PB81-165995

Application for Certification 1981 Model Year Light-Duty Vehicles - Maserati

Olson Engineering, Inc.
Huntington Beach, CA

Prepared for

Environmental Protection Agency
Washington, DC

1981

NOTICE

The official copy of this Application for Certification is on file at the Office of Mobile Source Air Pollution Control, EPA, Motor Vehicle Emission Laboratory in Ann Arbor, Michigan. The version of the document contained herein was prepared by the manufacturer for public distribution. Since some of the data contained in the official copy may be considered by a manufacturer to be trade secret data, the manufacturer has deleted this information from this copy of the report. Data contained in this report should be current as of October 1980. The Environmental Protection Agency has not verified the accuracy or completeness of the information in this report.

MASERATI QUATTROPORTE

1981

APPLICATION

FOR

CERTIFICATION

(Federal & California Standards)

Prepared By

Olson Engineering Inc.
3901 Varsity Drive
Ann Arbor, Michigan 48104 • (313) 973-0310

01.02.00.00 Mailing Information

Name and address of our representative:

S.A. Riggs
Olson Engineering, Inc.
3901 Varsity Drive
Ann Arbor, Michigan 48104

(313) 973-0310

01.02.01.00 Personnel authorized to communicate with EPA staff:

Name:	Mr. Giordano Casarini
Title:	Air Pollution Manager, Maserati
Name:	Mr. Larry D. Smith
Title:	Consulting Engineer, OEI
Name:	
Title:	
Name:	Donel Olson
Title:	Consulting Engineer, OEI
Name:	Steve Riggs
Title:	Consulting Engineer, OEI

01.02.02.00 Certificate Information

01.02.02.01 Corporate name and address to appear on Certificate:

MASERATI AUTOMOBILES INC.

01.02.02.02 Name of person and address to whom certificate should be mailed:

(Please call for pick-up: S.A. Riggs 973-0310)

01.02.03.00 Telex and telecopier information:

n.a.

SECTION 01.00.00.00 COMMUNICATIONS

01.03.00.00 Verbal Contacts-EPA liaison

Name: Mr. S.A. Riggs

Telephone: (313) 973-0310

Name: Mr. D.R. Olson

Telephone: (714) 891-4821

Name: Mr. L.D. Smith

Telephone: (714) 891-4821

Name: Mr. G. Casarini

Telephone: 059 230101 (Italy)

01.04.00.00 APPLICABLE EMISSION STANDARDS

HC	0.41 g/mi	(Federal)
CO	3.4 g/mi	
NOx	1.0 g/mi	
Evap	2.0 g/test	

HC	0.41 g/mi	(California)
CO	7.0 g/mi	
NOx	0.7 g/mi	
Evap	2.0 g/test	

02.00.00.00 STATEMENT OF BUSINESS CONFIDENTIALITY

It is requested that the projected sales figures in Sections 09.04.00.00, 10.08.00.00, and 10.10.25.00 of this Application be held confidential. The public release of projected sales figures will reveal to competitors information which is a trade secret and which can give them undue competitive advantage.

Also to be considered confidential is all information in Section 10.07.05.00 "Catalyst Features." Much of this information is proprietary to the supplier and protected as a trade secret. In addition, the information cannot be obtained by others by legitimate means.

NOTE: INFORMATION IN EACH OF THE SECTIONS LISTED ABOVE HAS BEEN DELETED FROM THIS COPY OF THIS APPLICATION FOR PROPRIETARY REASONS.

SECTION 03.00.00.00 FUELS AND LUBRICANTS

03.01.00.00 Test Fuels - Specifications

03.01.02.00 Unleaded

Analysis of proposed exhaust and evaporative emission test fuel to be used at Olson Engineering, Inc. test center.

ITEM	FEDERAL SPECIFICATIONS	ANALYSIS OF FUEL PROPOSED TO BE USED
Octane, Research, min.		95.4
Sensitivity, min.	7.5	10.1
Pb. (organic), gm/U.S. gal.		0
Distillation Range:		
IBP, °F	75- 95	80
10 percent point, °F	120-135	122
50 percent point, °F	200-230	220
90 percent point, °F	300-325	316
EP, °F (max.)	415	405
Sulfur, wt. percent, max.	0.10	.009
Phosphorus, theory	0.005	0
RVP, lb.	8.7-9.2	9.1
Hydrocarbon Composition:		
Olefins, percent, max.	10	7.9
Aromatics, percent, max.	35	30.5
Saturates, percent	Remainder	Remainder

NOTE:

It is intended to use Indolene Clear as the test fuel.

Above analysis obtained from supplier (Amoco).

SECTION 03.00.00.00 FUELS AND LUBRICANTS

03.02.00.00 Service Accumulation Fuels - Specifications

03.02.02.00 Unleaded

Analysis of proposed mileage accumulation fuel for spark ignition engines. Chevron/Spring/Summer grade/Los Angeles area. (Olson Engineering, Inc.)

ITEM	MANUFACTURER'S RECOMMENDED SPECIFICATIONS	ANALYSIS OF FUEL PROPOSED TO BE USED
Fuel type (Premium, Regular Lead Free)	Lead Free	Lead Free
Octane, Research	91-92	91.6
Minimum Octane (Research) Recommended	91	
Sensitivity	7.5	7.5
Pb. (organic) gm./U.S. gal.		0.01
Phosphorus, gm./U.S. gal.		0.0004
Sulphur wt. percent		0.04
MMT. gm. MM/U.S. gal.		0.0
Hydrocarbon Composition:		
Olefins, percent, max.		10.0
Aromatics, percent, max.		23.4
Saturates, percent		Remainder
RVP, lb. (range)	8.5-9.0	9.0
Additives		Anti-Oxidant
		F-310 * (Proprietary item for deposit control)

NOTE:

The above fuel is commercially available (Spring/Summer grade) gasoline. Analysis, as shown, has been obtained from the supplier (Chevron).

* Typical concentrations of F-310 additive at commercial pumps is 183 lbs./1000 barrels. Commercial pump fuel will be used for mileage accumulation fuel.

Section 03.04.00.00 - Lubricants - Specifications

Include specifications of each lubricant.

Item	Factory-Fill	Recommendation to the Ultimate Purchaser	To be Used in Test Vehicles
Engine Oil			
Generic Type	Non-Synthetic	Same as factory fill	Same as factory fill
Service Designation (SF,SE,CC, etc.)	SE, CCMC		
Viscosity (e.g., SAE 10W30)	SAE 10W50		
Friction Modifier (e.g., graphite, moly., etc.)	None		
Drive Axle and Differential Gear Oil			
Generic Type	Non-Synthetic	Same as factory fill	Same as factory fill
Service Designation (API, GL-5, etc.)	API, GL-5		
Viscosity (e.g., SAE 75W90)	SAE 80W90		
Friction Modifier (e.g., graphite, moly., etc.)	None		

Section 03.04.00.00 - Lubricants - Specifications (continued)

Item	Factory-Fill	Recommendation to the Ultimate Purchaser	To be Used in Test Vehicles
Manual Transmission Oil	N/A		
Generic Type			
Service Designation (API, GL-3, etc.)			
Viscosity (e.g., SAE 75W90)			
Friction Modifier (e.g., graphite, moly., etc.)			
Automatic Transmission Fluid			
Generic Type	Standard ATF	Same as factory fill	Same as factory fill
Service Designation (e.g., ATF, type F, Dexron II)	ATF Dexron GM6032M		
Viscosity (e.g., 8.0 cst at 99°C and 4000 cp max at -40°C)	8.0 cst at 99°C and 4000 cp max at -40°C		
Friction Modifier (e.g., graphite, moly., etc.)	None		

Section 03.04.00.00 - Lubricants - Specifications (continued)

Describe any other differences between proposed production vehicle lubricants and proposed emission and fuel economy test vehicle lubricants for:

a) Factory-fill lubricants (including break-in additives and special parts lubrication during vehicle build)

b) Recommended replacement lubricants

None

04.00.00.00 FACILITY AND EQUIPMENT

04.01.00.00 FACILITIES

04.01.01.00 LOW ALTITUDE

04.01.01.02 OEI FACILITY

All emission testing is to be accomplished at Olson Engineering, Inc. in Huntington Beach, California. This laboratory was designed and built by Olson Engineering expressly for emission testing in accordance with U.S. Government specifications. This facility is equivalent in all respects to the equipment and procedures prescribed in 40 CFR Part 86.

1. Testing Facility Address:

   Olson Engineering, Inc.
   Vehicle Test Facility
   15442 Chemical Lane
   Huntington Beach, CA 92649

2. Person in Charge:

   Mr. Jerry C. Coker
   Vice President-Test Operations

3. Altitude of Test Facility:

   Sea level (essentially)

The areas in which vehicle soak, dynamometer preconditioning, dynamometer testing, and enclosure testing are performed are shown in the facility layout drawing at the end of this section. Temperature controls provide for heating only. Humidity and barometric pressure controls are not used.

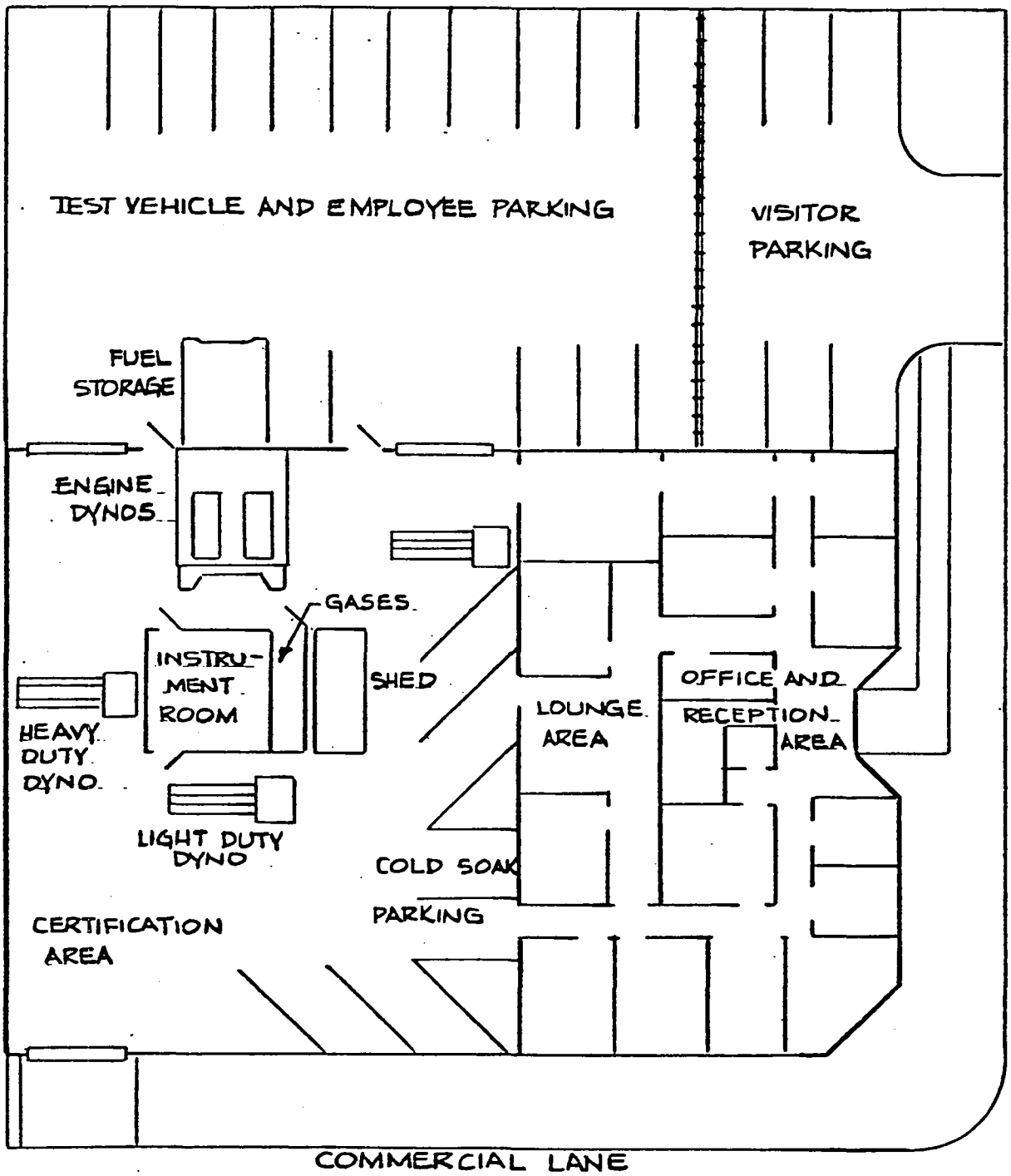
Calibration gases are obtained through Scott Environmental Technology, Inc. These gases are traceable within 1% through second generation to National Bureau of Standards. Gases are verified and/or renewed annually.

Each analyzer is calibrated on each normally used operating range using gases with nominal concentrations of 15, 30, 45, 60, 75, and 90% of that range.

All analyzers are calibrated by using a single calibration factor for determining concentrations if deviations from least squares best-fit straight line is 2% or less of the value at each data point. A best-fit non-linear equation which represents data to within 2% of each test point is used to determine concentration of ranges if deviations are more than 2%.

The laboratory area (including cold soak, preconditioning and dynamometer) = = 6000 sq. ft.

HEADQUARTERS BUILDING & LABORATORY



FACILITY LAYOUT DRAWING

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Hydrocarbon Analyzer

Manufacturer	Horiba
Model Number or Identification	FIA-21 (FID)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0-10, 30, 100, 300, 1,000; 3,000; 10,000; 30,000 PPM C
Flow Chematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.121-78(b) In accordance with 40 CFR 86.121-78(a)
Calibration Intervals	Daily & Test-to-Test (calibration) Monthly (calibration curve check) Annually (optimization of amplifier response)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% full scale (for range in use)

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Carbon Monoxide Analyzer

Manufacturer	Horiba
Model Number or Identification	AIA-23 (NDIR)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0-100, 500; 1,000; 5,000 PPM
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.122-78(a) In accordance with 40 CFR 86.122-78(b)
Calibration Intervals	Daily & Test-to-Test (calibration) Monthly (calibration curve check) Annually (optimization of detector response)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% full scale for range in use

TEST EQUIPMENT DESCRIPTION

Carbon Dioxide Analyzer

Manufacturer	Horiba
Model Number or Identification	AIA-23 (NDIR)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0 - 3% 0 - 7%
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.124-78
Calibration Intervals	Daily & Test-to-Test (calibration) Monthly (calibration curve check) Annually (optimization of detector response)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% full scale for range in use

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Oxides of Nitrogen Analyzer

Manufacturer	Horiba
Model Number or Identification	CLA-22 (CL)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0 - 10, 30, 100, 300, 1,000; 3,000 PPM
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.123-78(a) In accordance with 40 CFR 86.123-78(b)
Calibration Intervals	Weekly (NO_2 to NO converter efficiency check) Monthly (calibration curve check) Daily & Test-to-Test (calibration)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% of full scale for range in use

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Hydrocarbon Analyzer (Diesel)

Manufacturer	Beckman
Model Number or Identification	Model 402 (HFID)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0-50, 100, 300 PPM C
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.121-78(b) In accordance with 40 CFR 86.121-78(a)
Calibration Intervals	Monthly (calibration curve check) Annually (optimization of amplifier response)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% of full scale for range in use

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Constant Volume Sampler

Manufacturer	Olson-Horiba
Model Number or Identification	CVS 45 G
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Flow Rate: 325 CFM Static Pressure Variations at Tailpipe: $\pm$ 0.5 in H_2^0 Temperature Measurement (precision & accuracy): $\pm$ 2°F
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.119-78(a) using Meriam model 50-mc2-4f Laminar flow element
Calibration Intervals	As required by major maintenance or as necessary when indicated by the CVS system verification Daily (propane injection)
Scheduled Maintenance Procedures	Daily CVS system verification by propane injection. Other maintenance in accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Instrument Grade Propane

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Chassis Dynamometer

Manufacturer	Clayton
Model Number or Identification	ECE-50 (125 lb. increments)
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	2000 - 6875 lbs. inertia
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.118-78
Calibration Intervals	Monthly calibration (if indicated by performance check). Calibrate after maintenance.
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Computer Data Processing System

Manufacturer	Commodore
Model Number or Identification	PET 2001 with tractor feed printer #2022
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	32K cassette drive

Flow Schematics Attached (if applicable)

Calibration Procedures	Not applicable
Calibration Intervals	Not applicable
Scheduled Maintenance Procedures	Not applicable
Scheduled Maintenance Intervals	Not applicable

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Evaporative Enclosure (SHED)

Manufacturer	Horiba
Model Number or Identification	EPS-76
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Dimensions: 20 x 8 x 10
	Cooling:
	Mixing fan, capacity, type: (2) Dayton 265 CFM each
	Location of sample probe: geometric center east wall
	Location of temperature probe: (2) 30" from floor horizontal center east and west wall
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.117-78(c)
	In accordance with 40 CFR 86.117-78(a)
Calibration Intervals	Monthly (hydrocarbon retention check and calibration)
	Annually (enclosure emission background)
Scheduled Maintenance Procedures	
Scheduled Maintenance Intervals	

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Hydrocarbon Analyzer

Manufacturer	Horiba
Model Number or Identification	FID-2
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Ranges: 0-10, 50, 100, 300, 1,000 PPM C
Flow Schematics Attached (if applicable)	
Calibration Procedures	In accordance with 40 CFR 86.121-78(b) In accordance with 40 CFR 86.121-78(a)
Calibration Intervals	Daily & Test-to-Test (calibration) Monthly (calibration curve check) Annually (optimization of detector response)
Scheduled Maintenance Procedures	In accordance with manufacturer's instructions
Scheduled Maintenance Intervals	In accordance with manufacturer's instructions
Span Gas Used (if applicable)	Nominal 90% of full scale for range in use

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Fuel Conditioning Equipment

Manufacturer	Olson Engineering, Inc.
Model Number or Identification	Fuel conditioning room
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	Temperature Specs: 40 - 90°F
Flow Schematics Attached (if appli-able)	n.a.
Calibration Procedures	Verify temperature and flow rate
Calibration Intervals	As required
Scheduled Maintenance Procedures	As required
Scheduled Maintenance Intervals	As required

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Cooling Fan

Manufacturer	Hartzel
Model Number or Identification	23-24 ND4
Number of Units Used in Certification Program	One (1)
Pertinent Specifications	5300 CFM
	Location: 12 inches in front of vehicle radiator
Flow Schematics Attached (if applicable)	
Calibration Procedures	Not applicable
Calibration Intervals	Not applicable
Scheduled Maintenance Procedures	Not applicable
Scheduled Maintenance Intervals	Not applicable

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

Temperature Controller and Recorder (Dirunal)

Manufacturer	STACO	LINEAR INSTRUMENTS
Model Number or Identification	3PN1010	#485 2-channel
Number of Units Used in Certification Program	One (1)	One (1)
Pertinent Specifications	Input - 120V 50/60 H2 Output - 0-120/140V	
Flow Schematics Attached (if applicable)		
Calibration Procedures	n.a.	Check zero & upscale
Calibration Intervals	n.a.	Daily (calibrated to ambient temperature; used as temperature recorder)
Scheduled Maintenance Procedures	n.a.	Lubricate & clean moving mechanical parts
Scheduled Maintenance Intervals	n.a.	Every three months

04.00.00.00 FACILITY AND EQUIPMENT

04.02.00.00 EQUIPMENT

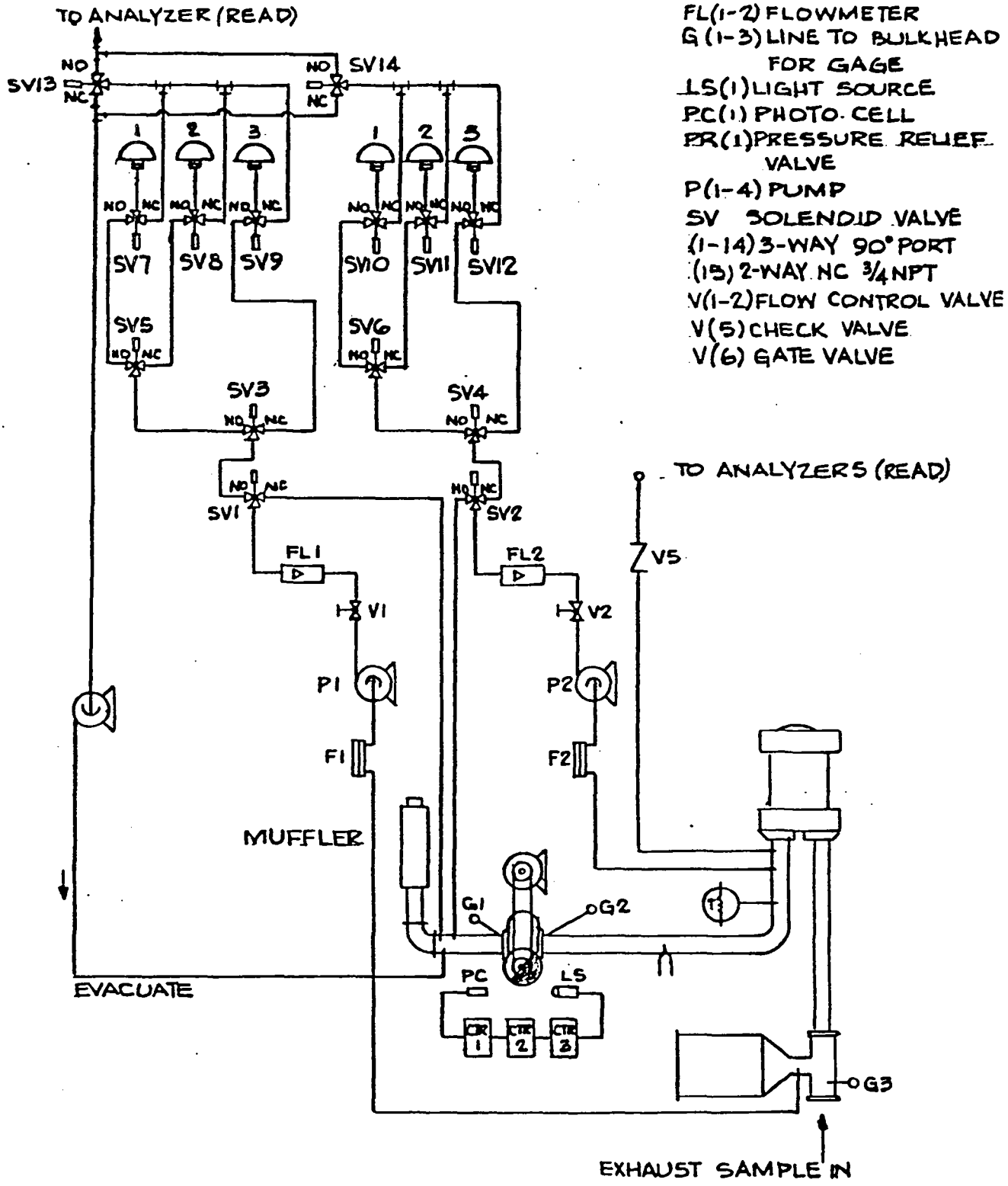
04.02.02.00 OEI TEST EQUIPMENT

TEST EQUIPMENT DESCRIPTION

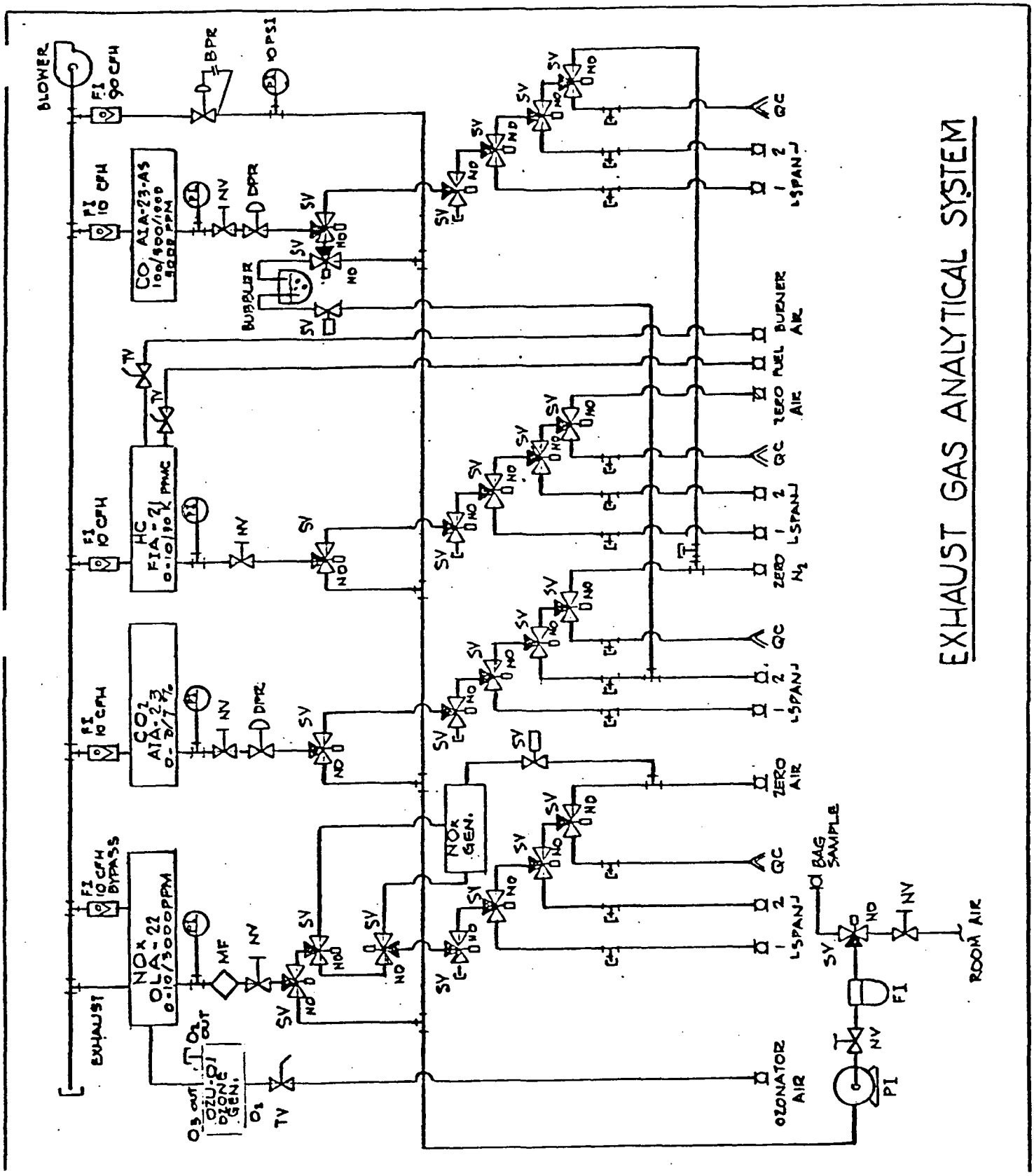
Driver's Aid

Manufacturer	Linear Instruments	Esterline Awgus
Model Number or Identification	Std. Driver's Air	L1101s
Number of Units Used in Certification Program	One (1)	(One) 1
Pertinent Specifications	4 in/min chart speed	1 & 4 in/min chart speed
	6 5/8" chart width	11" chart width
Flow Schematics Attached (if applicable)		
Calibration Procedures	Check zero and upscale	
	Check upscale with output from dynamometer and storbtach	
Calibration Intervals	Daily - zero and upscale	
Scheduled Maintenance Procedures	Lubricate all exposed moving mechanical parts	
	Check gear train backlash	
Scheduled Maintenance Intervals	3 months	3 months
Span Gas Used (if applicable)	not applicable	not applicable

F(1-2) FILTER (PARTICULATE)
FL(1-2) FLOWMETER
G(1-3) LINE TO BULKHEAD FOR GAGE
LS(1) LIGHT SOURCE
PC(1) PHOTO-CELL
PR(1) PRESSURE RELIEF VALVE
P(1-4) PUMP
SV SOLENOID VALVE
(1-14) 3-WAY 90° PORT
(15) 2-WAY NC 3/4 NPT
V(1-2) FLOW CONTROL VALVE
V(5) CHECK VALVE
V(6) GATE VALVE



CVS SCHEMATIC


EXHAUST GAS ANALYTICAL SYSTEM
BLOWER
FI 90 CFH
BPR
10 PSI
FI 10 CFH
CO ATA-23-AS 100/500/1000 5000 PPM
NV
DPR
SV
NO
BUBBLER
TV
FI 10 CFH
HC FIA-21 PMC 0-10/50
FI 10 CFH
CO2 ATA-23 0-5/15%
FI 10 CFH BYPASS
NOx OLA-22 0-10/3000PPM
MF
EXHAUST
O3 OUT
OZONE GEN.
O2
NOx GEN.
QC
1 - 2 SPANJ
ZERO FUEL
BURNER AIR
ZERO H2
ZERO AIR
BAG SAMPLE
ROOM AIR
FI
PI
OZONATOR AIR

05.02.02.00 MILEAGE ACCUMULATION (OEI)

1. It is intended to accumulate mileage on public roads in the Los Angeles, California, area. The basic mileage accumulation route (shown in attached Figure 1) will be used with modifications as necessary to satisfy test requirements. This mileage accumulation has been only slightly modified from a previously EPA approved route.

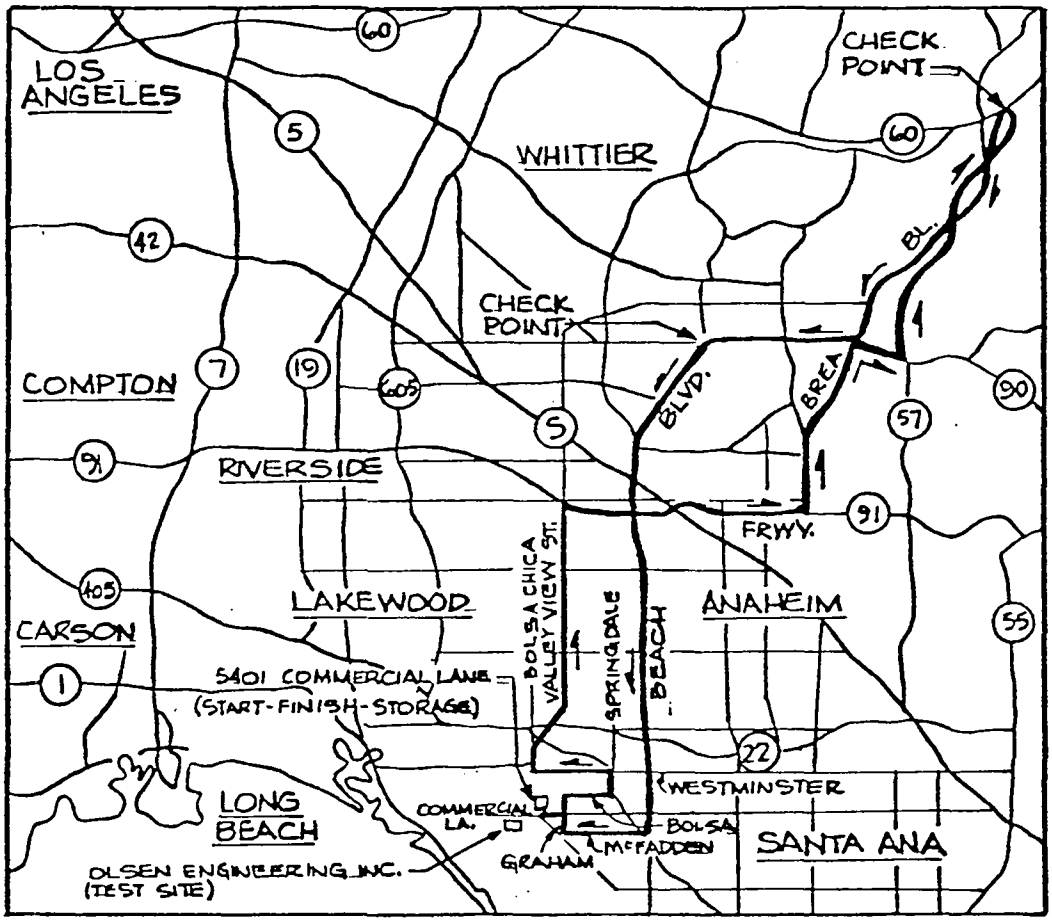
2. Data for proposed driving schedule:

Average speed of cycle: 29.8 miles/hour
Total mileage of cycle: 52.4 miles

Driving Mode	Approximate Events Per Mile (55 mph top speed)
. Stops	1.01
. Normal acceleration from stop	0.91
. Normal acceleration from 20 mph	1.11
. Wide-open-throttle acceleration and fast deceleration	0.10
. Idle time	13.64 sec.

. Speed - MPH	Percent of Total Miles
30	16.4
35	23.4
40	21.9
45	6.8
55	16.5
Variable acceleration and deceleration:	15.0
TOTAL:	100.0

LOS ANGELES AND VICINITY



PROPOSED MILEAGE ACCUMULATION ROUTE

3. Route Description:

a. Start Point: -- Olson Engineering, Inc.
-- 5401 Commercial Lane, Huntington Beach

i. Drive east on Commercial Lane to Graham (stop sign).

ii. Turn left on Graham and drive north to Bolsa (signal light).

iii. Turn right on Bolsa and drive east to Springdale (signal light)

iv. Turn left on Springdale and drive north, crossing the following intersections with signal lights:

Jade Circle - RRC - School Crossing - Westminster

v. Turn left on Westminster and drive west, crossing the following intersections with signal lights (Chevron station on corner of Springdale and Westminster is a fuel stop):

Hamman - Milan - Bolsa Chica

vi. Turn right on Bolsa Chica (Valley View) and drive north crossing the following intersections with signal lights:

Duncanan - San Diego Freeway - Garden Grove Freeway - Cerulean - Lampson - Shopping Center - Chapman - Orangewood - Katella - RRC - Cerritos - Ball - Fred Dr. - Orange Ave. - RRC - Lake Shore Dr. - Lincoln - Crescent - San Rafael - La Palma - Patton Dr. - Panama Dr.

vii. Turn right onto #91 Riverside Freeway. Continue east on Riverside Freeway approximately six miles, exit at Harbor Blvd. (Fullerton).

viii. Turn right on Harbor Blvd. and drive north, crossing the following intersections with signal lights:

#91 Freeway - Shopping Center - Orangethorpe - Valencia Dr. - Commonwealth - Amerige - Wilshire - Chapman - Union - Berkeley - East Valley View.

ix. Turn right on Brea Blvd., continue northeast, crossing the following intersections with signal lights:

Lemon - Bastanchury - Rolling Hills - Fir - Elm - Imperial Highway

05.00.00.00 TEST PROCEDURES

05.02.02.00 MILEAGE ACCUMULATION (OEI)

TEMPORARY ROUTE DEVIATION:

On Brea Canyon road between Central and Lambert, the bridge is washed out.

Detour set up to exit off of Brea Canyon Road south of #57 Orange Freeway.

