State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-6-432-A
Relating to Certification of New Motor Vehicles

GENERAL MOTORS CORPORATION

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Orders G-45-3 and G-45-4;

IT IS ORDERED AND RESOLVED: That 1989 model-year General Motors Corporation exhaust emission control systems are certified as described below for gasoline-powered passenger cars:

Engine Family	Displacement Liters (Cubic Inches)	Exhaust Emission Control Systems (Special Features)
K1G3.1W8XGZ9	2.8/3.1 (173/191)	Air Injection - Pump (some models) Exhaust Gas Recirculation Three-Way Catalyst Oxygen Sensor (Electronic Port Fuel Injection)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The following are the emission standards for this engine family:

Hydrocarbons (Grams per Mile)	Carbon Monoxide (Grams per Mile)	Nitrogen Oxides (Grams per Mile)
0.39	7.0	0.7

The following are the certification emission values for this engine family:

Hydrocarbons (Grams per Mile)	Carbon Monoxide (Grams per Mile)	Nitrogen Oxides (Grams per Mile)
0.18	1.7	0.4

BE IT FURTHER RESOLVED: That the listed models are certified to the optional NOx emission standard thereby making the vehicle manufacturer subject to Section 1960.1.5 of Title 13, California Administrative Code which includes recall liability for emission control components up to 7 years or 75,000 miles if found defective by the Executive Officer.

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying to the optional NOx standard by providing evidence that there are sufficient projected sales of vehicles certifying to the primary NOx emission standard, or is allowed a delay in implementation under small volume manufacturer provisions, or is allowed a delay in implementation under the "in lieu" standards, or is certifying passenger cars weighing more than 5250 lbs. loaded vehicle weight.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" (Title 13, California Administrative Code, Section 2290) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high altitude requirements and highway emission standards as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Tune-Up Label Specifications" (Title 13, California Administrative Code, Section 1965) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the vehicle models listed have been granted an exemption from compliance with the requirements of the "Malfunction and Diagnostic System for 1988 and Subsequent Model Year[s]..." (Title 13, California Administrative Code, Section 1968) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2035 et seq.).

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 4th day of March, 1988.

K. D. Drachand, Chief
Mobile Source Division

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

AIR RESOURCES BOARD
HAAGEN-SMIT LABORATORY
9528 TELSTAR AVENUE
EL MONTE, CA 91731-2990
PHONE (818) 575-6800

March 4, 1988

TO: ALL PASSENGER CAR MANUFACTURERS
ALL LIGHT-DUTY TRUCK MANUFACTURERS
ALL MEDIUM-DUTY VEHICLE MANUFACTURERS
OTHER INTERESTED PARTIES

SUBJECT: Identification For Engine Family Which Contains Multiple Emission Standards

Historically, the Air Resources Board (ARB) has allowed light-duty trucks and medium-duty vehicles to certify to more than one set of emission standards in an engine family. This has made identification of the vehicle emission standards extremely difficult for administering enforcement testing and control of vehicles meeting the various standards within an engine family. Pursuant to CFR 86.088-30, the ARB is soliciting comments on a proposed Manufacturers Advisory Correspondence (MAC) to require separate engine families for each standards class with a phase-in period to allow alternate methods for one year.

Staff is currently considering various means (via tune-up label, bar code, or Vehicle Identification Number) by which vehicles from an engine family with more than one standard could be identified. The ARB requests that manufacturers who presently or will in the future plan on certifying one engine family to more than one emission standard submit written comments by April 1, 1988, regarding this issue. These comments could include:

1. The number of engine families involved.

2. The feasibility of splitting the engine families in to separate standards classes.

3. The validity of carryover/carryacross test data provisions to reduce certification costs if each engine family can only be used for one standards class.

4. Other ideas that would better accomplish the same objective.

5. Any other relevant information or comments that should be considered.

TO: ALL PASSENGER CAR MANUFACTURERS
ALL LIGHT-DUTY TRUCK MANUFACTURERS
ALL MEDIUM-DUTY VEHICLE MANUFACTURERS
OTHER INTERESTED PARTIES

Our initial discussion with the EPA and various manufacturers identified lead time and increased testing costs as the principle concerns. As an interim measure we have used separate Executive Order numbers for an engine family with multiple standards which are traceable to the tune-up label part numbers which contains the certification standards. We believe that by means of A/C 17-F, which is extensively used now, manufacturers will not incur a significant cost burden if the proposed MAC is adopted.

