

Evaluation of The Temperature Effects on  
Five 1981 Passenger Vehicles

by

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Office of Mobile Source Air Pollution Control  
Office of Air, Noise, and Radiation  
Environmental Protection Agency

## Background

The present Federal Test Procedures (FTP) and Highway Fuel Economy Test (HFET) are run at temperatures between 68°F and 86°F. Because emission standards are based on these test procedures the emission control systems are somewhat tailored to be most effective in the 68° to 86°F tolerance. There is some question as to how well such emission control systems work at ambient temperatures outside of the FTP tolerances. While extensive testing of late model vehicles has been performed in the past, the improvements, refinements, and new technology introduced on new vehicles requires a periodic reassessment as to the emission characteristics of new vehicles at various temperatures. This project tested five (5) 1981 vehicles with mileages between 500 and 7200 miles, at 20°, 60°, 75°, and 100°F. The results will give an overview of how 1981 model year production vehicles emission systems react to varying ambient conditions.

## Test Procedures

Using the EPA Cold Environmental Test Cell (CETC) exhaust emissions were collected according to the Federal Test Procedure (FTP) and the Highway Fuel Economy Test (HFET) procedures. Five (5) different vehicles were used to conduct the testing. Vehicle Identification sheets are attached for all five (5) vehicles. Each vehicle ran a valid FTP and HFET at 20°, 60°, 75°, and 100°F. The CETC is a room that is capable of testing as low as 20°F and as high as 100°F. The dynamometer is a Labeco Electric dynamometer. A vehicle can be tested by means of a forced cooldown to lower fluid level temperatures to 20°F in approximately 4 to 5 hours or by a 12-36 hour soak at the test temperature. Previous testing has shown no discernible differences between the two preconditioning methods for either fuel economy or emissions. The room is closed off with the vehicle inside.

## Test Results

The attached graphs show the changes in emission levels at different temperatures. On the attached computer readout it can be noted that emission levels were reduced and fuel economy increased as the temperature increased. In the (HFET) test, emission levels and fuel economy were not affected as drastically as in the FTP.

## Conclusions

- The lower the ambient temperature is, the higher the emission levels for city driving are.
- Driveability of all vehicles was good at all temperatures tested.
- Ambient temperatures do not affect emission levels drastically for expressway driving.

VEHICLE.ID B3BK26848C184143  
TEST.PROCEDURE CVS.75-LATR

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810713	03-81-09	22.0	1.73432	27.8086	1.1753	18.2396
810711	02-81-09	59.0	.32677	6.5117	1.2063	19.9164
810697	01-81-09	72.5	.25211	5.6309	1.0150	20.5926
810734	02-81-09	97.0	.18463	3.7482	.8802	21.1912

VEHICLE.ID B3BK26848C184143  
TEST.PROCEDURE HWFE

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810712	03-81-09	29.0	.03147	.1378	1.0273	30.8651
810710	02-81-09	59.5	.01582	.0380	.9487	31.1038
810698	01-81-09	72.5	.01465	.0475	.9877	30.0486
810733	02-81-09	100.5	.01633	.2190	.9396	32.3186

VEHICLE.ID 1FABP082XBW20356  
TEST.PROCEDURE CVS.75-LATR

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810849	17-81-09	23.0	1.80119	21.1745	.9185	23.0352
810826	16-81-09	58.5	.44350	4.3669	.6856	26.5294
810822	15-81-09	75.0	.42787	4.4442	.5790	26.7648
810824	17-81-09	98.0	.40001	5.3256	.4784	27.4857

VEHICLE.ID 1FABP082XBW20356  
TEST.PROCEDURE HWFE

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810829	16-81-09	21.0	.14453	.9379	.7397	39.0774
810827	16-81-09	59.0	.12728	1.0207	.6019	41.2460
810823	15-81-09	73.0	.12791	1.0789	.5327	41.2273
810825	17-81-09	98.0	.13271	1.5465	.5045	41.0832

VEHICLE.ID 1FABP2183BK15310  
TEST.PROCEDURE CVS.75-LATR

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810575	26-81-08	22.2	3.49503	70.3328	.2791	15.2215
810573	25-81-08	59.0	.13139	.8699	.3343	16.6762
810569	20-81-08	74.0	.17919	1.2058	.2327	16.4082
810571	24-81-08	100.0	.14956	1.3643	.2406	17.8572

VEHICLE.ID 1FABP2183BK15310  
TEST.PROCEDURE HWFE

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810574	26-81-08	23.0	.06995	.1532	.1173	21.7112
810572	25-81-08	58.0	.04913	.0441	.1364	21.9933
810568	20-81-08	74.0	.07043	.1522	.1192	22.2004
810570	24-81-08	100.0	.08272	.1948	.1294	23.8031

VEHICLE.ID 1G1AX88X7B621755  
TEST.PROCEDURE CVS.75-LATR

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810752	24-81-09	22.0	1.68618	12.8613	.8072	18.2263
810750	22-81-09	60.5	.48657	5.5396	.6933	20.2316
810746	14-81-09	75.0	.32595	4.6558	.5624	21.0466
810748	21-81-09	101.5	.26477	3.3283	.5257	21.6785

VEHICLE.ID 1G1AX68X7B621755  
TEST.PROCEDURE HWFE

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
810753	24-81-09	22.0	.03318	.6198	.2934	30.8909
810751	22-81-09	60.5	.02763	1.0268	.1891	31.3685
810747	14-81-09	75.0	.03137	1.4175	.1890	31.5222
810749	21-81-09	101.5	.05357	2.3297	.1718	32.2673

VEHICLE.ID 2G1AW69J6B144479  
TEST.PROCEDURE CVS.75-LATR

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
811194	04-81-11	18.7	1.76180	28.1024	.7193	16.2198
811188	22-81-10	60.0	.36482	2.6478	.7796	18.5400
811180	20-81-10	73.6	.32914	2.3968	.6917	18.9566
811184	19-81-10	100.7	.23896	1.7240	.5712	19.7745

VEHICLE.ID 2G1AW69J6B144479  
TEST.PROCEDURE HWFE

TEST.NUMBER	TEST.DATE	DRY.BULB	UNRD.GPM.HC	UNRD.GPM.CO	UNRD.GPM.NOX	WGTD.MI/GALLON
811195	04-81-11	20.0	.07772	.3343	.4348	28.0845
811189	22-81-10	61.5	.06633	.2494	.4003	28.0103
811181	21-81-10	73.6	.06139	.1198	.4013	27.9415
811185	19-81-10	100.5	.06528	.0545	.3736	28.0384

DATE JAN 20, 1982

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 VEHICLE SPECIFICATION REPORT - - DATE OF ENTRY : 3/23/81  
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 VEHICLE SPECIFICATIONS  
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MANUFACTURER	VEHICLE ID / VER	REPRESENTED CARLINE	MODEL CODE	DRIVE CODE	SOURCE
CHRYSLER	B3BK26B4BC184143 0		SEDAN	FRONT DRIVE STR. LEFT	OTHER

VEHICLE TYPE	ACTUAL VEHICLE MODEL	MODEL YEAR	ACTIVE YEAR	DRIVE FULL TANK	AXL WTS EMPTY TANK	CURB WEIGHT	INRTIA CLASS	EQUIV. TEST WEIGHT	O/D CODE	ACTUAL DYNO HP	RUNNING CHG NUMBER
NON-CER	CHRYSLER	81	81	1630P		2450P	2750P	2750P		7.1	