Change in route as follows:

xii. Turn right at Brea Canyon Road; continue south to #57 Orange Freeway. Exit south on #57 Orange Freeway to Lambert. Exit Lambert. Right turn on Lambert to Brea Blvd. Left turn on Brea Blvd. Back on route.

x. Turn right on Imperial Highway, continue east, crossing the following intersections with signal lights:

Laurel - Randolph - State College - #57 Freeway; exit on #57 Orange Freeway north.

xi. Continue north on #57 Orange Freeway approximately 4.5 miles, exit at Diamond Bar Blvd. (stop sign); turn right to next stop sign (Brea Canyon Road) (Check Point).

xii. Turn right at Brea Canyon Road and continue south, crossing the following intersections with signal lights:

Central - Lambert - RRC - Birch - Imperial Highway.

xiii. Right turn on Imperial Highway, crossing the following intersections with signal lights:

Berry - Puente - Palm - RRC - Harbor - RRC - Cypress - Euclin - Idaho - Shopping Center - Beach Blvd.

xiv. Left turn on Beach Blvd. (Check Point). Continue south on Beach Blvd., crossing the following intersections with signal lights:

Standard Oil Entrance - Rosecrans - La Mirada - Stage Rd. - Artesia - Commonwealth - Manchester - RRC - #5 Freeway (9th St.) - Orangethorpe - #91 Artesia Freeway - #91 Artesia Freeway - La Palma - Crescent - Stanton - Lincoln - Orange - Ball - Cerritos - RRC - RRC - Katella - Orangewood - Chapman - Lampson - Garden Grove Blvd. - Trask - Westminster - Hazard - Bolsa - McFadden

xv. Right turn at McFadden, continue west on McFadden crossing the following intersections with signals:

RRC - Gothard (Stop Sign) - Golden West - Edwards - Springdale - Graham (Stop Sign).

xvi. Right turn on Graham, then turn left on Commercial Lane, then make U-turn and proceed as in i above or proceed on Commercial Lane approx. 100 yards to test site.

b. Finish Point: -- Olson Engineering, Inc.
-- 5401 Commercial Lane, Huntington Beach

c. Speed limits: Freeway -- 55 mph
Streets -- 25-45 mph

d. Type of mileage accumulation:

Freeway -- 10.5 miles
Streets -- 41.9 miles Total Loop: 52.4 miles

e. Stops:

Stop lights on route	93
Rail Road Crossings	10
Stop signs	6
Possible stops/loop (max.)	109
Planned stops (average)	61

4. Schedule of mileage events (shown in attached Tables 1 and 2).

5. Method of recording or verifying the mileage accumulated:

Each vehicle operator writes odometer reading, filled gasoline and other applicable items in an accumulating recording sheet (shown in attached Table 3). A tachograph (mileage recorder) will be used during all mileage accumulation. A chart change will be made on each shift by supervisory personnel only.

6. Route of delivery to test facility (Olson Engineering, Inc.):

The test facility is located on the proposed route (shown in attachment Figure 1).

7. Route of delivery to EPA (Ann Arbor):

The vehicle shall accumulate mileage as specified in MSAPC Advisory Circular 23A, Paragraph VII.

NOTE: Since all mileage will be accumulated on public roads, drivers will be instructed to follow normal traffic flow, observing all speed limits - max. speed 55 MPH. A recording tachograph will be used to obtain a permanent record of all vehicle operation in addition to the daily driver's log sheets.

PLANNED MILEAGE EVENTS FOR DURABILITY FLEET — TABLE 1

Event Description	Approximate Mileage for Event	Approximate Accumulated Mileage
Begin Durability	-	0
Zero mile emission test at Olson Engineering, Inc., (OEI) in Huntington Beach, California (Test Mileage includes preconditioning).	19	19
Accumulate Mileage 52.4 miles/loop - (95 loops)	4978	4997
Conduct 5,000 mi. emission test (OEI)	19	5016
Accumulate Mileage - (95 loops)	4978	9994
10,000 mi. emission test (OEI)	19	10013
Accumulate Mileage - (95 loops)	4978	14991
15,000 mi. emission test (OEI) before Scheduled Maintenance	19	15010
15,000 mi. emission test (OEI) after Scheduled Maintenance	19	15029
Accumulate Mileage - (95 loops)	4978	20007
20,000 mi. emission test (OEI)	19	20026
Accumulate Mileage - (95 loops)	4978	25004
25,000 mi. emission test (OEI)	19	25023
Accumulate Mileage - (95 loops)	4978	30001
30,000 mi. emission test (OEI) before Scheduled Maintenance	19	30020
30,000 mi. emission test (OEI) after Scheduled Maintenance	19	30039
Accumulate Mileage - (95 loops)	4978	35017
35,000 mi. emission test (OEI)	19	35036

PLANNED MILEAGE EVENTS FOR DURABILITY FLEET

TABLE 1 (Cont'd.)

Event Description	Approximate Mileage for Event	Approximate Accumulated Mileage
Accumulate Mileage - (95 loops)	4978	40014
40,000 mi. emission test (OEI)	19	40033
Accumulate Mileage - (95 loops)	4978	45011
45,000 mi. emission test (OEI) before Scheduled Maintenance	19	45030
45,000 mi. emission test (OEI) after Scheduled Maintenance	19	45049
Accumulate Mileage - (94 loops)	4926	49975
50,000 mi. emission test (OEI)	19	49994

PLANNED MILEAGE EVENTS FOR EMISSION DATA FLEET

Event Description	Approximate Mileage for Event	Approximate Accumulated Mileage
Begin Testing	-	0
Zero Mile emission test at Olson Engineering, Inc. (OEI) in Huntington Beach, California (Test Mileage includes preconditioning.)	18.6	18.6
Accumulate Mileage 52.4 miles/loop - 76 loops	3,982.4	4,001.0
4,000 mi. emission test (OEI)	18.6	4,019.6
4,000 Mile Highway Fuel Economy Test (HFET)	20.5	4,040.1
Ship car to EPA, Ann Arbor Lab., for 4,000 mi. emission vehicle confirmatory test (air freight).		

MAKE _____

VEHICLE I. D. NO. _____

EMISS[illegible]'EHICLE
DRIV[illegible]FT LOG

ENGINE OFF

FROM TO

DAY #

DRIVER _____ SHIFT _____ DATE _____

STARTING MILEAGE _____ ENDING MILEAGE _____ TOTAL _____

TOTAL ENGINE OFF

CHECK POINT DATA

ARRIVE / DEPART	OLSON ENGINEERING				DIAMOND BAR				BEACH BLVD.			
	TIME	ODO.	TRAFF	WEATH	TIME	ODO.	TRAFF	WEATH	TIME	ODO.	TRAFF	···· -
LAP # 1												
LAP # 2												
LAP # 3												
LAP # 4												
LAP # 5												
LAP #												

ABBREVIATIONS:

L - LIGHT
H - HEAVY
W - WINDY
R - RAIN

M - MODERATE
C - CLEAR
F - FOG

COMMENTS:

S-10

OCT. 27 1950

FUEL STOP: # 1 # 2

TIME	
MILEAGE	
GALLONS	
OIL & ETC.	

TABLE 3

MILE ACCUMULATION RECORD FOR CERTIFICATION TEST

Emission Data Vehicle: Vehicle Type: ID No.: Person in Charge:
Durability Vehicle: Date:

Date	Driver	Starting Time	Closing Time	Odometer Reading (Starting) mi.	Odometer Reading (Closing) mi.	Accumulated Miles	Fuel Charge Gallons	Remarks
				Total:				

05.03.00.00 HORSEPOWER DETERMINATION

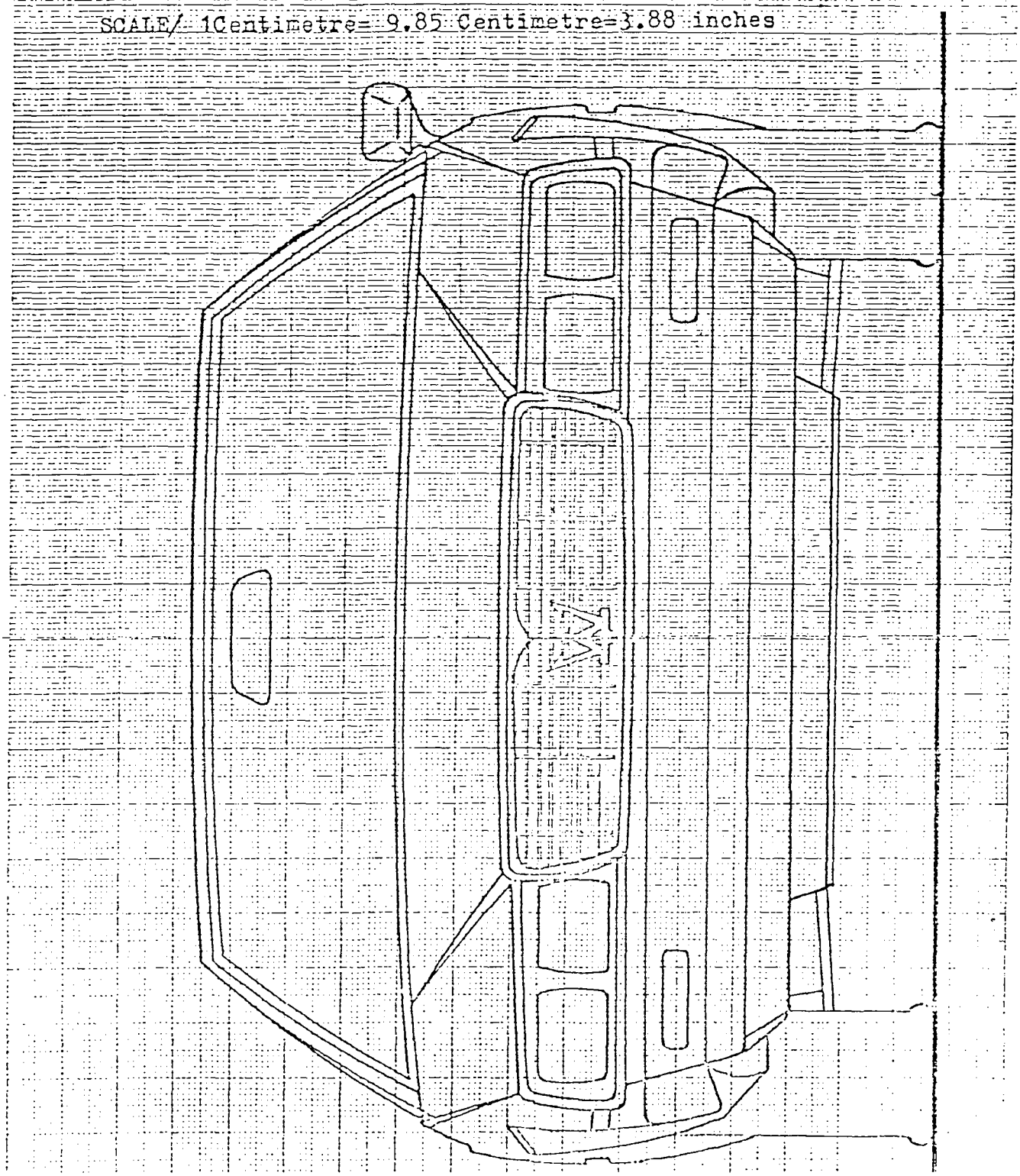
05.03.01.00 FRONTAL AREA

Frontal area was calculated from 1 : 1 engineering drawings with sections every 10 centimeters. With drawings superimposed, there is no problem in determining the point of largest cross-sectional area, A_R. The design of the Quattroporte does not include any body projections such as fender flares or mud flaps which would fall outside of A_R. Suspension components and underbody projections were measured from the drawings in the same way as the rest of the vehicle reference and protuberance frontal areas were measured, i.e. by the method of "counting squares."

This procedure (and the resultant RLHP) were approved by EPA for the 1979 and 1980 model years. No changes have been made to either the procedure or the RLHP.

MASERATI QUATTROPORTE FRONTAL AREA CALCULATION

SCALE/ 1Centimetre= 9.85 Centimetre=3.88 inches



Issue Date:	OCT. 27 1980	Olson Engineering Inc.	pg 5-13		
Revision Date:					

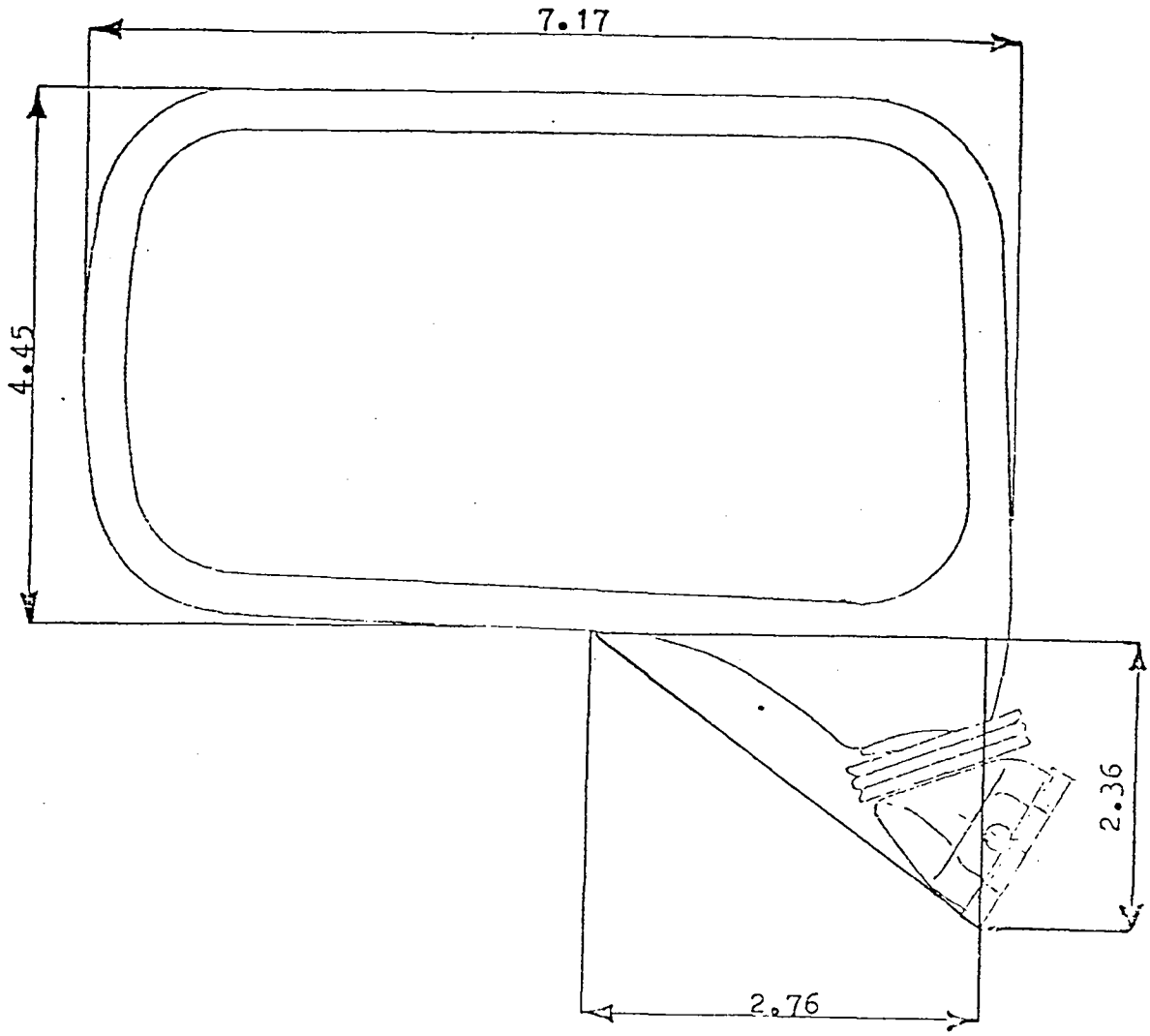
MASERATI AUTOMOBILI MODENA

PROTUBERANCE FRONTAL AREA

(External rearwiew mirror)

Data

Mirror and mounting braket total frontal area= .24 ft^2



Dimensions in inches.

Road Load Power Calculation (Federal Register § 86.129. 79 (c))

Formula for twin roll dynamometer:

$$HP = aA + P + tW$$

As 100% of the considered cars are equipped with air conditioning, the road load power shall be increased by 10% or 1.4HP, whichever is less.

The simbols of the formula are :

HP= Dynamometer power absorber setting at 50 mph (HP)
A = Vehicle Reference Frontal Area (ft^2)
P = Protuberance Power (HP)
a = Shape Factor
t = Tyre Factor
W = Vehicle Equivalent Inertia Class (lb)

In our case:

A = 21.5 ft^2
a = .50 (not fastback)
t = 0.0 (cross ply tyres)
W = 5000 lb

HP= .50x21.5 + 0 +0 = 10.75 HP

Increasing by 10%:

Total Road Load Power= 10.75+ 1.075= 11.8 HP

06.00.00.00 MAINTENANCE SCHEDULE - MASERATI QUATTROPORTE

	MILES																		
REQUIRED MAINTENANCE	Daily	1,000	5,000	10,000	* 15,000	20,000	25,000	* 30,000	35,000	40,000	* 45,000	50,000	55,000	* 60,000	65,000	70,000	* 75,000	80,000	85,000	* 90,000
Change engine oil		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Change oil filter		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Adjust valves **		x			x			x			x			x			x			x
Clean & lube choke mechanism								x						x						x
Adjust drive belt tension								x						x						x
Torque engine bolts		x																		
Replace carburetor air filter								x						x						x
Adjust carburetor idle RPM **		x																		
Replace spark plugs								x						x						x
RECOMMENDED MAINTENANCE																				
Check engine oil level	x																			
Check coolant level	x																			
Check brake fluid level	x																			
Check battery charge		x																		
Lube suspension, U-joints, hinges			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Check transmission fluid level			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Check P.S. fluid level			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Check rear axle fluid level			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lube parking brake			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Check brake pad linings & seals			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Inspect cooling system hoses			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Pressure check cooling system				x		x		x		x		x		x		x		x		x
Check timing chain tension					x			x			x			x			x			x
Change transmission oil					x			x			x			x			x			x
Replace fuel filters					x			x			x			x			x			x
Check A/C comp. oil level					x			x			x			x			x			x
Lube front hubs					x			x			x			x			x			x
Check shock absorbers (visual)					x			x			x			x			x			x
Check guage readings for accuracy					x			x			x			x			x			x
Change rear axle oil								x						x						x
Change brake fluid								x						x						x
Check transmission oil pressure								x						x						x
Replace engine coolant								x						x						x

* or 12 months
** specification will appear on engine compartment label

06.03.00.00 SPECIAL TOOLS

No special tools or equipment are necessary to perform recommended emission control system maintenance.

06.04.00.00 TRAINING PROGRAMS

Due to the simplicity of the emission control system and the small number of Maserati dealers in this country, training of personnel for emission control system maintenance is not a problem. The chief mechanics from the U.S. distributors receive training from the Maserati factory. They in turn travel to each U.S. dealership to train those mechanics involved in servicing Maserati automobiles.

06.05.00.00 SERVICE LITERATURE

Shop maintenance manuals and vehicle owners manuals will be submitted as soon as they are available.

1981 MASERATI EMISSION CONTROL SYSTEM WARRANTY (06.06.00.00)

Officine Alfieri Maserati, S.p.A. warrants to the owner of any 1981 Maserati car that the vehicle (1) was designed, built and equipped so as to conform at the time of sale with regulations of the U.S. Environmental Protection Agency and the California Air Resources Board, as may be applicable, and (2) is free from defects in materials and workmanship which cause it to fail to conform with those regulations as may be applicable for a period of use of 5 years or 50,000 miles, whichever occurs first.

The 5-year/50,000-mile warranty period shall begin on the date the vehicle is delivered to the first retail purchaser or, if the vehicle is first placed in service as a demonstrator or company vehicle prior to sale at retail, on the date the vehicle is first placed in such service.

The emission control systems of your new 1981 Maserati passenger car were designed, built and tested using Maserati specified parts and the car is certified as being in conformity with Federal and California emission control regulations. Accordingly, it is recommended that any replacement parts used for maintenance, repair or replacement of emission control systems be Maserati authorized parts. The owner may elect to have maintenance, replacement or repair of the emission control devices and systems performed by any automotive repair establishment or individual, and may elect to use parts other than Maserati authorized parts for such maintenance, replacement or repair without invalidating this warranty; the cost of such service or parts, however, will not be covered under the warranty.

Use of replacement parts which are not of equivalent quality may impair the effectiveness of emission control systems. If other than Maserati authorized parts are used for maintenance, replacement or repair of components affecting emission control, the owner should obtain assurances that such parts are warranted by their manufacturer to be equivalent to Maserati authorized parts in performance and durability. Maserati however, assumes no liability under this warranty with respect to parts other than Maserati authorized parts. However, the use of non-Maserati replacement parts does not invalidate the warranty on other components unless non-Maserati parts cause damage to warranted parts.

Repairs and service covered by this warranty will be performed by an authorized Maserati Dealer at his place of business with no charge for parts or labor (including diagnosis), using Maserati authorized parts for any part of the emission control system covered by this warranty and found defective. In the case of an emergency where an authorized Maserati dealer is not available, repairs may be performed at any available service establishment. Maserati will reimburse the owner for such repairs (including labor in most cases) that are covered under

this warranty. Replaced parts and paid invoices must be presented at a Maserati dealership as a condition of reimbursement for emergency repairs not performed at a Maserati dealer.

The attached list sets forth the emission control parts covered by this emission control system warranty. You are advised to perform all recommended maintenance or repairs on your new 1981 Maserati vehicle. Maserati will not deny a warranty claim solely because you have no record of maintenance; however, Maserati may deny a warranty claim if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering the performance of regular maintenance should be retained in the event questions arise concerning maintenance. The receipts should be transferred to each subsequent owner of this car.

CUSTOMER ASSISTANCE

Maserati wishes to help assure that the Emission Control Systems Warranty is properly administered. In the event that you do not receive the warranty service to which you believe you are entitled under the Emission Control Systems Warranty, or if you need additional assistance or information concerning the Emission Control Systems Warranty, you should contact Maserati Automobiles, Inc., P.O. Box 8786, Baltimore, Maryland 21240 for assistance.

WHAT IS NOT COVERED BY THE EMISSION WARRANTY

The warranty does not cover:

Malfunctions in any part caused by any of the following: misuse, improper adjustments, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of leaded gasoline (for catalyst vehicles).

Damage resulting from accident, acts of nature or other events beyond the control of Maserati.

The repair or replacement of warranted parts which are scheduled for replacement prior to 50,000 miles (such as spark plugs, PCV valve, filters, hoses and belts) once these parts have been replaced at the first recommended replacement interval as part of regular maintenance services.

Loss of time, inconvenience, loss of use of the vehicle, or commercial loss.

Any car on which odometer mileage has been changed so that mileage cannot be readily determined.

07.00.00.00 LABEL FORMAT

VEHICLE EMISSION CONTROL INFORMATION

Officine Alfieri Maserati S.p.A.

-ENGINE FAMILY: 107/49/C2
-EVAPORATIVE FAMILY: 107/49/C2
-ENGINE SIZE: 301 CU.IN.
-EXHAUST EMISSION CONTROL: AIR PUMP + OXD CAT + TWC
TUNE UP AND ADJUSTMENT WITH AIR CONDITIONING OFF, TRANSMISSION IN NEUTRAL AND WARM ENGINE AT IDLE (1000 ± 150 RPM). NO OTHER SYSTEMS DISCONNECTED.
-IGNITION TIMING: 4° ± 1° ATDC
-IDLE AIR FUEL MIXTURE PERMANENTLY SEALED
-VALVE LASH: INTAKE 0.011 INCH, EXHAUST 0.020 INCH
-SPARK PLUG GAP: 0.025 TO 0.035 INCH
THIS VEHICLE CONFORMS TO U.S.E.P.A. AND CALIFORNIA REGULATIONS APPLICABLE TO 1981 MODEL YEAR NEW PASSENGER CARS. COMPLIANCE DEMONSTRATED BELOW 4000 FEET.

Label is riveted to the right front wheel well (left side of engine compartment when facing firewall).

The label is designed to withstand for the vehicle's total expected life, typical vehicle environmental conditions in the area where the label is attached.

E.P.A. approval is desired.

DESCRIPTION OF EXHAUST EMISSION CONTROL SYSTEM

Exhaust emission control is achieved by injection of secondary air into the exhaust stream and subsequent oxidation and reduction of the unburned exhaust gas components in the system's four catalytic converters.

The basic exhaust emission control system consists of four identical catalytic converters, air pump, diverter valve with bypass, diverter valve TVS, air injection manifolds and check valves. (DRW. No. 33.)

On cold starting, approximately 75% of the secondary air is injected upstream at the exhaust valves, with the remaining 25% flowing downstream through the diverter valve bypass and joining the exhaust stream at a point between the front and rear catalysts (DRW. No. 33). In this mode, all four catalytic converters are working as oxidation catalysts.

When coolant temperature reaches 128°F, the diverter valve TVS switches the diverter valve vacuum signal which switches the flow of secondary air, sending 75% downstream and 25% upstream. In this mode, the forward converters are working as three-way catalysts, and the rear converters are functioning as oxidation catalysts.

In addition to the basic exhaust emission control system described above, the Quattroporte is equipped with an ignition retard system which functions as follows:

On the distributor there is a normal diaphragm valve. The diaphragm retard valve is connected to a three-way solenoid valve (exactly the same kind of valve as the one that operates the air box flaps). Of the other two connections on the three-way solenoid valve, one is left open to atmosphere and the other is connected to the common vacuum tank. A small lever is bolted on the throttle shaft of the rearmost carburetor. When throttles are closed, this lever depresses the arm of a microswitch. The microswitch operates the three-way valve thus connecting the vacuum tank and the diaphragm valve on the distributor, thus causing retard. When we say that at idle the advance is four degrees ATDC, we mean with vacuum retard working.

The purpose of this system is to keep exhaust temperatures optimized for best efficiency of the catalysts when throttles are closed.

DESCRIPTION OF EVAPORATIVE EMISSION CONTROL SYSTEM

The evaporative emission control system traps vapors coming from two sources, the fuel tank and the carburetor enclosure box.

Vapors from the fuel tank pass through the vent valve on the top of the fuel tank and go to a liquid-vapor separator. The condensed vapors go to a carbon canister and are absorbed by the carbon.

The four carburetors and the air filter are completely enclosed by a box. Fuel vapors from evaporation in the carburetors are trapped in the box during the periods when the engine is off. The layout of the system is shown in DRW. No. 16. Two shuttles are at the air inlets. The shuttles are operated by diaphragm valves. When the engine is on, the shuttles are open because the three-way solenoid valve that is between the diaphragm valves and the vacuum tank shuts the connection between vacuum tank and diaphragm valves, connecting the diaphragm valves to atmosphere.

When the ignition is turned off, the three-way solenoid valve opens the connection between the vacuum tank and the diaphragm valves causing closure of the shuttles. A delay valve is provided to avoid sudden vacuum in the air box if the ignition is turned off when the car is still in motion with the transmission engaged.

Two small vapor blowers are turned on when the ignition is off and coolant temperature is above 65°C. The vapor blower thermoswitch allows blowers to operate for approximately two hours after a hot run as the engine cools off. The blowers blow fuel vapors from inside the sealed air box to a carbon canister.

The two carbon canister purge lines are connected to the intake manifold through a fixed orifice (0.08 in). When the engine is running, the two carbon canisters are purged.

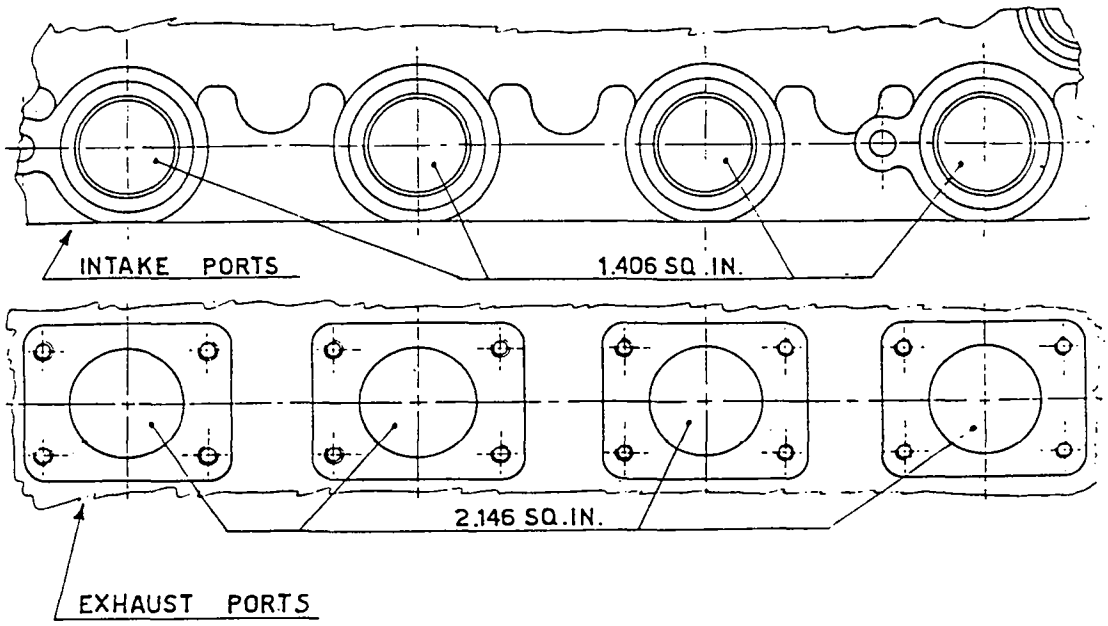
LIST OF DRAWINGS

ENGINE FAMILY 107/49/C2

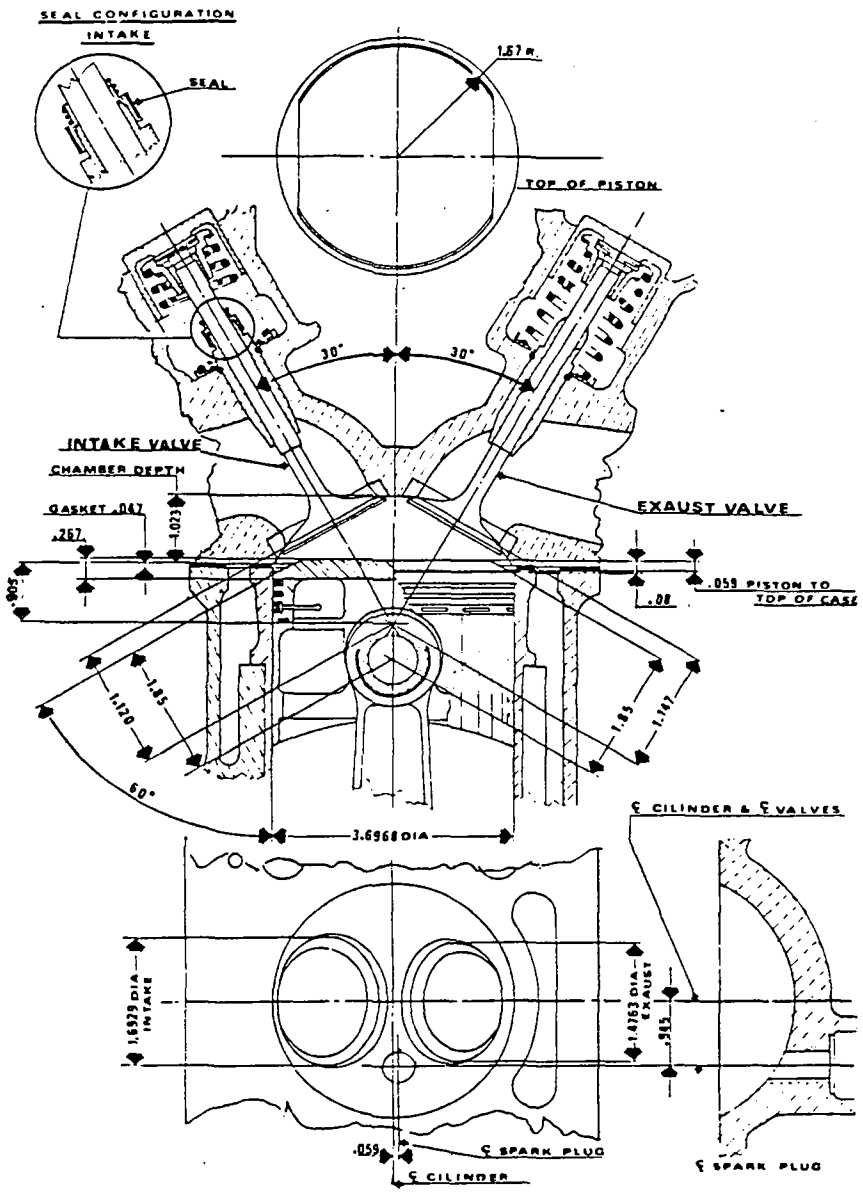
DRW. No.	1	Cylinder head intake and exhaust port configurations
"	2	Combustion chamber design, valves, valve stem seals, and piston configurations.
"	3	Piston rings
"	4	Intake manifold configuration
"	5	Exhaust manifold configuration
"	6	Exhaust system configuration
	6a	Exhaust system dimensions
"	7	Cooling system configuration
"	8	Float system and main metering system
"	9	Idle system
"	10	Idle mixture screw lock system
"	11	Accelerator pump system
"	12	Choke system
"	13	Carburetor flow curve--production tolerance limits
"	14	Carburetor mounting spacer
"	15	Idle stop configuration
"	16	Air filter box arrangement
"	17	Ignition system schematic
"	18	Spark plug configuration
"	19	Distributor advance curve--production tolerance limits
"	20	Crankcase ventilation system schematic
"	21	Evaporative control system schematic
"	22	Fuel tank configuration

DRW. No.	23	Carburetor enclosure box flap valves
"	24	Fuel tank vent valve and pressure relief valve
"	25	Carbon canister configuration
"	26	Air diverter valve
"	27	AIR diverter valve schematic
"	28	AIR check valve
"	29	Air injection configuration at exhaust port
"	30	Air pump flow diagram
"	31	Catalytic converter - vertical section
"	32	Catalytic converter - horizontal section
"	33	Exhaust emission control system configuration
"	34	Carburetor box vapor blower
"	35	Vapor blower thermoswitch
"	36	Delay valve
"	37	Three-way solenoid valve
"	38	Diverter valve TVS
"	39	Vacuum hose routing diagram
"	40	Ignition retard microswitch

MASERATI AUTOMOBILI MODENA	CYLINDER HEAD - INTAKE AND EXHAUST PORTS CONFIGURATION (Engine family 107/49/C2)	DRW. No. 1



MASERATI AUTOMOBILI MODENA	COMBUSTION CHAMBER DESIGN VALVE, VALVE STEM SEAL AND PISTON AND PISTON CONFIGURATION (Engine family 107/49/C2)	DRW. No. 2



