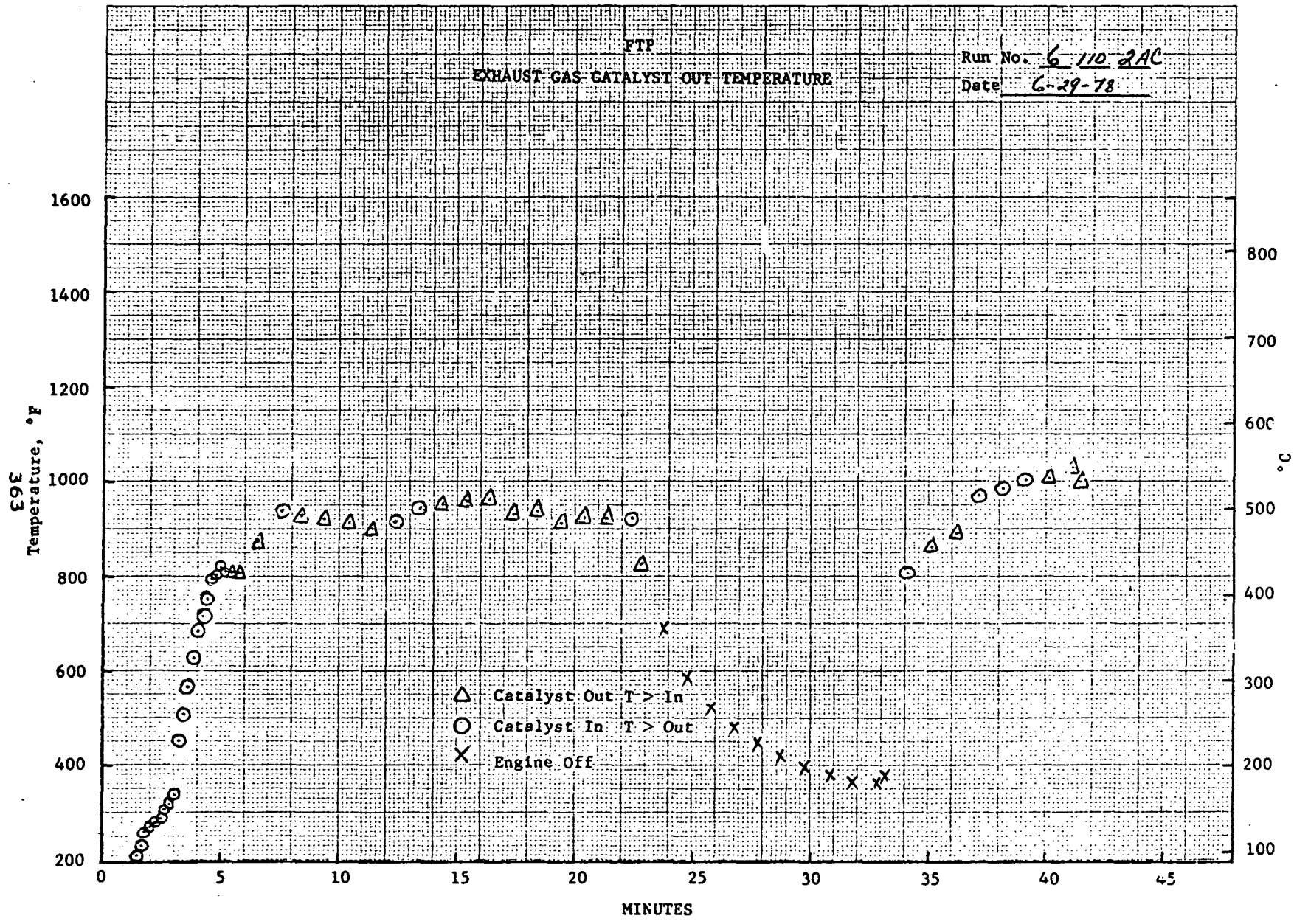
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 6 110 2AC
Date 6-29-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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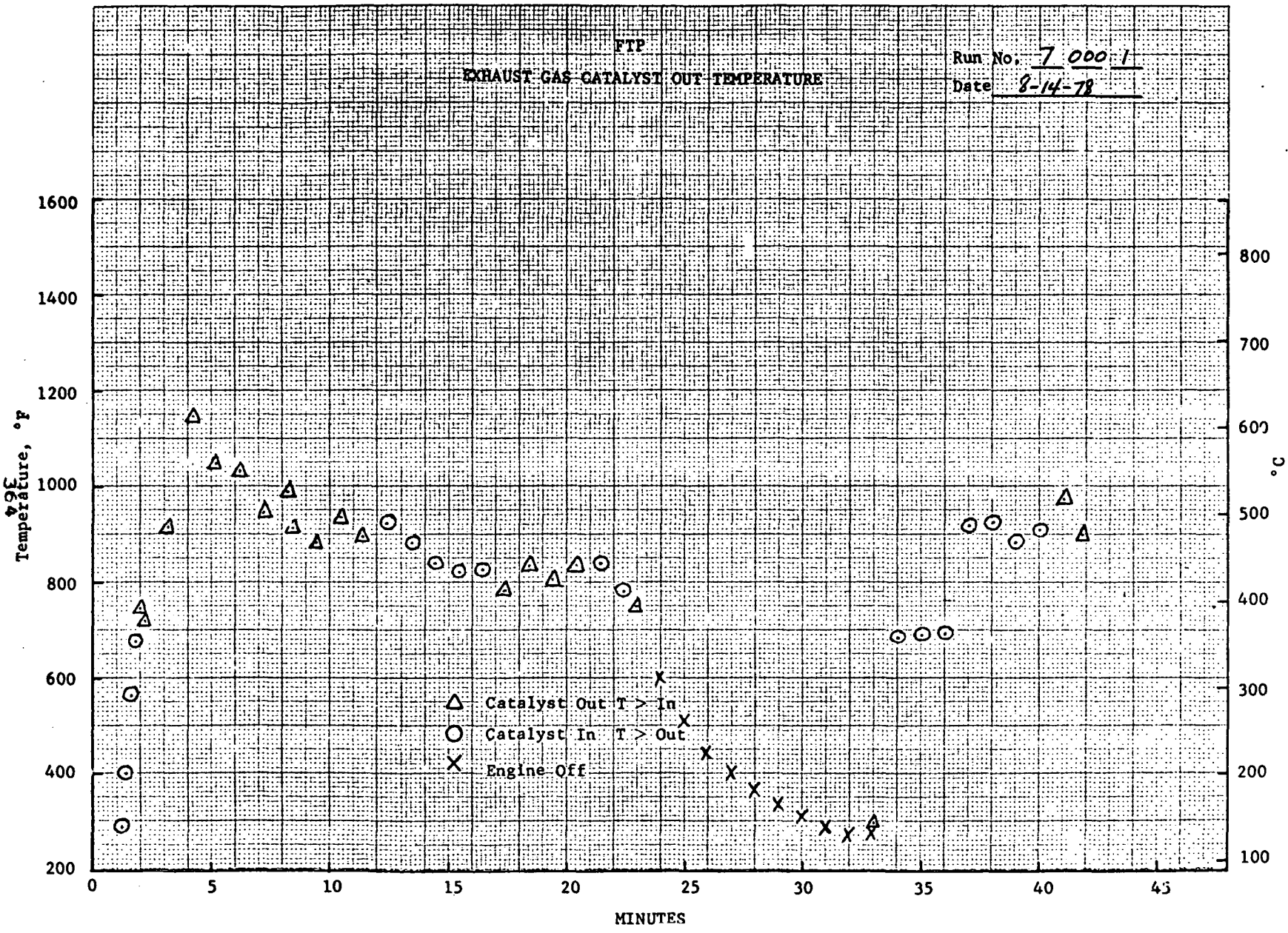
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 000 1
Date 8-14-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
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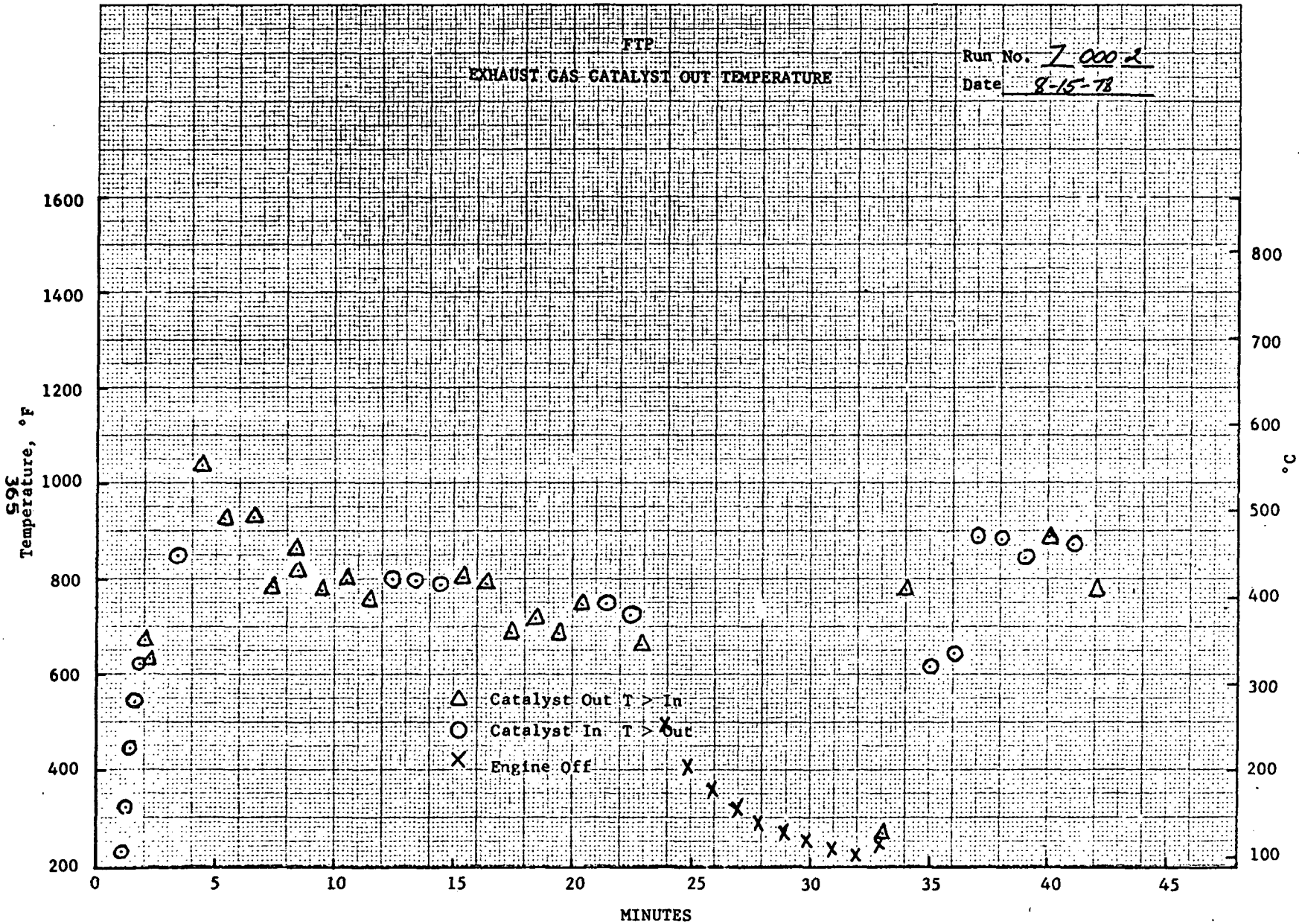
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 000 2
Date 8-15-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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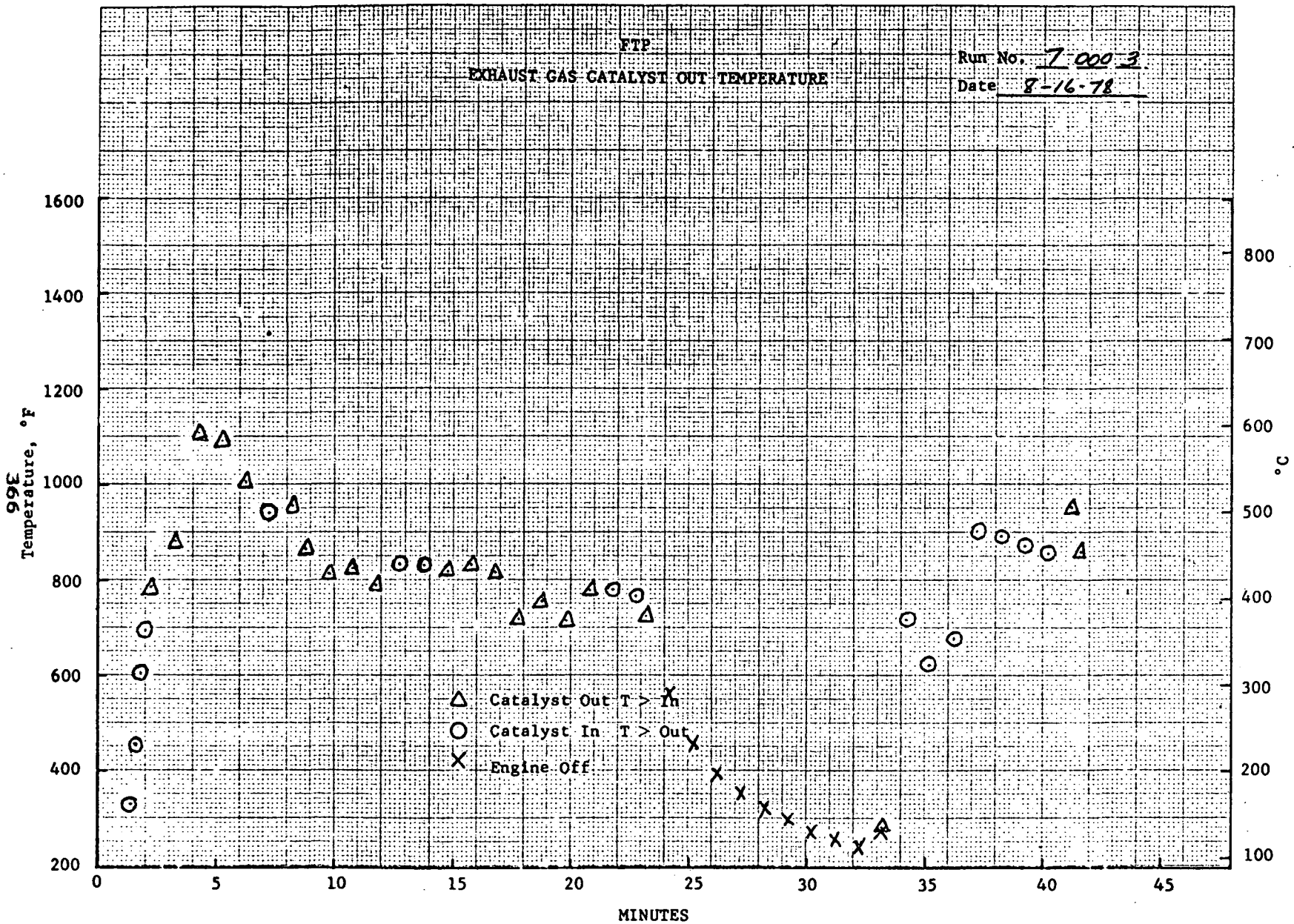
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 000 3
Date 8-16-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
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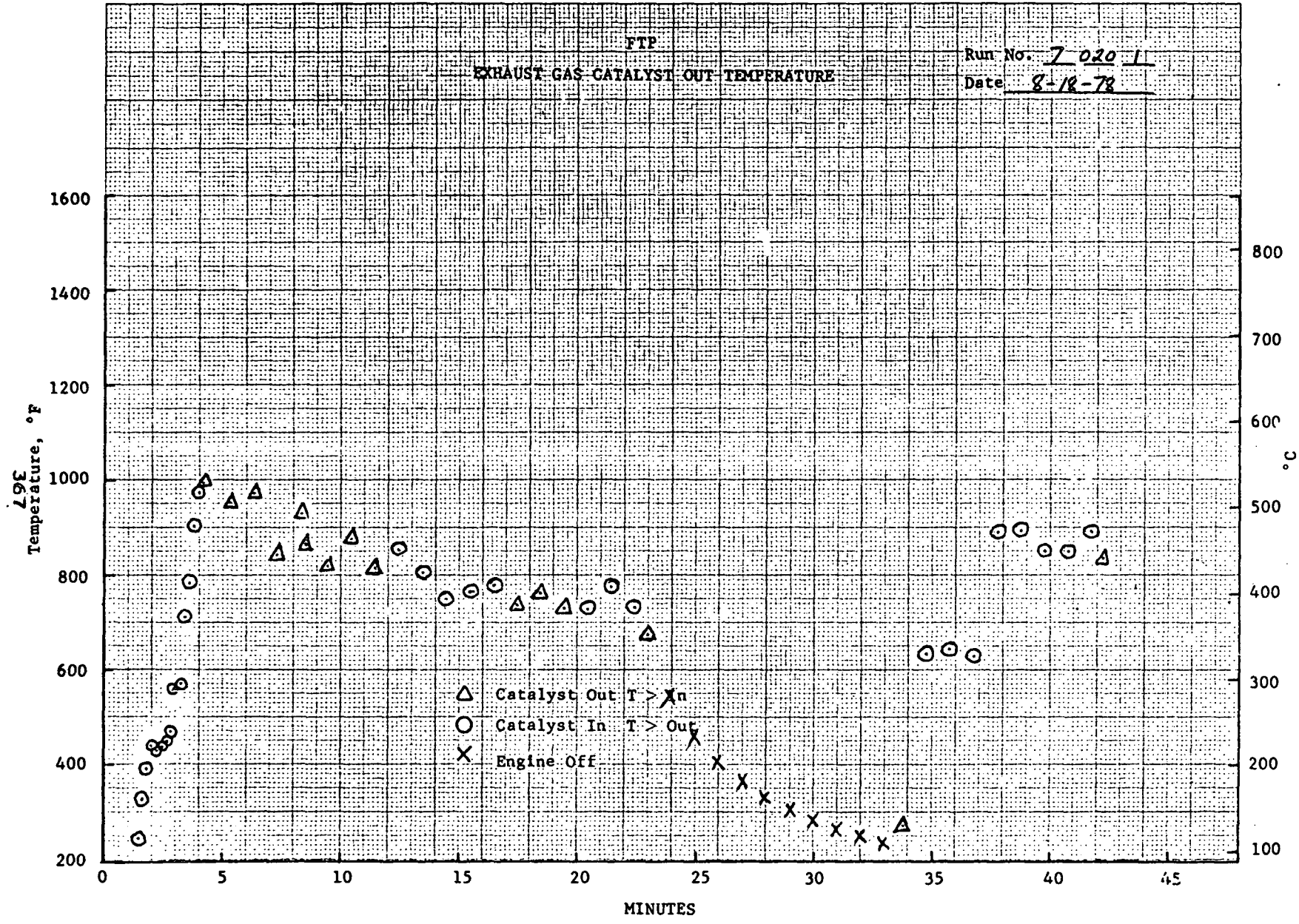
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 020 1
Date 8-18-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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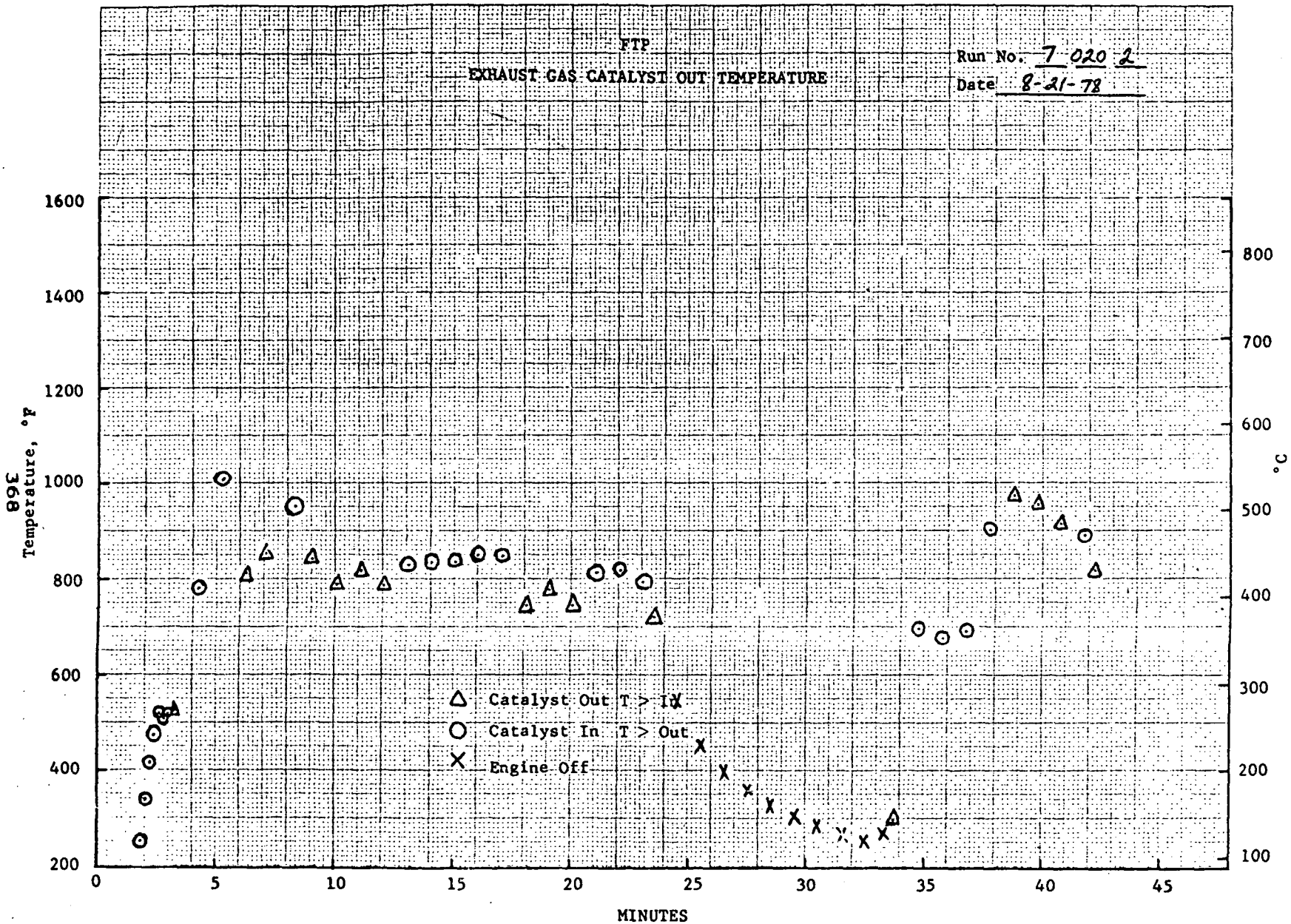
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 020 2
Date 8-21-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
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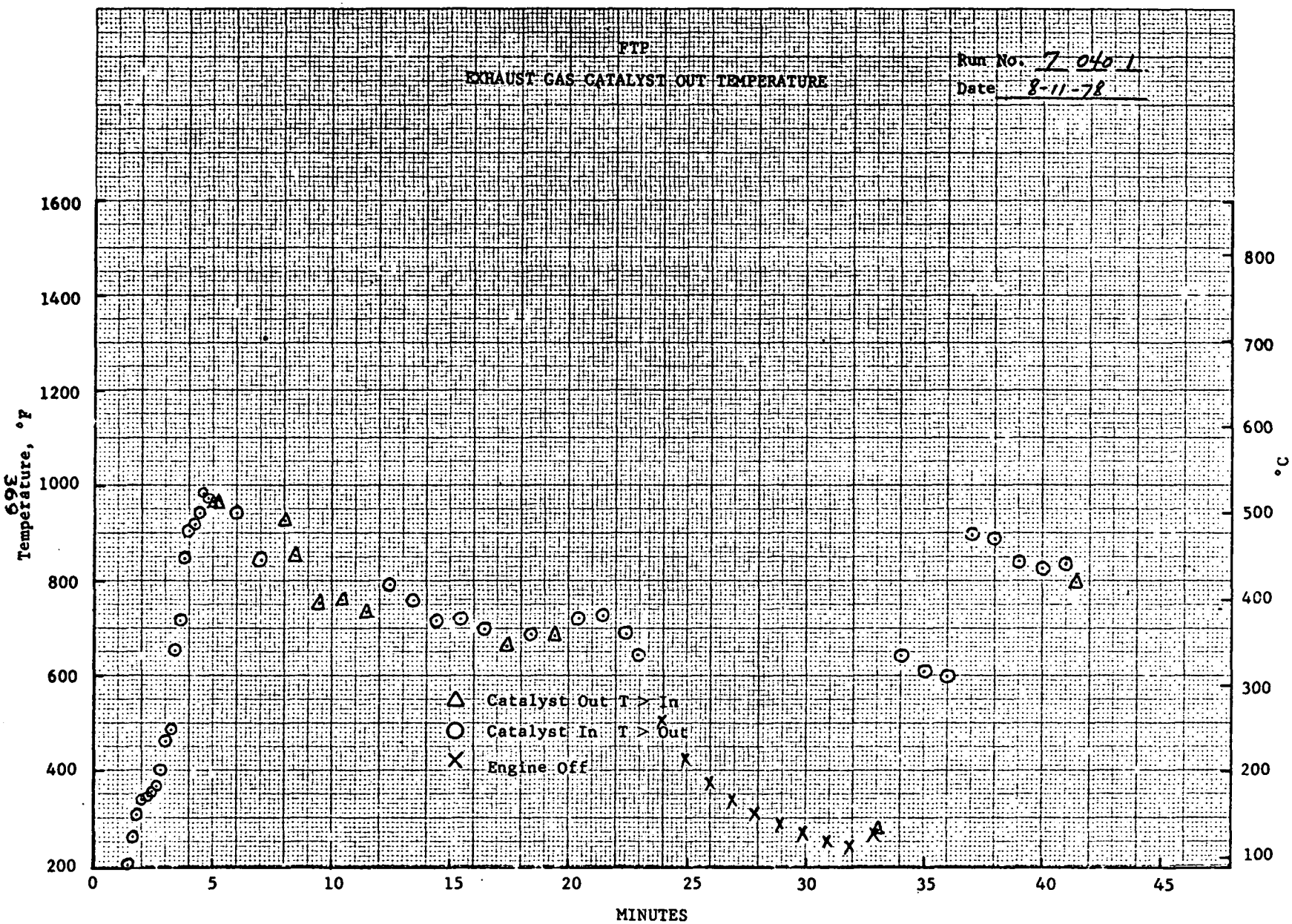
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 040 1
Date 8-11-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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10
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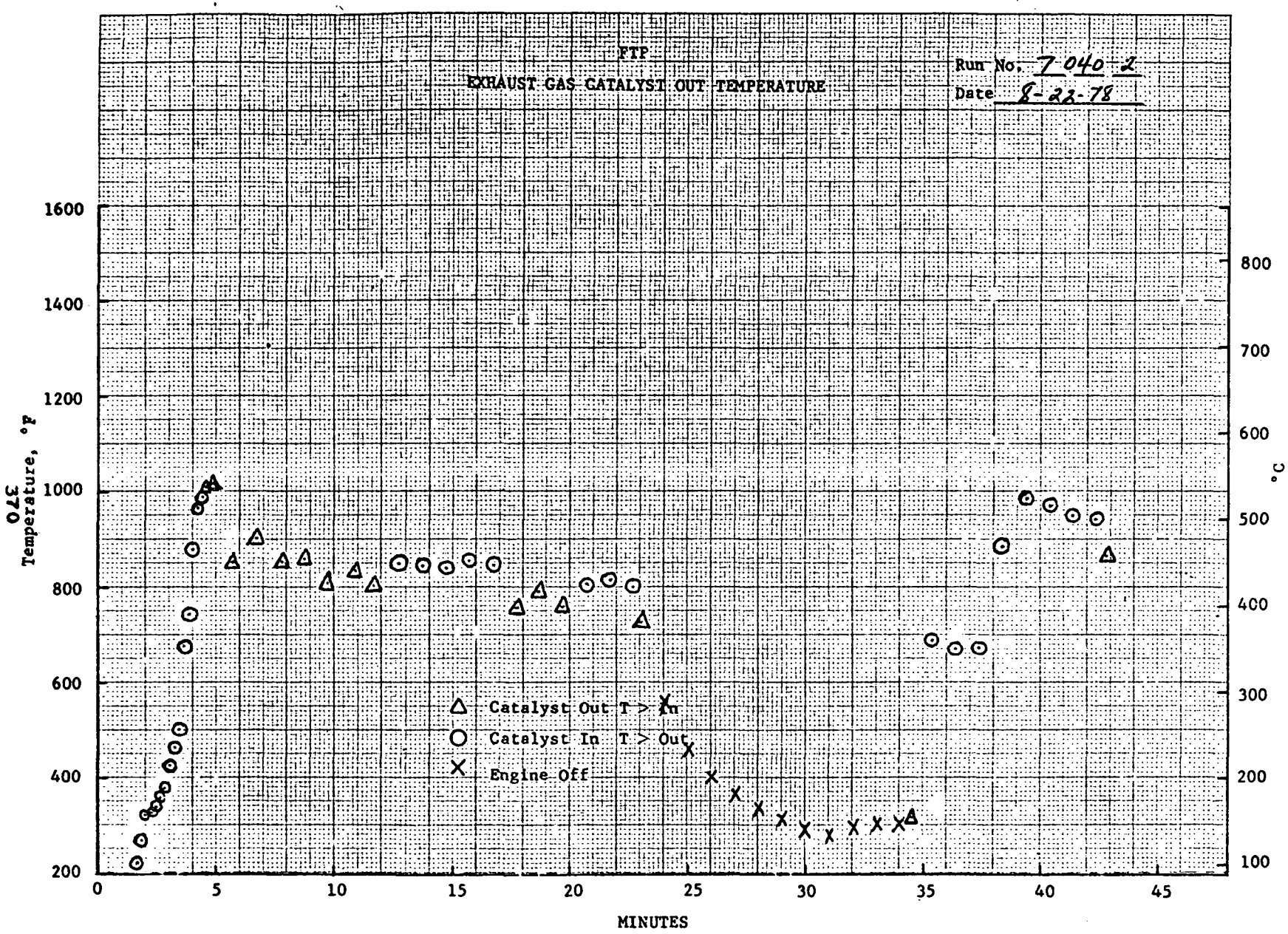
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7040 2
Date 8-22-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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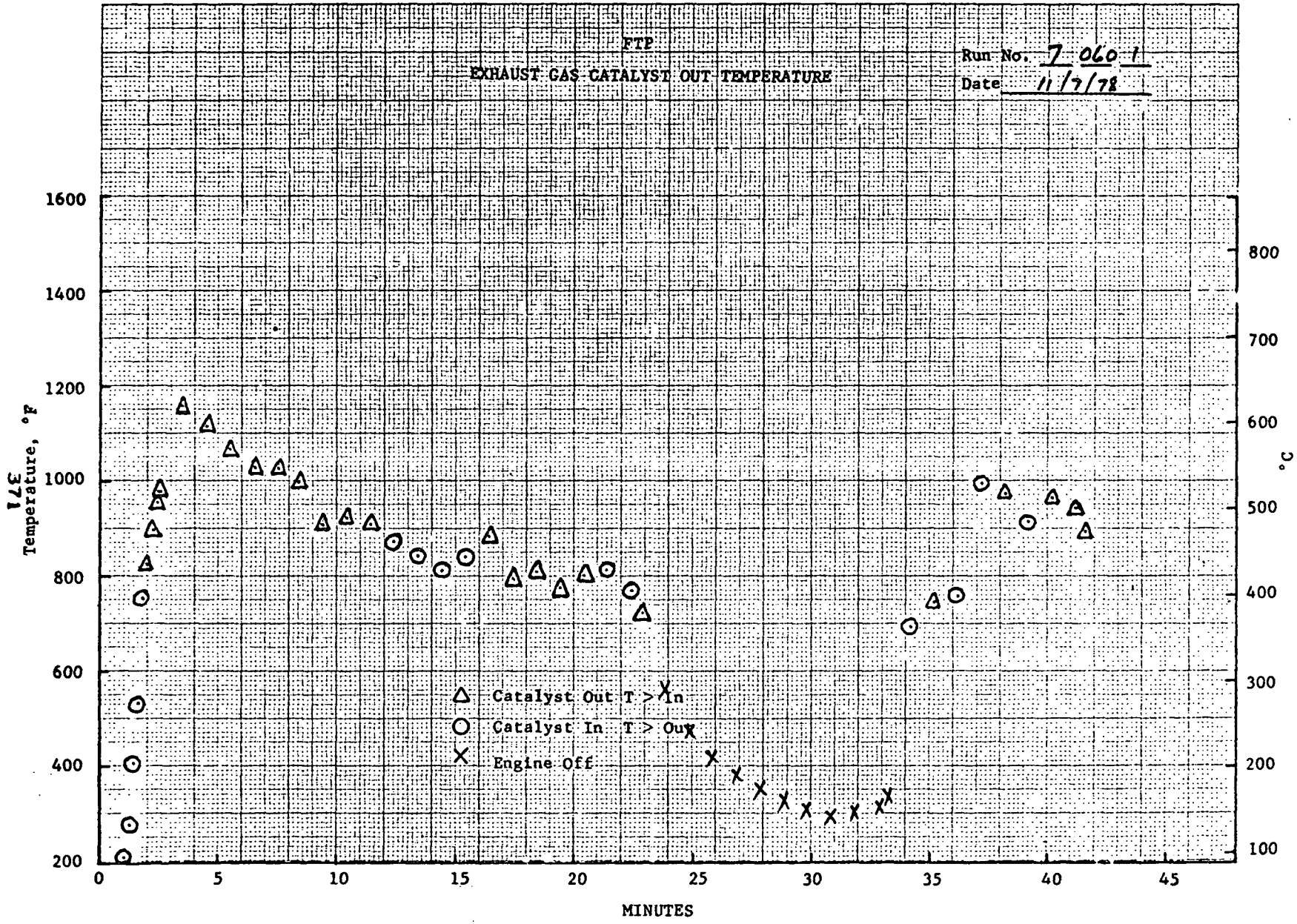
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 060 1
Date 11/7/78
Temperature, °F
371
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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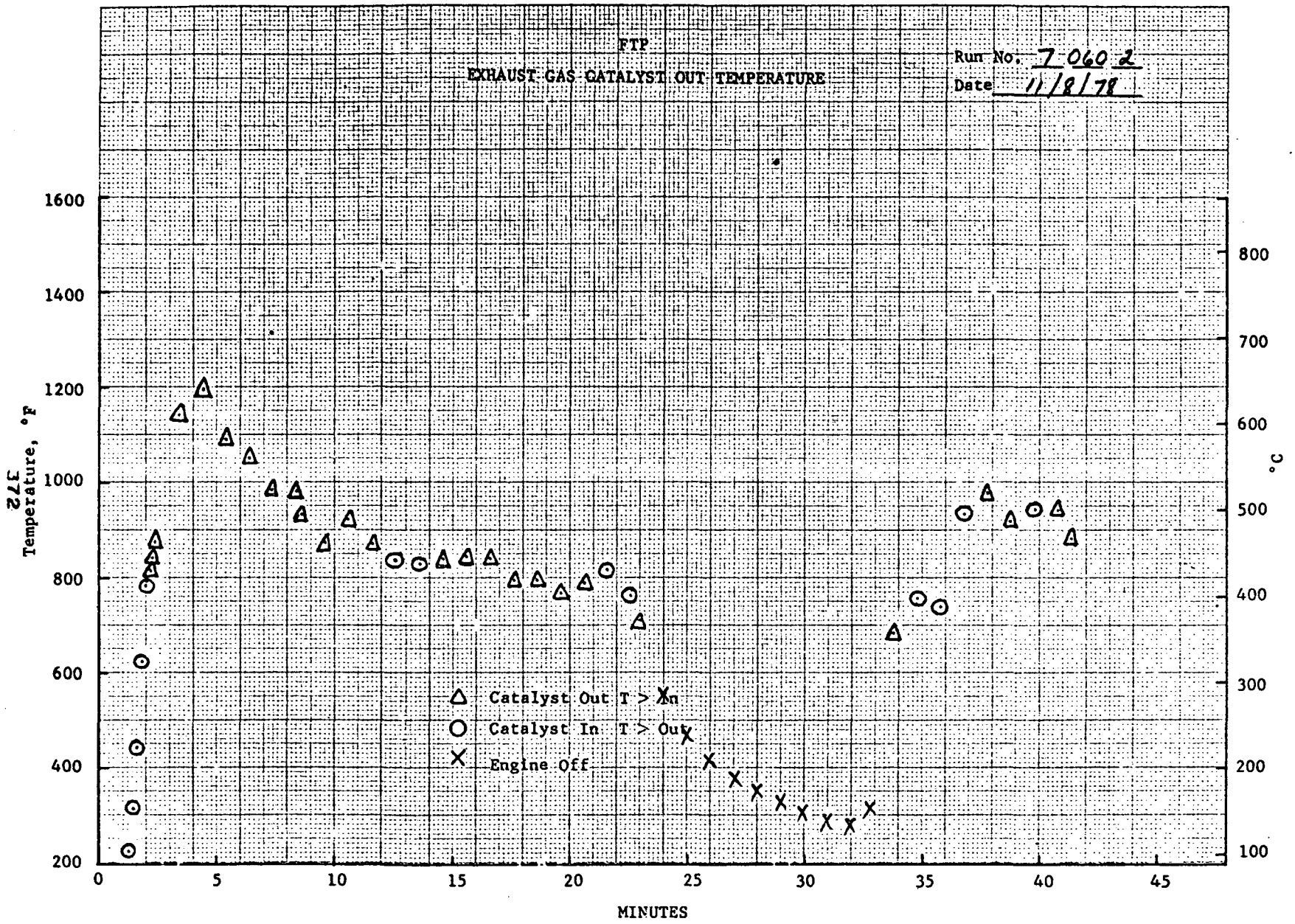
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 060 2
Date 11/8/78
Temperature, °F
372
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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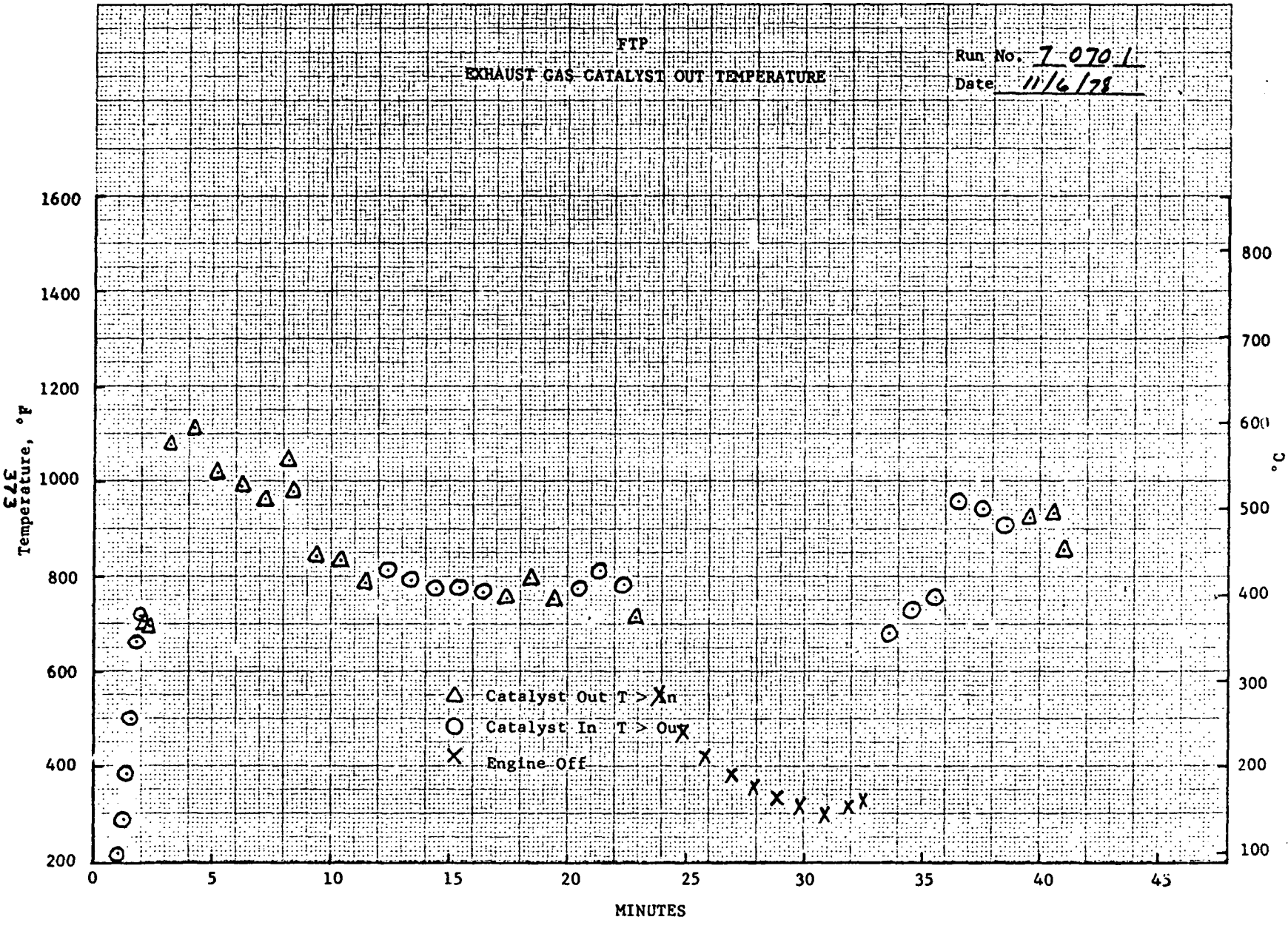
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 070 1
Date 11/6/78
Temperature, °F
°C
MINUTES
Catalyst Out T > Xn
Catalyst In T > Ou
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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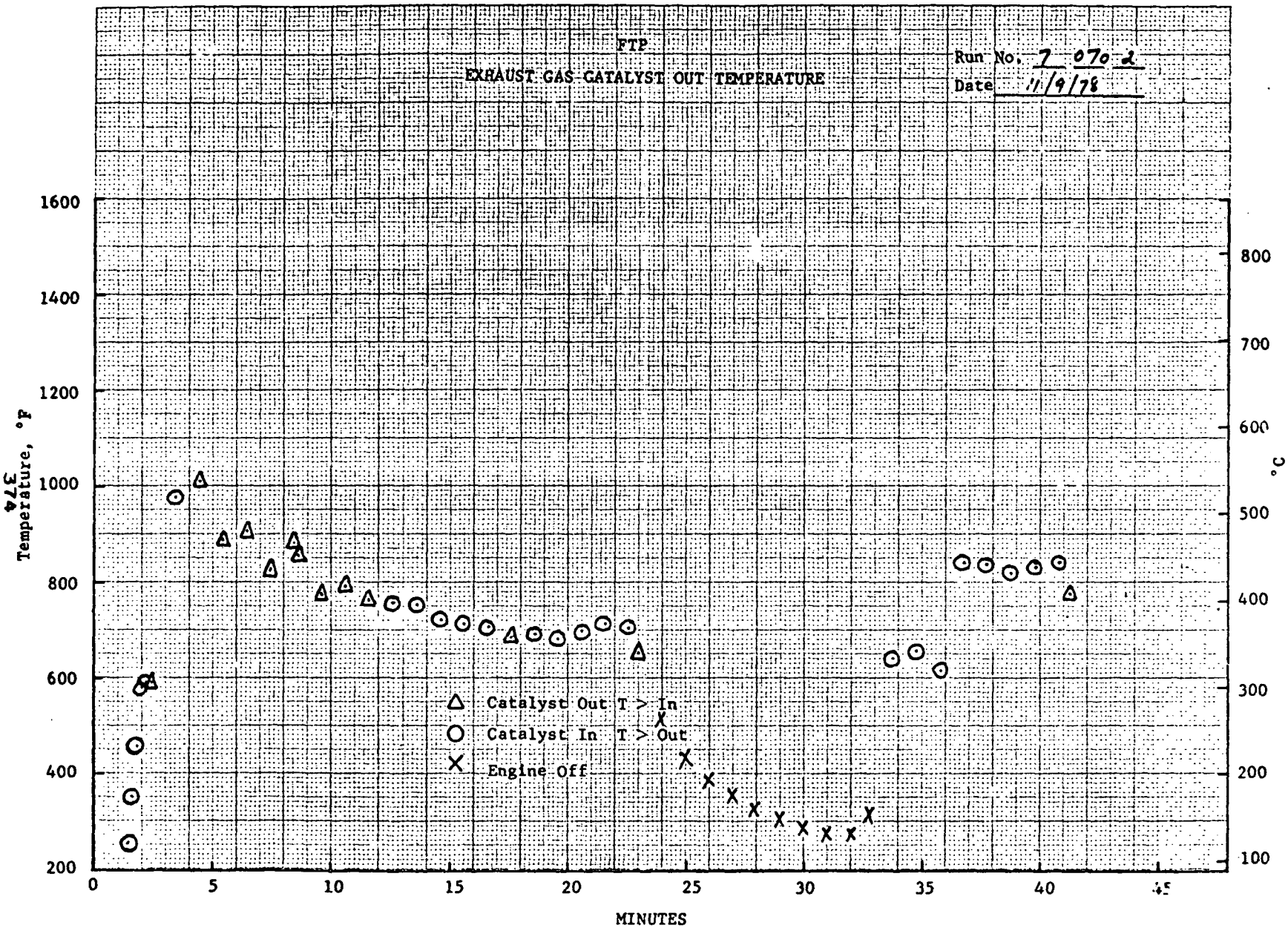
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 070 2
Date 11/9/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
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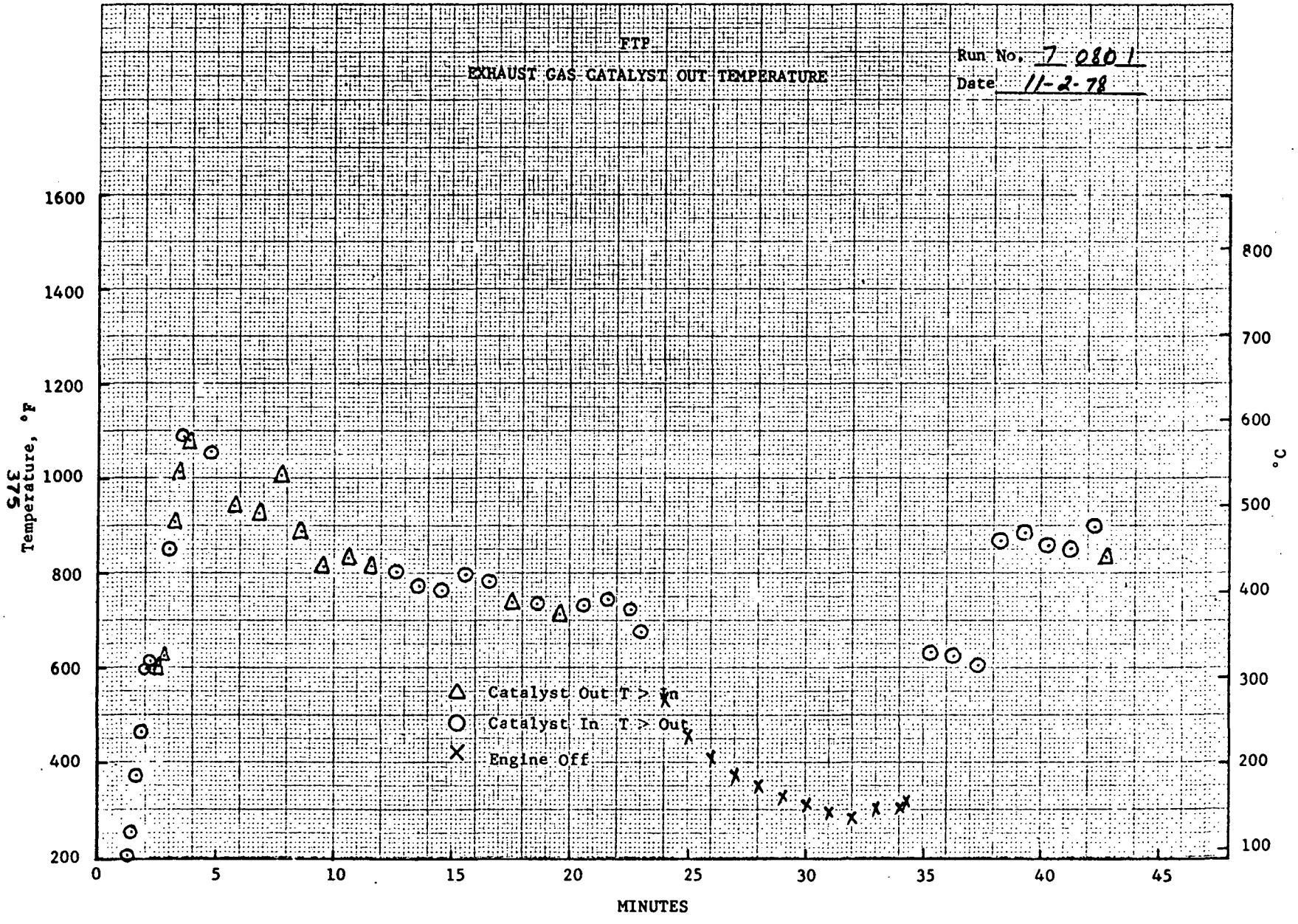
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 0801
Date 11-2-78
375 Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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500
400
300
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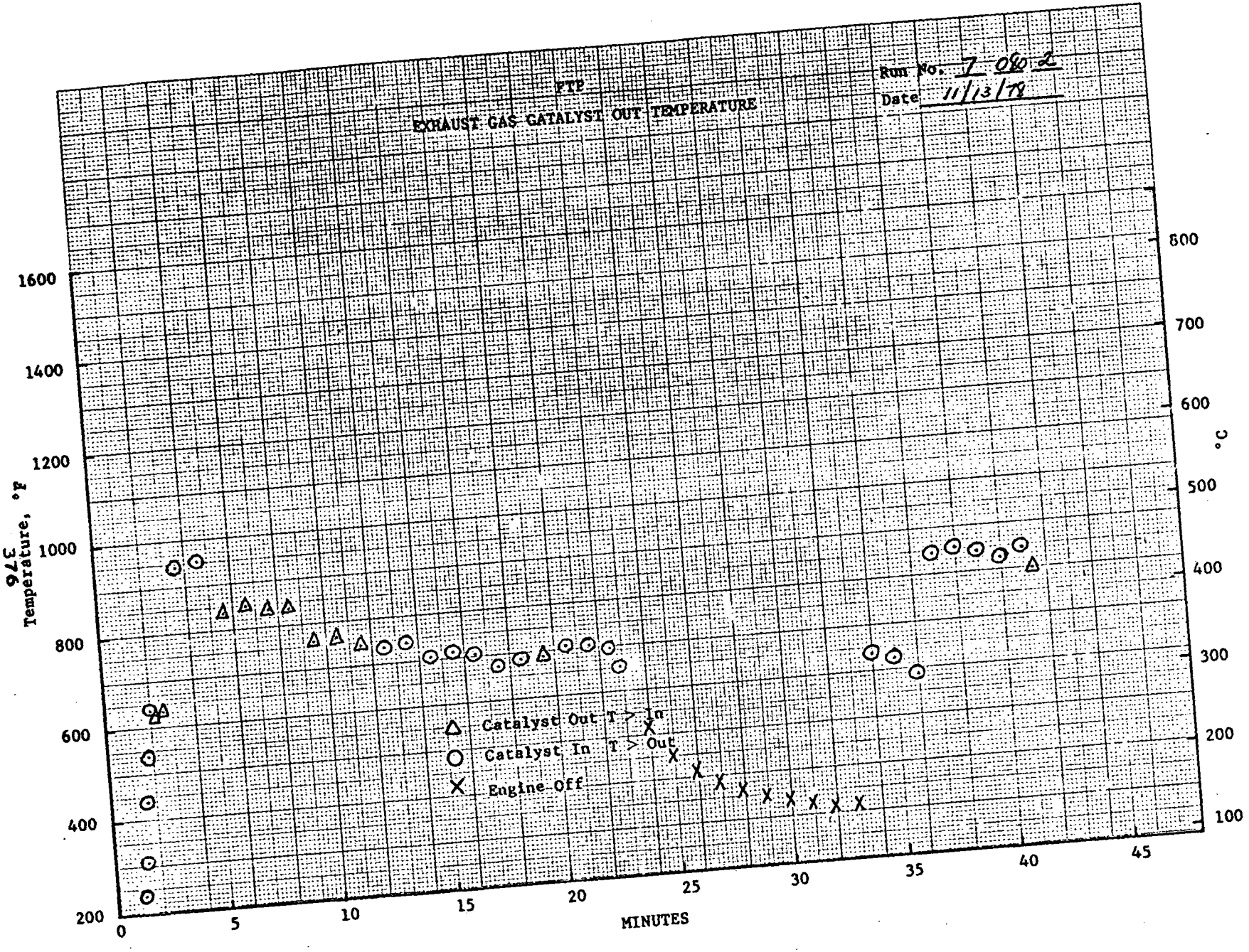
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 080 2
Date 11/13/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine-Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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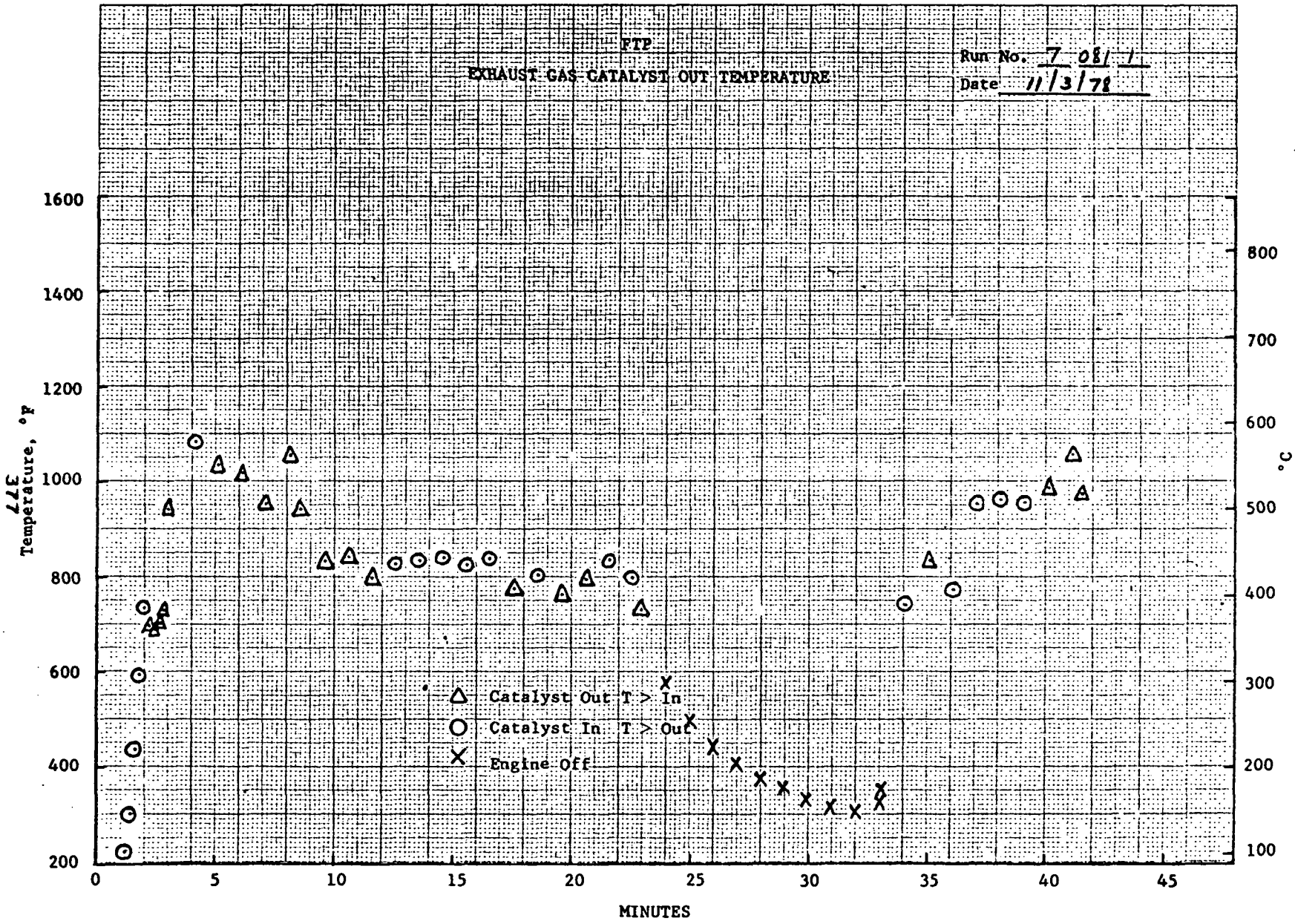
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 08/ 1
Date 11/3/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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500
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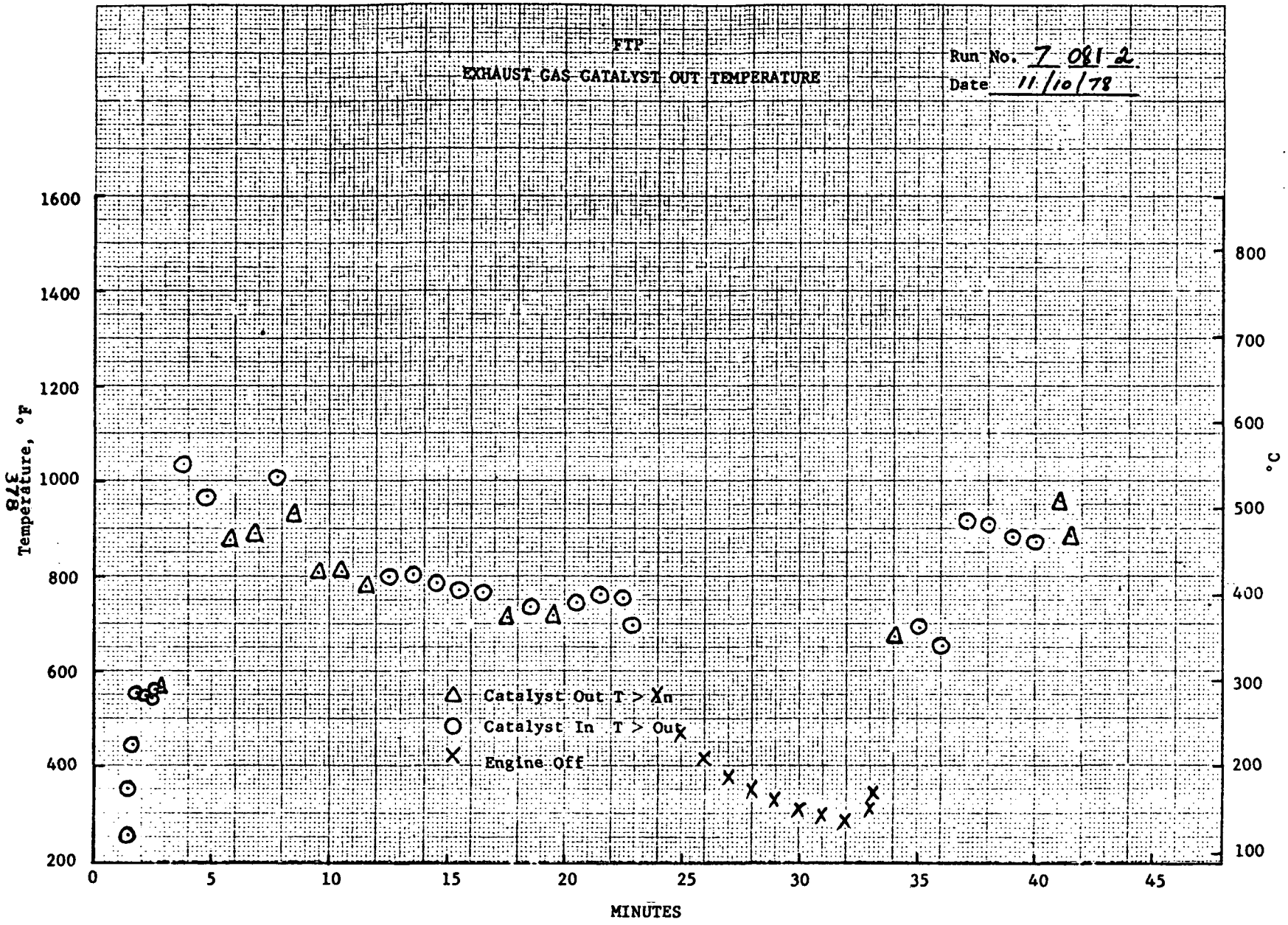
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 081 2
Date 11/10/78
Temperature, °F
°C
MINUTES
Catalyst Out T > Xn
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
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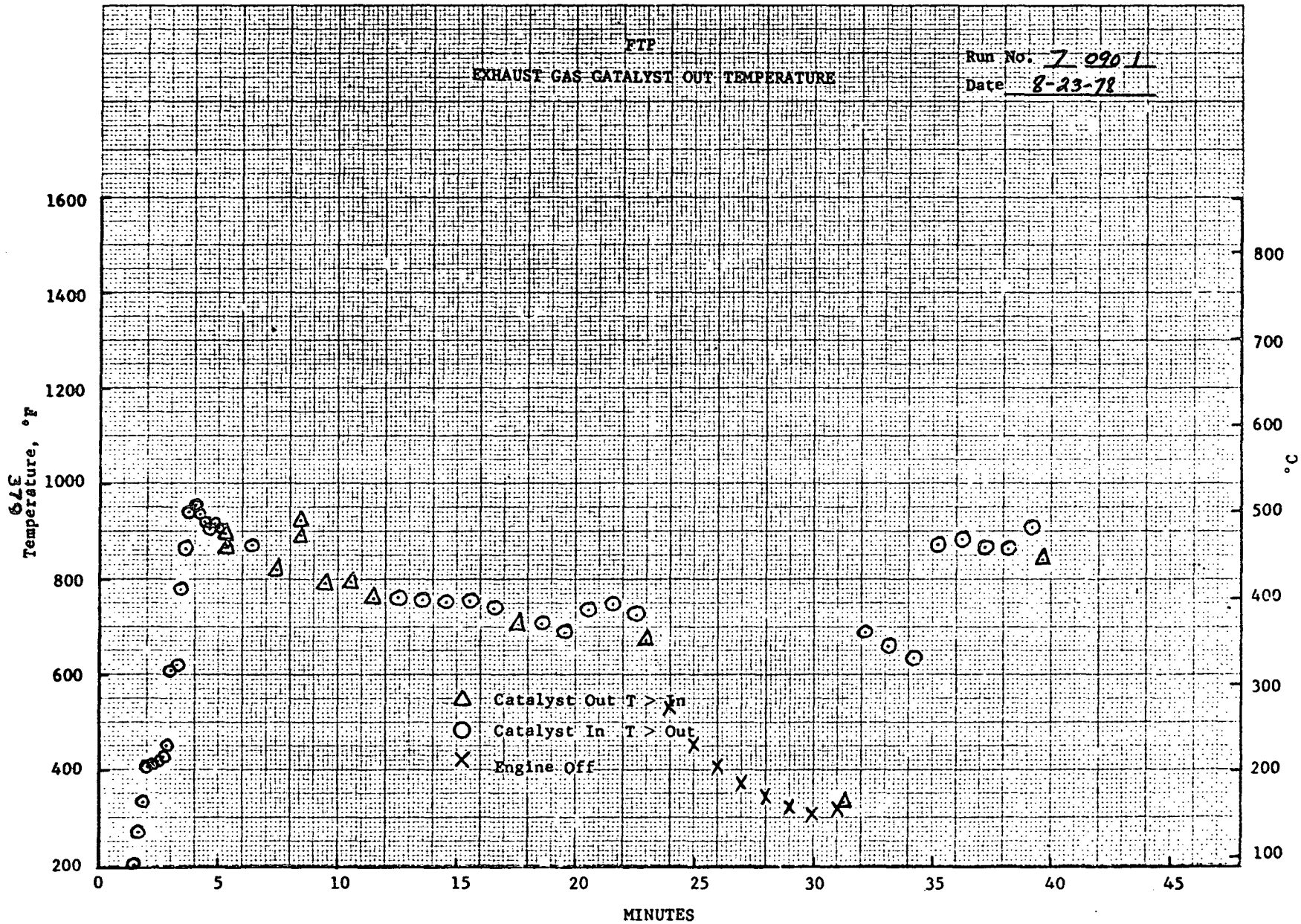
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 090 1
Date 8-23-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
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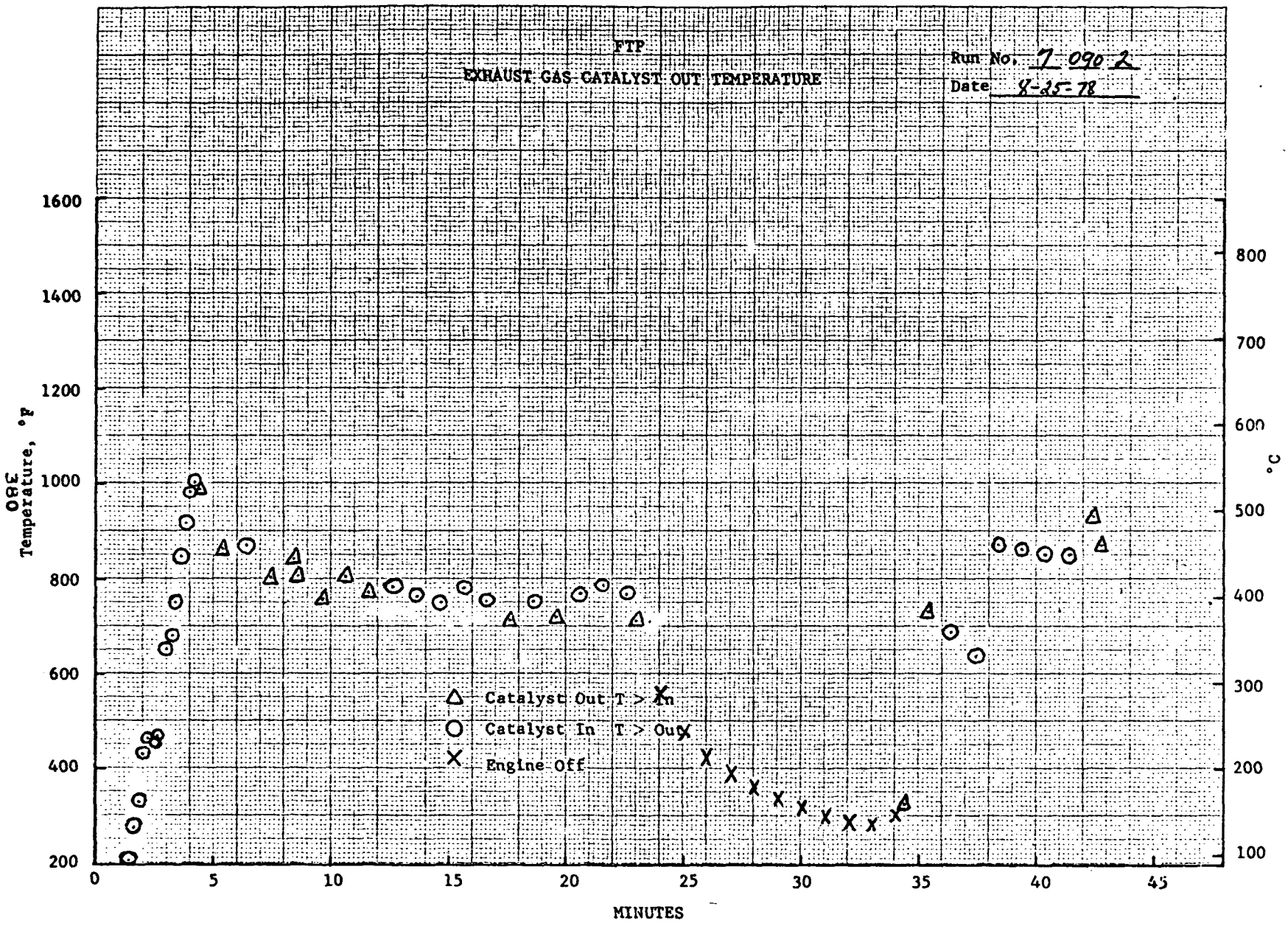
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 090 2
Date 8-25-78
OBE
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
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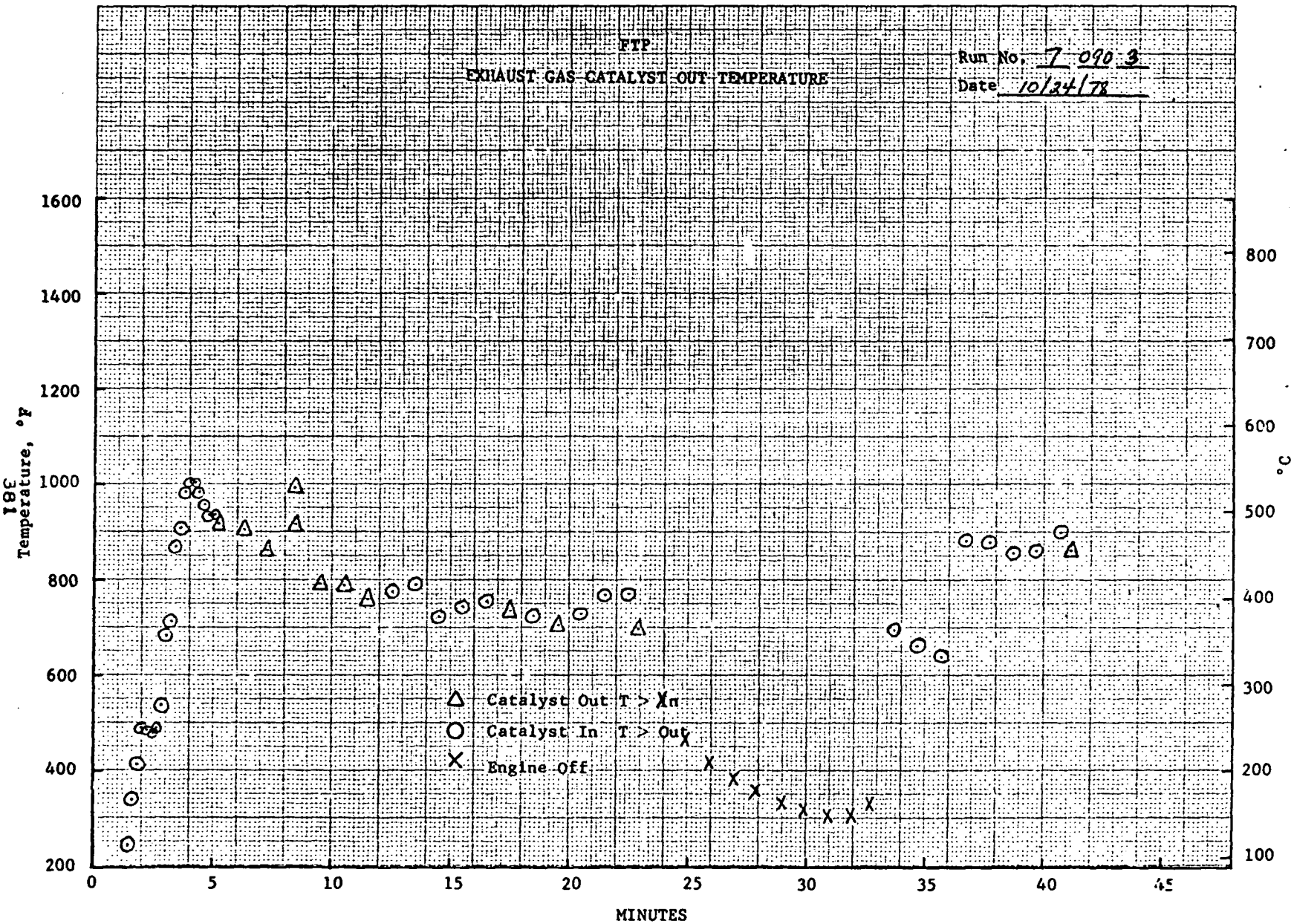
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 090 3
Date 10/24/78
IBC
Temperature, °F
1600
1400
1200
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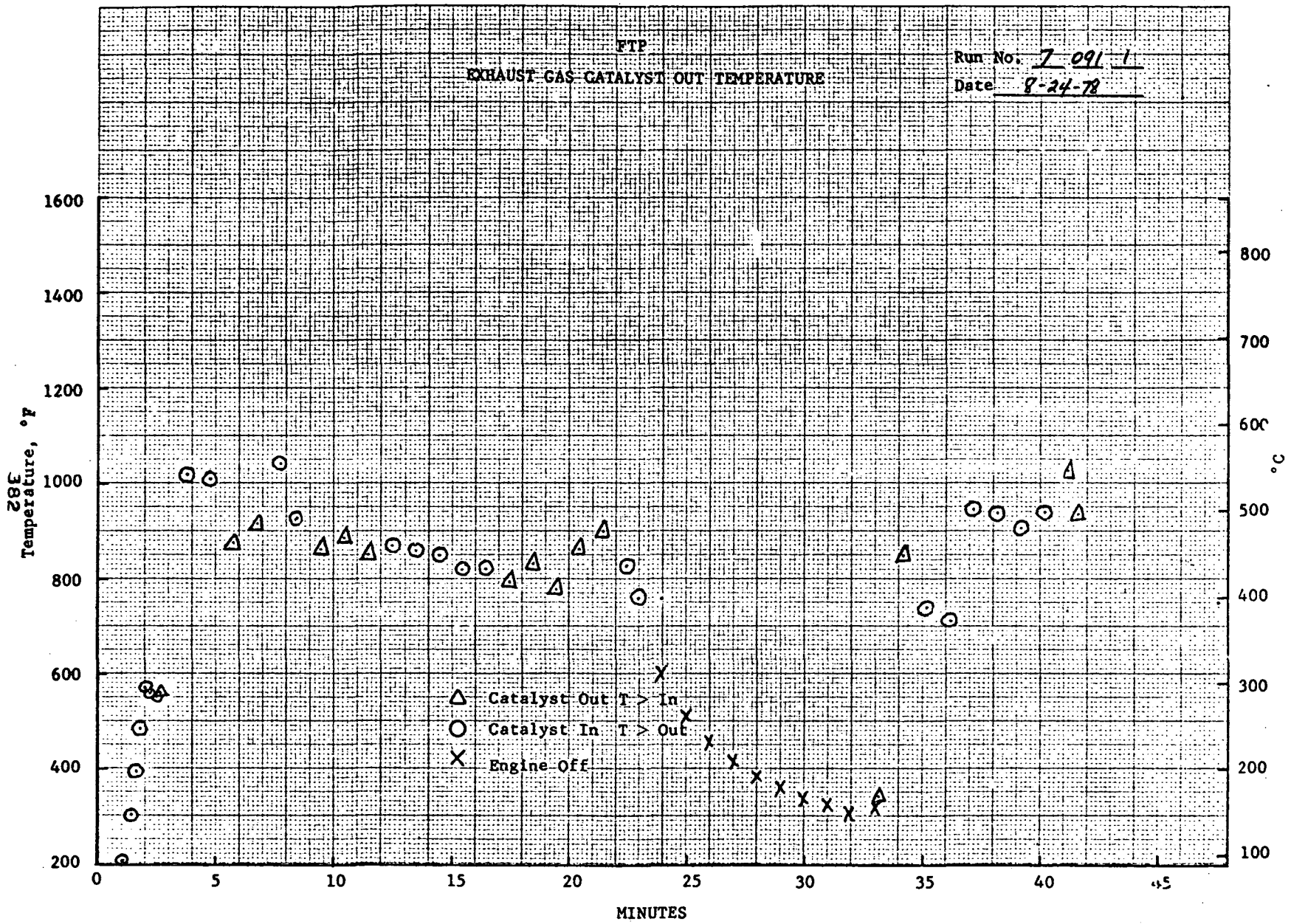
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 091 1
Date 8-24-78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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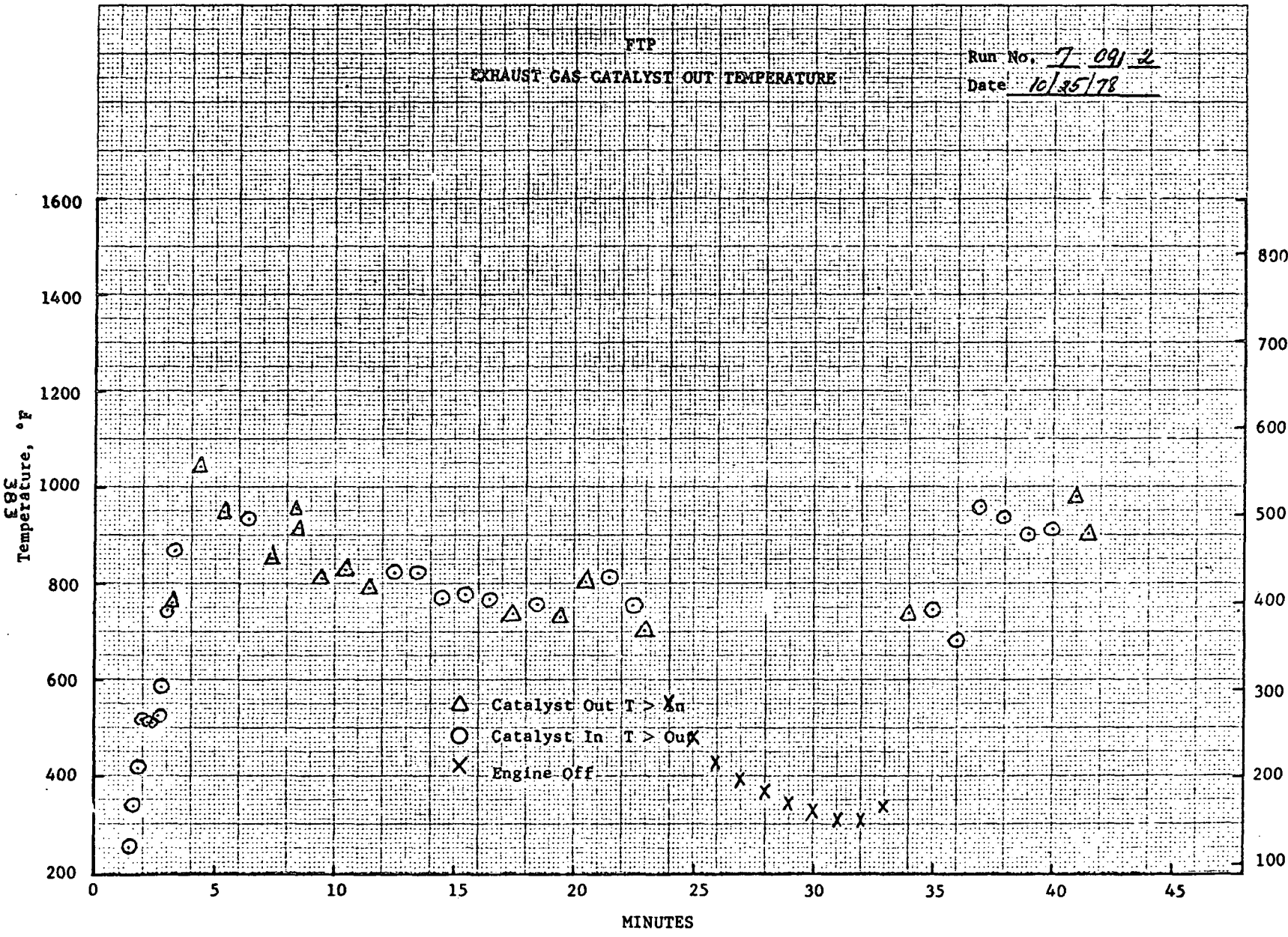
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. T 091 2
Date 10/25/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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700
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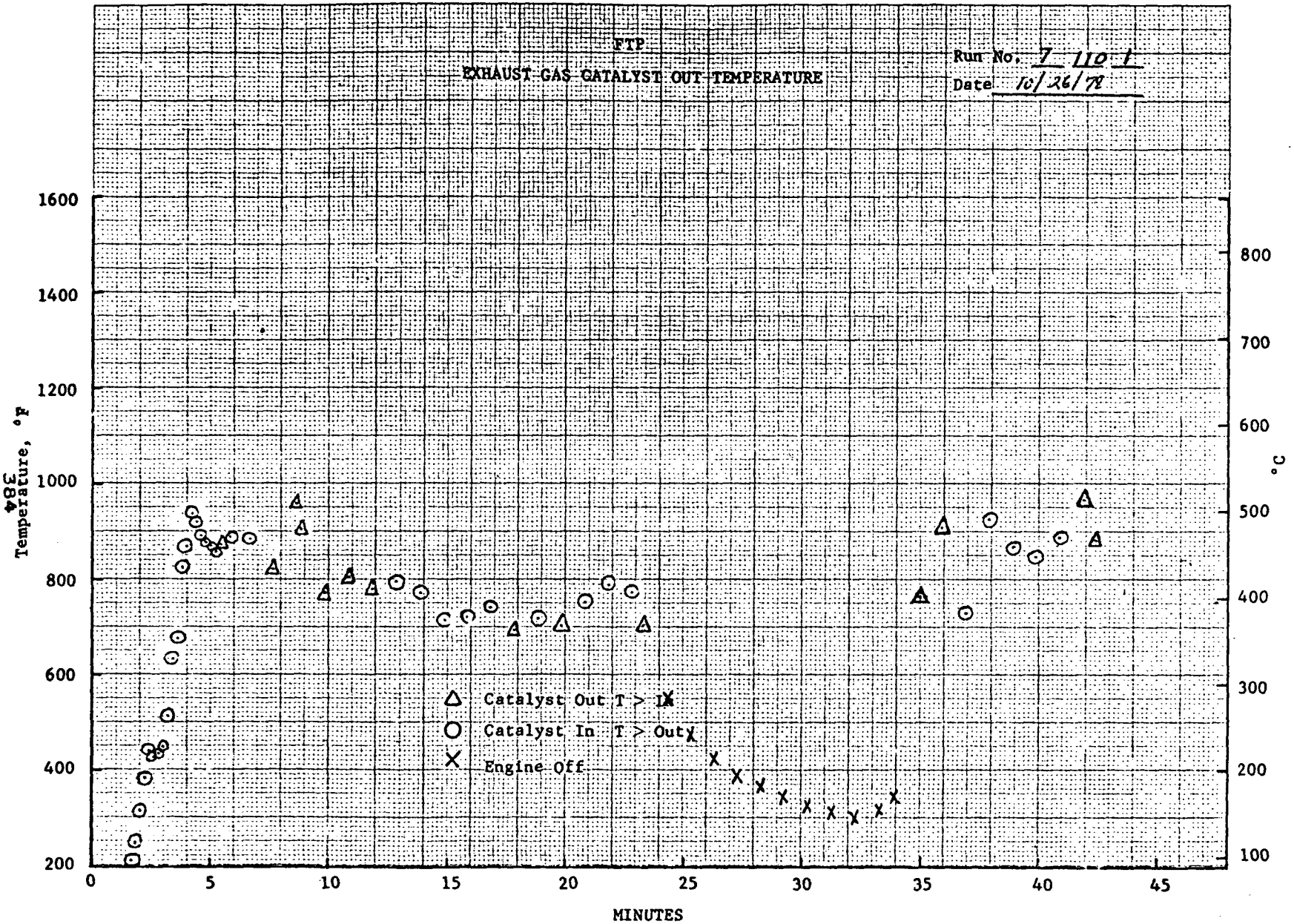
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 110 1
Date 10/26/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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300
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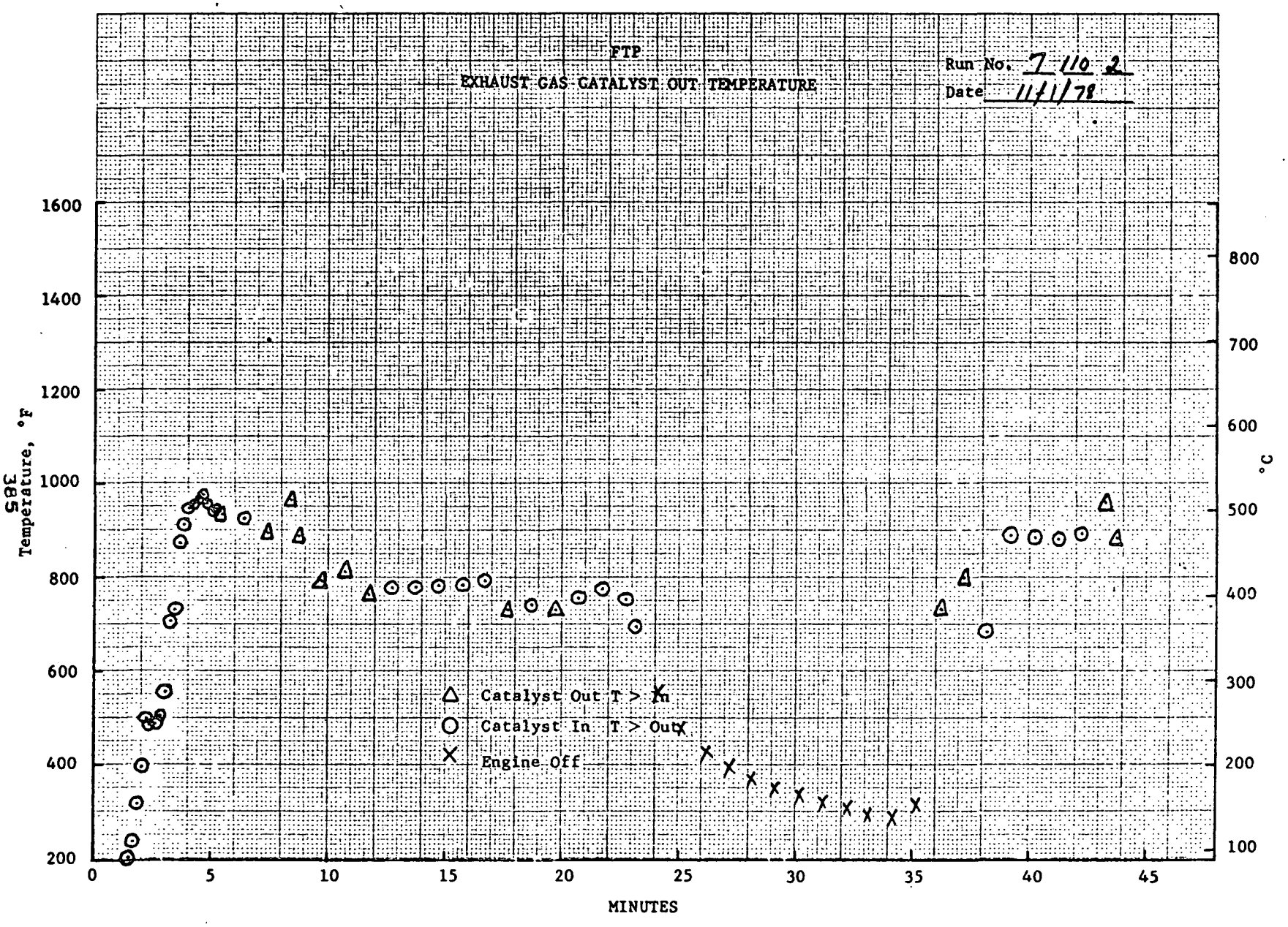
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 110 2