PRIMARY DURABILITY VEHICLE ID OR ASSIGNED DF	ALT. MANUFACTURER	TIRE - SPECIFICATIONS									
		TIRE SIZES	RIM MFR	CONSTR	SWL	BLT	PSI	MM	FT	RR	
		P175/70R13	GOODYEAR	RADIAL	1 P	3 0	35	35			

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 ENGINE SPECIFICATIONS  
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DISPLACEMENT	BORE	STROKE	RATED HP	ENGINE TYPE	ENGINE CONFIGURATION	NO. CYL.	NO. CARBS	TOTAL # BBLs	FUEL SYSTEM MFR/MODEL	FUEL INJECT? TURBO?	COMP. RATIO	COAST-DOWN TM		
135. E	3.44E	3.62E	90	OTTO SPARK	IN-LINE	4	1	2		NO NO	8.5			
IGNITION TIMING 1	IGNITION TIMING 2	TIM. TOL.	TIMING RPM	RPM TOL.	TIM. GEAR	% CO LEFT	% CO RIGHT	% CO COMB.	CU TOL.	IDLE RPM	IDLE TOL.	IDLE GEAR	ENGINE FAMILY	ENGINE CODE
10B		10	900	900				.0		840		NEUTRAL	BCK2.2V2	

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 DRIVE TRAIN AND CONTROL SYSTEM SPECIFICATIONS  
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AXLE RATIO	N/V RATIO	ODOMETER	A/C INSTALLED	EXHAUST TYPE	CRANKCASE SYSTEM	TRANSMISSION CONFIGURATION	TRANSMISSION CODE	EVAPORATION SYSTEM	FUEL TYPE
2.78	.	MILES	YES	SINGLE LEFT REAR	CLOSED	AUTO	AUTO	CANISTER	UNLEADED (AT EPA-IND NO)
MAIN-TANK CAPACITY	MAIN-TANK VOLUME	AUX.-TANK CAPACITY	AUX.-TANK VOLUME	SHIFT SPEED	EVAPORATIVE EMISSION FAMILY	EVAPORATIVE EMISSION CODE	SALES CLASS		
13. G	5.2G				BCKRH	A			

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 CONTROL SYSTEM TYPES  
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EXHAUST RECYCLE	AIR PUMP	OXIDATION CATALYST	THREE-WAY CATALYST	CLOSED LOOP
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 VEHICLE SPECIFICATION COMMENTS  
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ACTUAL VEHICLE ID =1H3BK26B4BC184143

DATE JAN 20, 1982.

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 VEHICLE SPECIFICATION REPORT - - DATE OF ENTRY : 4/ 8/81  
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 VEHICLE SPECIFICATIONS  
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MANUFACTURER	VEHICLE ID / VER	REPRESENTED CARLINE	MODEL CODE	DRIVE CODE	SOURCE
FORD	1FABP0B2XBW20356 0		STATION WA	FRONT DRIVE STR. LEFT	OTHER

VEHICLE TYPE	ACTUAL VEHICLE MODEL	MODEL YEAR	ACTIVE YEAR	DRIVE AXL WTS FULL TANK	EMPTY TANK	CURB WEIGHT	INRTIA CLASS	EQUIV. TEST WEIGHT	O/D CODE	ACTUAL DYNO HP	RUNNING CHG NUMBER
NON-CER	FORD ESCORT	81	81	1360P		2195P	2500P	2500P		7.1	

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 TIRE - SPECIFICATIONS  
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PRIMARY DURABILITY VEHICLE ID OR ASSIGNED OF	ALT. MANUFACTURER	TIRE & RIM SIZES	MFR	CONSTR	SWL	BLT	PSI
		P155/80R13	MICHELIN	RADIAL	1 R 1 R		45

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 ENGINE SPECIFICATIONS  
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DISPLACEMENT	BORE	STROKE	RATED HP	ENGINE TYPE	ENGINE CONFIGURATION	NO. CYL.	NO. CARBS	TOTAL # BBLs	FUEL SYSTEM MFR/MODEL	FUEL INJECT?	TURBO?	COMP. RATIO	COAST-DOWN TM	
1.6M	80.00M	79.50M	87	OTTO SPARK	IN-LINE	4	1	2	MOTORCRAFT	NO	NO	.		
IGNITION TIMING 1	IGNITION TIMING 2	TIM. TOL.	TIMING RPM	RPM TOL.	TIM. GEAR	% CO LEFT	% CO RIGHT	% CO COMB.	CO TOL.	IDLE RPM	IDLE TOL.	IDLE GEAR	ENGINE FAMILY	ENGINE CODE
10B			900									NEUTRAL	E1EE-9C48S-6B	

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 DRIVE TRAIN AND CONTROL SYSTEM SPECIFICATIONS  
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AXLE RATIO	N/V RATIO	ODOMETER	A/C INSTALLED	EXHAUST TYPE	CRANKCASE SYSTEM	TRANSMISSION CONFIGURATION	EVAPORATION SYSTEM	FUEL TYPE
.	.	MILES	YES	SINGLE LEFT REAR	CLOSED	M-4	CANISTER	UNLEADED (AT EPA-IND HO)
MAIN-TANK CAPACITY	TANK VOLUME	AUX.-TANK CAPACITY	TANK VOLUME	SHIFT SPEED	EVAPORATIVE EMISSION FAMILY	EMISSION CODE	SALES CLASS	
10.0G	4.0G			DO NOT SHIFT MANUALLY	CM			

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 CONTROL SYSTEM TYPES  
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EXHAUST RECYCLE	AIR PUMP	OXIDATION CATALYST	CLOSED LOOP
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 VEHICLE SPECIFICATION COMMENTS  
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DATE JAN 20, 1982

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 VEHICLE SPECIFICATION REPORT - - DATE OF ENTRY : 4/ 8/81  
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 VEHICLE SPECIFICATIONS  
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MANUFACTURER	VEHICLE ID / VER	REPRESENTED CARLINE	MODEL CODE	DRIVE CODE	SOURCE
FORD	1FABP21B3BK15310 0		SEDAN	REAR DRIVE STR. LEFT	OTHER

VEHICLE TYPE	ACTUAL VEHICLE MODEL	MODEL YEAR	ACTIVE YEAR	DRIVE AXL WTS FULL TANK	EMPTY TANK	CURB WEIGHT	INRTIA CLASS	EQUIV. TEST WEIGHT	O/D CODE	ACTUAL DYNO HP	RUNNING CHG NUMBER
NON-CER	FORD FAIRMONT	81	81	1250P		2895P	3500P	3375P		11.1	

PRIMARY DURABILITY VEHICLE ID OR ASSIGNED DF \_\_\_\_\_  
 ALT. MANUFACTURER \_\_\_\_\_

TIRE - SPECIFICATIONS  
 TIRE & RIM SIZES \_\_\_\_\_ SWL BLT PSI  
 MFR CONST N M N M FT RR  
 P175/75R14 BF GOODRICH RADIAL 2 P 2 S

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 ENGINE SPECIFICATIONS  
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DISPLACEMENT	BORE	STROKE	PATED HP	ENGINE TYPE	ENGINE CONFIGURATION	NO. CYL.	NO. CARBS	TOTAL # HBLS	FUEL SYSTEM MFR/MODEL	FUEL INJECT? TURBO?	COMP. RATIO	COAST-DOWN TM		
3.3M	.	.		OTTO SPARK	IN-LINE	6	1		MOTORCRAFT	NO NO	.			
IGNITION TIMING 1	IGNITION TIMING 2	TIM. TOL.	TIMING RPM	RPM TOL.	TIM. GEAR	% CO LEFT	% CO RIGHT	% CO COMB.	CO TOL.	IDLE RPM	IDLE TOL.	IDLE GEAR	ENGINE FAMILY	ENGINE CODE
10B			900									NEUTRAL	E1BE-9C485-BA	