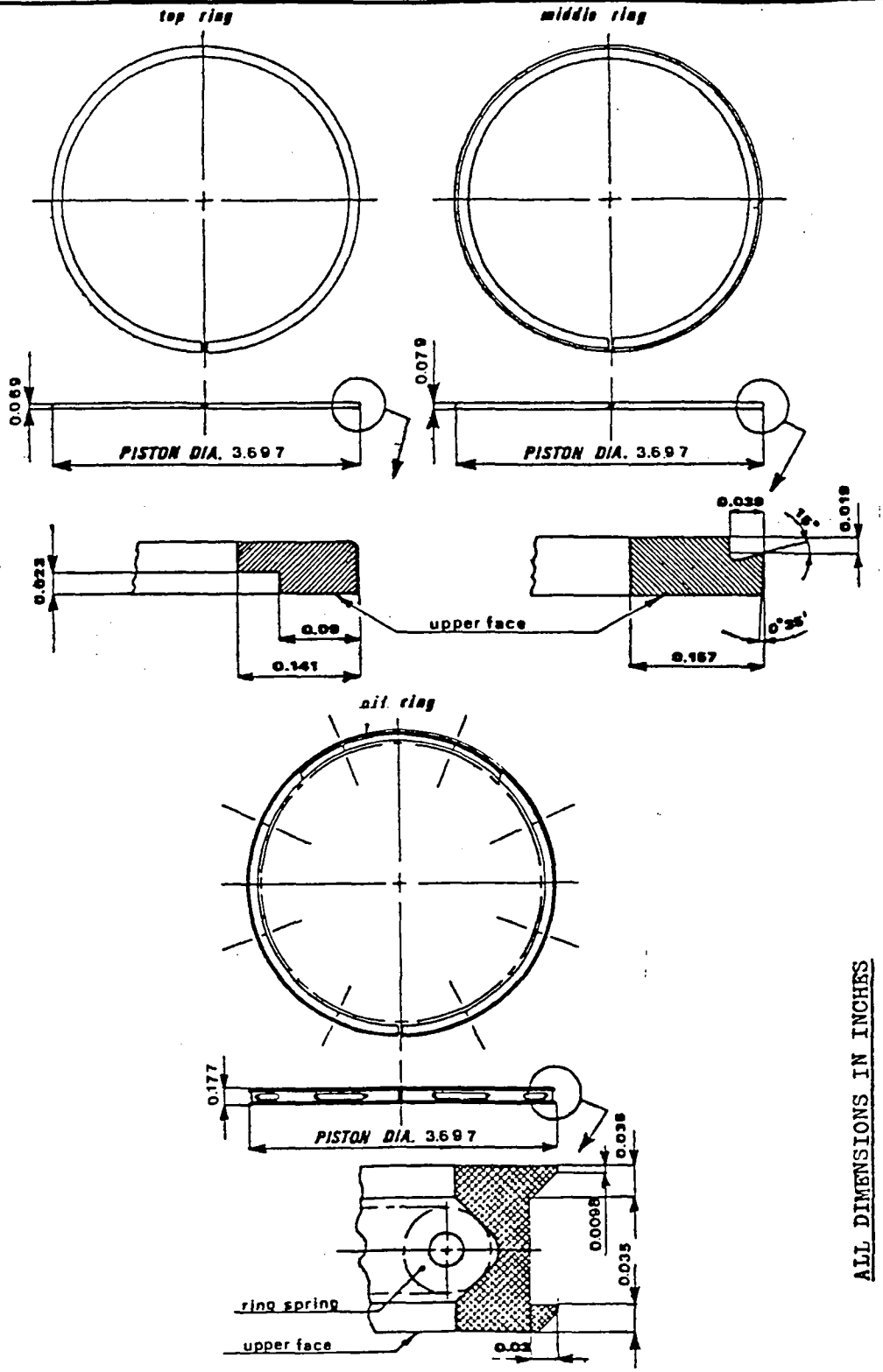
ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA

PISTON RINGS

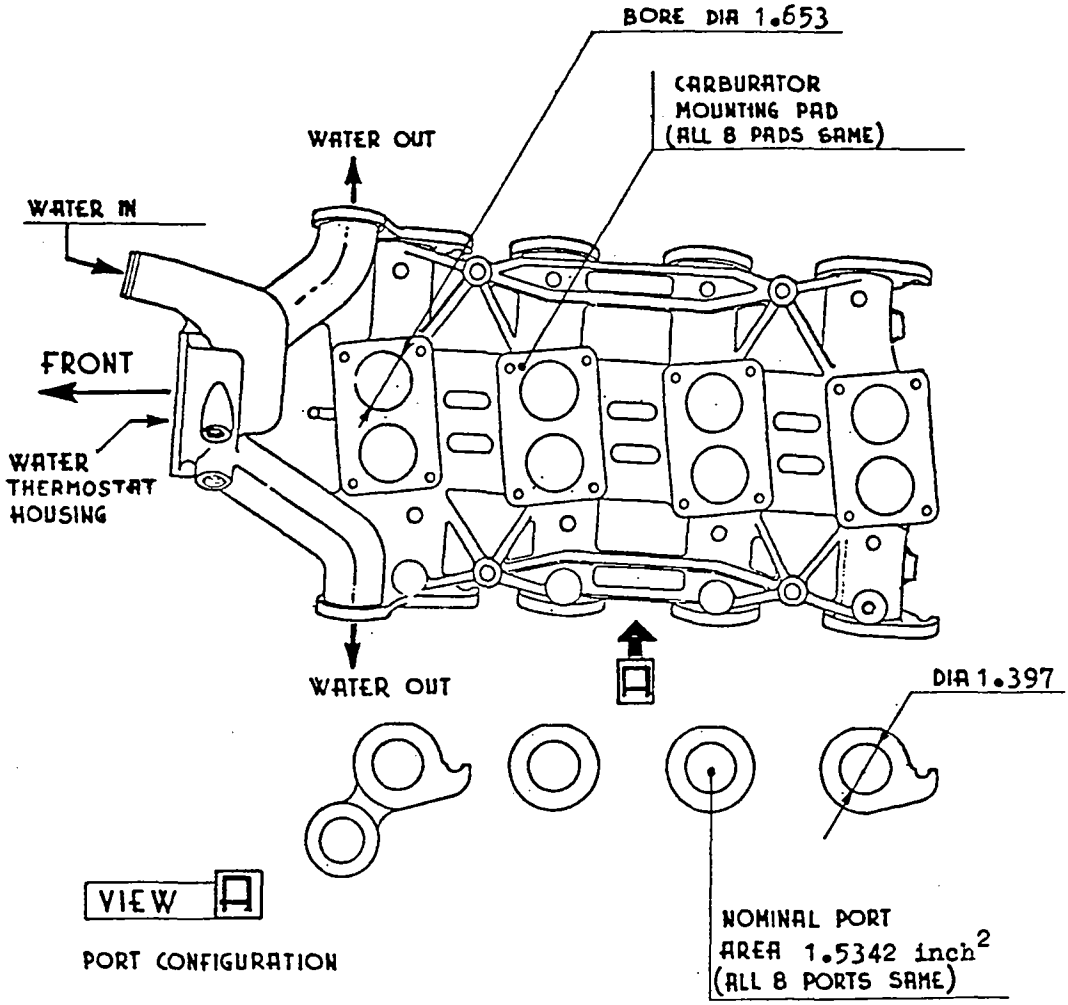
(Engine family 107/49/C2)

DRW. No. 3



ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA	INTAKE MANIFOLD CONFIGURATION (Engine family 107/49/C2)	DRW. No. 4



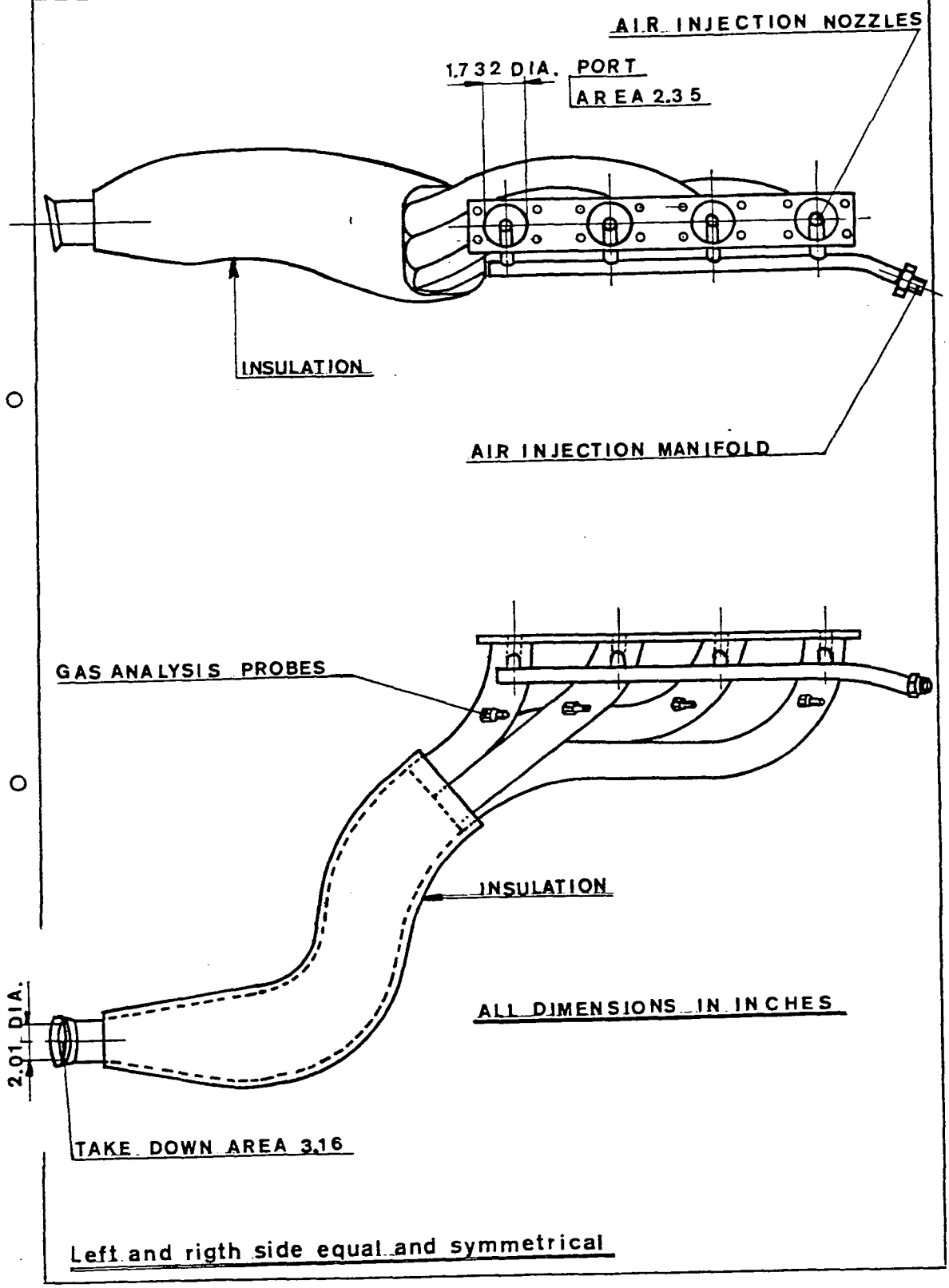
ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA

EXHAUST MANIFOLDS

Engine family 107/49/C2)

DRW. No. 5



ALL DIMENSIONS IN INCHES

Left and rigth side equal and symmetrical

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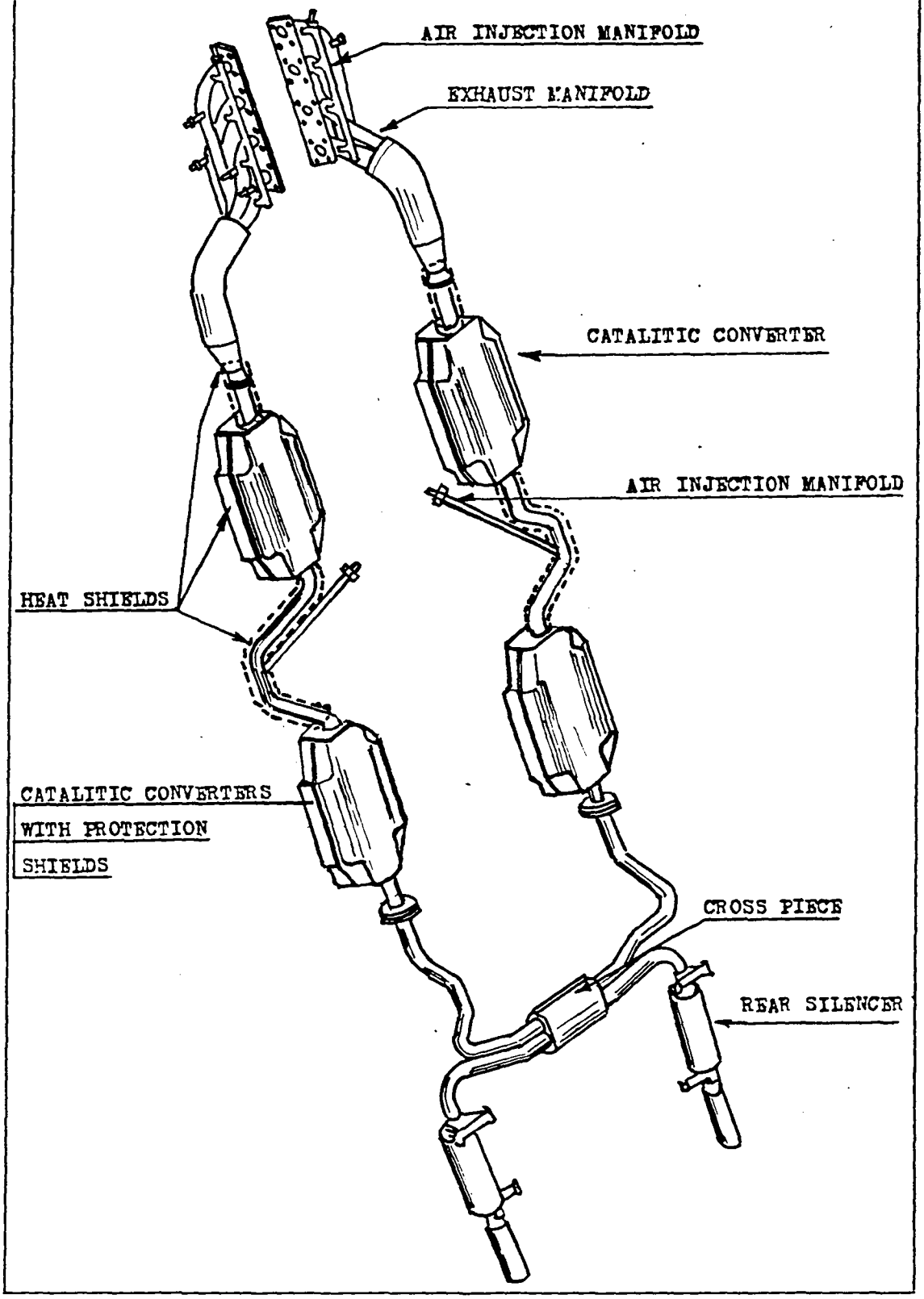
Revision Date:					

MASERATI AUTOMOBILI MODENA

EXHAUST SYSTEM CONFIGURATION

(Engine family 107/49/C2)

DRW. No. 6



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Revision Date:					

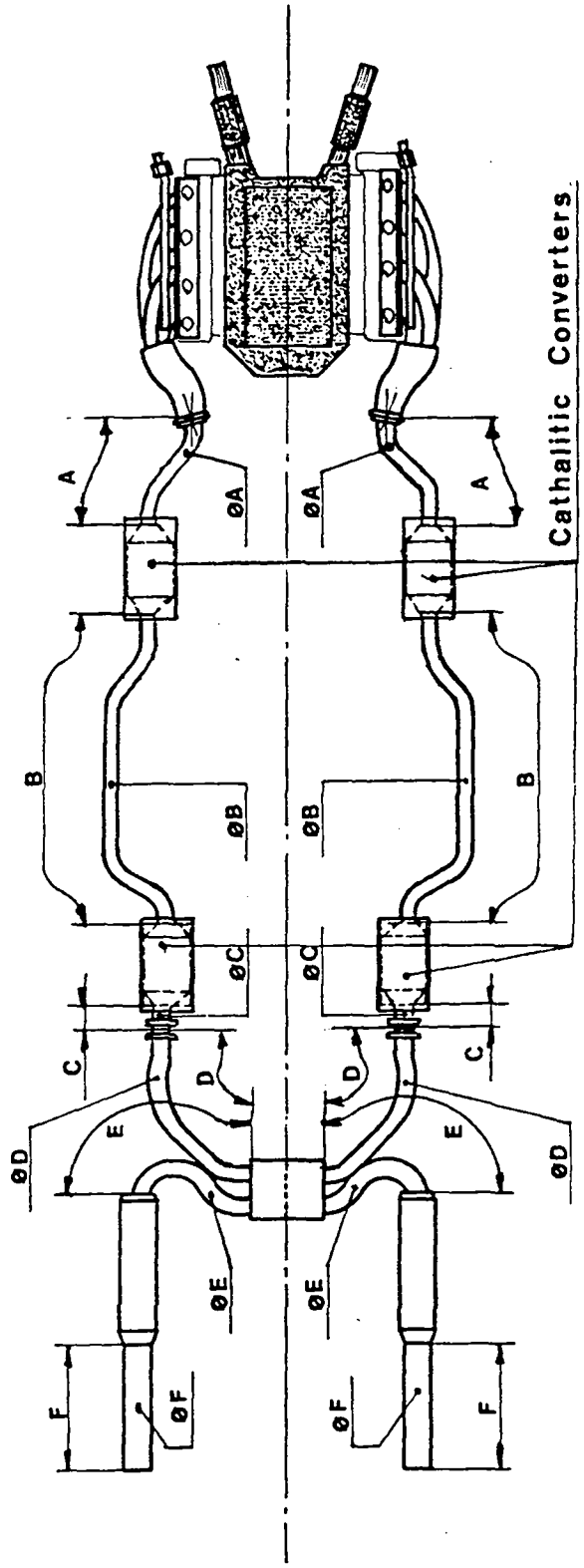
MASERATI AUTOMOBILI MODENA

EXHAUST SYSTEM

(Engine family 107/49/C2)

DRW. No 6a

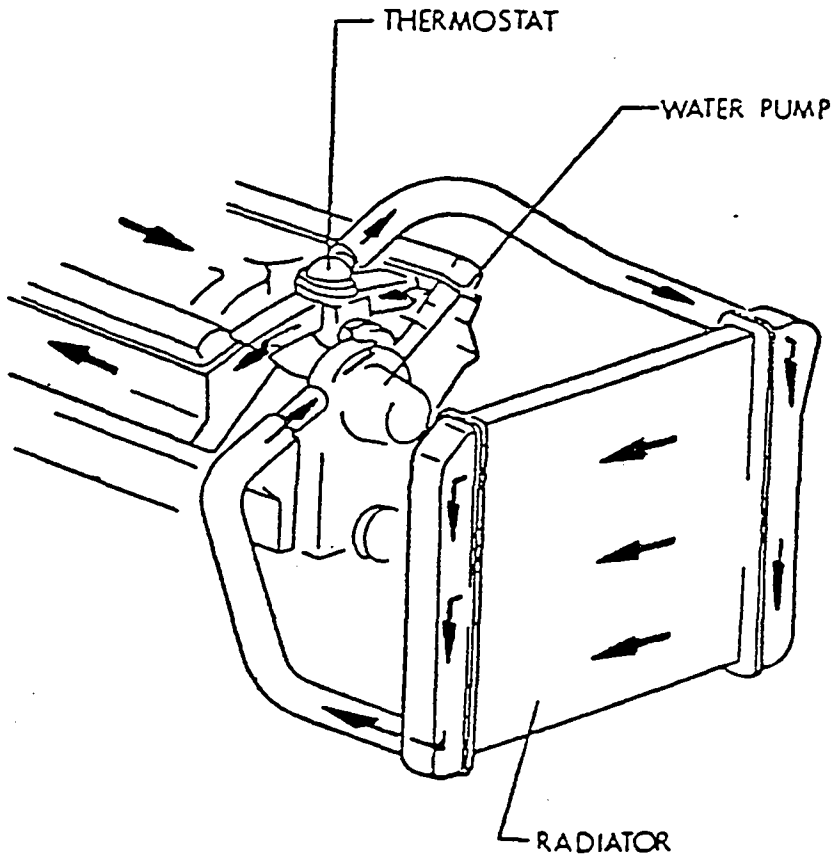
Date



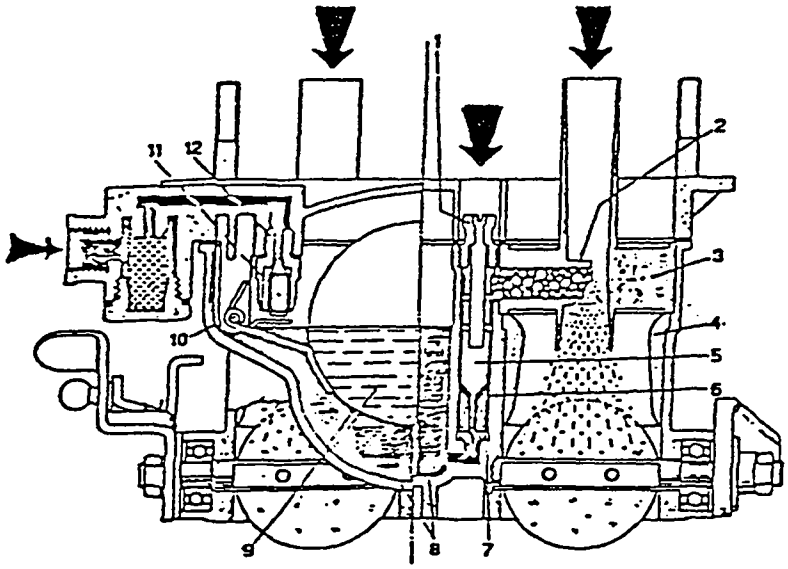
CAR LINE MODEL	ENGINE FAMILY	NOMINAL LENGTH						NOMINAL DIAMETER					
		A	B	C	D	E	F	ØA	ØB	ØC	ØD	ØE	ØF
330/US QUATTROPORTE	107/49/C2	16.5	47.6	2	26	15	16.7	1.85	1.85	1.85	1.85	1.85	1.61

ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA	WATER COOLING SYSTEM (Engine family 107/49/C2)	DRW. No. 7



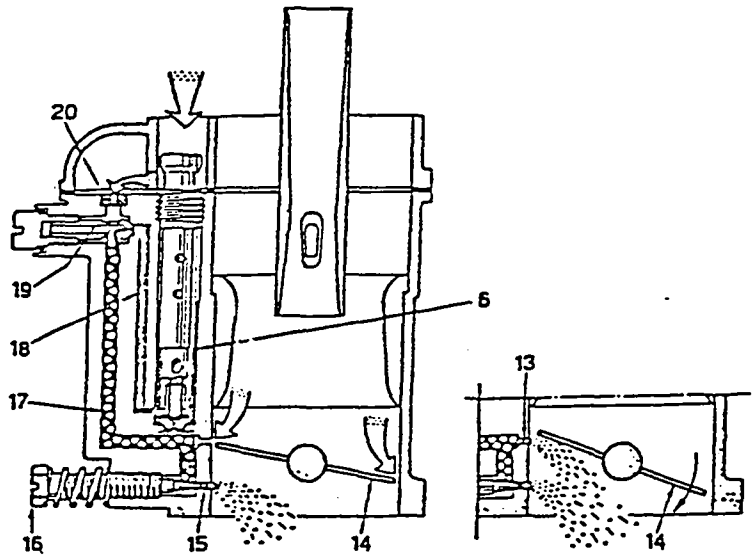
MASERATI AUTOMOBILI MODENA	FLOAT SYSTEM & MAIN METERING SYSTEM (Engine family 107/49/C2)	DRW. No. 8



NORMAL RUNNING -

The fuel, through needle valve (12), passes into the bowl (8) where the float (9), hinged on pivot pin (10), controls the opening of needle (11) thus keeping fuel level constant. From bowl (8), fuel reaches wells (6) through main jets (7). After mixing with the air coming from the orifices of emulsioning tubes (5), fuel reaches, through air corrector jets (1) and nozzles (2) the carburation area consisting of auxiliary venturis (3) and venturis (4).

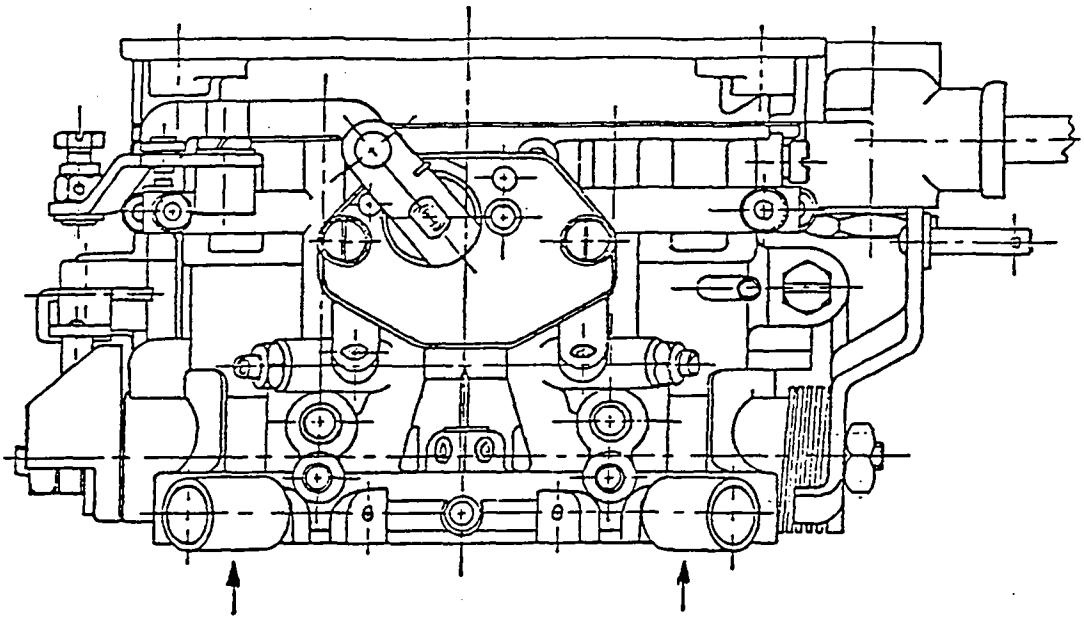
MASERATI AUTOMOBILI MODENA	IDLE SYSTEM (Engine family 107/49/C2)	DRW. N. 9

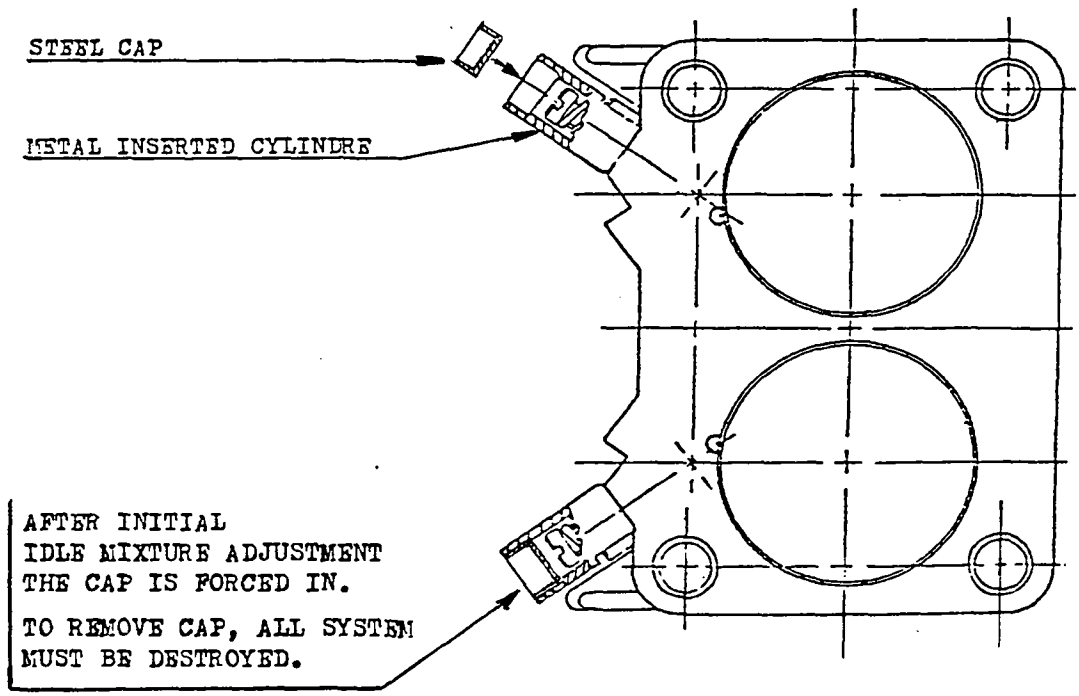


IDLE SPEED - PROGRESSION -

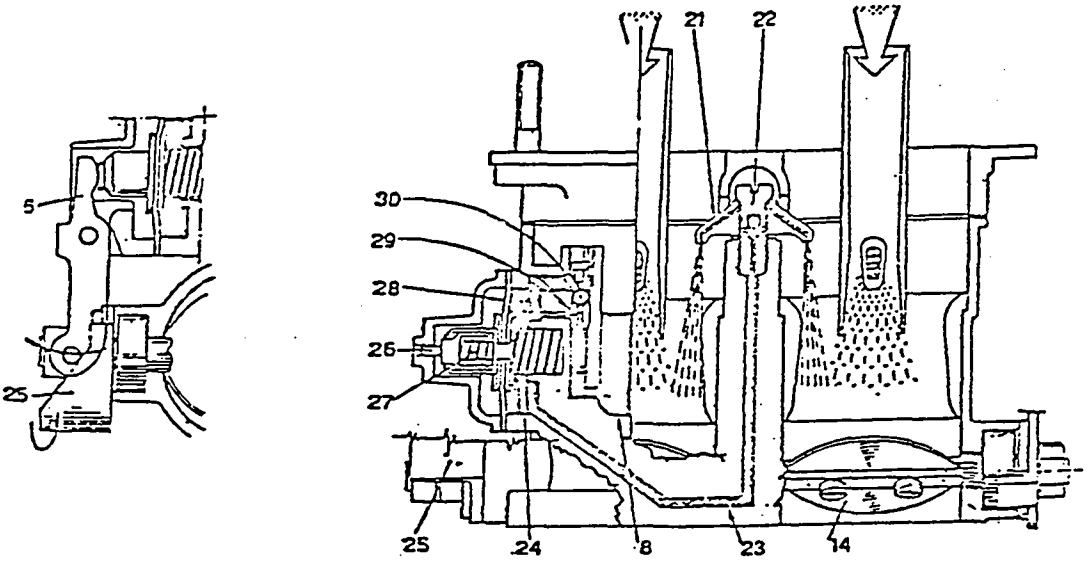
From wells (6) fuel reaches idle jets (19) through ducts (18); after emulsifying with the air coming from calibrated bushes (20), through ducts (17) and idle feed orifices (15) — the latters adjustable by screws (16) — it reaches carburator ducts downstream of throttles (14). Starting from idle rate and upon gradual throttles opening, mixture reaches the carburators ducts also through progression orifices (13). thus allowing smooth increase in engine angular speed.

MASERATI AUTOMOBILI MODENA	IDLE MIXTURE SCREW LOCK SYSTEM (Engine family 107/49/C2)	DRW. No. 10





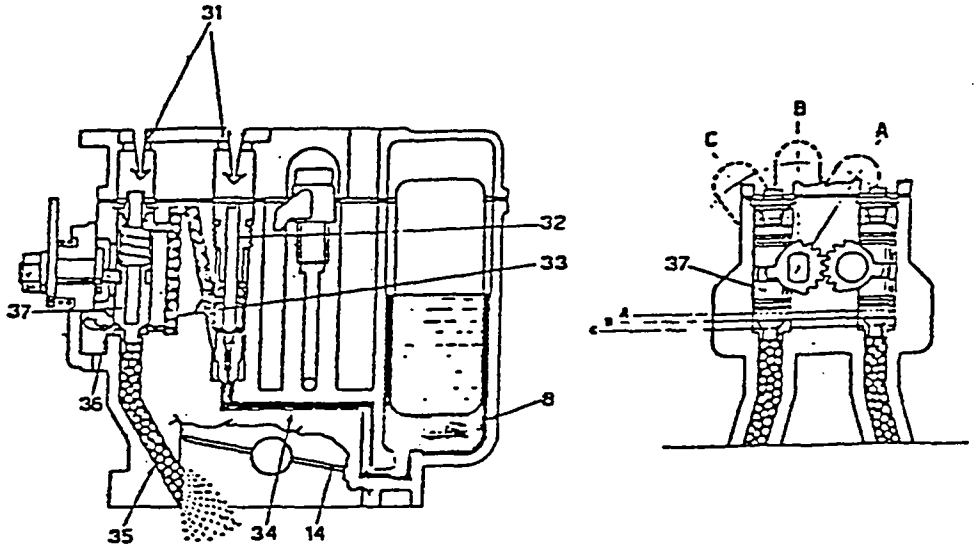
MASERATI AUTOMOBILI MODENA	PUMP SYSTEM (Engine family 107/49/C2)	DRW. N. 11



ACCELERATION

Upon closing of throttles (14), lever (26) sets free the diaphragm (28) which, under the action of spring (24), draws fuel from the bowl (8) through the ball valve (30).
Upon opening of throttles by means of cam (25) and lever (26), the diaphragm (28) injects fuel into the carburator ducts through duct (23), delivery valve (22) and pump jets (21).
The spring (27) absorbs the openings of the throttles and prolongs fuel delivery. Any excess fuel delivered by the acceleration pump is discharged into the bowl (8) along with pump chamber vapours, through calibrated hole (29).

MASERATI AUTOMOBILI MODENA	CHOKE SYSTEM (Engine family 107/49/C2)	DRW. No. 12



STARTING

The fuel, from bowl (8) reaches the starter device through ducts (34) and starting jets (32): after emulsifying with the air coming from the holes (31) it reaches valves seat (37) through ducts (33) and, definitely emulsified with the air of orifices (36), it flows to the carburator ducts downstream of throttles (14) through ducts (35).

Cold starting - Switch on device by pulling knob fully out - position « A ».

Starting with lukewarm engine - partial insertion of the device - position « B ».

Engine warming up - During this stage, even by vehicle running, progressively disengage starting device.

Normal vehicle running - device disengaged - Position « C » as soon as engine reaches running temperature.