Date 11/1/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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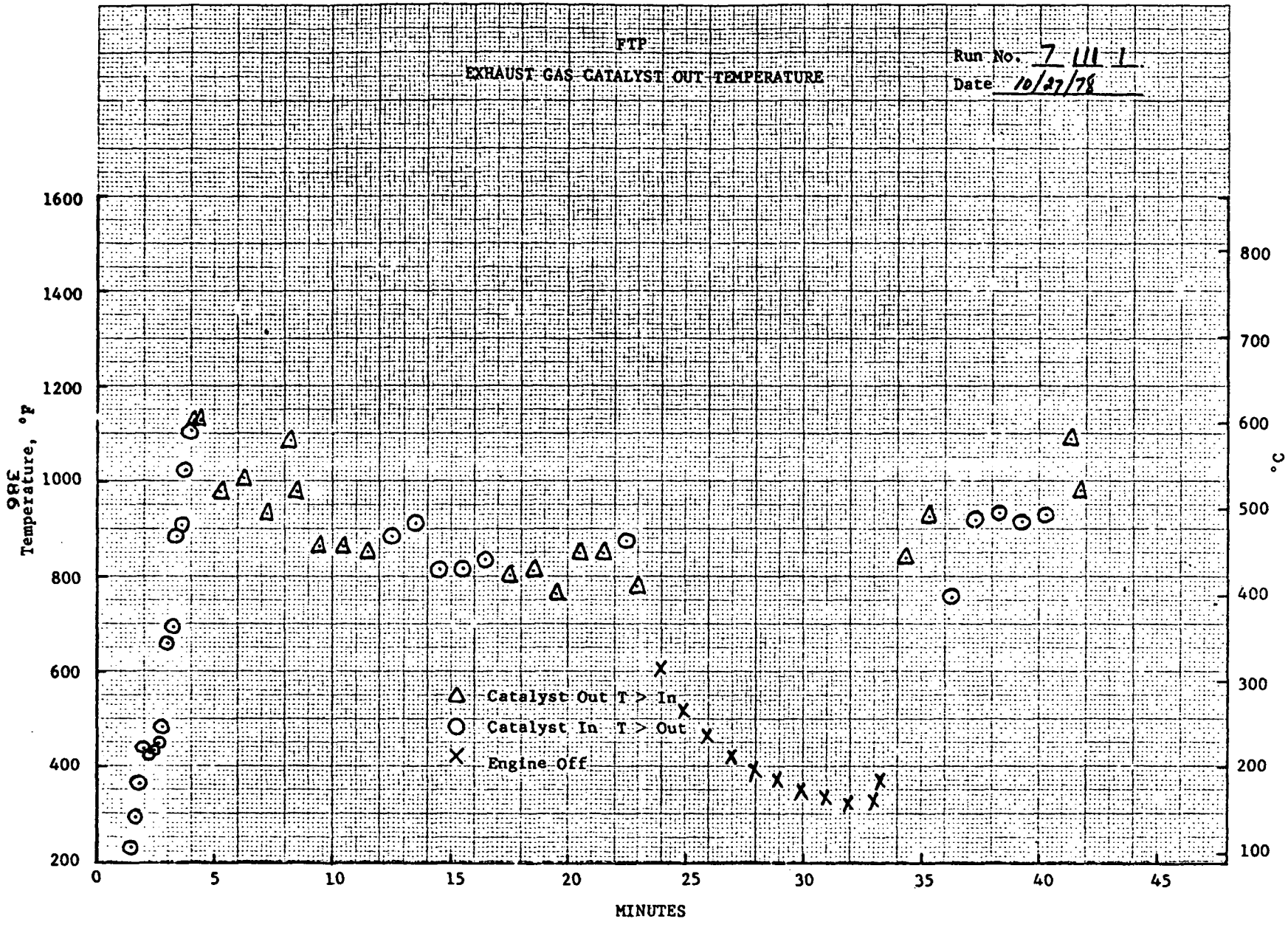
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 111 1
Date 10/27/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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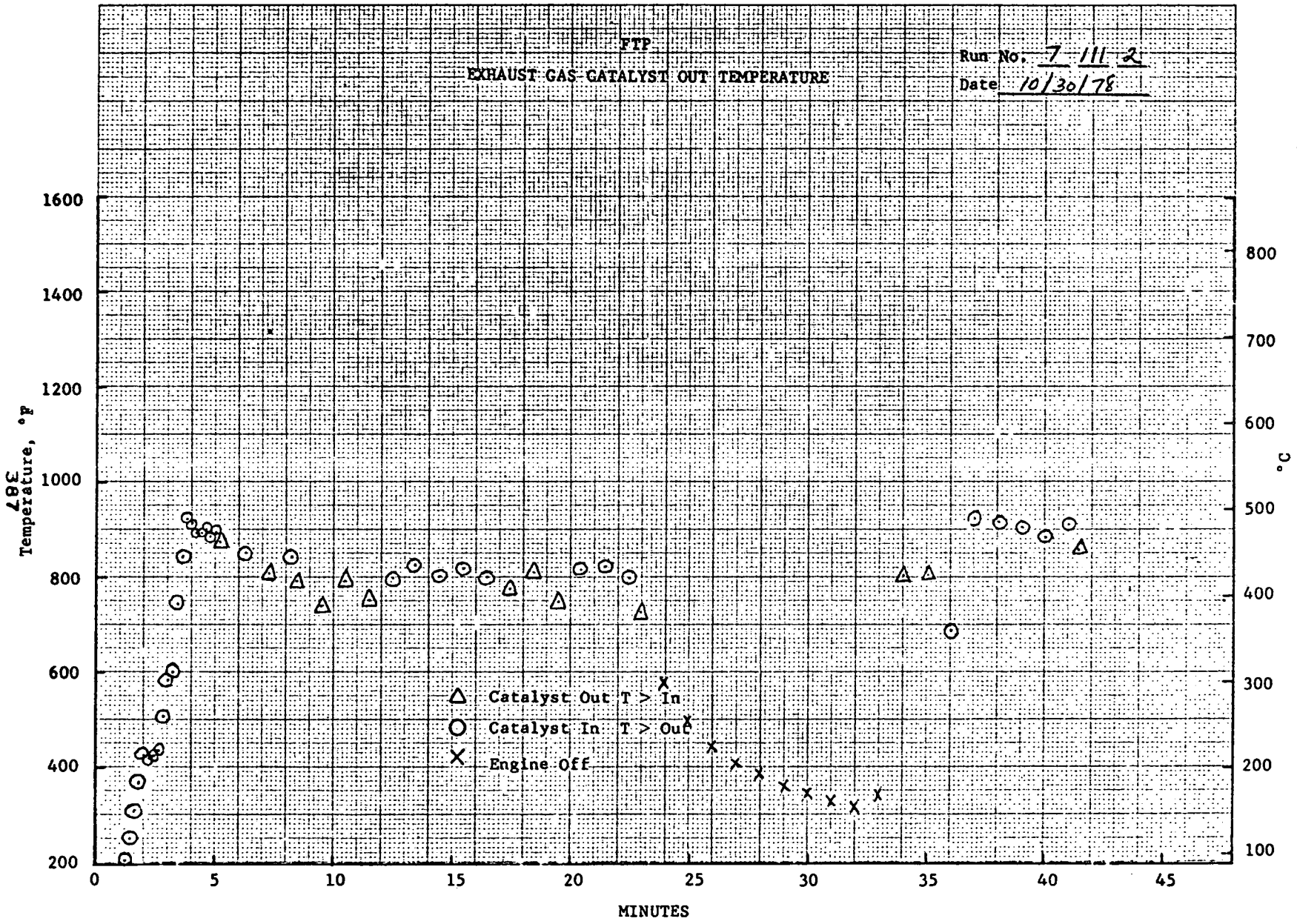
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 111 2
Date 10/30/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
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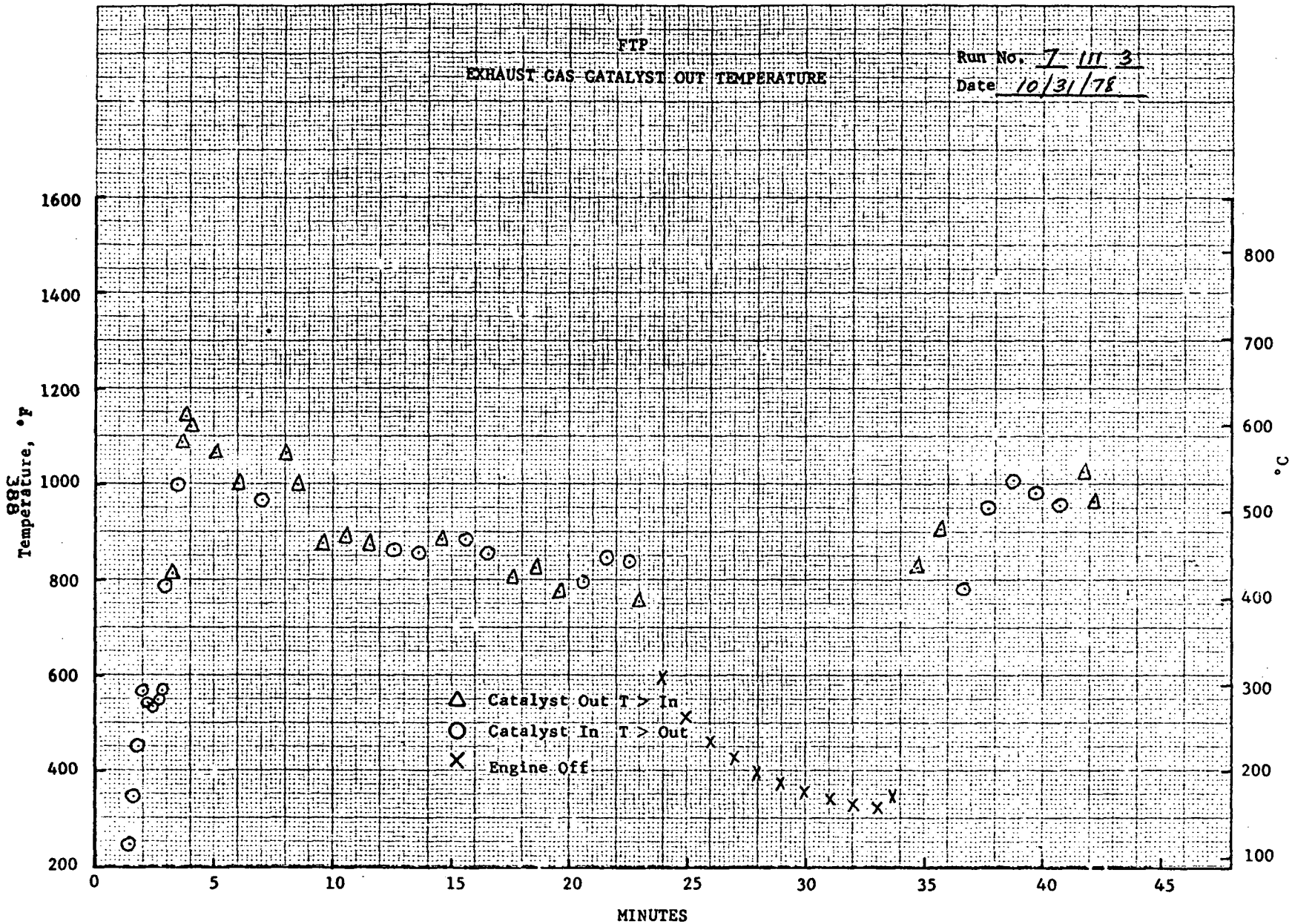
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 7 111 3
Date 10/31/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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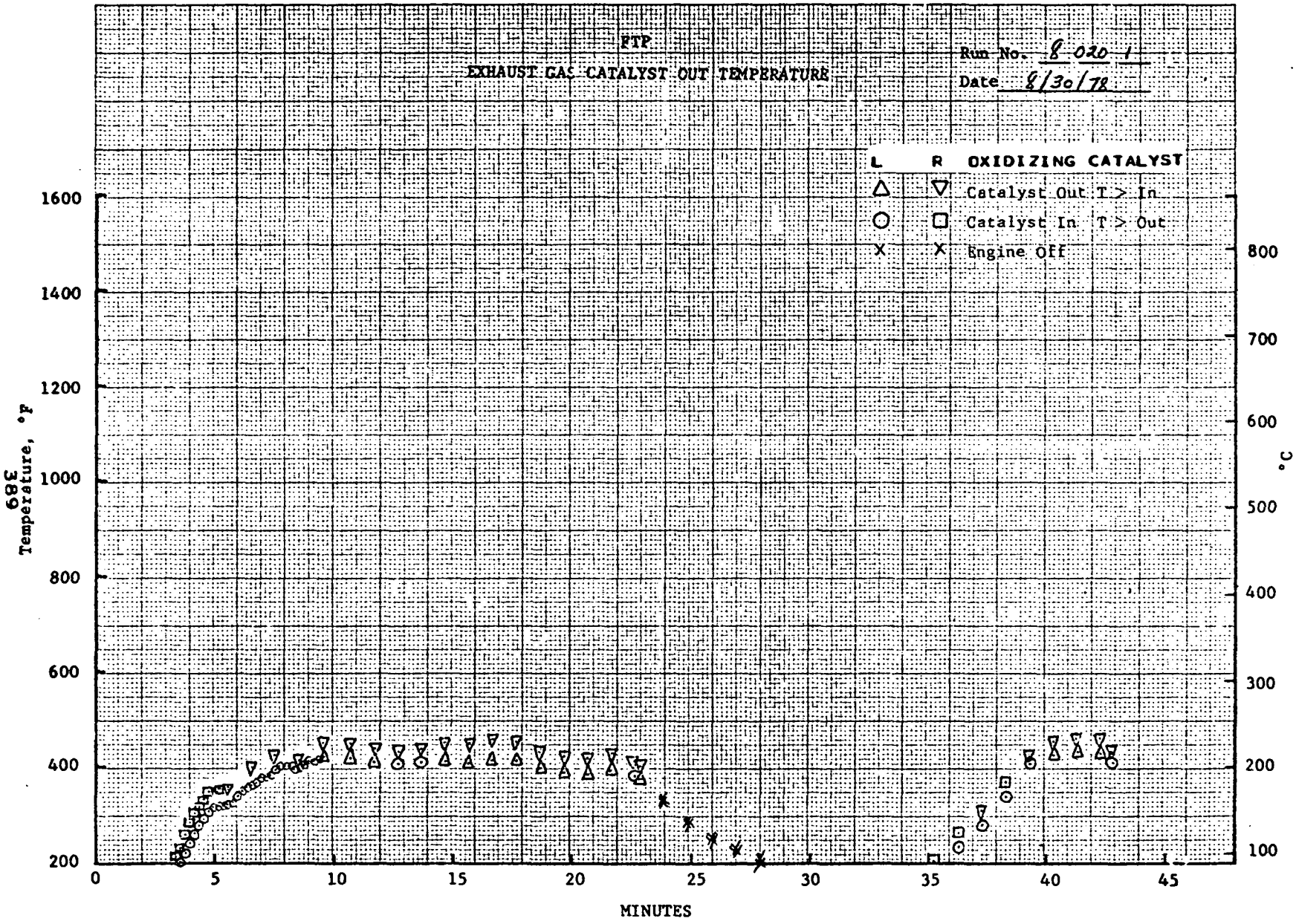
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 020 1
Date 8/30/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
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700
600
500
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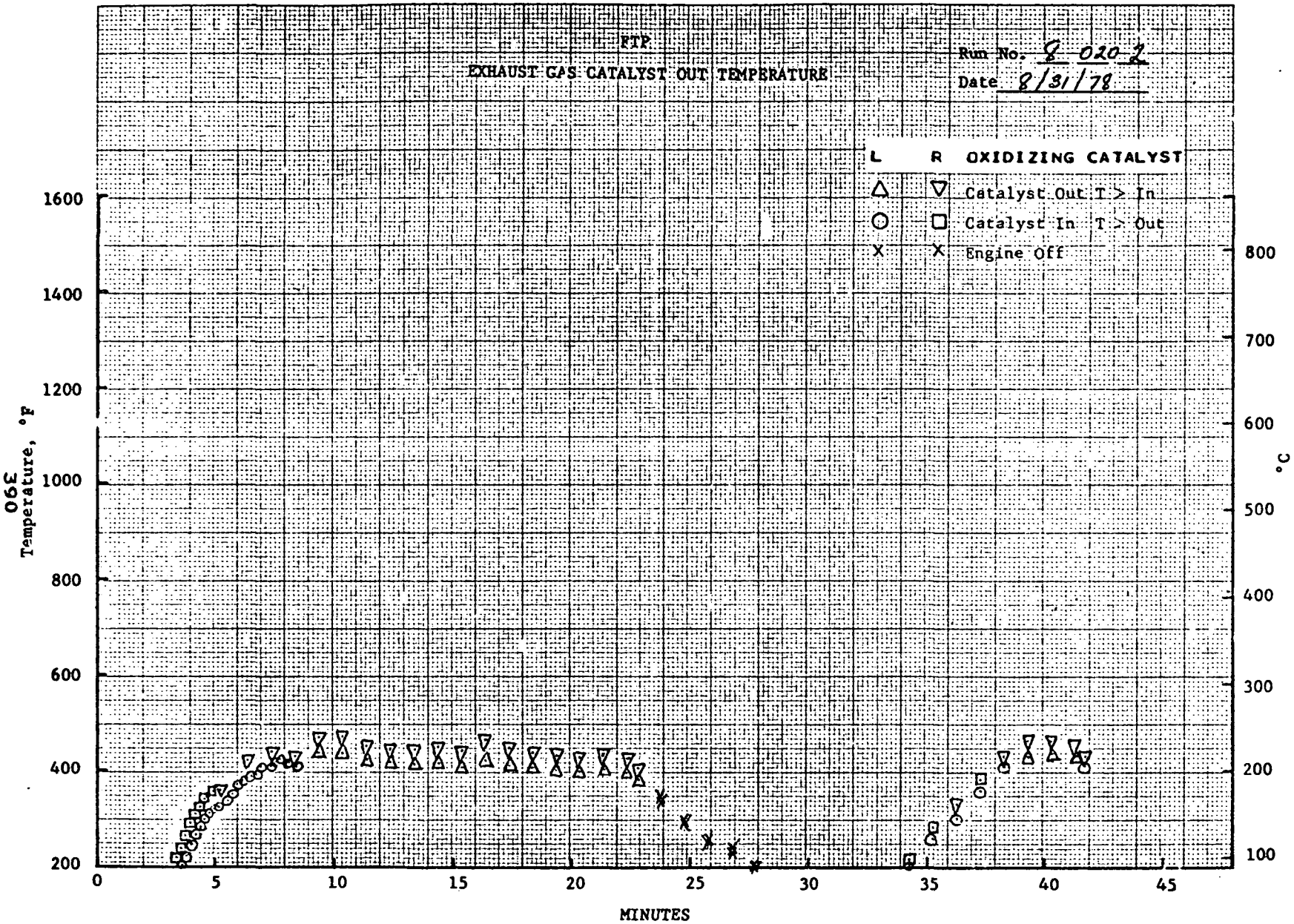
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 020 2
Date 8/31/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
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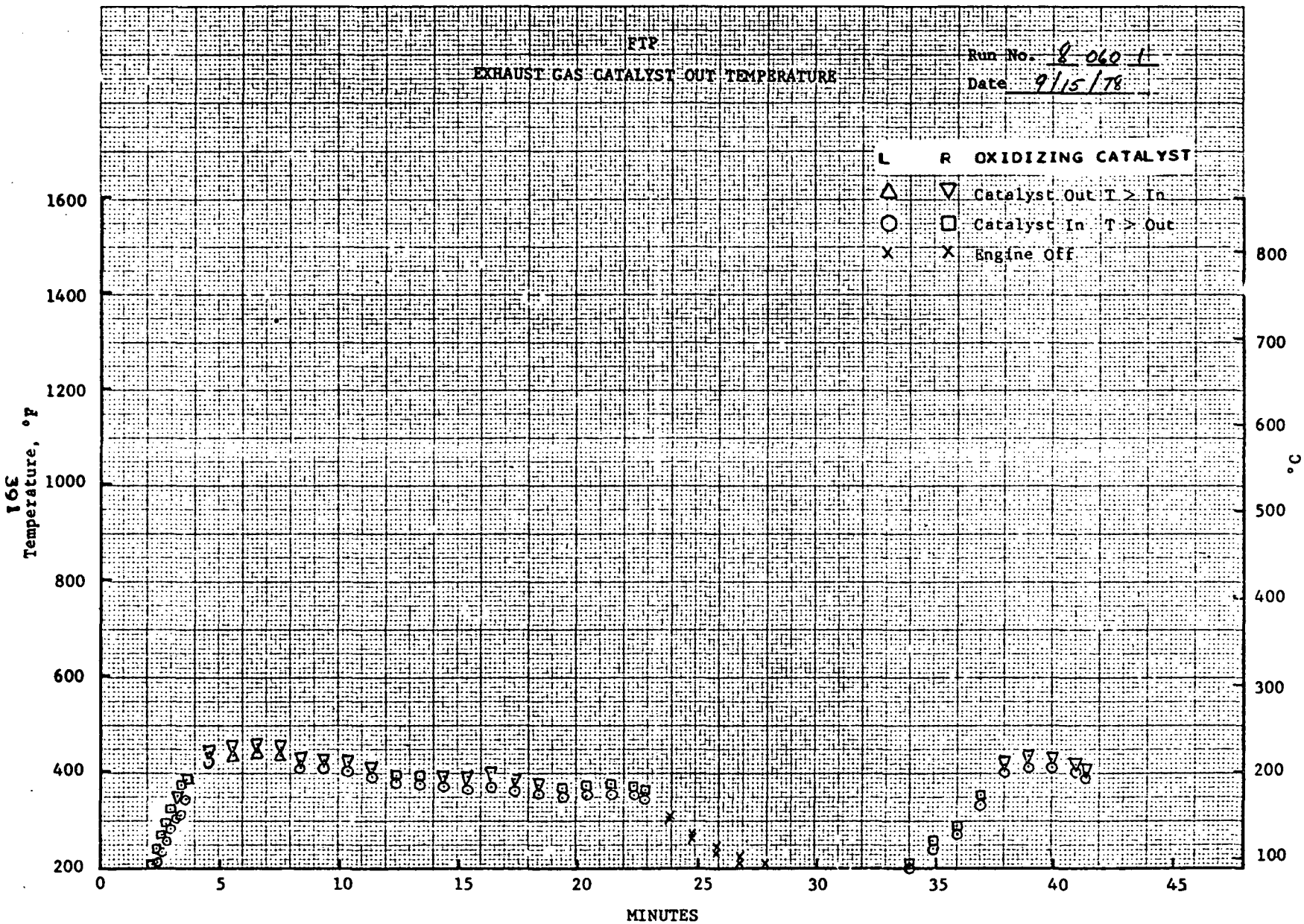
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 060 1
Date 9/15/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
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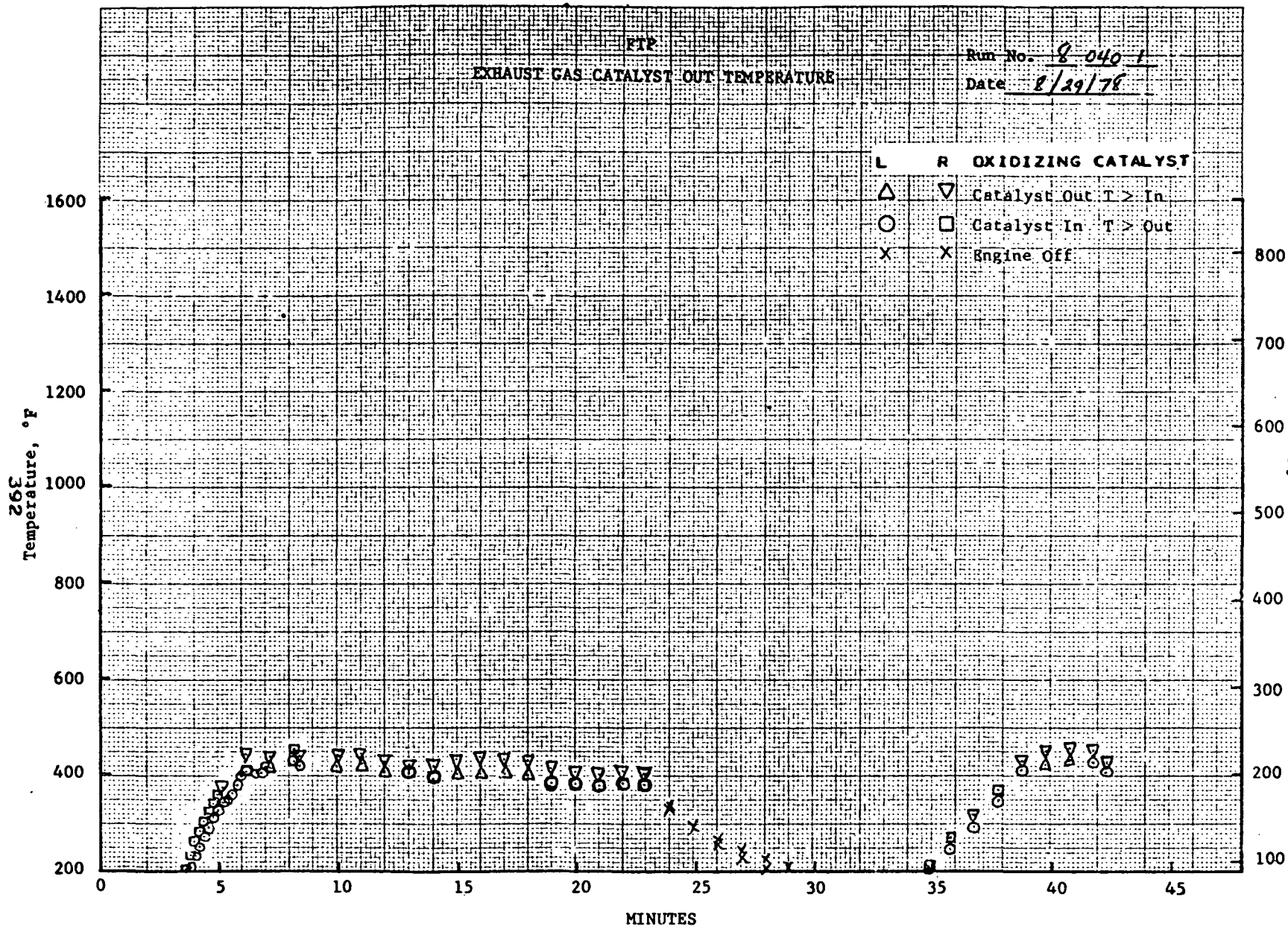
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 040 1
Date 8/29/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
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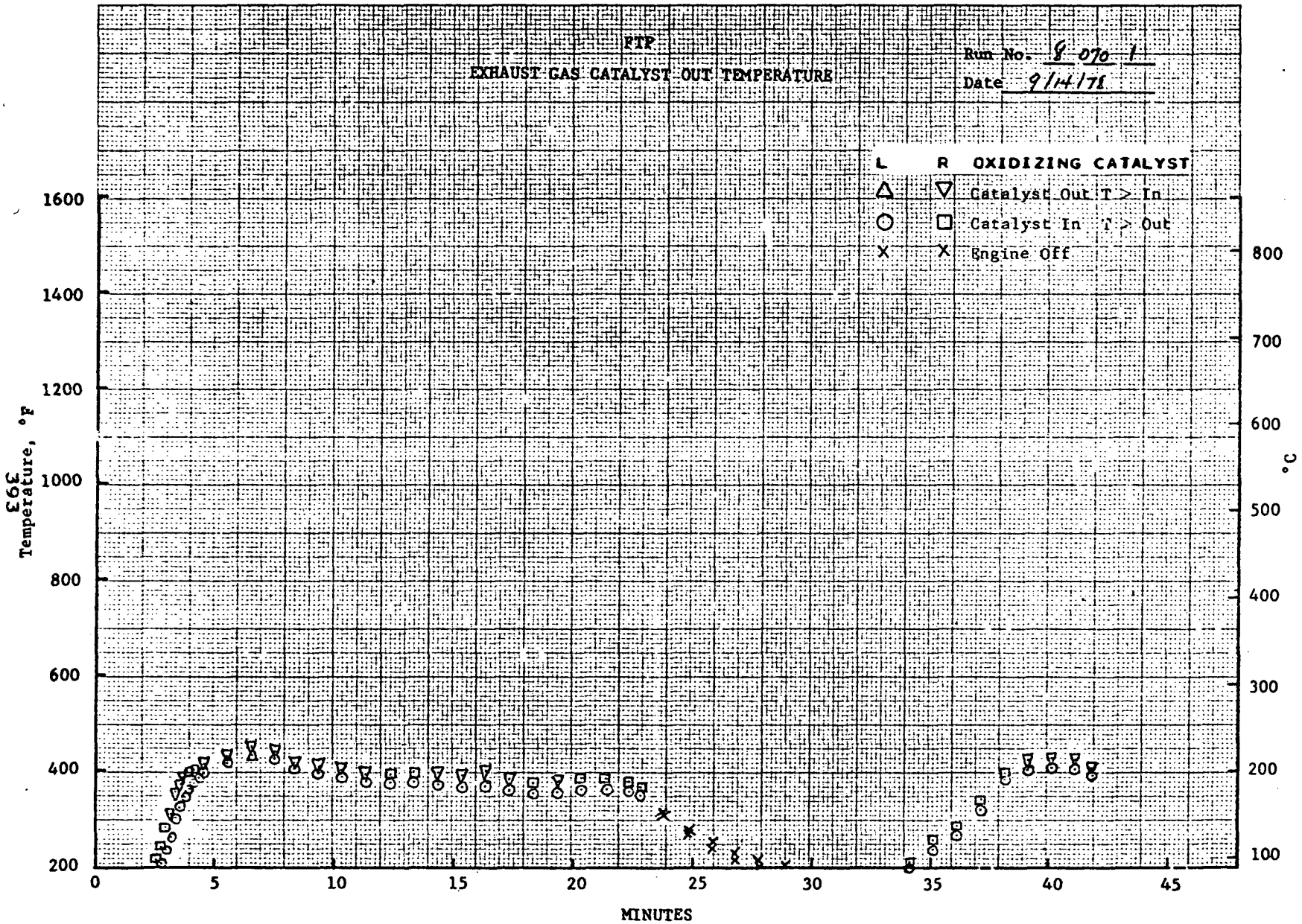
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 070 1
Date 9/14/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
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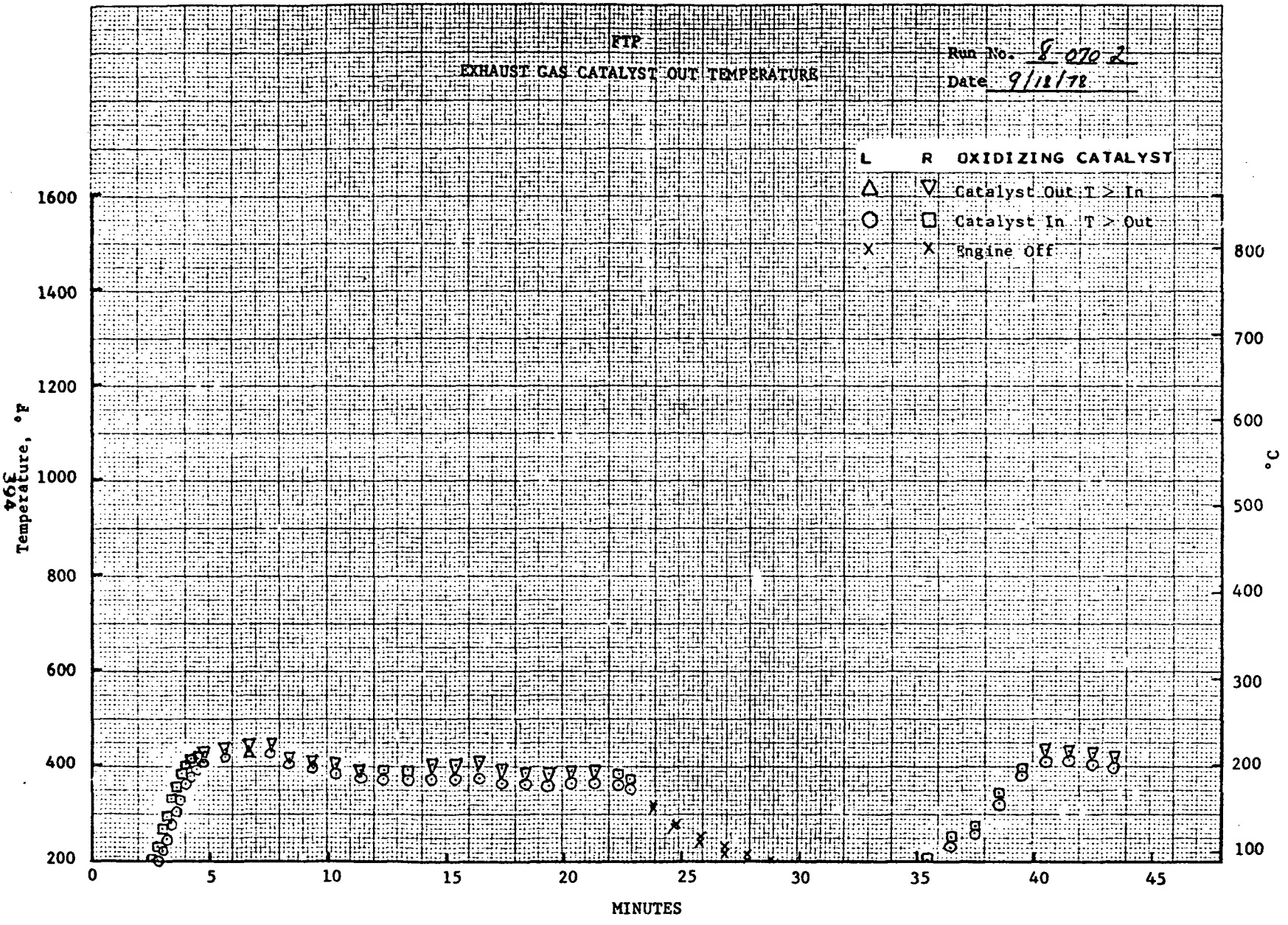
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 070 2
Date 9/12/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
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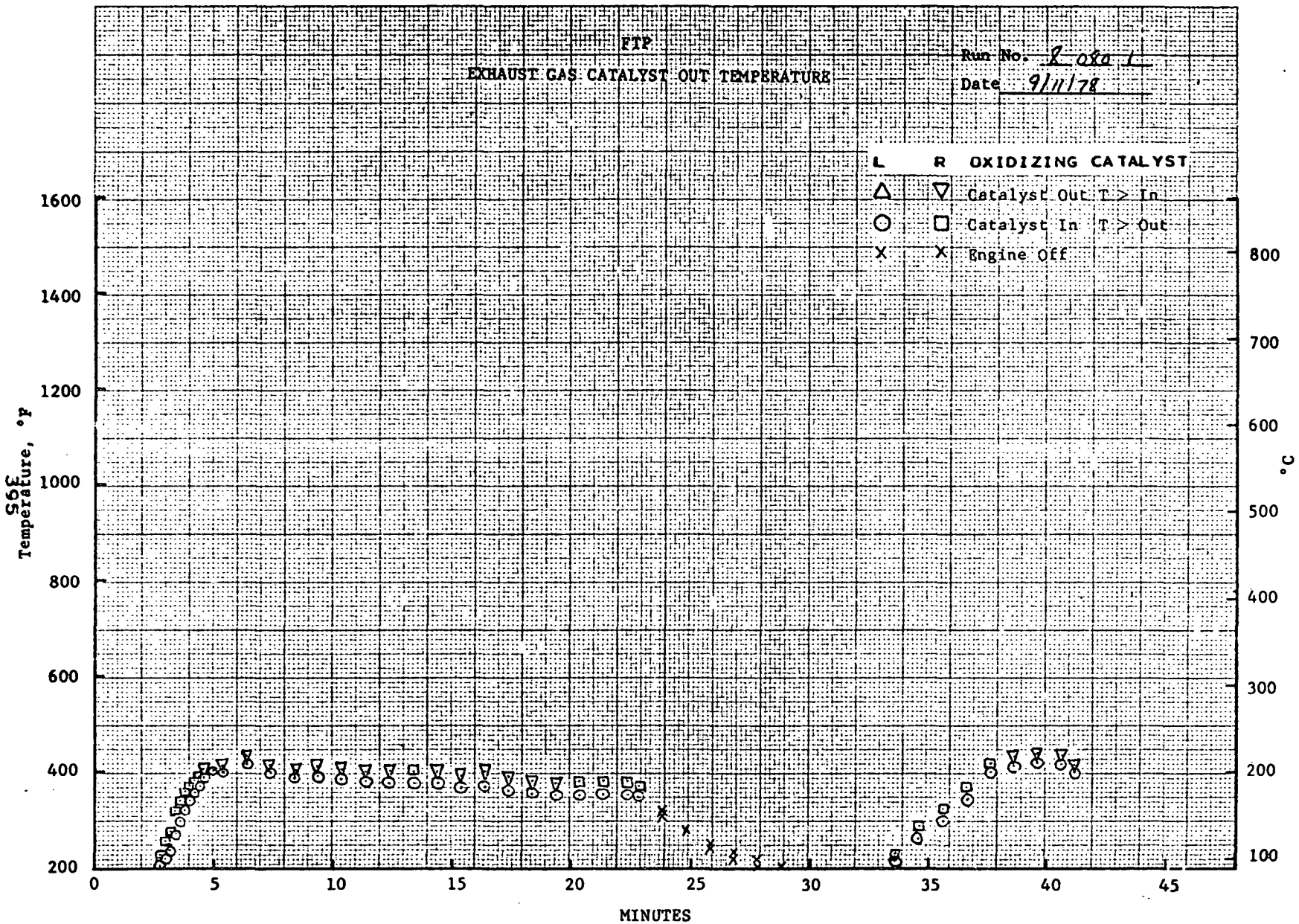
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. L 080 L
Date 9/11/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
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200
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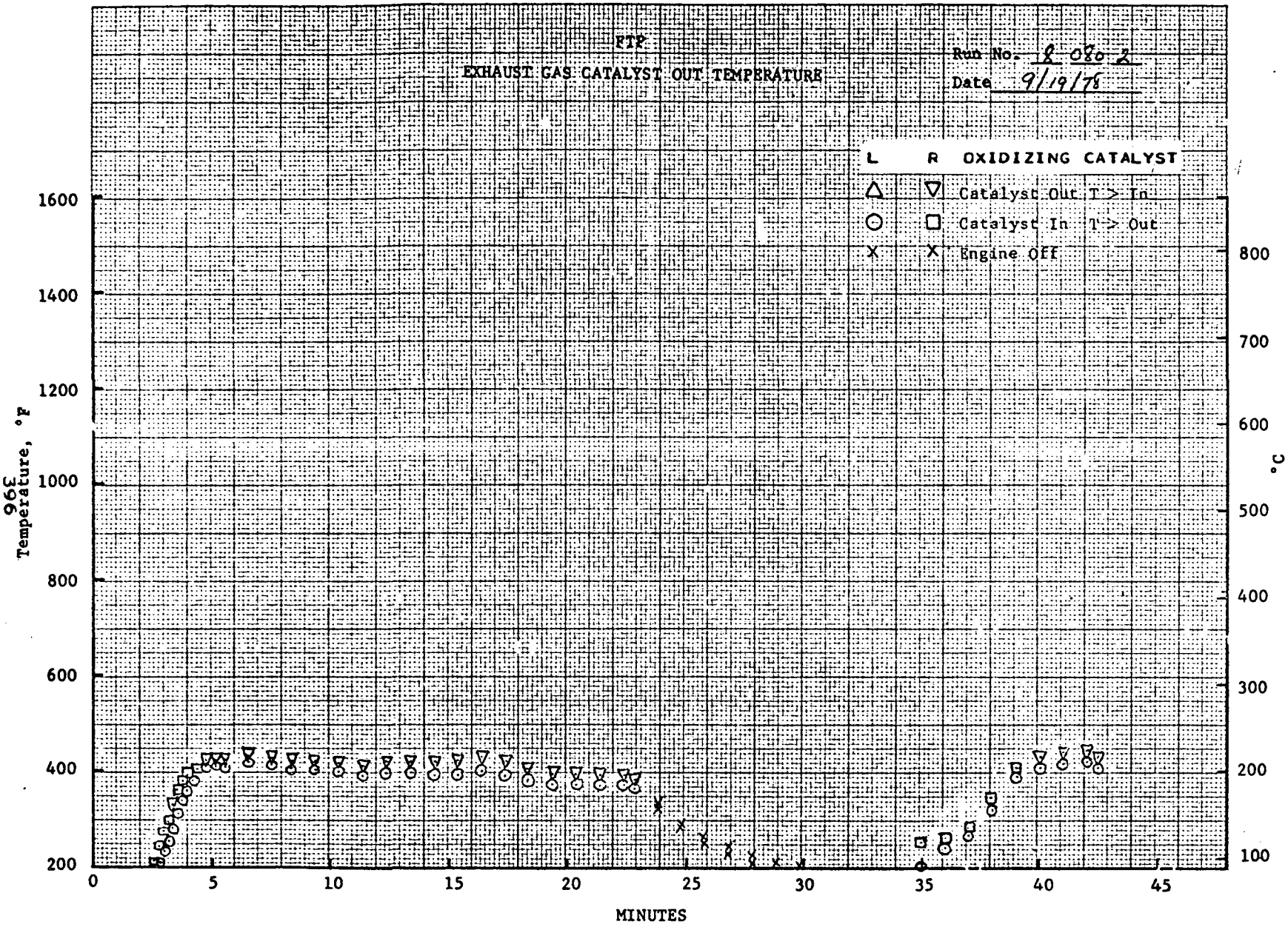
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 080 2
Date 9/19/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
800
700
600
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300
200
100
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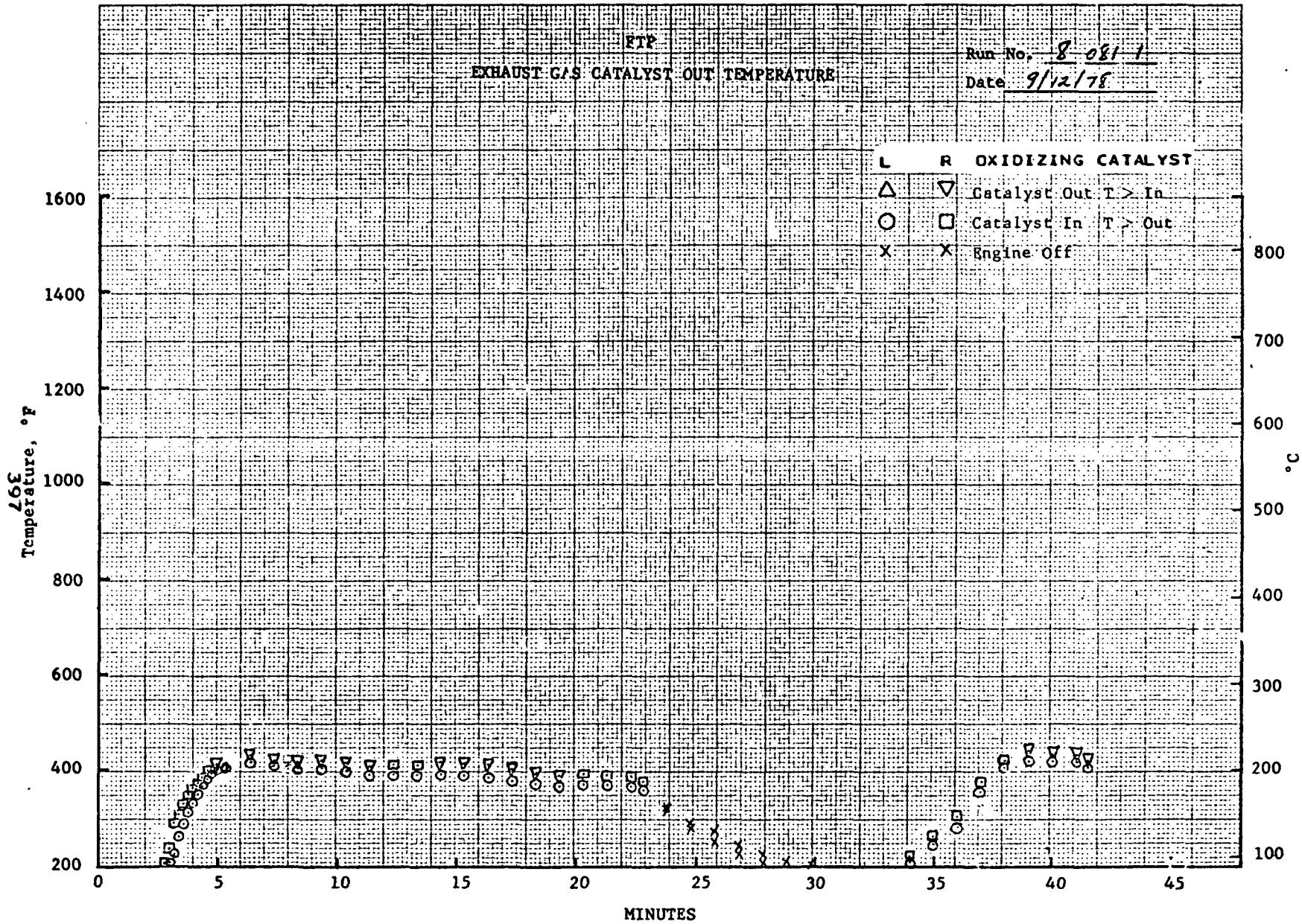
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EXHAUST G/S CATALYST OUT TEMPERATURE
Run No. 8 081 1
Date 9/12/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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300
200
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0
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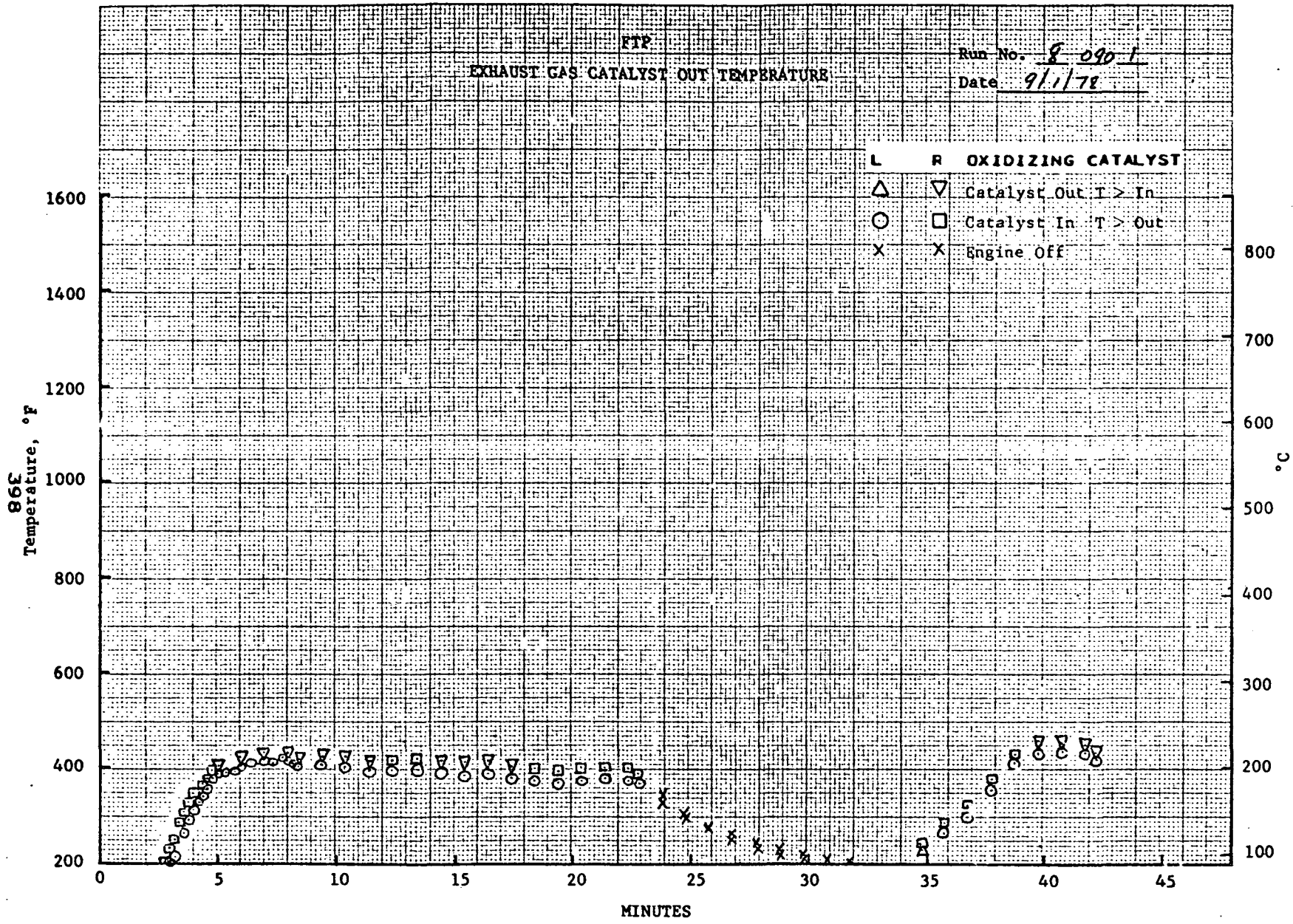
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 090 L
Date 9/1/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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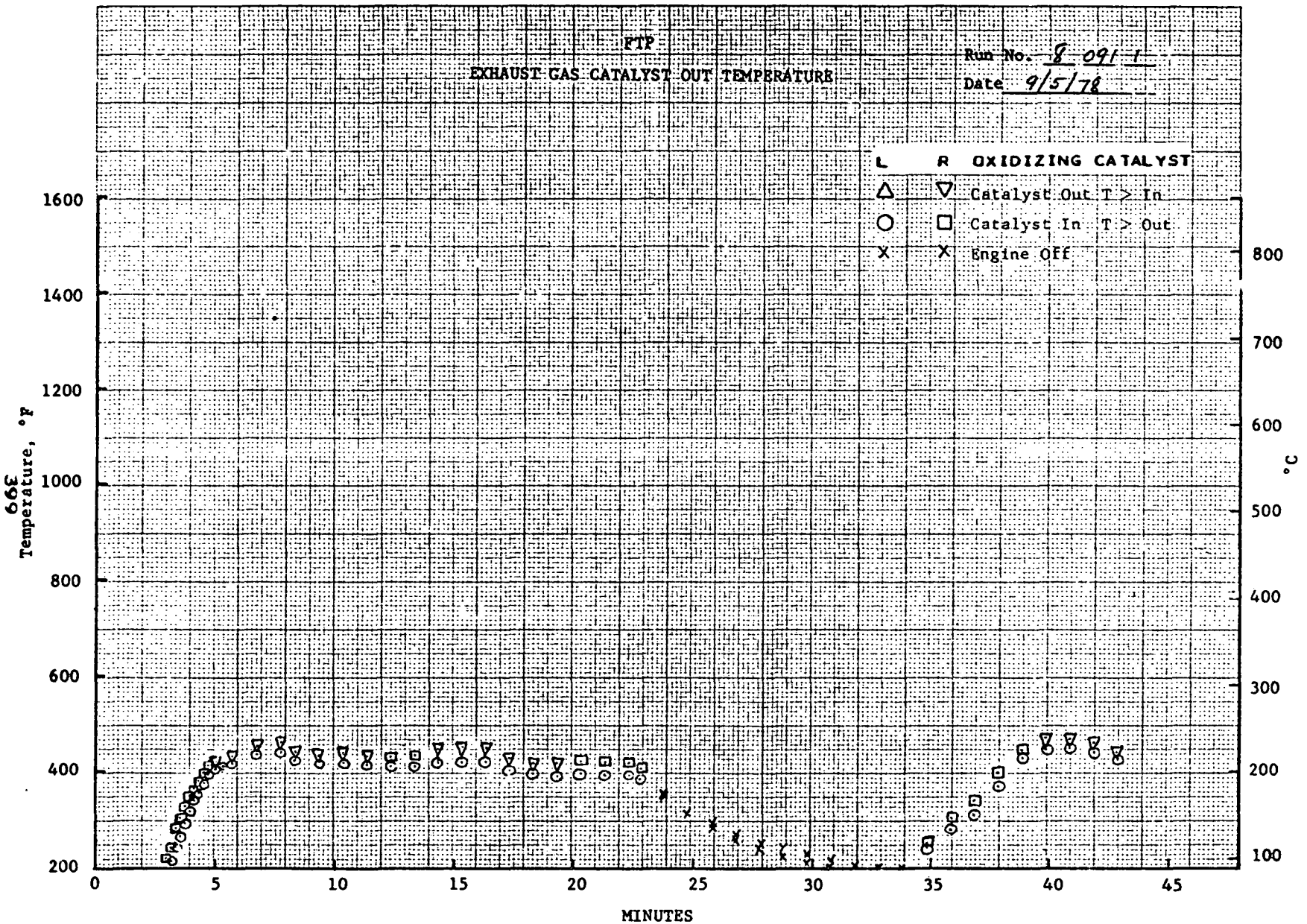
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 091 1
Date 9/5/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
663
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
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°C
0
5
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20
25
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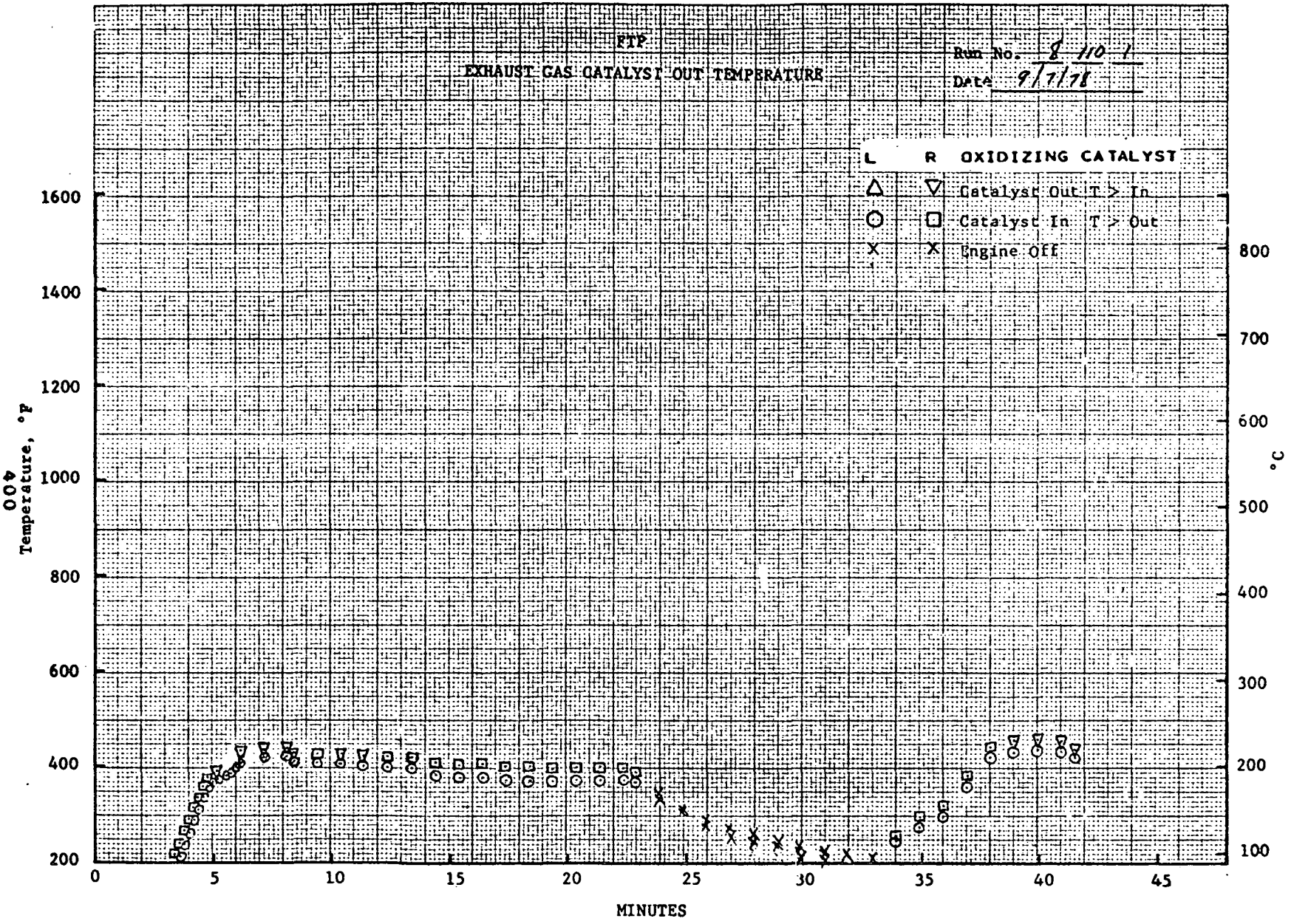
35
40
45
MINUTES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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 110 1
Date 9/7/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
800
700
600
500
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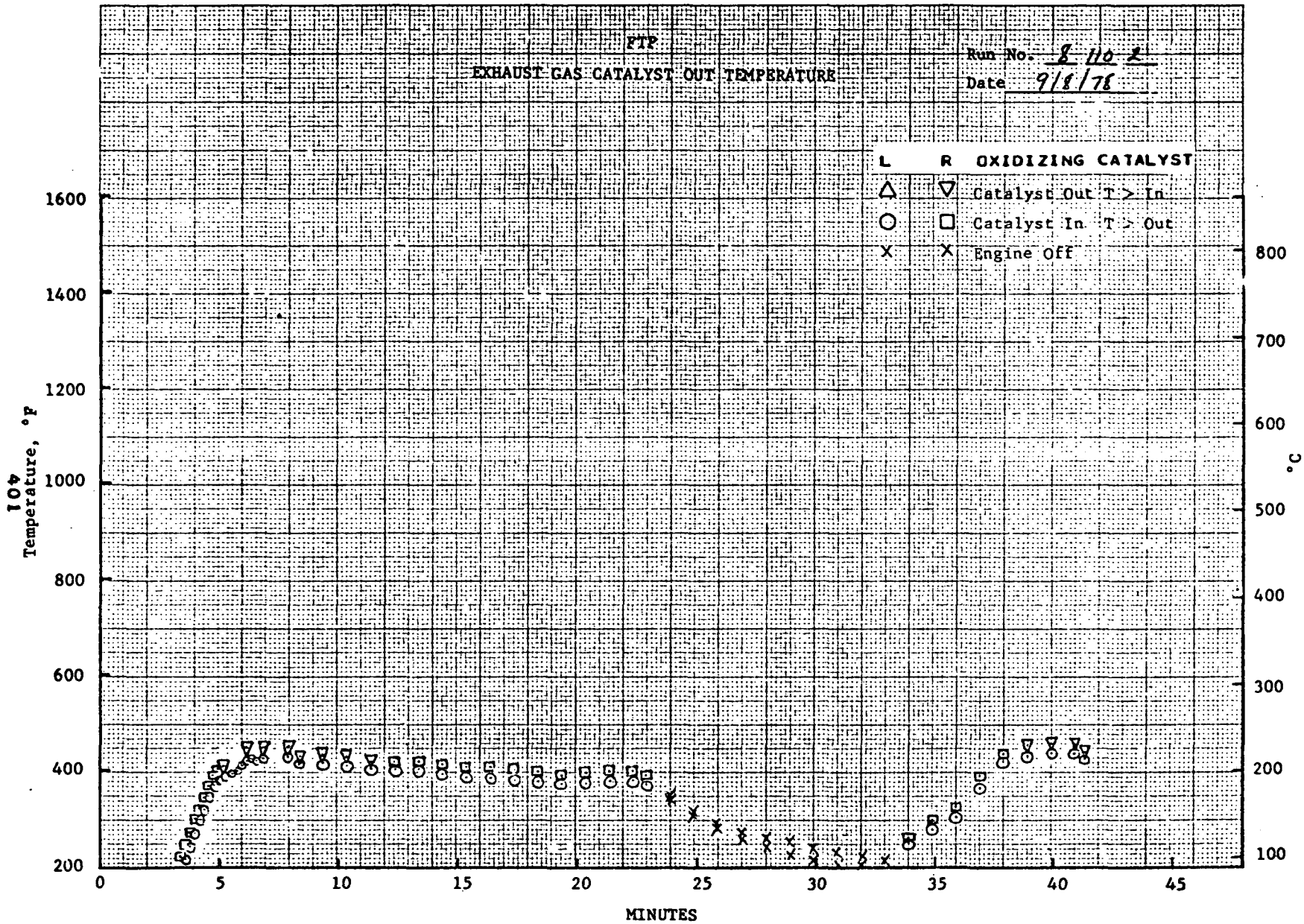
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 110 2
Date 9/8/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
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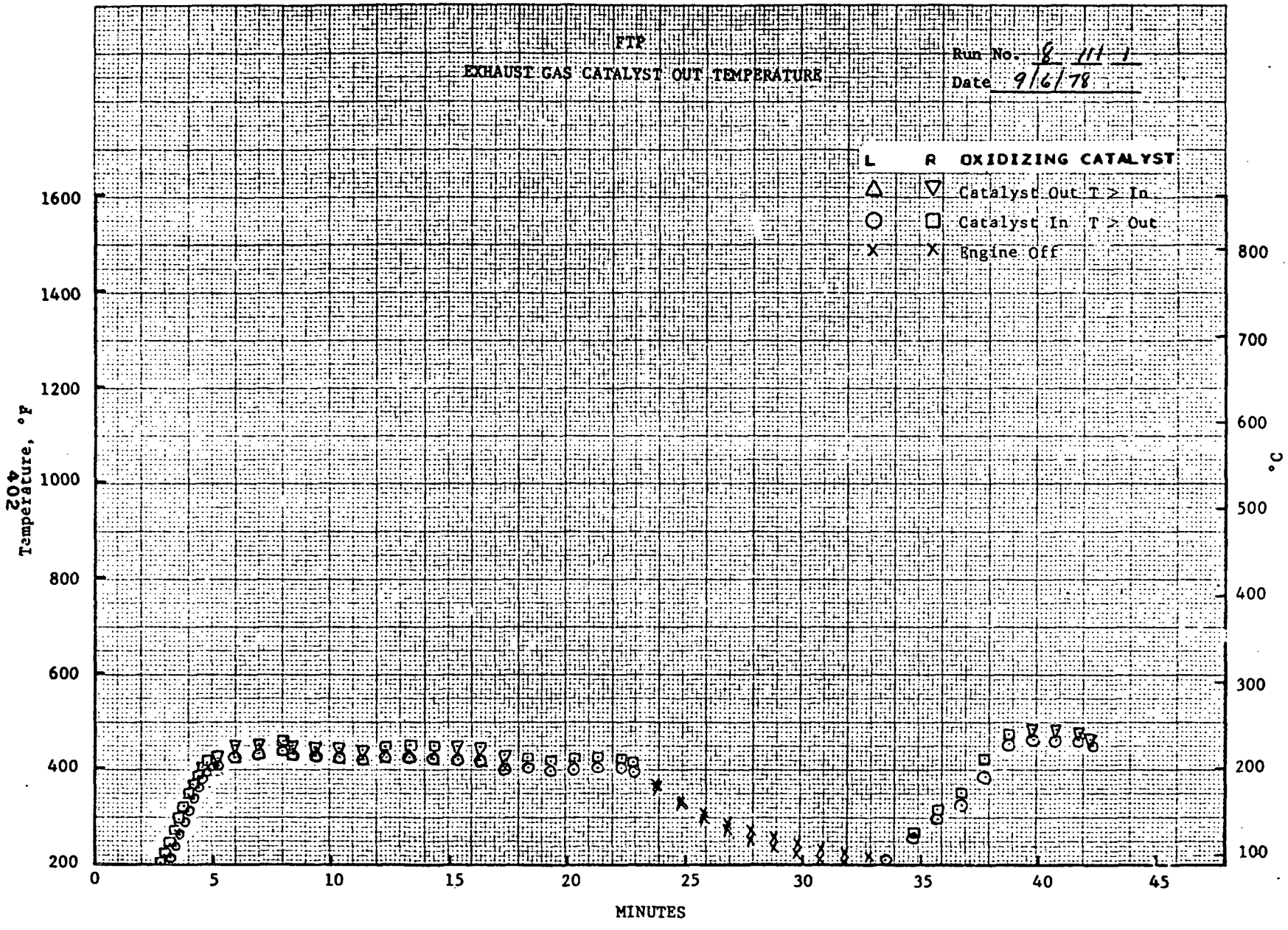
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 111 1
Date 9/6/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
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600
400
200
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700
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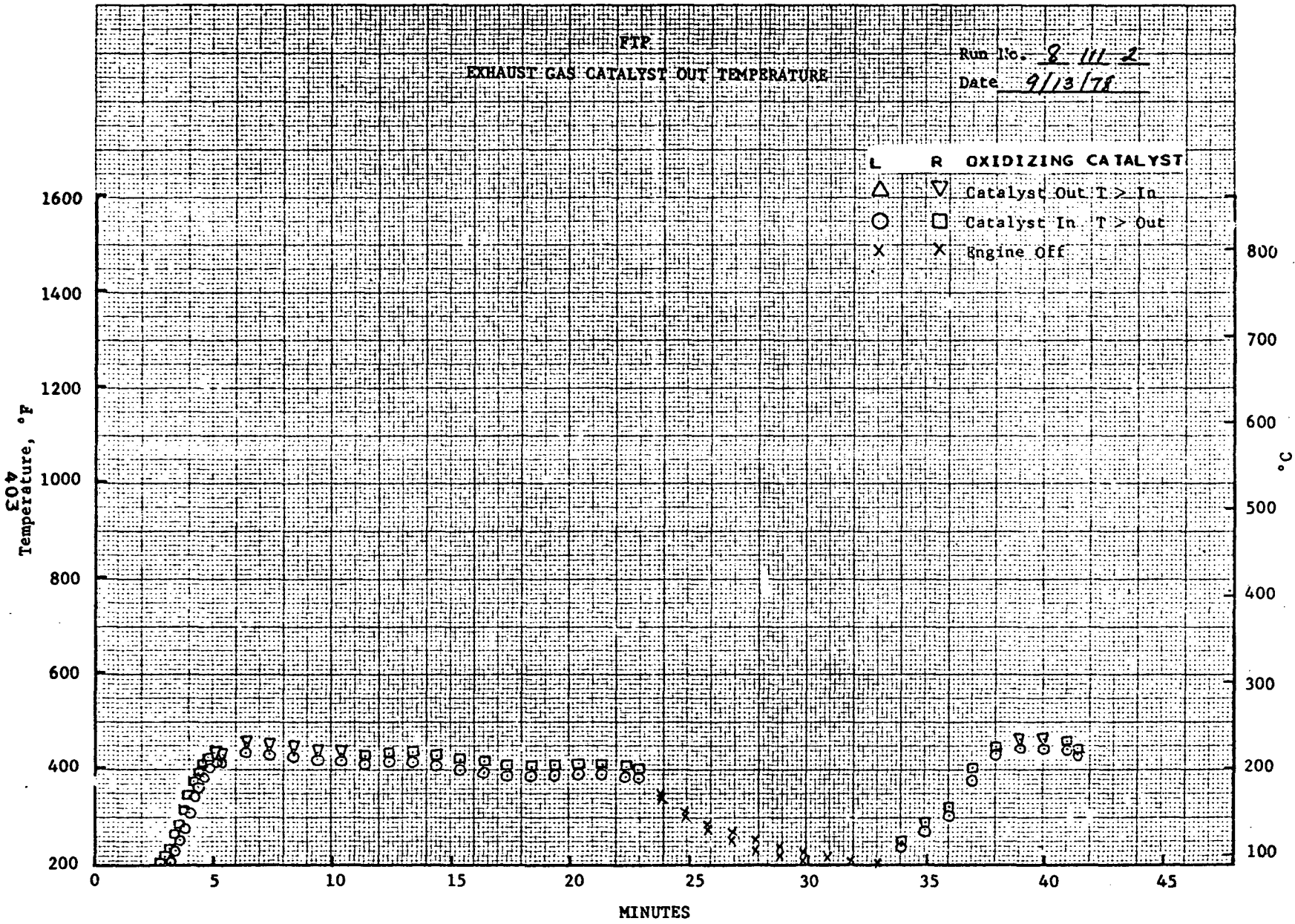
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 8 111 2
Date 9/13/78
L R OXIDIZING CATALYST
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
403
°C
MINUTES
1600
1400
1200
1000
800
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400
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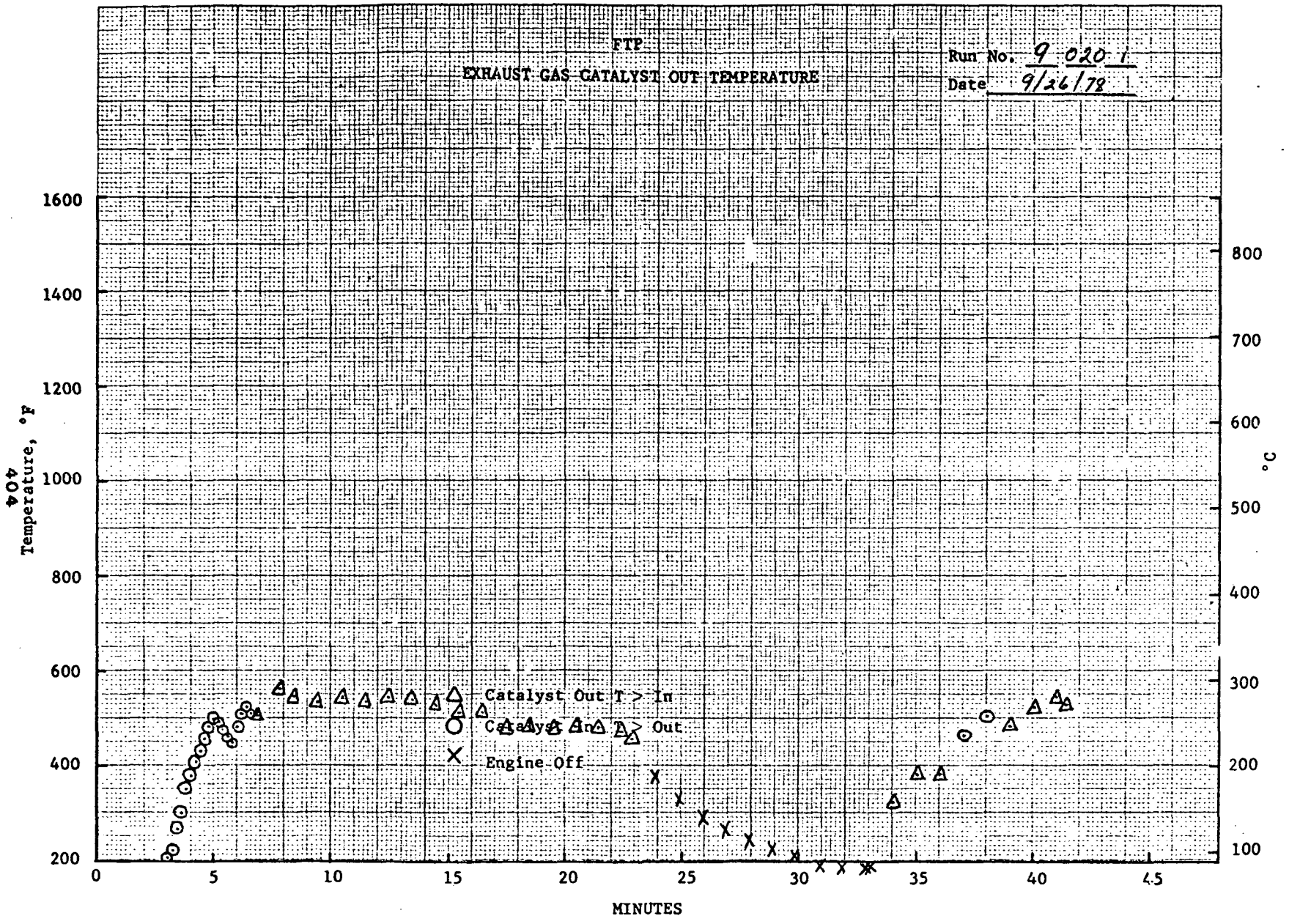
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 020 1
Date 9/26/78
Temperature, °F
°C
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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20
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30
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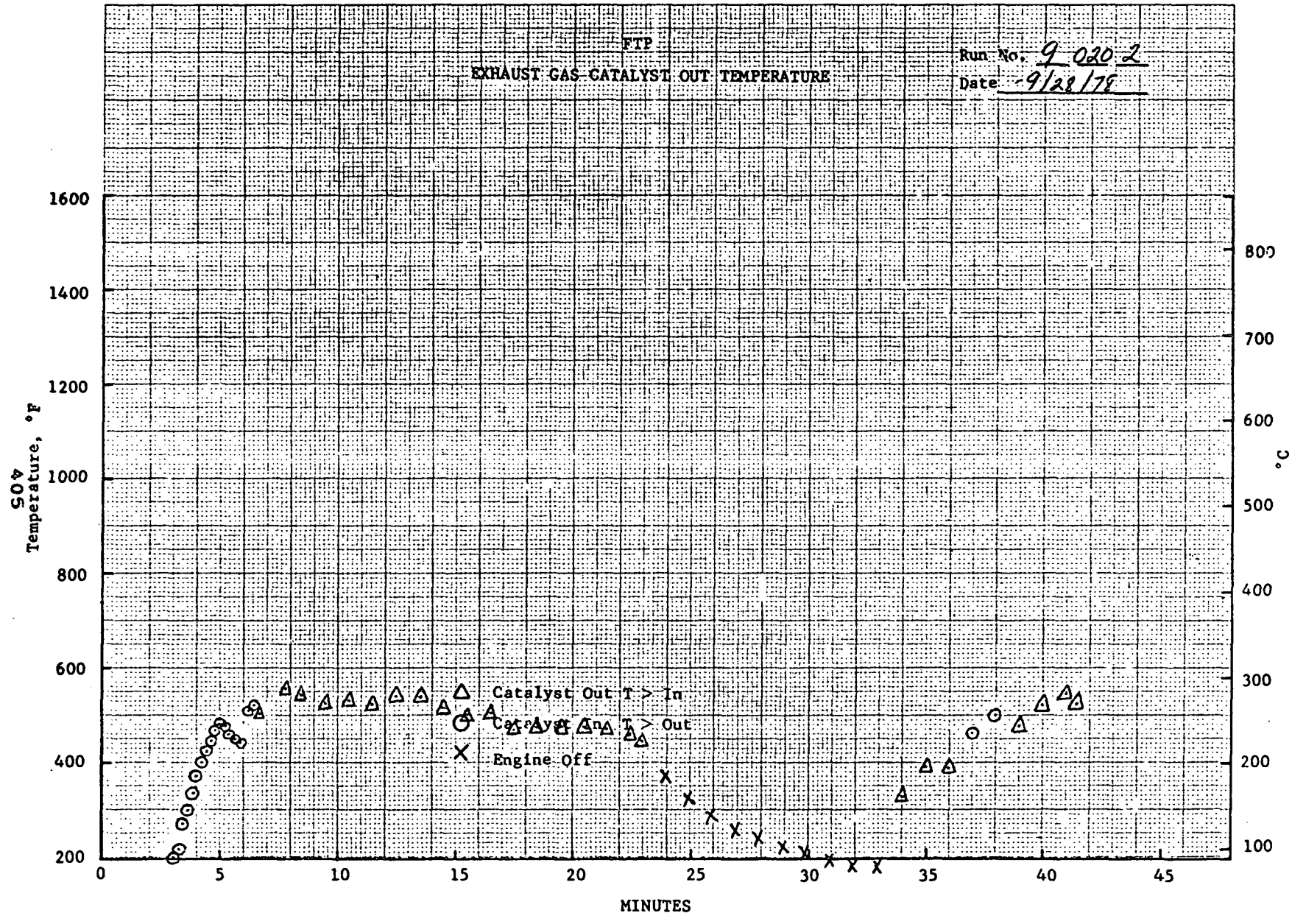
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
404