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 DRIVE TRAIN AND CONTROL SYSTEM SPECIFICATIONS  
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AXLE RATIO	N/V RATIO	ODOMETER	A/C INSTALLED	EXHAUST TYPE	CRANKCASE SYSTEM	TRANSMISSION CONFIGURATION	TRANSMISSION CODE	EVAPORATION SYSTEM	FUEL TYPE
.	.	MILFS	YES		CLOSED	A-3		CANISTER	UNLEADED (AT EPA-IND HO)
MAIN-TANK CAPACITY	N/V TANK VOLUME	AUX.-TANK CAPACITY	TANK VOLUME	SHIFT SPEED	EVAPORATIVE EMISSION FAMILY	EMISSION CODE	SALES CLASS		
.				DO NOT SHIFT MANUALLY	AM				

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 CONTROL SYSTEM TYPES  
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EXHAUST RECYCLE \_\_\_\_\_ AIR PUMP \_\_\_\_\_  
 THREE-WAY CATALYST \_\_\_\_\_ NONE \_\_\_\_\_  
 NONE \_\_\_\_\_

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 VEHICLE SPECIFICATION COMMENTS  
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DATE JAN 20, 1982

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 VEHICLE SPECIFICATION REPORT - - DATE OF ENTRY : 4/ 8/81  
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 VEHICLE SPECIFICATIONS  
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MANUFACTURER	VEHICLE ID / VER	REPRESENTED CARLINE	MODEL CODE	DRIVE CODE	SOURCE
GENERAL MOTORS	1G1AX68X7B621755 0	12020	SEDAN	FRONT DRIVE STR. LEFT	OTHER

VEHICLE TYPE	ACTUAL VEHICLE MODEL	MODEL YEAR	ACTIVE YEAR	DRIVE AXL WTS FULL TANK	EMPTY TANK	CURB WEIGHT	INRTIA CLASS	EQUIV. TEST WEIGHT	O/D CODE	ACTUAL DYNO HP	RUNNING CHG NUMBER
NON-CER	CHEVROLET CITATION	81	81			2705P	3000P	3000P		7.3	

TIRE - SPECIFICATIONS

PRIMARY DURABILITY VEHICLE ID OR ASSIGNED OF	ALT. MANUFACTURER	TIRE & RIM SIZES	MFR	CONSTR	SHL	BLT	PSI
		P185/80R13	UNIROYAL				45

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 ENGINE SPECIFICATIONS  
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DISPLACEMENT	BORE	STROKE	RATED HP	ENGINE TYPE	ENGINE CONFIGURATION	NO. CYL.	NO. CARBS	TOTAL # BBLs	FUEL SYSTEM MFR/MODEL	FUEL INJECT?	TURBO?	COMP. RATIO	COAST-DOWN TM
2.8M	89.00M	76.00M		OTTO SPARK	V-BLOCK	6	1	2		NO	NO		

IGNITION TIMING 1	IGNITION TIMING 2	TIM. TOL.	TIMING RPM	RPM TOL.	TIM. GEAR	% CO LEFT	% CO RIGHT	% CO COMB.	CO TOL.	IDLE RPM	IDLE TOL.	IDLE GEAR	ENGINE FAMILY	ENGINE CODE
													11C2NDM	

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 DRIVE TRAIN AND CONTROL SYSTEM SPECIFICATIONS  
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AXLE RATIO	N/V RATIO	ODOMETER	A/C INSTALLED	EXHAUST TYPE	CRANKCASE SYSTEM	TRANSMISSION CONFIGURATION	CODE	EVAPORATION SYSTEM	FUEL TYPE
		MILES	YES		CLOSED	A-3		CANISTER	UNLEADED (AT EPA-IND HO)

MAIN-TANK CAPACITY	VOLUME	AUX.-TANK CAPACITY	VOLUME	SHIFT SPEED	EVAPORATIVE EMISSION FAMILY	CODE	SALES CLASS
14.0G	5.6G			DO NOT SHIFT MANUALLY	1B5-1	101	

CONTROL SYSTEM TYPES

EXHAUST RECYCLE	PULSATING AIR SYSTEM	OXIDATION CATALYST	CLOSED LOOP
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 VEHICLE SPECIFICATION COMMENTS  
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DATE JAN 20, 1982

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 VEHICLE SPECIFICATION REPORT - - DATE OF ENTRY : 4/ 8/81  
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 VEHICLE SPECIFICATIONS  
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MANUFACTURER	VEHICLE ID / VER	REPRESENTED CARLINE	MODEL CODE	DRIVE CODE	SOURCE
GENERAL MOTORS	2G1AW69J6B144479 0	12030	SEDAN	REAR DRIVE STR. LEFT	OTHER

VEHICLE TYPE	ACTUAL VEHICLE MODEL	MODEL YEAR	ACTIVE YEAR	DRIVE AXL WTS FULL TANK	EMPTY TANK	CURB WEIGHT	INRTIA CLASS	EQUIV. TEST WEIGHT	O/D CODE	ACTUAL DYNO HP	RUNNING CHG NUMBER
CON-CER	CHEVEROLET MALIBU	81	81	1470P		3445P	3500P	3625P		11.1	

TIRE - SPECIFICATIONS

PRIMARY DURABILITY VEHICLE ID OR ASSIGNED DF	ALT. MANUFACTURER	TIRE & RIM SIZES	MFR	CONSTR	SWL	BLT	PSI
		P195/75R14	UNIROYAL	RADIAL	1	S 3 P	45

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 ENGINE SPECIFICATIONS  
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DISPLACEMENT	BORE	STROKE	RATED HP	ENGINE TYPE	ENGINE CONFIGURATION	NO. CYL.	NO. CARBS	TOTAL # FBLS	FUEL SYSTEM MFR/MODEL	FUEL INJECT?	TURBO?	COMP. RATIO	COAST-DOWN TM	
267.0E	3.50E	3.48E		OTTO SPARK	V-BLOCK	8	1	2	GM 210	NO	NO	8.3		
IGNITION TIMING 1	IGNITION TIMING 2	TIM. TOL.	TIMING RPM	RPM TOL.	TIM. GEAR	% CO LEFT	% CO RIGHT	% CO COMB.	CO TOL.	IDLE RPM	IDLE TOL.	IDLE GEAR	ENGINE FAMILY	ENGINE CODE
6B			500									DRIVE	1102AC	