WEBER

CARBURETTOR FLOW CURVE

Foglio

Firma

Data 16-9-1980

DRW. No. 13

ENGINE FAMILY 107/49/C2 C.I.D. 301

TRANSMISSION Automatic 3 EXHAUST CONTROL SYSTEM AIR/CAT

CARBURETTOR 42 DCNF 95 NUMBER

PRODUCTION TOLERANCE LIMIT ⟷

○ Left Barrel

● Right Barrel

TEST CONDITIONS

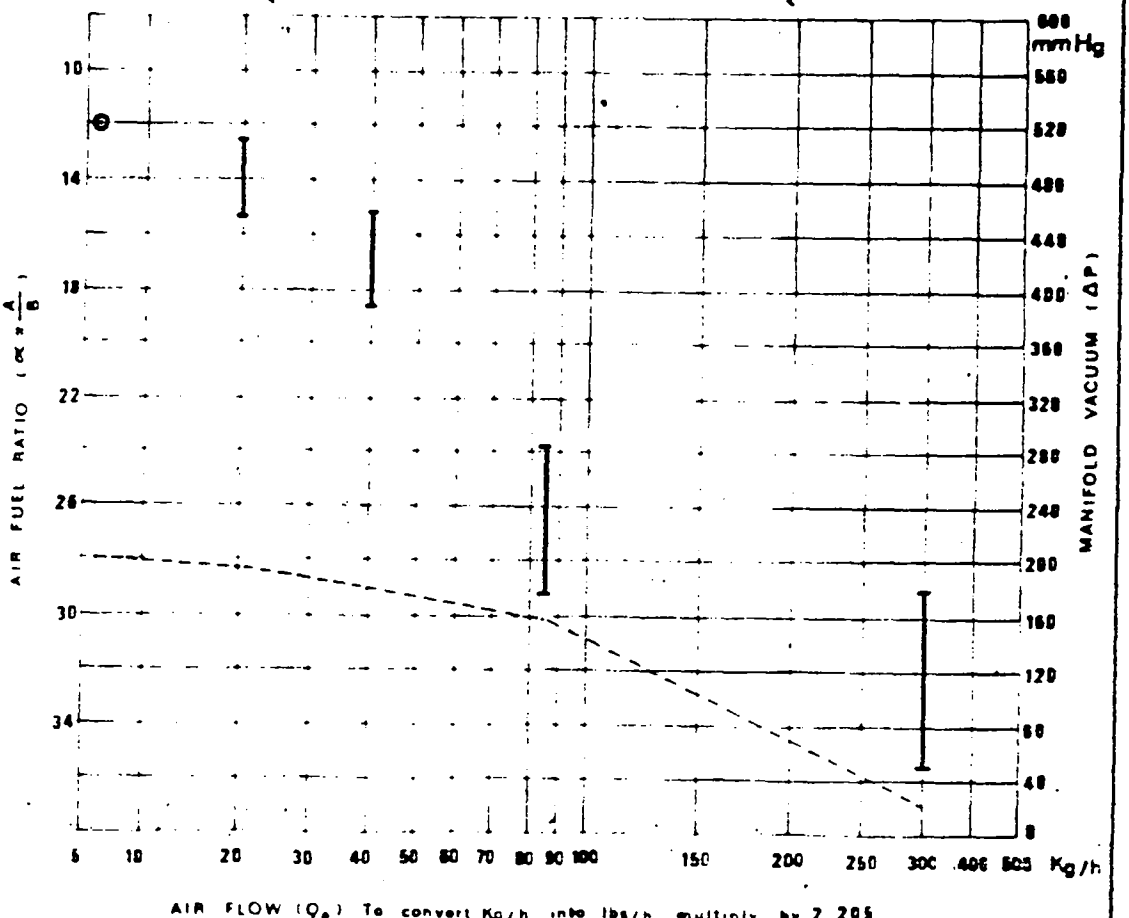
Bar. absolute pressure 760 mmHg Inlet air temperature 21 °C Relative humidity 60 %

FUEL

Type SHELL SOL T Specific gravity 750 Kg/dm³ Temperature 24 °C Infeed pressure 3 Kg/cm²

BALANCING idle ΔP 200 mmHg Q_a 6 Kg/h

W O T ΔP 22 mmHg Q_a 300 Kg/h

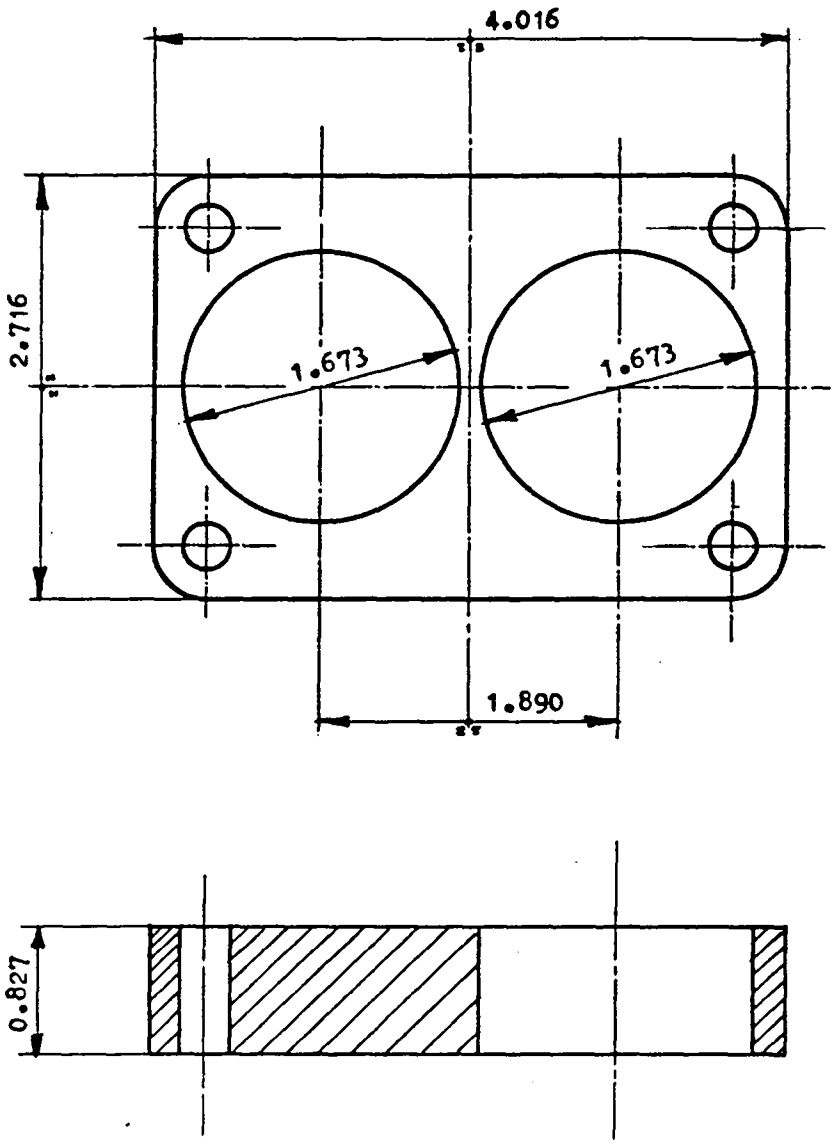


AIR FLOW (Q_a) To convert Kg/h into lbs/h multiply by 2.205

MASERATI AUTOMOBILI MODENA

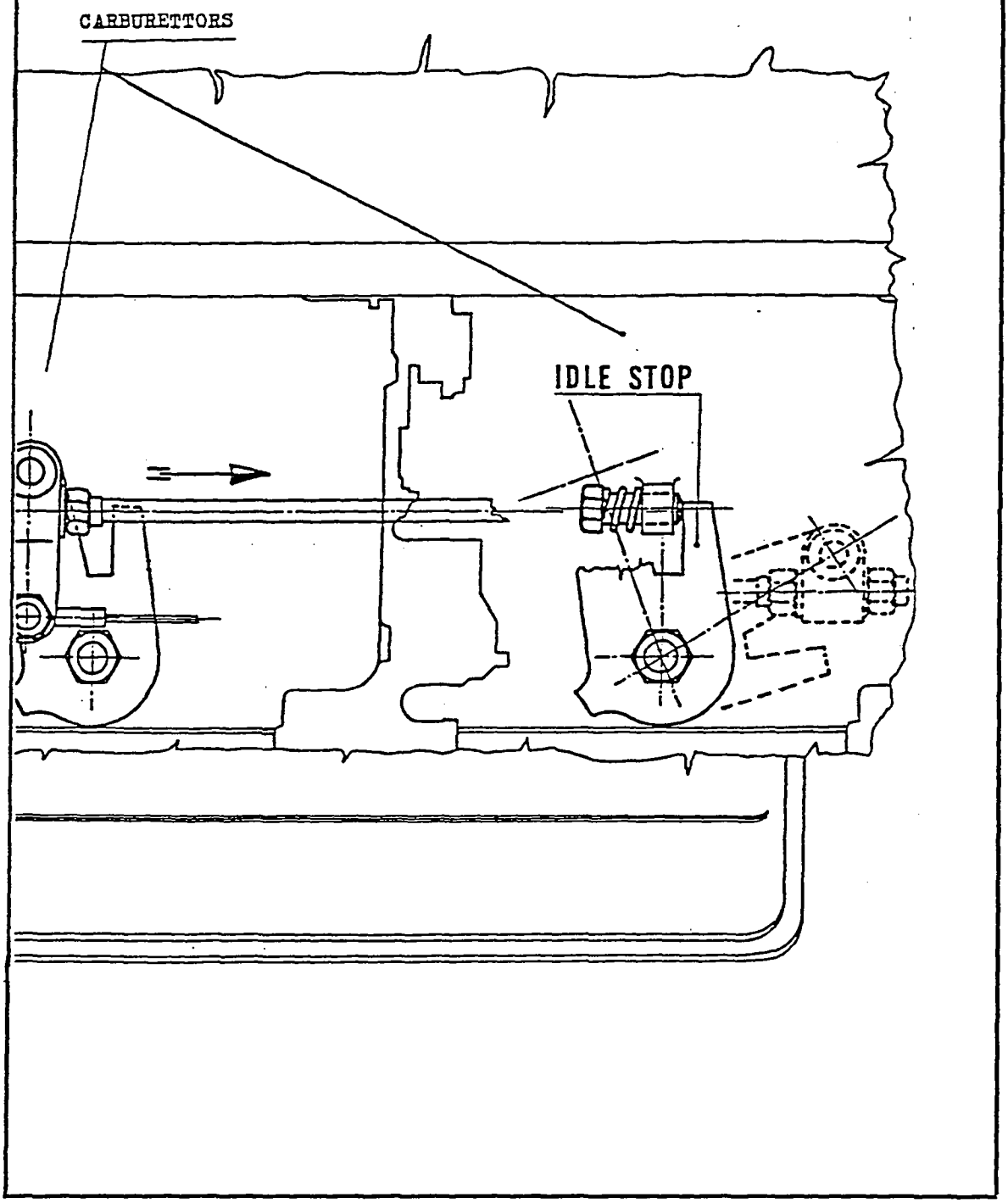
CARBURETOR MOUNTING SPACER
(Engine family 107/49/C2)

DRW. No. 14

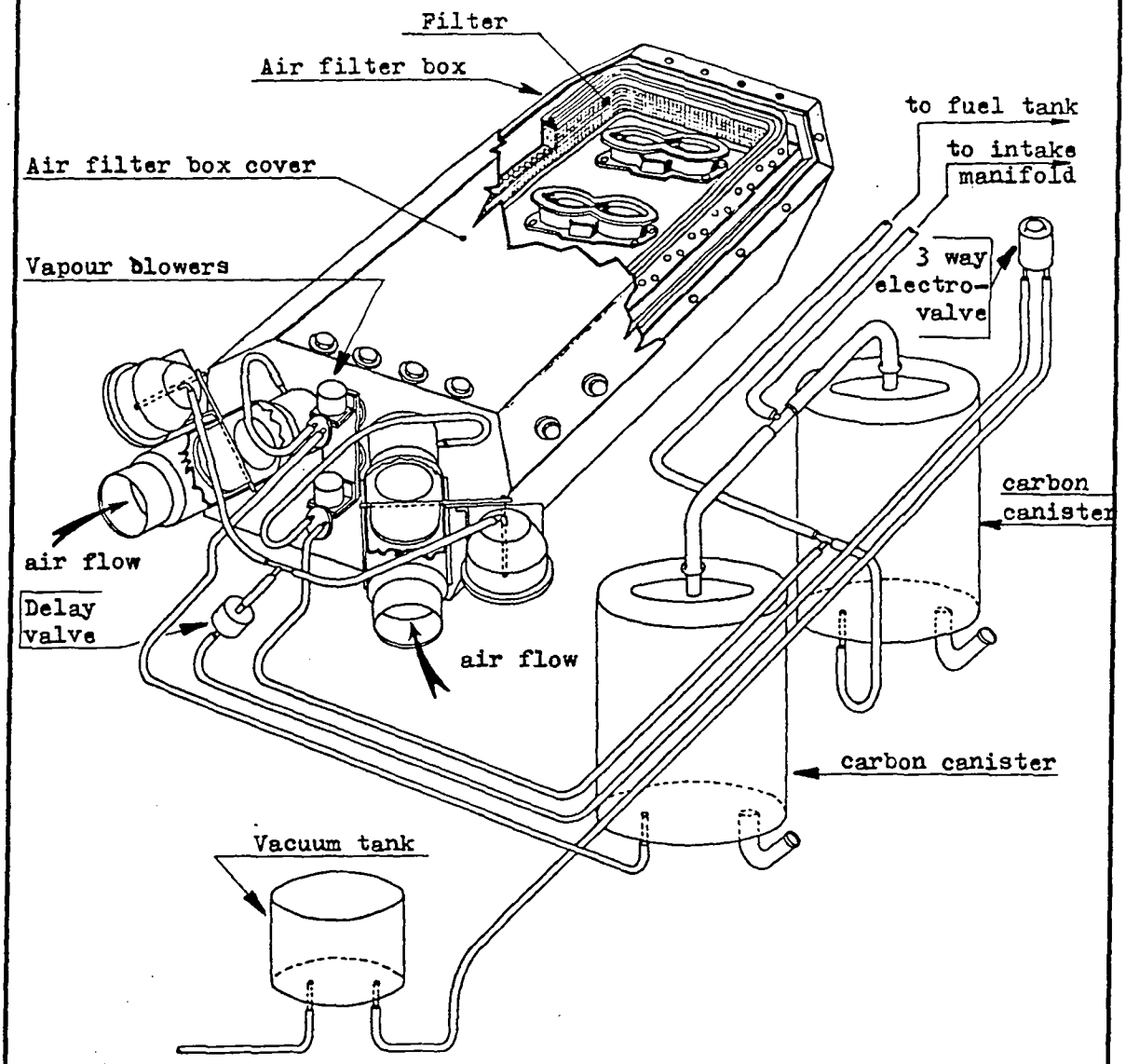


ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA	IDLE STOP CONFIGURATION (Engine family 107/49/C2)	DRW. No. 15



MASERATI AUTOMOBILI MODENA	AIR FILTER BOX ARRANGMENT TO PREVENT GAS VAPOURS MIGRATION / EVAP. SYSTEM PART/ AIR FILTER CONFIGURATION (Engine family 107/49/C2)	DRW. No. 16

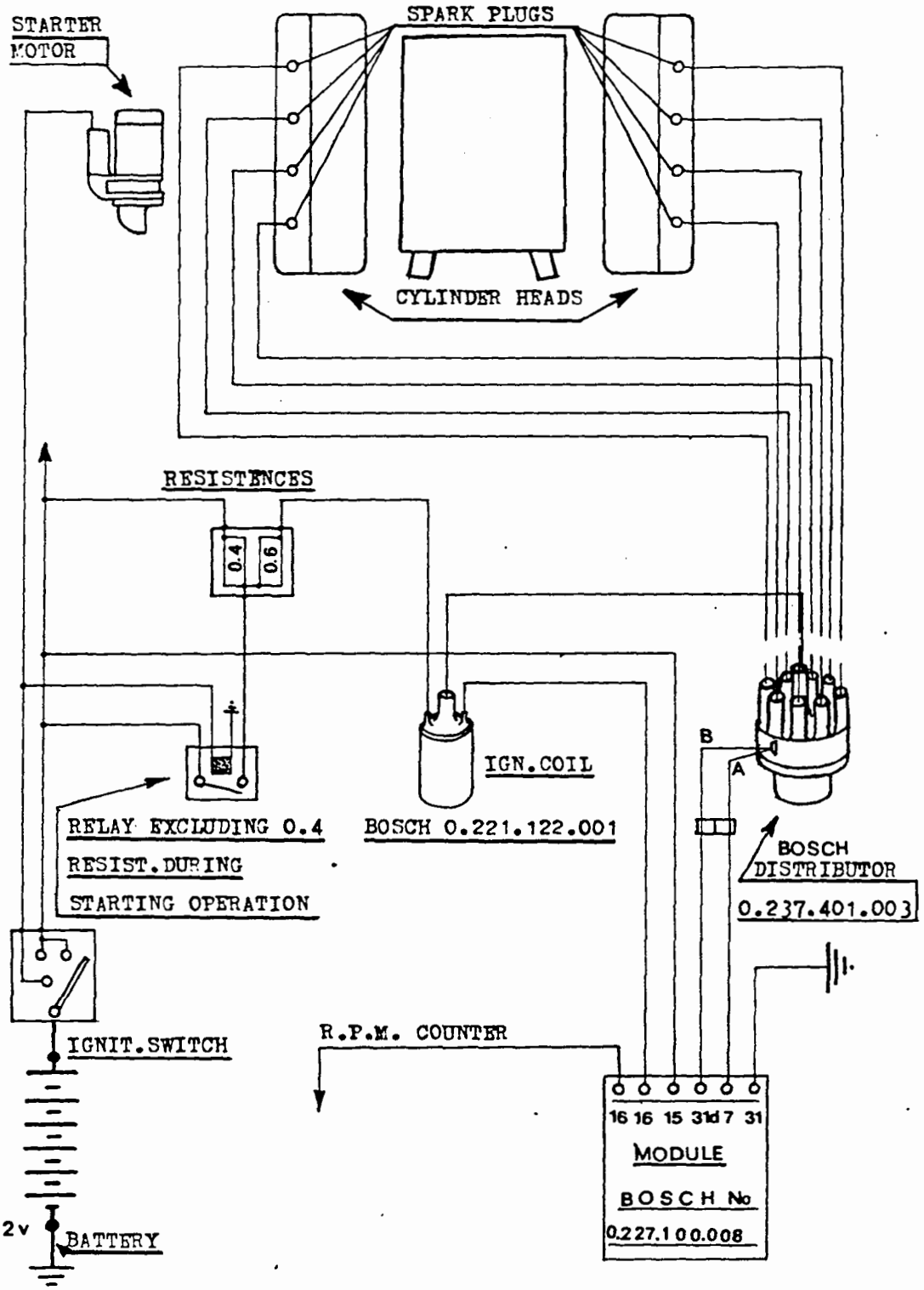


Issue Date:	OCT. 27 1980	Olson Engineering Inc.	pg 8-21
Revision Date:			

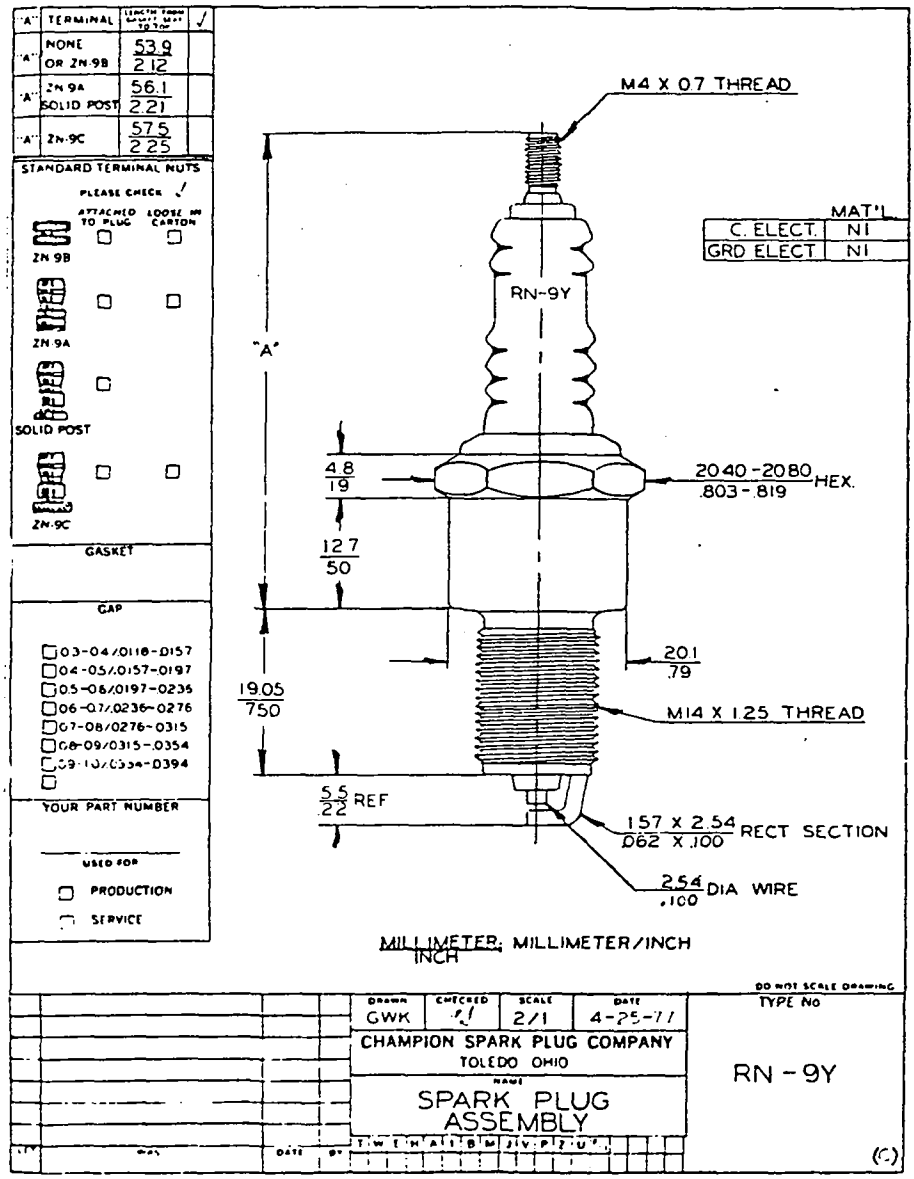
MASERATI AUTOMOBILI MODENA

IGNITION SYSTEM CONFIGURATION
(ENGINE FAMILY 107/49/C2)

DRW. No. 17



MASERATI AUTOMOBILI MODENA	SPARK PLUG CONFIGURATION (Engine family 107/49/C2)	DRW. No. 18



ALL DIMENSIONS IN INCHES

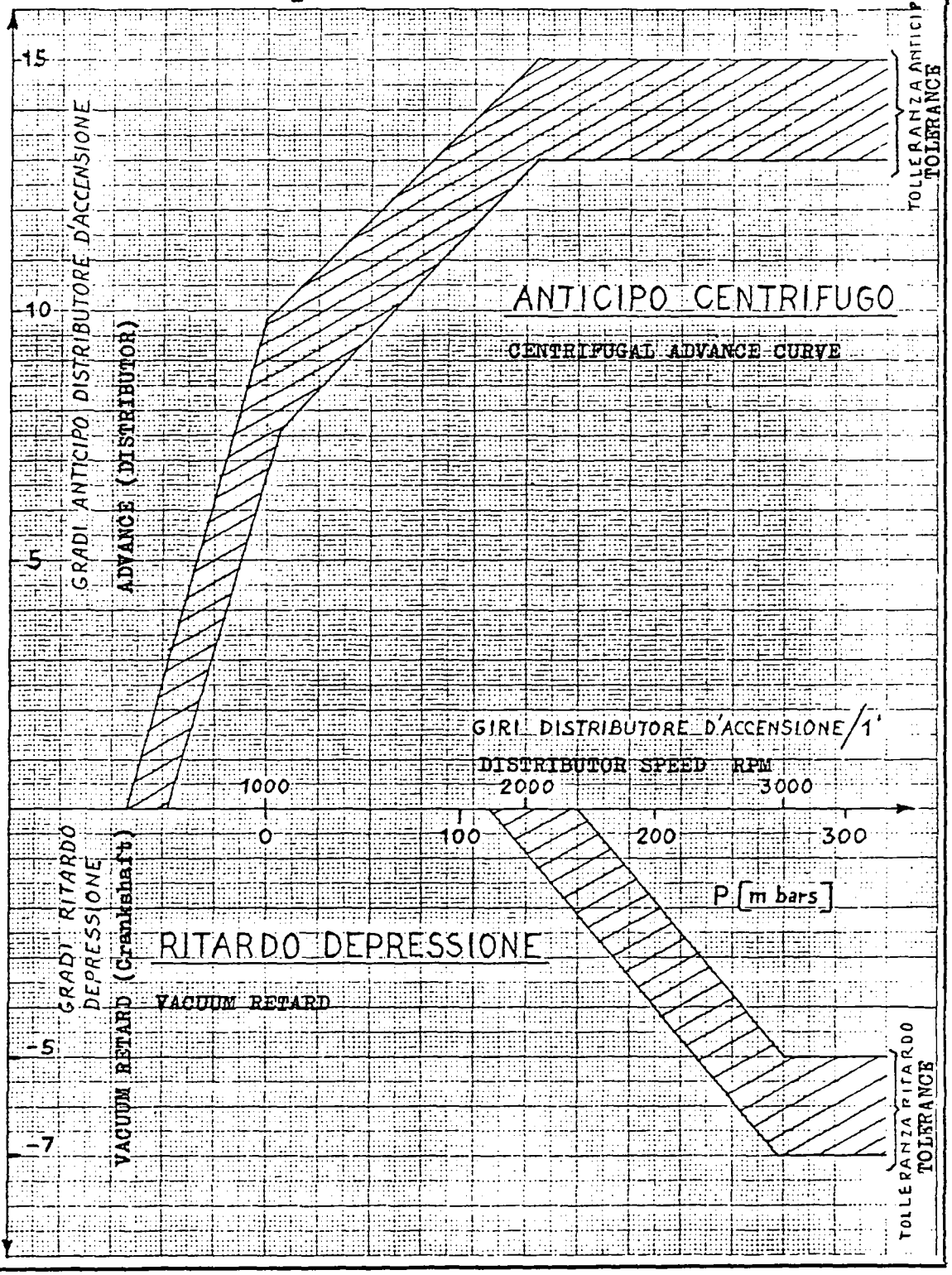
MASERATI AUTOMOBILI MODENA

ADVANCE CURVE

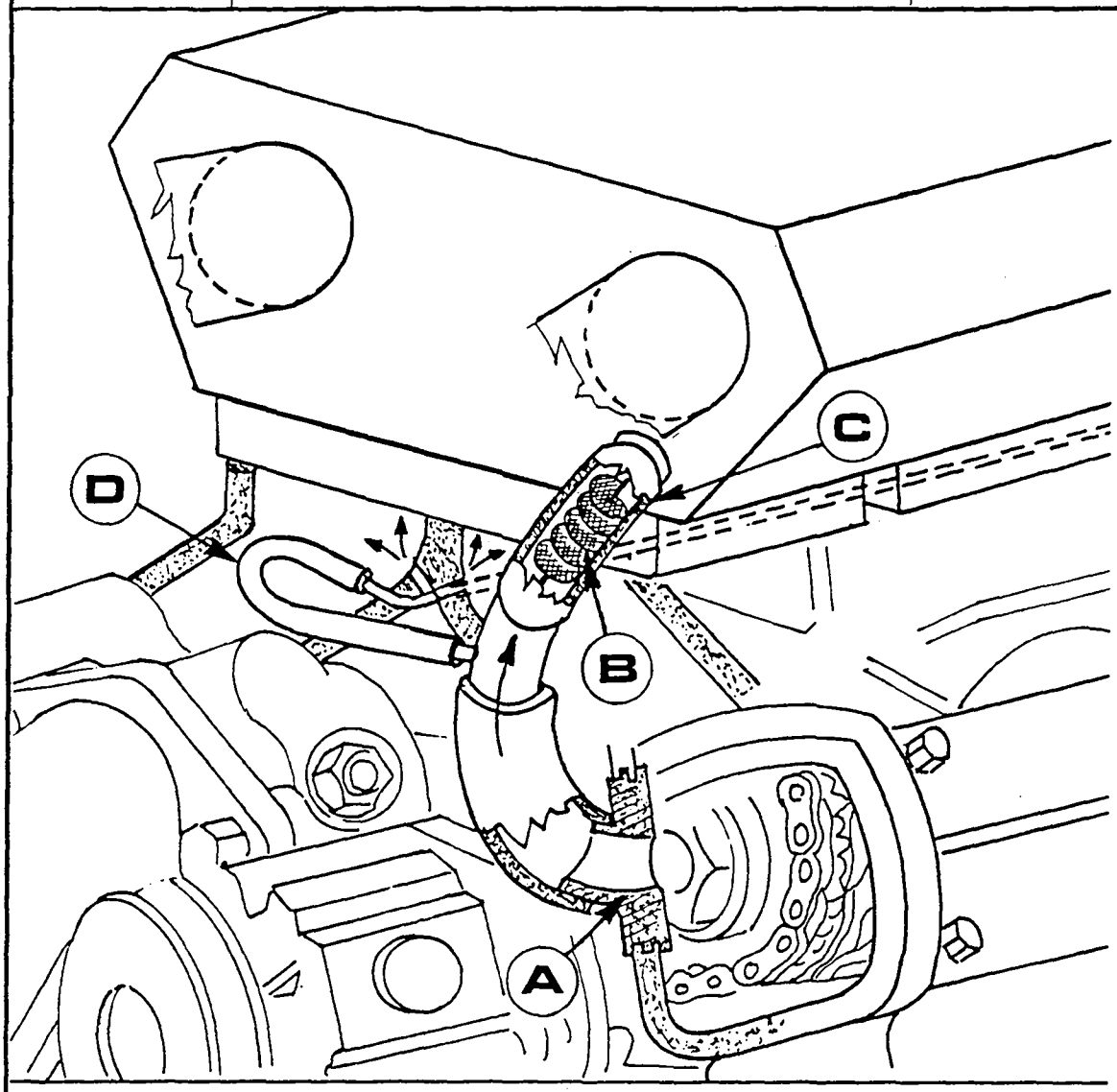
Engine Family 107/49/C2

DRW. N. 19

FIXED ADVANCE = 4° ± 1° AT IDLE (1000 ± 100 rpm)



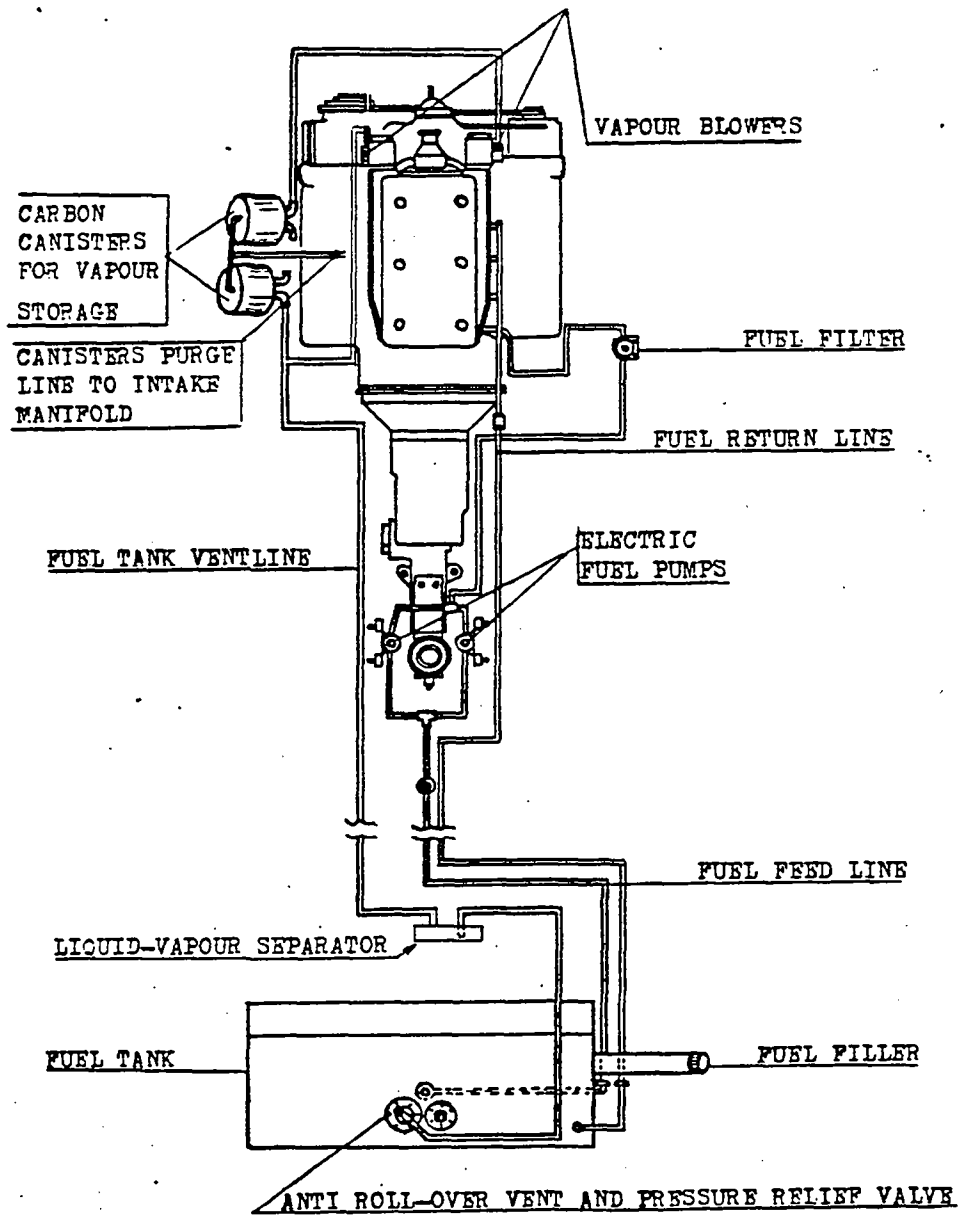
MASERATI AUTOMOBILI MODENA	CRANKCASE VENTILATION SYSTEM SCHEMATIC (Engine family 107/49/C2)	DRW. No. 20



A - CRANKCASE VAPOURS OUTLET
B - FLAME ARRESTOR
C - CONNECTION HOSE TO CARBURETTORS ENCLOSURE BOX
D - CONNECTION HOSE TO INTAKE MANIFOLD

Principle of operation: at idle, when throttles are closed, vapours are sucked up to intake manifold through hose "D". When the throttles are open, the vapours are sucked up through hose "D" by the vacuum created in the air box.