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 020 2
Date 9/28/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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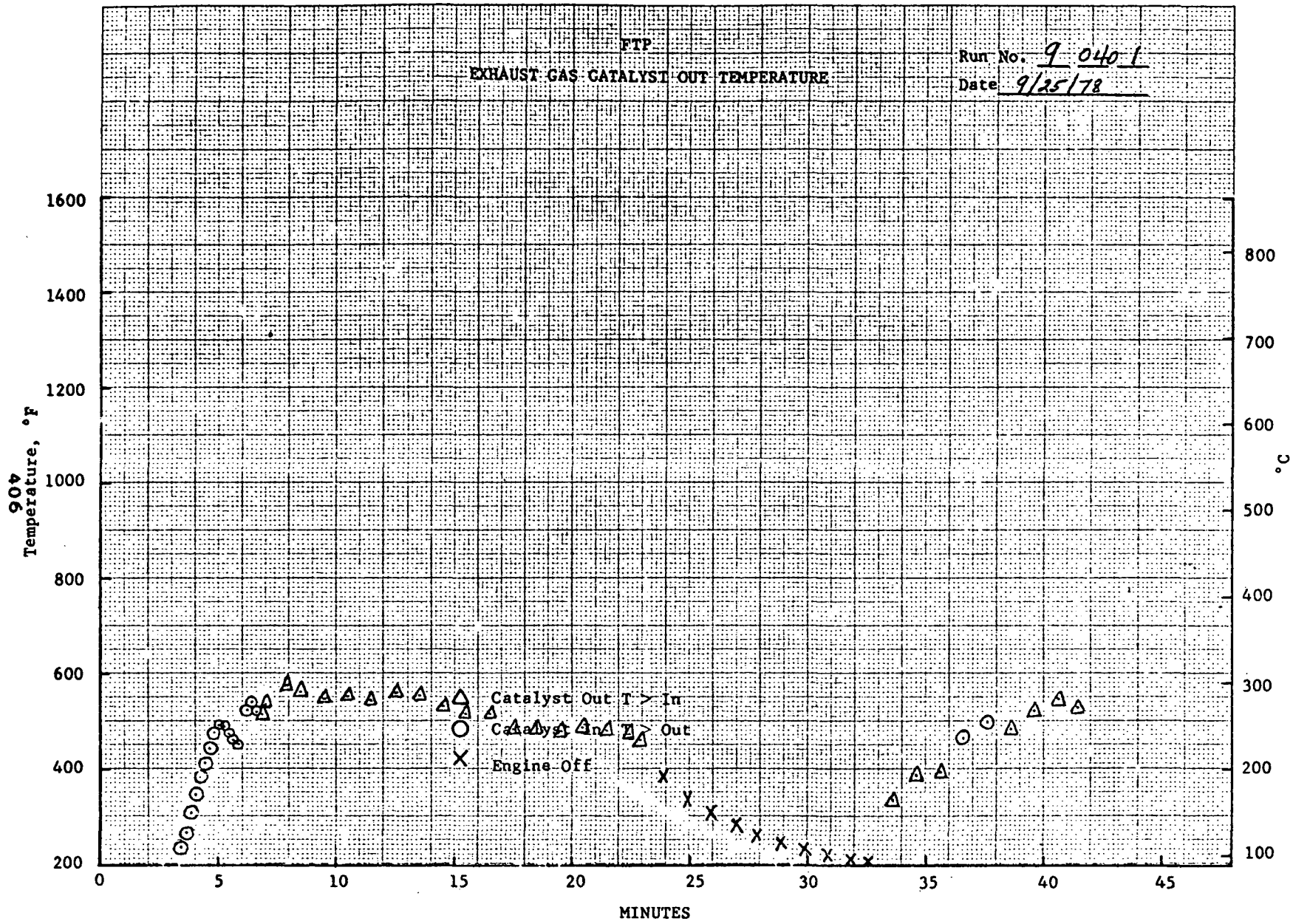
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 040 1
Date 9/25/78
406
Temperature, °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
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400
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200
100
Catalyst Out T > In
Catalyst In T > Out
Engine Off
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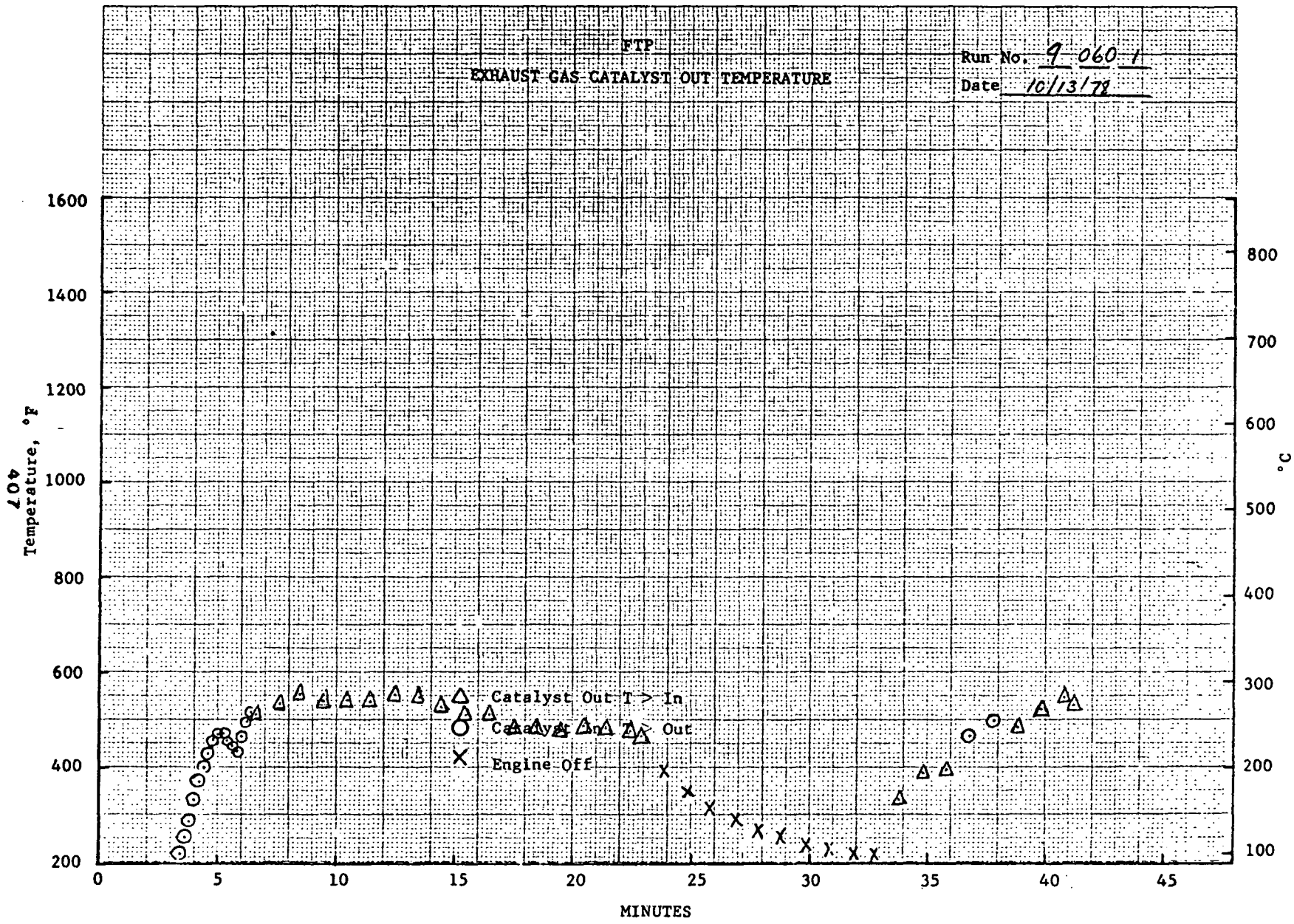
MINUTES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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 060 1
Date 10/13/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In > Out
Engine Off
1600
1400
1200
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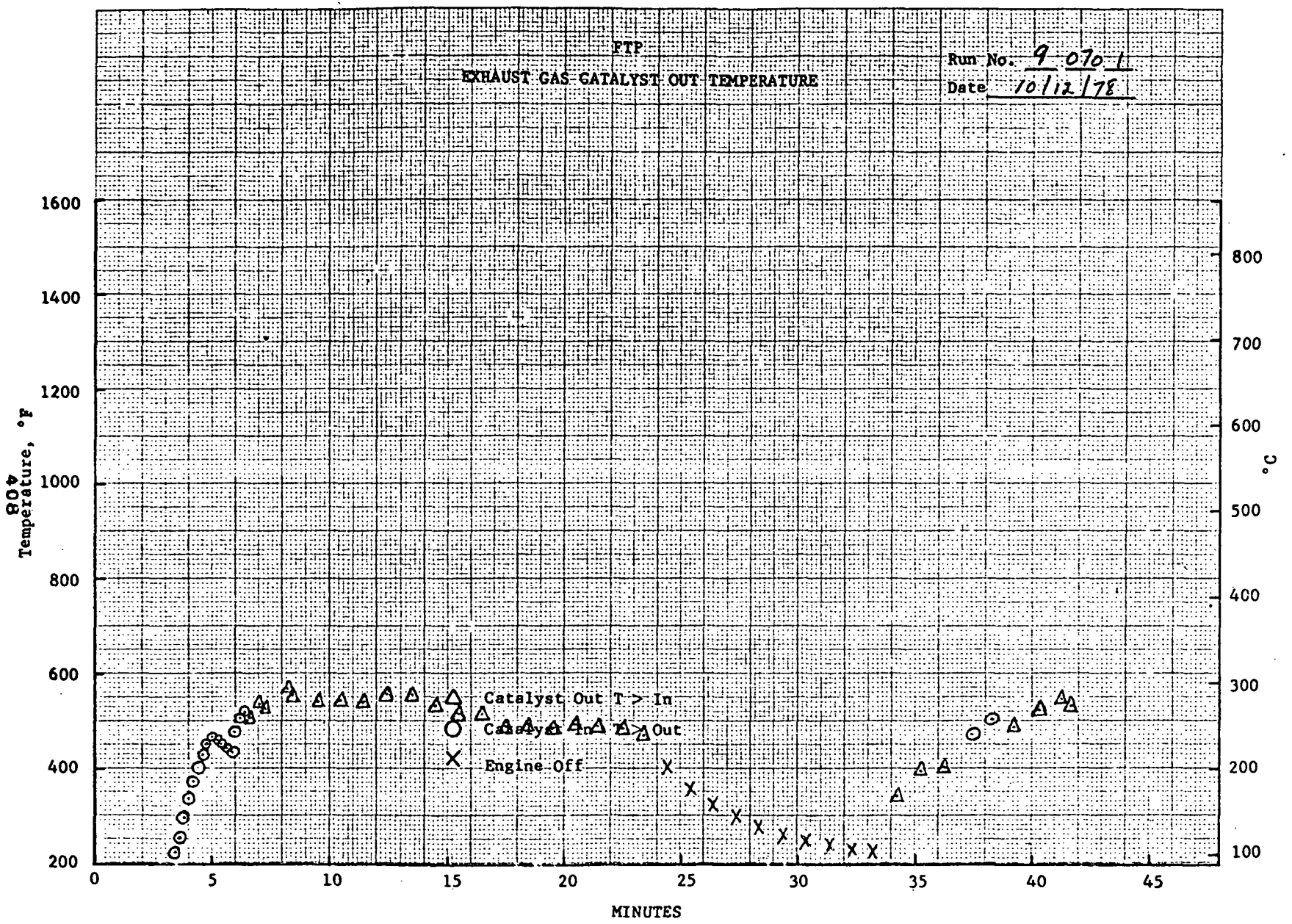
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 070 1
Date 10/12/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Engine Off
1600
1400
1200
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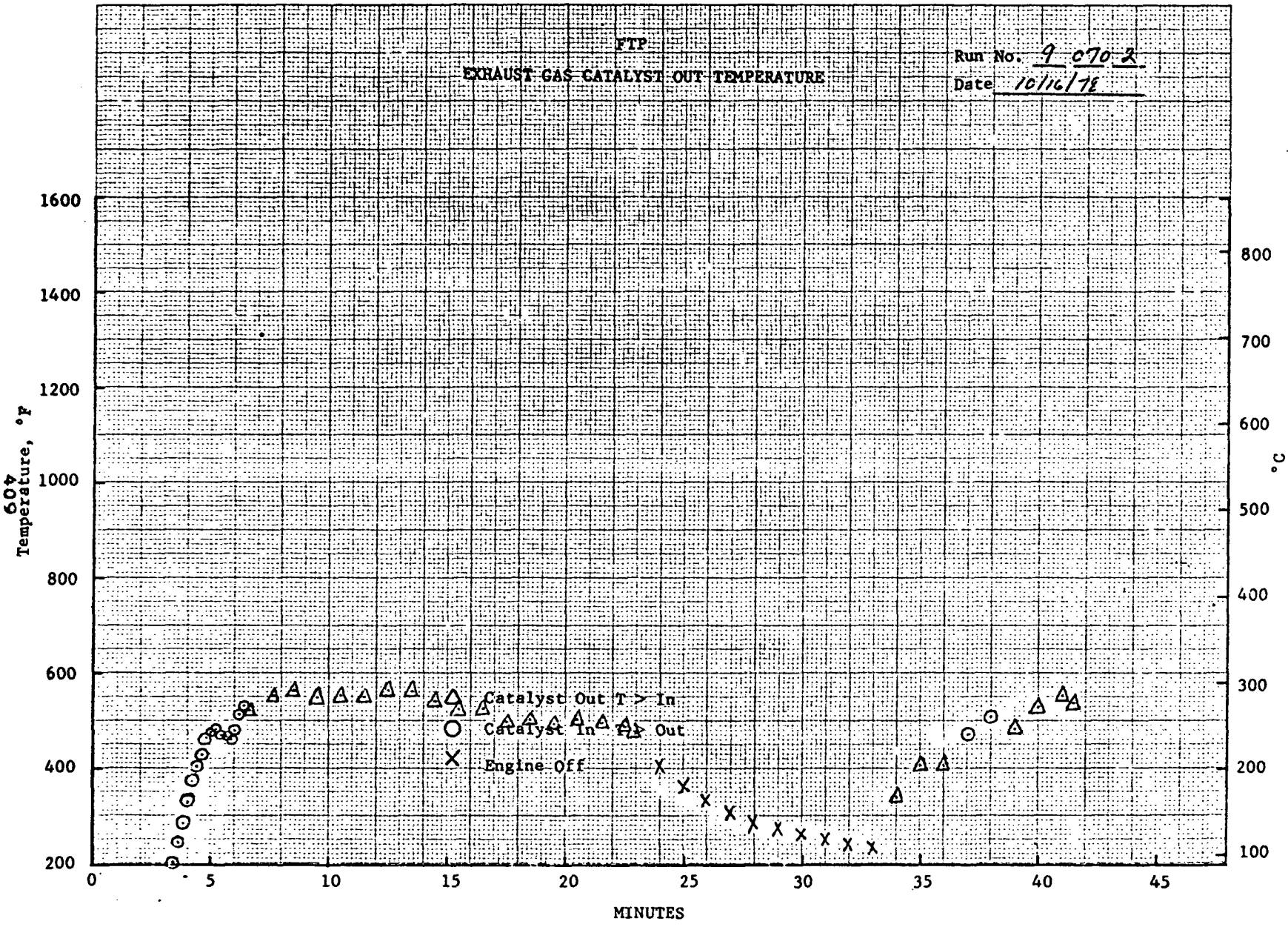
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 0702
Date 10/16/78
604
Temperature, °F
°C
1600
1400
1200
1000
800
600
400
200
800
700
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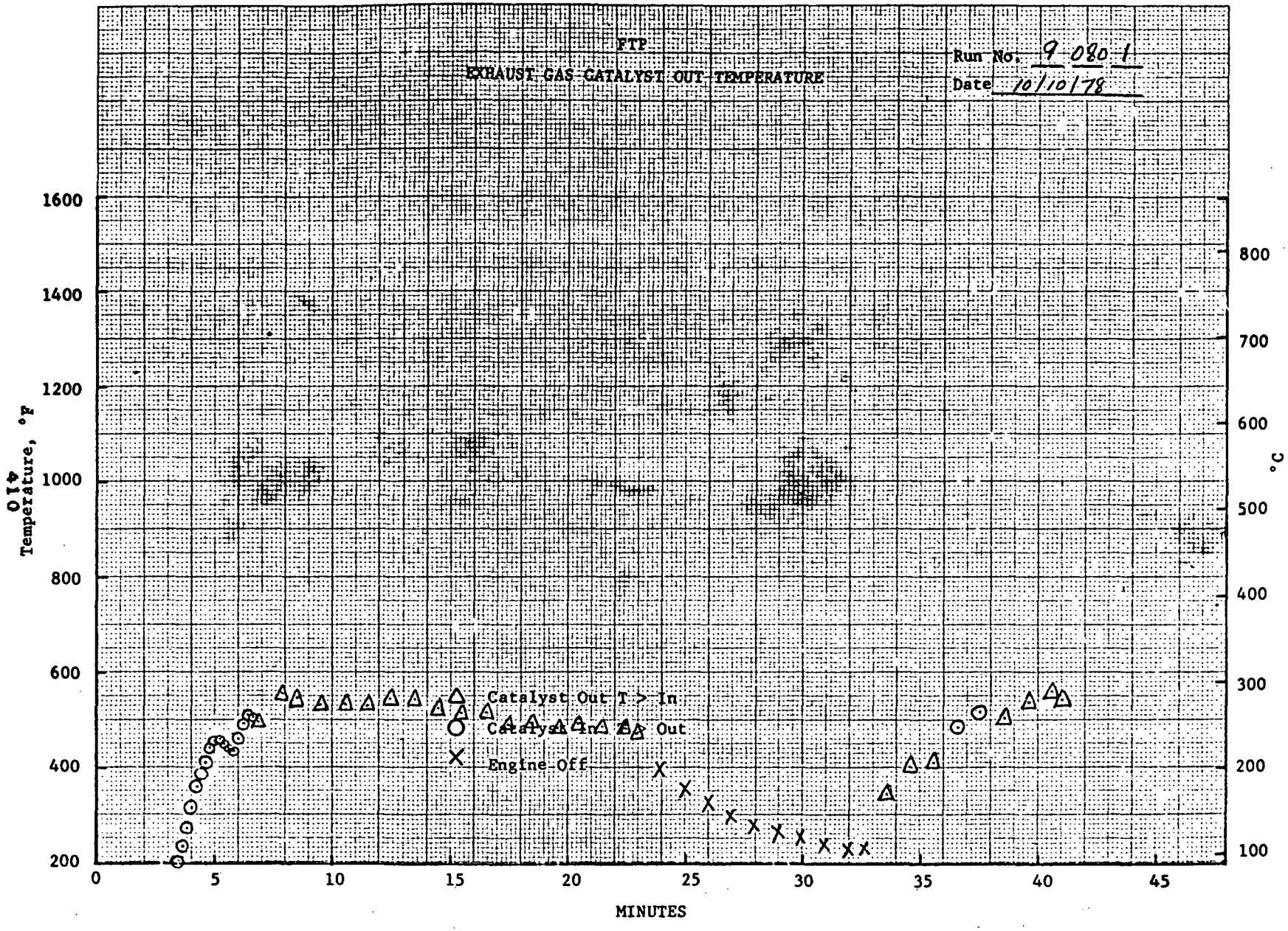
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 080 1
Date 10/10/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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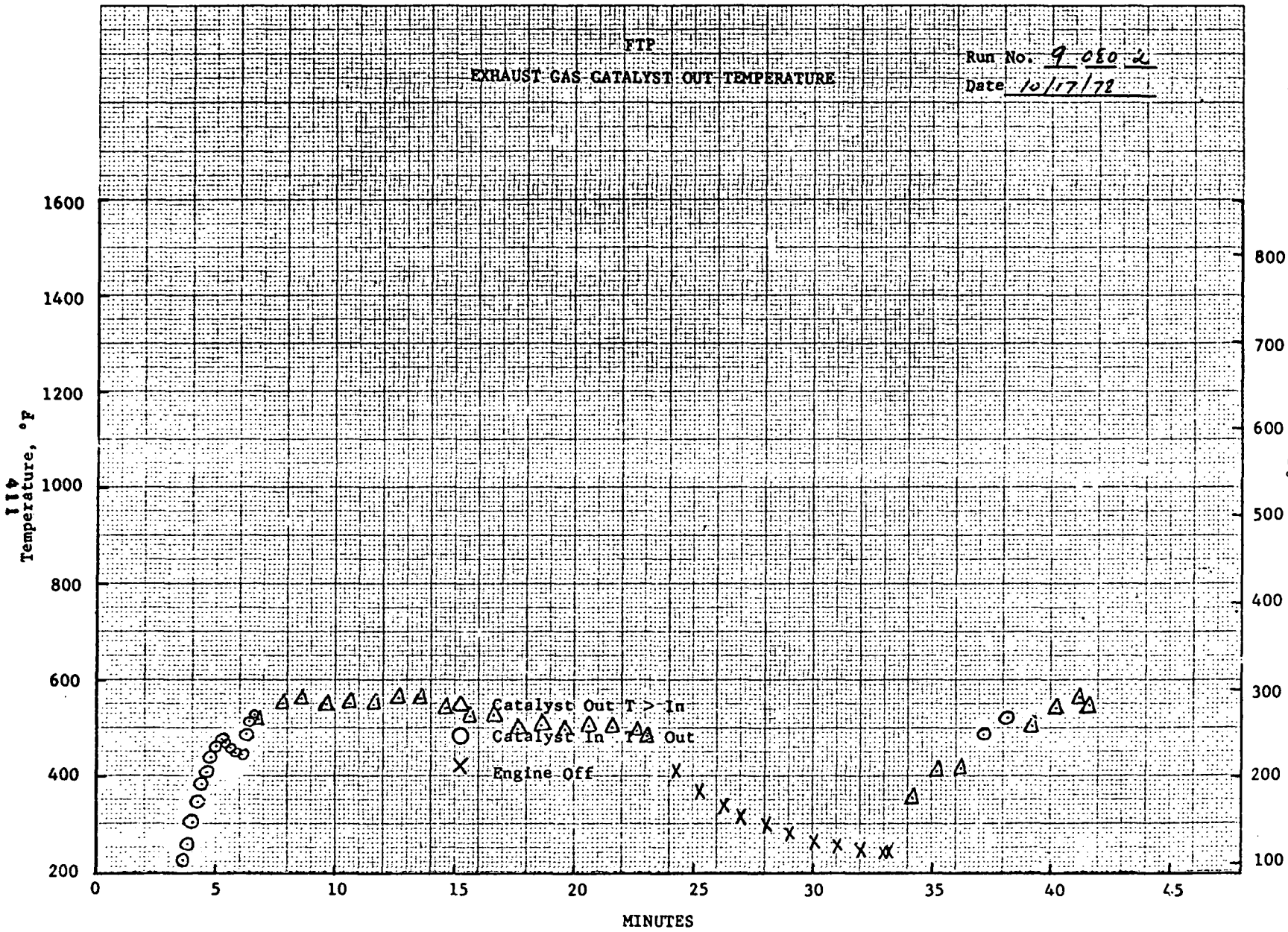
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 080 2
Date 10/17/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
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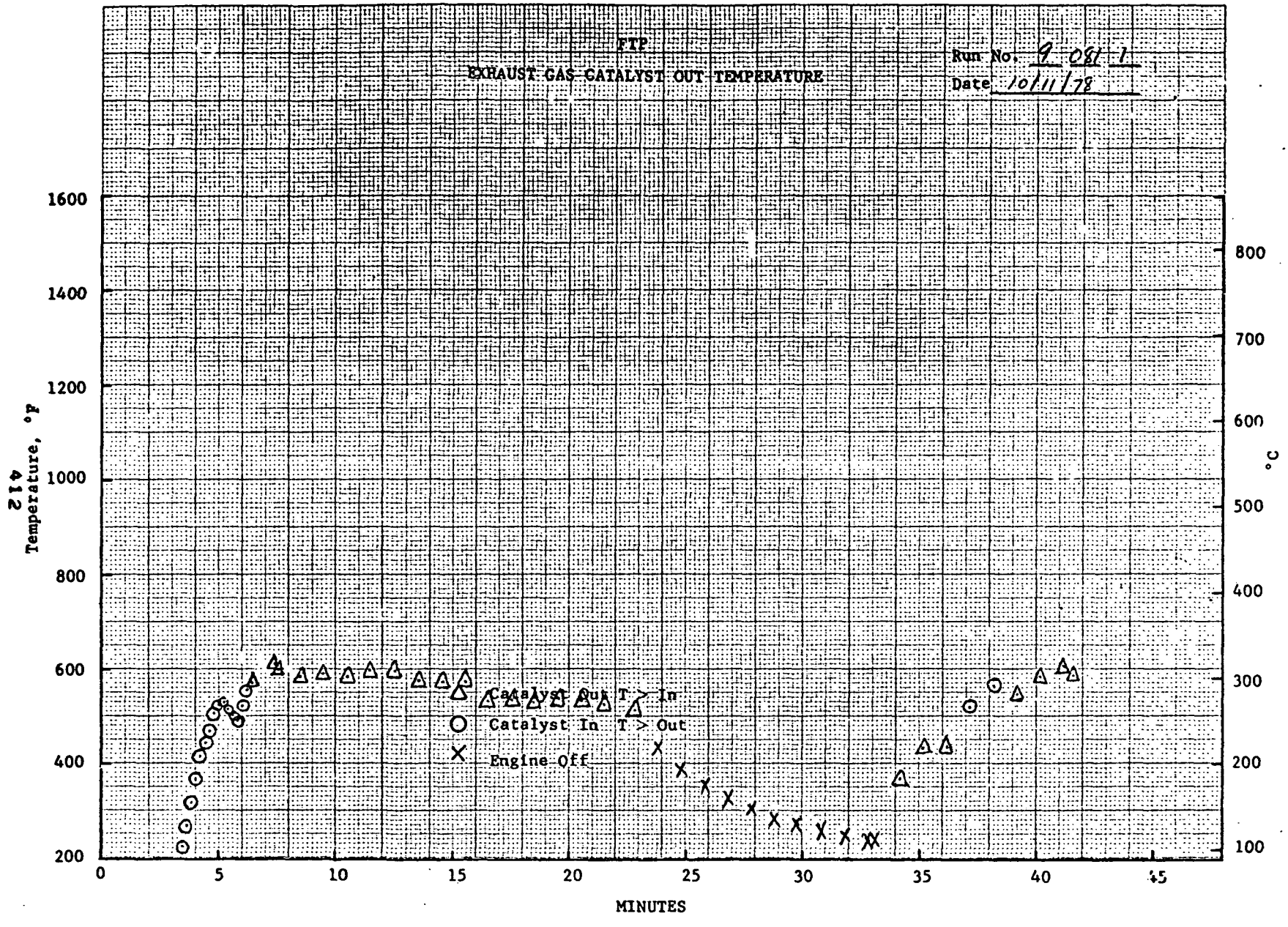
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 081 1
Date 10/11/78
Temperature, °F
°C
1600
1400
1200
1000
800
600
400
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700
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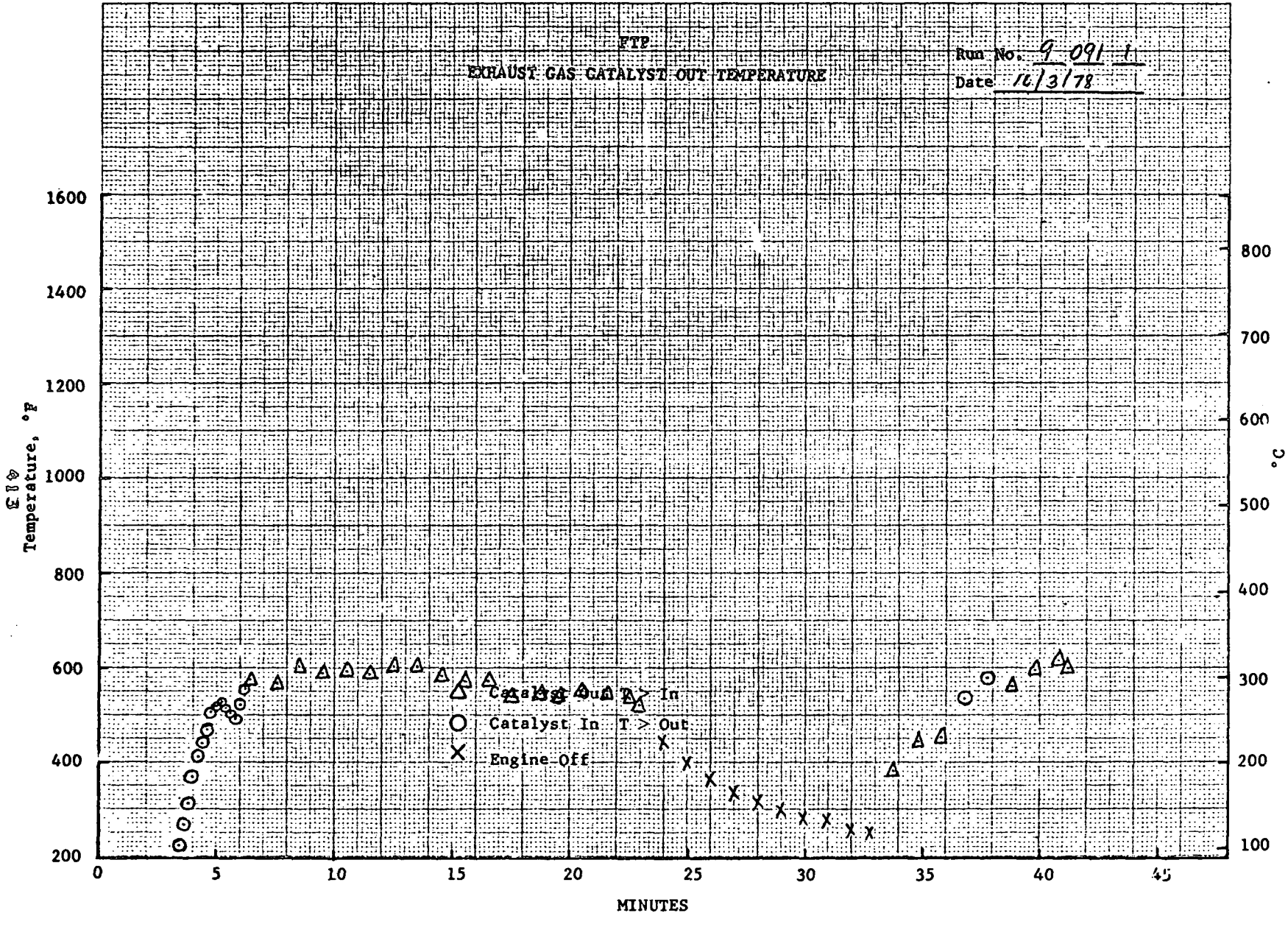
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 091 1
Date 10/3/78
1600
1400
1200
1000
800
600
400
200
Temperature, °F
800
700
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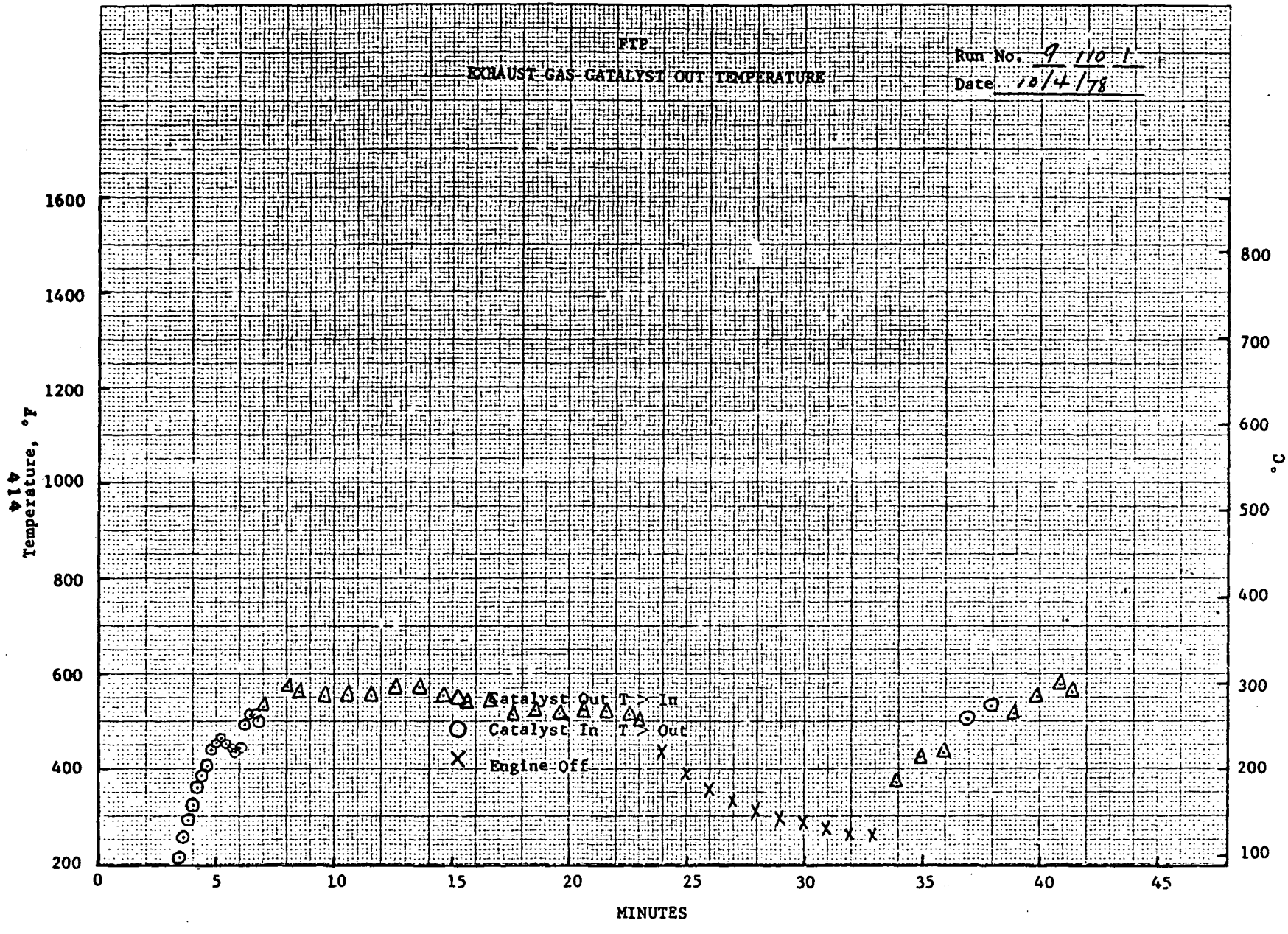
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 110 1
Date 10/4/78
Temperature, °F
°C
1600
1400
1200
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400
200
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700
600
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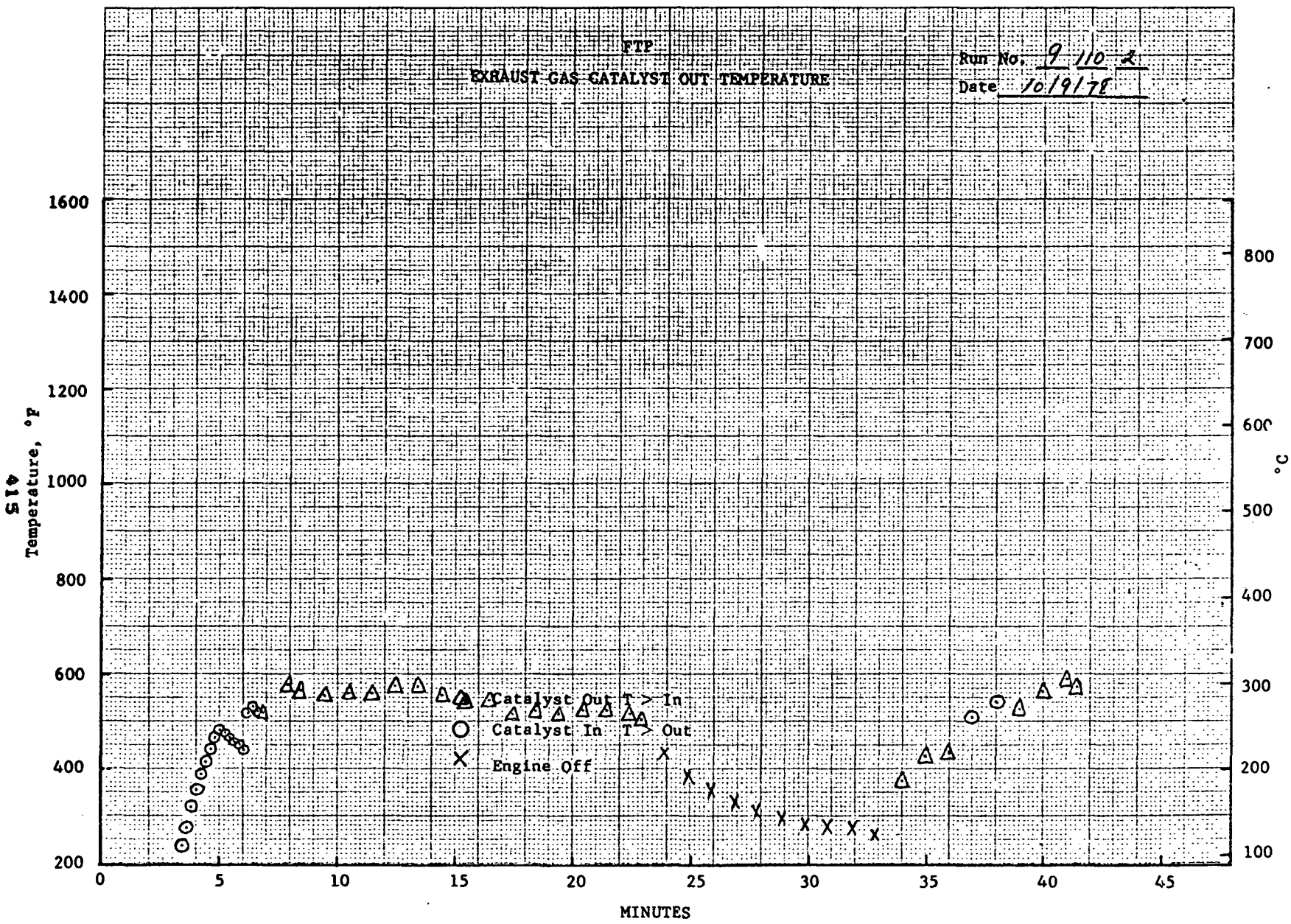
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 10 2
Date 10/19/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
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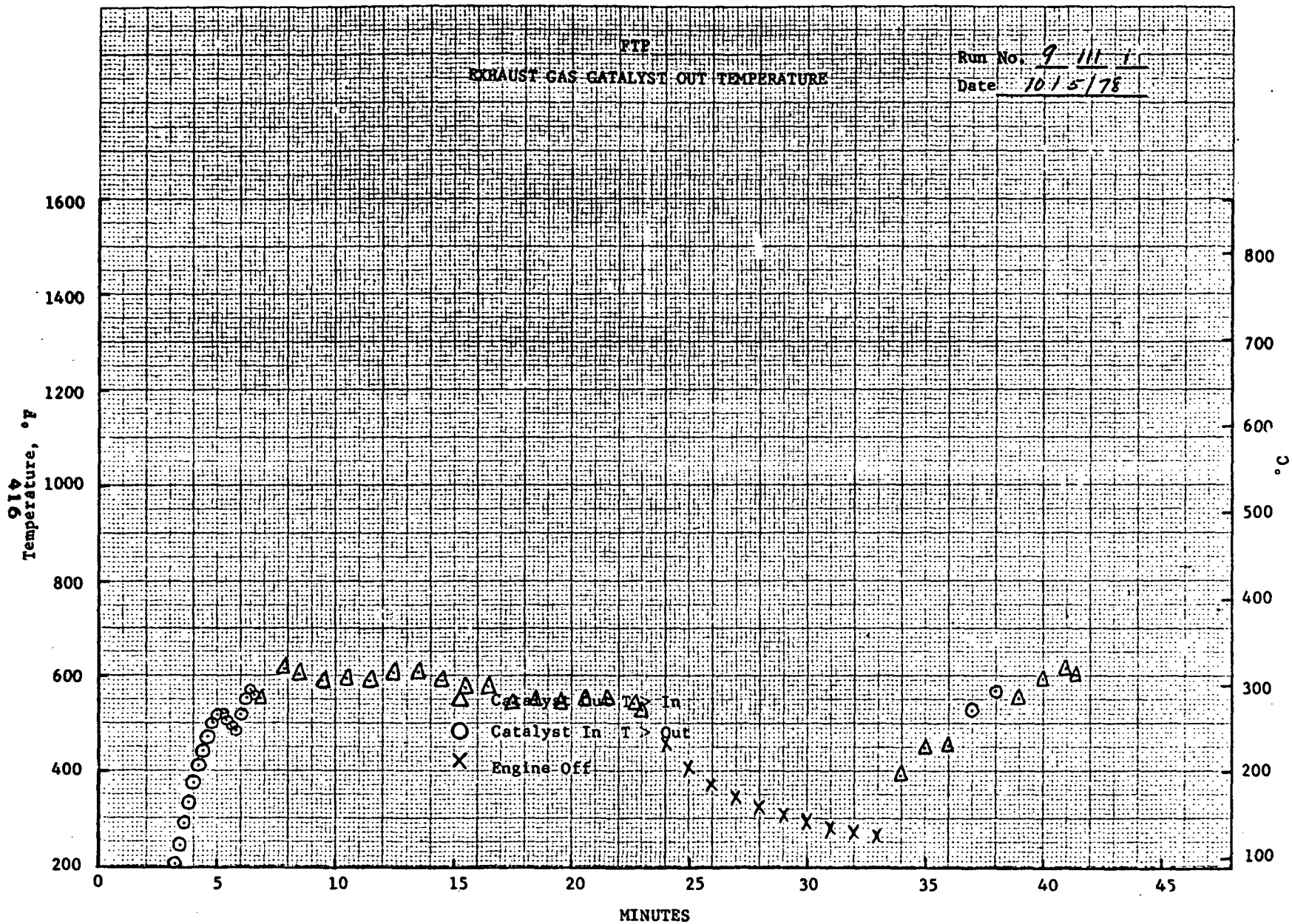
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 111 1
Date 10/5/78
Temperature, °F
1600
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°C
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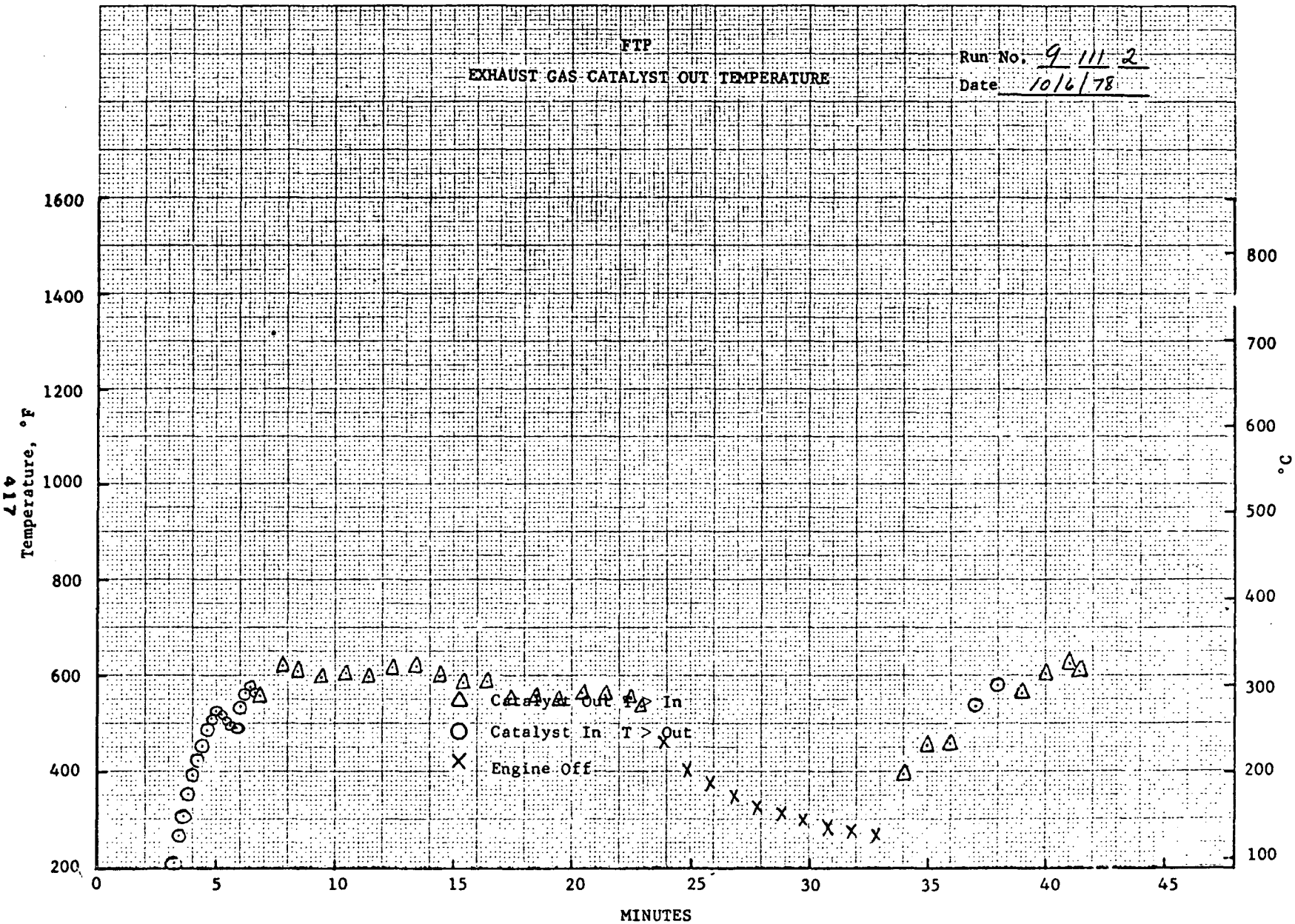
MINUTES
Catalyst In T > Out
Catalyst In
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 9 111 2
Date 10/6/78
Temperature, °F
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1200
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°C
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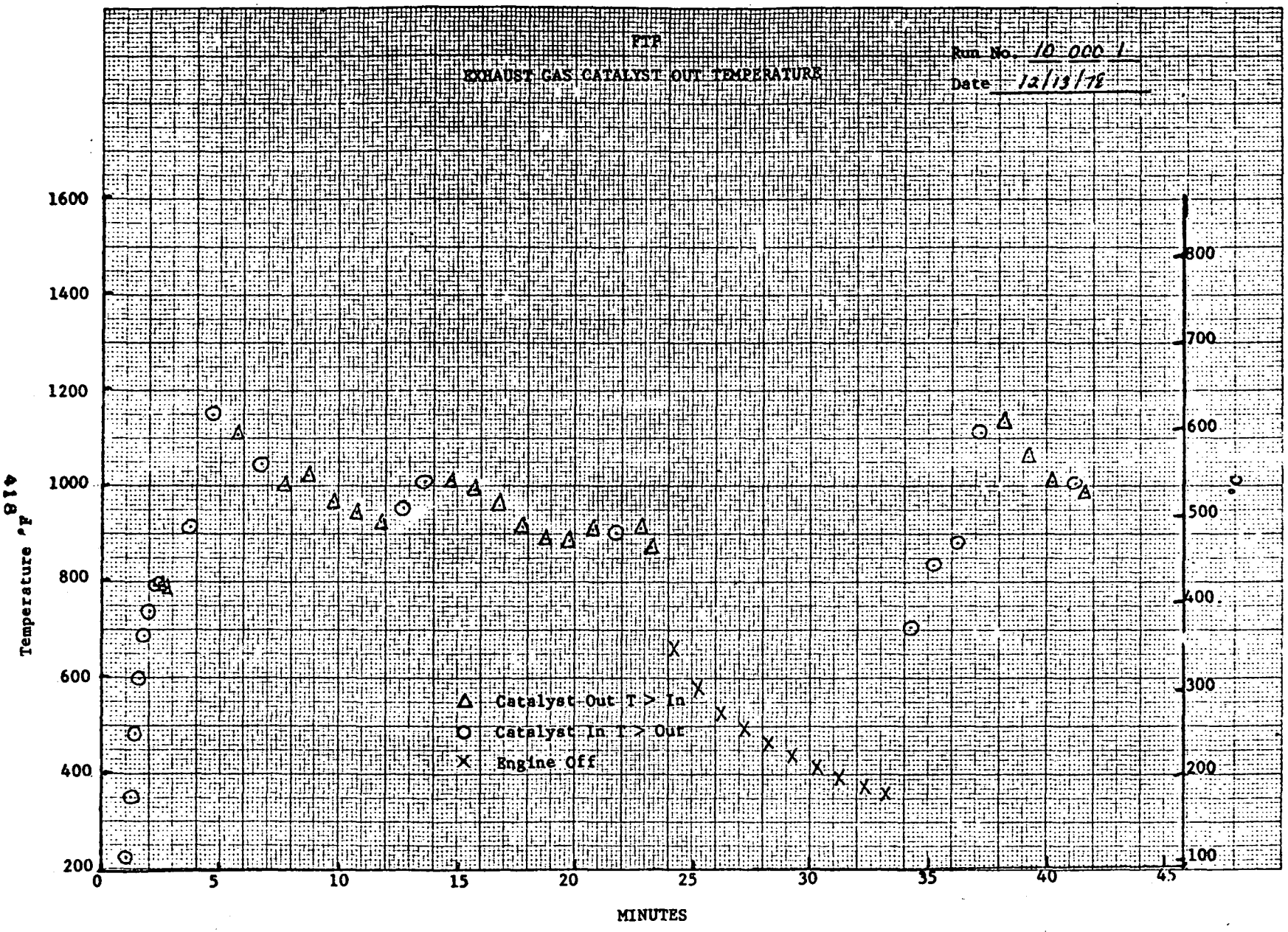
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 000 1
Date 12/13/78
Temperature °F
1600
1400
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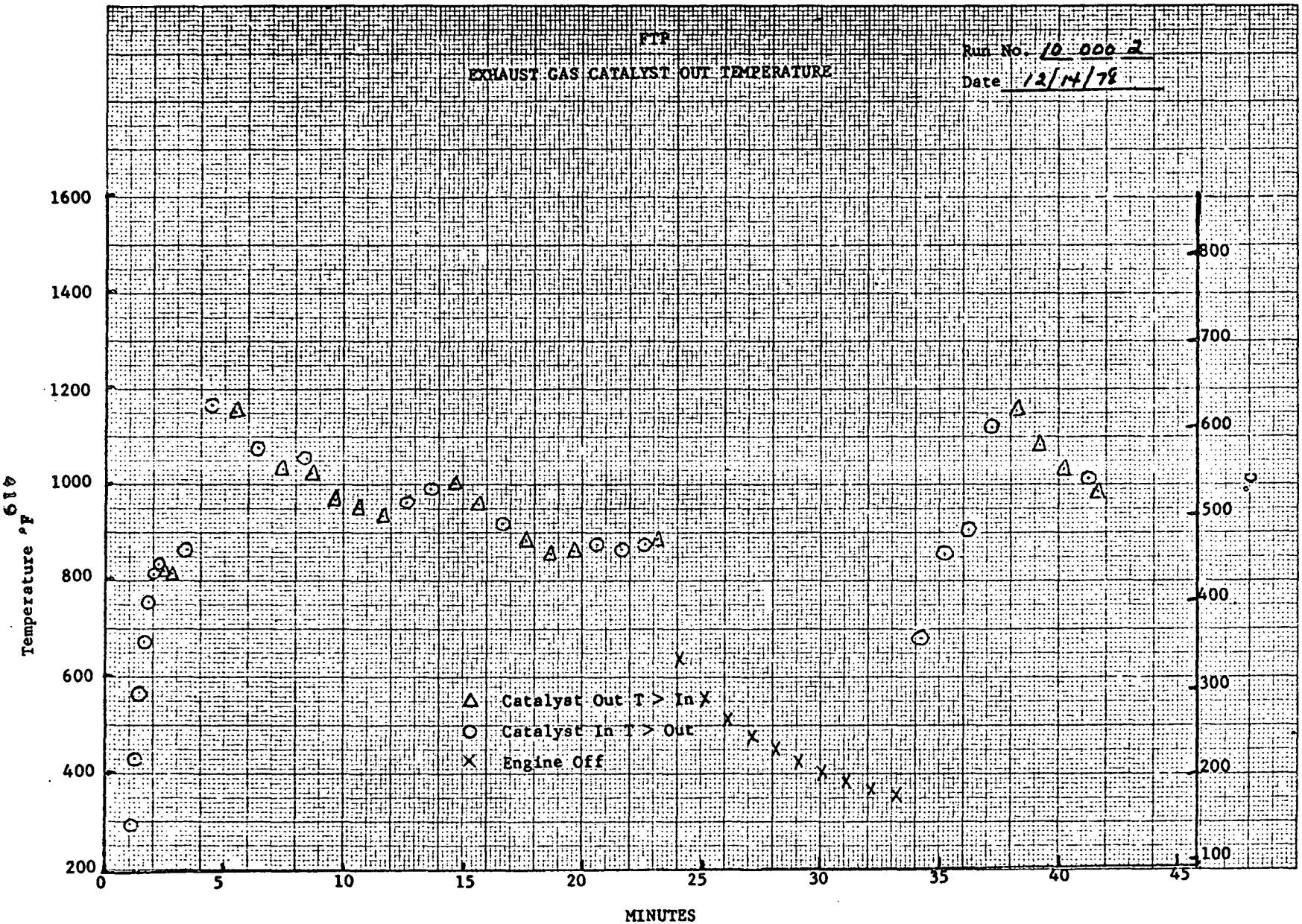
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 000 2
Date 12/14/78
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
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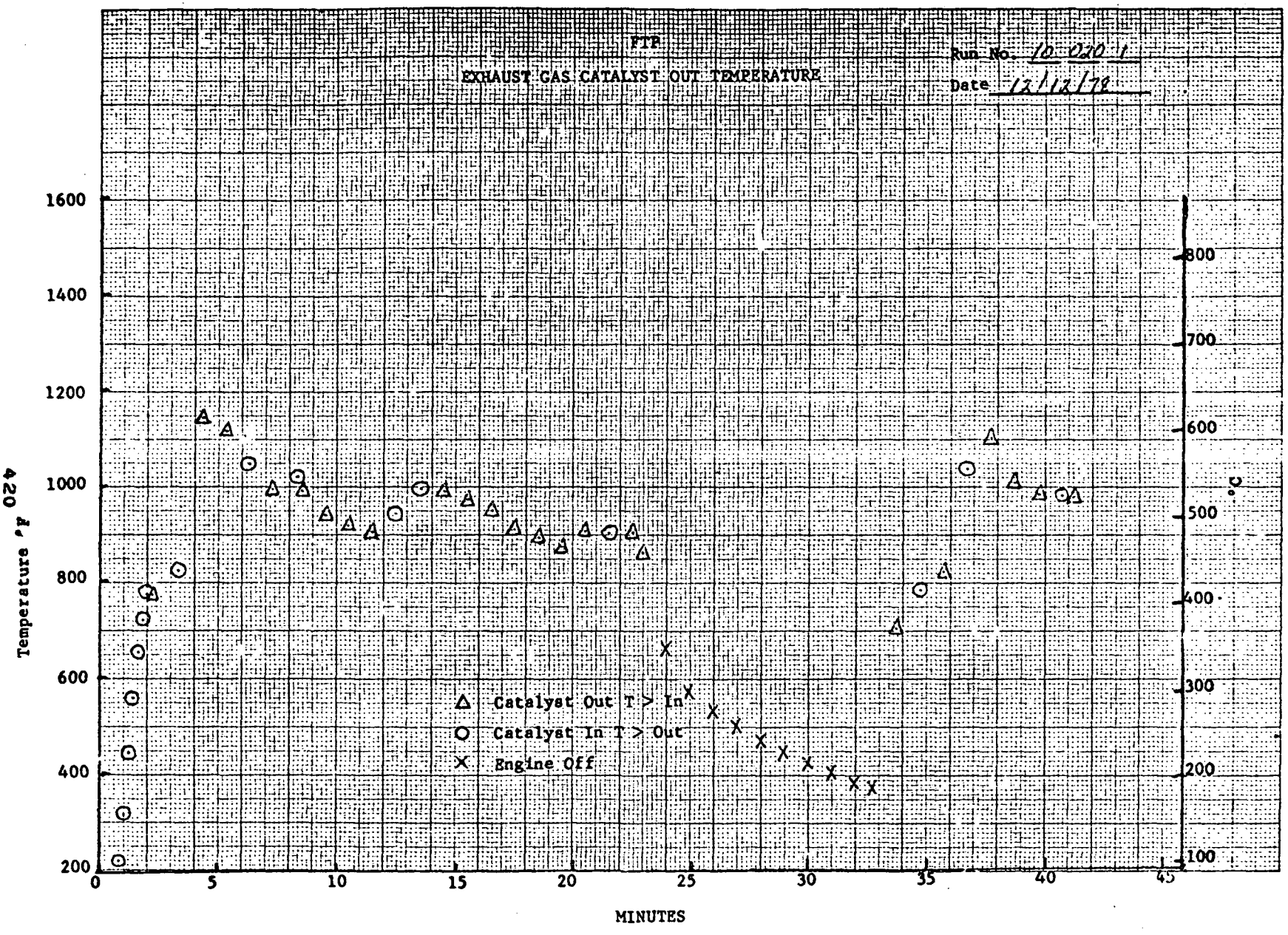
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 020 1
Date 12/12/78
Temperature °F
420
1600
1400
1200
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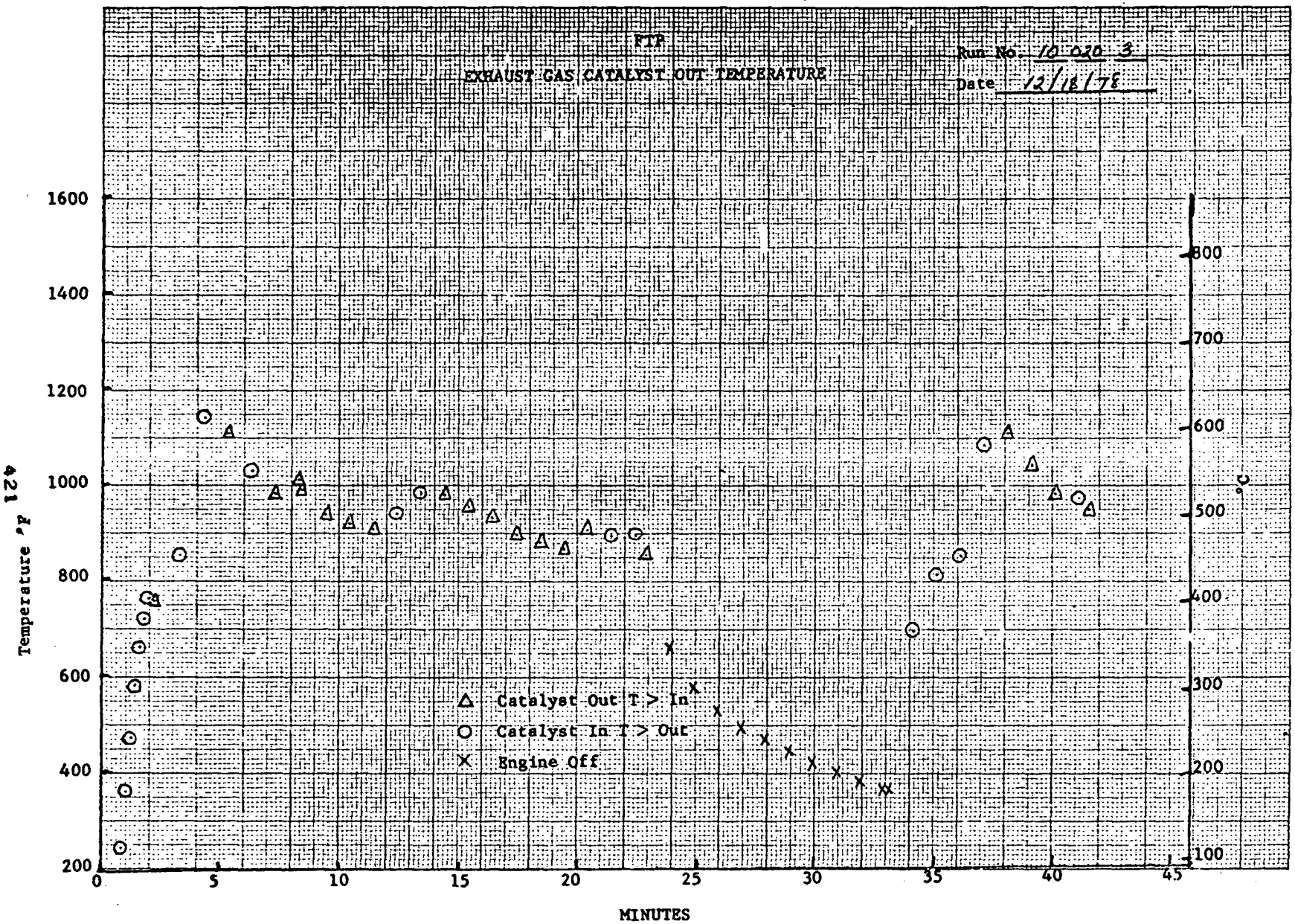
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 020 3
Date 12/18/78
Temperature °F 421
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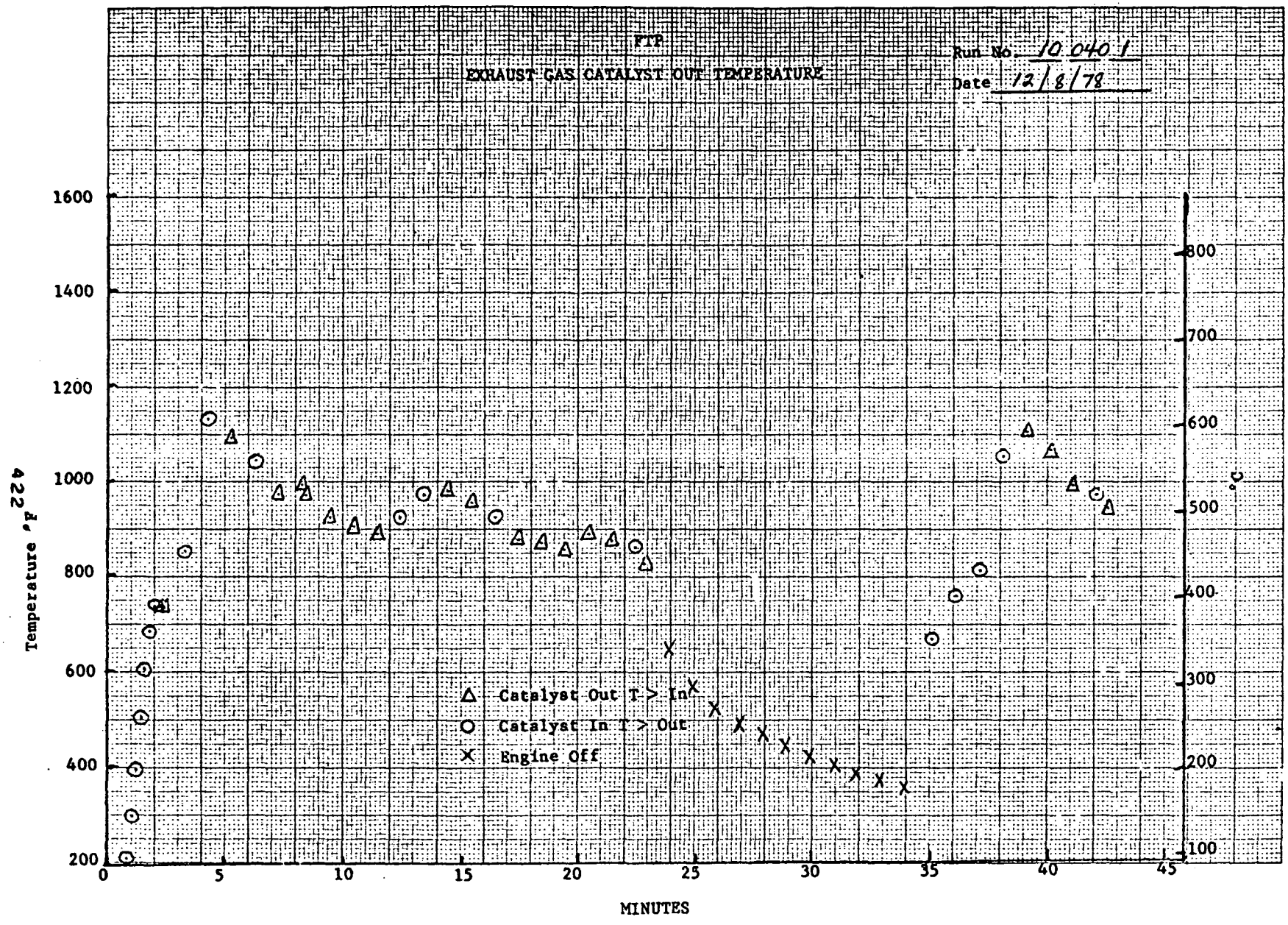
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 040 1
Date 12/8/78
Temperature, °F
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1400
1200
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200
°C
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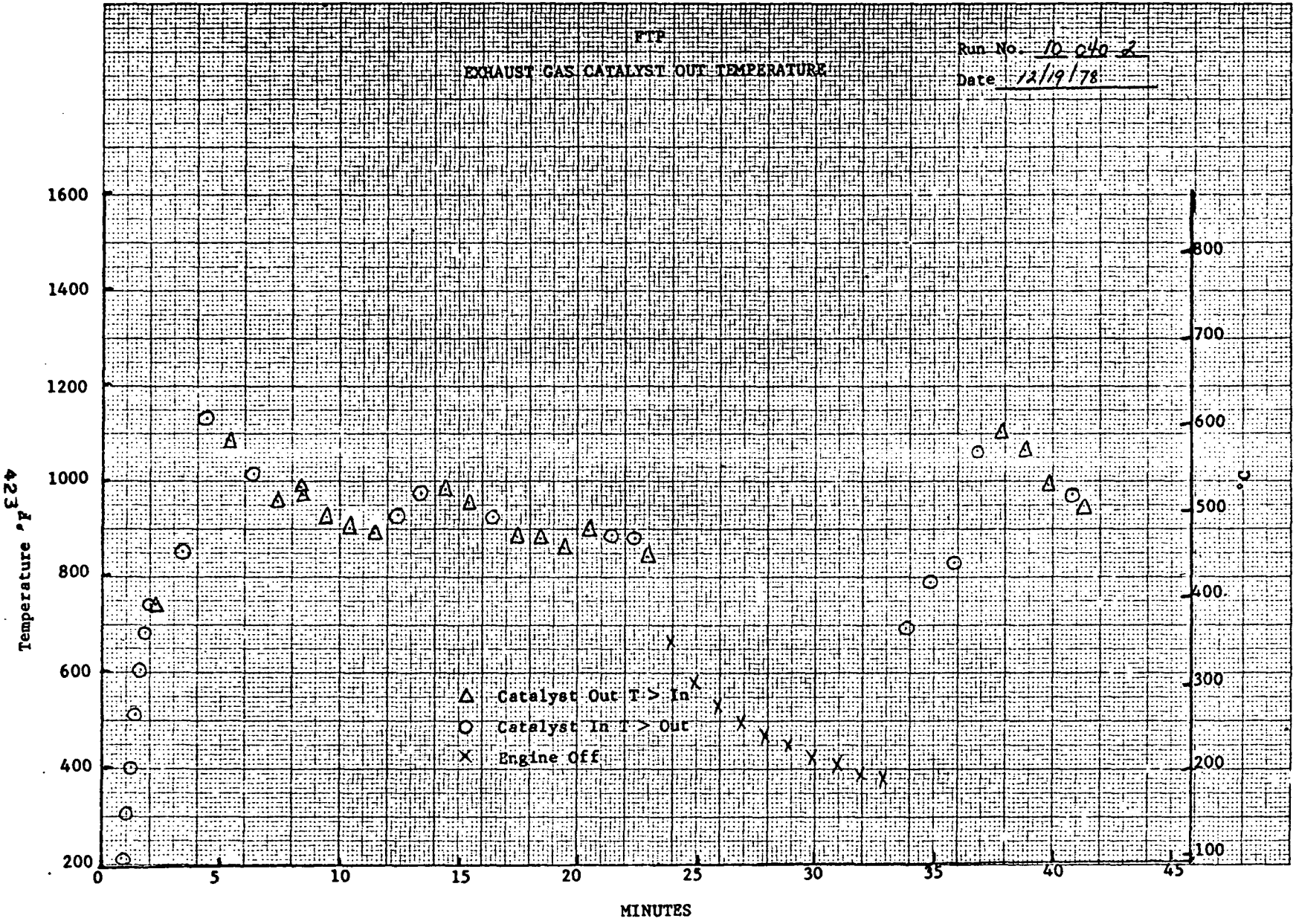
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
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Date 12/19/78
Temperature °F
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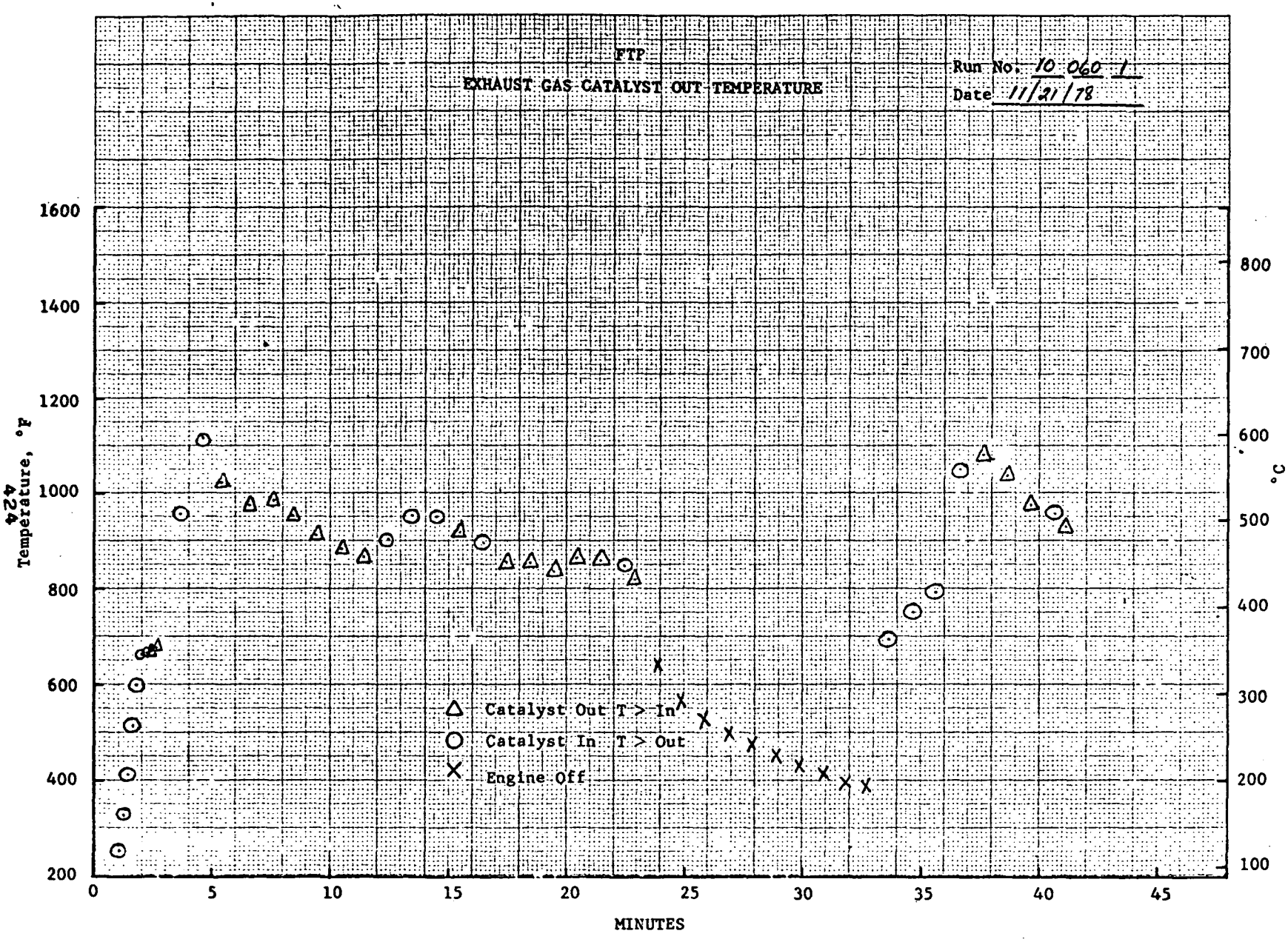
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No: 10 060 1
Date 11/21/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
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200
100
0
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10
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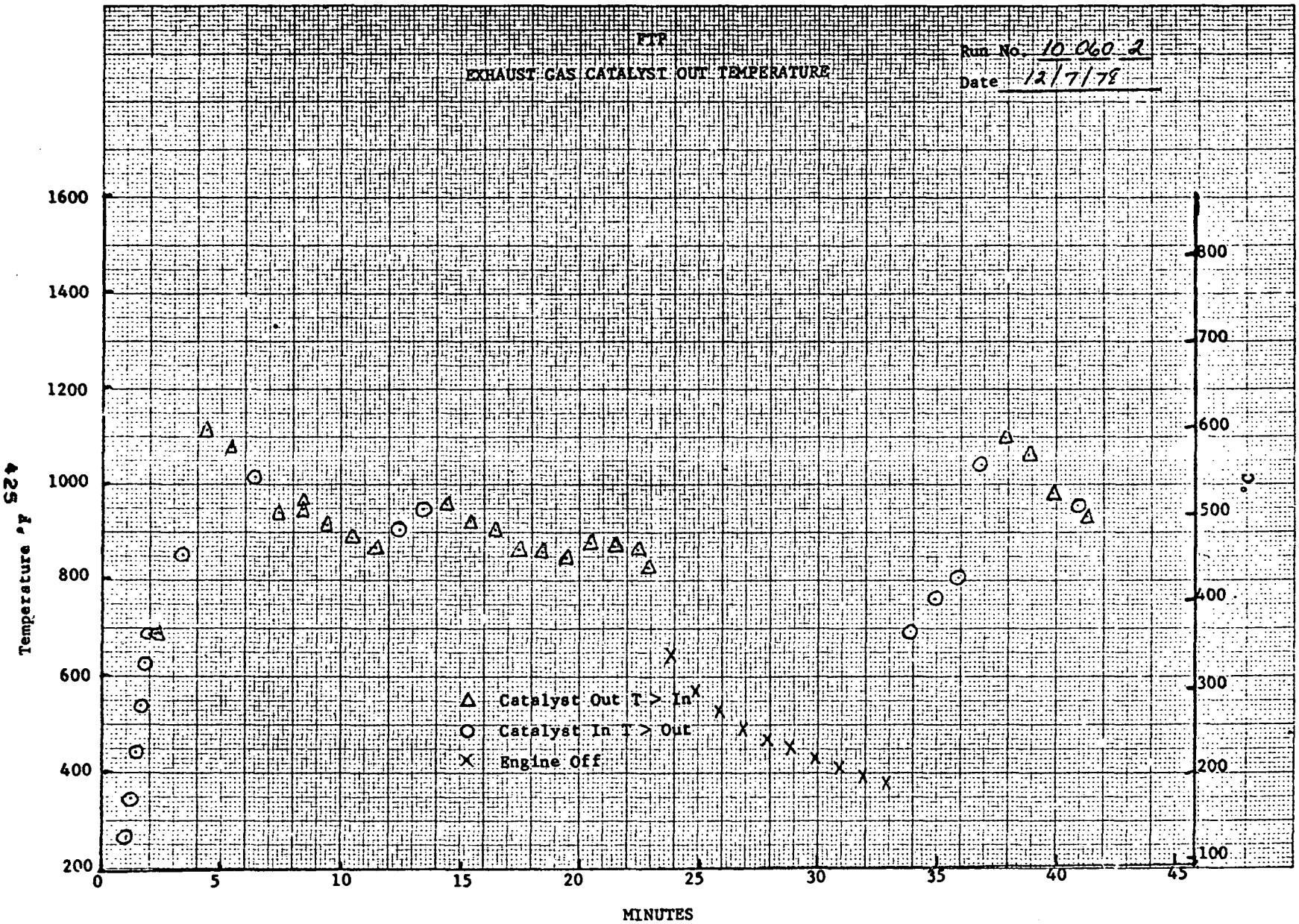
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 060 2
Date 12/7/78
Temperature °F
425
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
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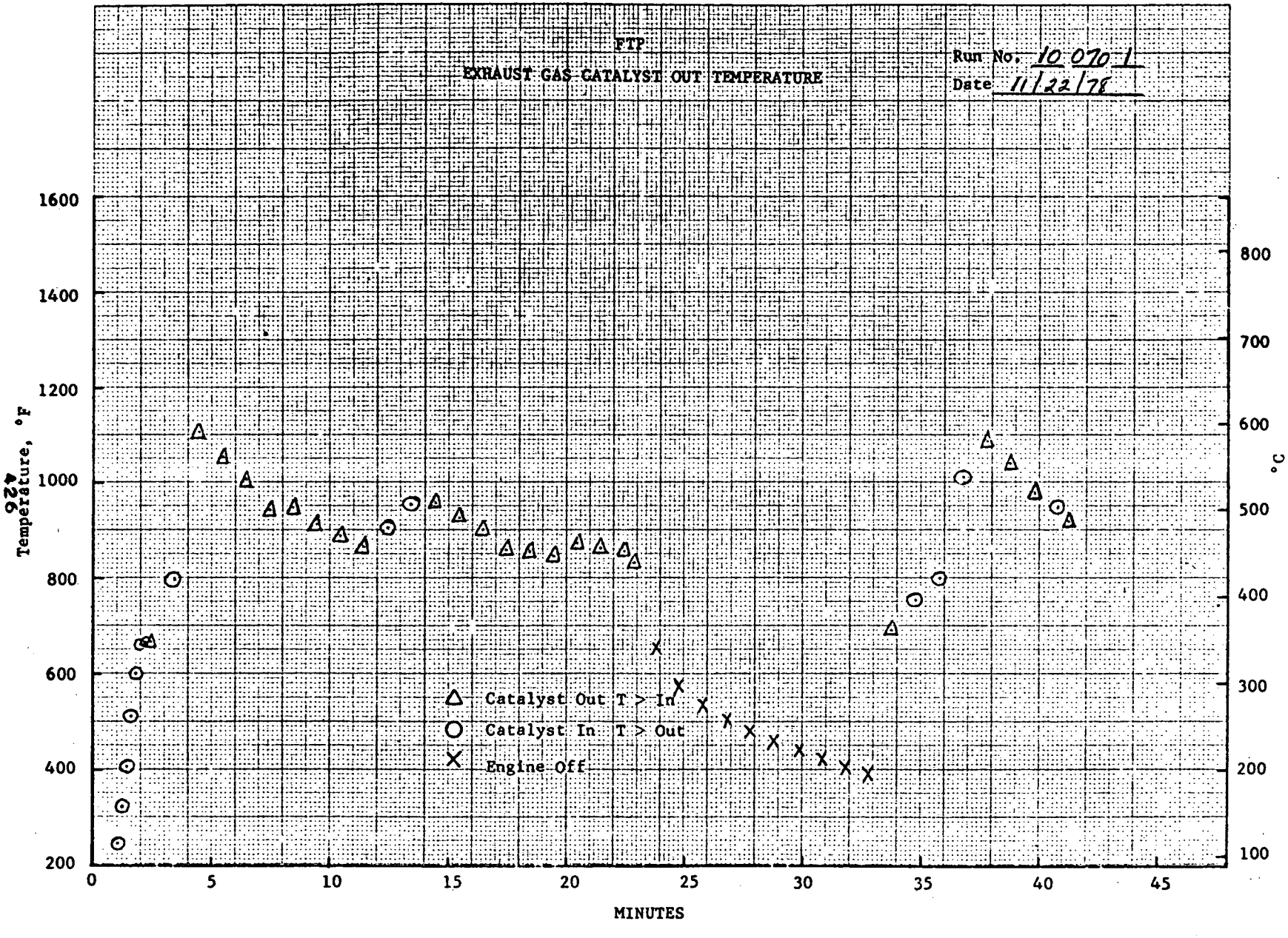
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 070 1
Date 11/22/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
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20
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40
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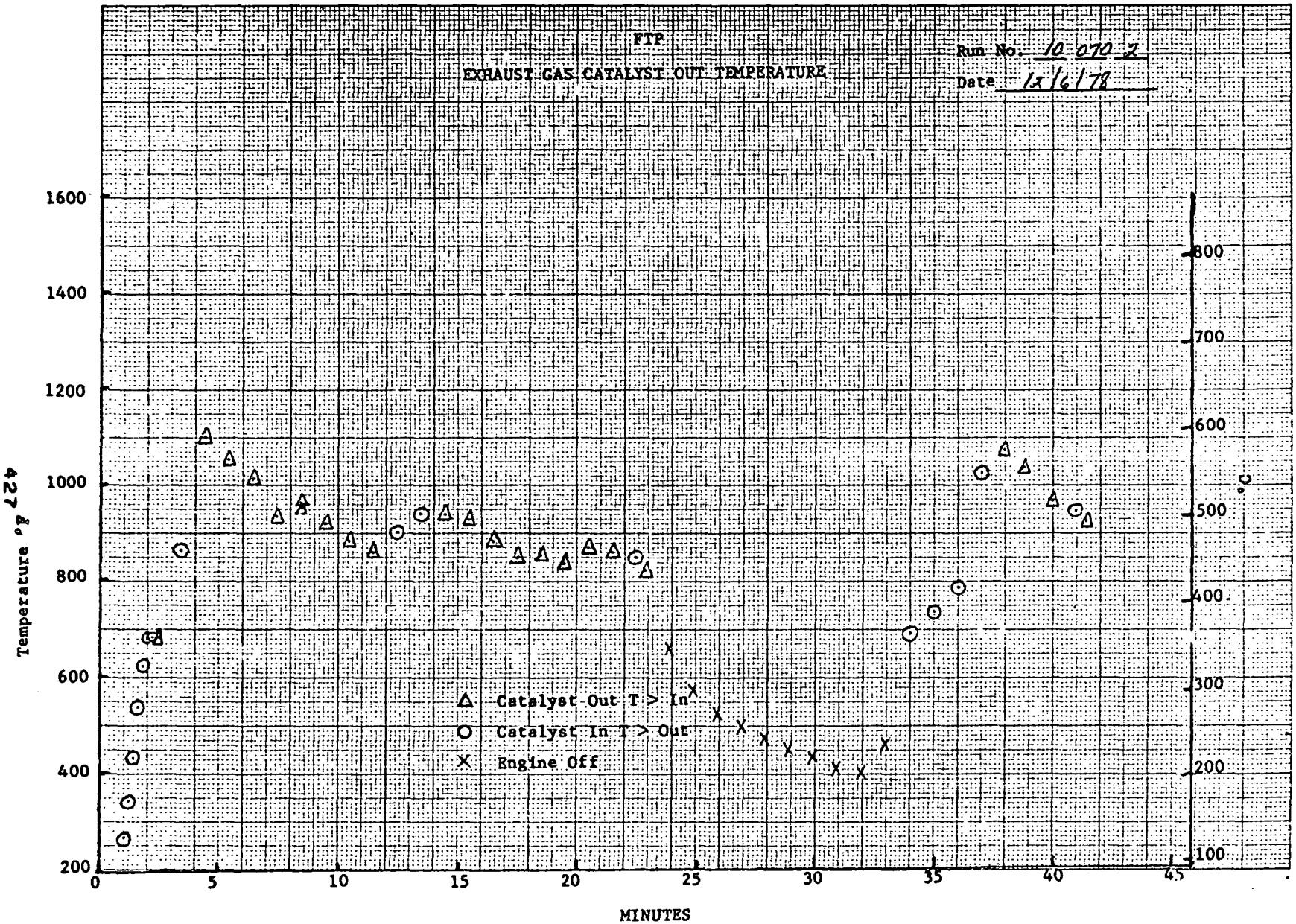
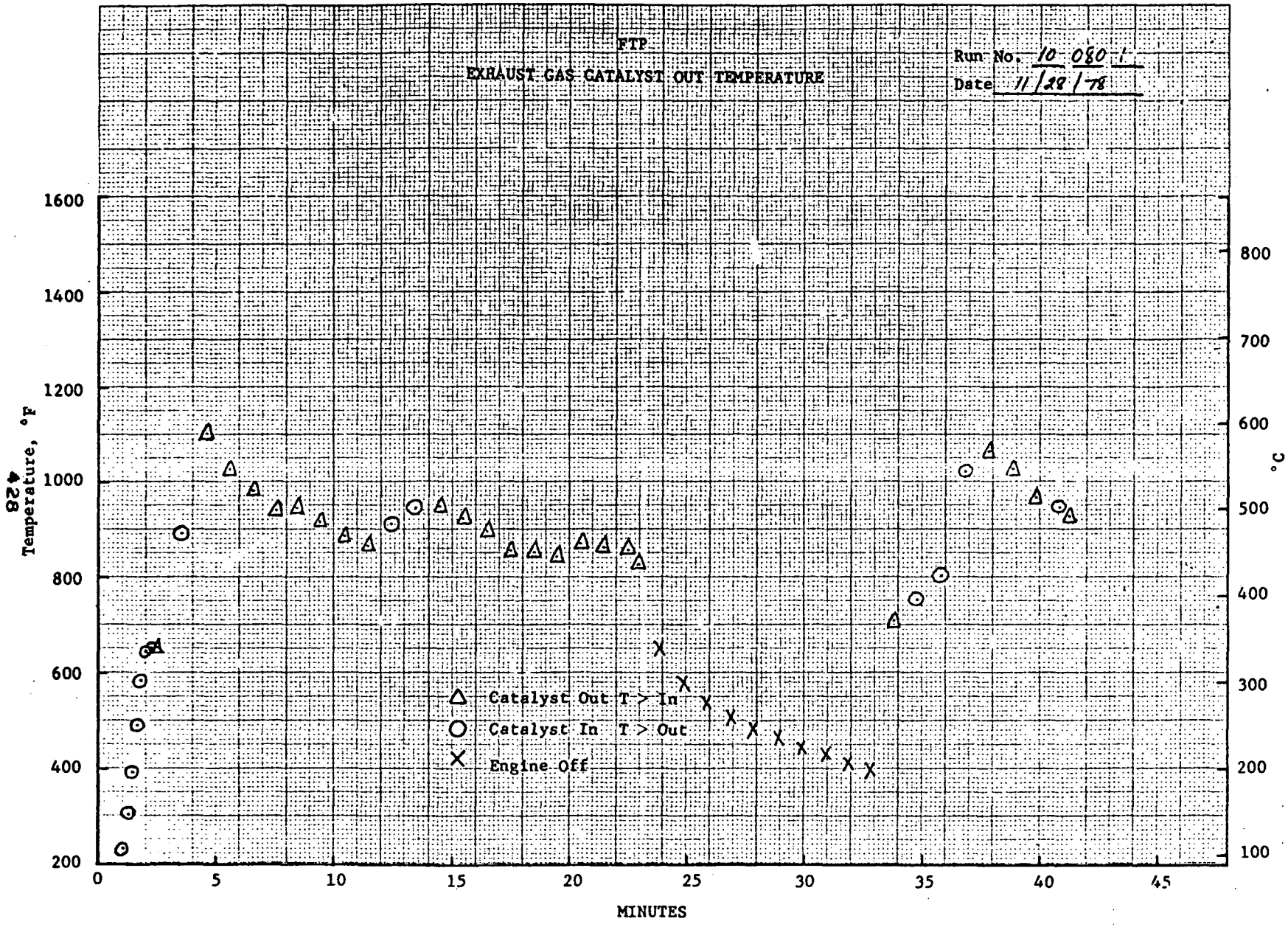

FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 070 2
Date 12/6/78
Temperature °F
427 °C
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 080 1
Date 11/28/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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10
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20
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40
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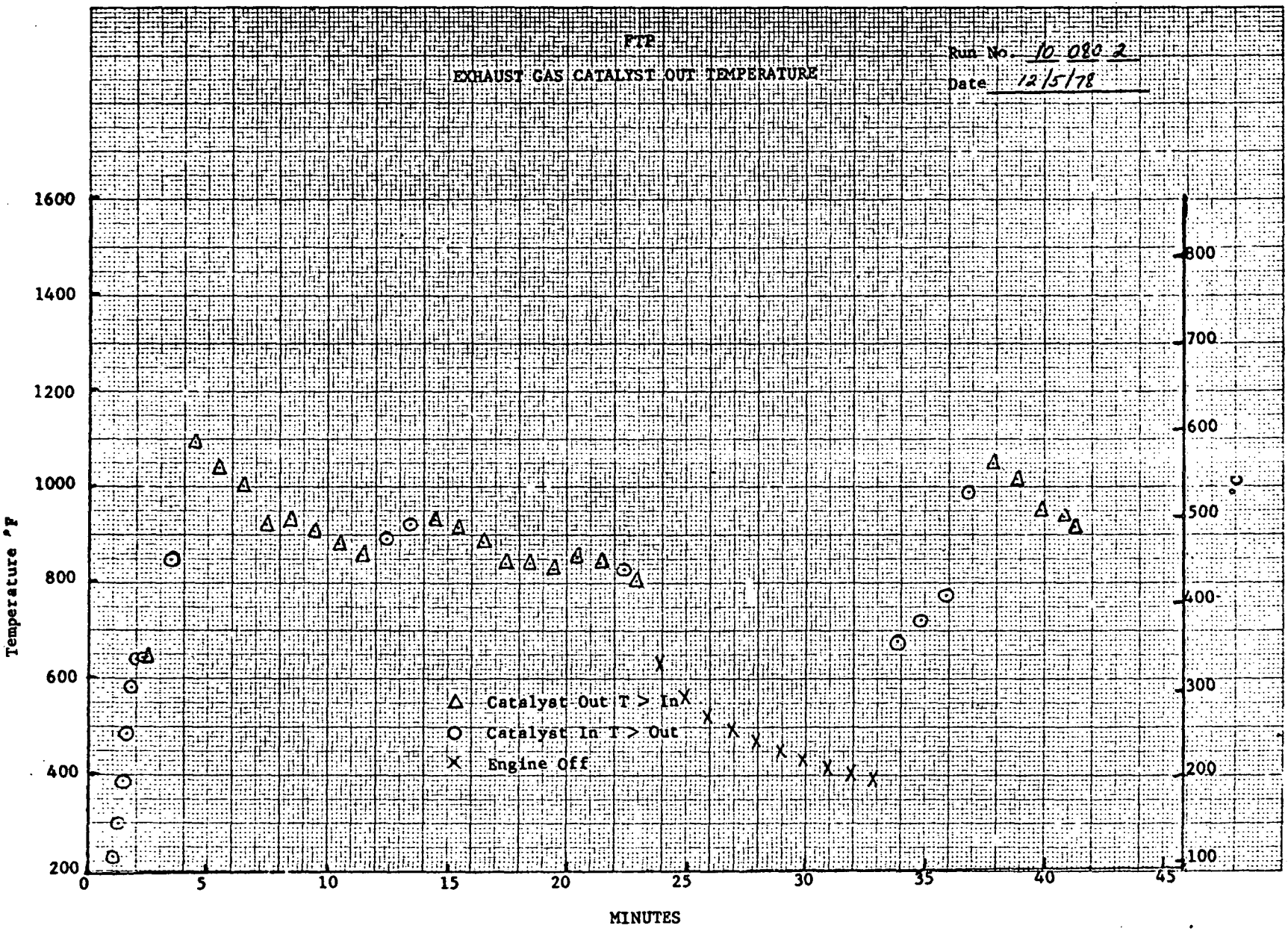
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 080 2
Date 12/5/78
Temperature °F 624
1600
1400
1200
1000
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600
400
200
800
700
600
500
400
300
200
100
°C
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5
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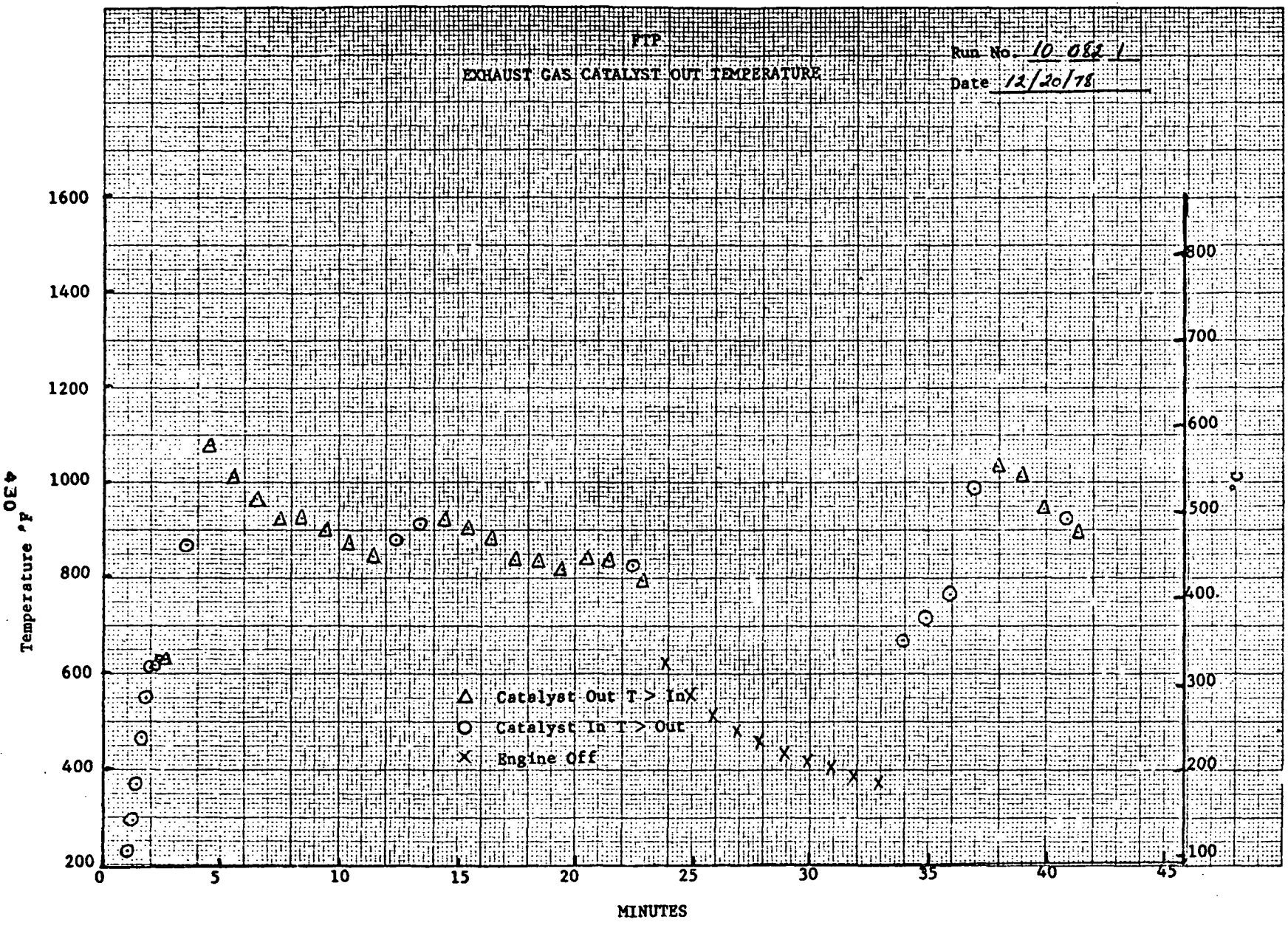
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 084 1
Date 12/20/78
Temperature °F
1600
1400
1200
1000
800
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200
°C
800
700
600
500
400
300
200
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5
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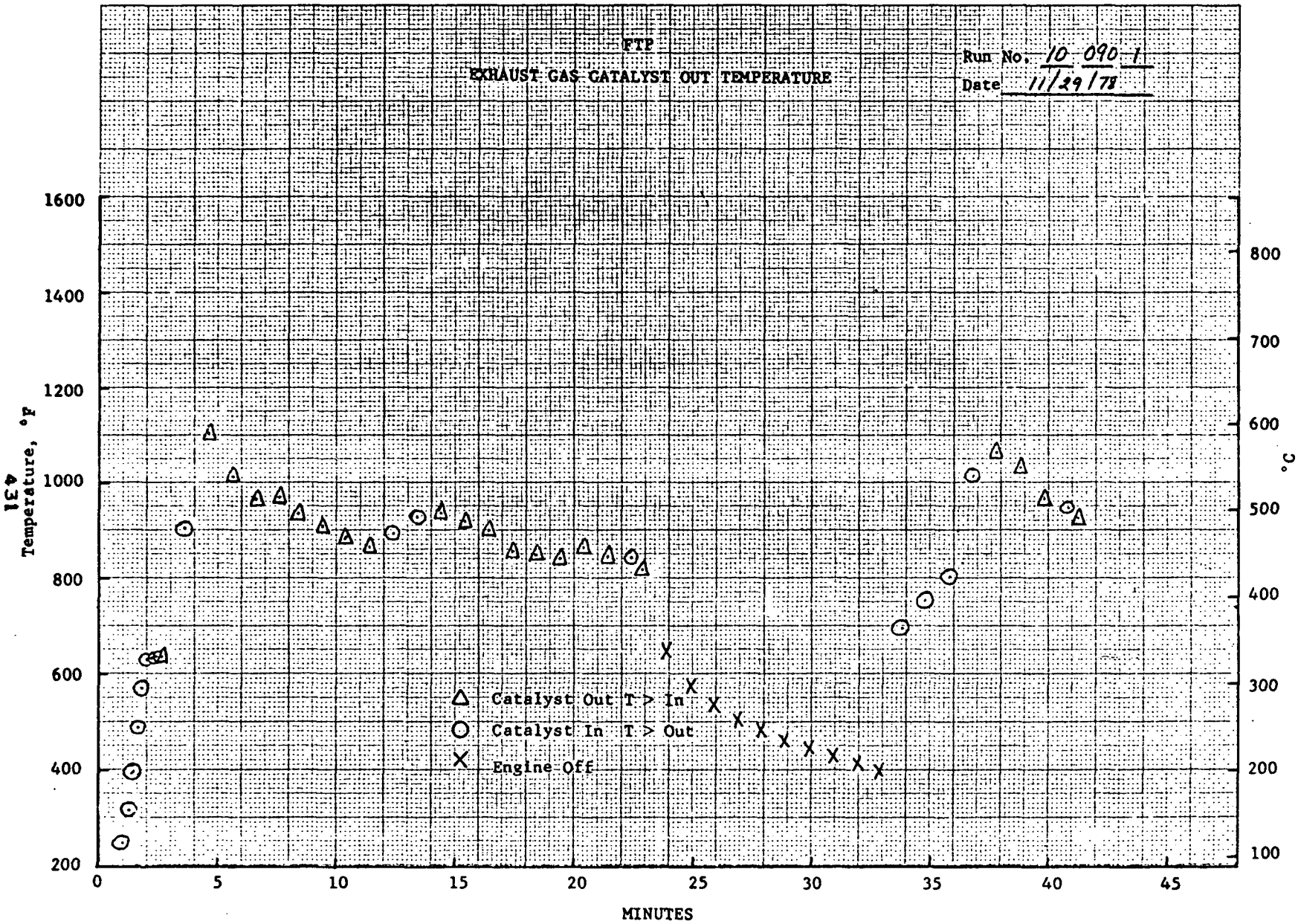
25
30
35
40
45
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 090 1
Date 11/29/78
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
0
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40
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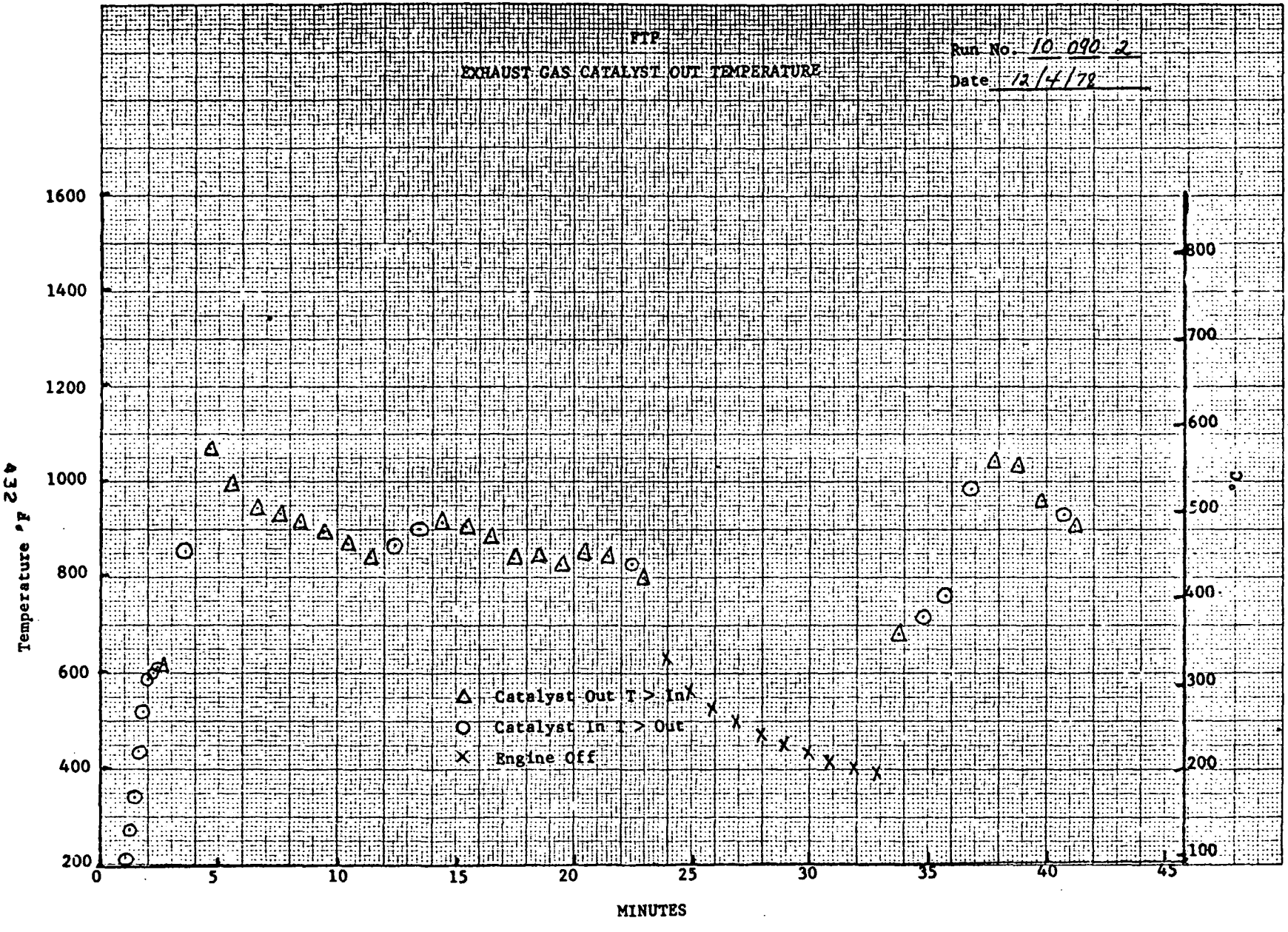
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 090 2
Date 12/4/72
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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300
200
100
0
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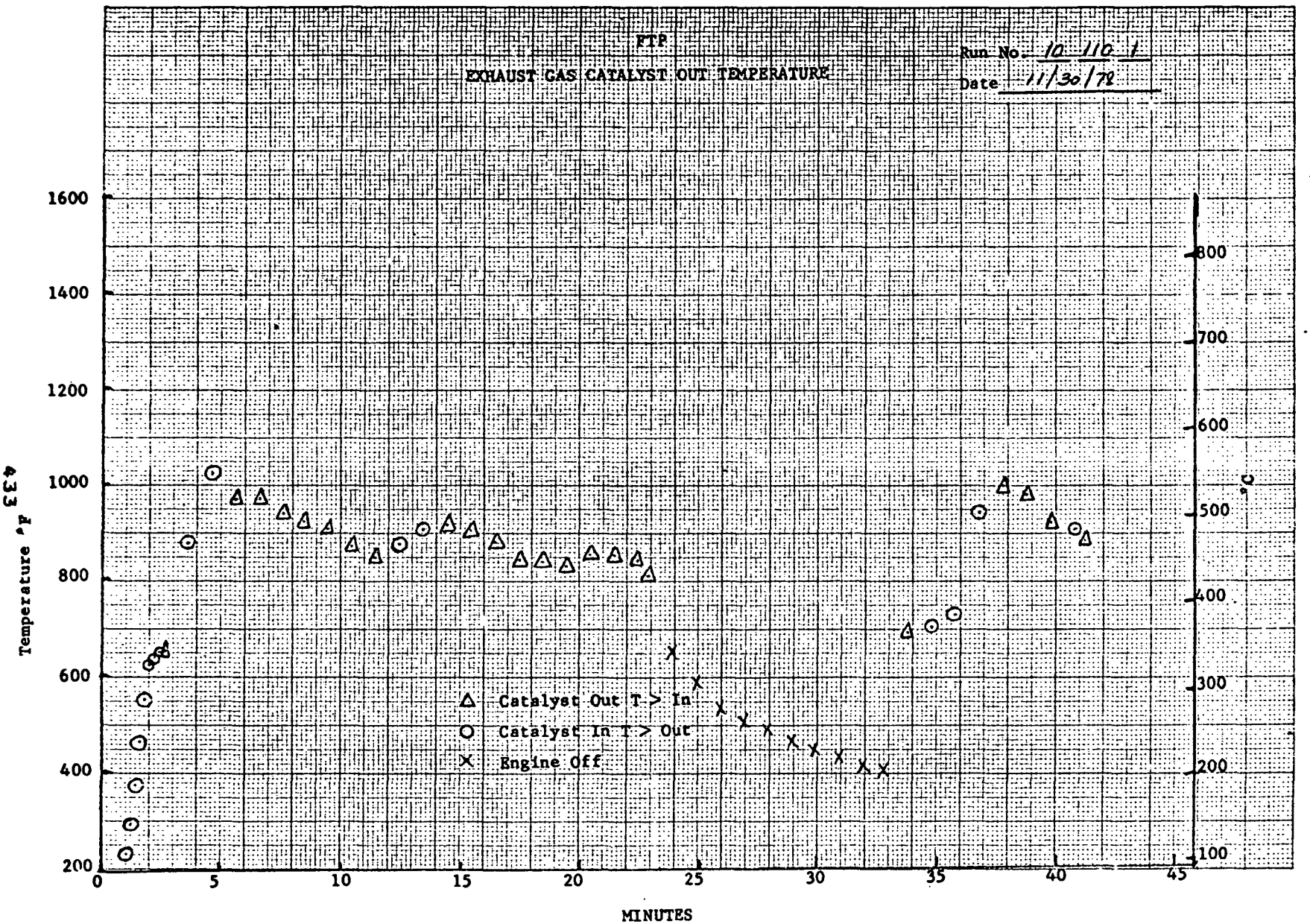
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No: 10 110 1
Date 11/30/78
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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500
400
300
200
100
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15
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25
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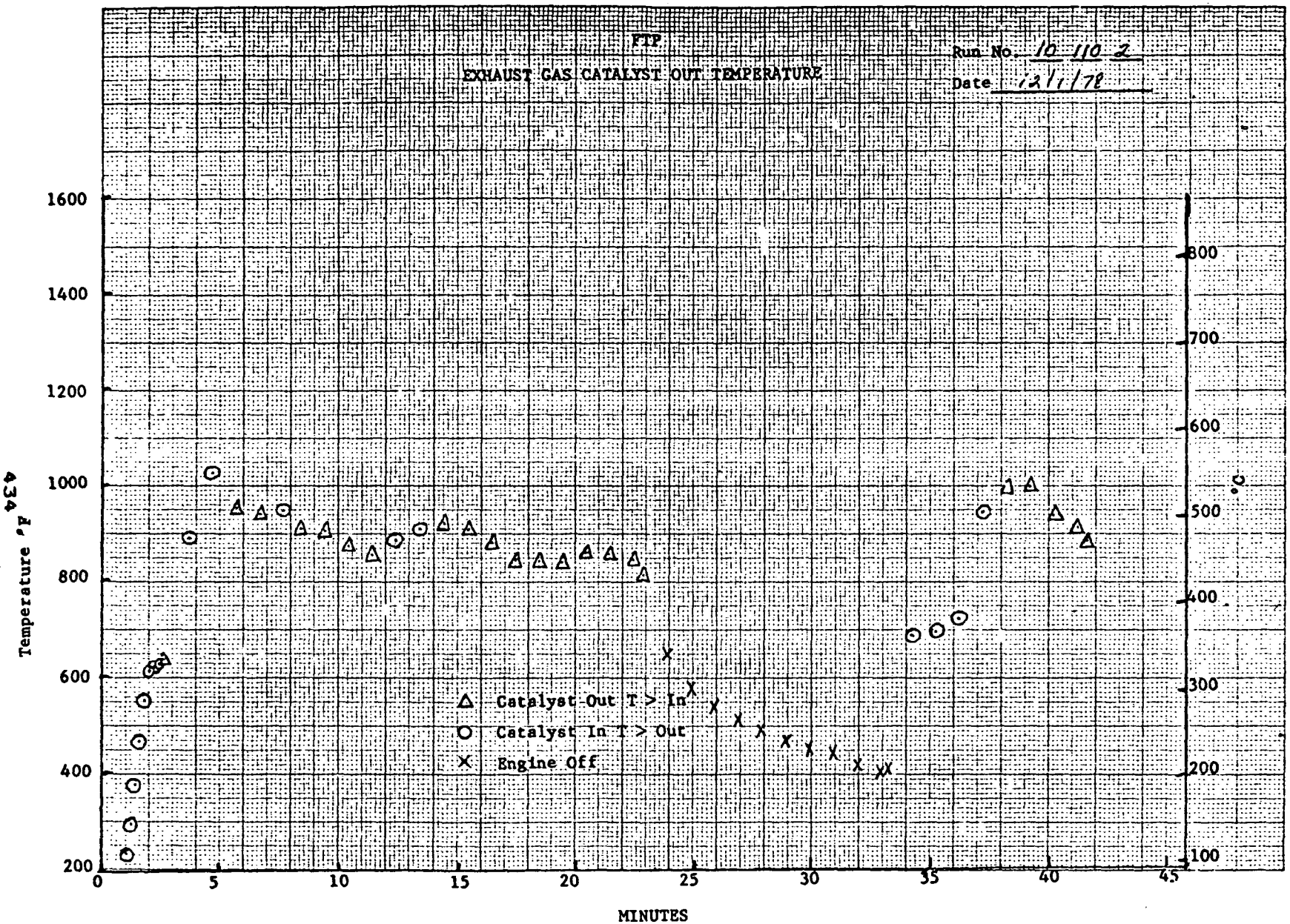
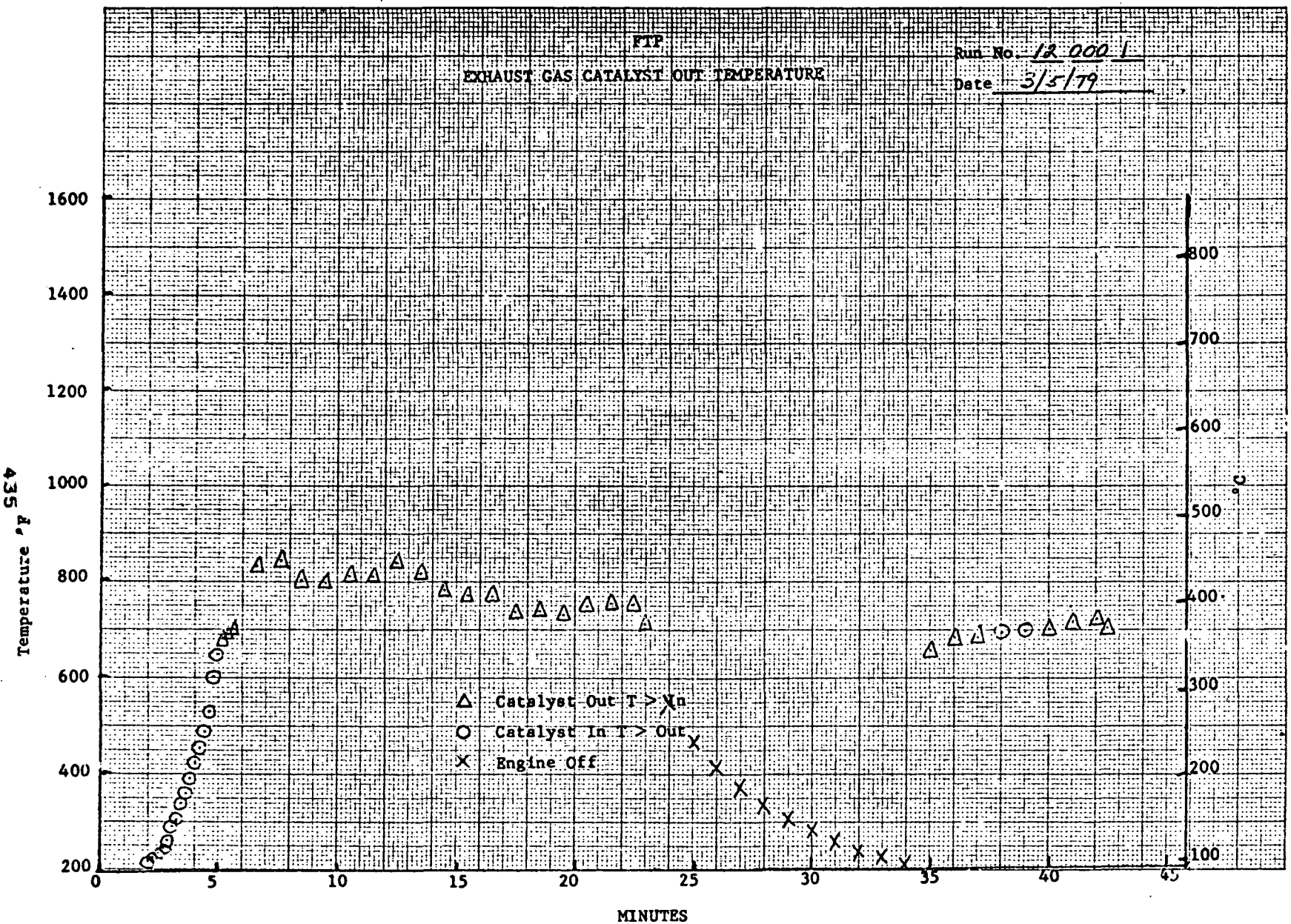
45