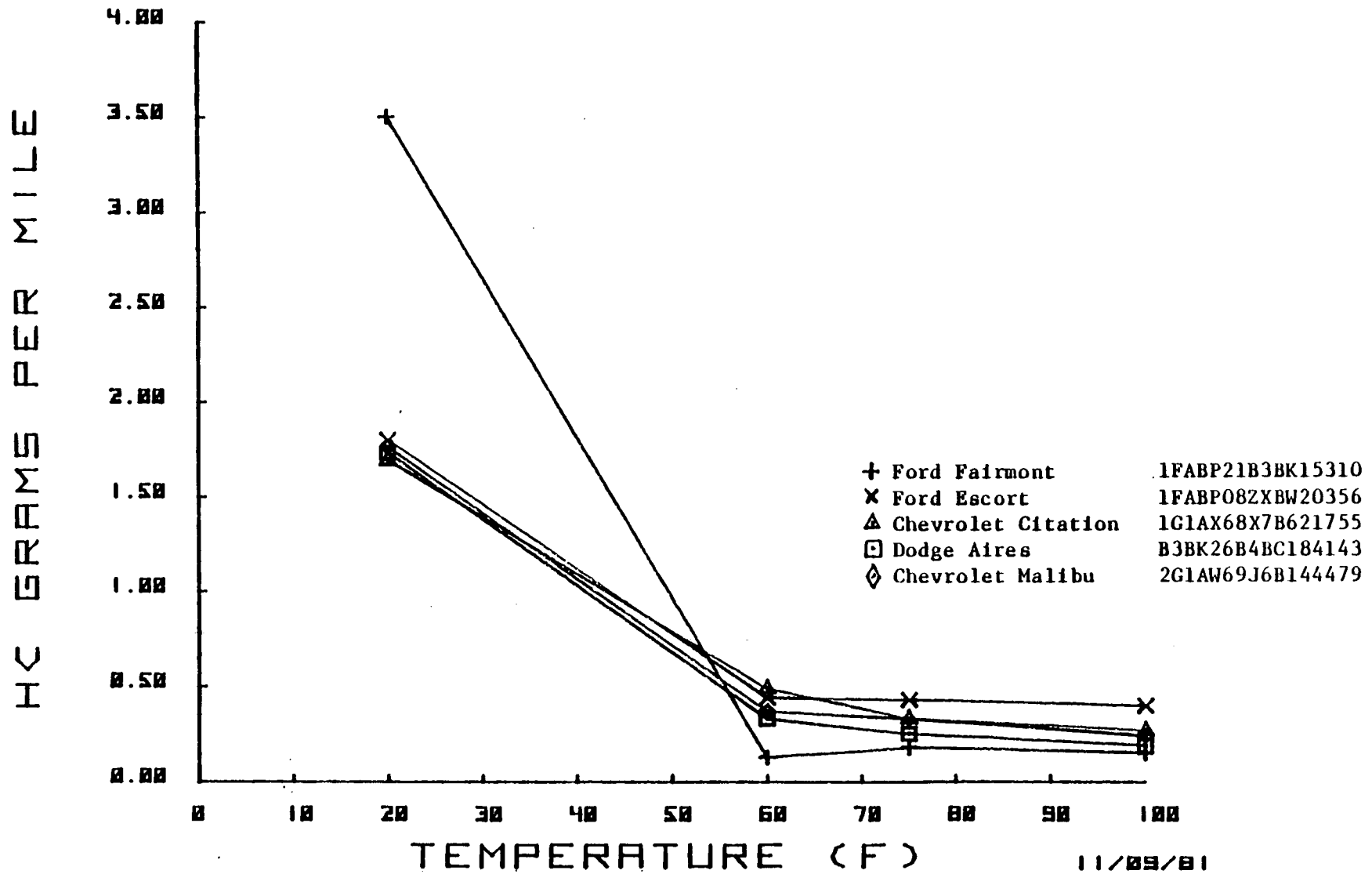
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 DRIVE TRAIN AND CONTROL SYSTEM SPECIFICATIONS  
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AXLE RATIO	N/V RATIO	ODOMETER	A/C INSTALLED	EXHAUST TYPE	CRANKCASE SYSTEM	TRANSMISSION CONFIGURATION	CODE	EVAPORATION SYSTEM	FUEL TYPE
.	.	MILFS	YES		CLOSED	A-3		CANISTER	UNLEADED (AT EPA-IND 60)
MAIN-TANK CAPACITY	VOLUME	AUX.-TANK CAPACITY	VOLUME	SHIFT SPEED	EVAPORATIVE EMISSION FAMILY	CODE	SALES CLASS		
18.16	7.26			DO NOT SHIFT MANUALLY	1R3S-1	9			
CONTROL SYSTEM TYPES									
EXHAUST RECYCLE	AIR PUMP	OXIDATION CATALYST	THREE-WAY CATALYST	CLOSED LOOP					

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 VEHICLE SPECIFICATION COMMENTS  
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# CETC DATA SUMMARY