MASERATI AUTOMOBILI MODENA	FUEL AND EVAP. SYSTEM SCHEMATIC/ / COMPONENT LOCATION (ENGINE FAMILY 107/49/C2)	DRW. No. 21

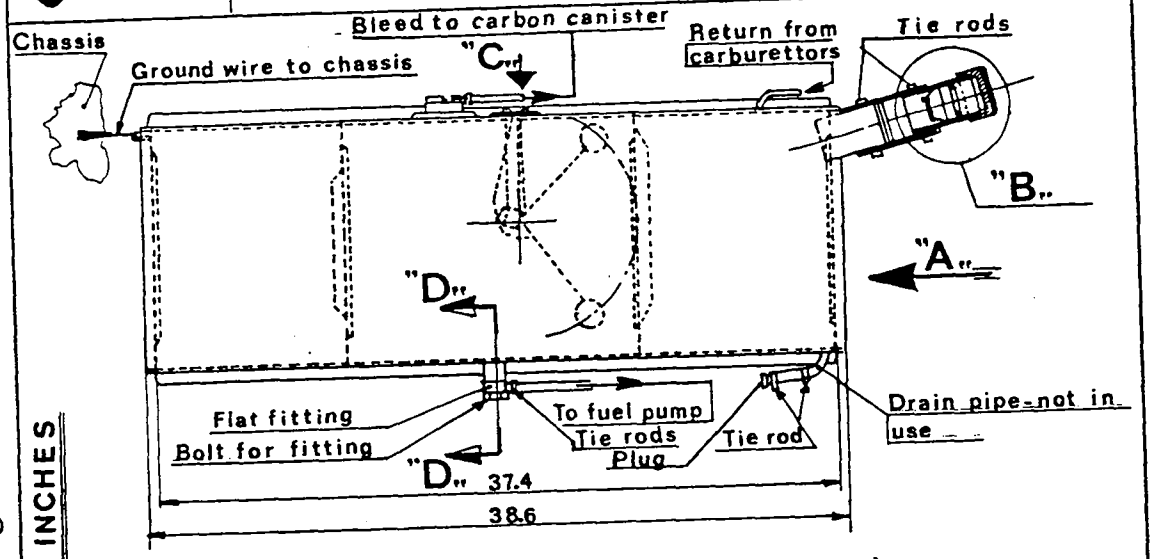


MASERATI AUTOMOBILI MODENA

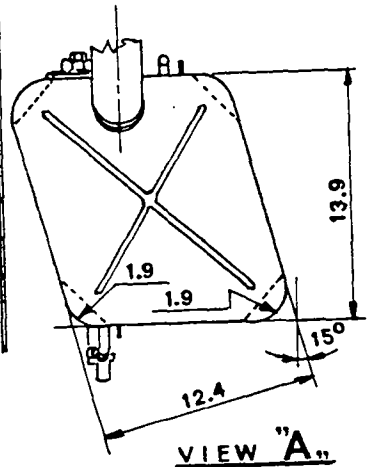
FUEL TANK DESCRIPTION

(Engine family 107/49/C2)

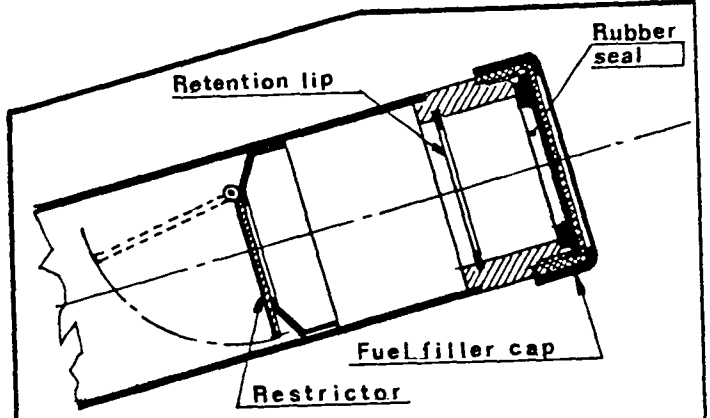
DRW. No 22



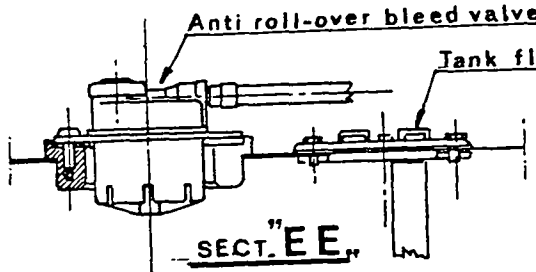
ALL DIMENSIONS IN INCHES



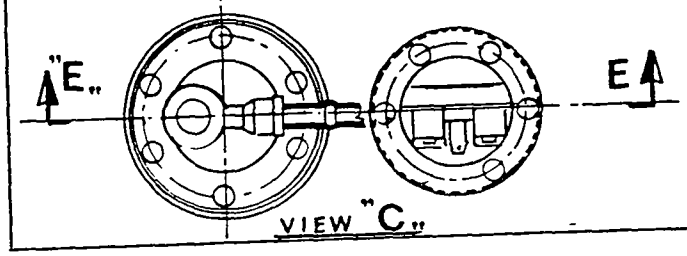
VIEW "A"



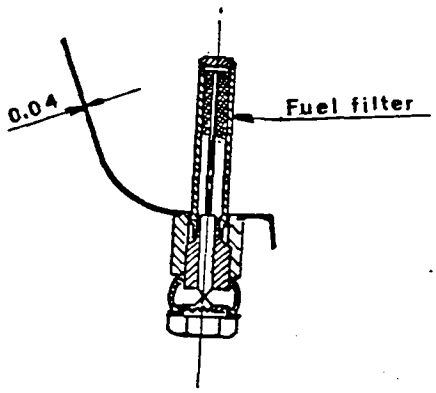
ITEM "B"



SECT. "EE"

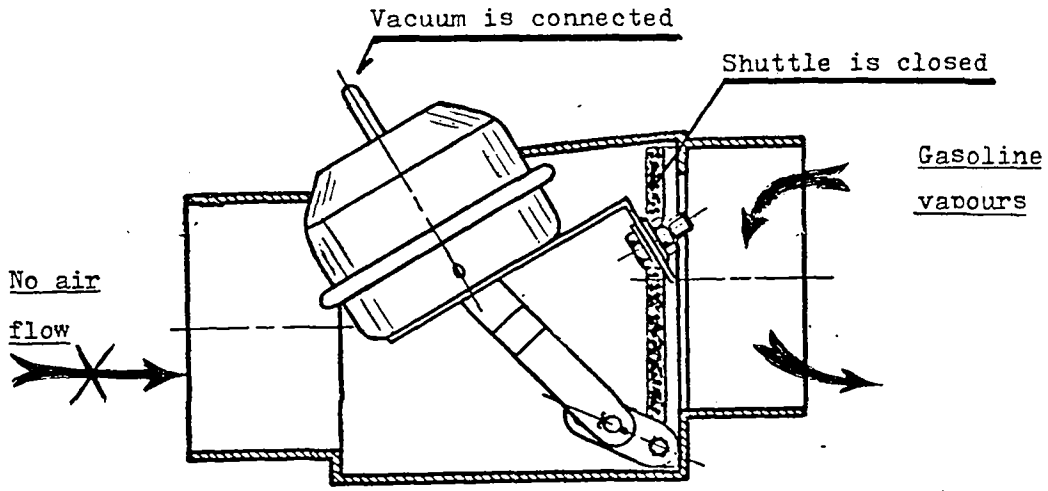


VIEW "C"

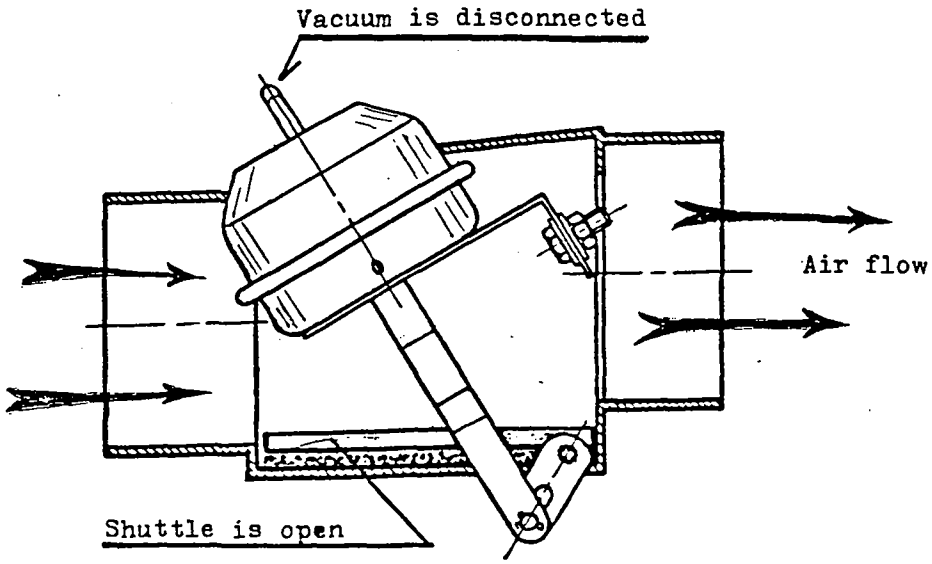


SECT. "DD"

MASERATI AUTOMOBILI MODENA	CARBURETTORS ENCLOSURE BOX FLAP VALVES (Engine family 107/49/C2)	DRW. No. 23

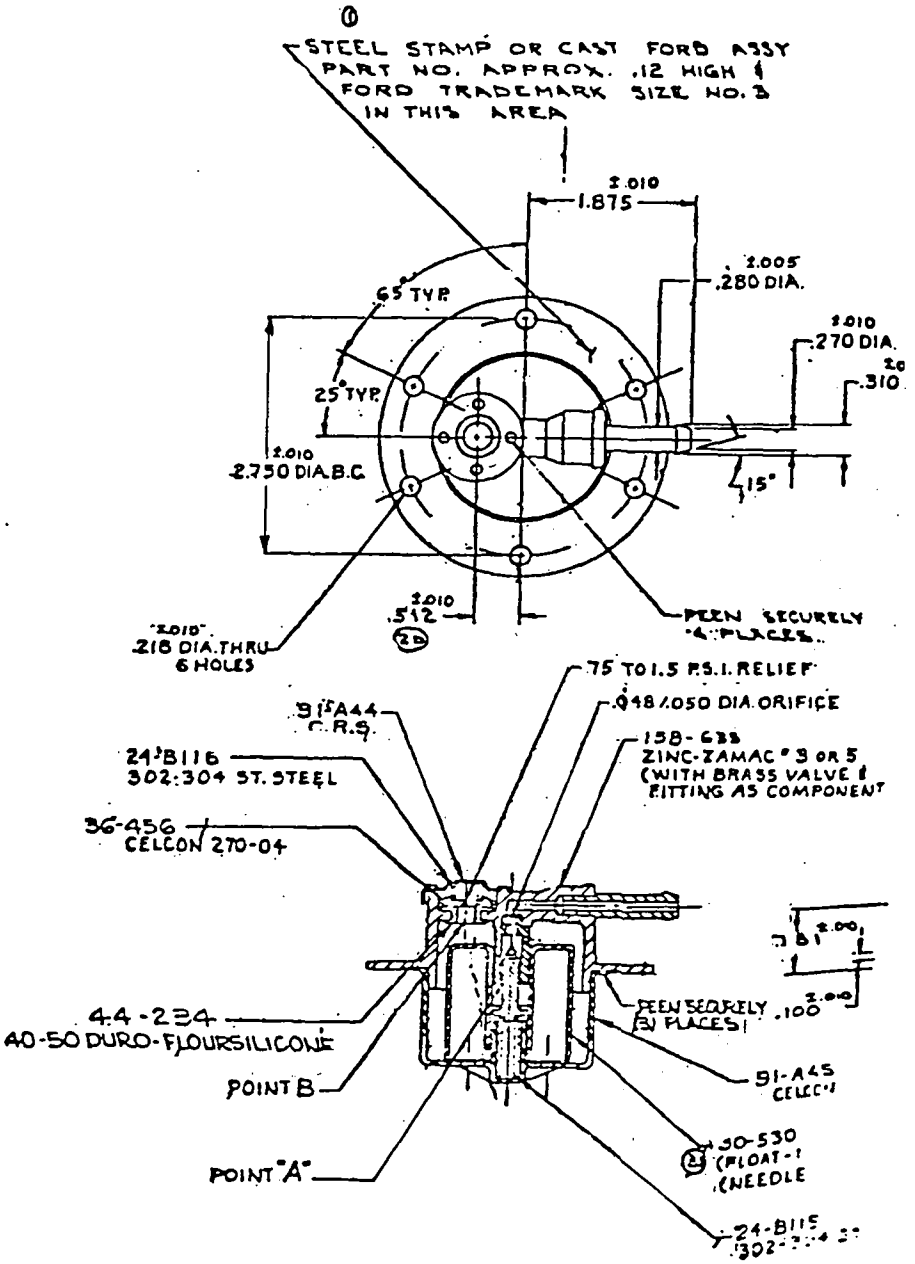


CONDITION : Engine off



CONDITION : Engine on

MASERATI AUTOMOBILI MODENA	FUEL TANK VENT VALVE AND PRESSURE RELIEF (Engine Family 107/49/C2)	DRW. No. 24

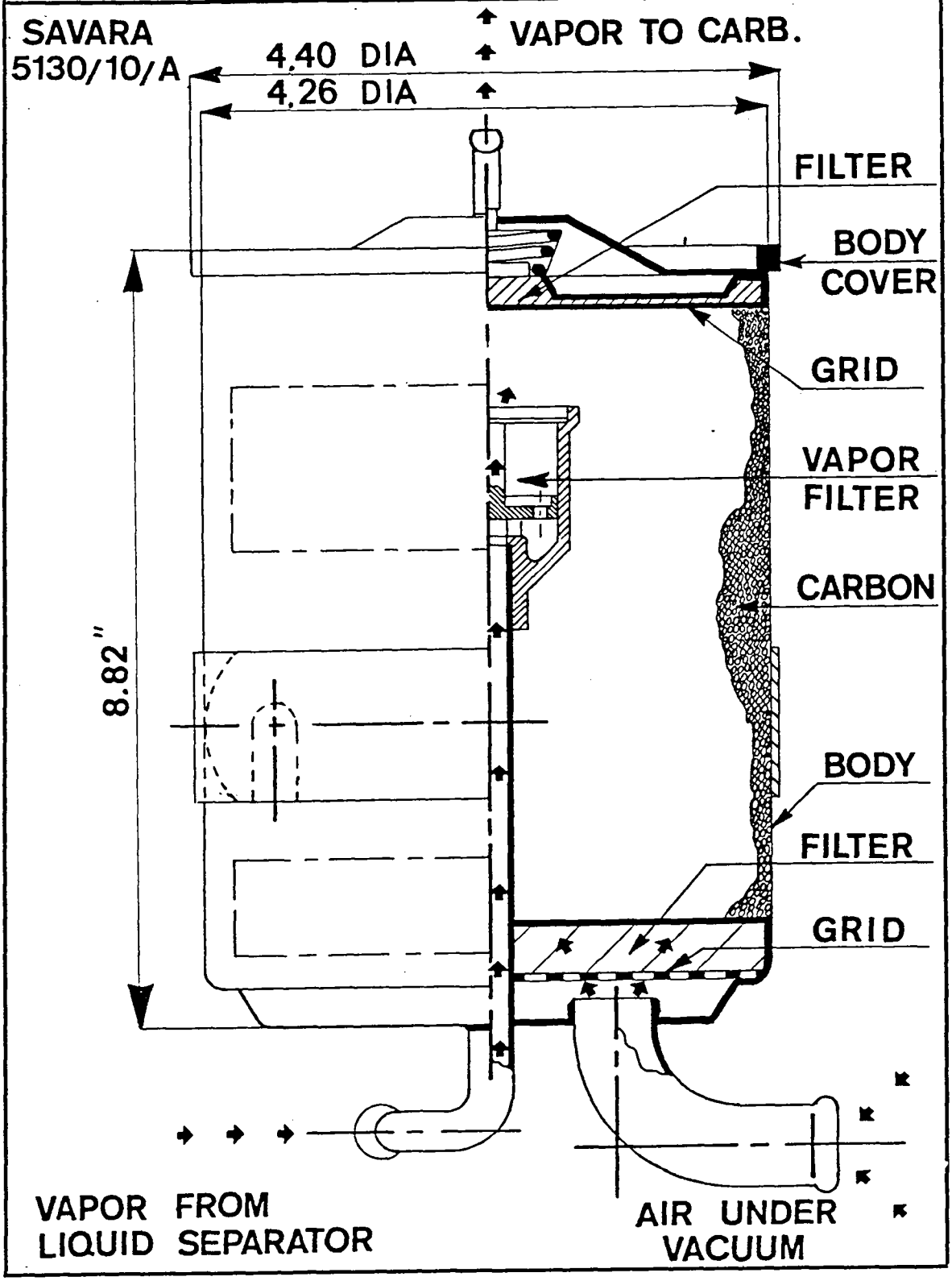


ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA

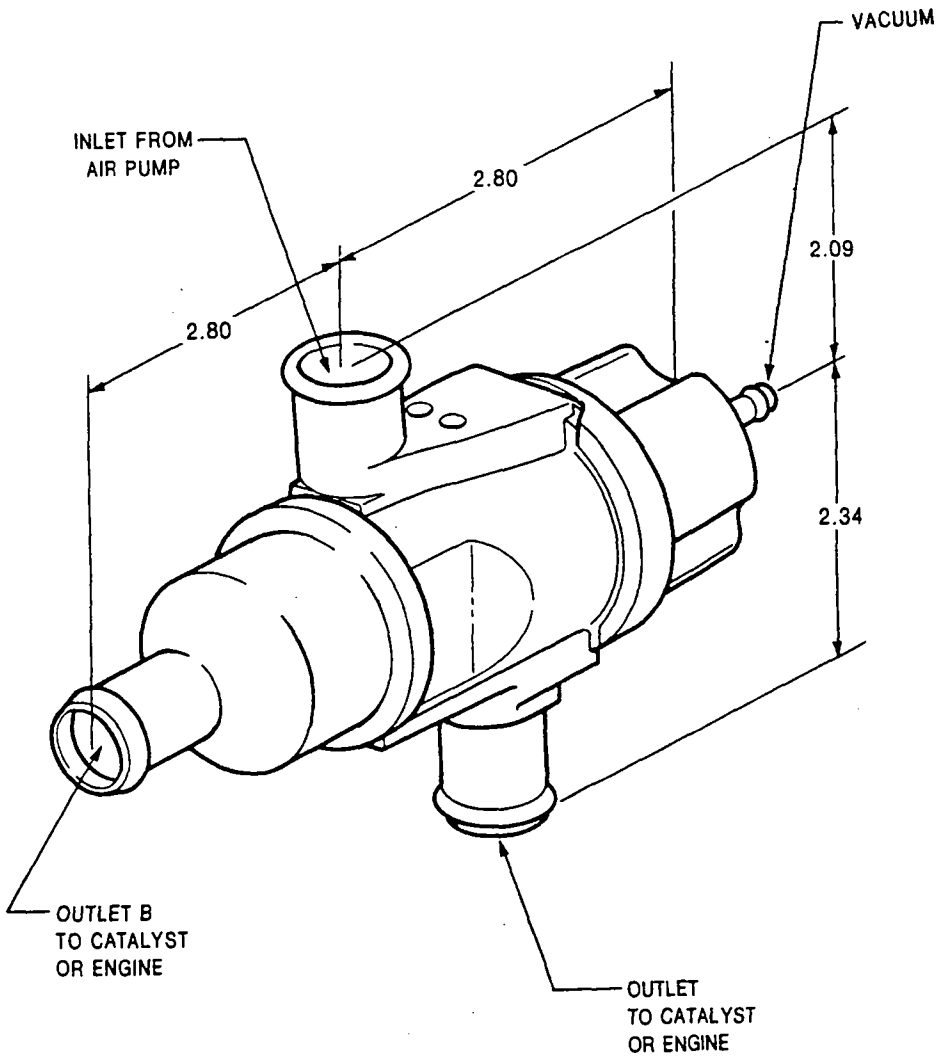
EVAPORATIVE EMISSION CANISTER CONFIGURATION
(Engine family 107/49/C2)

DRW. No. 25



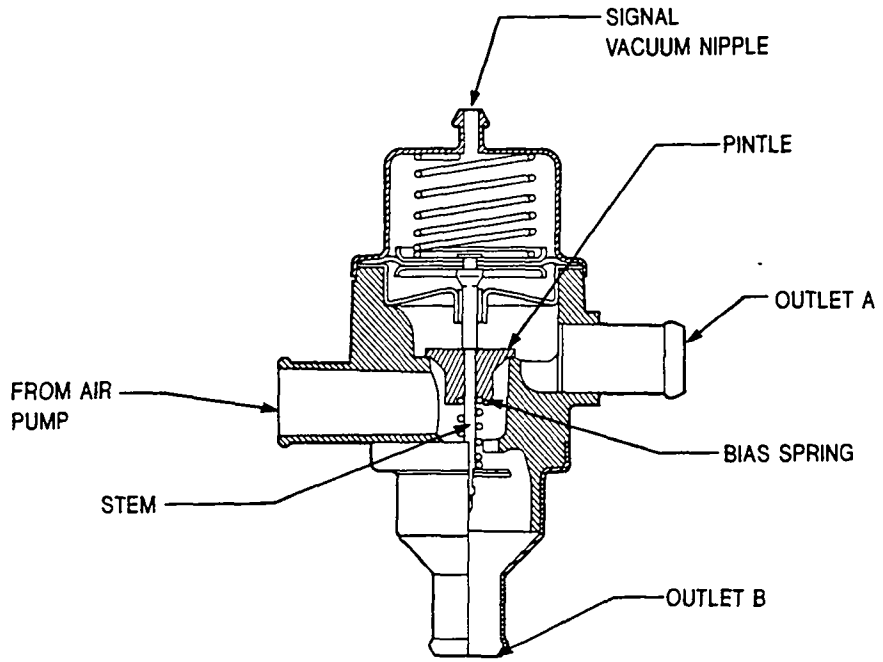
MASERATI AUTOMOBILI MODENA	AIR DIVERTER VALVE (ENGINE FAMILY 107/49/C2)	DRW. No. 26

CARTER P/N 6966 S

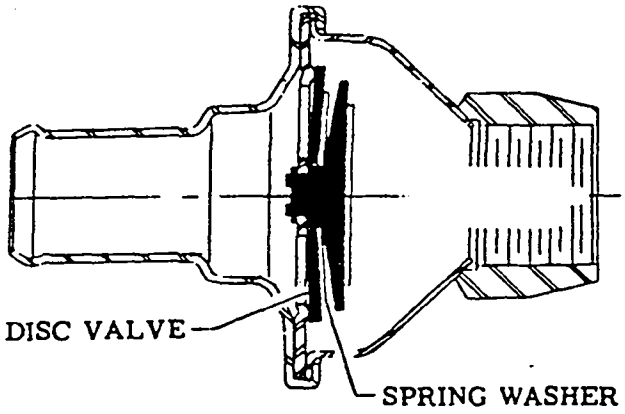


All dimensions in inches

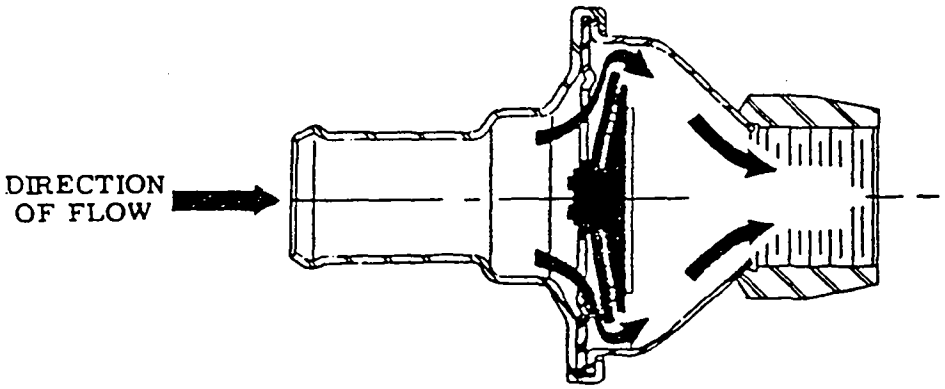
MASERATI AUTOMOBILI MODENA	AIR DIVERTER VALVE SCHEMATIC (ENGINE FAMILY 107/49/C2)	DRW. No. 27



MASERATI AUTOMOBILI MODENA	A.I.R. CHECK VALVE (Engine family 107/49/C2)	DRW. No. 28



VIEW 1 (NO FLOW)



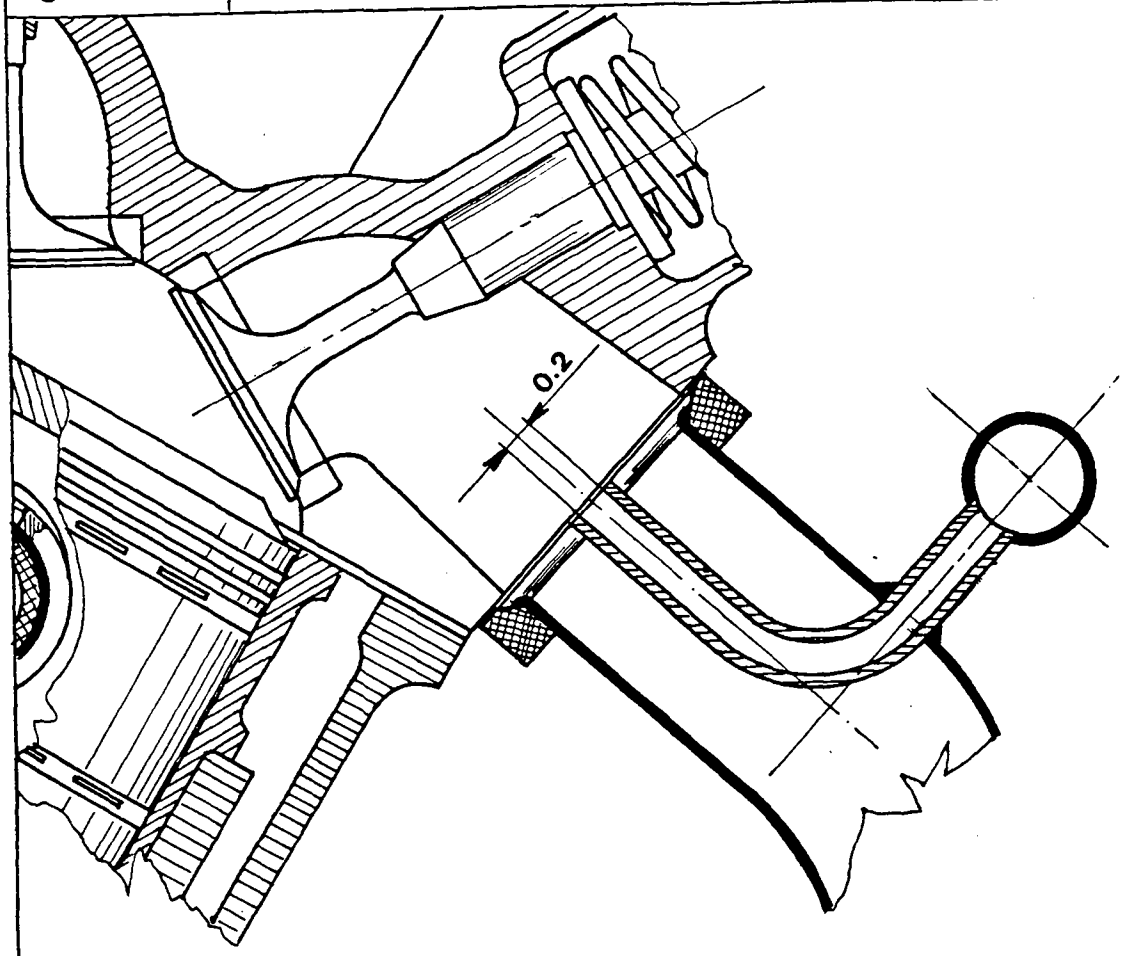
VIEW 2 (FLOW)

MASERATI AUTOMOBILI MODENA

AIR INJECTION CONFIGURATION AT EXAUST PORT

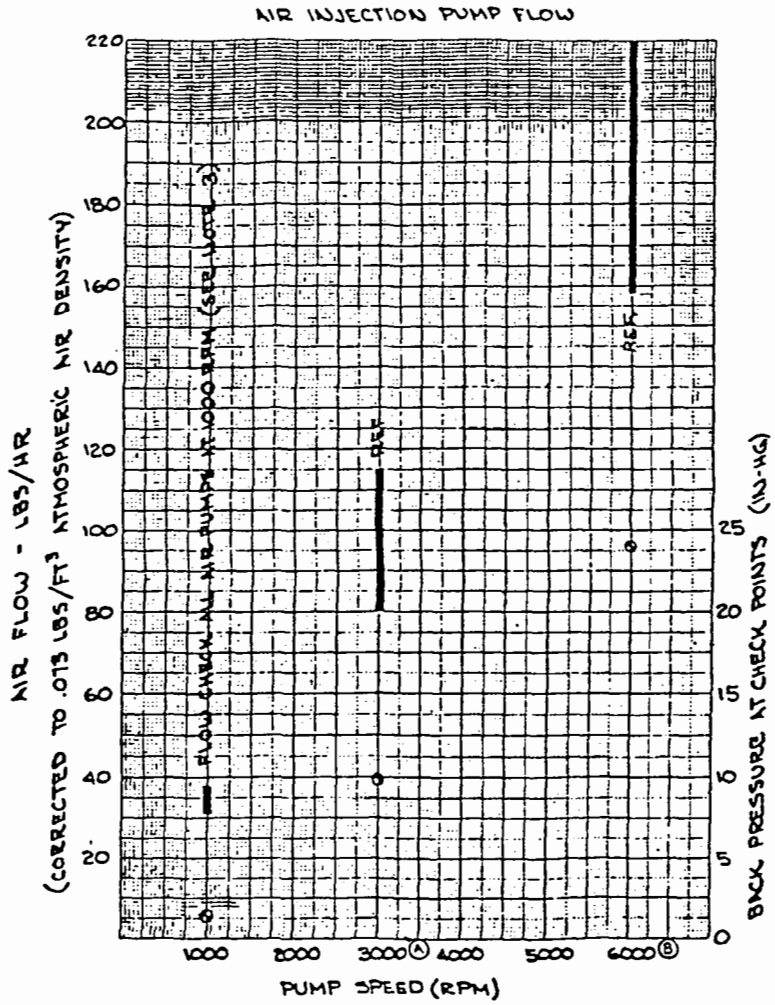
(Engine family 107/49/C2)

DRW. No 29



DIMENSION IN INCH

MASERATI AUTOMOBILI MODENA	AIR INJECTION PUMP FLOW CHART	DRW. No. 30



1- ALL PUMPS WITH RELIEF VALVES MUST HAVE VALVE BLOCKED DURING FLOW CHECK

2- AIR DELIVERY CORRECTED FOR STANDARD CONDITIONS. INLET AIR DENSITY BASED ON PUMP INLET CONDITIONS OF 70.0° F, 29.6 IN-HG, & DRY AIR.

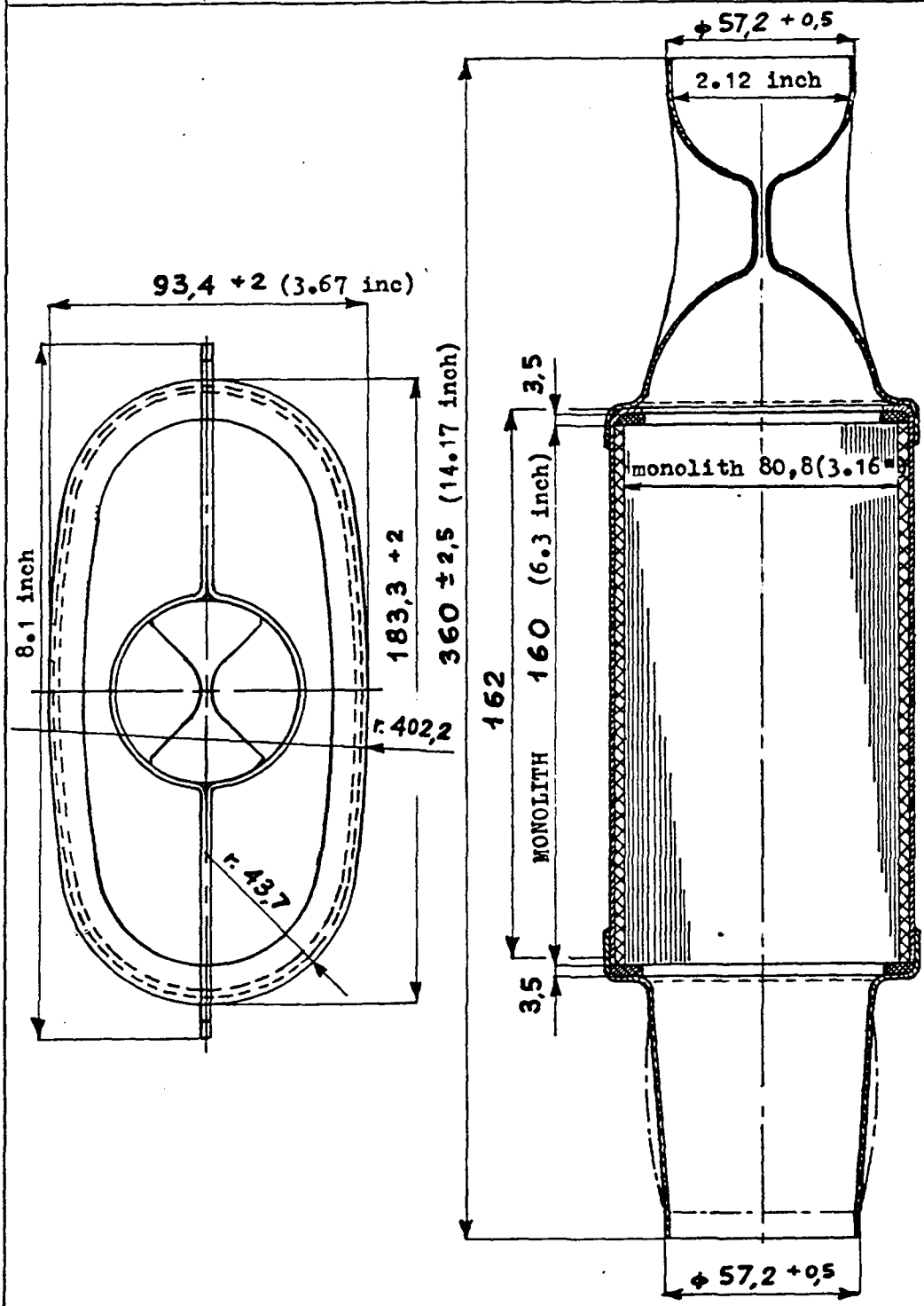
3- REFERENCE 7807446 TEST SPECIFICATION

MASERATI AUTOMOBILI MODENA

CANNISTERED CATALYTIC CONVERTER CONFIGURATION - Vertical section

(Engine family 107/49/C2)

DRW. No. 31



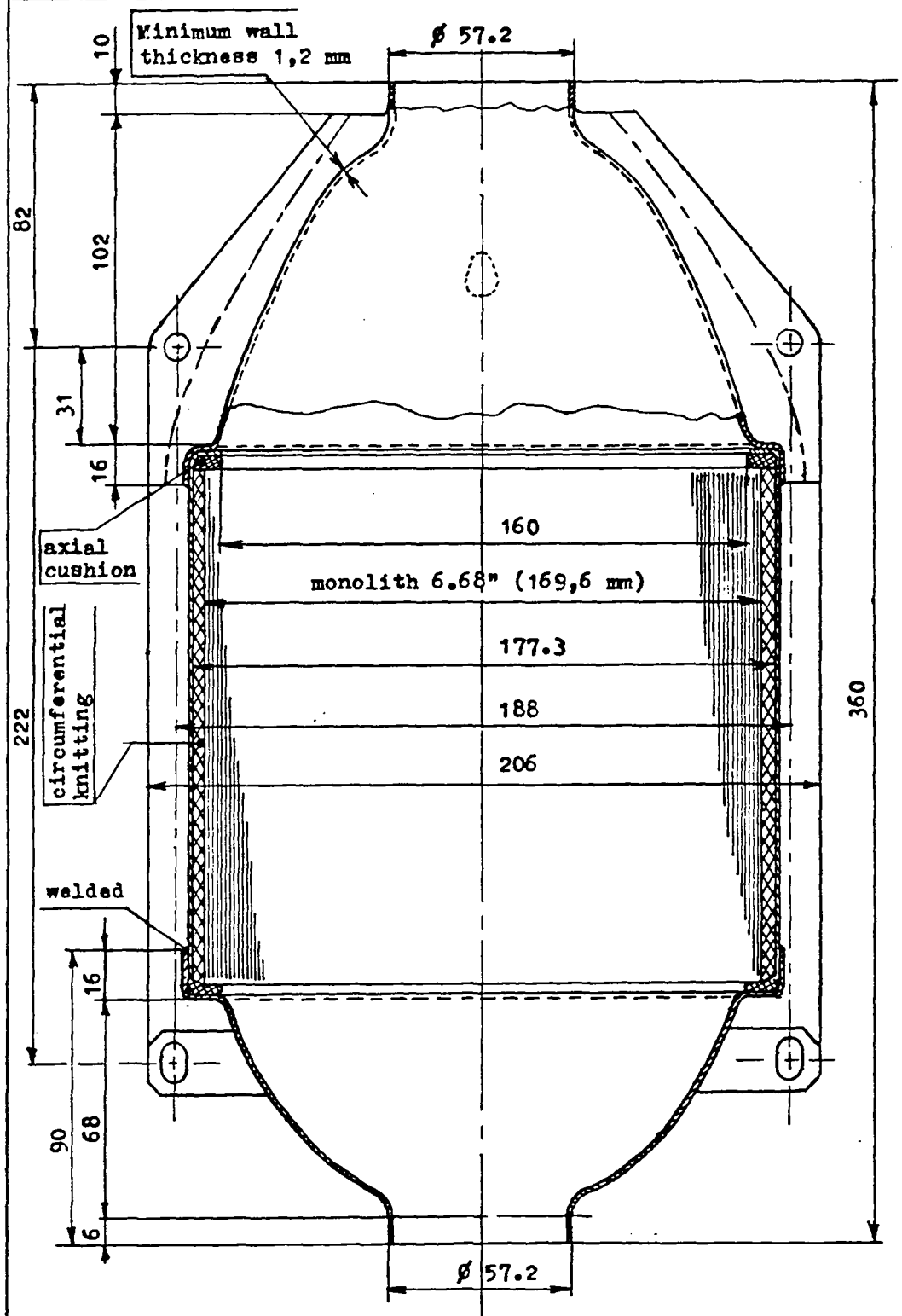
ALL DIMENSIONS IN INCHES

MASERATI AUTOMOBILI MODENA

CANNISTERED CATALYTIC CONVERTER CONFIGURATION - Orizontal section

(Engine family 107/49/C2)