433


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 10 110 2
Date 12/1/78
Temperature, °F
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
15
20
25
30
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off

434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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 000 1
Date 3/5/79
Temperature °F
1600
1400
1200
1000
800
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400
200
°C
800
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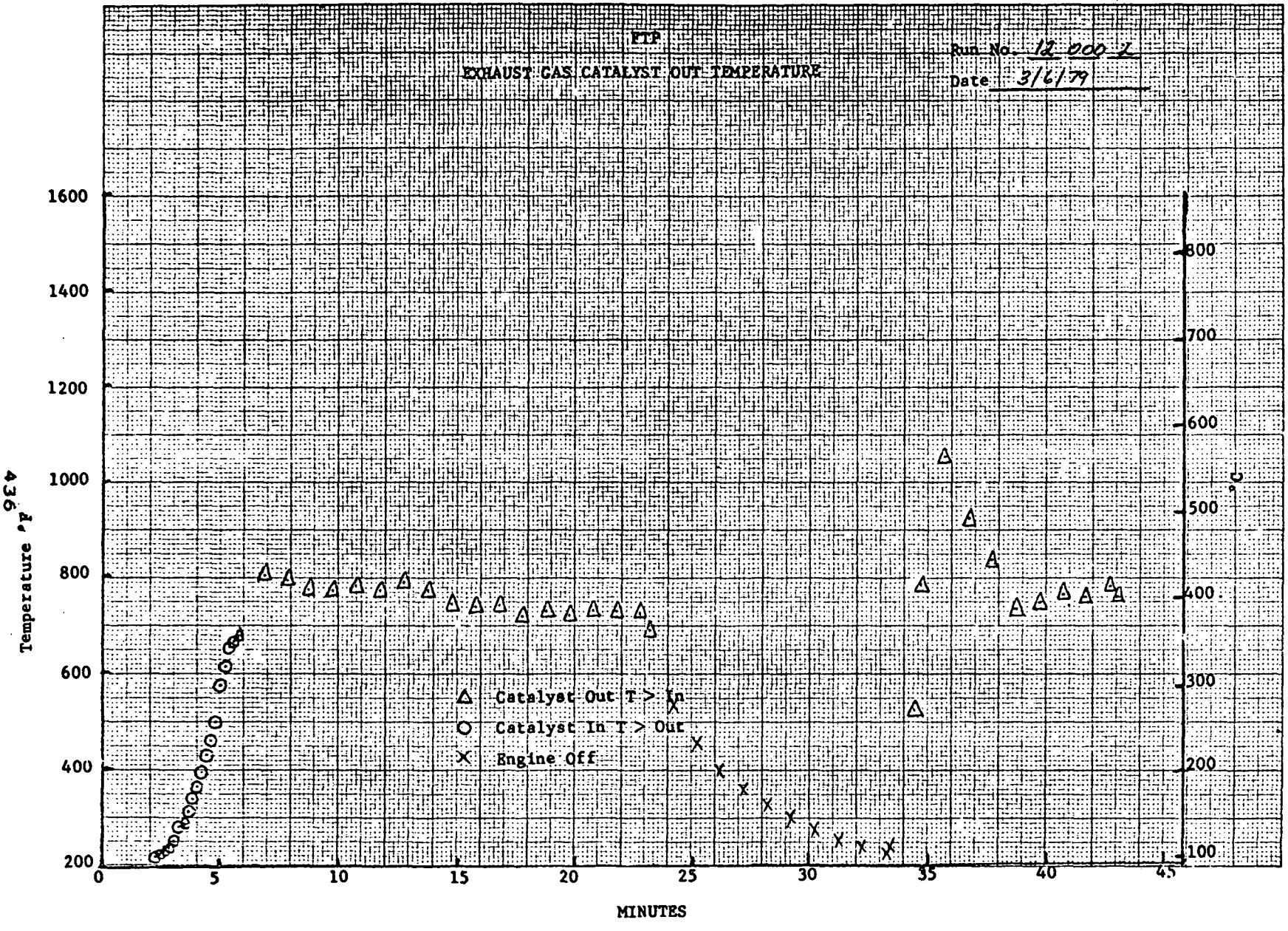
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 000 L
Date 3/6/79
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
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400
300
200
100
0
5
10
15
20
25
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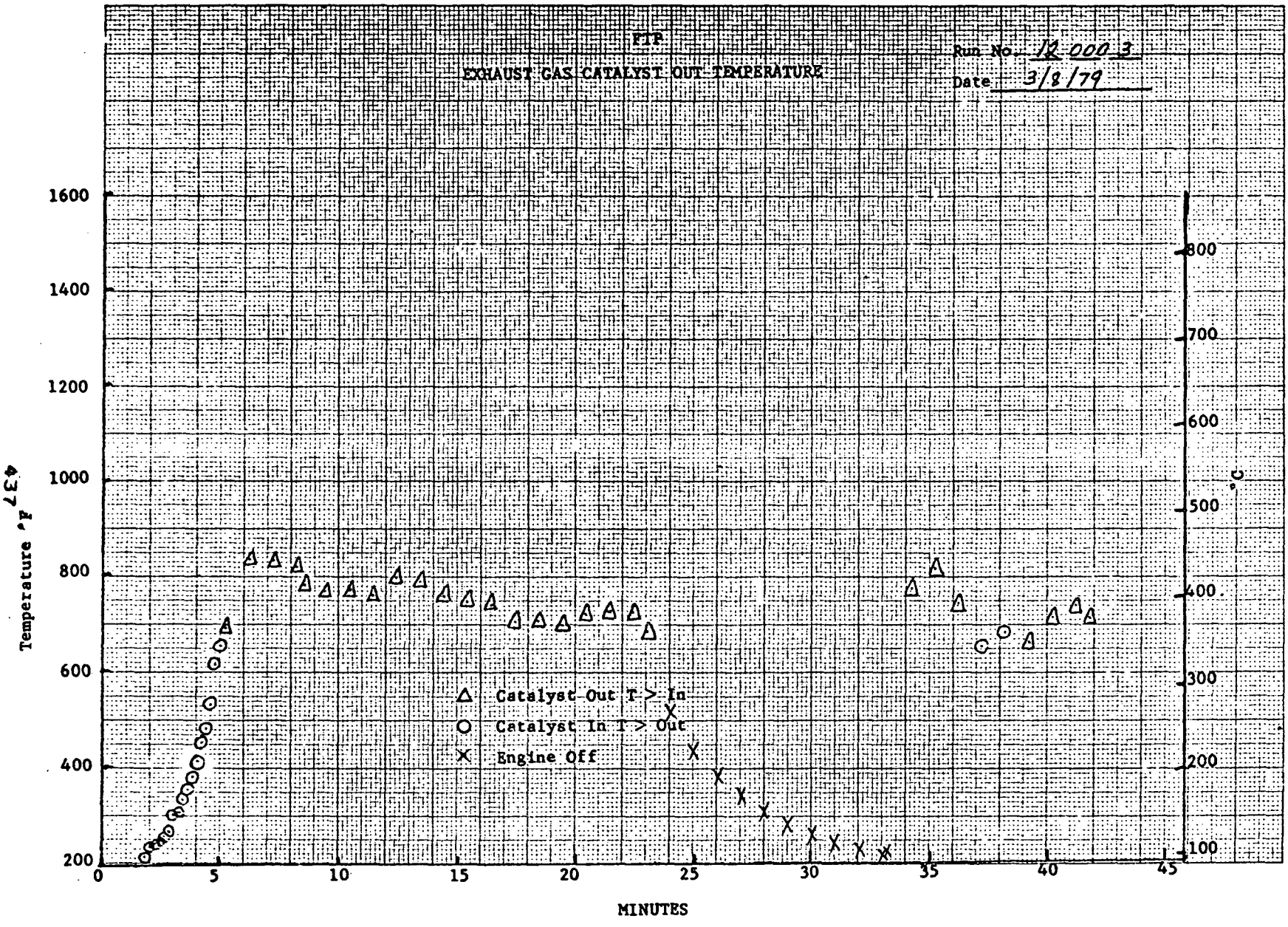
35
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off

436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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 18 000 3
Date 3/8/79
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
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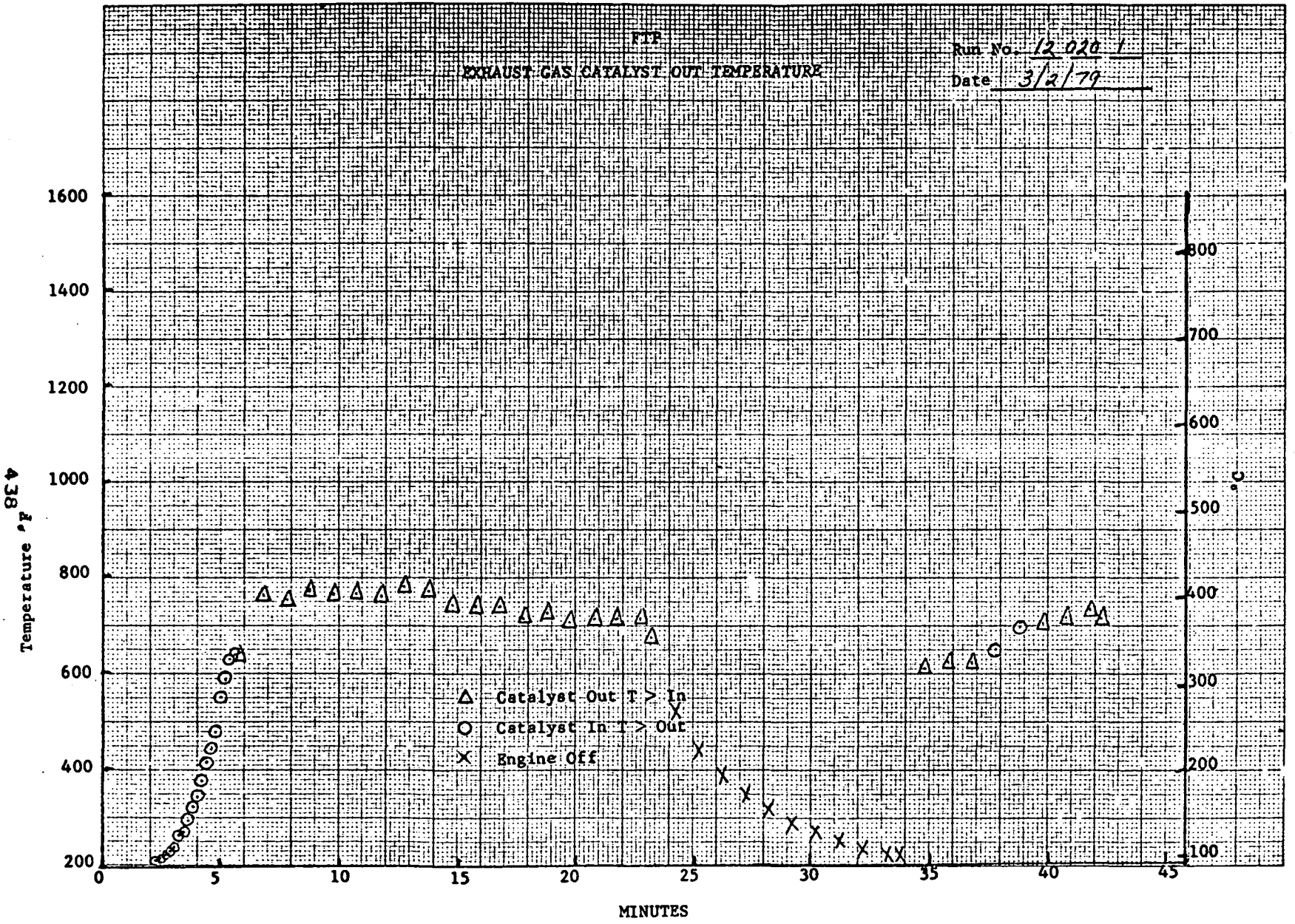
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 020 1
Date 3/2/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
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700
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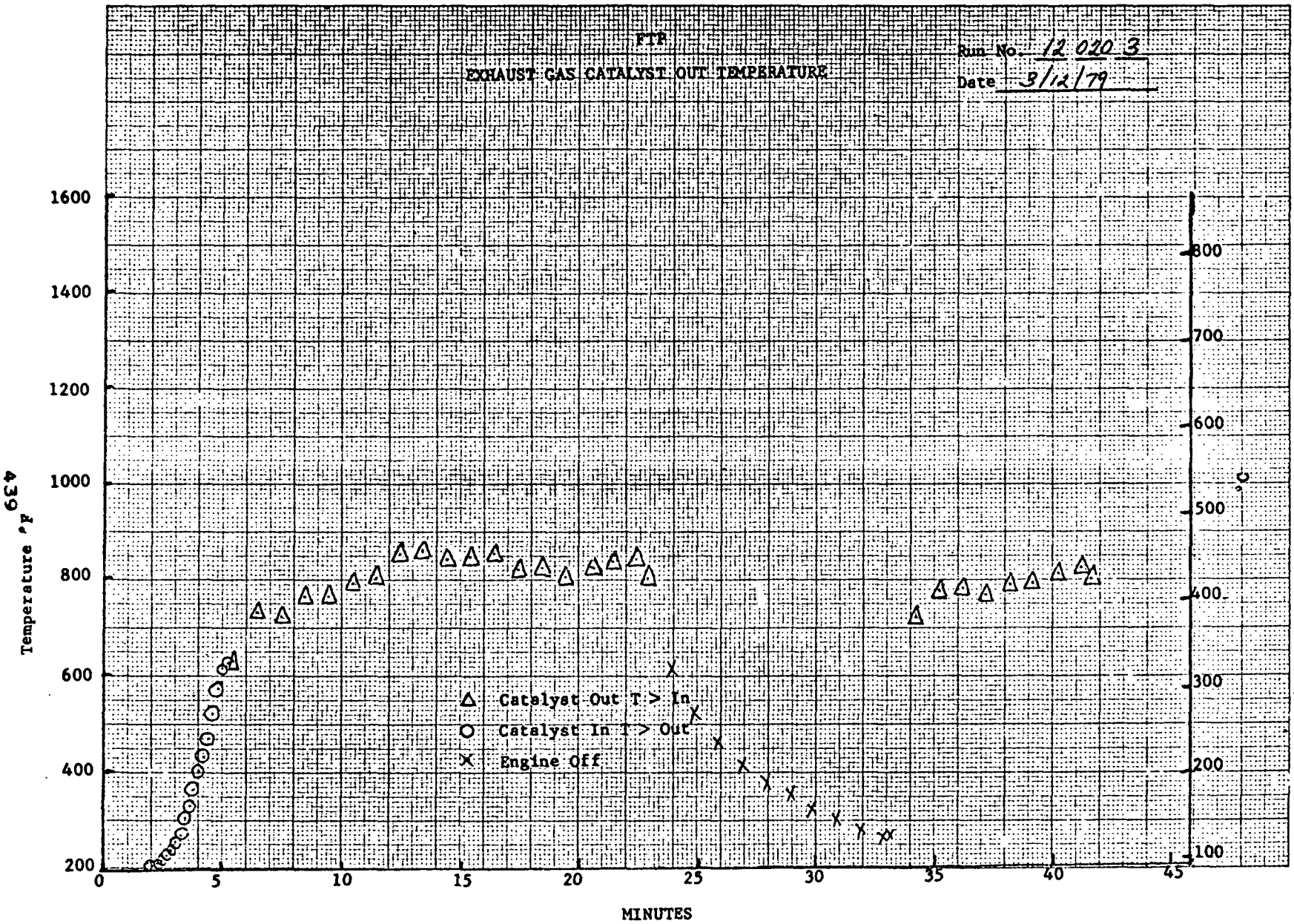
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 020 3
Date 3/12/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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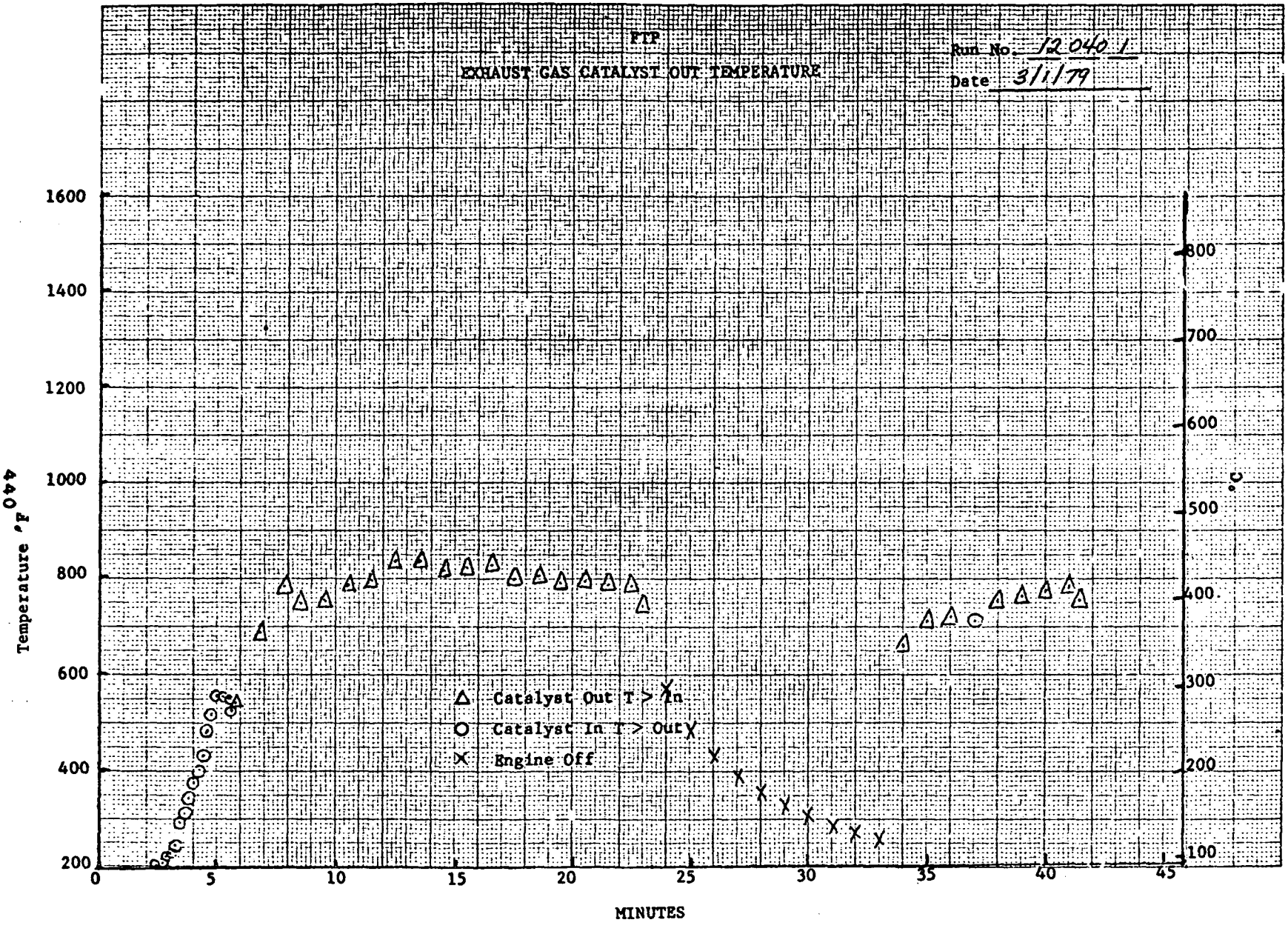
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12040 1
Date 3/1/79
Temperature °F
1600
1400
1200
1000
800
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400
200
°C
800
700
600
500
400
300
200
100
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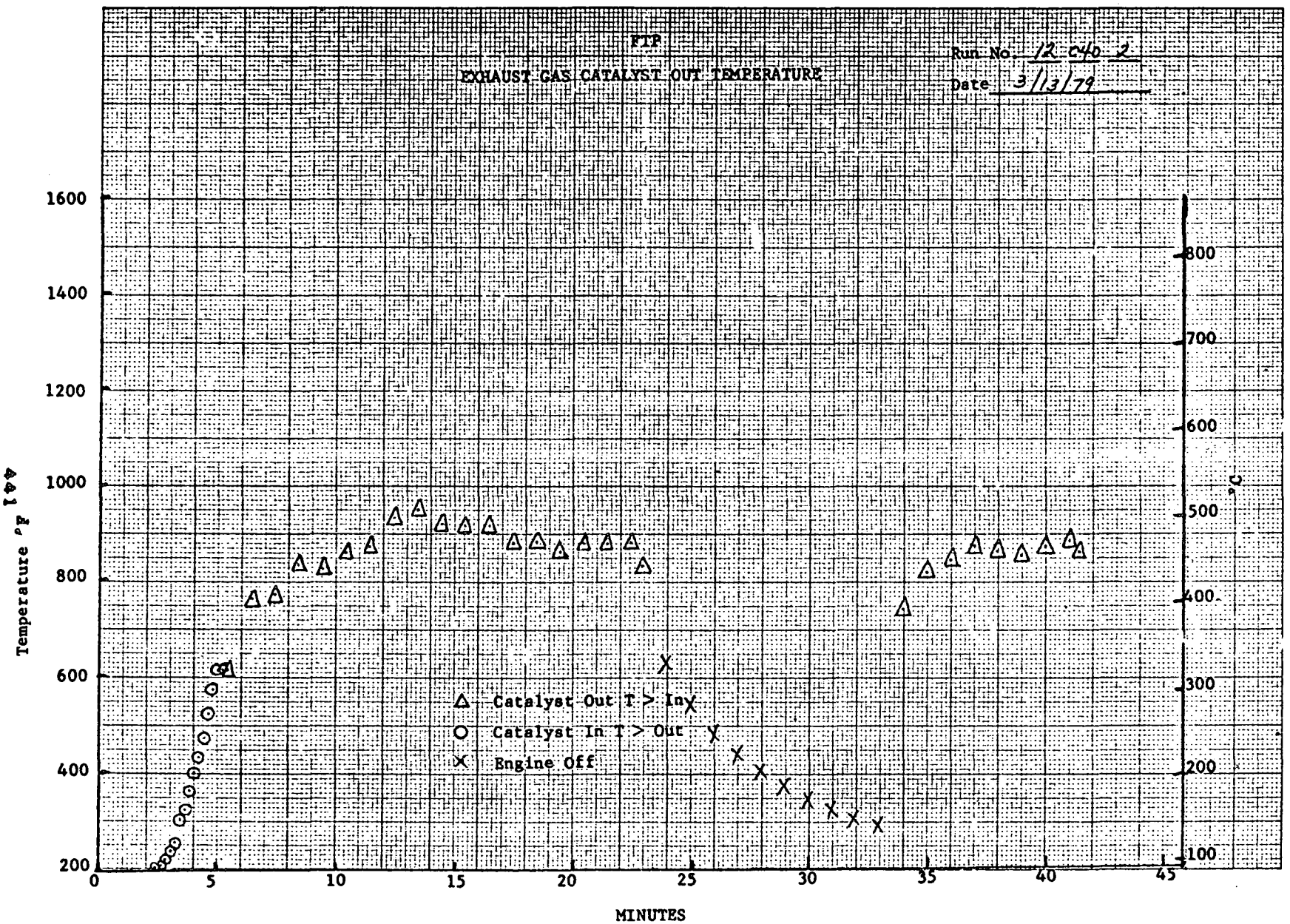
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 c40 2
Date 3/13/79
Temperature °F
°C
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off
1600
1400
1200
1000
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400
200
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700
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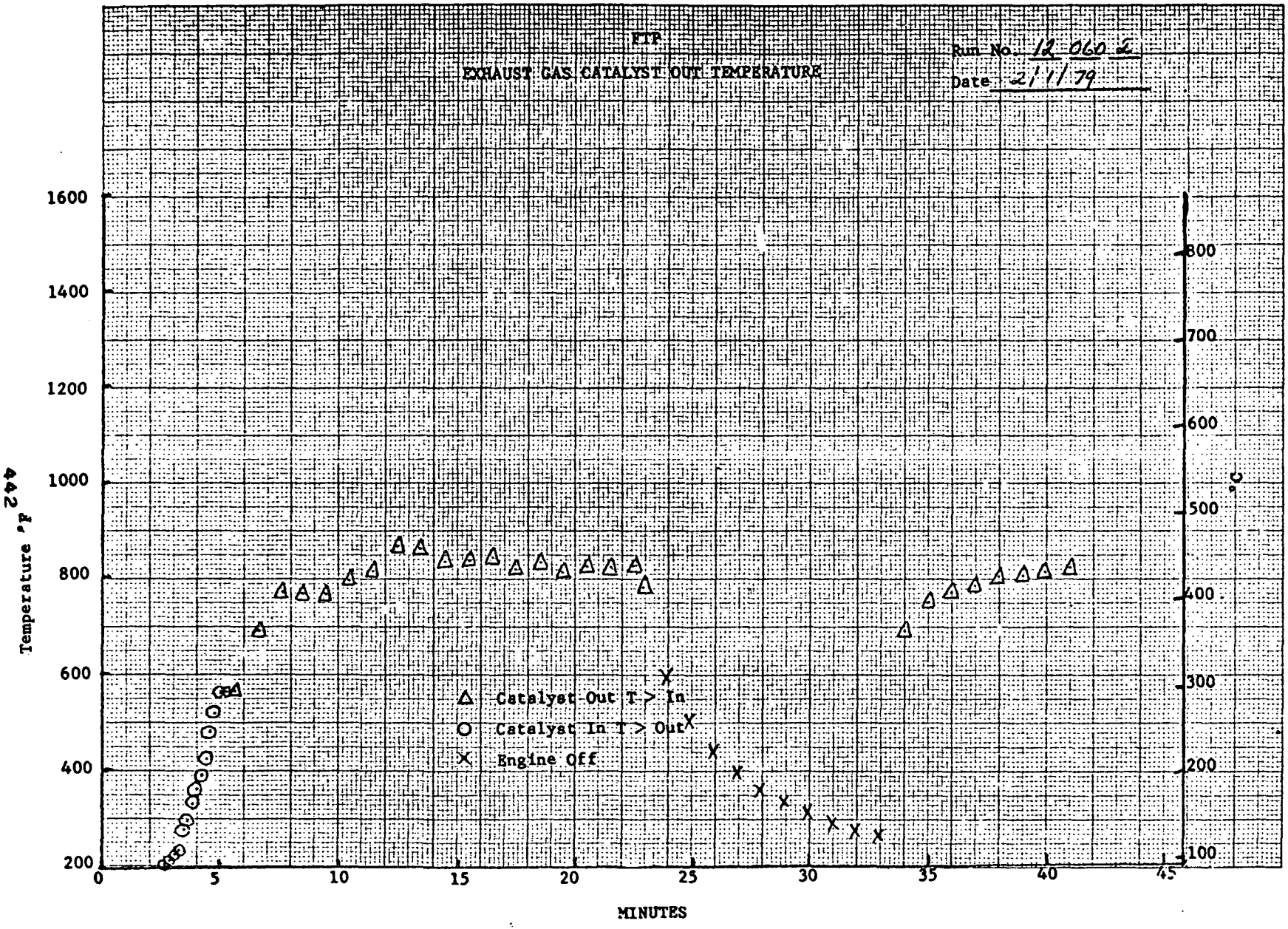
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 060 2
Date 2/1/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
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200
800
700
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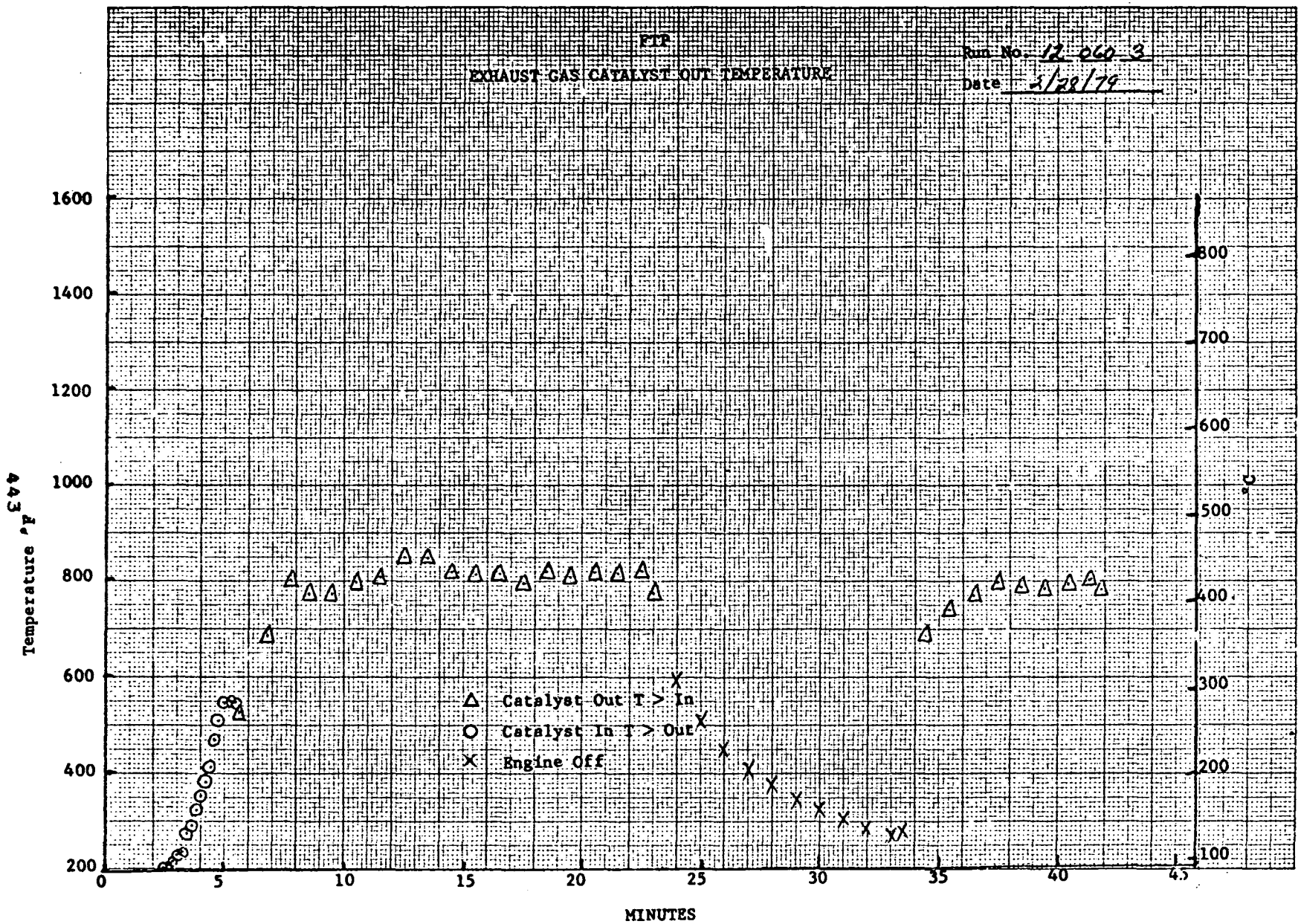
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12-060-3
Date 3/28/79
Temperature, °F
1600
1400
1200
1000
800
600
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700
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°C
0
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20
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30
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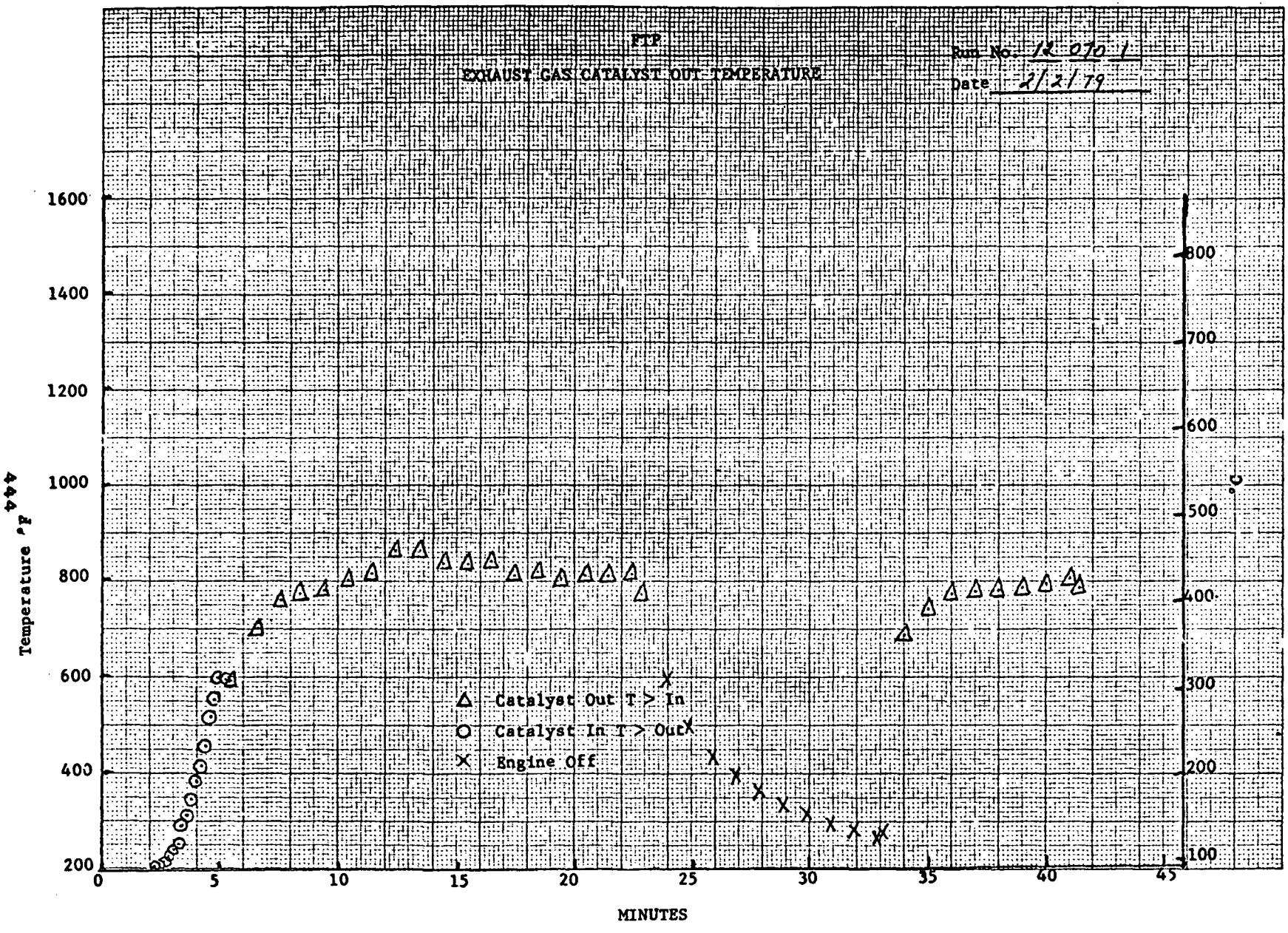
40
45
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off
443


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 070 1
Date 2/21/79
Temperature °F
1600
1400
1200
1000
800
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400
200
800
700
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°C
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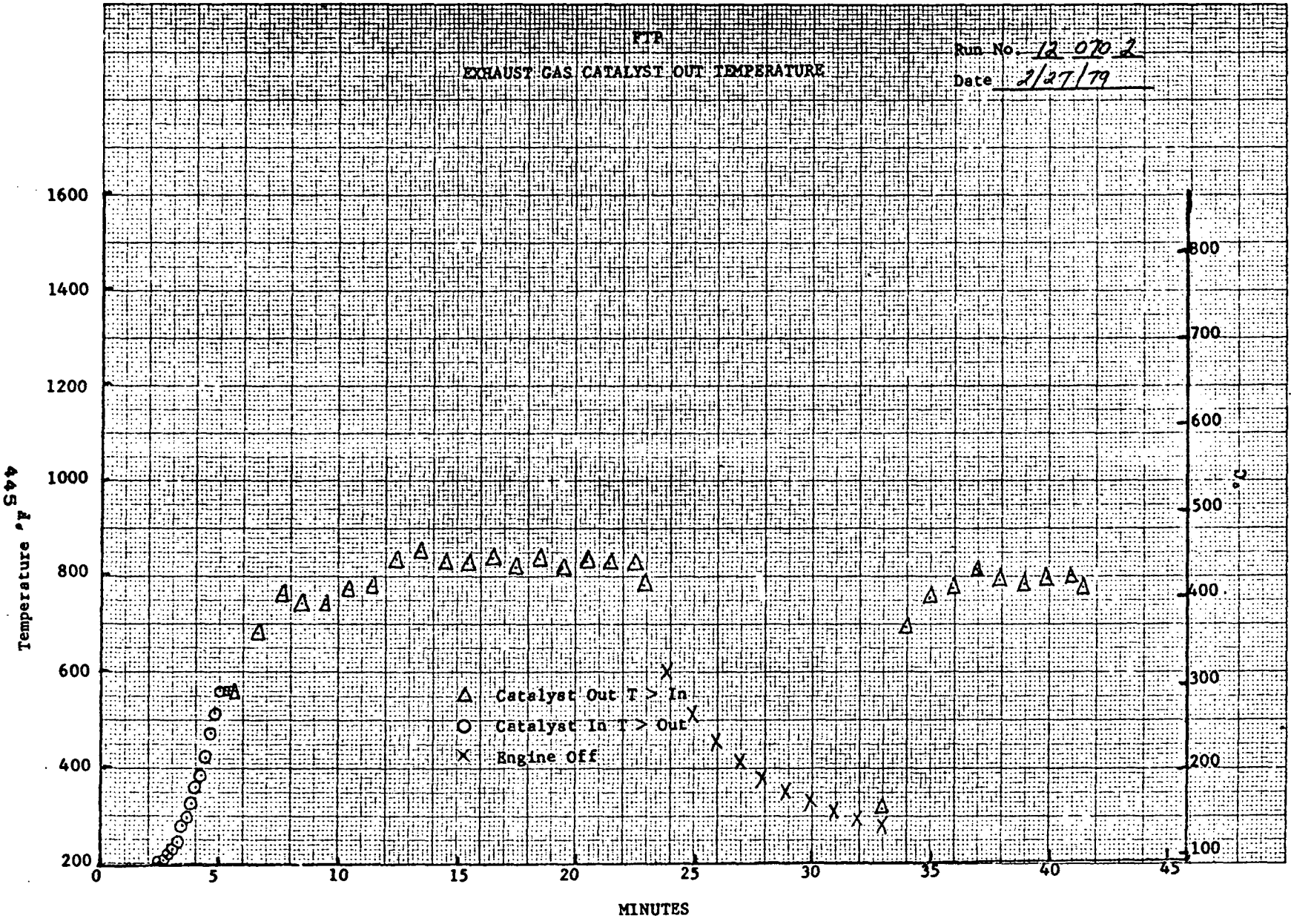
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 070 2
Date 2/27/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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200
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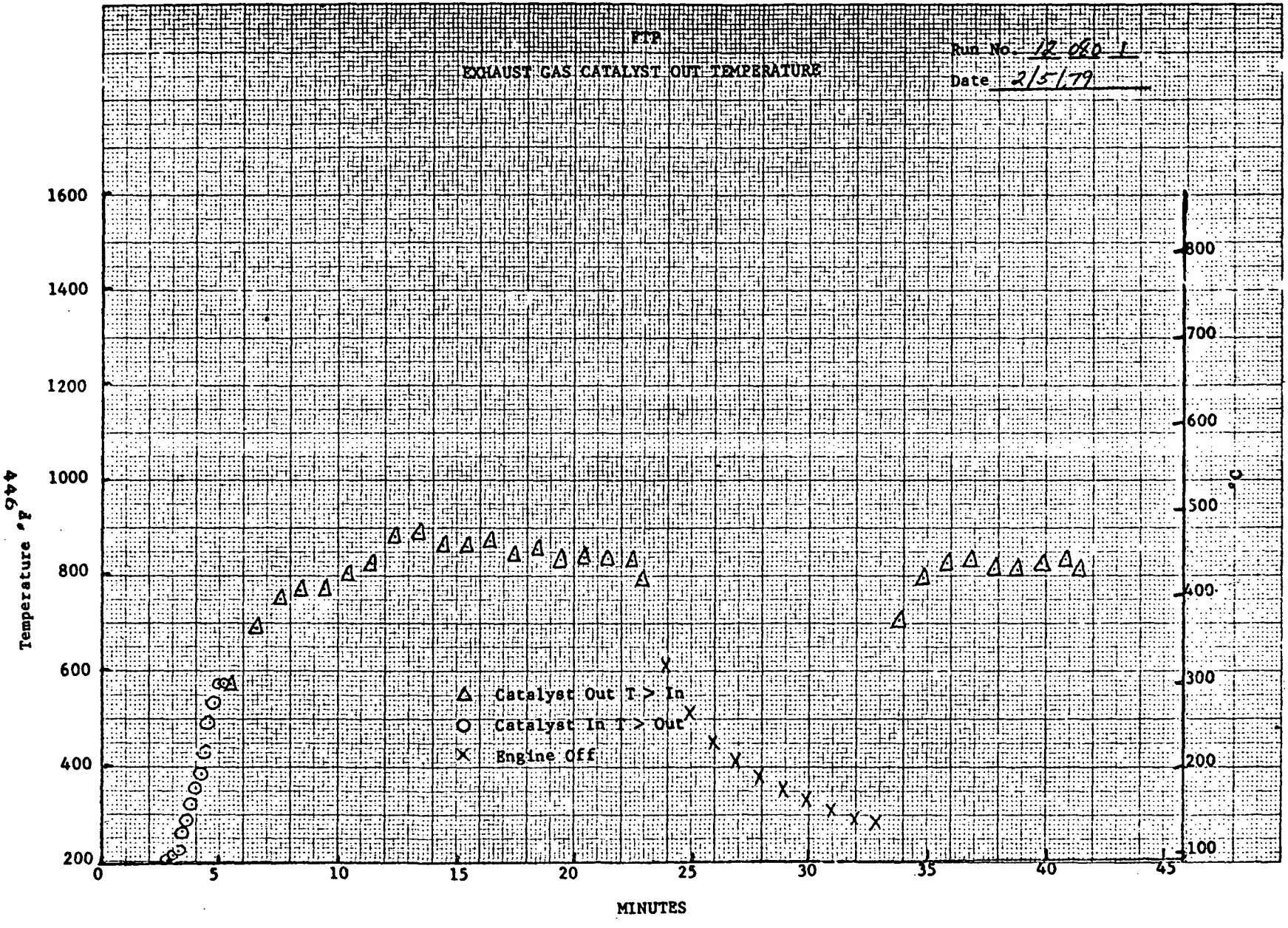
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 080 1
Date 2/5/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
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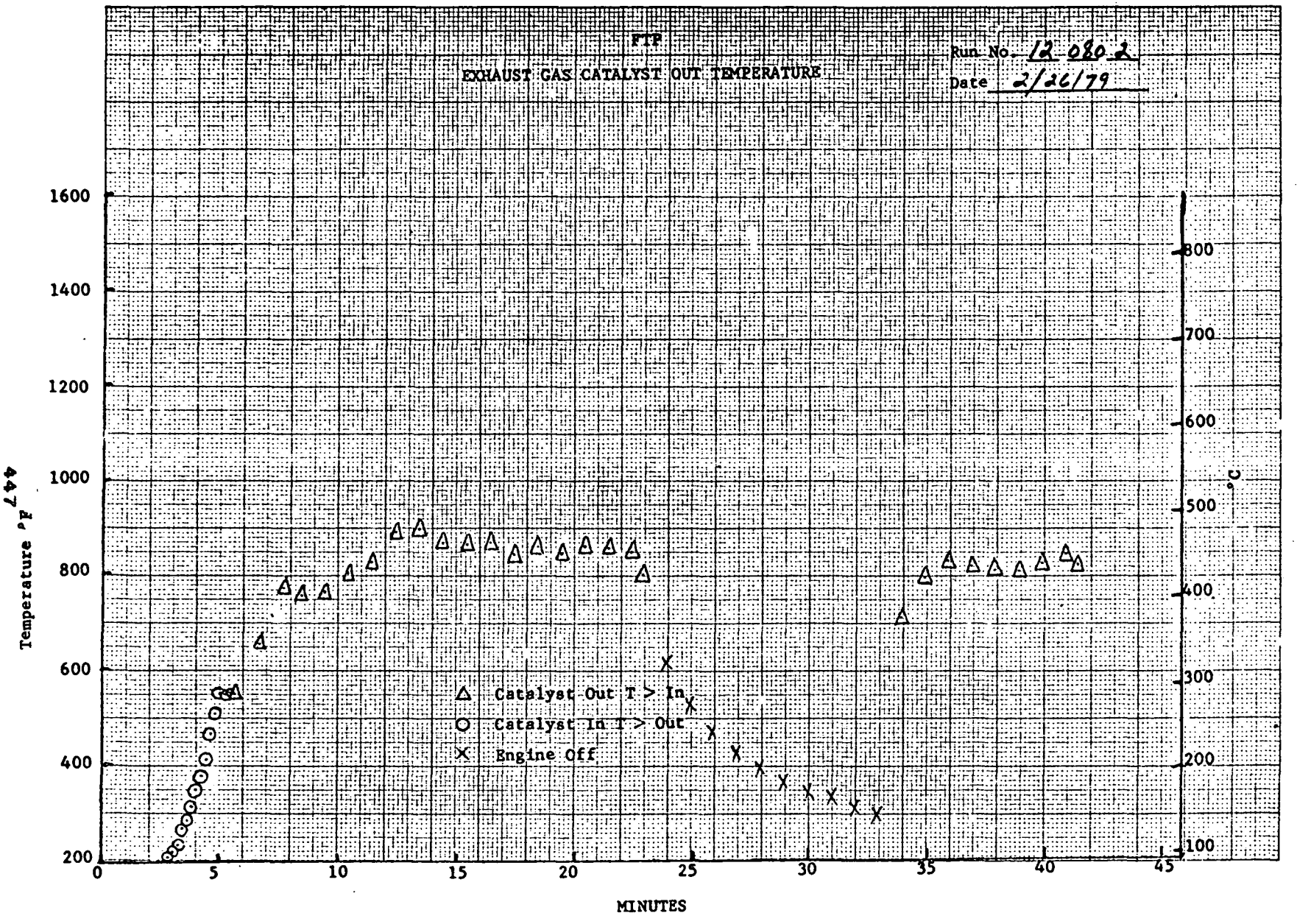
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12-080-2
Date 2/26/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
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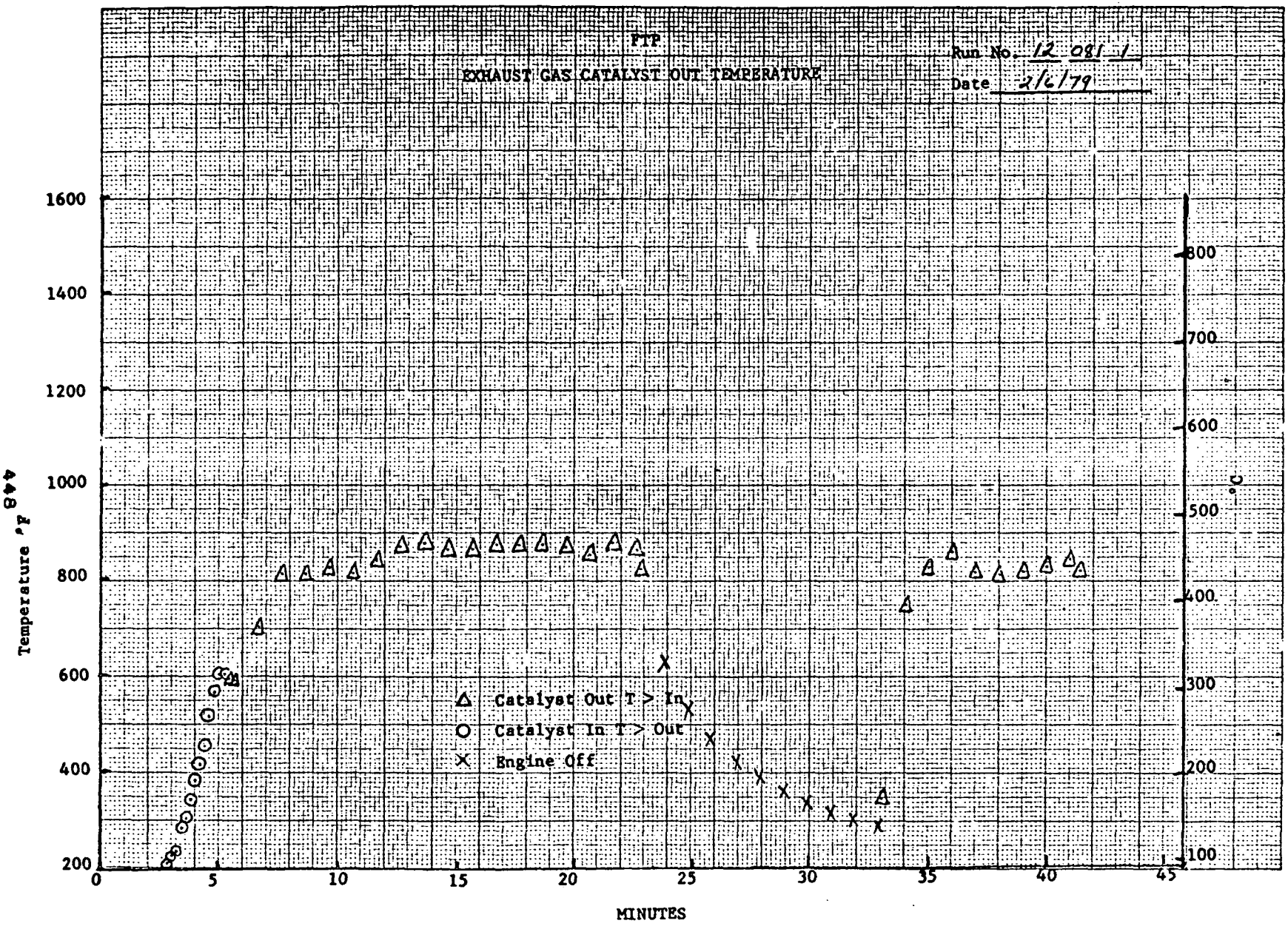
447