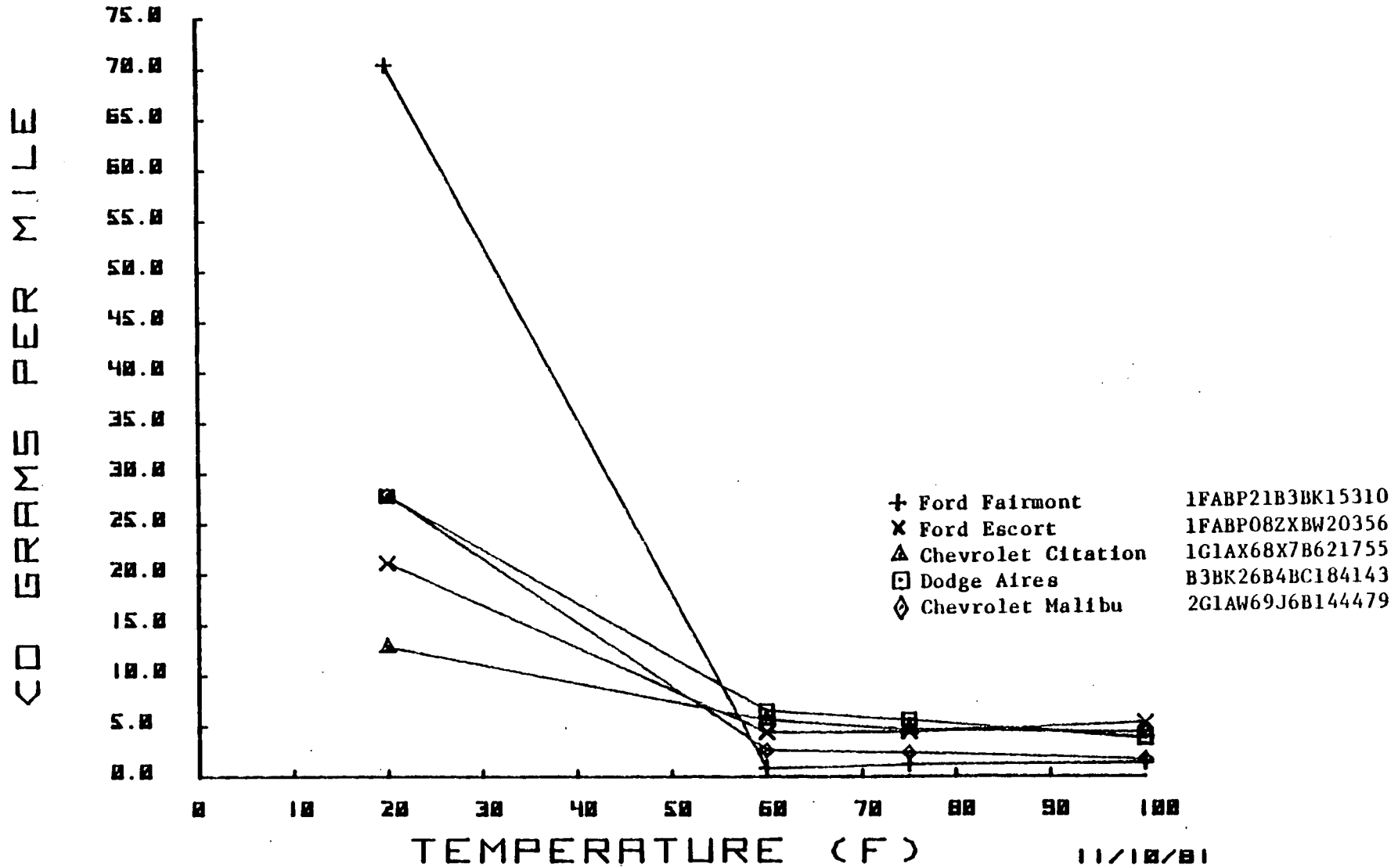
## FTP HC VS TEMPERATURE



11/09/81

# CETC DATA SUMMARY

## FTP CO VS TEMPERATURE

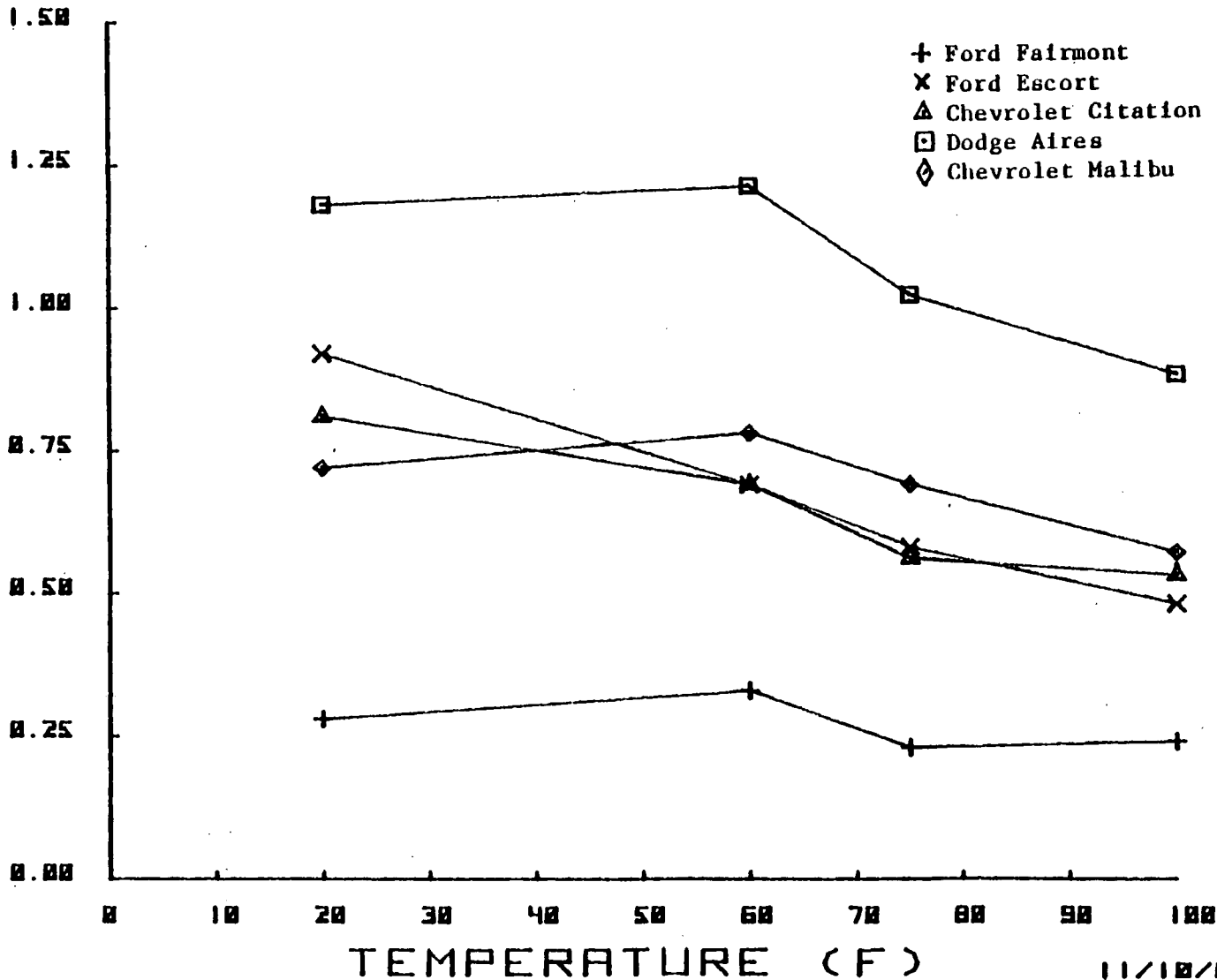


11/10/81

# CETC DATA SUMMARY

## FTP NOX VS TEMPERATURE

NOX GRAMS PER MILE



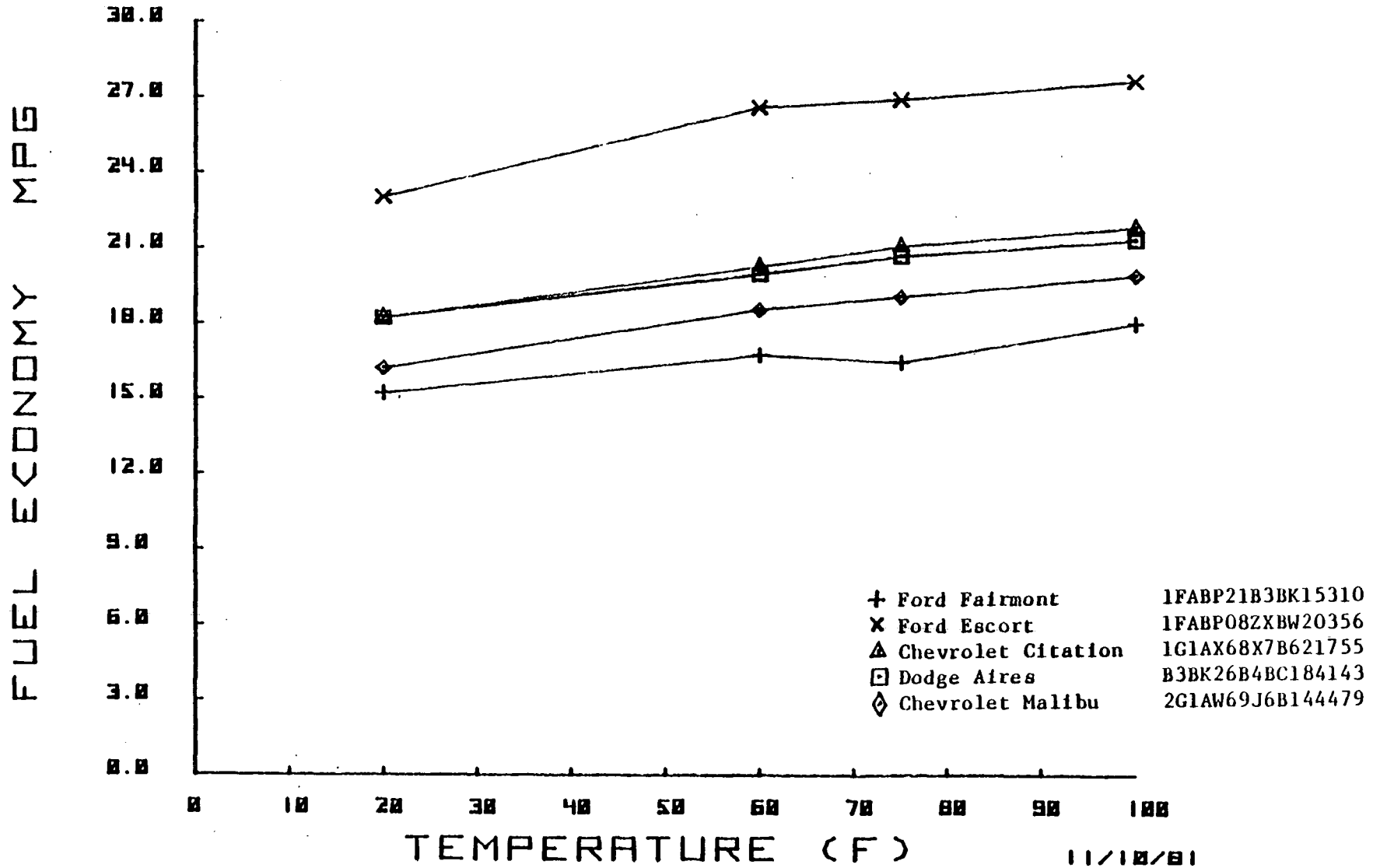
- + Ford Fairmont
- X Ford Escort
- △ Chevrolet Citation
- Dodge Aires
- ◇ Chevrolet Malibu