DRW. No. 32



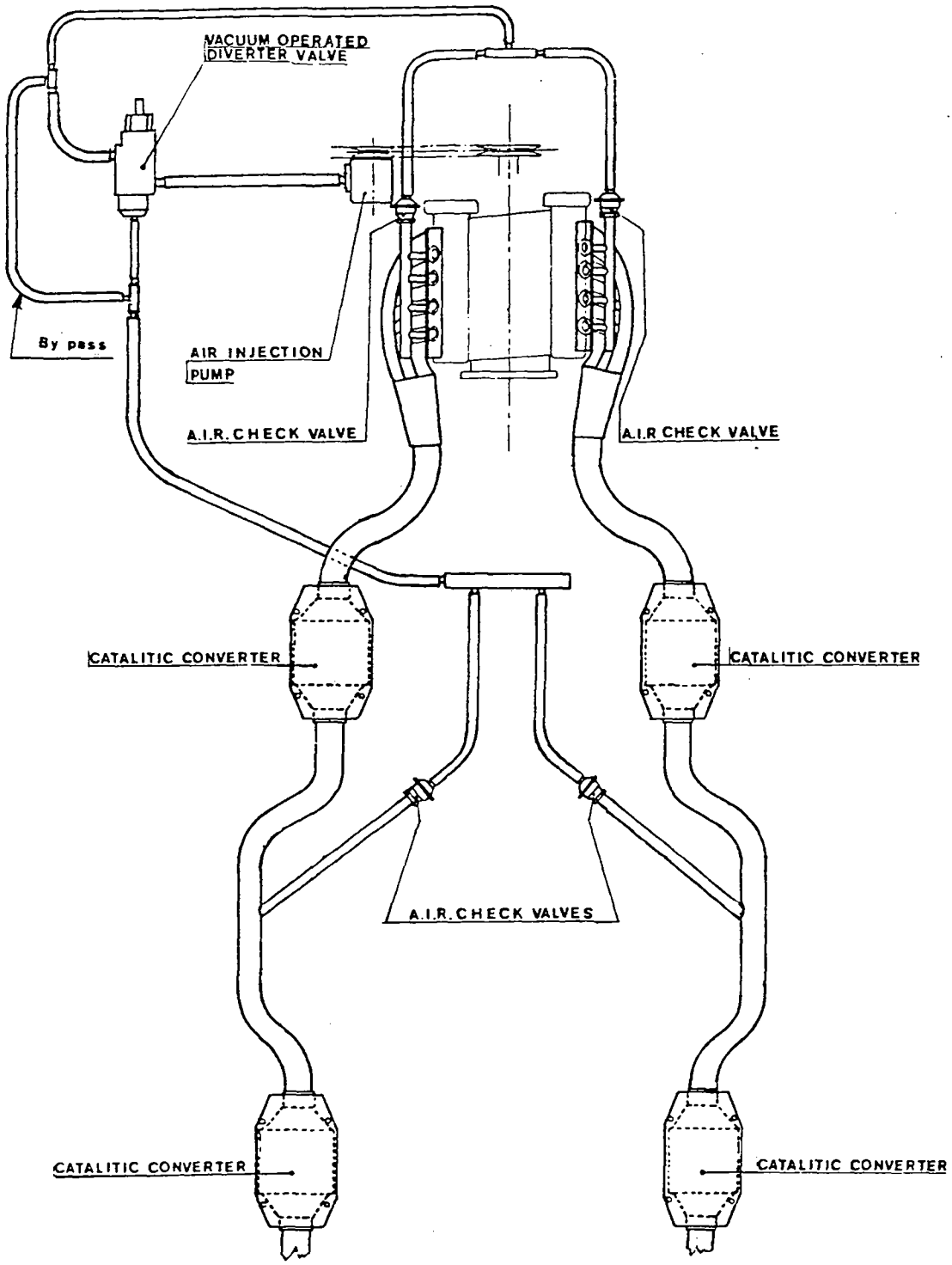
ALL DIMENSIONS IN MILLIMETERS

MASERATI AUTOMOBILI MODENA

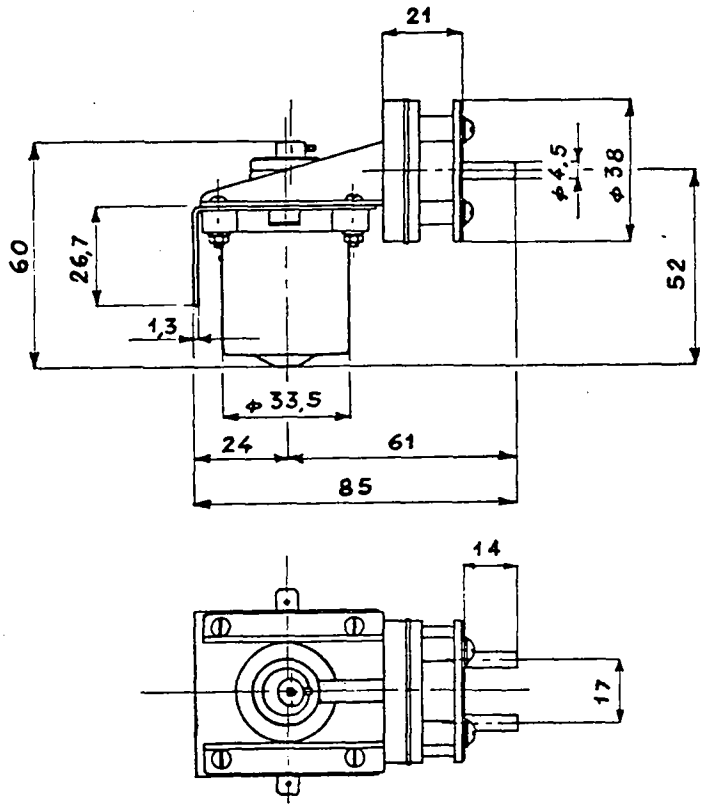
EXHAUST EMISSION CONTROL CONFIGURATION

(Engine family 107/49/C2)

DRW. No. 33



MASERATI AUTOMOBILI MODENA	CARBURETTOR BOX VAPOURS BLOWER (Engine family 107/49/C2)	DRW. No. 34

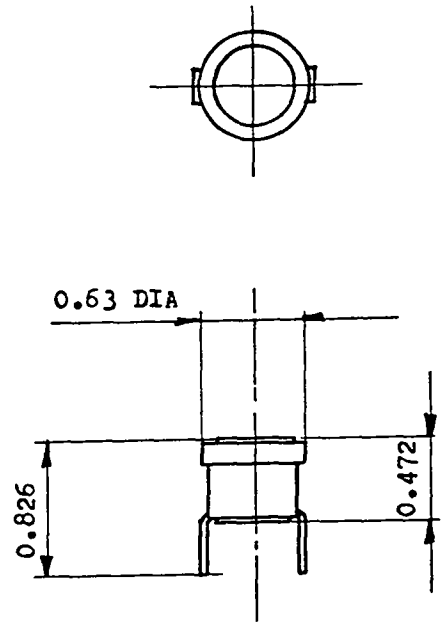


ALL DIMENSIONS IN MILLIMETERS

MASERATI AUTOMOBILI MODENA

VAPOR BLOWER THERMOSWITCH
(ENGINE FAMILY 107/49/C2)

DRW. No. 35



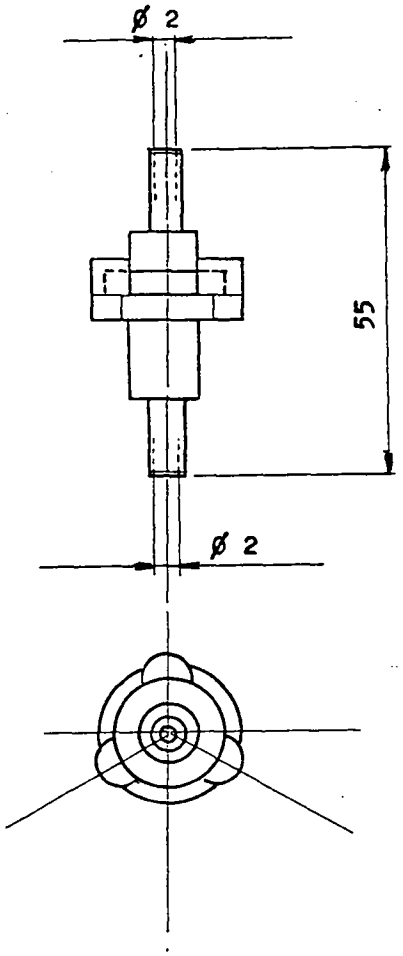
All dimensions in inches

MASERATI AUTOMOBILI MODENA

DELAY VALVE

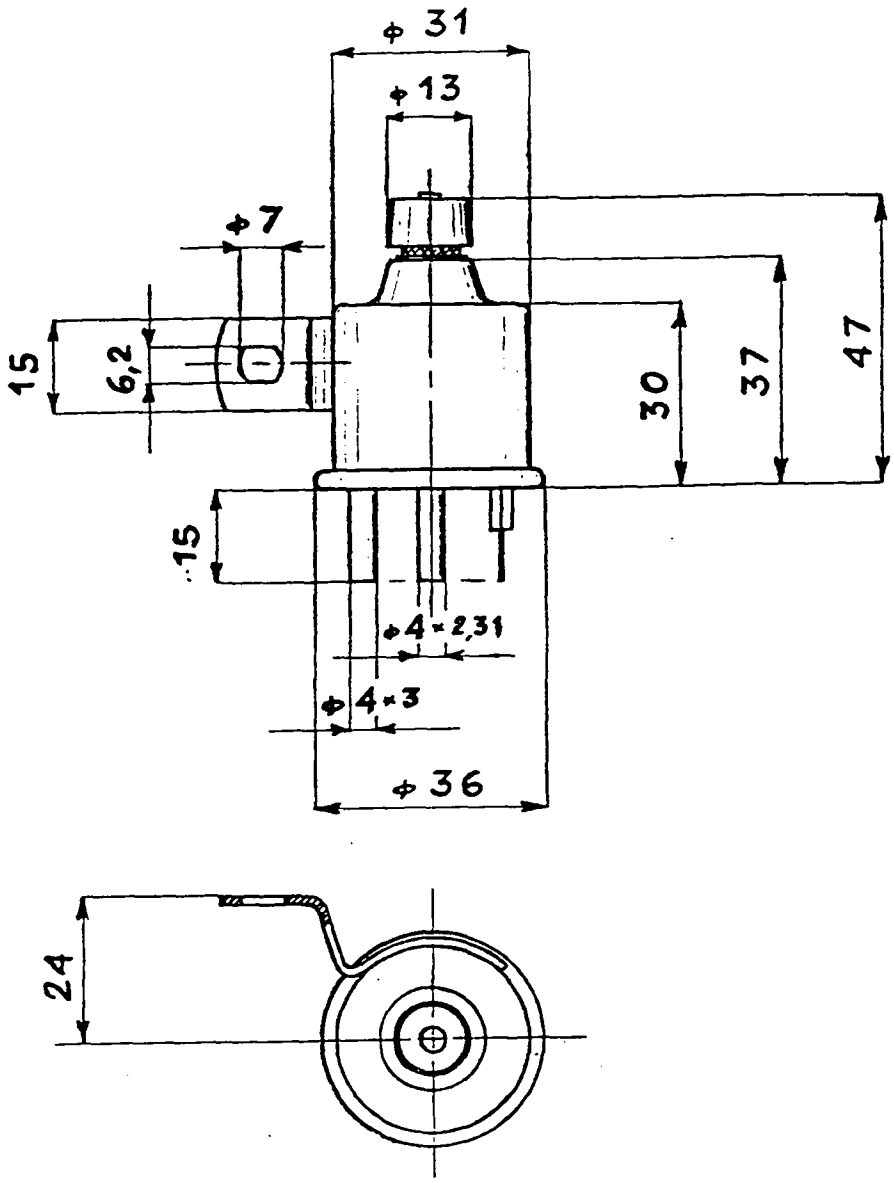
(Engine family 107/49/C2)

DRW. No. 36



All dimensions in millimeters

MASERATI AUTOMOBILI MODENA	THREE WAY SOLENOID VALVE (Engine family 107/49/C2)	DRW. No. 37 Date



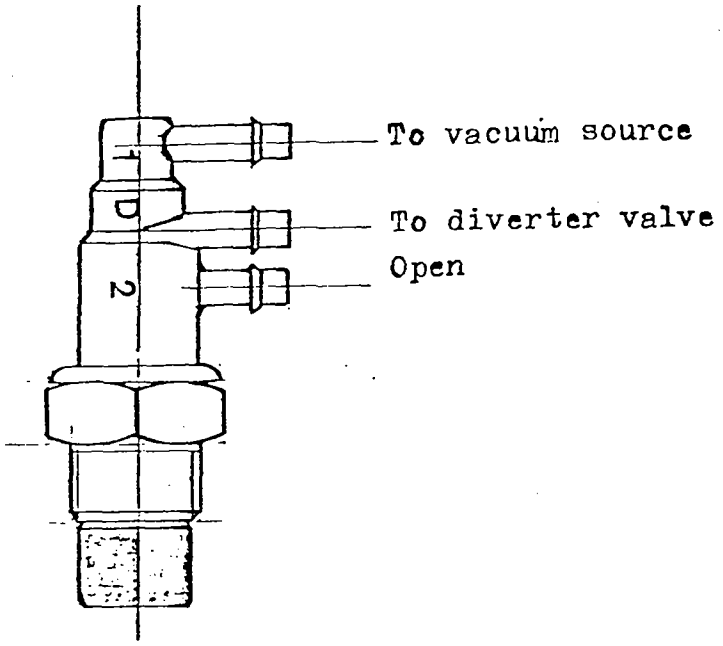
ALL DIMENSIONS IN MILLIMETERS

MASERATI AUTOMOBILI MODENA

DIVERTER VALVE TVS
(Engine Family 107/49/C2)

DRW. No 38

Date



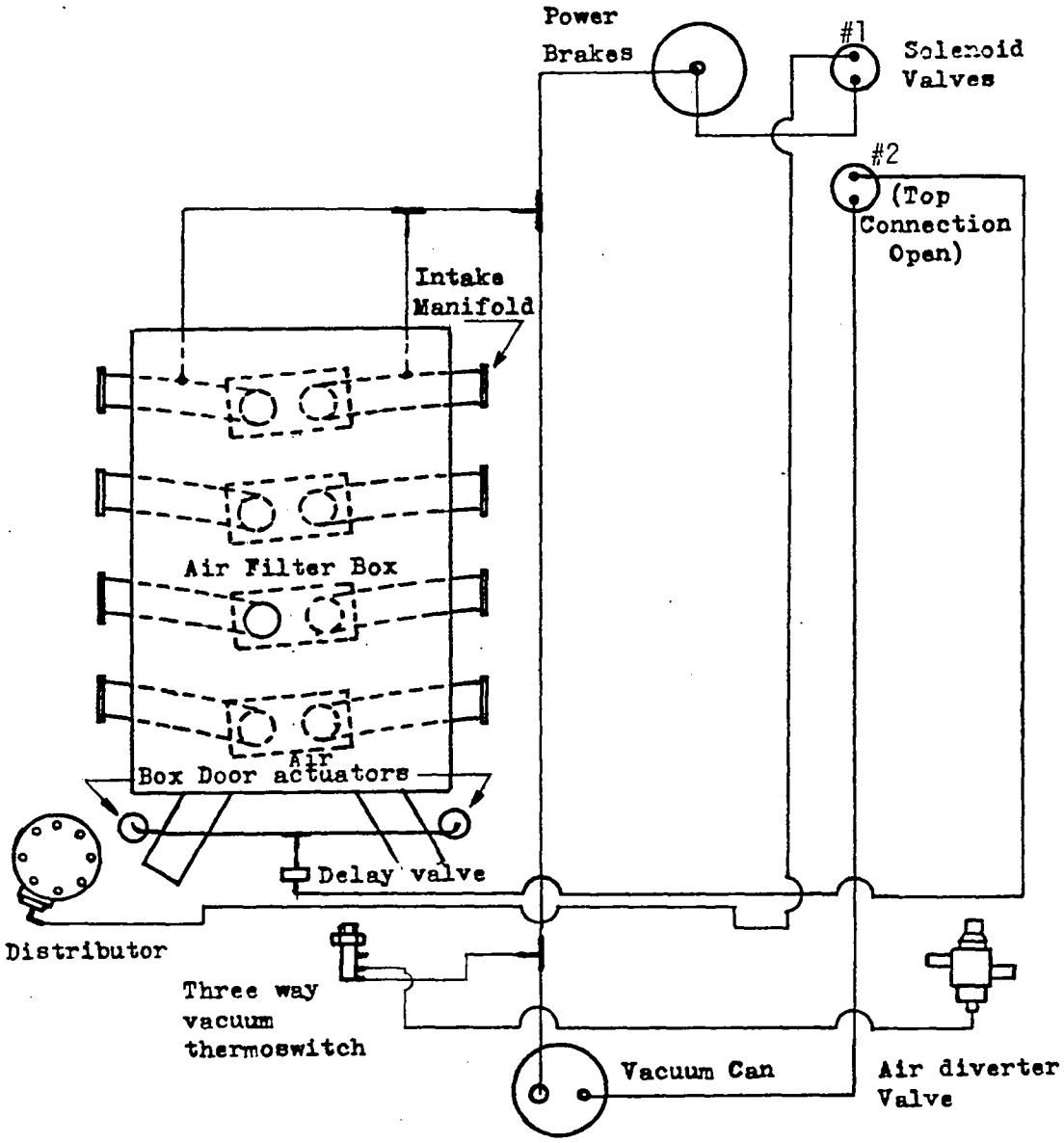
Screwed into the water thermostat

MASERATI AUTOMOBILI MODENA

VACUUM HOSE ROUTING DIAGRAM

(Engine family 107/49/C2)

DRW. No. 39



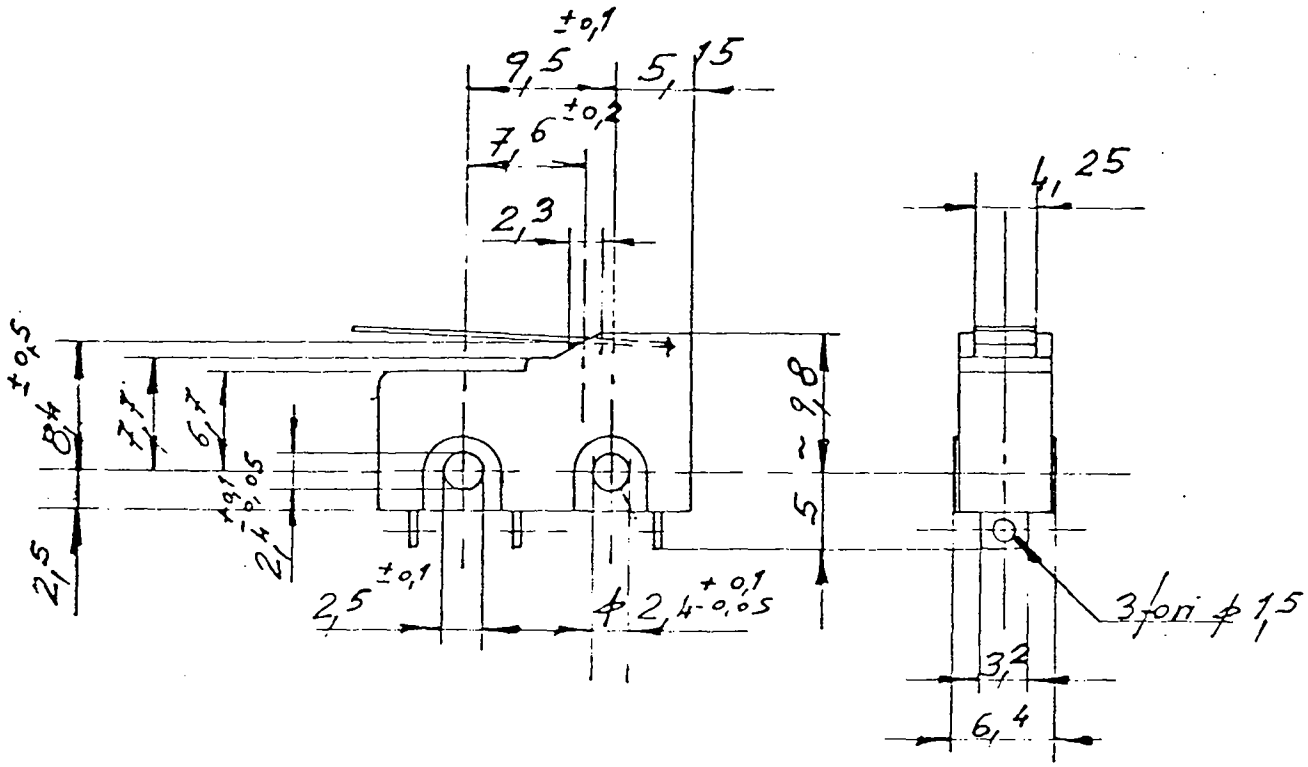
NOTE: #1 activated by ignition retard microswitch
#2 activated by ignition switch

MASERATI AUTOMOBILI MODENA

IGNITION RETARD MICROSWITCH

(Engine family 107/49/C2)

DRW. No. 40



08.00.00.00 GENERAL TECHNICAL DESCRIPTION

Family Identification:

08.16.00.00	Adjustable Parameters	
08.16.01.00	Parameter	Idle mixture screws
08.16.02.00	Adjustable range	None (sealed)
08.16.03.00	Production tolerance of adjustable range	n.a.
08.16.04.00	Nominal setting	4 ± 0.5% CO at taps (without AIR)
08.16.05.00	Method of inhibiting adjustment	Steel caps and sleeves
08.16.06.00	Justification of adequacy of method of inhibiting adjustment	Meets criteria of A/C No. 91

09.00.00.00 EVAPORATIVE EMISSION FAMILY DESCRIPTIONS

09.01.00.00 COMMON FAMILY PARAMETERS

Family Identification: 107/49/C2

09.01.01.00	Vapor Storage Device	Canisters
09.01.02.00	Canister Usage:	
09.01.02.01	Number of canisters	Two (2)
09.01.02.02	Design working capacity	100 grams (at 65°C saturated in 2.5 hrs with a flow of 35 l/hr vapor)
09.01.02.03	Housing material	Plastic
09.01.02.04	Configuration	DRW. No. 25
09.01.03.00	Carburetor:	
09.01.03.01	Number of carburetors	Four (4)
09.01.03.02	Number of venturis per carburetor	Two (2)
09.01.03.03	Fuel reservoir system (float system) configuration	DRW. No. 8
09.01.03.04	Location relative to carburetor	Integral
09.01.03.05	Reservoir volume	
09.01.03.06	Vent system configuration	n.a.
09.01.03.07	Accelerator pump configuration	DRW. No. 11
09.01.04.00	Fuel Injection	n.a.
09.01.05.00	Fuel Tank:	
09.01.05.01	Material	Steel
09.01.05.02	Liner configuration	n.a.
09.01.05.03	Vapor control baffles configuration	n.a.

09.02.00.00 INDIVIDUAL CONFIGURATION PARAMETERS (Fuel System)

Family Identification: 107/49/C2

09.02.01.00	General Fuel System:	
09.02.01.01	Configuration	DRW. No. 21
09.02.01.02	Fuel pump	Electrical
09.02.02.00	Fuel Tank:	
09.02.02.01	Fuel tank configuration	DRW. No. 22
09.02.02.02	Nominal tank capacity	28.4 U.S. gallons
09.02.02.03	Tank fuel volume	11.4 U.S. gallons
09.02.02.04	Vapor volume at tank fuel volume	17.2 U.S. gallons
09.07.02.05	Pressure and vacuum relief settings and locations	DRW. Nos. 22 & 24
09.02.02.06	Fuel filler cap configuration	DRW. No. 22
09.02.02.07	Fuel tank composition	Fe PO2 (UNI 5372-70) .04" thick
09.02.03.00	Carburetor:	
09.02.03.01	Carburetor spacer	DRW. No. 14
09.02.03.02	Carburetor preheat or warmup system	None
09.02.03.03	Fuel reservoir vent system method of operation	DRW. No. 21 (Restriction of .08" on canister purge line.)
09.02.03.04	Fuel reservoir vent system calibration	See 09.02.03.03
09.02.03.05	Carburetor purge port	None
09.02.04.00	Fuel Injection	n.a.

09.03.00.00 INDIVIDUAL CONFIGURATION PARAMETERS
(Evaporative Emission Control System)

Family Identification: 107/49/C2

09.03.01.00	Overall System Configuration and Method of Operation	DRW. No. 21
09.03.02.00	Fuel Tank Vapor Control System:	
09.03.02.01	Configuration and method of operation	DRW. No. 21 (Maximum restriction is 0.08 in. fixed orifice on canister purge line.)
09.03.02.02	Control parameters	Fuel tank vent valve
09.03.02.03	Calibrations	DRW. No. 24
09.03.03.00	Carburetor Vapor Control System	DRW. No. 16 (See 09.03.02.01 for max. restriction)
09.03.04.00	Storage Device:	Carbon canisters
09.03.04.01	Configuration and method of operation	DRW. Nos. 16 & 25
09.03.04.02	Storage medium composition	Carbon
09.03.04.03	Storage medium quantity	Approx. 100 in^3
09.03.04.04 & 09.03.04.05	Control parameters and calibration	See 09.03.06.00

Family Identification: 107/49/C2

09.03.05.00	Purge System:	
09.03.05.01	Configuration and method of operation	DRW. Nos. 16 & 21 and Description of Evap. Control System (Section 08)
09.03.05.02	Control parameters	Fixed orifice on carbon canister vent line.
09.03.05.03	Calibration	0.08 inch orifice
09.03.06.00	Auxiliary Emission Control Devices - Evaporative	See next page
09.03.07.00	Environmental Control Mechanisms	None

09.03.06.00 AUXILIARY EMISSION CONTROL DEVICES (EVAPORATIVE)

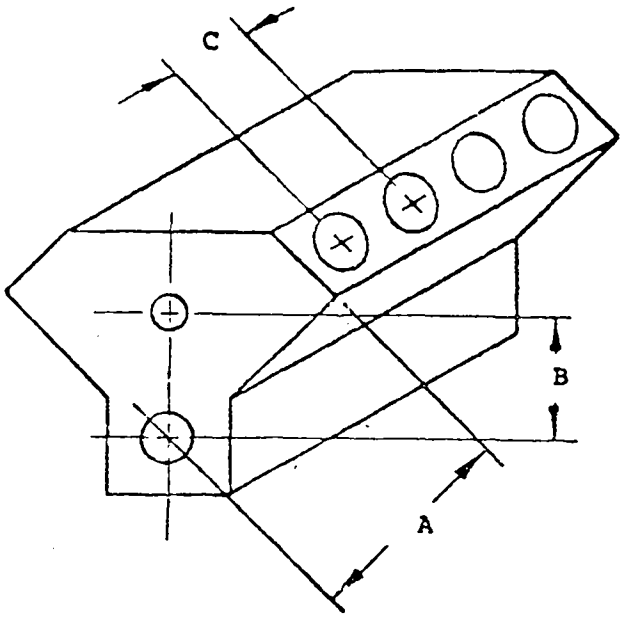
09.03.06.01	Device configuration	Delay valve, DRW. No. 36
09.03.06.02	System configuration and method of operation	DRW. No. 16
09.03.06.03	Sensed parameter	Intake manifold vacuum
09.03.06.04	Controlled parameter	Doors to air filter box
09.03.06.05	Calibration	20 $\pm$ 4 sec delay, vacuum drop
09.03.06.06	Justification	Included in FTP
09.03.06.01	Device configuration	Three-way solenoid valve DRW. No. 37
09.03.06.02	System configuration and method of operation	DRW. No. 16
09.03.06.03	Sensed parameter	Ignition switch "ON"
09.03.06.04	Controlled parameter	Intake manifold vacuum to air filter box doors
09.03.06.05	Calibration	ON/OFF only
09.03.06.06	Justification	Included in FTP
09.03.06.01	Device configuration	Vapor blower thermoswitch DRW. No. 35
09.03.06.02	System configuration and method of operation	DRW. No. 16
09.03.06.03	Sensed parameter	Engine coolant temperature
09.03.06.04	Controlled parameter	Air filter box purge blowers
09.03.06.05	Calibration	Normally open. With increasing temp, closes at 65° $\pm$ 4°C. With decreasing temp, opens at 55° $\pm$ 3°C.
09.03.06.06	Justification	Included in FTP

09.04.00.00 EVAPORATIVE EMISSION FAMILY SALES

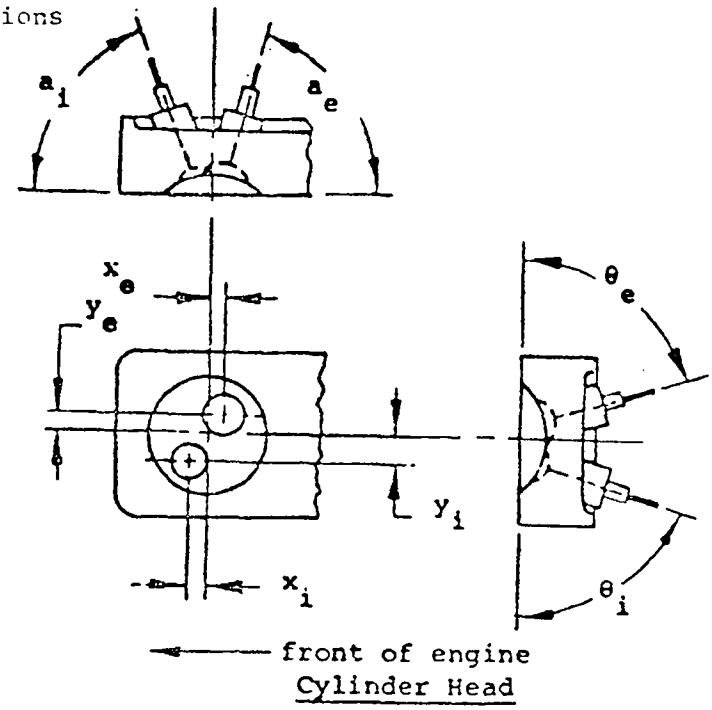
Family Identification 107/49/C2

Evaporative Emission Control Systems	Projected Sales	% of Family
Carbon Canister Storage		

Family Totals _____



Cylinder Block Dimensions "A," "B," and "C"



Valve Location Dimensions

Valve Location:

		Units	Cylinder Number [1] #1 [2]	#2	#3
Intake Valve (Four-stroke cycle engines)	x_i	inches	0		
	y_i	inches	0.84		
	a_i	degrees	90		
	θ_i [3]	degrees	60		
Exhaust Valve	x_e	inches	0		
	y_e	inches	0.87		
	a_e	degrees	90		
	θ_e [3]	degrees	60		

10.00.00.00 ENGINE FAMILY DESCRIPTION FOR FOUR-STROKE CYCLE RECIPROCATING ENGINES

10.01.00.00 COMMON FAMILY PARAMETERS

Family Identification: 107/49/C2

10.01.01.00	Deck Height (Dimension "A"):	9.09 in
10.01.02.00	Centerline of Crankshaft to Centerline of Camshaft (Dimension "B"):	14.5 in
10.01.03.00	Bore Center to Center (Dimension "C"):	4.09 in
10.01.04.00	Valve Head Diameters:	int: 1.675 in exh; 1.575 in
10.01.05.00	Valve Location	see previous page
10.01.06.00	Block Configuration:	
10.01.06.01	Type of cooling	water
10.01.06.02	Cylinder arrangement	90° V-8
10.01.07.00	Combustion Cycle:	Otto
10.01.08.00	Method of Aspiration:	natural

10.02.00.00 INDIVIDUAL ENGINE PARAMETERS (Physical Parameters)

Family Identification: 107/49/C2

10.02.01.00	Displacement	301 CID
10.02.02.00	Bore x Stroke	3.697 X 3.504
10.02.03.00	Number of Cylinders	8
10.07.04.00	Compression Ratio Normal	8.60
10.02.04.01	Compression Ratio Maximum	8.90
10.02.04.02	Compression Ratio Minimum	8.30
10.02.05.00	Surface/Volume Ratio (inches $^{-1}$)	1.92
10.02.06.00	Cylinder Head Configuration	DOHC
10.02.07.00	Combustion Chamber Configuration	DRW. No. 2
10.02.08.00	Intake Port Configuration and Area at Cylinder Head and Manifold Mating Surface	DRW. No. 1
10.02.09.00	Exhaust Port Configuration and Area at Cylinder Head and Manifold Mating Surface	DRW. No. 1
10.02.10.00	Precombustion Chamber Design	n.a.
10.02.11.00	Intake Valve:	
10.02.11.01	Configuration and Head Diamter Dimension	DRW. No. 2
10.02.11.02	Material and Surface Treatment	Steel (UNI 43 CS 8) Ammonia hardening
10.02.11.03	List any special seat preparation	Inserts
10.02.11.04	Seat angle	55°
10.02.11.05	Rotator configuration	n.a.

Family Identification: 107/49/C2

10.02.11.06	Configuration and Composition of Stem Seal	DRW. No. 2 (Teflon)
10.02.12.00	Exhaust Valve:	
10.02.12.01	Configuration and Head Diameter Dimension	DRW. No. 2
10.02.12.02	Material and Surface Treatment	Steel (solution heat treated)
10.02.12.03	List any special seat preparation	Inserts
10.02.12.04	Seat angle	55°
10.02.12.05	Rotator configuration	None
10.02.12.06	Configuration and composition of stem seal	DRW. No. 2 (Teflon)
10.02.13.00	Exhaust Port Liners	None
10.02.14.00	Intake Manifold:	
10.02.14.01	Configuration	DRW. No. 4
10.02.14.02	Material	Aluminum
10.02.14.03	Electrically heated areas and material	None
10.02.15.00	Exhaust Manifold Configuration	DRW. No. 5
10.02.16.00	Exhaust Manifold Material	Stainless steel
10.02.17.00	Advertised or Rated HP @ RPM	288 HP SAE @ 5200 RPM
10.02.18.00	Advertised or Rated Torque @ rpm	308 ft-lbs @ 3000 RPM
10.02.19.00	Exhaust System	Dual

10.02.00.00 INDIVIDUAL ENGINE PARAMETERS (Physical Parameters) (Cont'd.)

Family Identification: 107/49/C2

10.02.20.00	General location of catalyst	Underfloor
10.02.21.00	Piston and Piston Ring Configuration	DRW. Nos. 2 & 3
10.02.22.00	Piston Ring Material	Cast iron
10.02.23.00	Cooling System Configuration	DRW. No. 7
10.02.24.00	Thermostat Calibration	79°C ± 2°C
10.02.25.00	Electronic Control Devices:	None
10.02.25.01	Parameters controlled	
10.02.25.02	Parameters sensed	
10.02.25.03	General relationship between sensed and controlled parameters	
10.02.25.04	Complete relationship between sensed and controlled parameters	
10.02.25.05	Type of system	
10.02.25.06	System contains	
10.02.25.07	Type of memory used	
10.02.25.08	Size of memory storage	
10.02.25.09	Functional logic flow chart	
10.02.25.10	Manufacturer	

10.03.00.00 INDIVIDUAL ENGINE PARAMETERS (Fuel Systems)

Family Identification: 107/49/C2

10.03.01.00 General Fuel System:

10.03.01.01	Fuel pump delivery pressure	0.4 atm from pump to filter 0.2 atm from filter to carbs.
10.03.01.02	Engine idle speed	1000 ± 150 RPM
10.03.01.03	Idle speed setting procedure	Increase or decrease RPM using idle stop adjust. screw
10.03.01.04	Engine idle mixture	Permanently sealed
10.03.01.05	Idle mixture setting procedure	Permanently sealed
10.03.01.06	Engine fast idle speed	n.a.
10.03.01.07	Engine fast idle speed setting procedure	n.a.