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 081 -1
Date 2/6/79
Temperature °F
°C
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off
1600
1400
1200
1000
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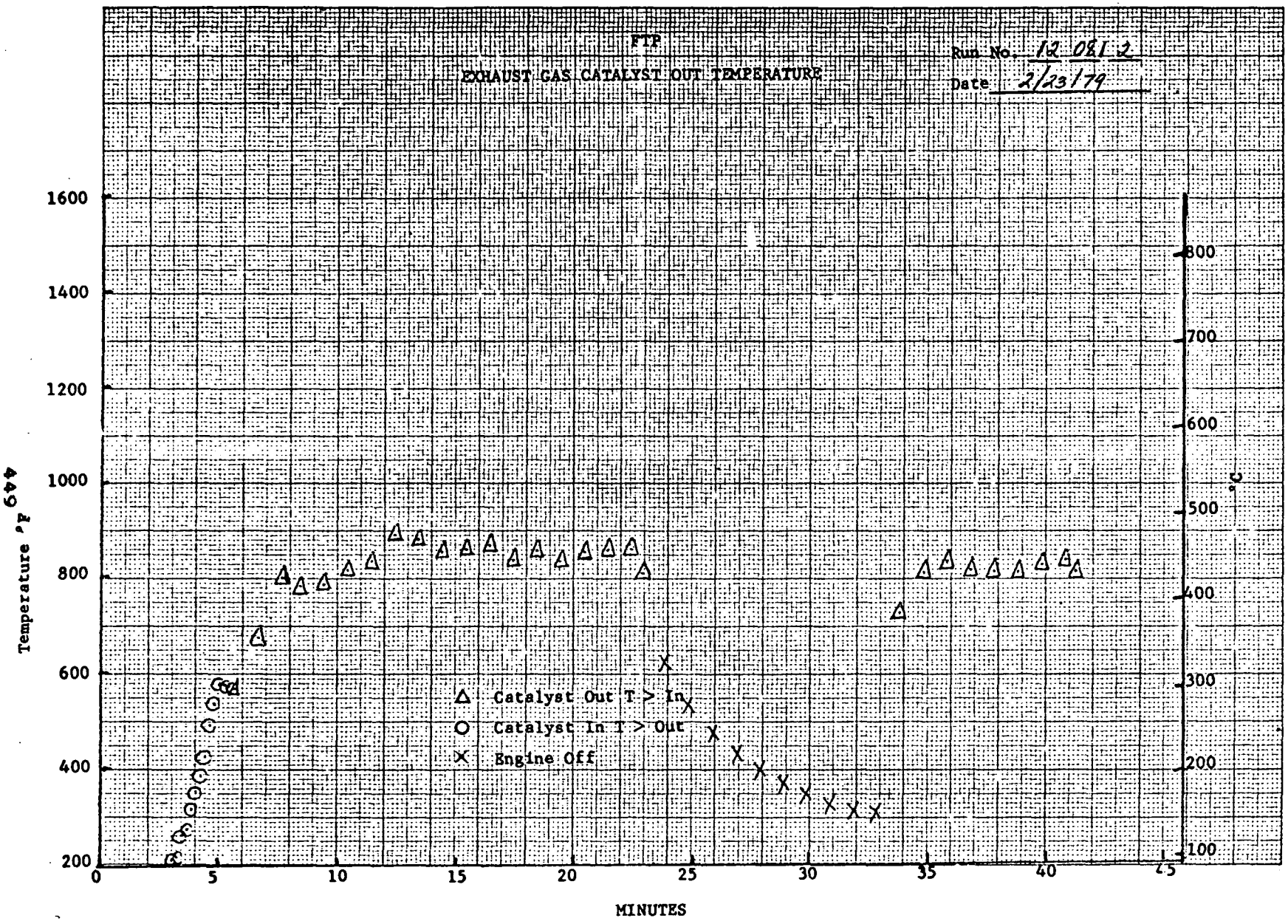
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 081 2
Date 2/23/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
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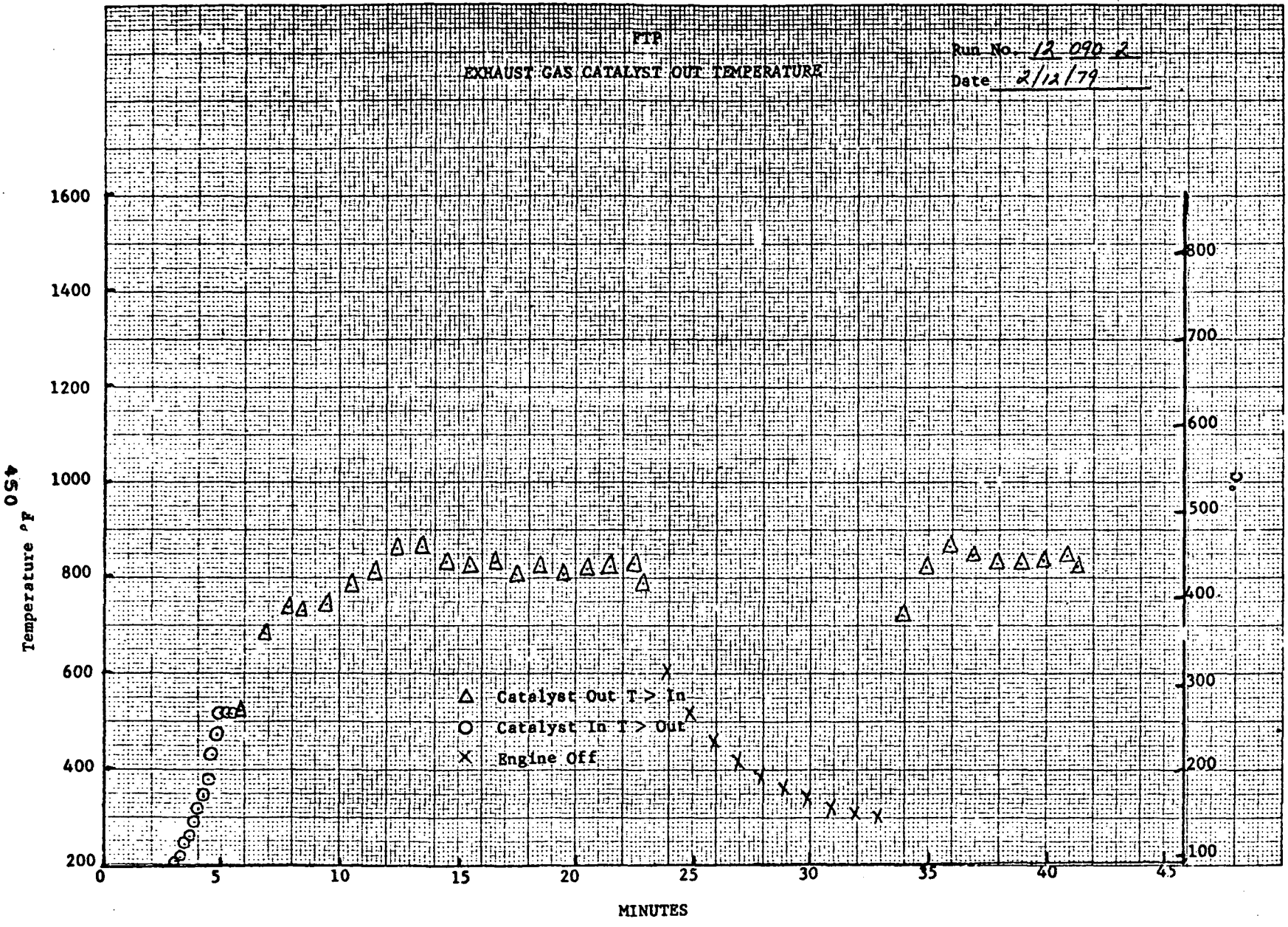
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 090 2
Date 2/12/79
Temperature °F
1600
1400
1200
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600
400
200
800
700
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200
100
°C
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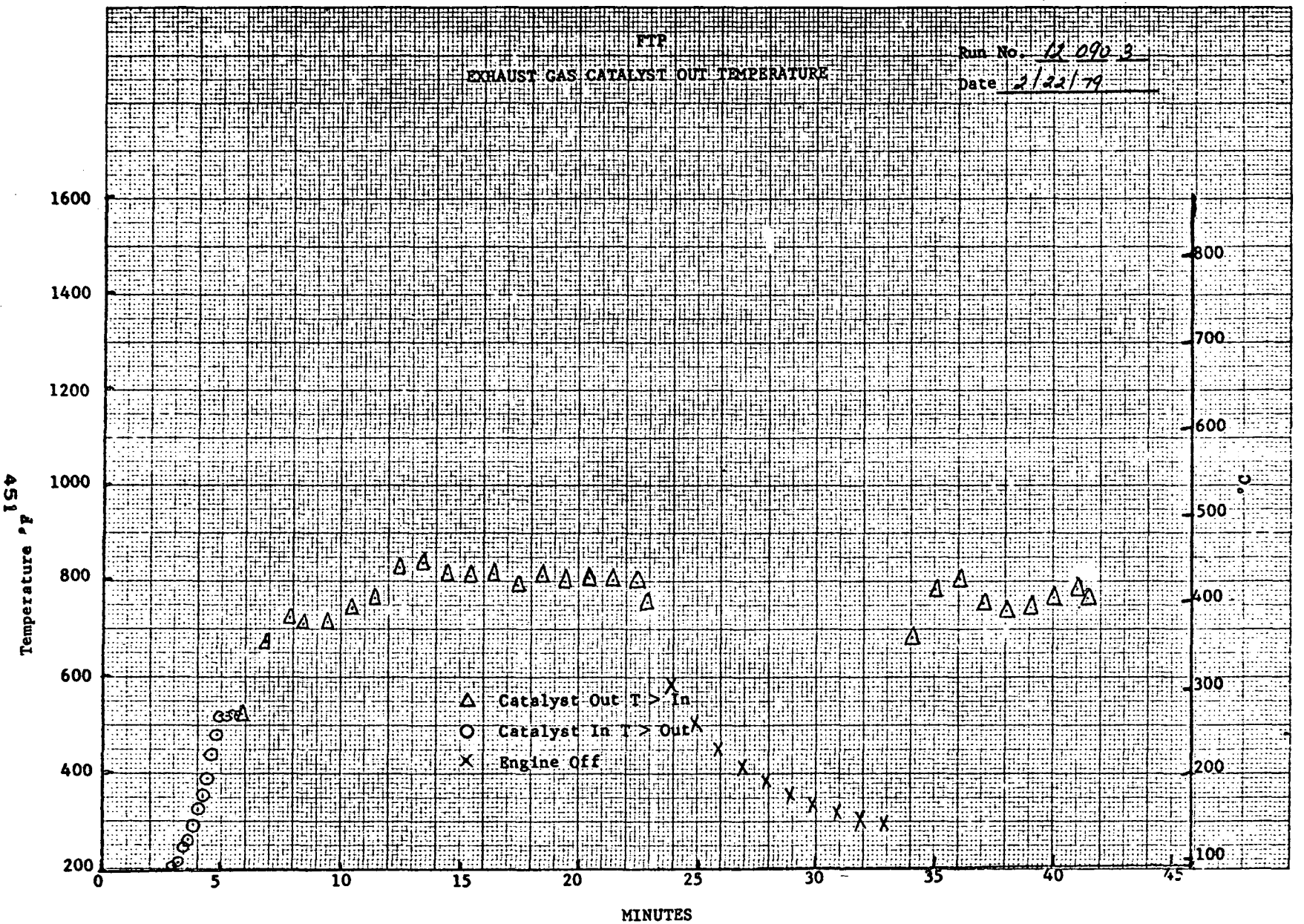
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
450


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 090 3
Date 2/22/79
Temperature °F
°C
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
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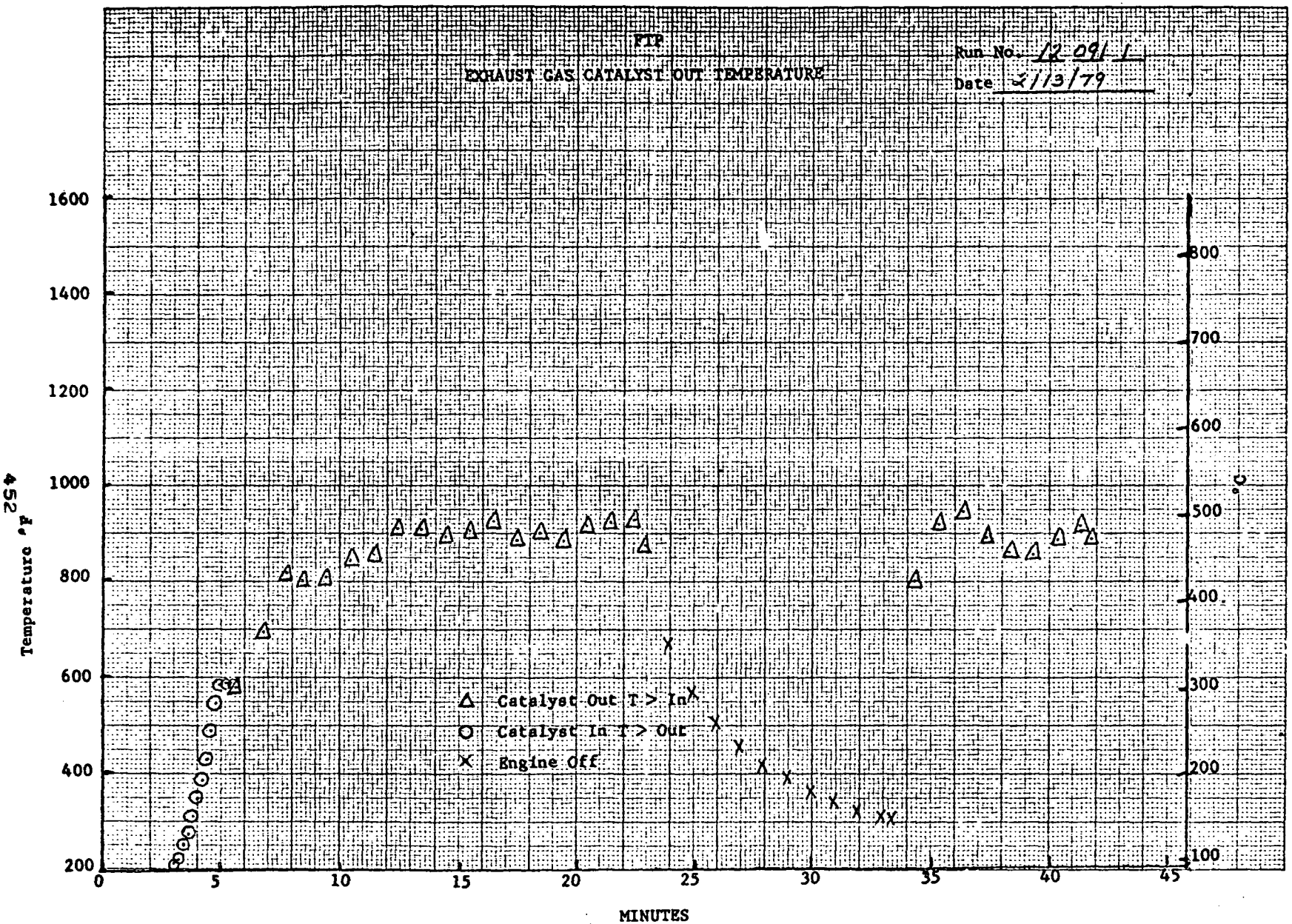
FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 091 1
Date 2/13/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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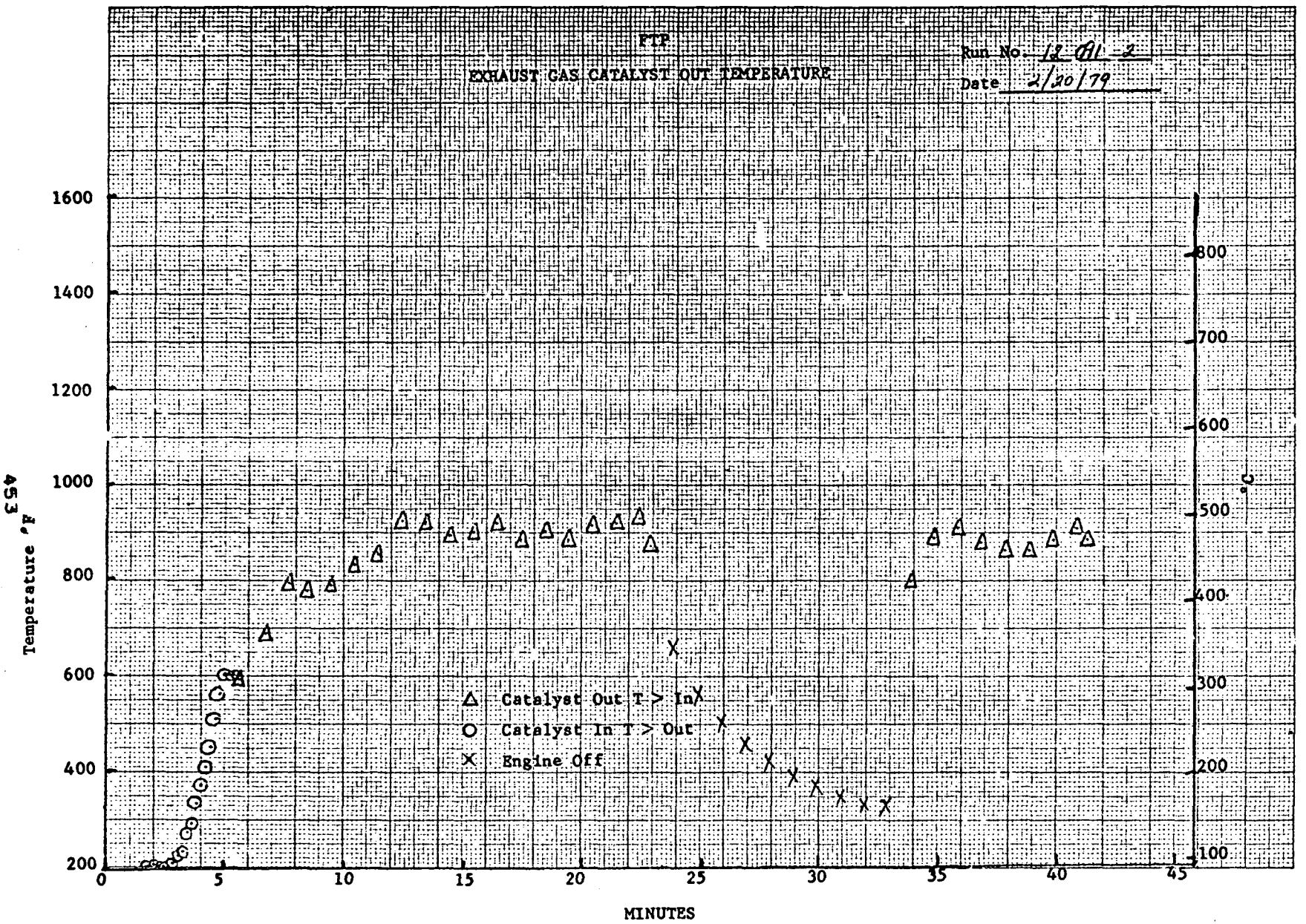
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 A1 -2
Date 2/20/79
Temperature °F
453
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
0
5
10
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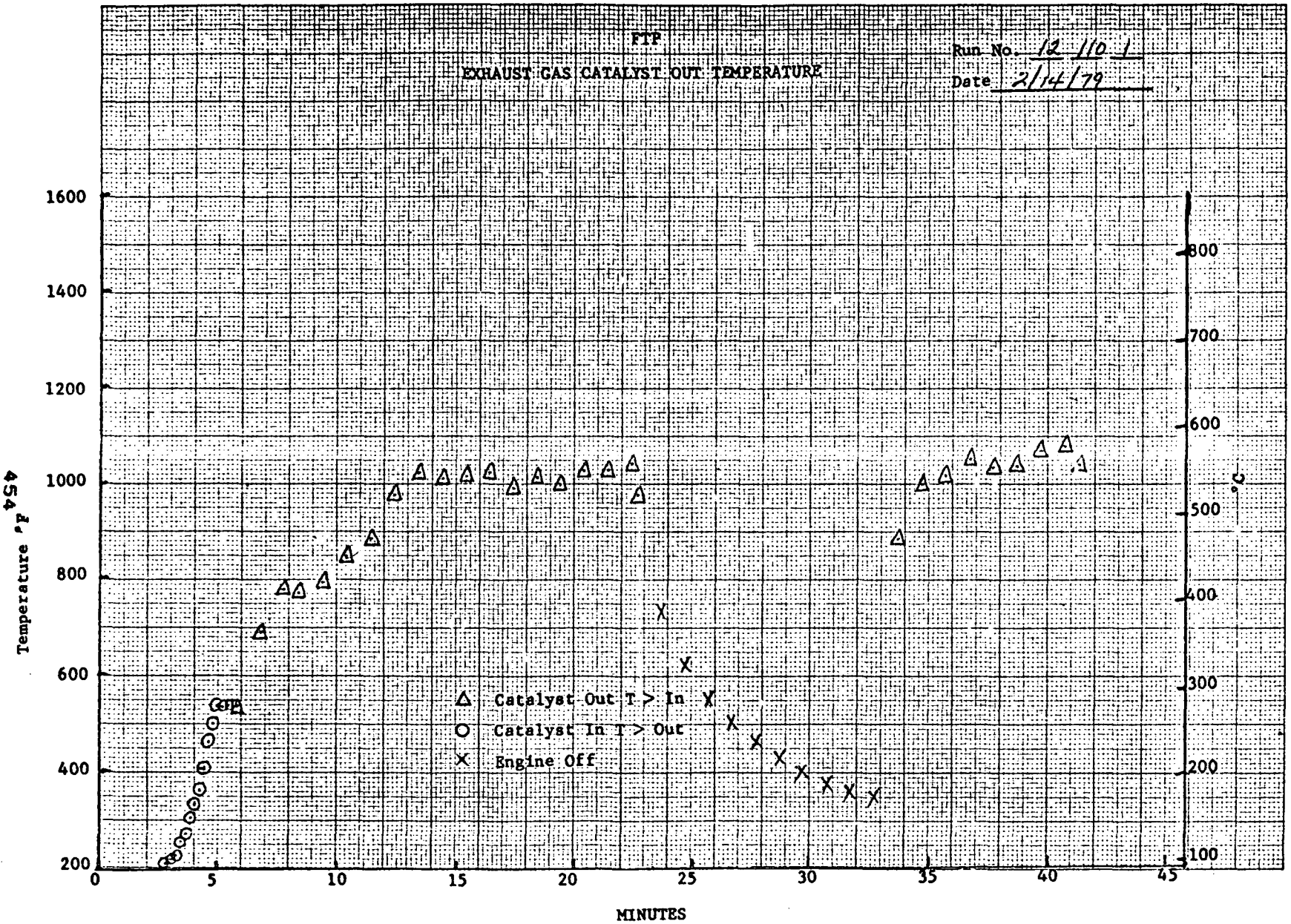
40
45
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 110 1
Date 2/14/79
Temperature °F
454
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
10
15
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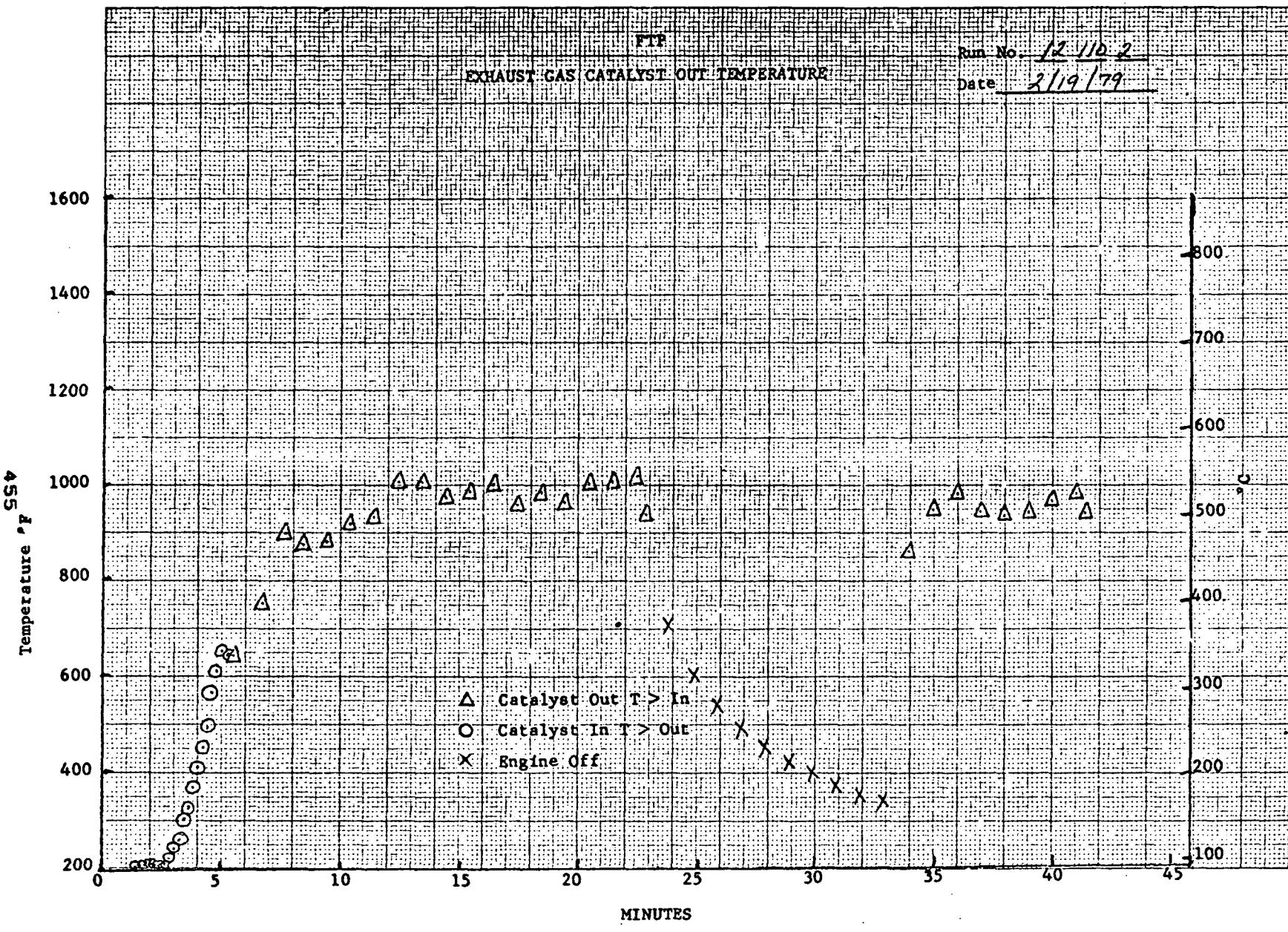
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 110 2
Date 2/19/79
Temperature °F 4SS
1600
1400
1200
1000
800
600
400
200
800
700
600
500
400
300
200
100
°C
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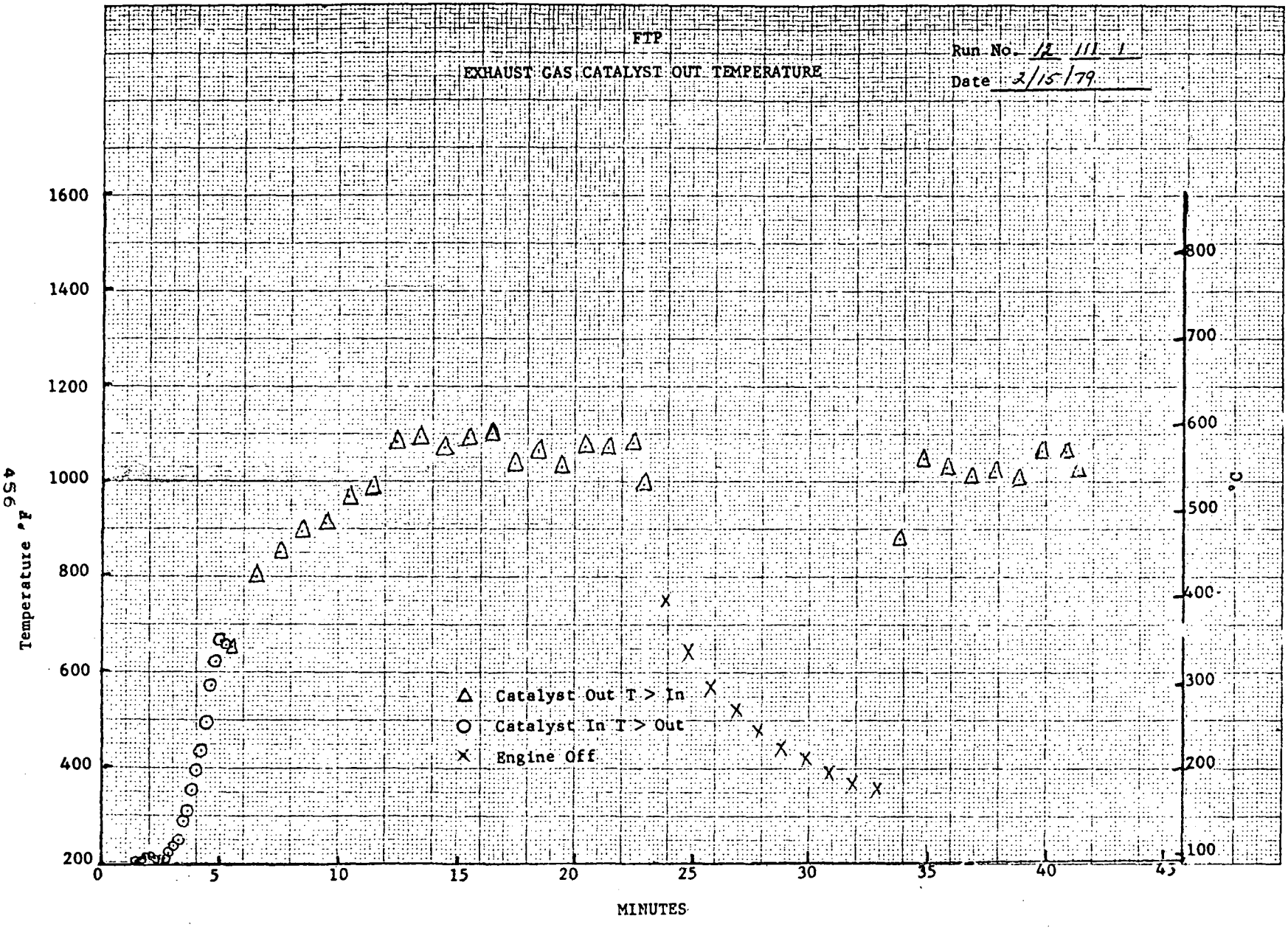
45
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off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Date 2/15/79
Temperature °F
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1400
1200
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700
600
500
400
300
200
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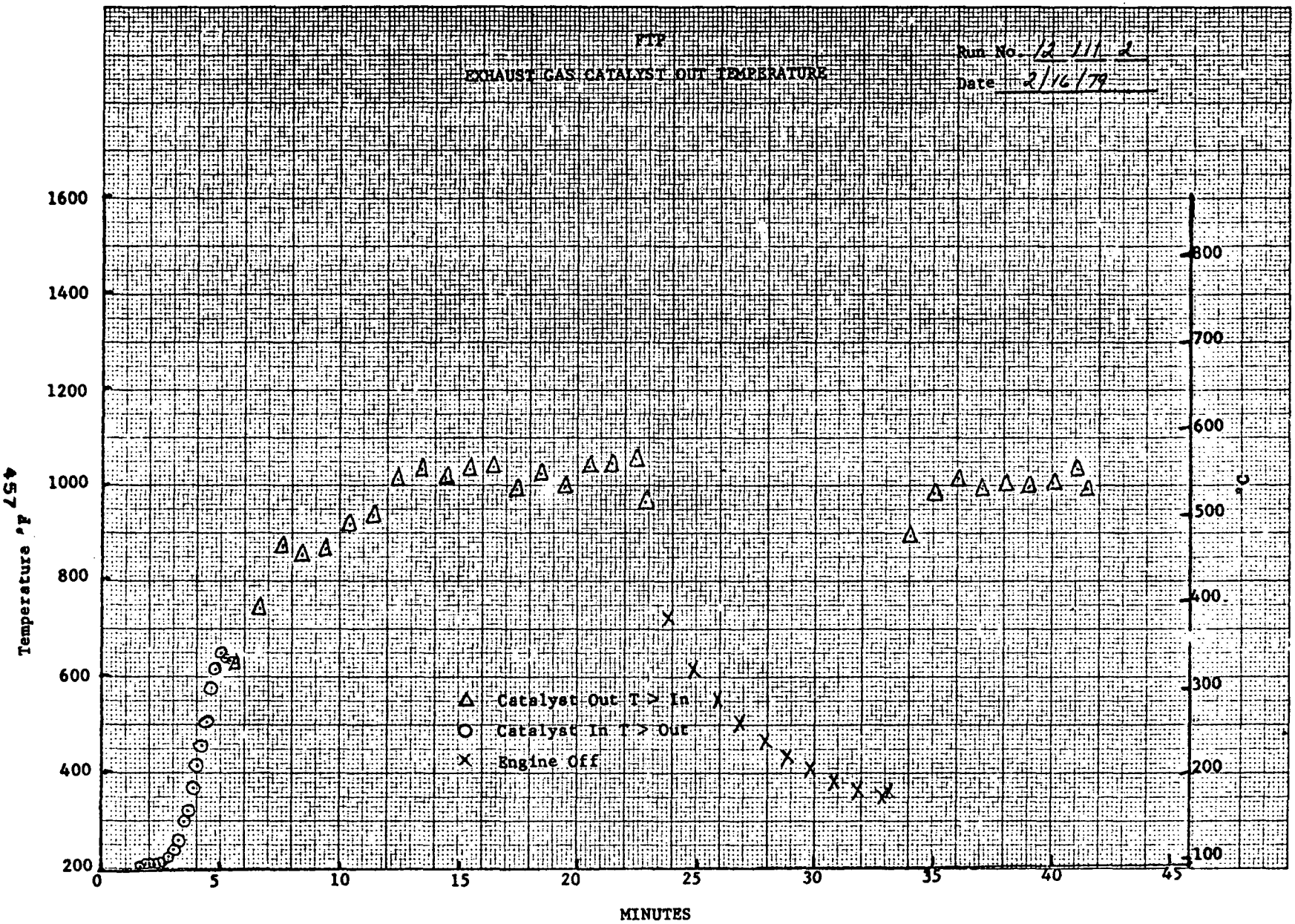
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 12 111 2
Date 2/16/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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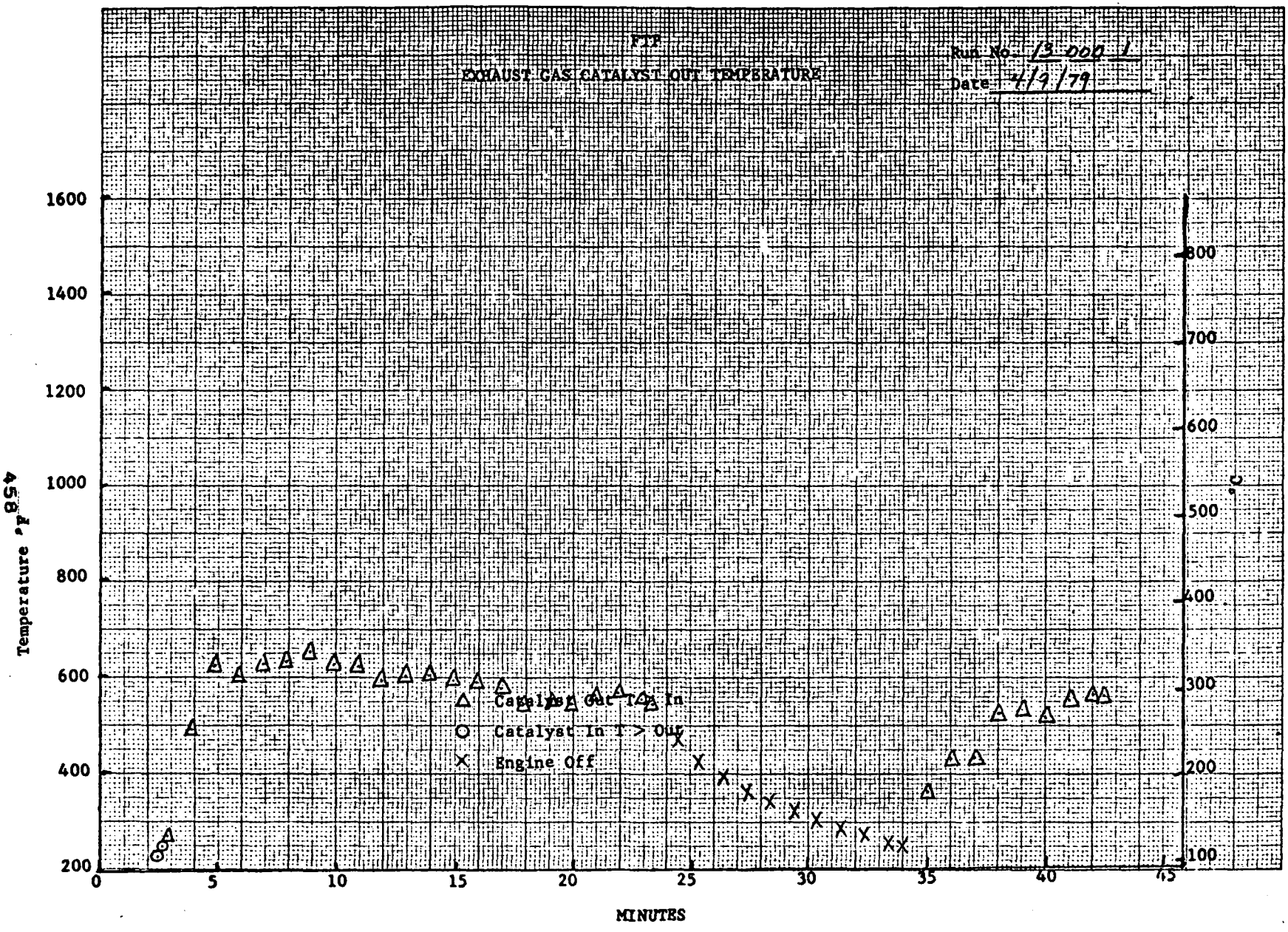
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 000 1
Date 4/9/79
Temperature °F
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1400
1200
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200
°C
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700
600
500
400
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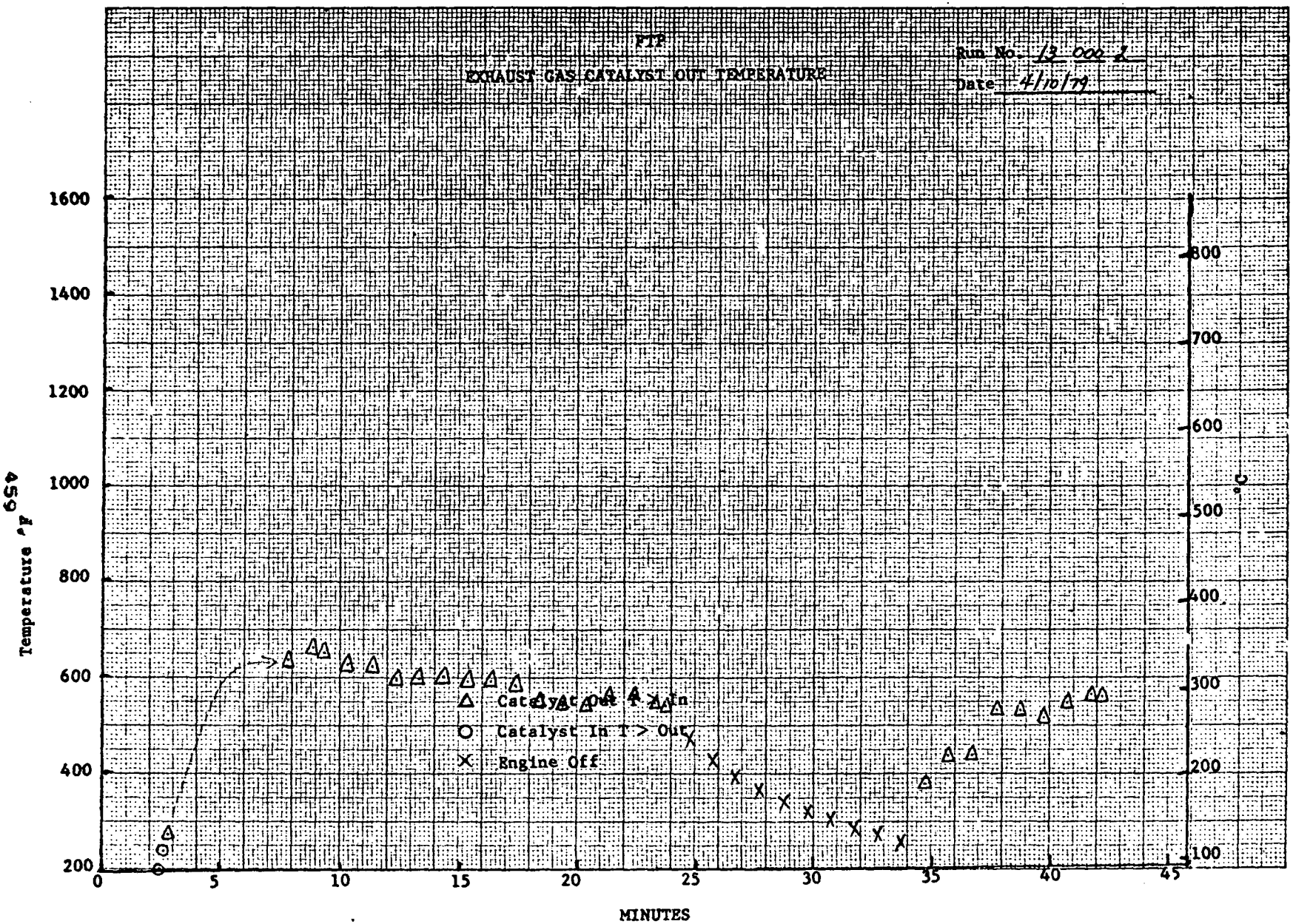
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 000 2
Date 4/10/79
Temperature °F 459
1600
1400
1200
1000
800
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400
200
800
700
600
500
400
300
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°C
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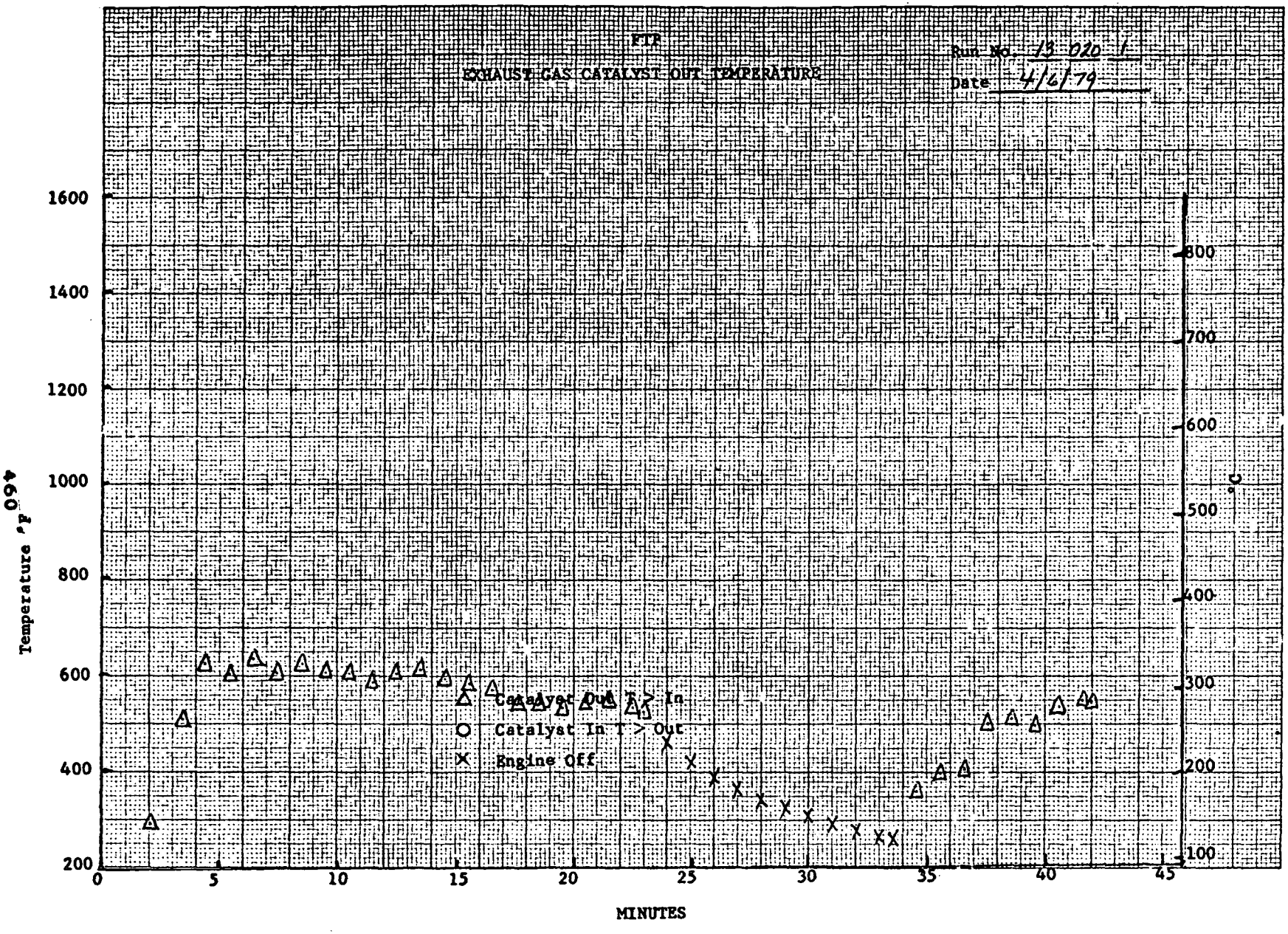
MINUTES
Catalyst Out
Catalyst In T > Out
Engine Off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Run No. 13 020 1
Date 4/6/79
Temperature °F 904
1600
1400
1200
1000
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200
800
700
600
500
400
300
200
100
°C
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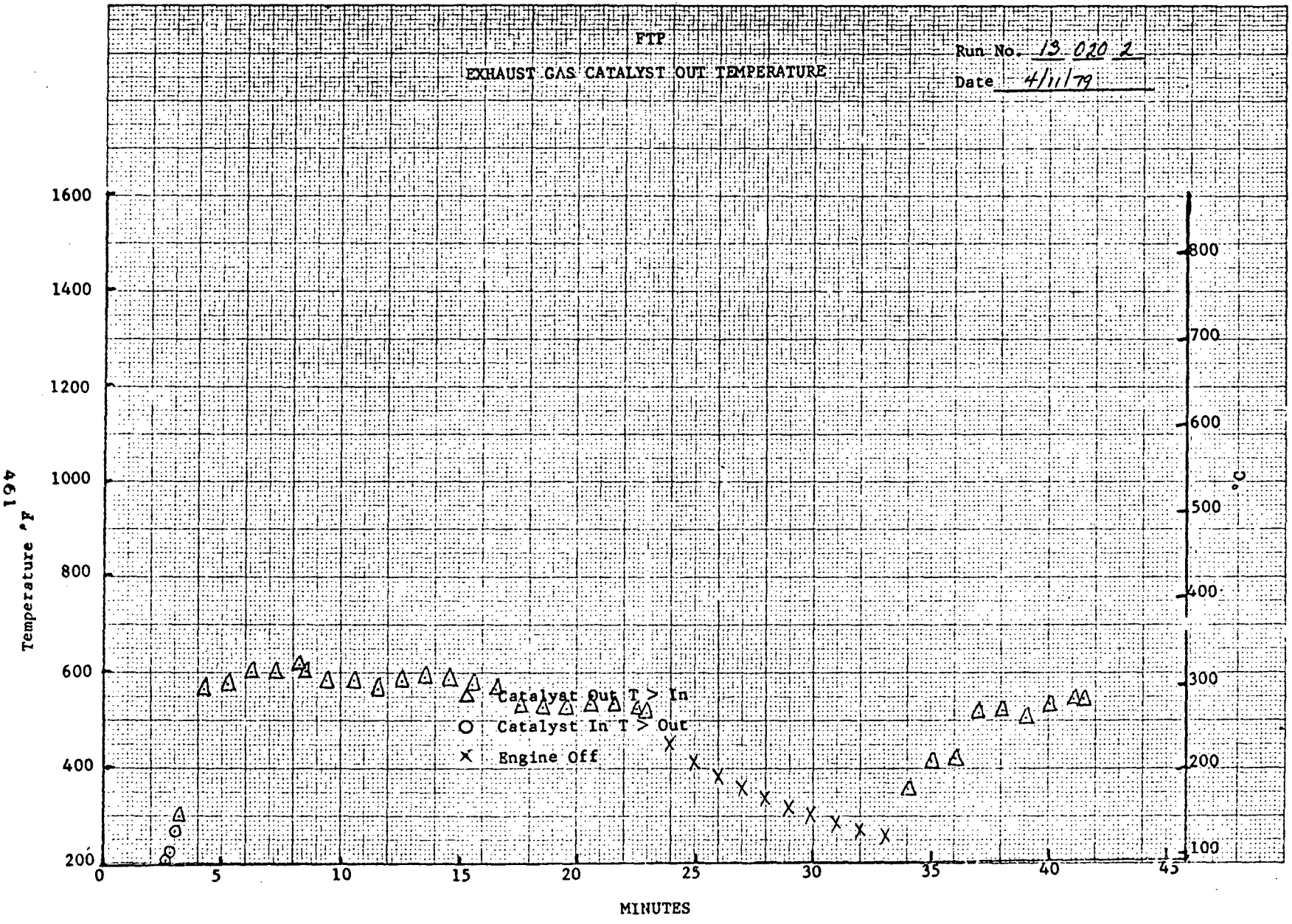
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 020 2
Date 4/11/79
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
0
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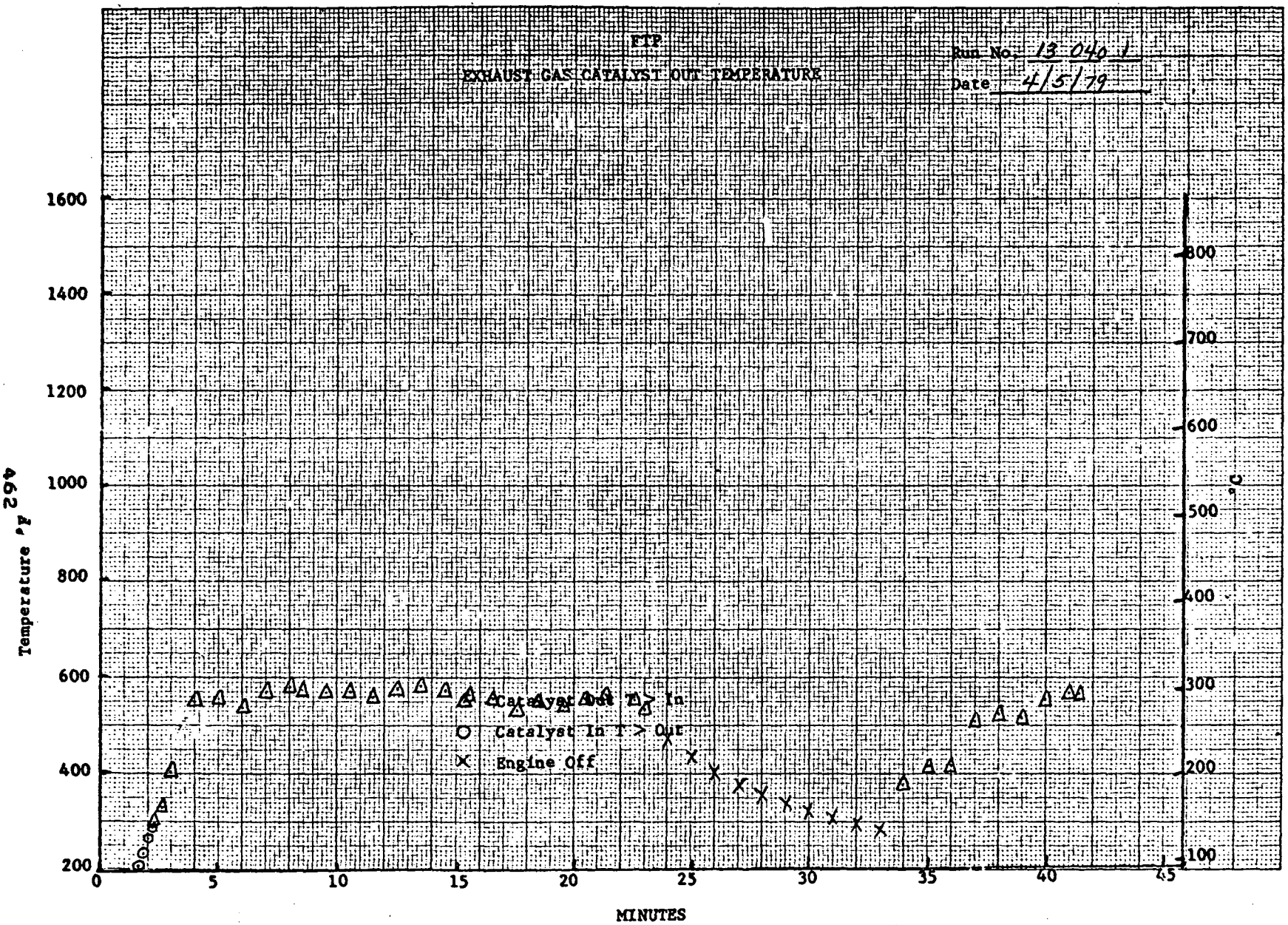
40
45
MINUTES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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 040 1
Date 4/5/79
Temperature, °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
Catalyst Out T > In
Catalyst In T > Out
Engine Off
0
5
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20
25
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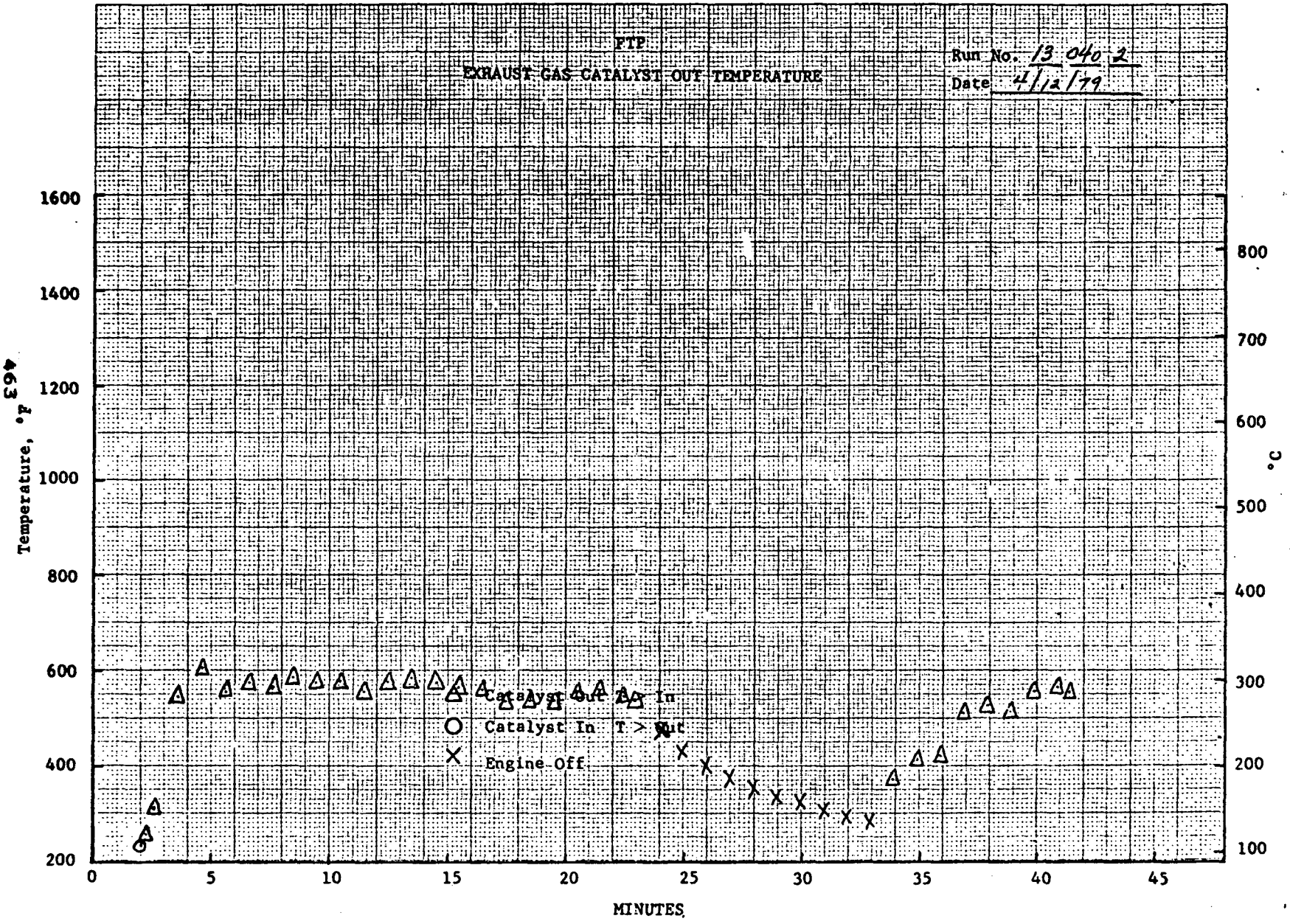
35
40
45
MINUTES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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 040 2
Date 4/12/79
Temperature, °F
°C
1600
1400
1200
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800
600
400
200
800
700
600
500
400
300
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100
0
5
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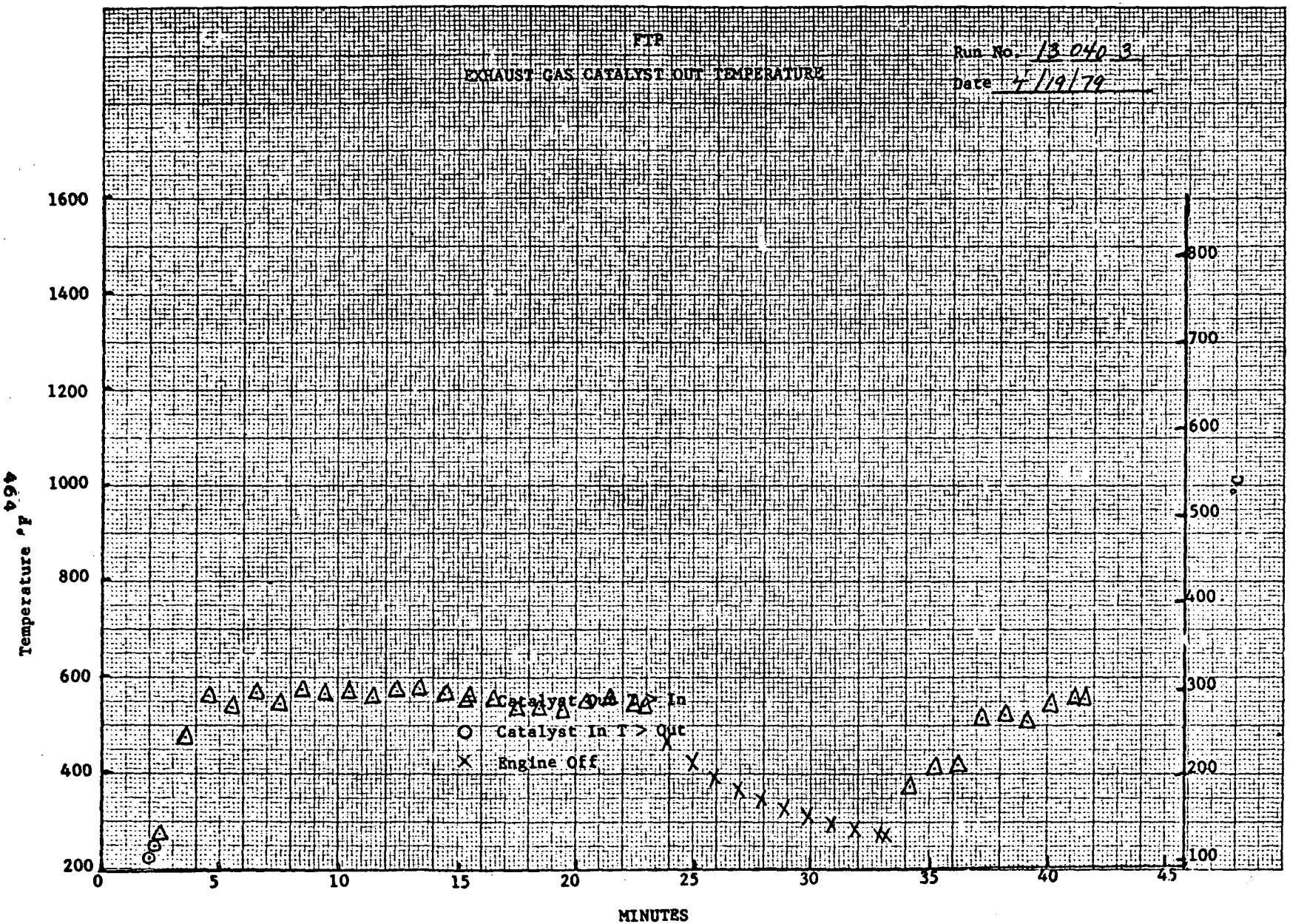
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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Run No. 13 040 3
Date 7/19/79
Temperature, °F
1600
1400
1200
1000
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400
200
800
700
600
500
400
300
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100
°C
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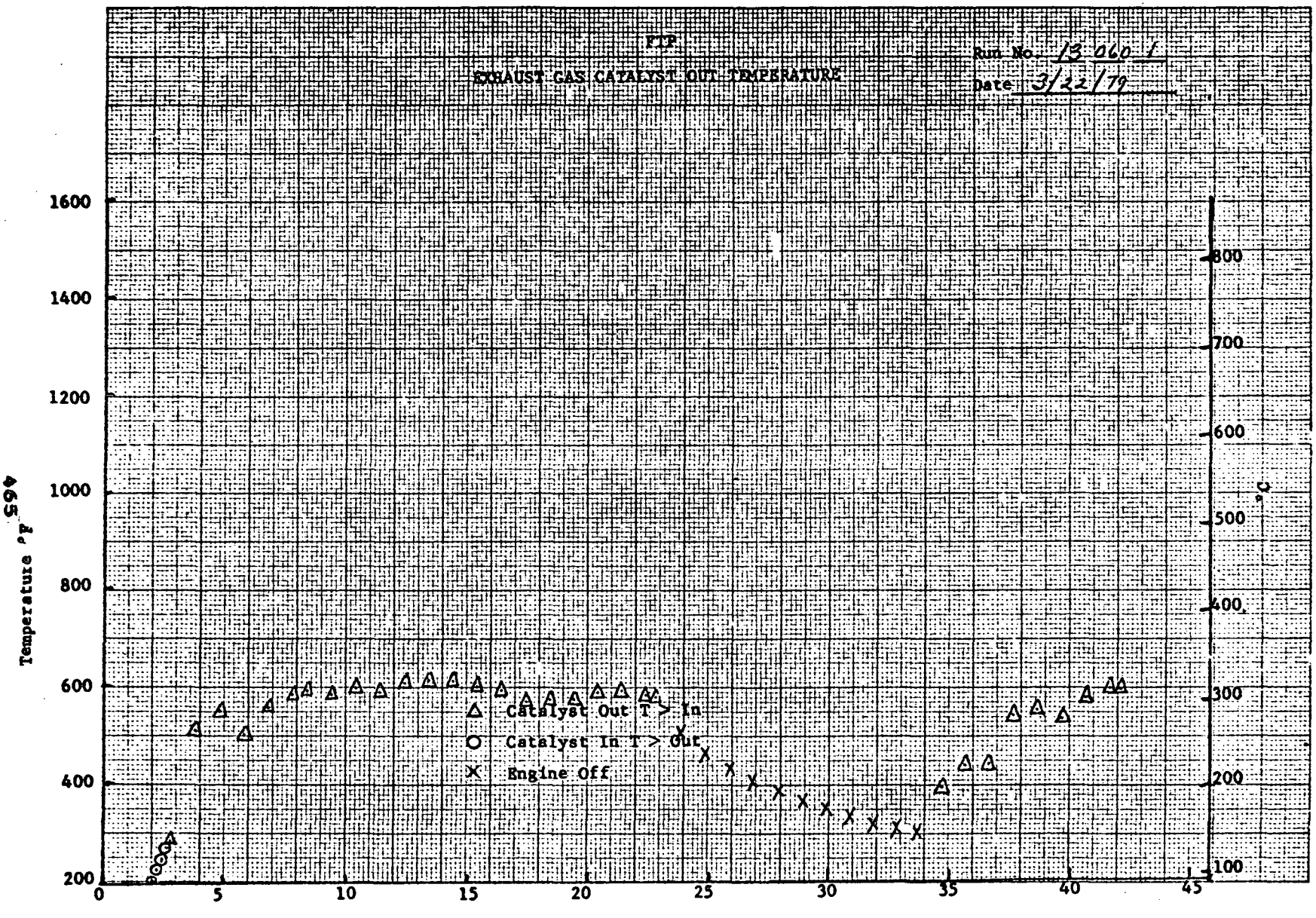
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 060 1
Date 3/22/79
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
200
100
0
5
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20
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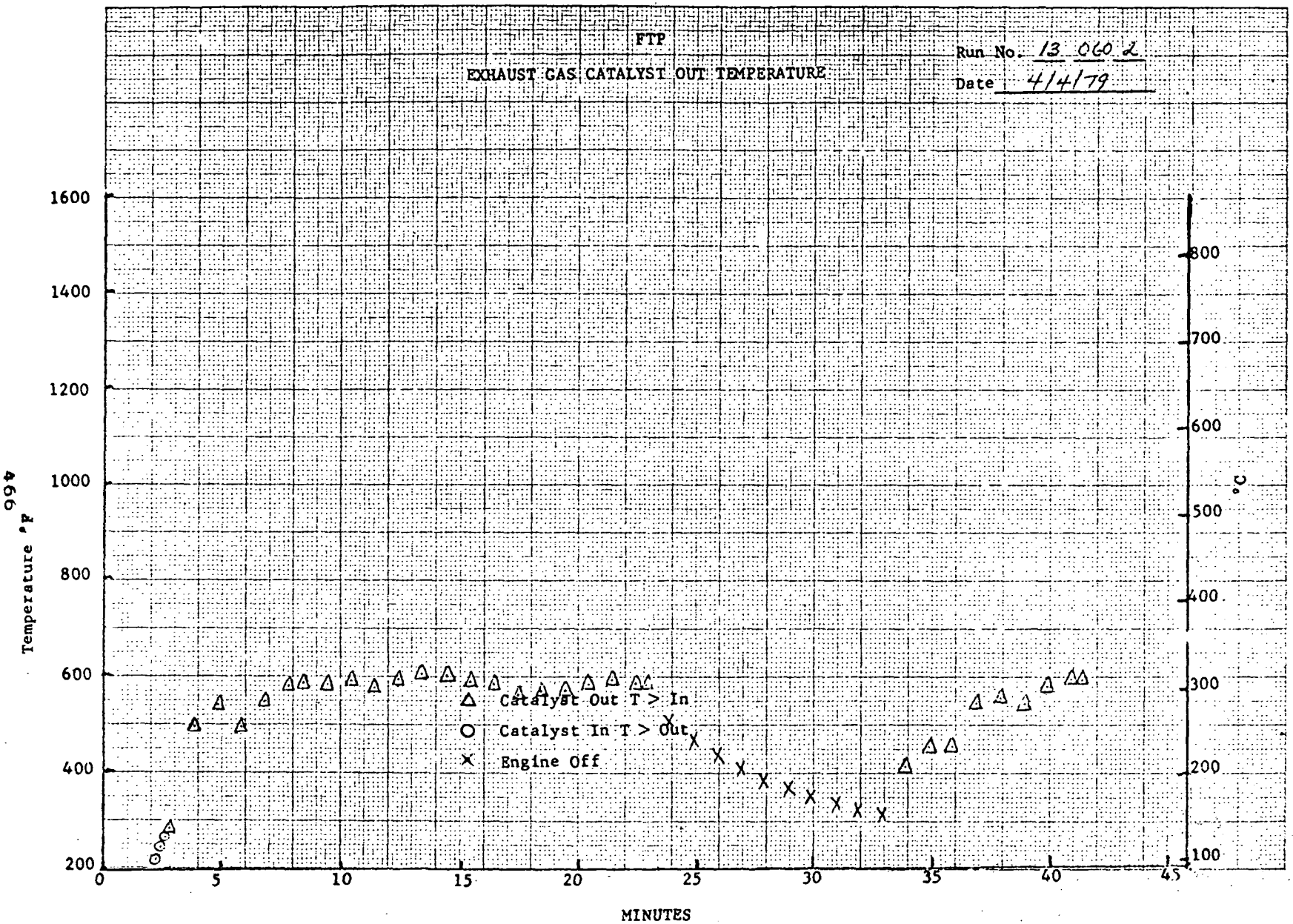
35
40
45
MINUTES
Δ Catalyst Out T > In
○ Catalyst In T > Out
× Engine Off
494
465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Run No. 13 060 2
Date 4/4/79
Temperature °F
1600
1400
1200
1000
800
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400
200
°C
800
700
600
500
400
300
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15
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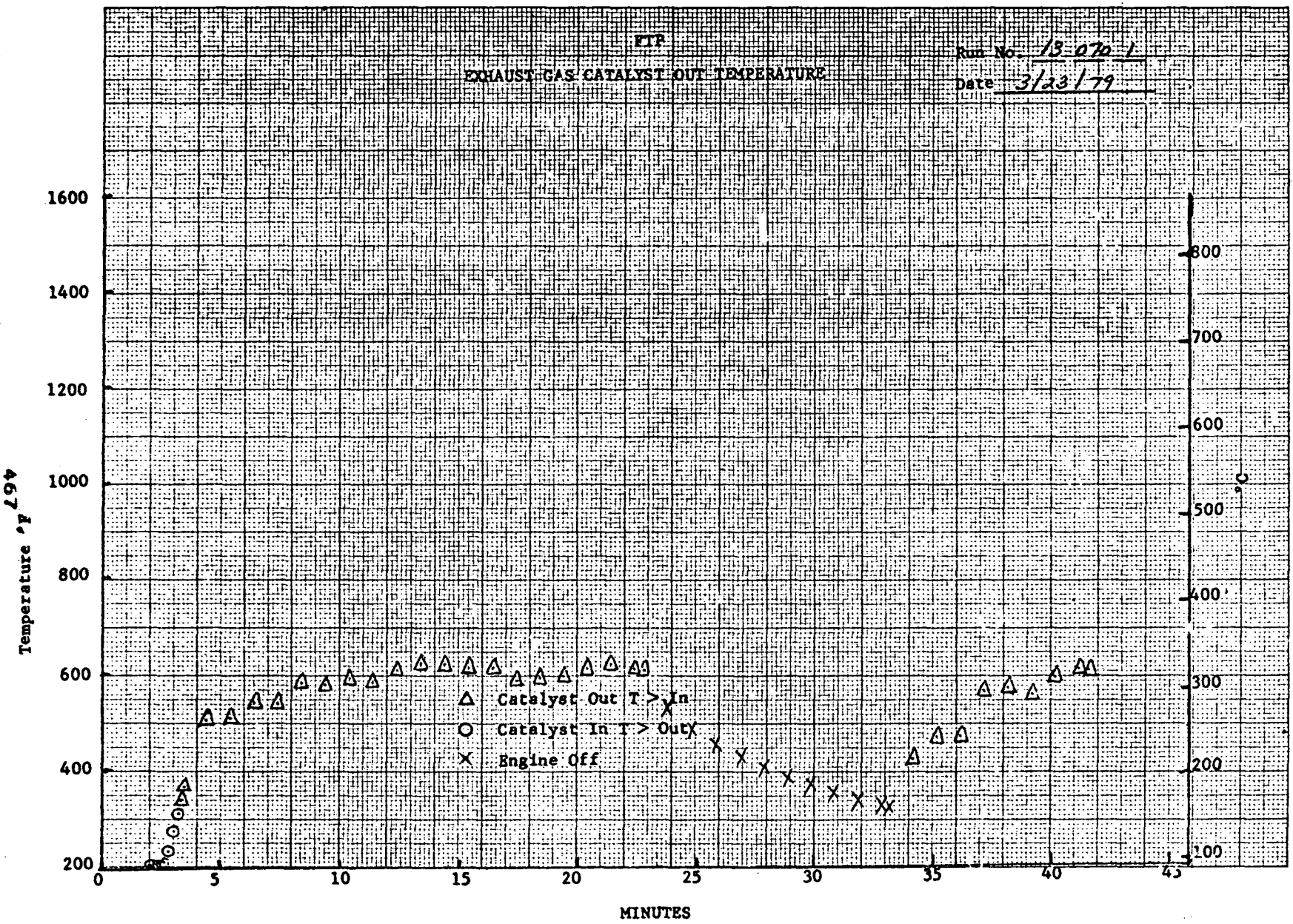
40
45
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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Run No. 13-070-1
Date 3/23/79
Temperature °F
1600
1400
1200
1000
800
600
400
200
°C
800
700
600
500
400
300
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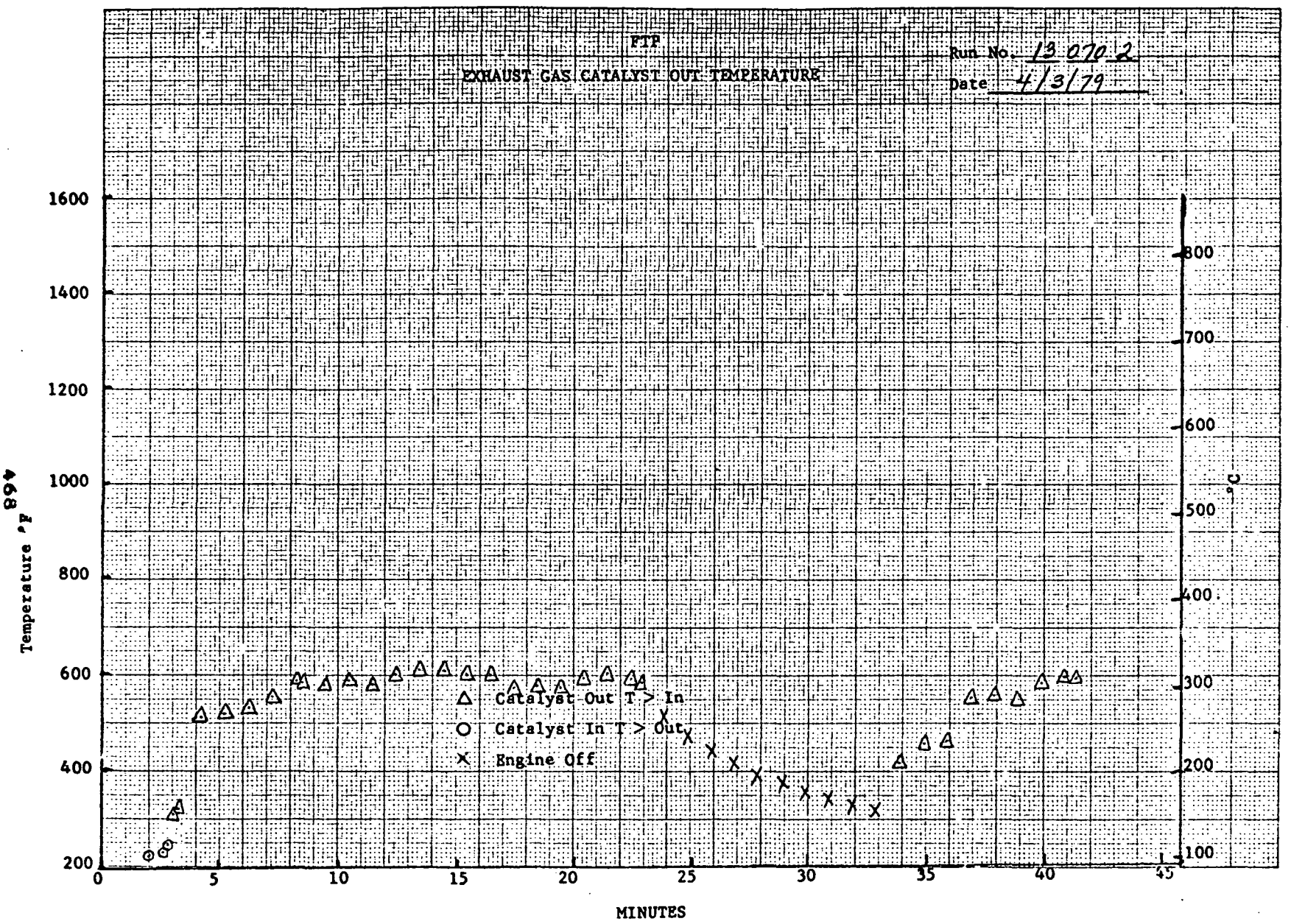
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 070 2
Date 4/3/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
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700
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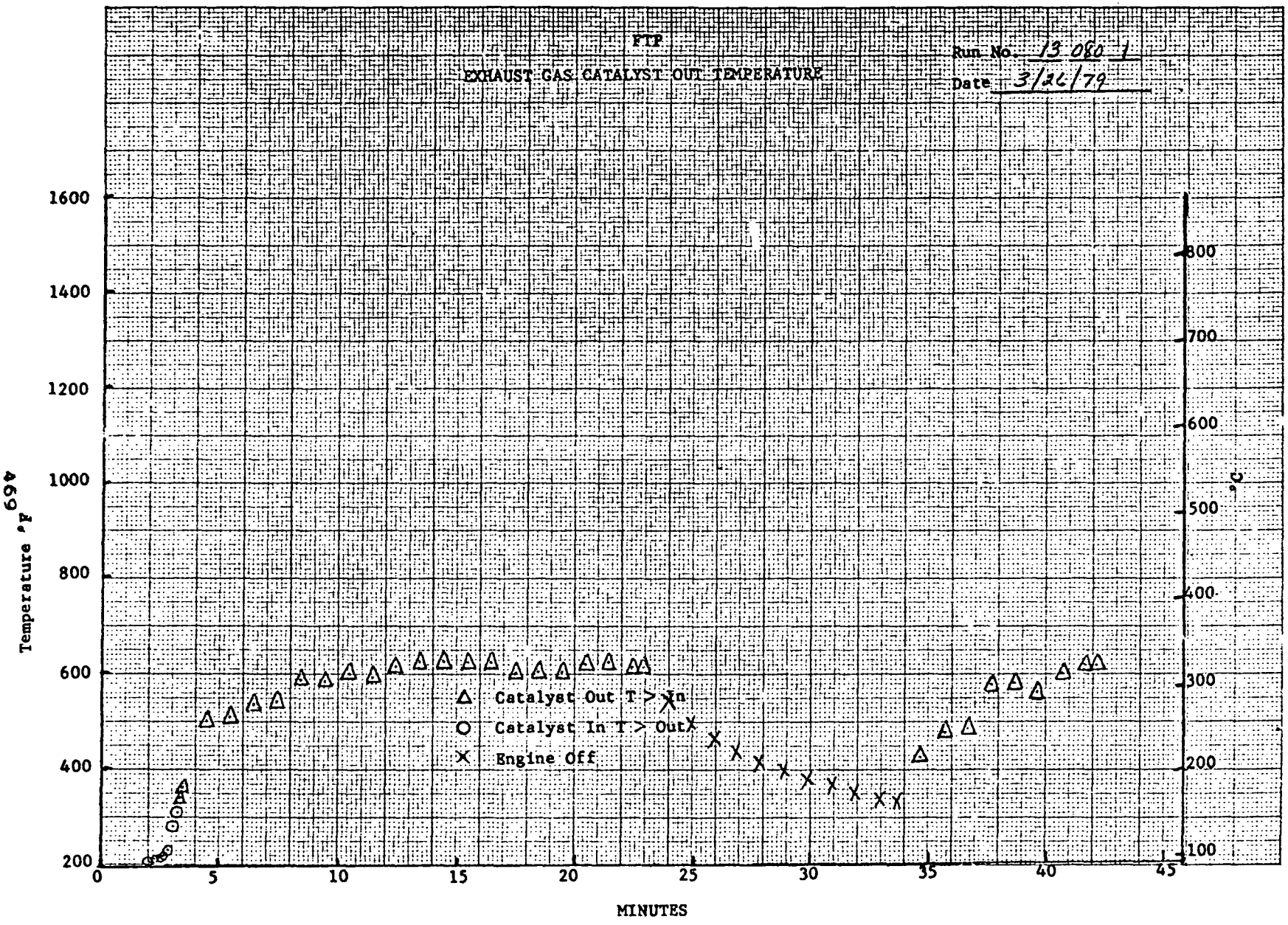
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 080 1
Date 3/26/79
Temperature °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
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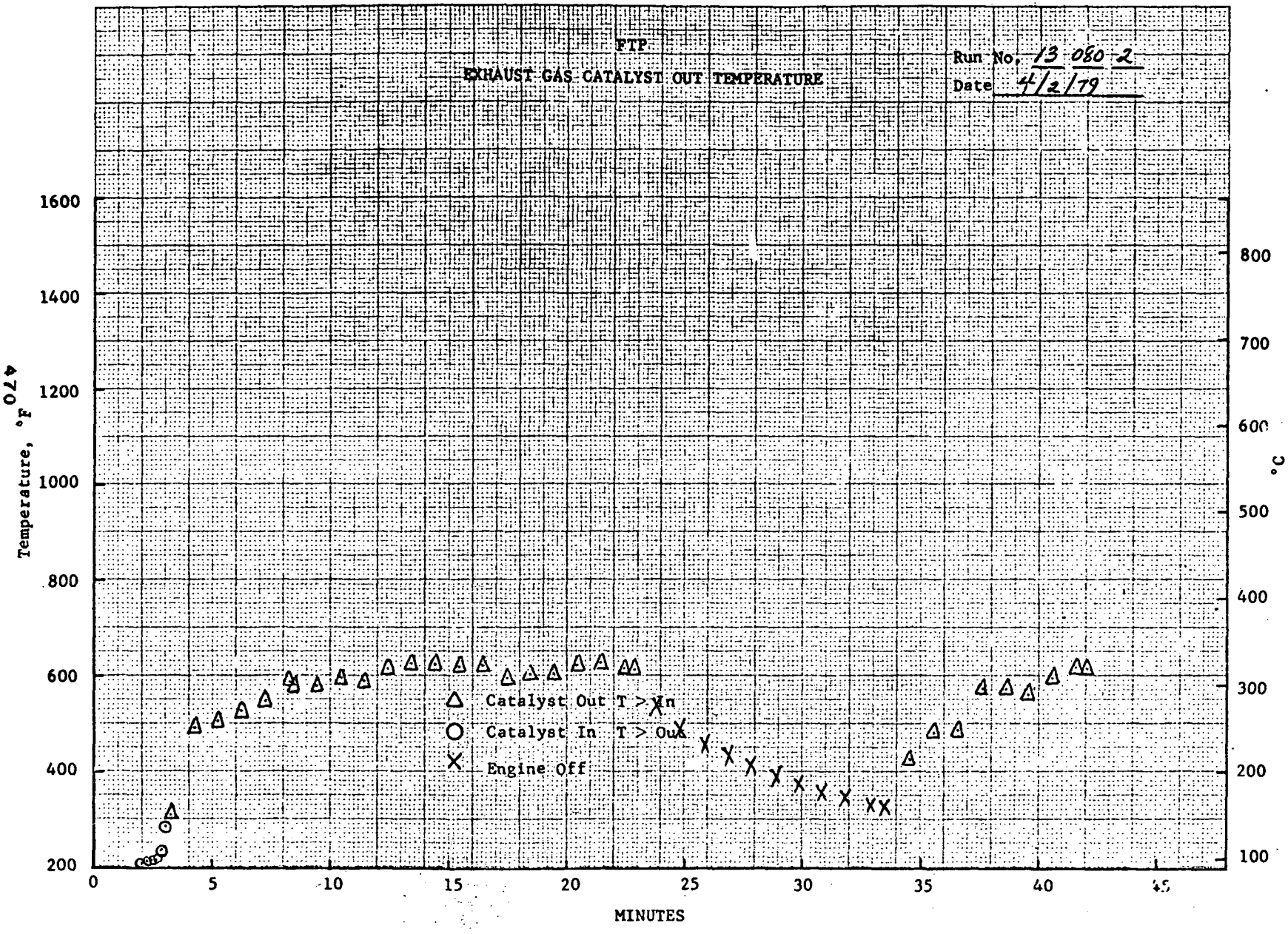
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 080 2
Date 4/2/79
Temperature, °F
°C
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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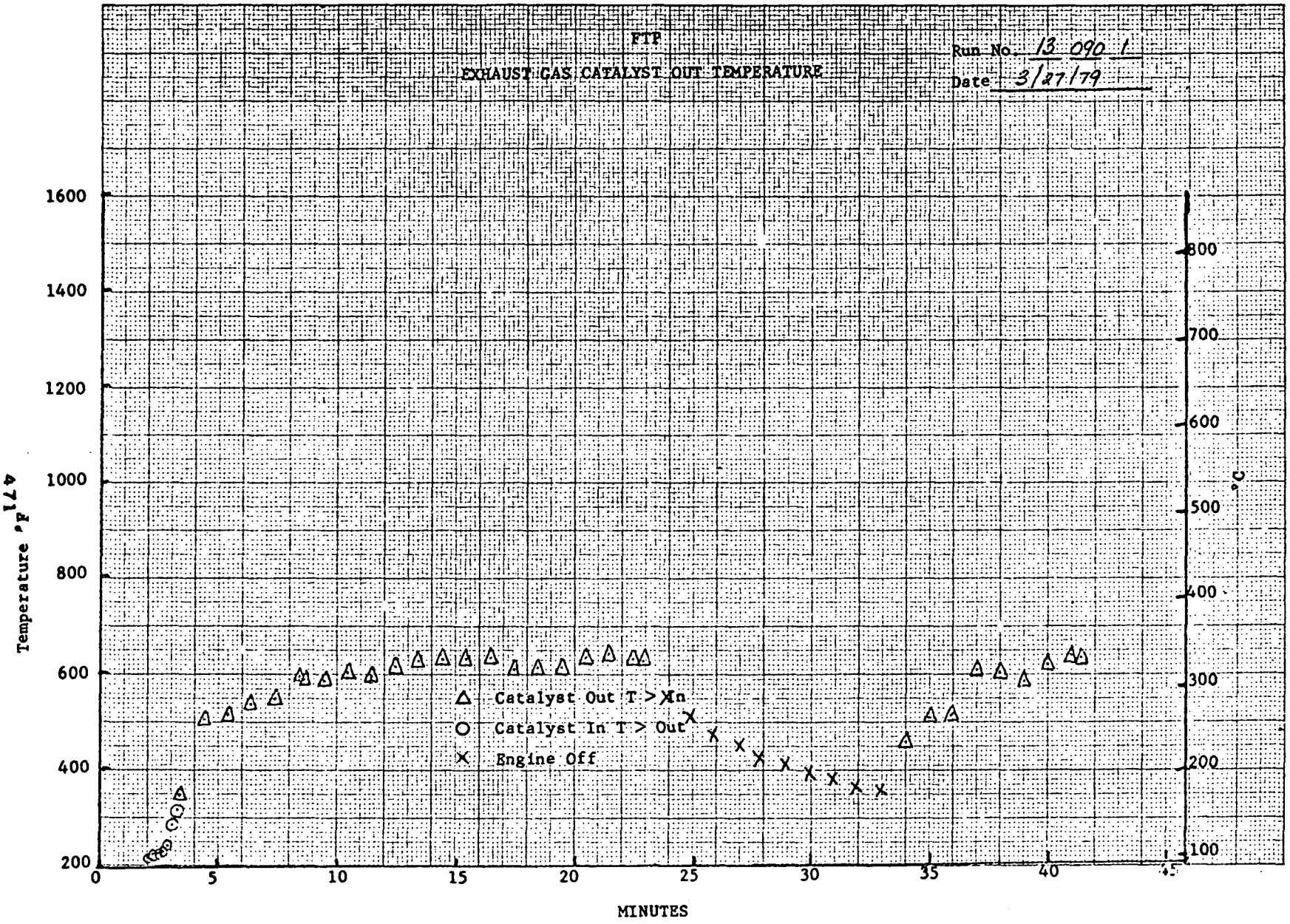
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 090 1
Date 3/27/79
Temperature °F
°C
MINUTES
Catalyst Out T > Xn
Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
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700
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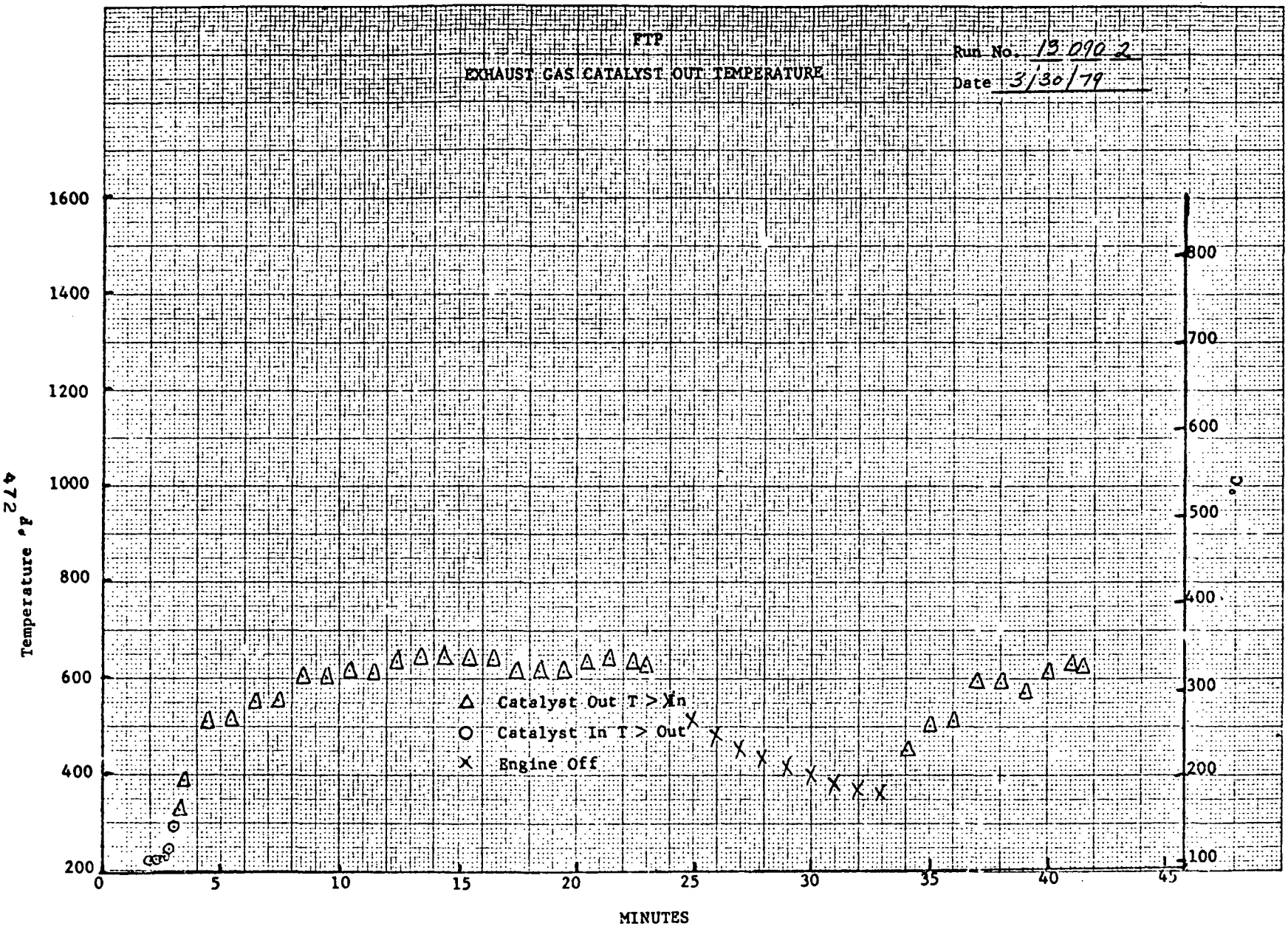
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 090 2
Date 3/30/79
Temperature °F
1600
1400
1200
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°C
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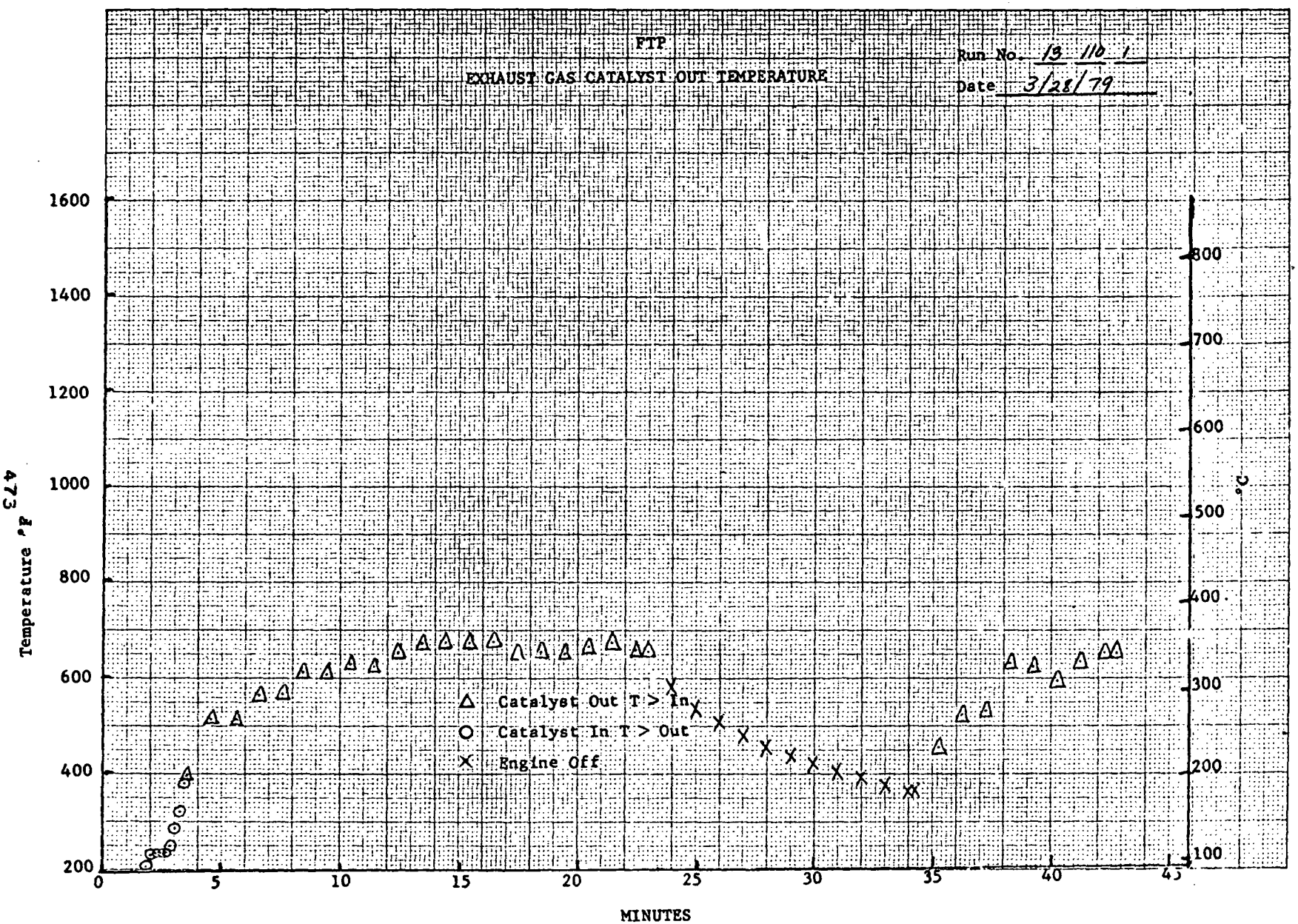
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off