1FABP21B3BK15310  
 1FABP08ZXBW20356  
 1G1AX68X7B621755  
 B3BK26B4BC184143  
 2G1AW69J6B144479

11/10/81

# CETC DATA SUMMARY

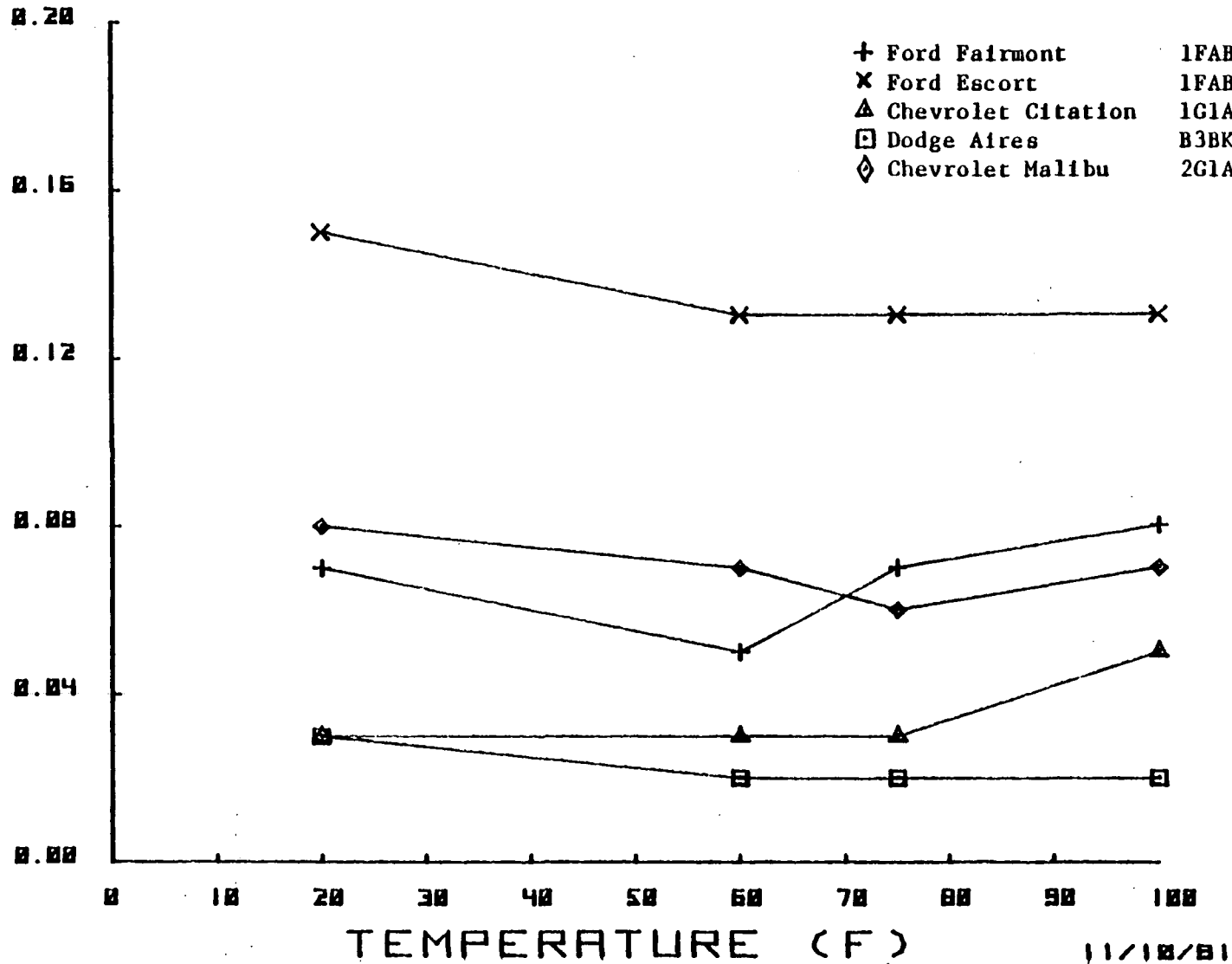
## F.T.P. MPG VS TEMPERATURE



# CETC DATA SUMMARY

## FET HC VS TEMPERATURE

HC GRAMS PER MILE

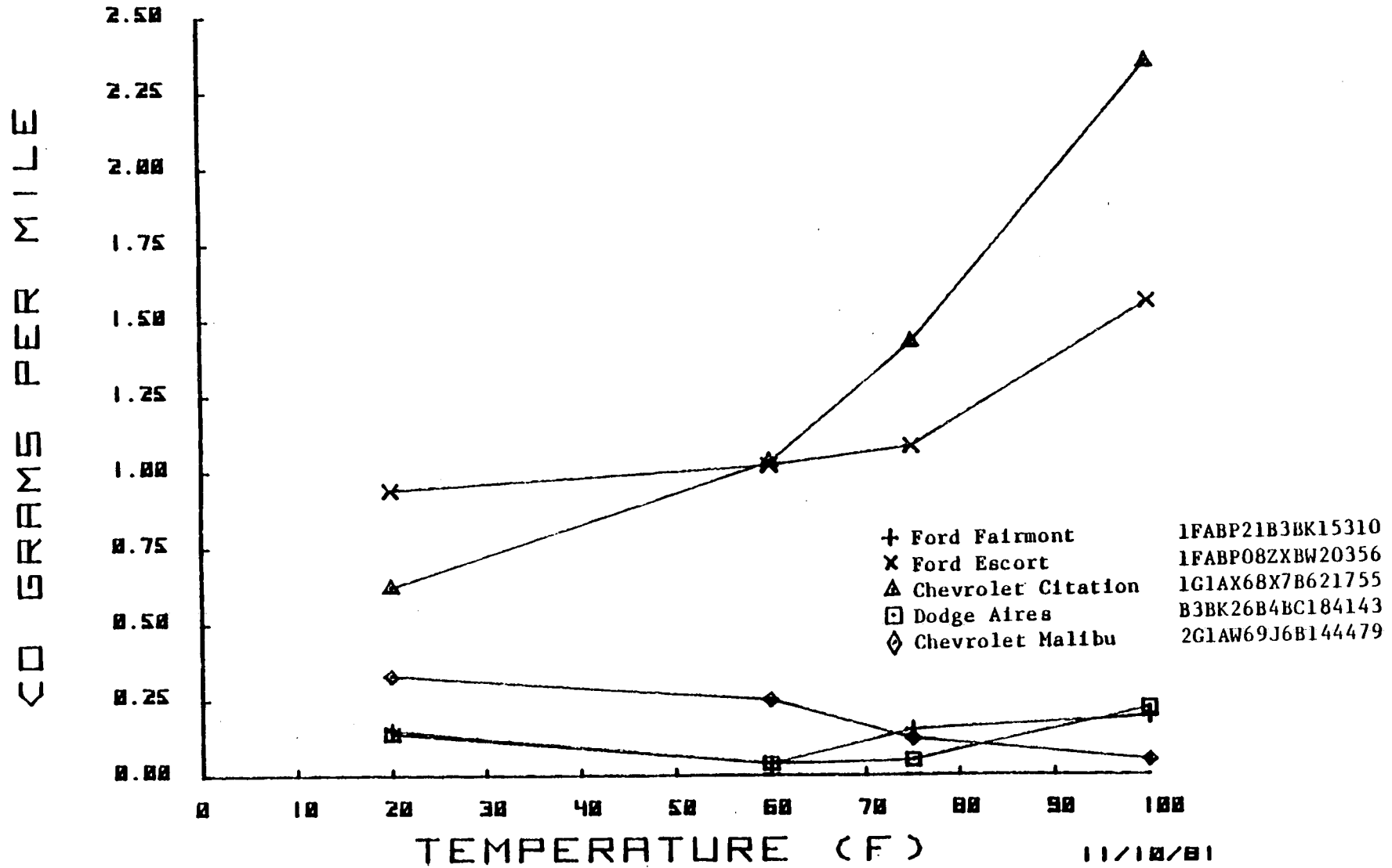


+	Ford Fairmont	1FABP21B3BK15310
x	Ford Escort	1FABP08ZXBW20356
Δ	Chevrolet Citation	1G1AX68X7B621755
□	Dodge Aires	B3BK26B4BC184143
◇	Chevrolet Malibu	2G1AW69J6B144479