10.03.02.00 Carburetor:

10.03.02.01	Manufacturer	Weber
10.03.02.02	Number of carburetors	Four (4)
10.03.02.03	Configuration and method of operation	DRW. Nos. 8-12, 15
10.03.02.04	Number of venturis per carburetor	Two (2)
10.03.02.05	Venturi diameter (nominal)	1.339 in
10.03.02.06	Fuel metering system type	Fixed orifice
10.03.02.07	Fuel metering system - calibration	Idle air jet 1.40 mm Idle fuel jet 0.60 Main air jet 1.85 Main fuel jet 1.35
10.03.02.08	Transient enrichment system-configuration & calibration	Accel. pump jet 0.35 mm DRW. No. 11

10.03.00.00 INDIVIDUAL ENGINE PARAMETERS (Fuel Systems)

Family Identification: 107/49/C2

10.03.02.09	Idle stop configuration	DRW. No. 15
10.03.02.10	Starting enrichment system configuration	DRW. No. 12
10.03.02.11	Altitude compensation system - co-figuration & calibration	
10.03.02.12	Hot idle compensation system - configuration and calibration	None
10.03.02.13	Air-fuel flow calibration	DRW. No. 13
10.03.04.00	Air Inlet System:	
10.03.04.01	Air cleaner configuration	DRW. No. 16
10.03.04.02	Air inlet temperature control system configuration and calibration	None
10.03.04.03	Air filter material	Paper

10.04.00.00 INDIVIDUAL ENGINE PARAMETERS (Ignition & Camshaft)

Family Identification: 107/49/C2

10.04.01.00 Ignition System:

10.04.01.01	System configuration and method of operation	DRW. No. 17
10.04.01.02	Manufacturer	Bosch
10.04.01.03	Control parameters and calibration	Centrifugal & vacuum advance DRW. No. 19
10.04.01.04	Initial timing setting	4° ATDC @ 1000 RPM
10.04.01.05	Timing adjustment procedure	Rotate distributor to read 4° ATDC on flywheel
10.04.01.06	Spark plug electrode composition and design	DRW. No. 18
10.04.01.07	Spark plug gap	.025 to .035 in
10.04.01.08	Spark plug vendor and identification number	Champion RN-9Y
10.04.01.09	Alternate spark plugs	n.a.
10.04.01.10	Altitude compensation system configuration & calibration	None
10.04.01.11	Secondary ignition wire material	Copper
10.04.01.12	Dwell setting	n.a.
10.04.01.13	Dwell adjustment procedure	n.a.
10.04.01.14	Glow plug configuration	n.a.
10.04.01.15	Glow plug material	n.a.
10.04.01.16	Glow plug heating output	n.a.
10.04.01.17	Glow plug control parameters	n.a.
10.04.01.18	Restrike capability description	n.a.

10.04.00.00 INDIVIDUAL ENGINE PARAMETERS (Ignition & Camshaft)

Family Identification: 107/49/C2

10.04.02.00 Camshaft Timing:

10.04.02.01	Intake valve opens	40° BTDC
10.04.02.02	Intake valve closes	84° ABDC
10.04.02.03	Intake valve duration	304°
10.04.02.04	Intake valve maximum lift	0.42 in
10.04.02.05	Exhaust valve opens	54° BBDC
10.04.02.06	Exhaust valve closes	22° ATDC
10.04.02.07	Exhaust valve duration	256°
10.04.02.08	Exhaust valve maximum lift	0.38 in
10.04.02.09	Valve overlap	62°
10.04.02.10	Rocker arm ratio	n.a.
10.04.02.11	Valve lifter type	Mechanical
10.04.02.12	Valve lash dimension	Intake 0.011 in Exhaust 0.020
10.04.02.13	Variable timing	n.a.

10.05.00.00 INDIVIDUAL ENGINE PARAMETERS (General)

Family Identification: 107/49/C2

10.05.01.00	Governor Configuration and Calibration	n.a.
10.05.02.00	Supercharger/Turbocharger Configuration	n.a.

10.06.00.00 INDIVIDUAL ENGINE PARAMETERS (Emission Control)

Family Identification: 107/49/C2

10.06.01.00	Crankcase Emission Control System:	
10.06.01.01	System configuration and method of operation	DRW. No. 20
10.06.01.02	Control parameters and calibration	Fixed orifice
10.06.01.03	Control valve configuration and calibration	None

10.06.02.00	Exhaust Emission Control System:	
10.06.02.01	Type of control systems:	
	Engine modifications	No
	Mechanical fuel injection	No
	Electronic fuel injection	No
	Air injection	Yes
	Exhaust gas recirculation	No
	Thermal reactor	No
	Catalyst	Yes
	Other	No
10.06.02.02	System Configuration	DRW. No. 33

10.06.00.00 INDIVIDUAL ENGINE PARAMETERS (Emission Control)

Family Identification: 107/49/C2

10.06.03.00 Auxiliary Emission Control - Exhaust Emissions:

10.06.03.01	Device Configuration	Air pump diverter valve, DRW. No. 26
10.06.03.02	System Configuration and method of operation	DRW. No. 33
10.06.03.03	Sensed Parameters	Intake manifold vacuum
10.06.03.04	Control Parameters	Secondary air injection
10.06.03.05	Calibration	Switch range 1 to 3 inHg
10.06.03.06	Justification	Included in FTP
10.06.03.01	Device Configuration	Air check valves, DRW.No. 28
10.06.03.02	System Configuration and method of operation	DRW. No. 33
10.06.03.03	Sensed Parameters	None
10.06.03.04	Control Parameters	Direction of air flow
10.06.03.05	Calibration	None
10.06.03.06	Justification	Backfire protection
10.06.03.01	Device Configuration	Diverter valve TVS, DRW. No. 38
10.06.03.02	System Configuration and method of operation	DRW. No. 39
10.06.03.03	Sensed Parameters	Coolant temperature
10.06.03.04	Control Parameters	Vacuum to diverter valve

10.06.00.00 INDIVIDUAL ENGINE PARAMETERS (Emission Control)

Family Identification: 107/49/C2

10.06.03.05	Calibration	Start open 128°F Close by 103°F
10.06.03.06	Justification	Included in FTP
10.06.03.01	Device Configuration	Ignition retard microswitch DRW. No. 40
10.06.03.02	System Configuration and method of operation	DRW. No. 39
10.06.03.03	Sensed Parameters	Throttle linkage position
10.06.03.04	Control Parameters	Three-way solenoid valve
10.06.03.05	Calibration	None
10.06.03.06	Justification	Included in FTP
10.06.03.01	Device Configuration	Three-way solenoid valve, DRW. No. 37
10.06.03.02	System Configuration and method of operation	DRW. No. 39
10.06.03.03	Sensed Parameters	Signal from microswitch
10.06.03.04	Control Parameters	Distributor retard
10.06.03.05	Calibration	ON/OFF only
10.06.03.06	Justification	Included in FTP
10.06.04.00	Emission Control Related Warning System.	None

10.07.00.00 DESCRIPTION OF EMISSION CONTROL SYSTEMS

Family Identification: 107/49/C2

10.07.01.00 Engine Modifications Features:

10.07.01.01	High Energy Ignition System	DRW. No. 17
10.07.01.02	"Quick Heat" Intake Manifold Design	n.a.

10.07.00.00 DESCRIPTION OF EMISSION CONTROL SYSTEMS (Cont'd.)

Family Identification: 107/49/C2

10.07.02.00 Air Injection Features:

10.07.02.01	Component configurations	DRW. Nos. 26-30, 33
10.07.02.02	General location of injected air	Exhaust port; DRW. No. 29 Between catalysts; DRW. No. 33
10.07.02.03	Control parameters	Diverter valve; see 10.06.03.01 Diverter valve TVS
10.07.02.04	Calibrations	DRW. No. 30; see 10.06.03.01
10.07.02.05	Specific features	DRW. No. 29
10.07.02.06	Pulley drive ratio	1.46 X engine speed
10.07.02.07	Pump flow calibration	DRW. No. 30
10.07.02.08	Air switching features	When diverter valve TVS reaches 128°F, diverter valve switches air to between catalysts.
10.07.02.09	General method of driving air pump	Non-clutching

Family Identification: 107/49/C2

10.07.03.00	Exhaust Gas Recirculation Features:	n.a.
10.07.03.01	Component configurations	
10.07.03.02	Location of exhaust pick-up	
10.07.03.03	Location of exhaust gas introduction	
10.07.03.04	Special features for filtering or cooling EGR	
10.07.03.05	Special features for distribution into inlet charge	
10.07.03.06	Specifications for any EGR cutoff conditions	
10.07.03.07	Control parameters	
10.07.03.08	Calibration	
10.07.03.09	EGR valve flow calibrations	

10.07.00.00 DESCRIPTION OF EMISSION CONTROL SYSTEMS (Cont'd.)

Family Identification: 107/49/C2

10.07.05.00	Catalyst features	
10.07.05.01	Catalyst supplier & address	Engelhard Kali-Chemie Autocat GMBH Hans-Boeckler-Allee 20 3000 Hanover 1, Germany
10.07.05.02	General type	Oxidation/three-way, depending on utilization. (NOTE: all four catalysts are identical)
10.07.05.03	Number of catalysts per vehicle	Four catalysts per vehicle
10.07.05.04	Substrate	
	configuration	Monolith
	construction technique	Extruded
	composition	Al_2O_3 (35.4%), SiO_2 (49.7%), MgO (13.5%)
	suppliers & addresses	Corning Glass Works Corning, New York 14830
	composition of active constituents	No active constituents in substrate
	number of cells per square inch of frontal area and design tolerance	300 cells/in^2 No design tolerance
10.07.05.05	Washcoat	Activated alumina
	composition of active constituents	No active constituents
	total active material in washcoat	0 grams
10.07.05.06	Active material	
	composition of active constituents	
	loading of each active material and design tolerance	(INFORMATION REMOVED FOR PROPRIETARY REASONS)
	total active material loading	

10.07.00.00 DESCRIPTION OF EMISSION CONTROL SYSTEMS (Cont'd.)

Family Identification: 107/49/C2

10.07.05.07 Container

configuration	DRW. Nos. 31 & 32
dimensions	DRW. Nos. 31 & 32
volume	Each converter 137 in^3
material used	X 5 Cr Ti 12
technique of containment and restraint	Wire mesh
method of constructing container	Stamped and welded
canner	J. Eberspaecher Eberspaecherstrasse 24 7300 Esslingen, Germany
insulation & shielding	DRW. No. 6

10.07.05.08 Physical description

dimensions	Substrate: 3.18 X 6.68 X 6.3
weight	2.954 lbs
volume & design tolerance	115.85 in^3, no design tolerance
active surface and total active surface area, including design tolerance	(PROPRIETARY INFORMATION)

10.07.05.09 Pellets n.a.

10.07.00.00 DESCRIPTION OF EMISSION CONTROL SYSTEMS (Cont'd.)

Family Identification: 107/49/C2

10.07.06.00 Other Major Exhaust Emission Control Systems: n.a.

10.07.06.01 Component configurations

10.07.06.02 Control parameters

10.08.00.00

ENGINE FAMILY SALES

Job 1 date When certified

Introduction date "

Family Identification 107/49/C2

Sales by CID

Engine Displacement	Exhaust Emission Control System	Projected Sales Hi Alt.	49 States	Cal.	% of Family Hi Alt.	49 State	Cal.
301	PMP/OXD/TWC						

Sales by Test Weight and Transmission Configuration

Transmission Configuration	Test Weight Lbs.	Projected Sales	% of Family
A-3	5000		100

Sales by Test Weight

Test Weight	Projected Sales	% of Family	Sales Weighted Average Test Weight
5000		100	5000

Family Totals

10.09.00.00 OPTIONAL EQUIPMENT

Family Identification 107/49/C2

Exhaust Emission Control System PMP/OXD/TWC

A. List all optional equipment or protuberances which are expected to be installed on more than 33 percent of a car line, within the engine system combination, including in the total factory installed, dealer installed, distributor installed, etc., options.

Car Line	Item	Frontal Area (if included in total frontal area reported in Section IX)	Non-Availability

No optional equipment available

B. List all other options (regardless of projected sales) or standard equipment not described elsewhere and availability (or non-availability) which may reasonably be expected to affect emissions (e.g., air conditioning, power steering, power brakes). Items which may reasonably be expected to affect emissions solely from a standpoint of a weight increase may be omitted from this list.

10.10.10.00 VEHICLE DESCRIPTION

10.10.01.00	Engine Code	107/49/C2
10.10.02.00	Engine Family Identification:	107/49/C2
10.10.03.00	Exhaust Emission Control System:	PMP/OXD/TWC
10.10.04.00	Evaporative Emission Family:	107/49/C2
10.10.05.00	Evaporative Emission Control System:	Canisters
10.10.06.00	Evaporative Emission Code	107/49/C2
10.10.07.00	Catalyst Code	A
10.10.08.00	Vehicle Model	Quattroporte
10.10.09.00	Car Line	Quattroporte
10.10.10.00	Body Type	Four door sedan
10.10.11.00	Transmission:	
10.10.11.01	Type	A-3
10.10.11.02	Code	1
10.10.11.03	Drive Gear Ratios	1st: 2.45 2nd: 1.45 3rd: 1.00
10.10.12.00	Curb Weight (Pounds)	4740
10.10.12.01	Front	2502
10.10.12.02	Rear	2238
10.10.13.00	Inertia Weight Class	5000
10.10.14.00	Test Weight	5000
10.10.15.00	Gross Vehicle Weight (Pounds)	under 6000
10.10.16.00	Frontal Area	21.5 ft^2
10.10.17.00	Axle Ratio:	
10.10.17.01	Standard	3.54
10.10.18.00	Tires:	
10.10.18.01	Tire Size and Type	225/70VR15
10.10.19.00	N/V Ratio:	
10.10.19.01	Standard	45.9
10.10.20.00	Basic Drivetrain Layout	Front engine rear drive
10.10.21.00	Road Load Horsepower	11.8
10.10.22.00	Front Area Horse Power	11.8
10.10.23.00	A/C Factor Added	Yes

10.10.00.00 VEHICLE DESCRIPTION

10.10.11.00	Transmission Code	1
10.10.11.01	Class	Automatic
10.10.11.02	Number of forward gears	Three
10.10.11.03	Overdrive	n.a.
10.10.11.04	Drive gear ratios	2.45, 1.45, 1.00
10.10.11.05	General description	Synchro countershaft
10.10.11.06	Shift calibrations	5200 ± 200 RPM
10.10.11.07	Torque converter size	10.75 in.
10.10.11.08	Torque converter stall torque ratio	2.1:1
10.10.11.09	Torque converter stall speed	2000 ± 200 RPM
10.10.11.10	Special features	Lockup torque converter
10.10.11.11	Lockup calibration	1650 ± 200 RPM (output shaft)[1]
10.10.11.12	Lockup gears	3rd only
10.10.11.13	Blade angle shift calibration	n.a.

[1] To achieve lockup, two conditions must be met. Transmission must be in third gear and lockup speed must be achieved.

10.10.10.00 VEHICLE DESCRIPTION

10.10.24.00	Altitude	Low
10.10.25.00	Projected Sales:	
10.10.25.01	California Standards	
10.10.25.02	49-State Standards	
10.10.25.03	Total	

10.11.00.00 PROPOSED TEST FLEETS

10.11.02.00 PROPOSED EMISSION DATA FLEET - EXHAUST EMISSION TESTING

Engine Family	107/49/C2
Evaporative Emission Family	107/49/C2
Displacement	301 CID
Engine Code	107/49/C2
Evaporative Emission Code	107/49/C2
Emission Control System:	
Exhaust *	PMP/OXD/TWC
Evaporative	Canisters
Model	Quattroporte
Body Type	Four door sedan
Transmission	A-3
Axle Ratio	3.54
N/V Ratio	45.9
Inertia Weight Class	5000
Curb Weight (Pounds)	4740
Test Weight (Pounds)	5000

11.00.00.00 STARTING AND SHIFTING SCHEDULES

STARTING PROCEDURES:

COLD START:

1. Turn ignition key to ON position without engaging starter motor.
2. Wait 3 to 5 seconds.
3. Pull up choke knob to full ON (up) position.
4. Pump one time on the throttle pedal depressing it completely and then releasing it.
5. Turn ignition key to START position without depressing throttle pedal.
6. While cranking, if the engine catches immediately then depress throttle pedal and keep engine speed between 3500 and 4000 RPM. If the engine does not catch immediately, slightly pump (approximately 1/4 travel) on accelerator pedal two or three times while cranking to get it started properly.
7. Concurrent with increasing speed move choke lever to full OFF (down position).
8. Drop gradually the engine speed before engaging the transmission.

HOT START:

1. Turn ignition key to ON position without engaging starter motor.
2. Wait 3 to 5 seconds.
3. Slightly depress throttle pedal.
4. Turn ignition key to START position.
5. When the engine starts, keep engine speed at approximately 2000 RPM until transmission is engaged.

SHIFTING PROCEDURE:

Automatic transmission--do not shift manually.

12.00.00.00 TEST VEHICLE INFORMATION

1. Vehicle number: 81-0316 (VIN: ZAMBC1101BA300316)

2. Name of individual who is responsible for assuring that the test vehicle is in all material respects the same as described in the vehicle book:

   Ing. G. Casarini, Maserati

3. Vehicle weights:

	Front	Rear	Total	
Design:	2504	2070	4574	Empty
	2502	2238	4740	Full
Actual:	(same as design)			

4. All emission related components used in building this vehicle were randomly selected from production supplies. Only the carburetors and distributor were tested.

WEBER

CARBURETTOR FLOW CURVE

Foglio
Firma
Date 16-9-80

ENGINE FAMILY 104/49/C2 C.I.D. _____

TRANSMISSION _____ EXHAUST CONTROL SYSTEM _____

CARBURETTOR 42 DCNF 95 NUMBER _____

PRODUCTION TOLERANCE LIMIT ⊢——⊣ ○ QL1 Barrel × QL2 Barrel

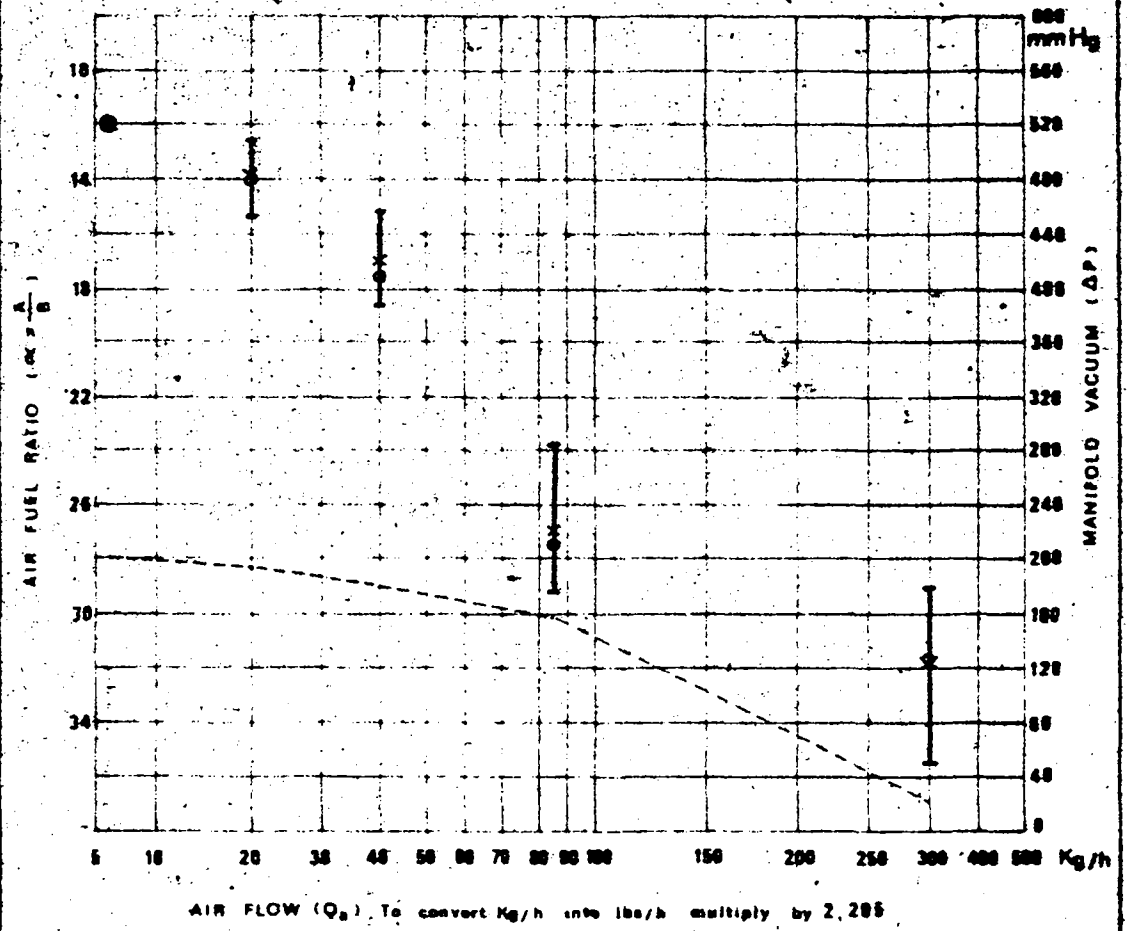
TEST CONDITIONS

Bar. absolute pressure 760 mmHg inlet air temperature 21 °C Relative humidity 60 %

FUEL

Type SHELL SOL T Specific gravity 750 Kg/dm³ Temperature 24 °C Infeed pressure 3 Kg/cm²

BALANCING idle { ΔP 200 mm Hg; Q_a 6 Kg/h } W.O.T { ΔP 22 mm Hg; Q_a 300 Kg/h }



AIR FLOW (Q_a). To convert Kg/h into lbs/h multiply by 2.205

WEBER

CARBURETTOR FLOW CURVE

Foglio
Firma
Data 16-9-80

ENGINE FAMILY 107/49/C2 C I D. _____

TRANSMISSION _____ EXHAUST CONTROL SYSTEM _____

CARBURETTOR 42 DCNF 95 NUMBER _____

PRODUCTION TOLERANCE LIMIT ⟷ O QL3 Barrel
X QL4 Barrel

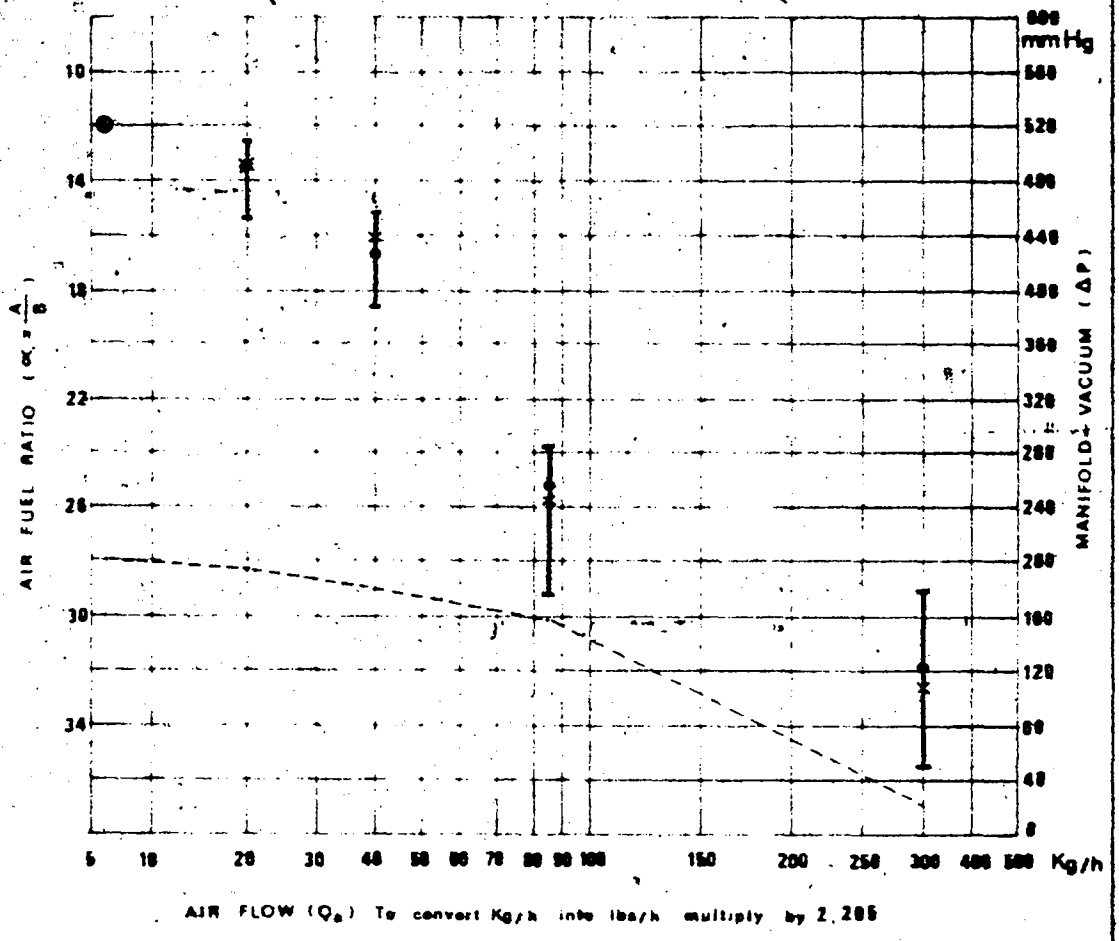
TEST CONDITIONS

Bar absolute pressure 760 mmHg inlet air temperature 21 °C Relative humidity 60 %

FUEL

Type SHELL SOL T Specific gravity 750 Kg/dm³ Temperature 24 °C Infeed pressure 3 Kg/cm²

BALANCING idle ΔP 200 mm Hg, Q_a 6 Kg/h — W.O.T ΔP 22 mm Hg, Q_a 300 Kg/h



AIR FLOW (Q_a) To convert Kg/h into lbs/h multiply by 2.205

WEBER

CARBURETTOR FLOW CURVE

Foglio

Firma

Data 16 · 9 · 80

ENGINE FAMILY 107/49/C2 C.I.D. _____

TRANSMISSION _____ EXHAUST CONTROL SYSTEM _____

CARBURETTOR 42 DCNF 95 NUMBER _____

PRODUCTION TOLERANCE LIMIT ——— O QL 5 Barrel

× QL 6 Barrel

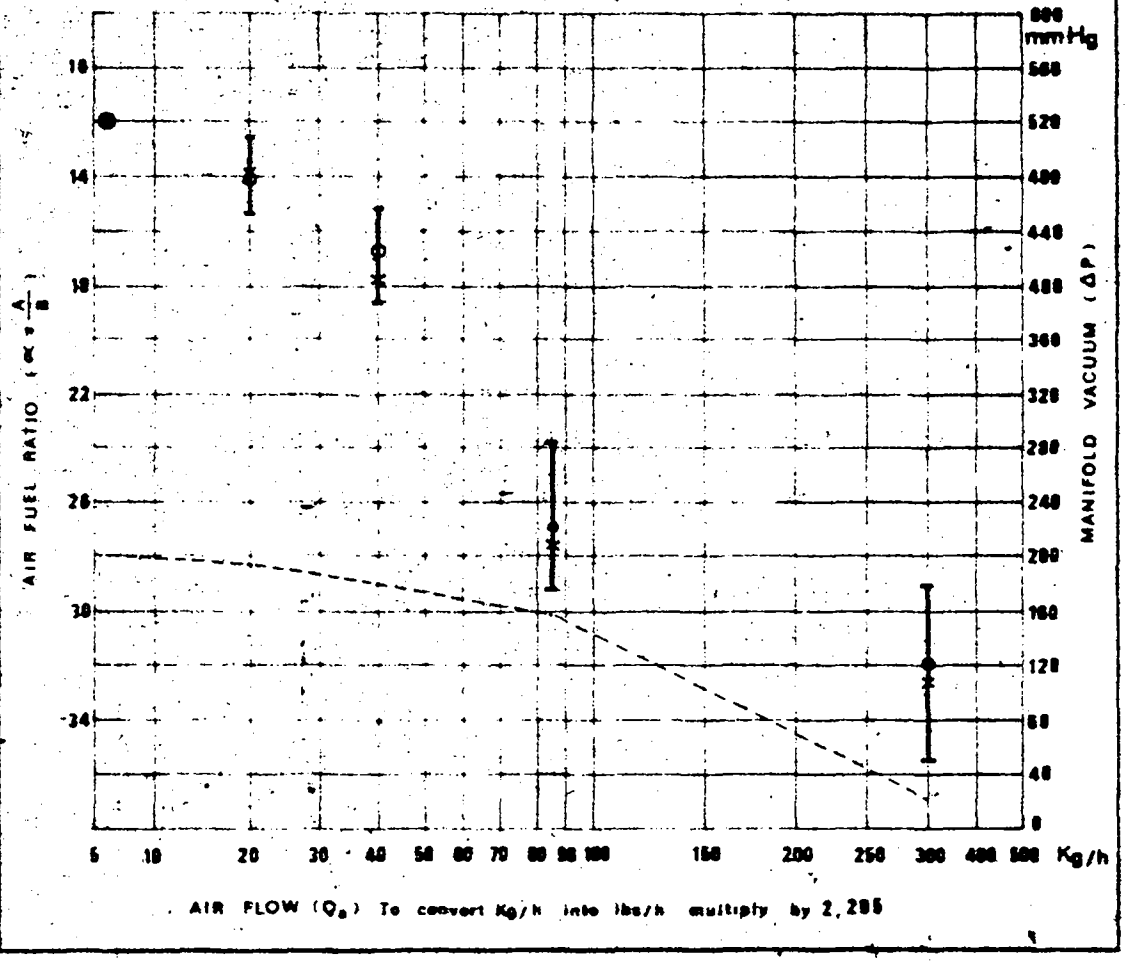
TEST CONDITIONS

Bar. absolute pressure 760 mmHg inlet air temperature 21 °C Relative humidity 60 %

FUEL

Type SHELL SOL T Specific gravity 750 Kg/dm³ Temperature 24 °C Infeed pressure 3 Kg/cm²

BALANCING idle { ΔP 200 mmHg; Q_a 6 Kg/h } W.O.T { ΔP 22 mmHg; Q_a 300 Kg/h }



WEBER

CARBURETTOR FLOW CURVE

Foglio
Firma
Data 16-9-80

ENGINE FAMILY 104/49/C2 C.I.D. _____

TRANSMISSION _____ EXHAUST CONTROL SYSTEM _____

CARBURETTOR 42 DCNF 95 NUMBER _____

PRODUCTION TOLERANCE LIMIT ⟷ O QL7 Barrel
× QL8 Barrel

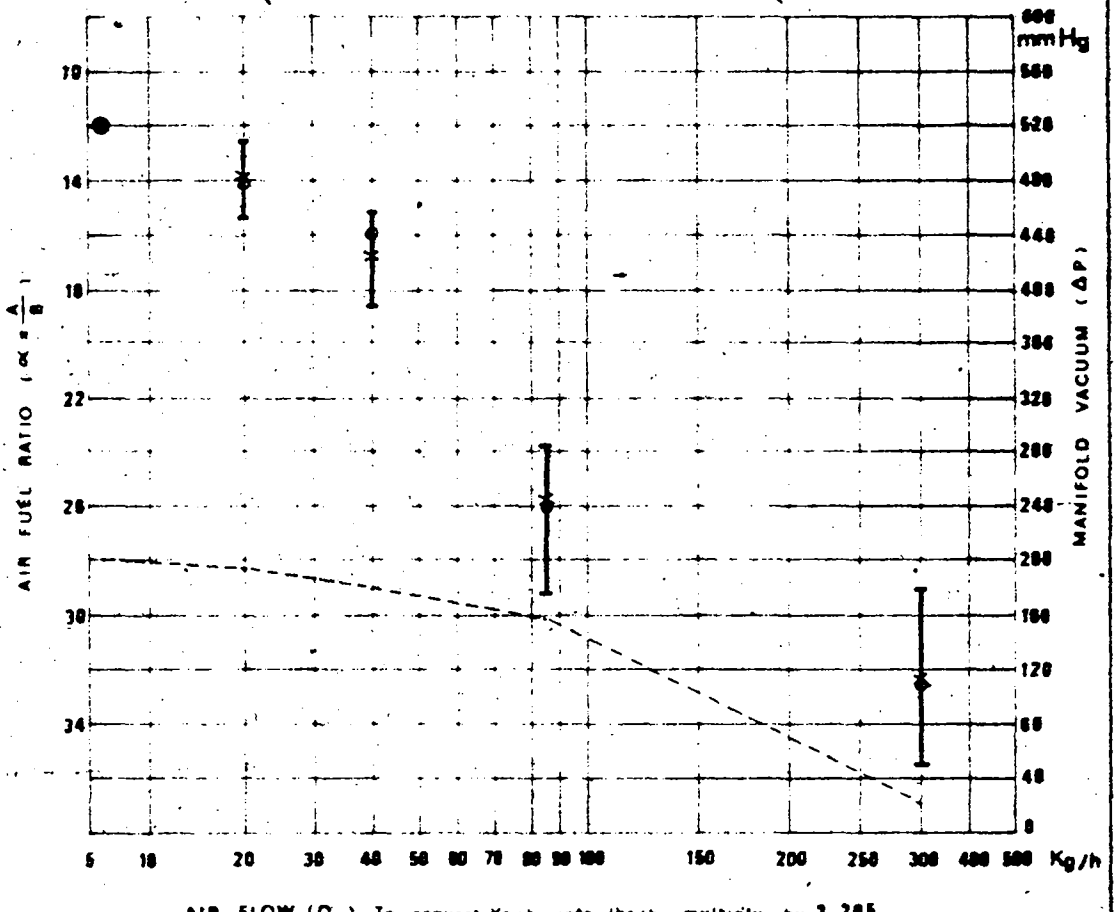
TEST CONDITIONS

Box absolute pressure 760 mmHg inlet air temperature 21 °C Relative humidity 60 %

FUEL

Type SHELL SOL T Specific gravity 750 Kg/dm³ Temperature 24 °C. Infeed pressure 3 Kg/cm²

BALANCING idle: ΔP 200 mmHg, Q_a 6 Kg/h — W.O.T: ΔP ≃ 22 mmHg, Q_a 300 Kg/h



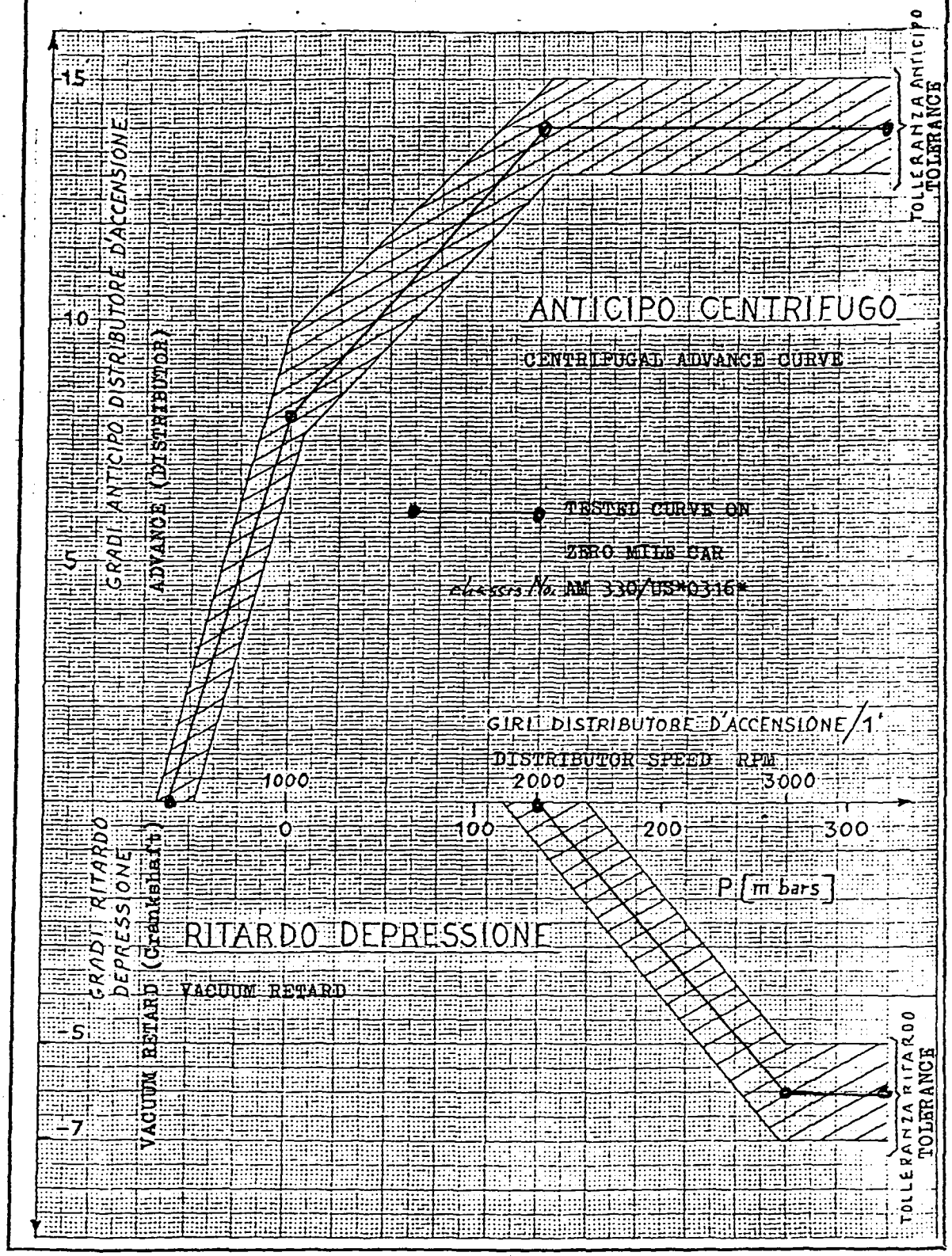
AIR FLOW (Q_a) To convert Kg/h into lbs/h multiply by 2,285

Issue Date:	OCT. 27 1980	Olson Engineering Inc.	pg 12-5		
Revision Date:					

MASERATI
AUTOMOBILI
MODENA

ADVANCE CURVE ZERO MILE CAR
Engine Family 107/49/C2

DRW. No.