4724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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 110 1
Date 3/28/79
Temperature °F
°C
MINUTES
Δ Catalyst Out T > In
O Catalyst In T > Out
X Engine Off
1600
1400
1200
1000
800
600
400
200
800
700
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100
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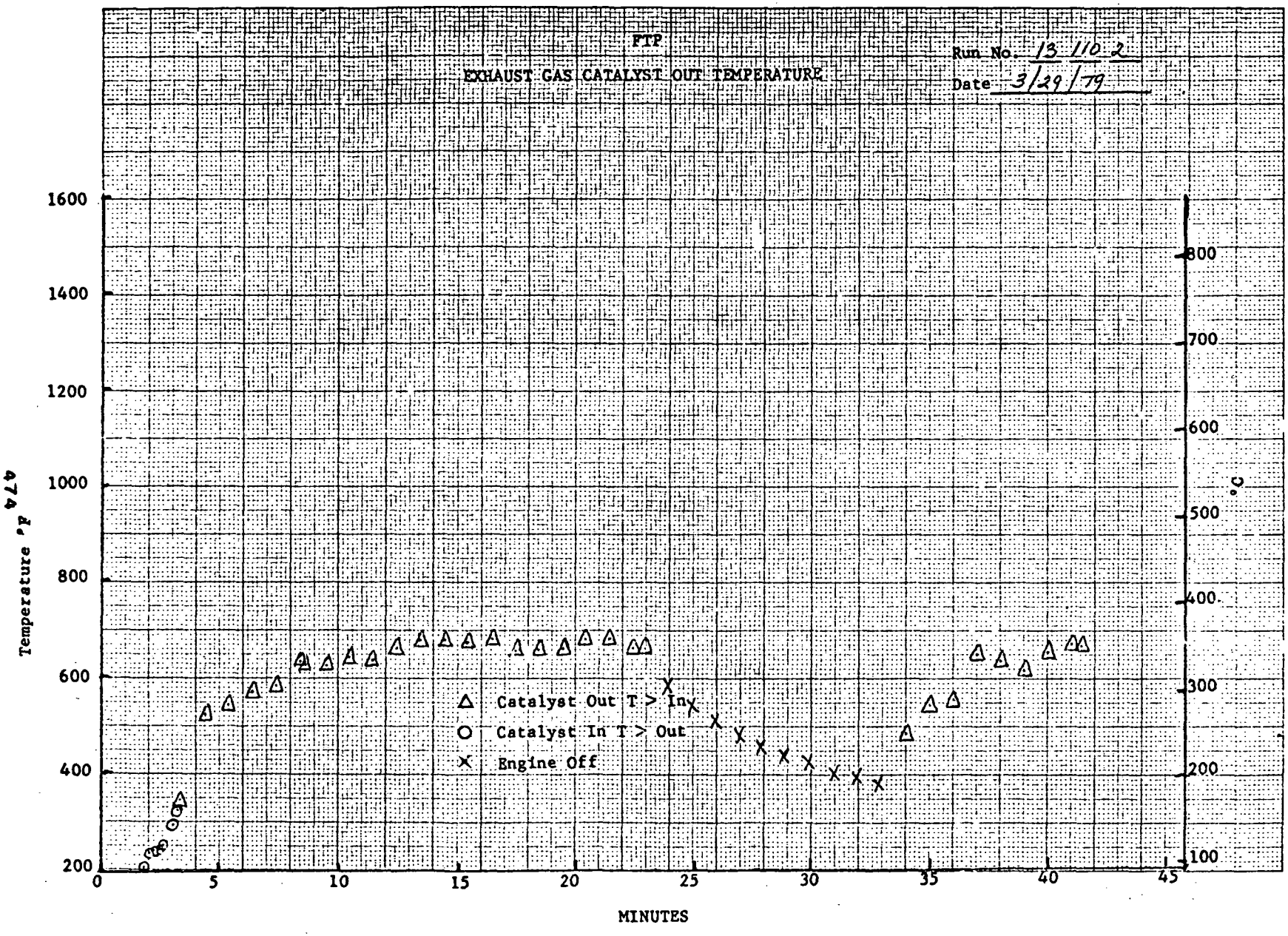
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 13 110 2
Date 3/29/79
Temperature, °F
1600
1400
1200
1000
800
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400
200
°C
800
700
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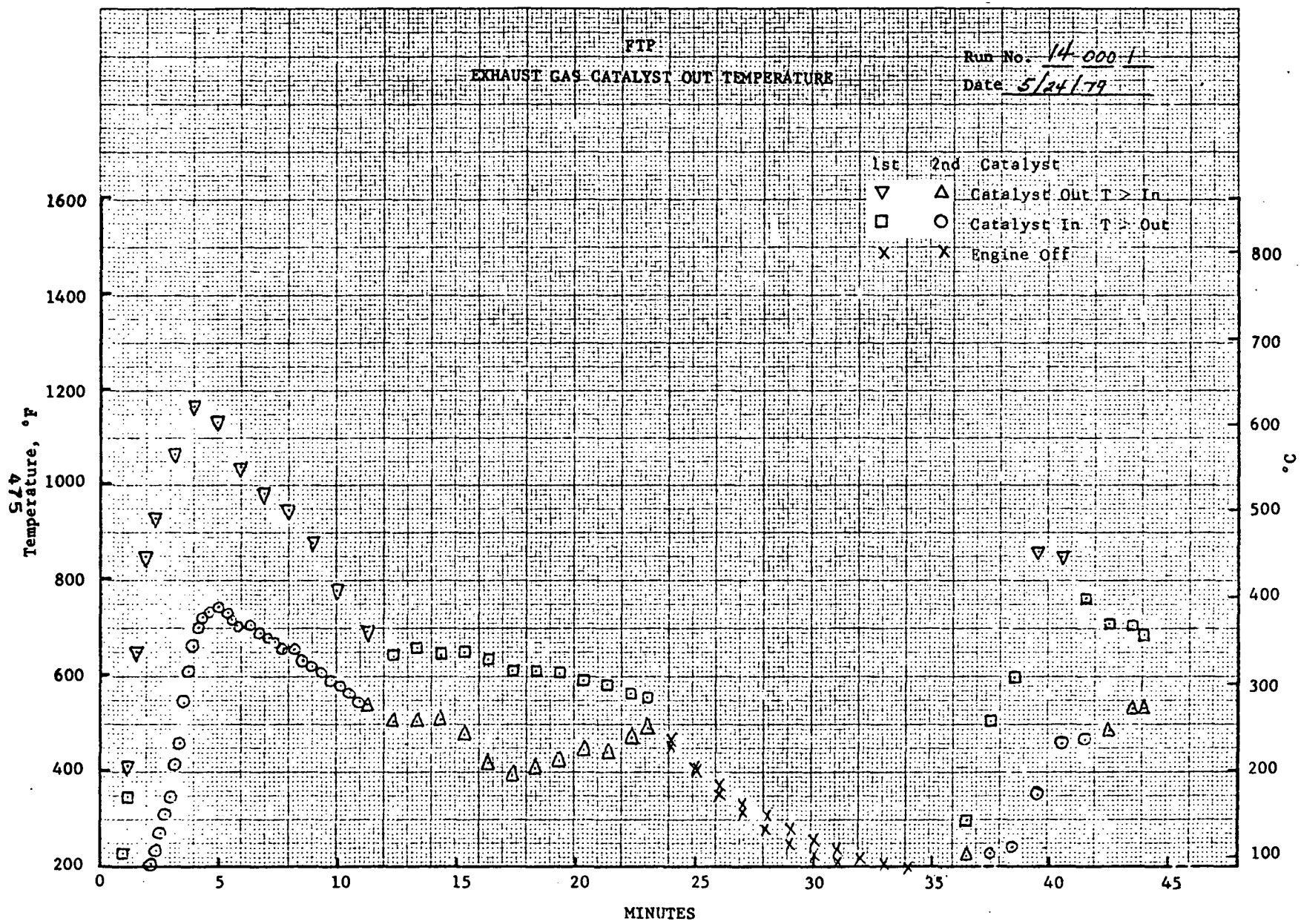
MINUTES
Catalyst Out T > In
Catalyst In T > Out
Engine Off