11/18/81

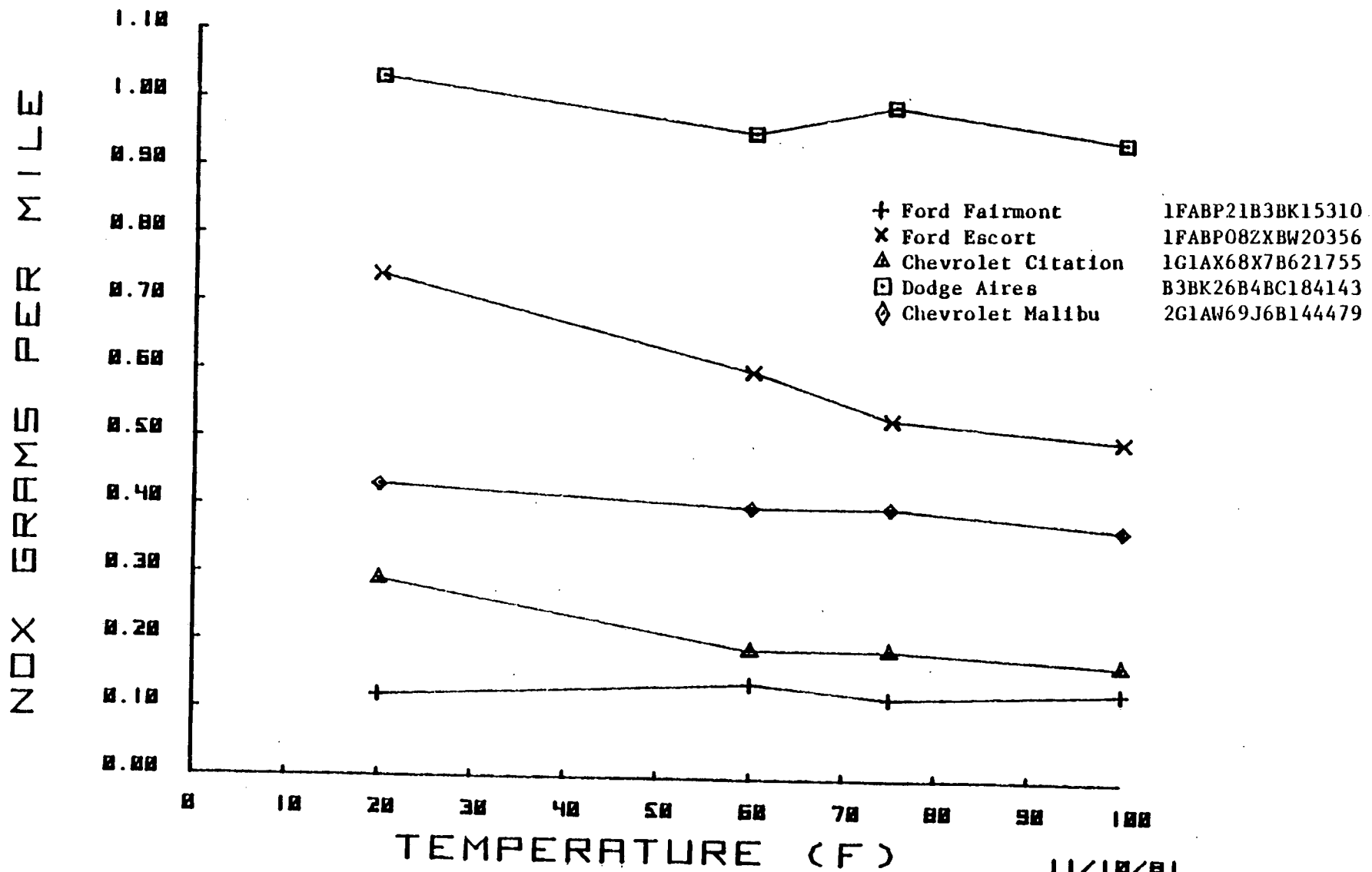
# CETC DATA SUMMARY

## FET CO VS TEMPERATURE



# CETC DATA SUMMARY

## FET NOX VS TEMPERATURE

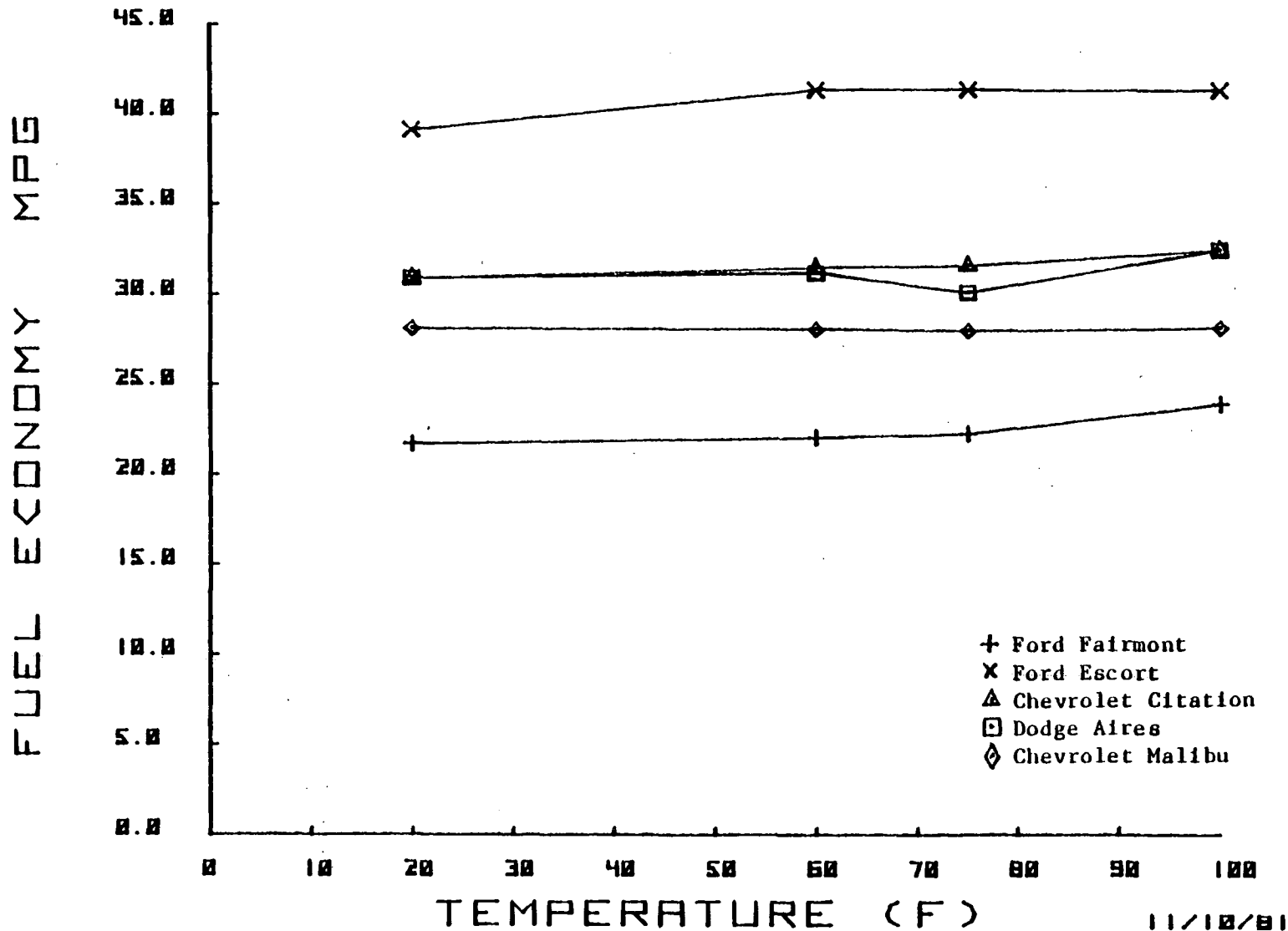


11/10/81



# CETC DATA SUMMARY

## FET MPG VS TEMPERATURE

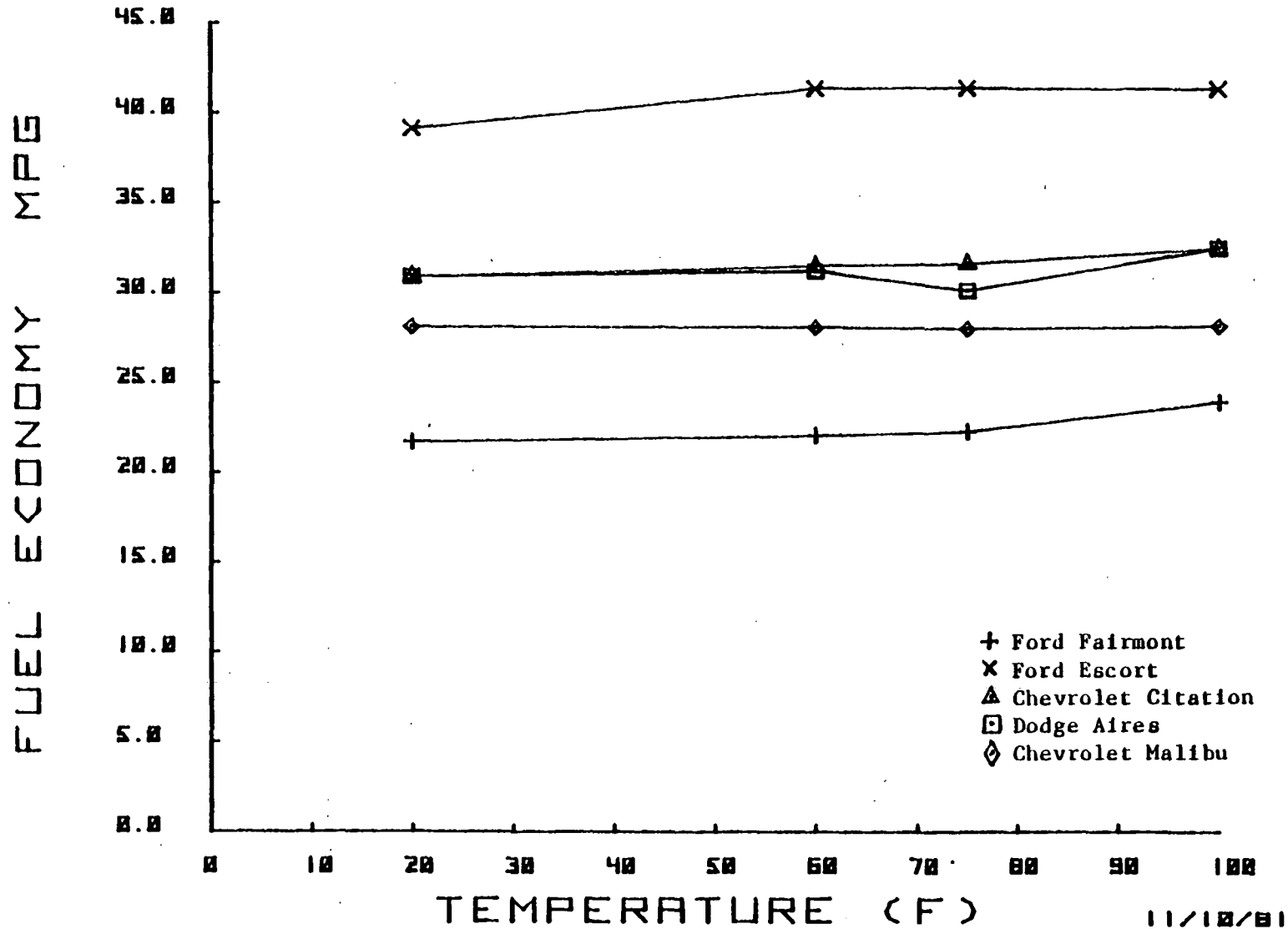


+ Ford Fairmont	1FABP21B3BK15310
x Ford Escort	1FABP082XBW20356
Δ Chevrolet Citation	1G1AX68X7B621755
□ Dodge Aires	B3BK26B4BC184143
◇ Chevrolet Malibu	2G1AW69J6B144479

11/10/81

# CETC DATA SUMMARY

## FET MPG VS TEMPERATURE



+ Ford Fairmont	1FABP21B3BK15310
X Ford Escort	1FABP08ZXBW20356
Δ Chevrolet Citation	1G1AX68X7B621755
□ Dodge Aires	B3BK26B4BC184143
◇ Chevrolet Malibu	2G1AW69J6B144479

11/10/81