Issue Date:	OCT. 27 1980	Olson Engineering Inc.	pg 12-6		
Revision Date:					

Section 12.02.02.00 - Exhaust Emission Deterioration Factors[1]

Engine Family_____Durability-Data V.I.D. No._____

(ASSIGNED D.F.'s)

Interpolated Values:

4,000-Mile: HC = __.__ __ __ __ __ CO = __ __.__ __ __

NOx = __.__ __ __ __ Part.[2/] __.__ __ __ __

50,000-Mile: HC = __.__ __ __ __ __ CO = __ __.__ __ __

NOx = __.__ __ __ __ Part.[2/] __.__ __ __ __

Deterioration Factors: (Federal)

Engine-System HC Factor = 1.300 Engine-System CO Factor = 1.200

Engine-System NOx Factor = 1.100 Engine-System Part. Factor[2] = .(n.a.)

Evap = 0.0

(California D.F.'s): HC = 1.200
CO = 1.200
NOx = 1.100
Evap = 0.5

[1]Submit a separate sheet for each engine family/exhaust emission control system combination. The data used to calculate the deterioration factors should be supplied on the "Light-Duty Deterioration Factor Input Sheet" (Section 12.02.03.00), whose preparation and submission will be described in the forthcoming Data Forms Supplement. See Item 12, pages 2-6 and 2-7.

[2]Particulate deterioration factors pertain to Diesel engines only.

VEHICLE TEST DATA LOG SHEET [1]

EPA I.D. No. _____

Vehicle I.D. (if used) 81-0316

Engine Family 107/49/C2 Displacement 301 cu.in. Model Quattroporte Vehicle Serial No. _____

Transmission A-3 Engine Code 107/49/C2 Exhaust Control System [2] PMP/OXD/TWC

Evaporative Family 107/49/C2 Evaporative Emission Code 107/49/C2

Evaporative Control System Canisters Crankcase Control System Closed

PAGE 1 of 2

Date	Test* No.	Odom. Miles	System Miles [3]	Actual Idle Speed	Ambient Temp. (°F)	Emission Results HC	CO	NOx	CO2	Evap.	MPG	Event Description.
10-29-80	11716	124.7	TBD	1050	74	0.289	0.95	0.34	1125.4	1.99	7.9	Zero mile test
11-10-80	11742	4060	3998	1000	69	0.512	1.41	0.52	1031.5	1.37	8.6	Void test. Soak temp and background out of spec.
11-11-80	11746	4078	4016	1000	72	0.225	0.53	0.33	1036.1	1.14	8.6	4000-mile test
11-11-80	11747	4089	4027	1000	72	0.214	0.20	0.07	686.7	--	12.9	HFET
11-11-80	11750	4099	4038	1000	70	0.078	0.25	0.09	747.6	--	11.9	HFET

[1] Indicate all emission measurements performed on a vehicle, including EPA tests. Also indicate whether tests are before or after tune-up, scheduled maintenance, or unscheduled maintenance, giving brief description of maintenance and additional information requested by EPA (engineering report, data, etc.). Include partial, void, and other tests.

[2] Indicate catalyst code, if applicable.

ODO C.F. = 1.016 (ODO - 125)

[3] Specify correction, i.e., System Miles = CF x (Odom. Miles - IC), where CF = correction factor and IC = initial correction. Use odometer reading taken after hot prep., and before cold-start LA-4.

12-83

VEHICLE TEST DATA LOG SHEET [1]

EPA I.D. No. _____

Vehicle I.D. (if used) 81-0316

Engine Family _____ Displacement _____ Model _____ Vehicle Serial No. _____

Transmission _____ Engine Code _____ Exhaust Control System [2] _____

Evaporative Family _____ Evaporative Emission Code _____

Evaporative Control System _____ Crankcase Control System _____

Date	Test No.*	Odom. Miles	System Miles [3]	Actual Idle Speed	Ambient Temp. (°F)	Emission Results HC	CO	NOx	CO2	Evap.	MPG	Event Description
					PAGE 2 of 2							
11-13-80	11765	4115	4054	1000	77	0.051	0.16	0.08	680.0	--	13.0	HFET

[1] Indicate all emission measurements performed on a vehicle, including EPA tests. Also indicate whether tests are before or after tune-up, scheduled maintenance, or unscheduled maintenance, giving brief description of maintenance and additional information requested by EPA (engineering report, data, etc.). Include partial, void, and other tests.

[2] Indicate catalyst code, if applicable.

[3] Specify correction, i.e., System Miles = CFx (Odom. Miles - IC), where CF = correction factor and IC = initial correction. Use odometer reading taken after hot prep., and before cold-start LA-4.

* Test number cross reference:

OEI	EPA	OEI	EPA
11746	22809	11750	22952
11747	22810	11765	22953

Section 12.06.00.00 - Vehicle Maintenance Log t [1]

Evaporative Emission Family 107/49/C2 | Engine Code 107/49/C2 | Vehicle I.D. 81-0316

Displacement 301 cu.in. | Inertia Weight 5000 | Engine Family 107/49/C2

Transmission (type/code) A-3 | Test Weight 5000 | Carline Quattroporte

Horsepower (A/C factor added?) and method 11.8 (frontal area) (A/C factor added) | Axle Ratio 3.54

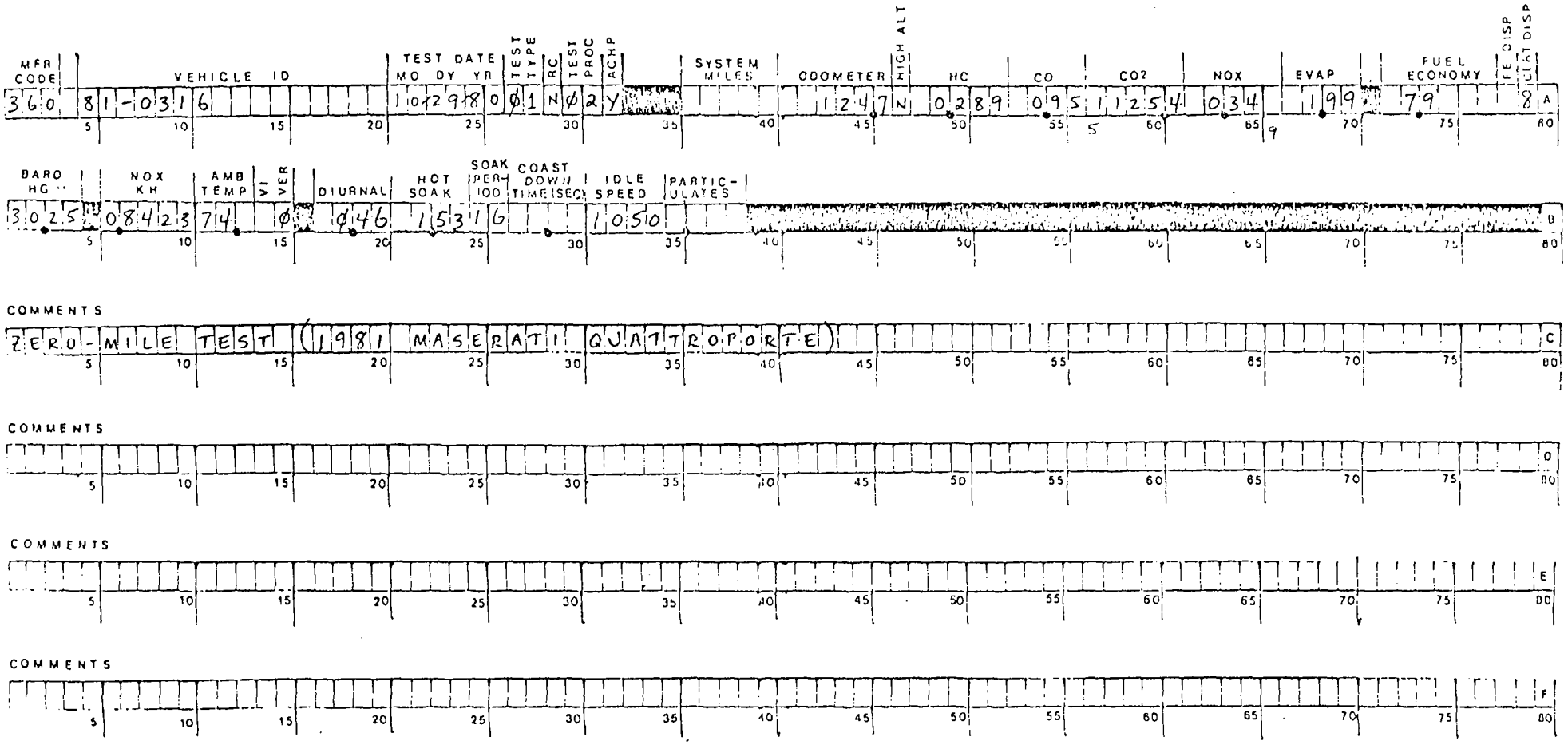
Date	Odometer Miles	System Miles	Maintenance and Authority[2]	Report No.
11-1-80	1147	1038	1000-mile maintenance (changed engine oil and filter, checked valve lash, checked engine bolt torque, checked idle RPM; no adjustments necessary)	

1/ Give a complete detailed description of all maintenance performed. Specify the EPA representative who gave prior approval (and date) or state the reason why prior approval was not required (regulations, etc.).

2/ All specifications checked should be reported, e.g., RPM before and after reset, ignition timing. New I.D. numbers should be retained for replaced components.

APPLICATION FORMAT
SECTION 12.01.07.00

MANUFACTURER'S TEST DATA SHEET



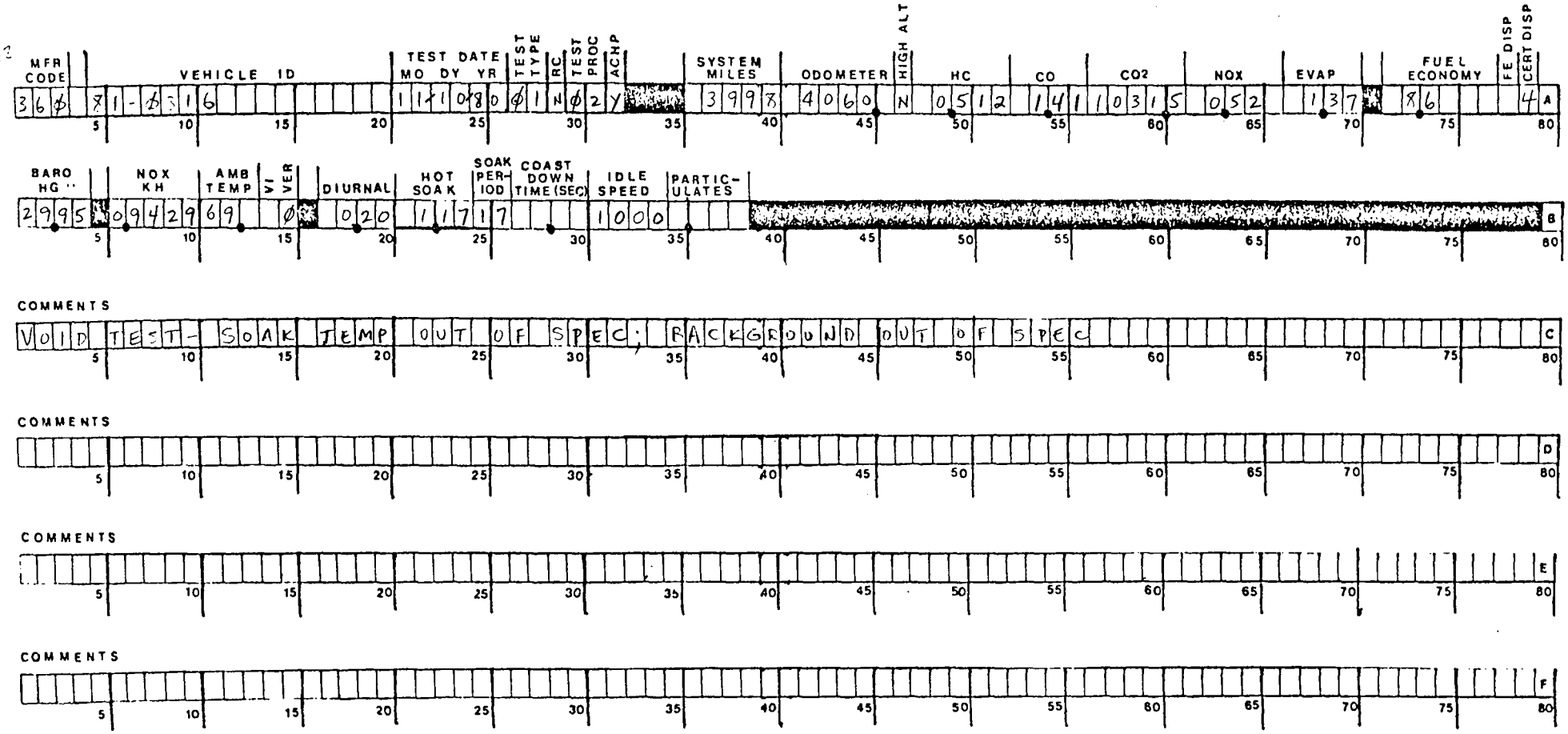
DATE: 1-17-80

ATTACHMENT 5

(EPA # 22951)

1202 APPLICATION FORMAT
SECTION 12.01.07.00

MANUFACTURER'S TEST DATA SHEET

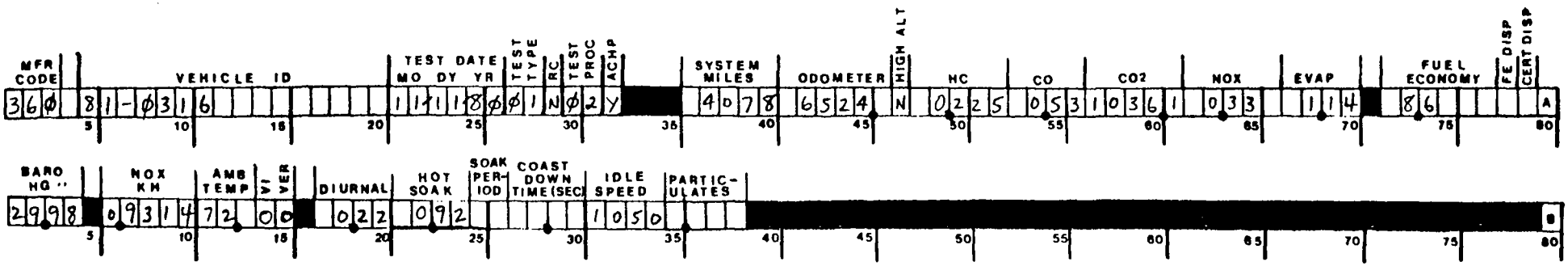


ATTACHMENT 5

DATE: 1-17-80

APPLICATION FORMAT
SECTION 12.01.07.00

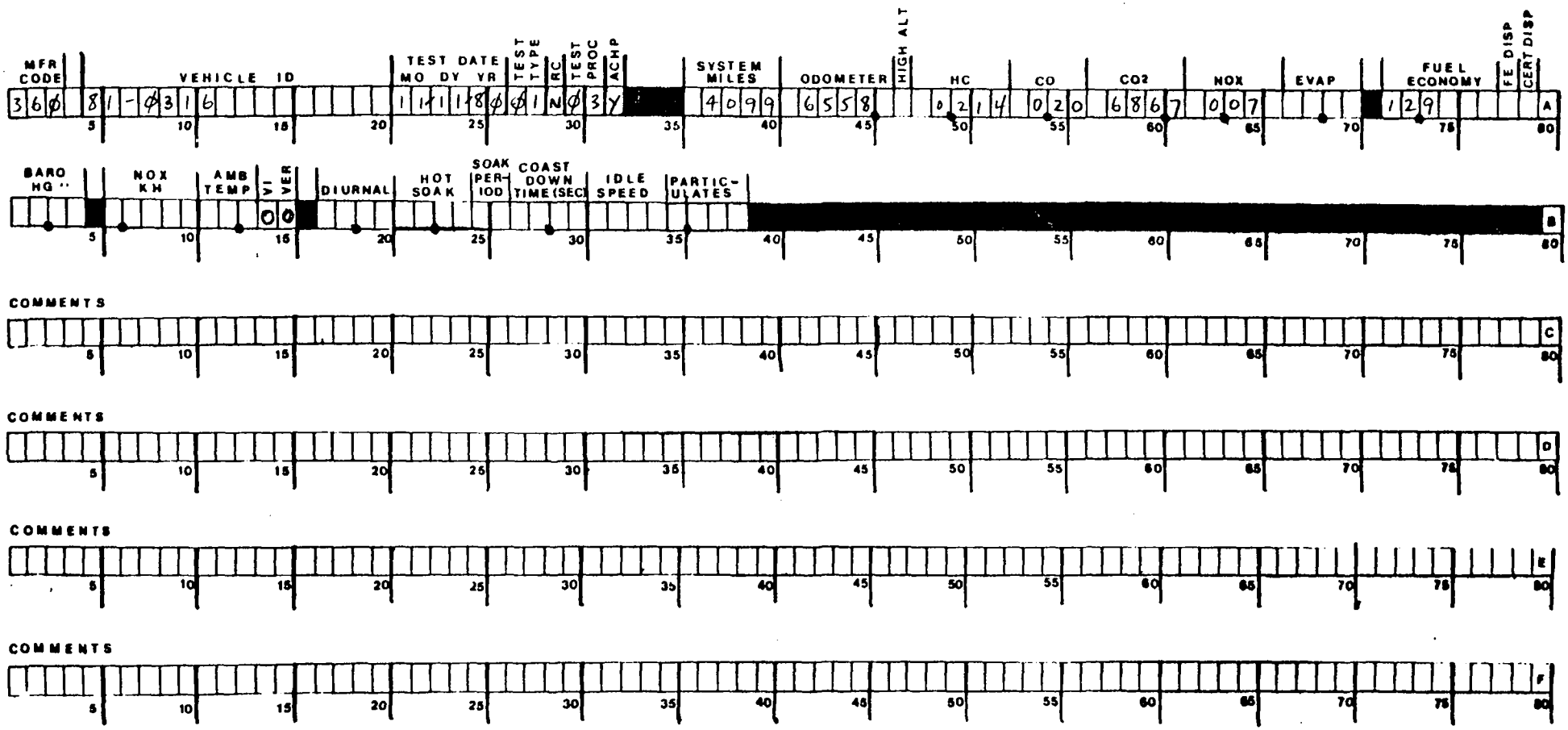
MANUFACTURER'S TEST DATA SHEET



DATE: 1-17-80

APPLICATION FORMAT
SECTION 12.01.07.00

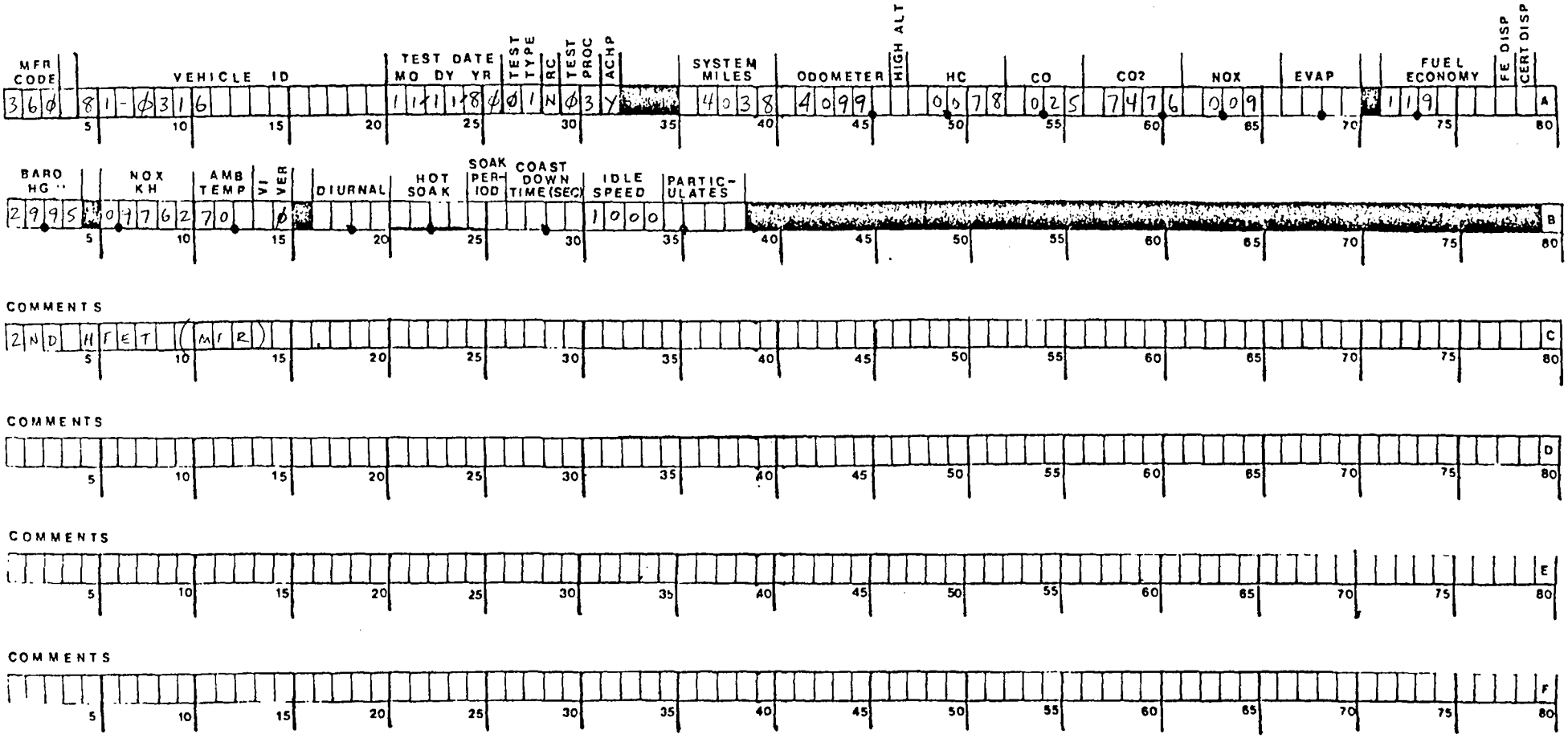
MANUFACTURER'S TEST DATA SHEET



DATE: 1-17-80

APPLICATION FORMAT
SECTION 12.01.07.00

MANUFACTURER'S TEST DATA SHEET

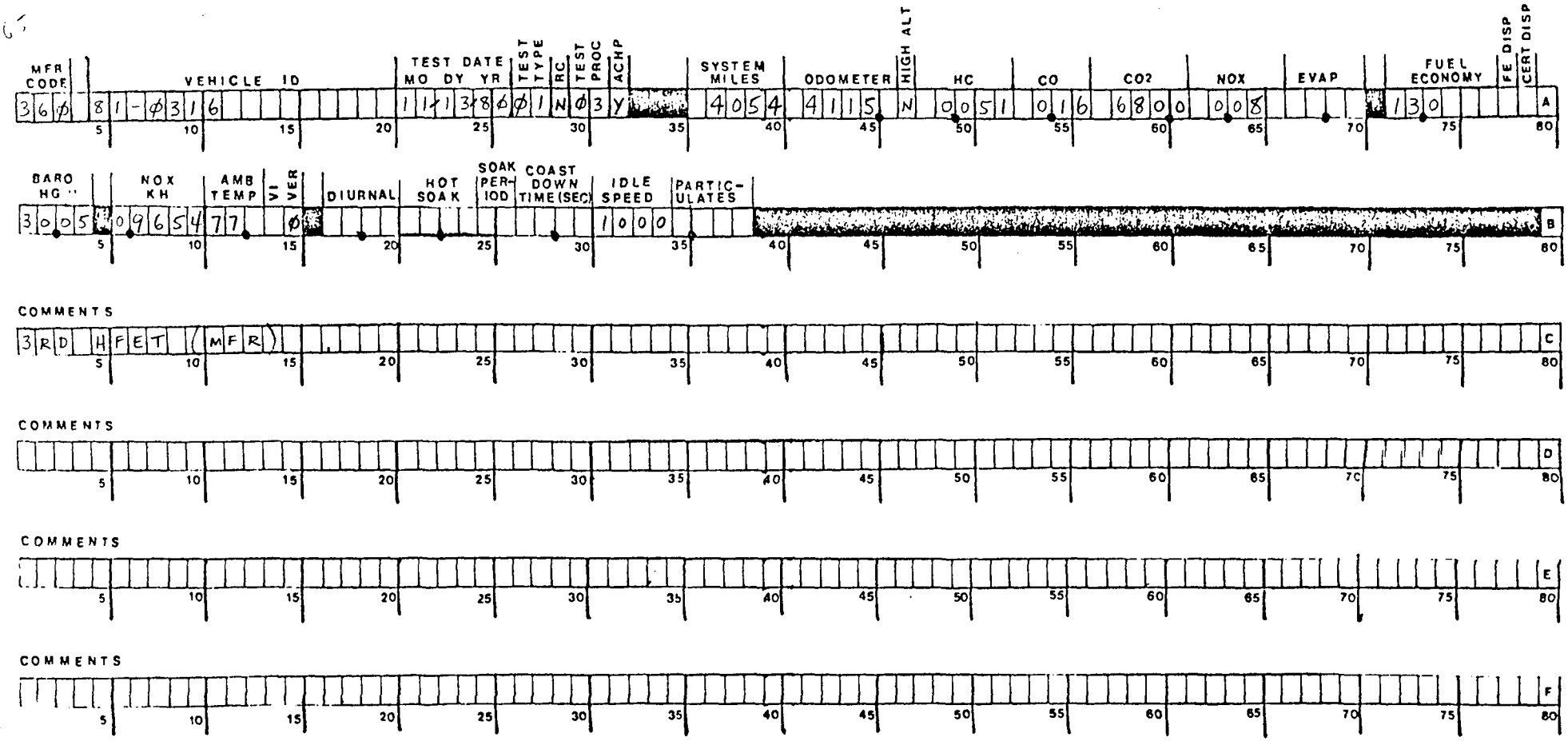


DATE: 1-17-80

APPLICATION FORMAT
SECTION 12.01.07.00

(LIP #1 22953)

MANUFACTURER'S TEST DATA SHEET



DATE: 1-17-80

13.00.00.00 EVAPORATIVE EMISSION CONTROL DETERIORATION PROGRAM

Assigned deterioration factors used.

15.00.00.00 REVISIONS

Revision No.	Revision Date	Page No.	Description
1	11-19-80	16-3	Added emission test results.

OFFICINE ALFIERI MASERATI S.p.A. - MODENA

STATEMENT OF COMPLIANCE

Officine Alfieri Maserati S.p.A. certifies that the test vehicles with respect to which data are submitted have been tested in accordance with the applicable test procedures, that they meet the requirements of such tests, and that on the basis of such tests they conform to the requirements in 40 CFR Part 86 Subpart A, emission regulations for new gasoline fueled light-duty vehicles.

Any system installed on or incorporated in any 1981 Maserati vehicle sold in the United States shall not in its operation or function cause the emission into the ambient air of any noxious or toxic substance that would not be emitted in the operation of such vehicle without such system, except as specifically permitted by regulation, and shall not in its operation function or malfunction result in any unsafe condition endangering the motor vehicle, its occupants, or persons or property in close proximity to the vehicle. The description of tests used to ascertain compliance with the general standards in 40 CFR 86.078-5(b) and the data derived from such tests are available to the Administrator upon request.

Maserati vehicles were tested in accordance with good engineering practice to ascertain that such test vehicles meet the above requirements for the useful life of each such vehicle. This was done prior to taking any actions specified in section 203 (A) (1) of the Clean Air Act.

1981 Maserati production vehicles for sale in the United States are in all material respects the same design as the test vehicles, with respect to which data are submitted and for which certification is being applied.

The engine and transmission combinations of the vehicles for which approval is being requested have been designed to operate with 91 R.O.N. fuel and no adverse driveability effects result from the use of such fuel. These vehicles have driveability and performance characteristics which satisfy Maserati's customary driveability and performance requirements for vehicles sold in the United States.

OFFICINE ALFIERI MASERATI S.p.A.

By: Dr. Ing. Giordano Casarini
Air Pollution Manager

STATEMENT OF COMPLIANCE

Officine Alfieri Maserati S.p.A. states that any element of design, system, or emission control device installed on or incorporated in Maserati new motor vehicles or new motor vehicle engines, for the purpose of complying with standards prescribed under section 202 of the Clean Air Act, will not, to the best of Maserati's information and belief, cause the emission into the ambient air of pollutants in the operation of its motor vehicles or motor vehicle engines which cause or contribute to an unreasonable risk to public health or welfare except as specifically permitted by the standards prescribed under section 202 of the Clean Air Act. Maserati further states that any element of design, system, or emission control device installed on or incorporated in Maserati new motor vehicles or new motor vehicle engines, for the purpose of complying with standards prescribed under section 202 of the Clean Air Act, will not, to the best of Maserati's information and belief, cause or contribute to an unreasonable risk to public safety.

The term pollutant means:

a. Diesel particulates
b. Nickel
c. MMT combustion products
d. Ammonia
e. Sulfates
f. Hydrogen sulfide
g. Hydrogen cyanide
h. Ruthenium combustion products
i. Nitrosamines

or any other pollutant which Maserati has identified which can reasonably be expected to be emitted from these vehicles.

OFFICINE ALFIERI MASERATI S.p.A.

By: Dr. Ing. Giordano Casarini
Air Pollution Manager

Section 16.02.00.00 Emission Data Summary

Engine Family 107/49/C2

Vehicle	(Federal)			(California)
Model	Quattroporte			
I.D. Number	81-0316			
Selection Criteria[1/]	40CFR86.080-24(b)(1)(ii);(vii)(A);(vii)(C)			
Exhaust System	PMP/OXD/TWC			
Engine Code	107/49/C2			
Evaporative Em. Family	107/49/C2			
Transmission (Type/Code)	L-3/1			
Displacement	301 cu.in.			
Inertia Weight Class	5000			
Test Weight	5000			
Axle Ratio	3.54			
N/V Ratio	45.9			
EPA 4000-Mile Results[2/]				
Test Number	22809			22809
HC (g/mi)	0.225			0.225
CO (g/mi)	0.53			0.53
NO_x (g/mi)	0.33			0.33
Evap. (g/test)	1.14			1.14
Deterioration Factors				
HC	1.3			1.2
CO (ASSIGNED D.F.'s)	1.2			1.2
NO_x	1.1			1.1
Evap.	0.0			0.5
Certification Levels				
HC (g/mi)	0.29			0.27
CO (g/mi)	0.64			0.64
NO_x (g/mi)	0.36			0.36
Evap (g/test)	1.1			1.6

16.03.00.00 CERTIFICATE INFORMATION

Engine Family: 107/49/C2

Exhaust Emission Control System: PMP/OXD/TWC

Evaporative Emission Family: 107/49/C2

Evaporative Emission Control System: Canisters

Models Covered: MASERATI: Quattroporte

Section 16.04.01.00 - Parts List

Engine Code 107/49/C2

Fuel pump part number	8200/M Corono Torino Italy
Carburetor assembly part number	42 DCNF 95 Weber
Fuel injection control unit part number	n.a.
Supercharger or Turbocharger:	
Assembly	n.a.
Turbine	
Compressor housing	
Wastegate valve	
Spark plug identification number	RN9Y Champion
Alternate spark plugs	n.a.
Distributor assembly part number	0.237.401.003 Bosch
Crankcase emission control system - component part number	Made by Maserati-No separate part no.
Evaporative emission canister part number	5130/10/A Savara Torino Italy
Auxiliary emission control devices - identification (color, production code, number, etc.) of calibrated components	Evap delay valve-ACI, Huntington Bch, CA Microswitch- AM 6224- Matsusmita Electric 3-Way solenoid valve-368001- ELBI Torino Diverter valve TVS- 4253330, ACI, Huntington Beach, CA
Air injection system:	
Air pump part number	7835398FF, Saginaw USA
Diverter valve part number	BPV6966S, Carter, USA
Check valve part number	5354987, AC Delco, USA
Pressure relief valve part number	n.a.
Catalyst assembly part number	AM 120 CP 92922/11.29.880.31.0.00.6.79 Engelhard/Eberspaecher, Germany
Other major exhaust emission control systems-part number(s) of calibrated component(s)	n.a.
Vapor blower thermoswitch	T 20704 FA34-5064 F65-10 Texas Instr.
Vapor blowers	LVM8 Mark 2 Spec 1097-1 Charles Austen Pumps LTD-England

16.04.02.00 PRODUCTION TOLERANCES

The application for certification identifies and describes those engines to be covered by the certificate of conformity issued by EPA, and this application for certification covers only those new engines to be produced by Maserati which conform, in all material respects, to the design specifications (including tolerances) which are contained herein.