FTP
EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 14-000 1
Date 5/24/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
200
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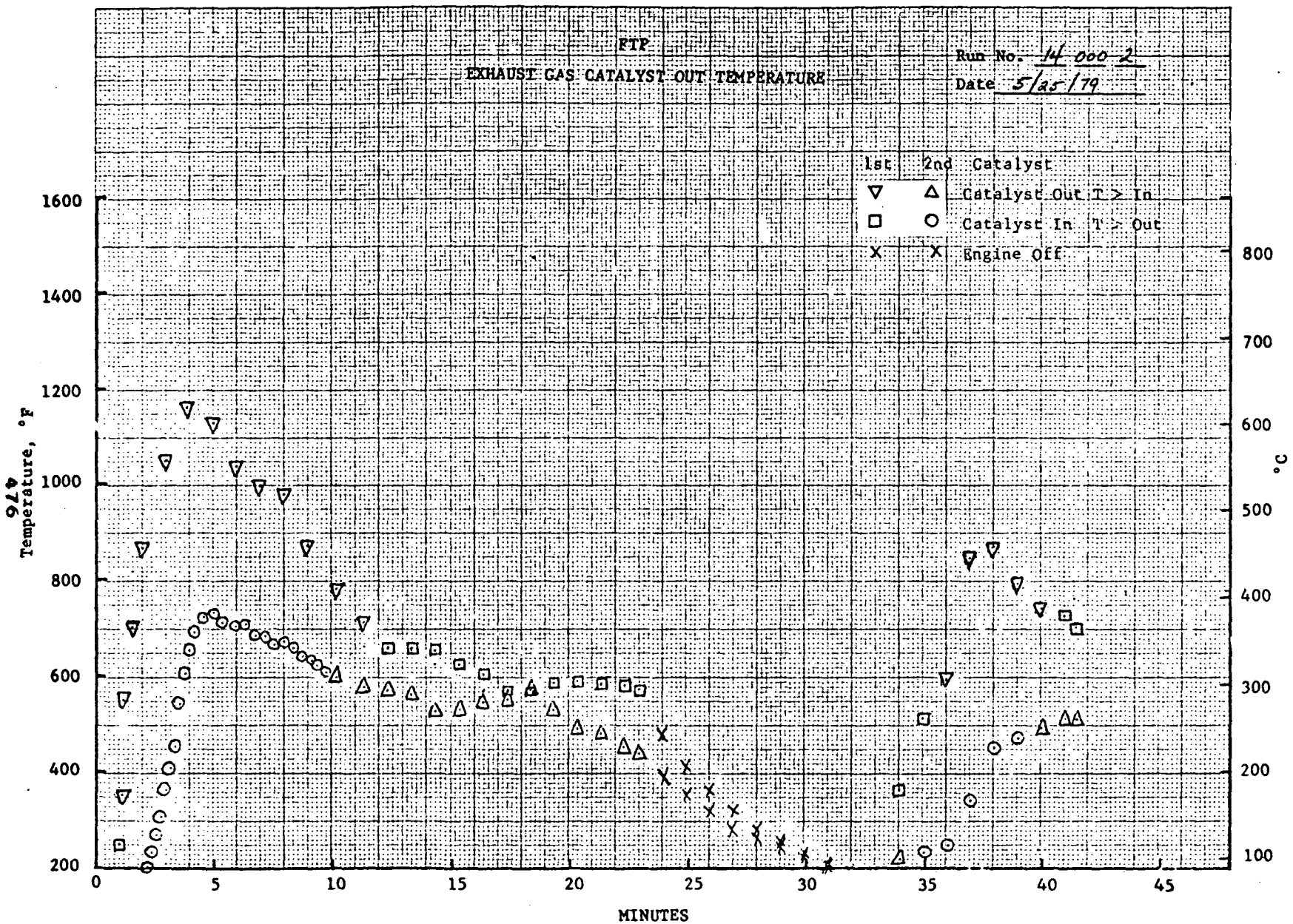
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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 14 000 2
Date 5/25/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
400
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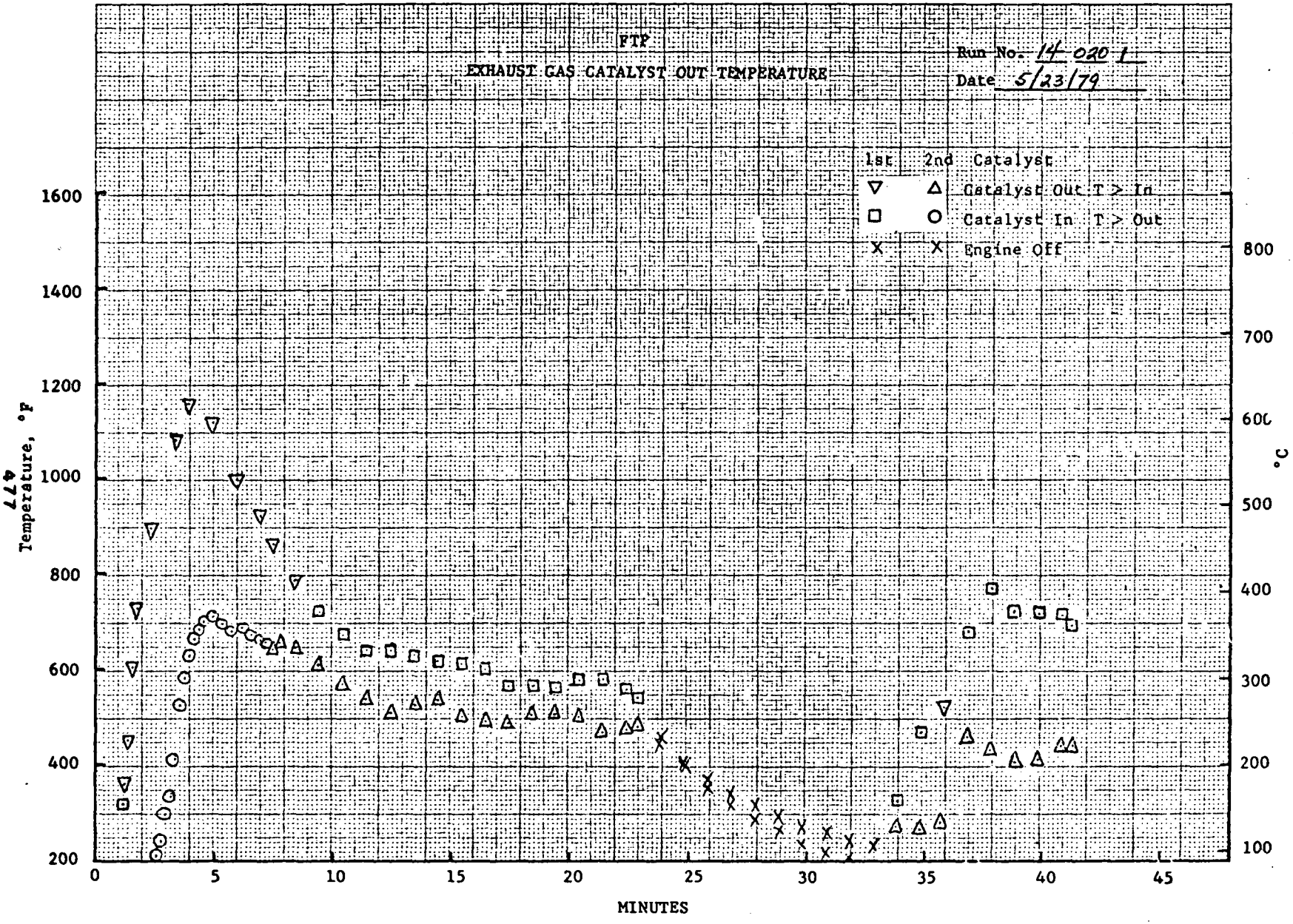
476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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 14 020 1
Date 5/23/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
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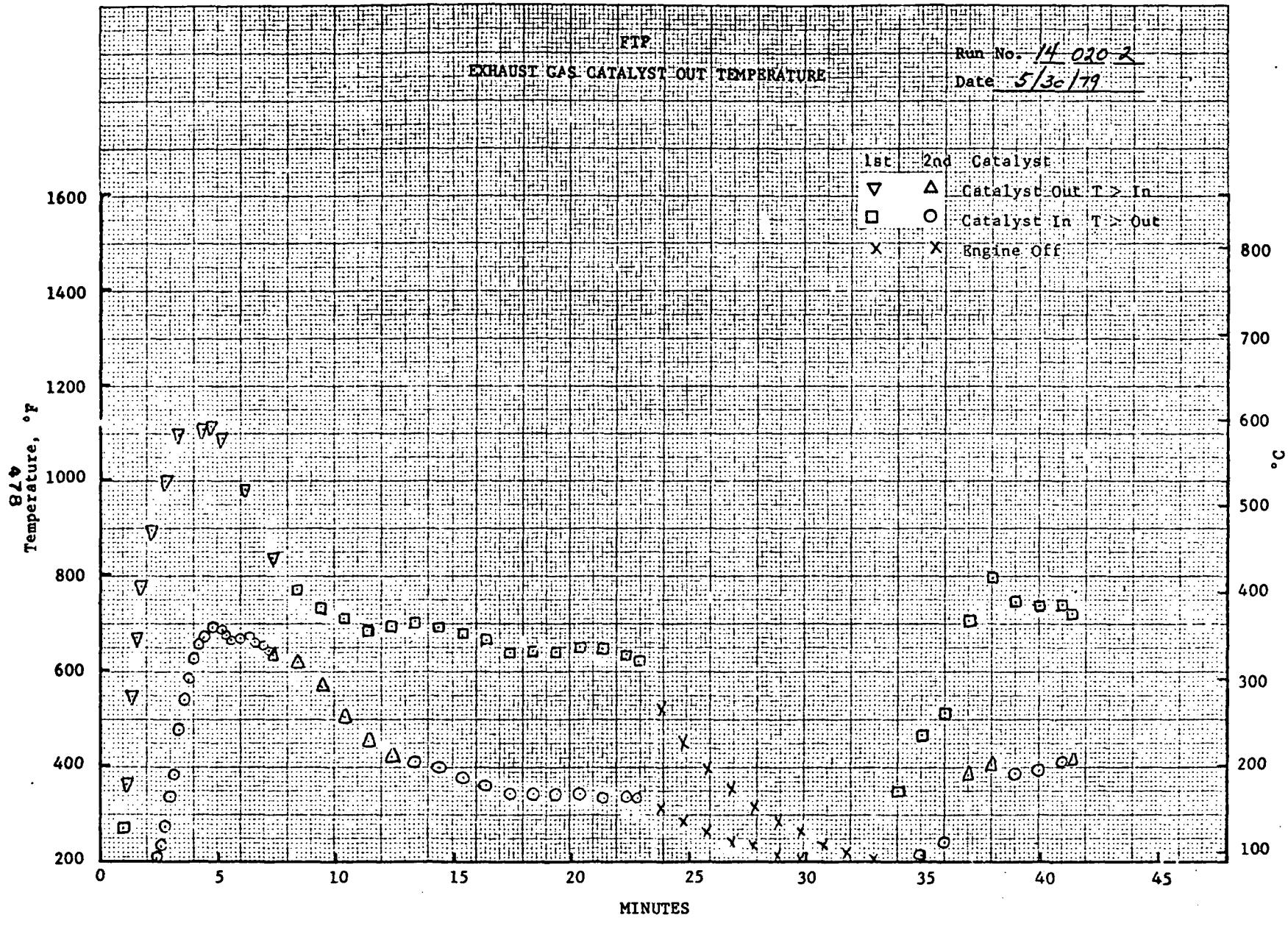
477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EXHAUST GAS CATALYST OUT TEMPERATURE
Run No. 14 020 2
Date 5/30/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
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700
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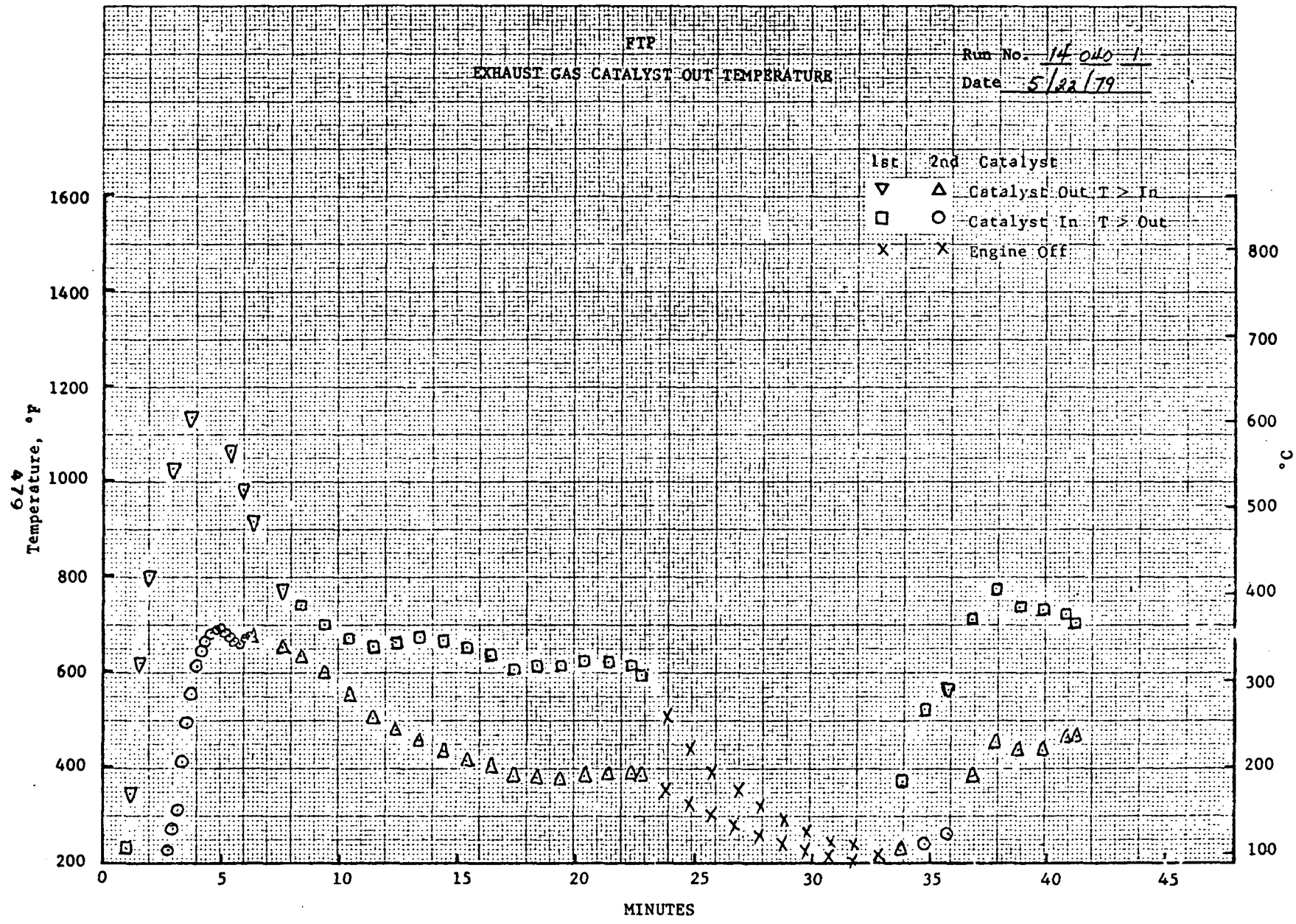
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Run No. 14 080 1
Date 5/22/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
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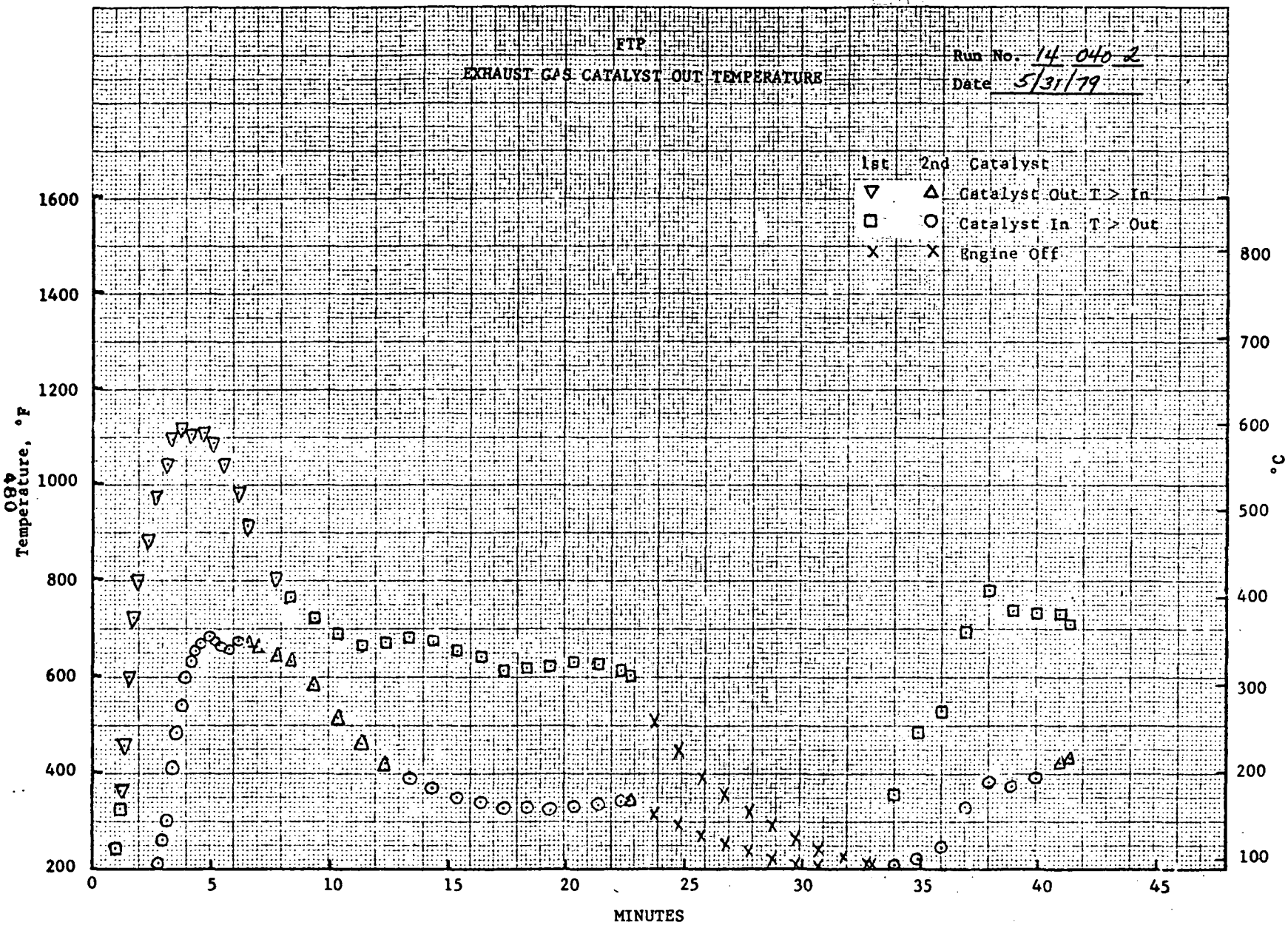
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
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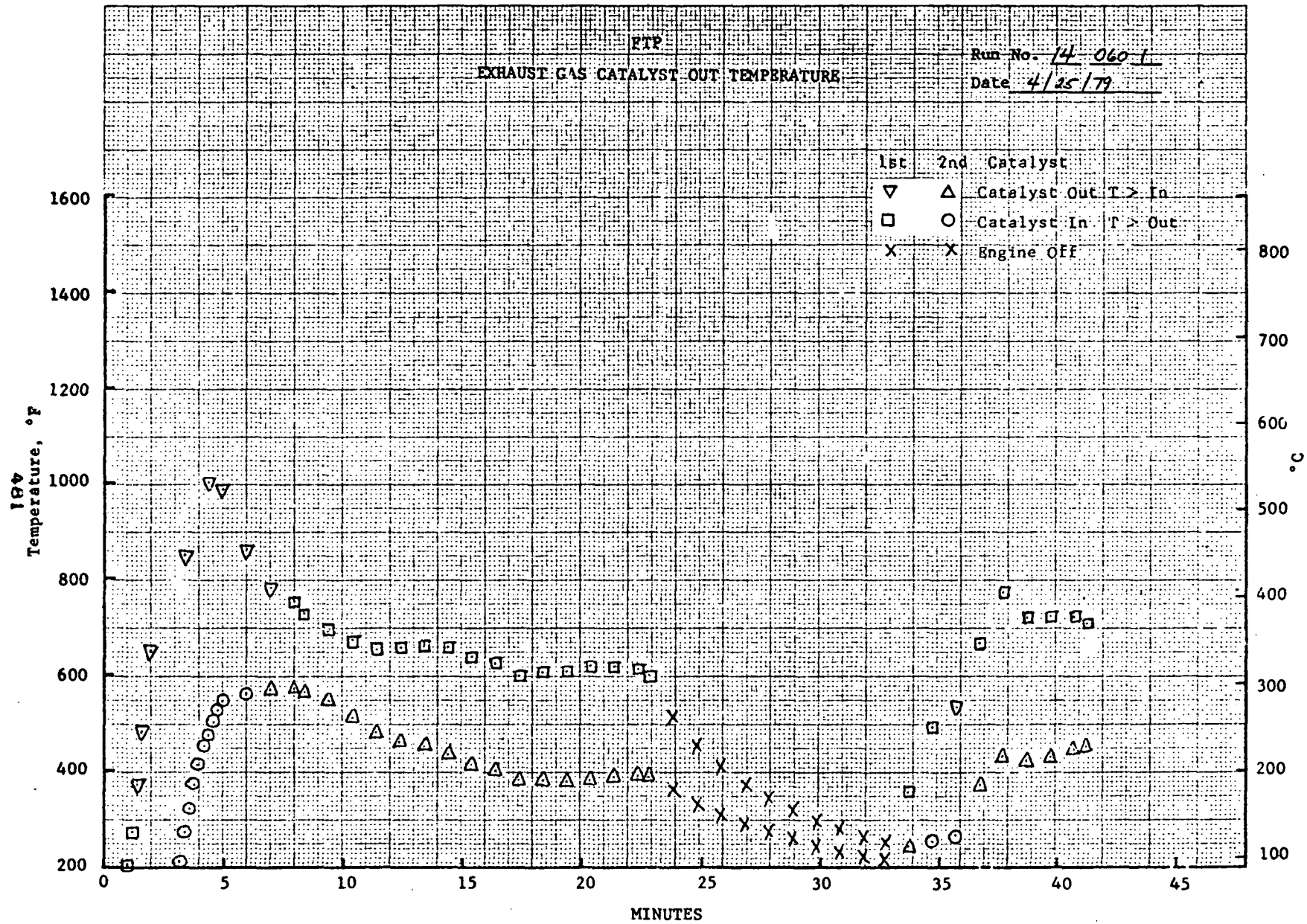
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Run No. 14 060 1
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Catalyst In T > Out
Engine Off
1600
1400
1200
1000
800
600
400
200
°F
Temperature,
800
700
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500
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°C
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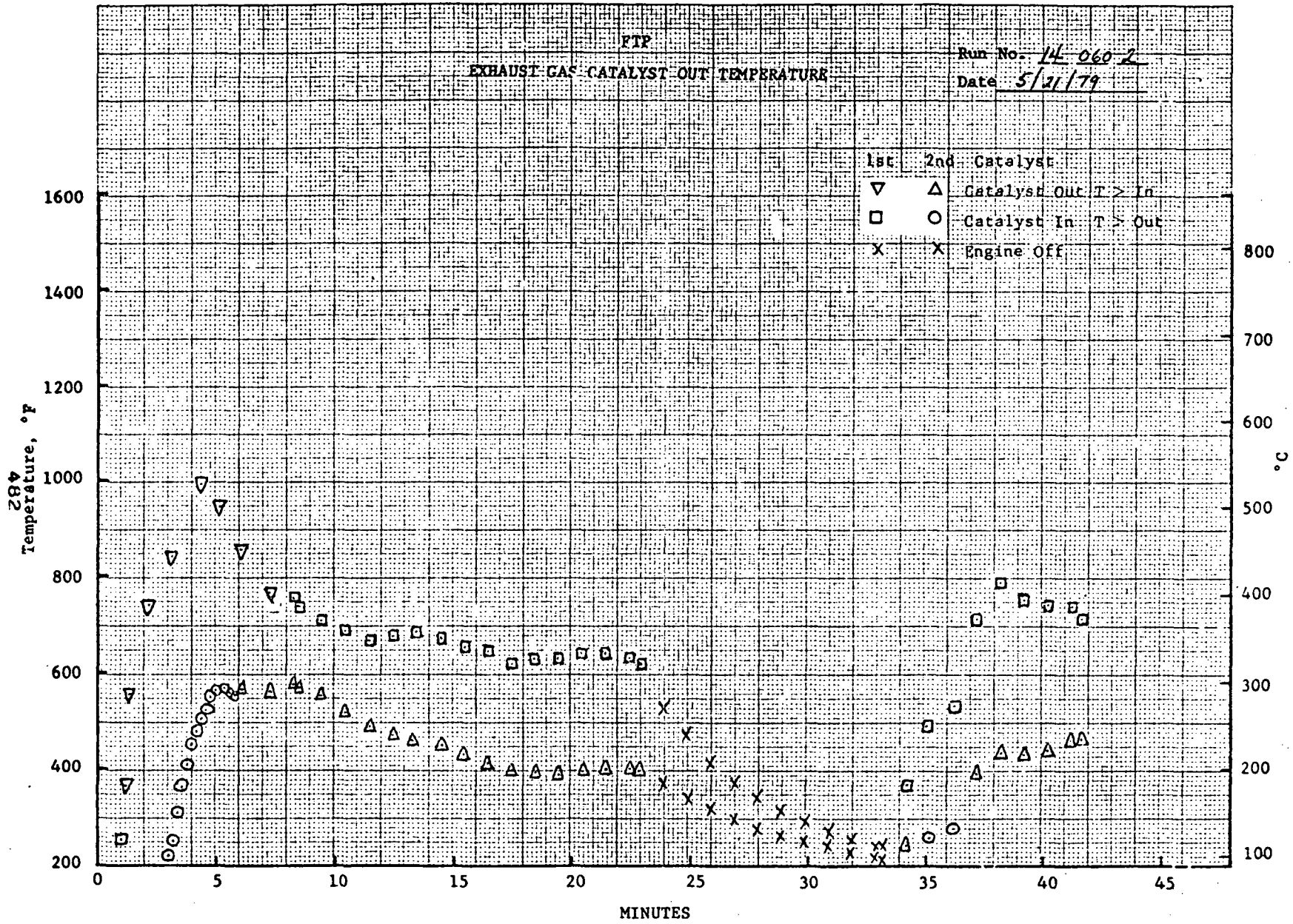
MINUTES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Date 5/21/79
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
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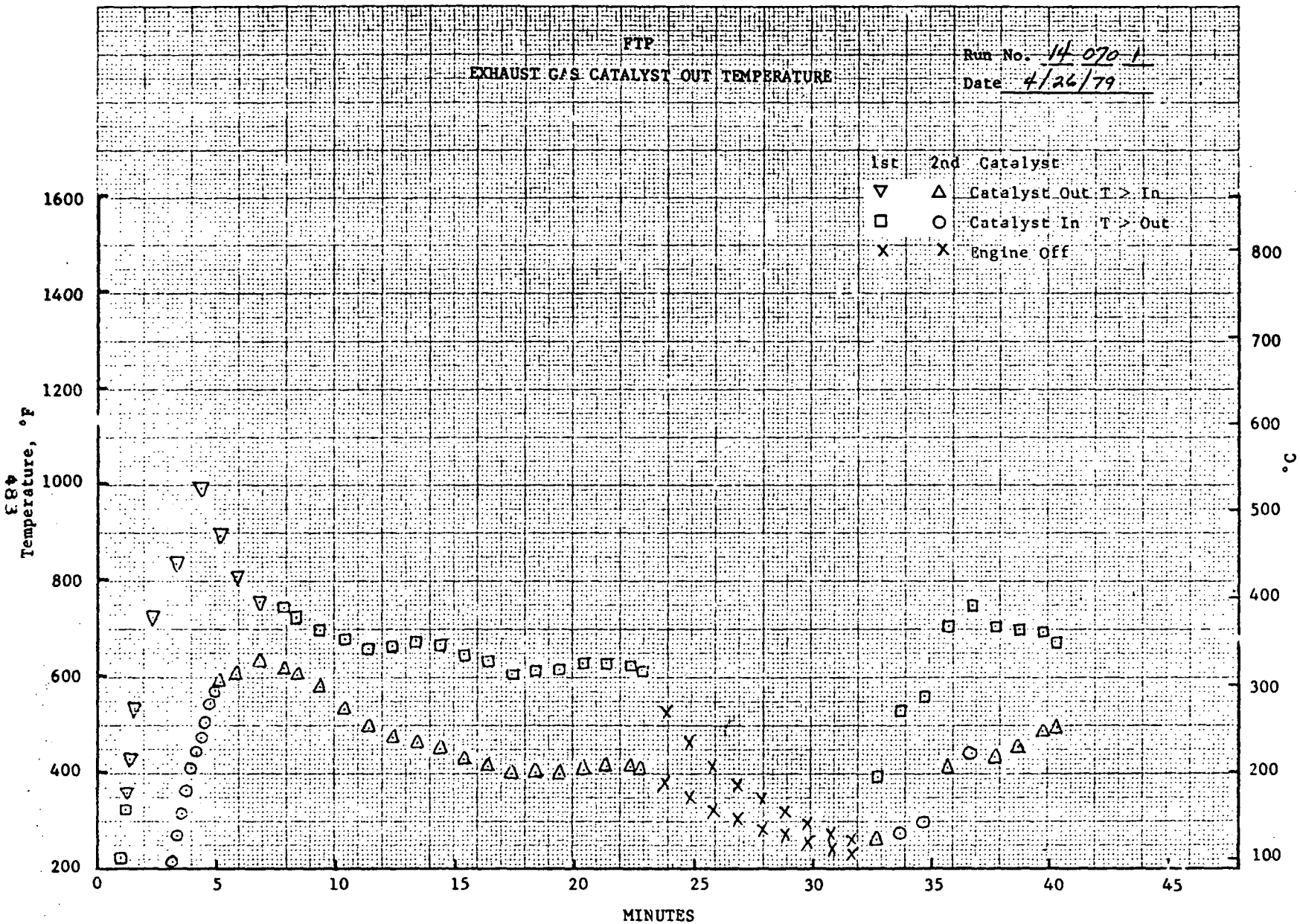
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Run No. 14 070 1
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
1000
800
600
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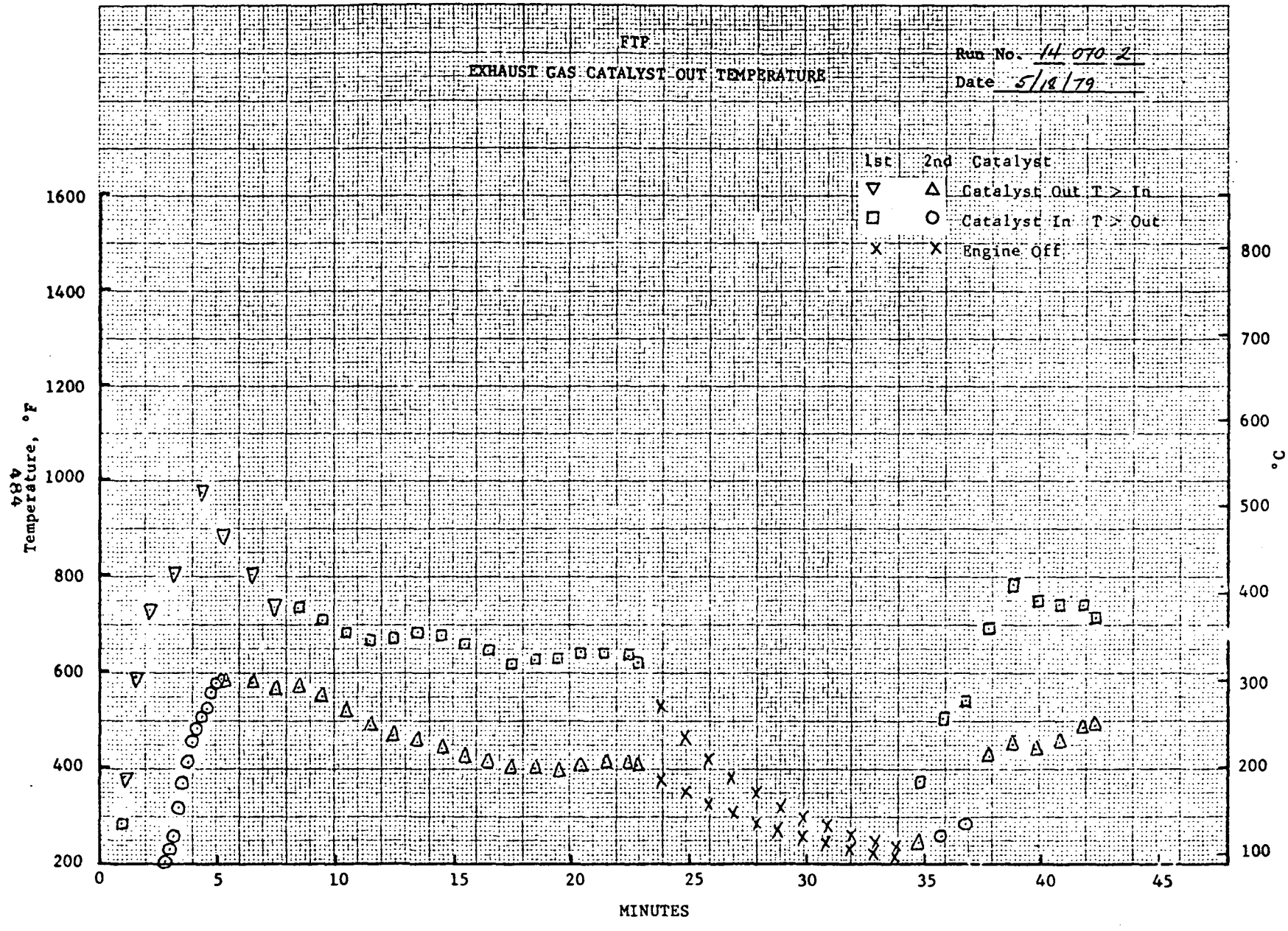
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
1200
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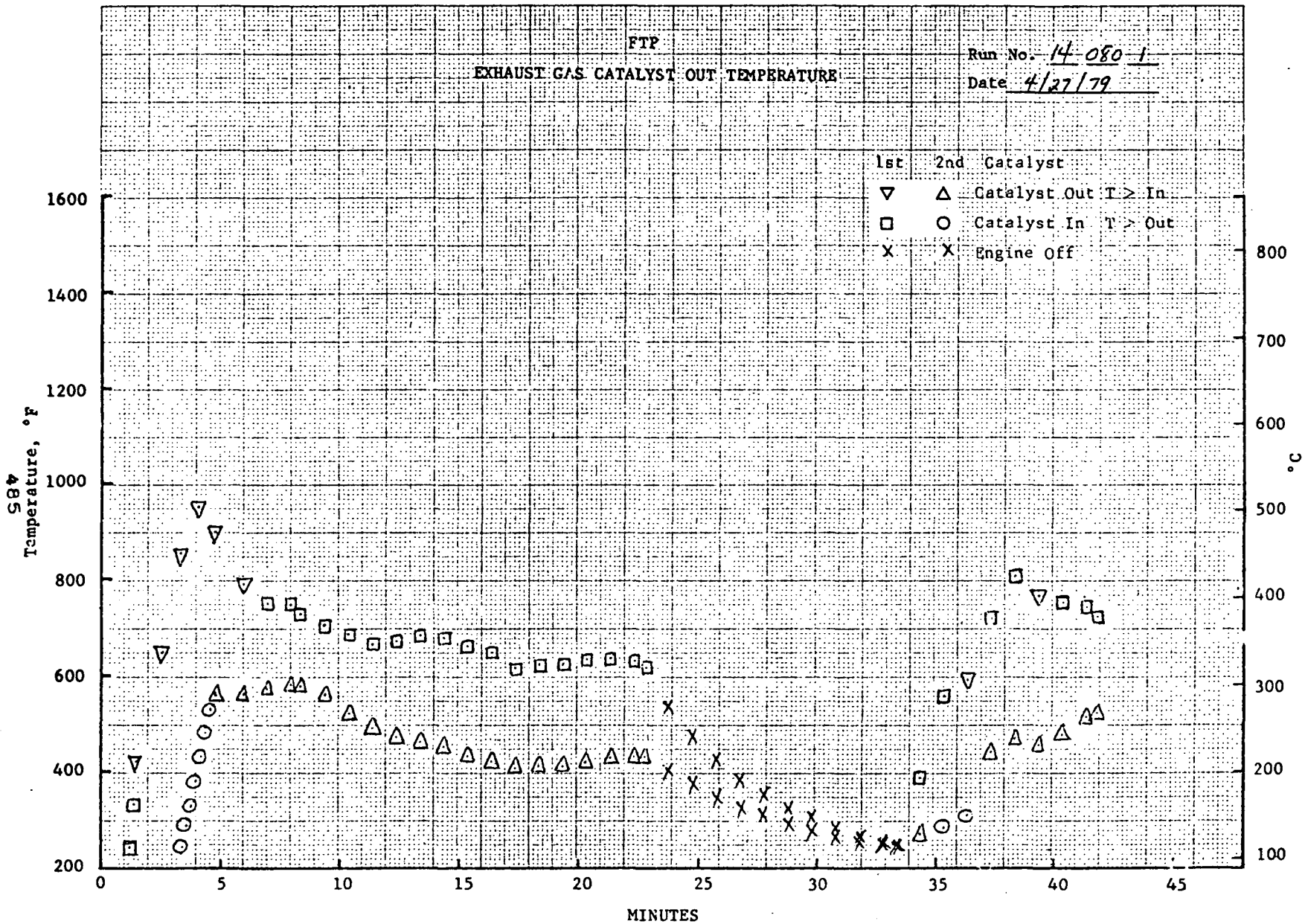
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Run No. 14 080 1
Date 4/27/79
1st 2nd Catalyst
Catalyst Out T ≥ In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
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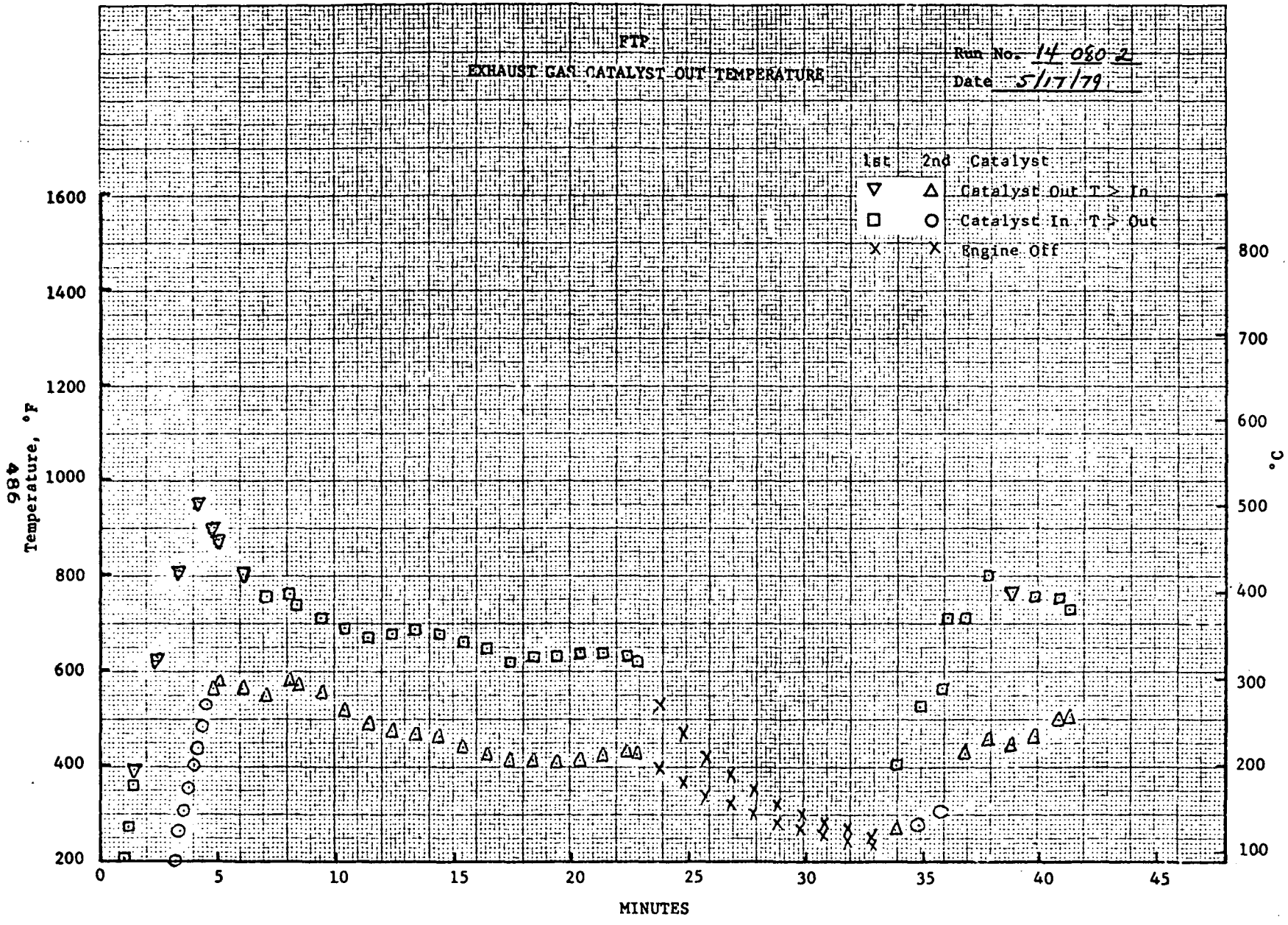
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Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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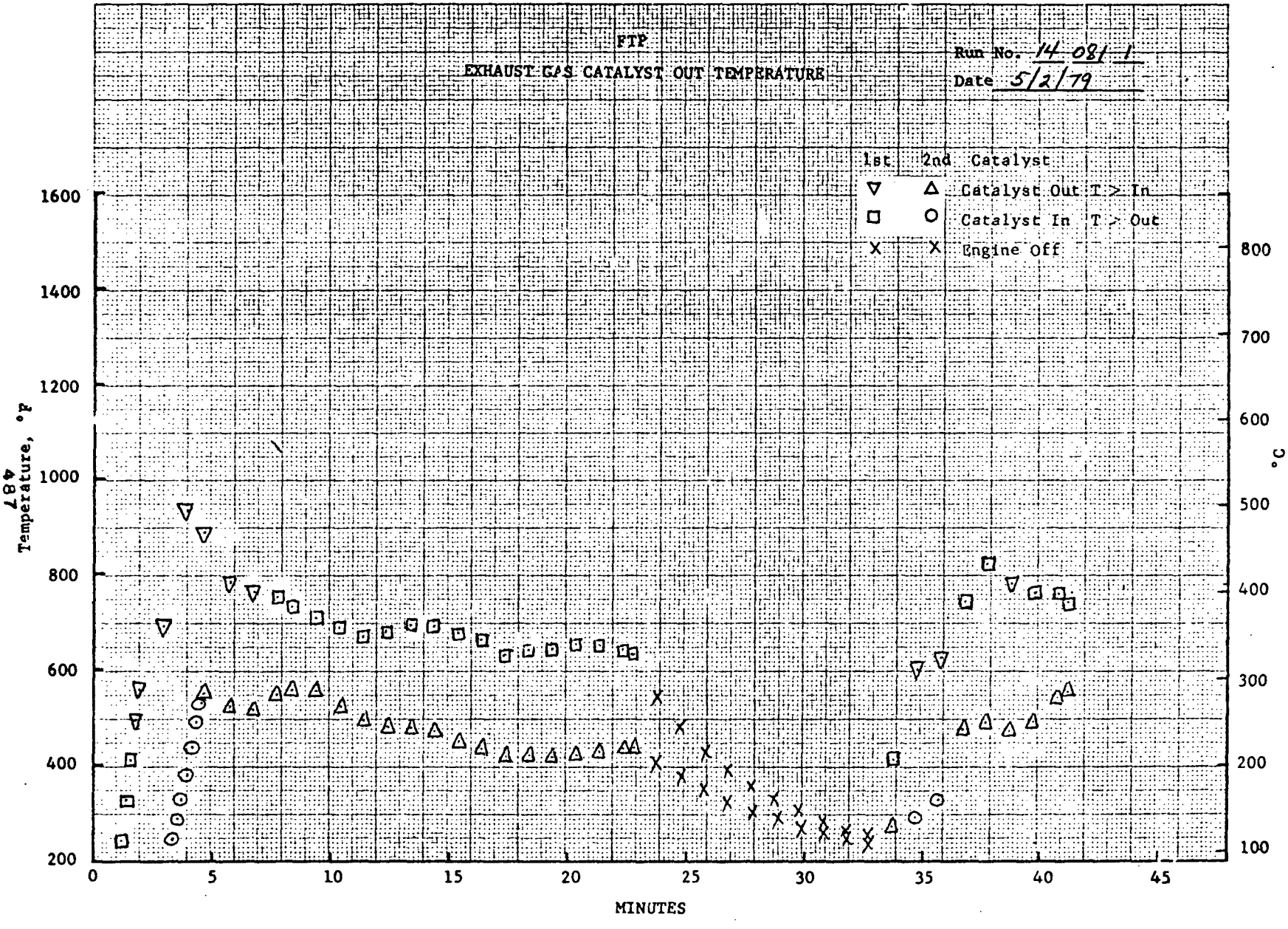
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Run No. 14 081 1
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
1400
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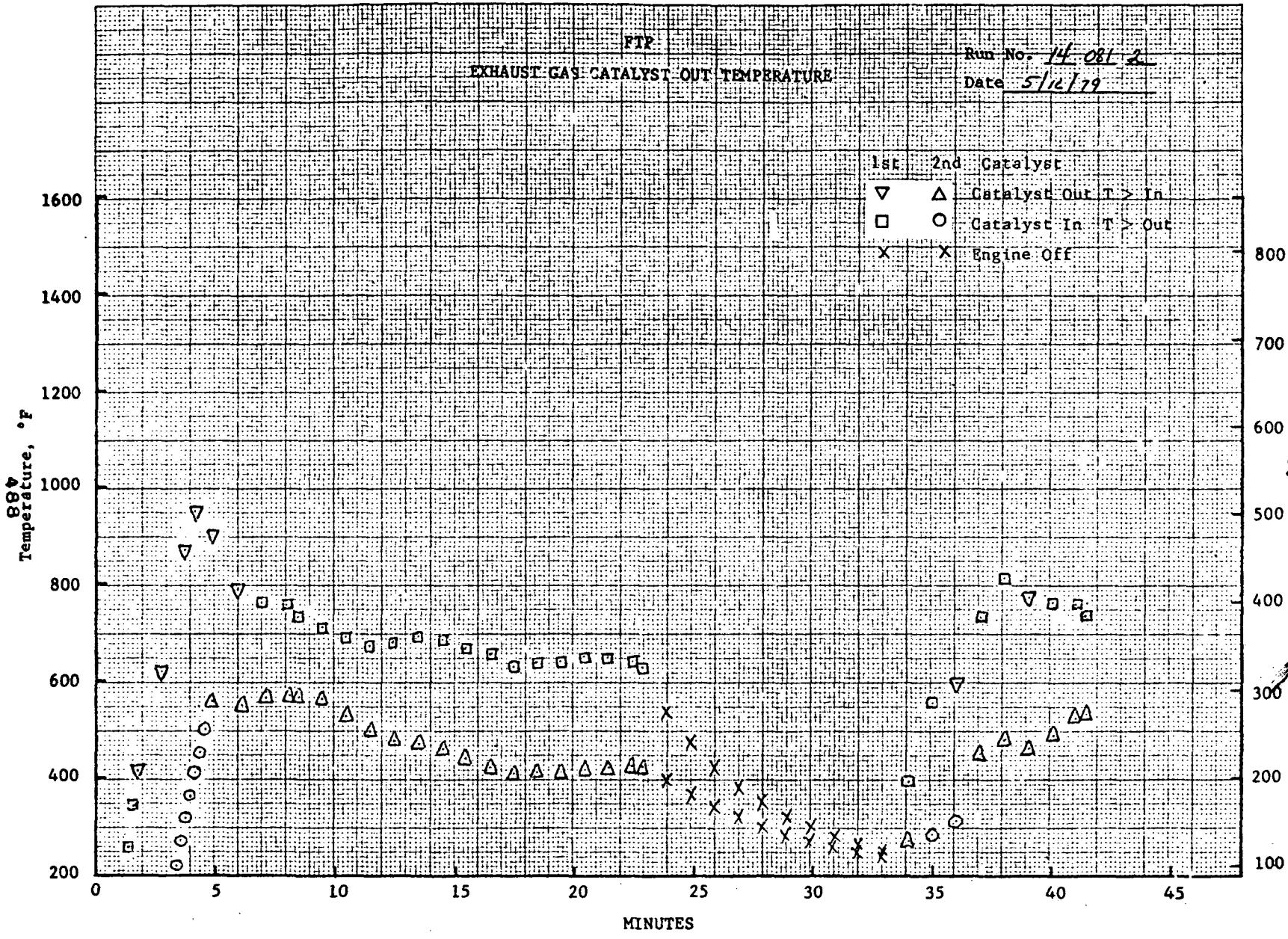
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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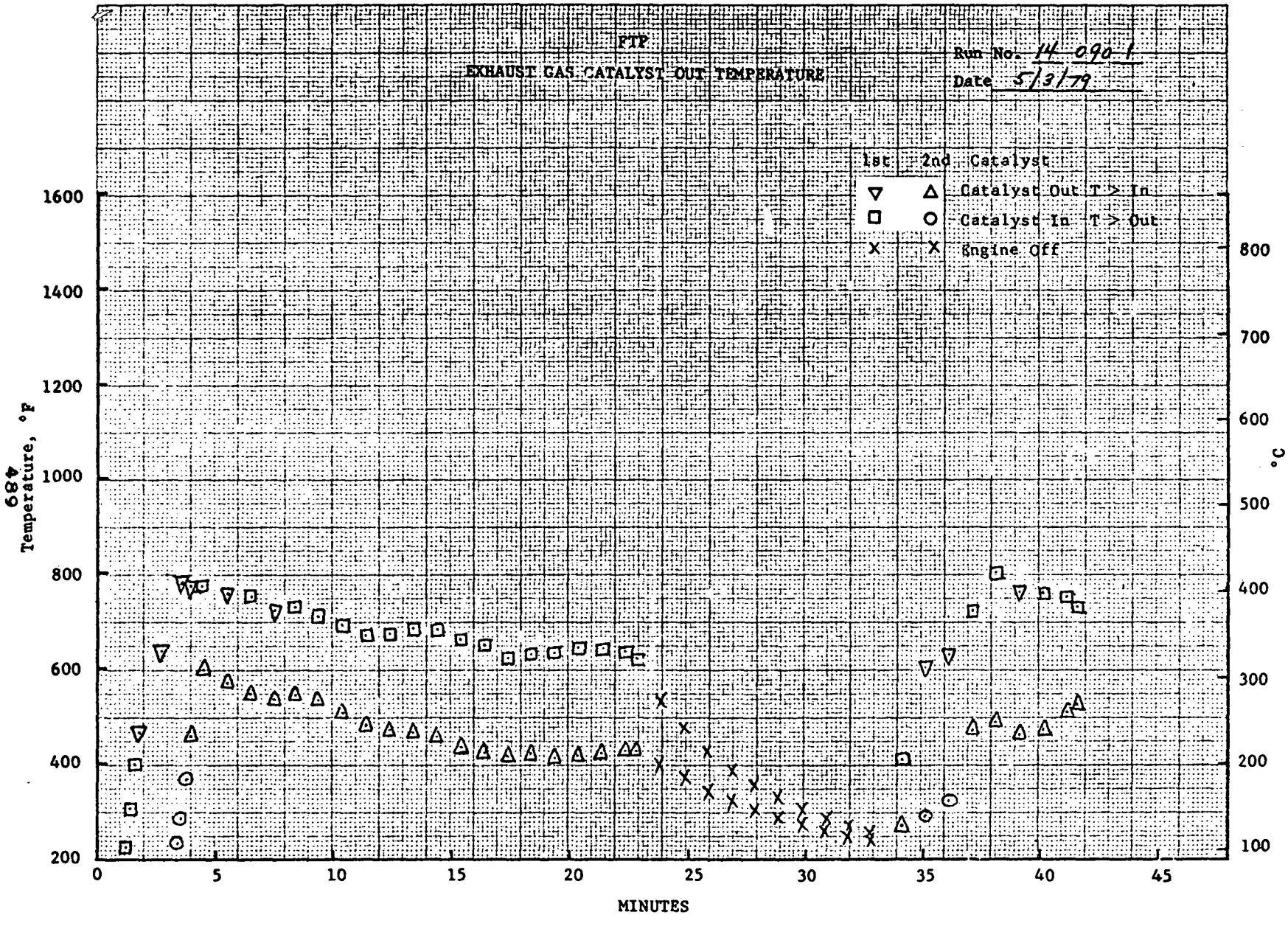
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Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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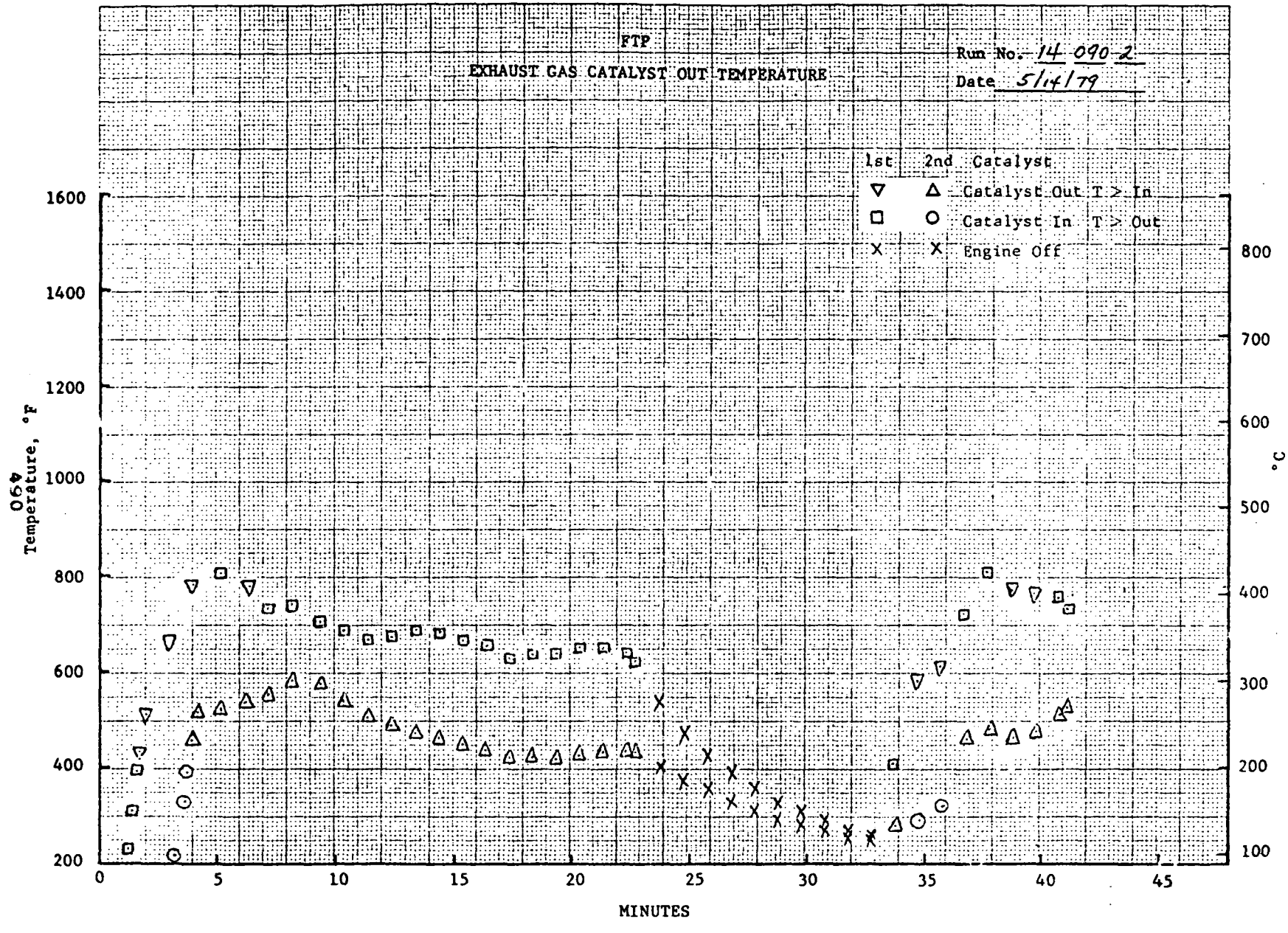
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Date 5/14/79
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Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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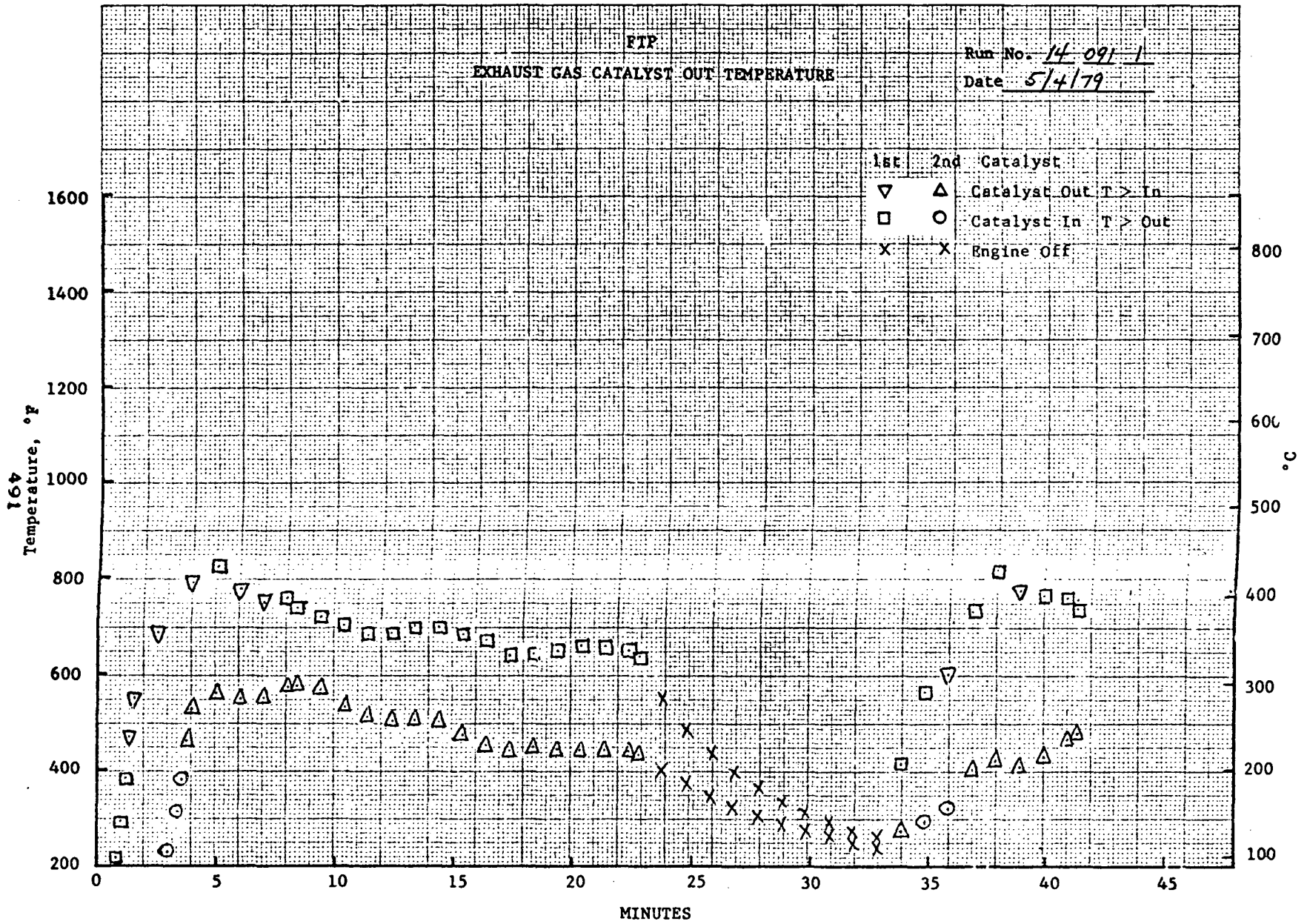
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Date 5/4/79
1st 2nd Catalyst
Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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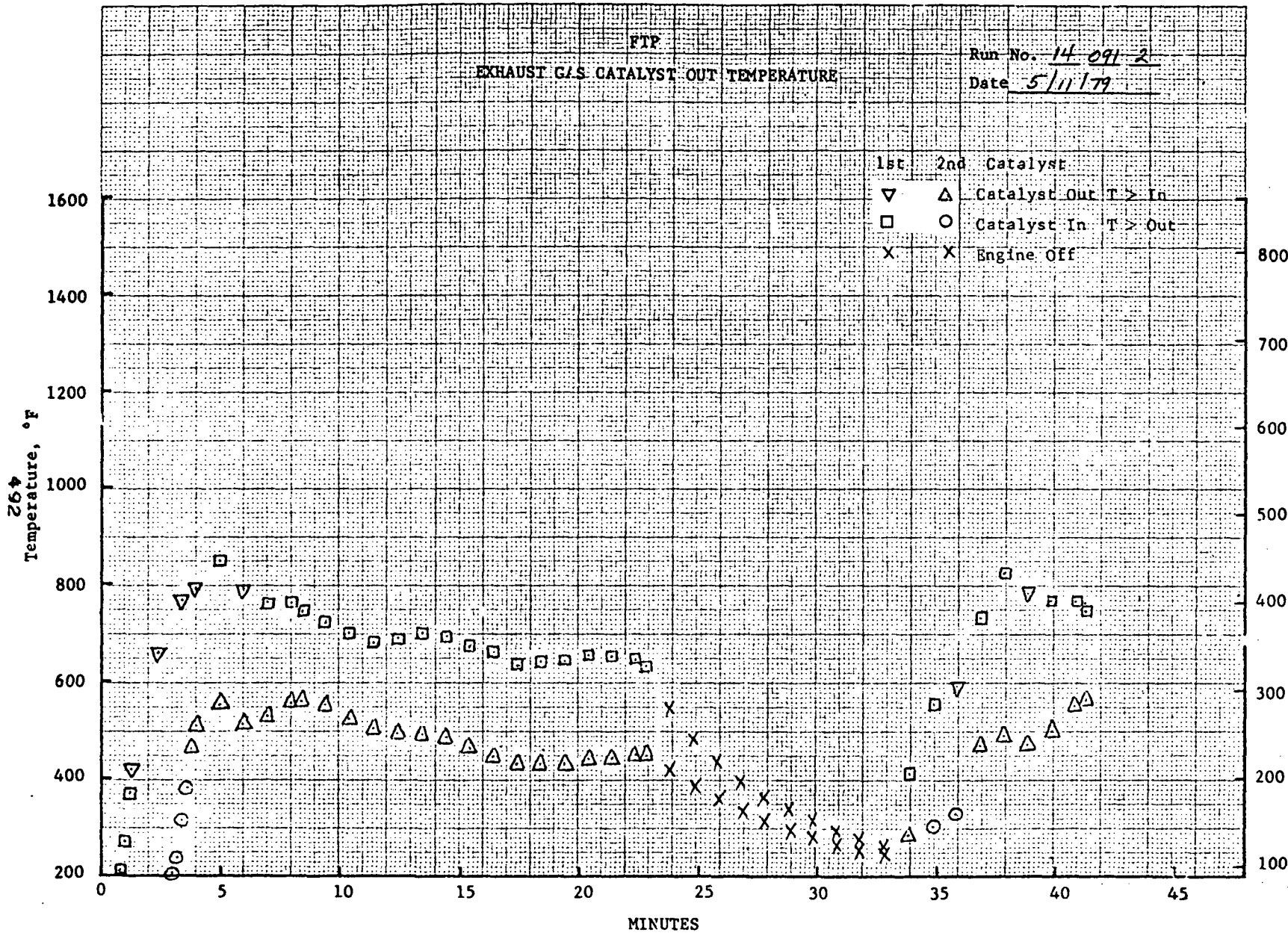
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Catalyst In T > Out
Engine Off
Temperature, °F
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MINUTES
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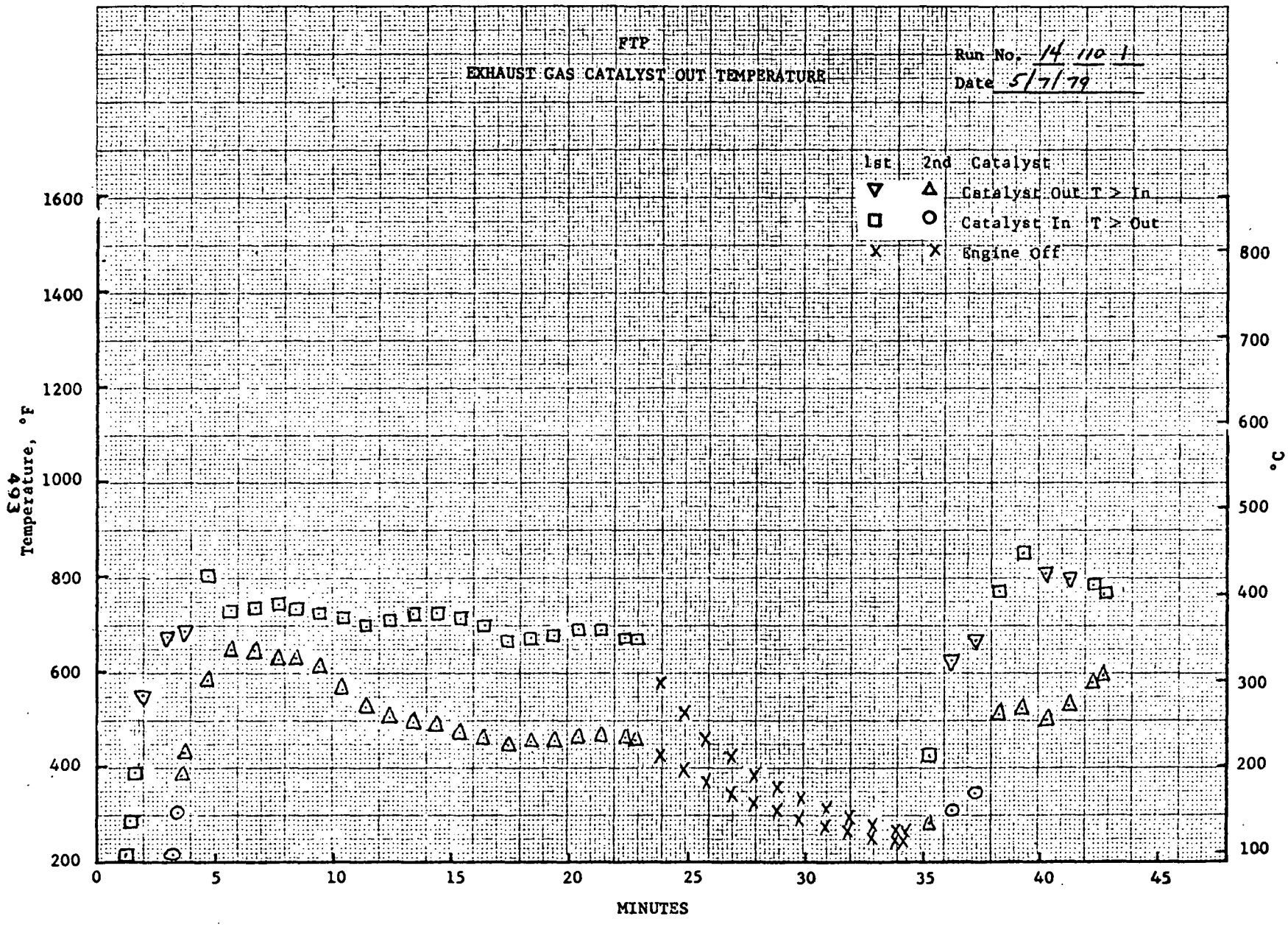
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Date 5/7/79
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Catalyst Out T > In
Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
1600
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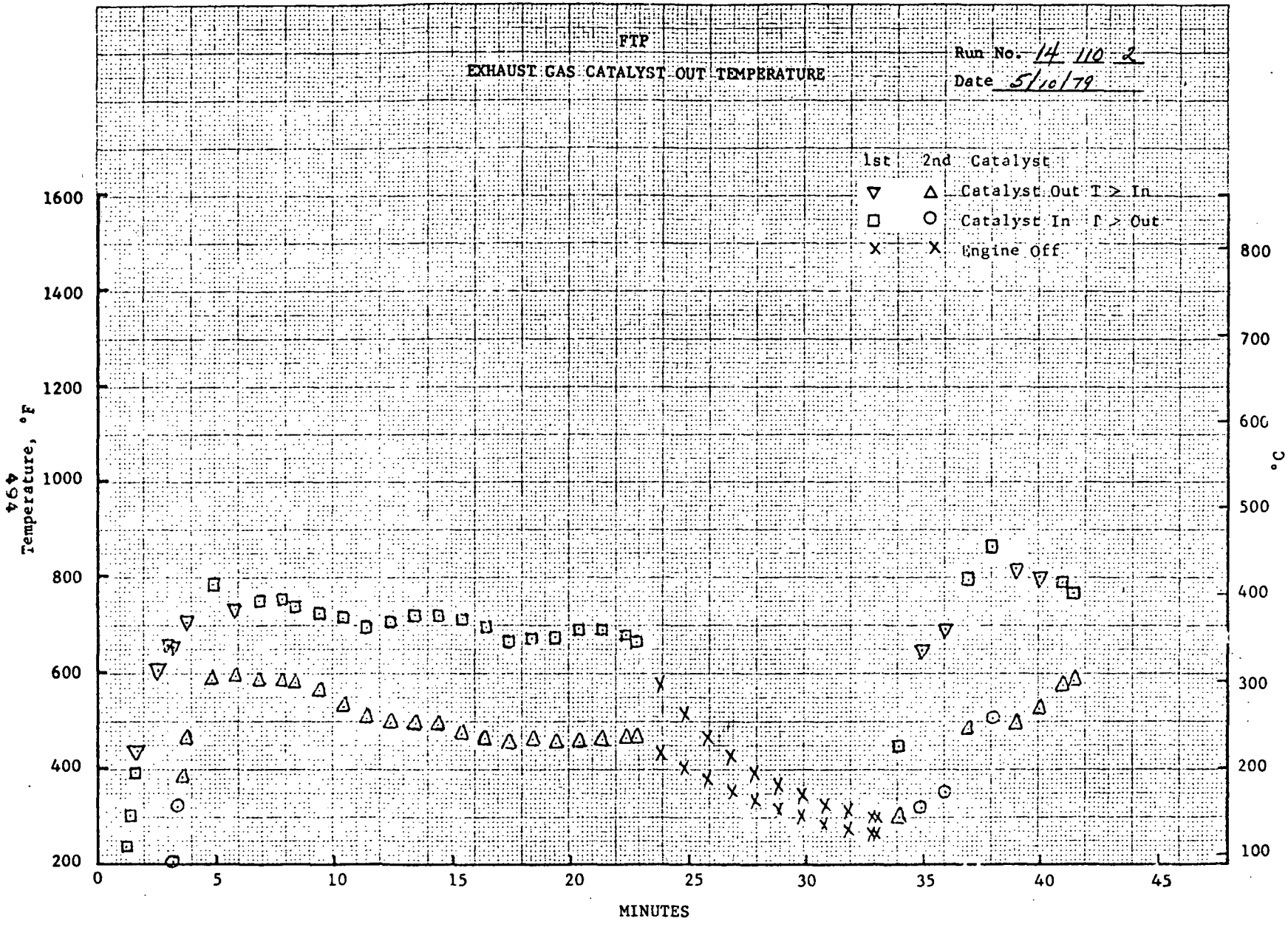
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Catalyst In T > Out
Engine Off
Temperature, °F
°C
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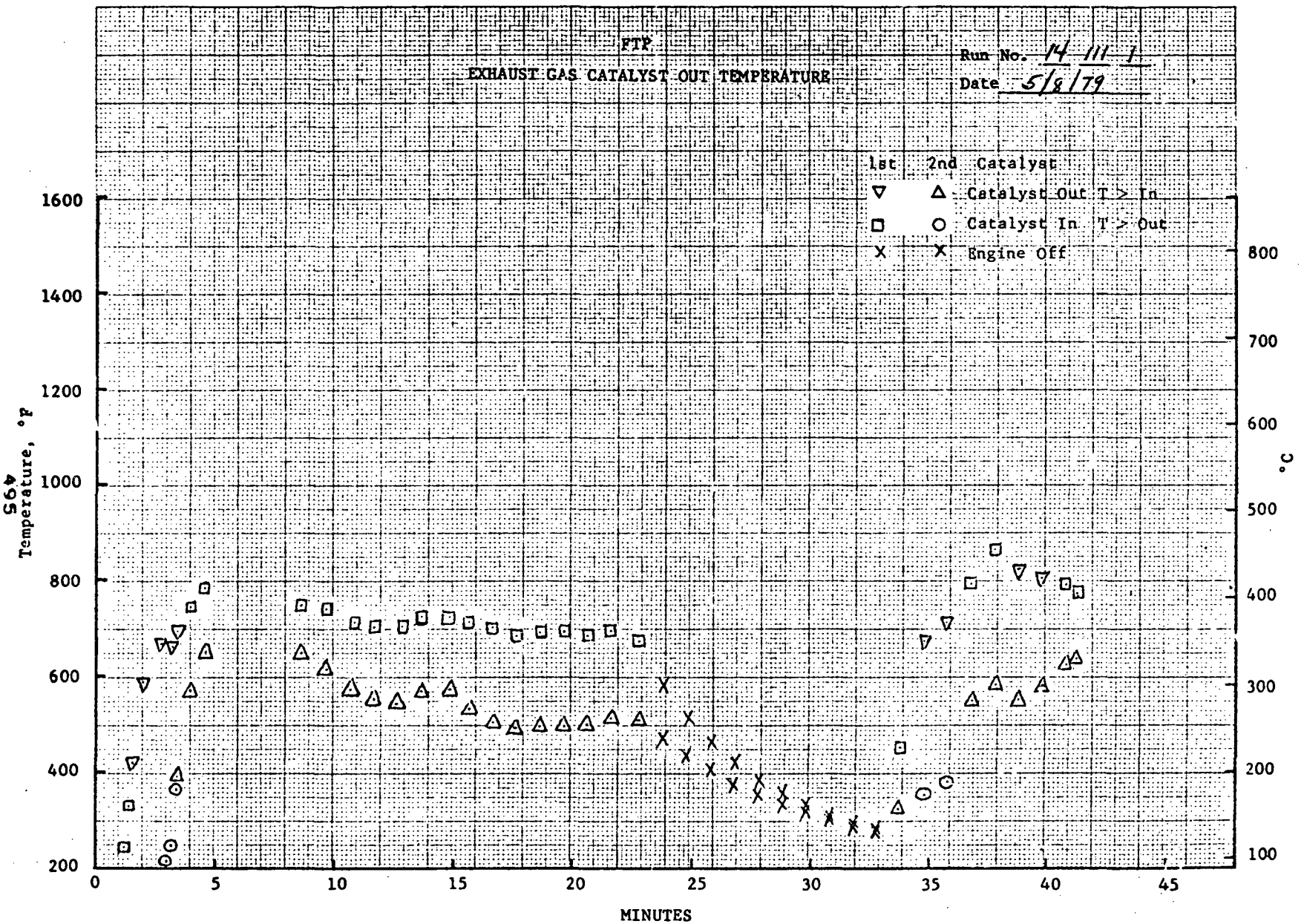
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Catalyst In T > Out
Engine Off
Temperature, °F
°C
MINUTES
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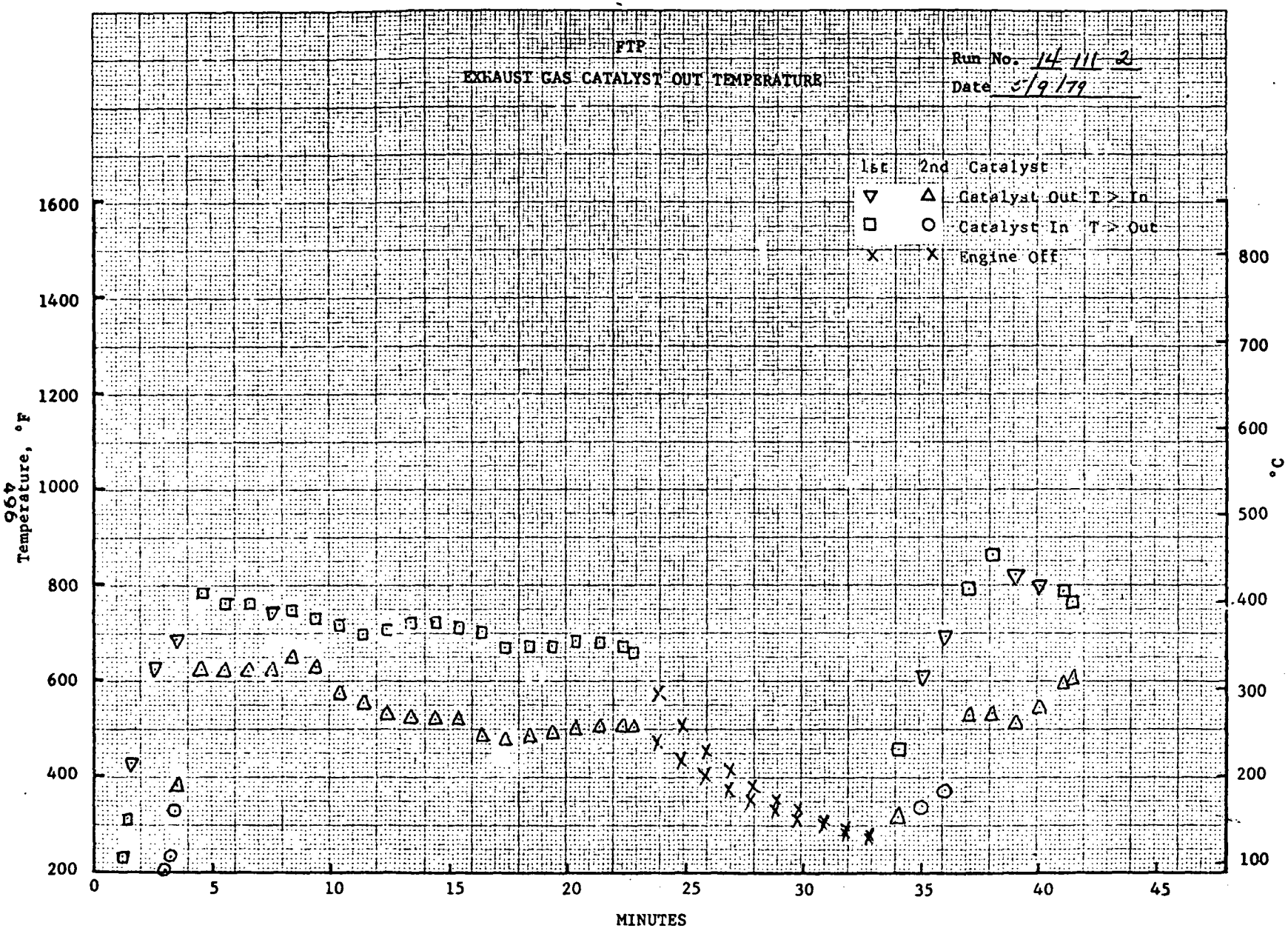
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Catalyst In T > Out
Engine Off
964
Temperature, °F
°C
MINUTES
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TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA-460/3-79-006B		

4. TITLE AND SUBTITLE	5. REPORT DATE
EFFECT OF AMBIENT TEMPERATURE ON VEHICLE EMISSIONS AND PERFORMANCE FACTORS - Appendix A-Test Results For All Vehicles; Appendix B-Plots of Exhaust Gas Catalyst Out Temperatures	September, 1979
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) R. S. Spindt, R. E. Dizak, R. M. Stewart, W.A.P. Meyer	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Gulf Research & Development Company Cheswick, PA 15024	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO. EPA 68-03-2530
12. SPONSORING AGENCY NAME AND ADDRESS Environmental Protection Agency Office of Mobile Source Air Pollution Control Emission Control Technology Division Characterization & Applications Branch, Ann Arbor,MI 48105	13. TYPE OF REPORT AND PERIOD COVERED Final Report
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15. SUPPLEMENTARY NOTES

16. ABSTRACT

Ambient temperatures have been reported to affect automotive emissions and fuel economies since 1966. Federal automobile emission standards and the measured fuel economies are currently based on results obtained using the 1975 Federal Test Procedure and the Highway Fuel Economy Test. Both tests must be conducted at ambient temperatures from 68°F (20°C) to 86°F (30°C). Since cars in service must start and run over a much broader temperature range than this, the U.S. Environmental Protection Agency wanted to know how well the various car age groups and emission control technologies available today would perform at the more extreme ambient temperatures using the above test procedures as well as other specialized tests. It was also desired to know how the use of a car's air conditioner would affect exhaust emissions and fuel economies.

This report presents the results of exhaust emissions (regulated and unregulated) and fuel economies associated with fourteen selected vehicles tested at ambient temperatures ranging from 0°F (-18°C) to 110°F (43°C) using the various test procedures.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Vehicle emissions*, Vehicle fuel economy*, Ambient temperatures*, Air conditioning, Short tests, Federal Test Procedure, Highway Fuel Economy Test, Sulfate Emission Test, New York City Cycle, Driveability, Catalyst temperatures		

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