If you have any questions or would like to discuss this matter further, please contact Mr. R. J. Kenny, Manager, New Vehicle Certification Section, at (818) 575-6844.

Sincerely,

K. D. Drachand, Chief
Mobile Source Division

Attachment

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

AIR RESOURCES BOARD
HAAGEN-SMIT LABORATORY
9528 TELSTAR AVENUE
...MONTE, CA 91731-2990
...: (818) 575-6800

DRAFT

TO: ALL PASSENGER CAR MANUFACTURERS
ALL LIGHT-DUTY TRUCK MANUFACTURERS
ALL MEDIUM-DUTY VEHICLE ENGINE MANUFACTURERS
ALL OTHER INTERESTED PARTIES

SUBJECT: Certification of Each Engine Family To Only One Set Of Emission Standards

This letter transmits Manufacturers Advisory Correspondence #88- which conveys the Air Resources Board (ARB) requirements for 1990 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicle to certify each engine family for one set of emission standards.

Any questions should be directed to Mr. R. J. Kenny, Manager, New Vehicle Certification Section, at (818) 575-6844.

Sincerely,

K. D. Drachand, Chief
Mobile Source Division

Attachment

DRAFT

State of California
AIR RESOURCES BOARD

MANUFACTURERS ADVISORY CORRESPONDENCE #88-

Subject: Certification regulations require that each engine family certify to only one set of emission standards.

Applicability: All 1990 and subsequent model-year California-certified passenger car, light-duty truck and medium-duty vehicle engine families.

References:

1. "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted May 20, 1987.

2. Subpart A, Part 86, Title 40, Code of Federal Regulations (CFR), Section 86.088-30 Certification, incorporated by the above Test Procedures.

Background: It has come to the attention of the ARB that not all manufacturers are following 40 CFR Sections 86.088-30(a)(3)(i)(A) (light-duty vehicles) and 86.088-30(a)(3)(i)(B) (light-duty truck and medium-duty vehicles). Section 86.088 was incorporated by reference in the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, adopted May 20, 1987. These sections provide that only one certificate will be issued for each engine family, and each certificate will certify compliance to no more than one set of standards.

The ARB cannot effectively conduct in-use and new vehicle compliance testing when a single engine family is certified to more than one set of standards because of the difficulty in identifying to which set of standards a given vehicle is certified. This problem is eliminated when the manufacturer identifies a different engine family for each set of standards.

Policy: The ARB will implement and apply the above regulations which require that each engine family for passenger cars, light-duty trucks, and medium-duty vehicles be certified to only one set of emission standards. The past policy of allowing a truck engine family to certify to any combination

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of T_1 (0-3750 lbs. loaded vehicle weight (LVW)), T_2 (3751-5750 lbs. LVW), and T_3 (5751 lbs. and larger LVW) will not be allowed since each class has a different set of emission standards. Also, the ARB will not allow one engine family to be certified to more than one NOx standard. This requirement for manufacturers to use different engine family identification for each emission standards class is consistent with and identical to federal regulations.

17-K1G3.1W8XGZ9-1A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer: General Motors Corporation

Executive Order No.: A-6-432-A

Engine Family: K1G3.1W8XGZ9

Evaporative Family: KBO-1L

Engine Displacement Liters (Cubic Inches) - Type: 2.8 (173)/3.1 (191)-V6

Exhaust Emission Control System (Special Features): EGR-TWC-OS (EPFI)
AIP-EGR-TWC-OS (EPFI) (1)

ABBREVIATIONS:

Ignition System
CA-Centrifugal Advance
ECU-Electronic Control Unit
EI-Electronic Ignition
ESAC-Electronic Spark Advance Control
VA-Vacuum Advance
VR-Vacuum Retard

Fuel System
CFI,DID,DIP,EPFI,HOS,MPFI,OS,SFI
nV-nVenturi Carburetor
VV-Variable Venturi

Other Abbreviations
A/C-Air Conditioning
CID Cubic Inch Displacement
ETW-Equivalent Test Weight
FC-Forward Control
HD-Heavy Duty
RI-Rail & Injector
RWD-Rear Wheel Drive
FWD-Front Wheel Drive
4WD-Four Wheel Drive
TBI-Throttle Body Injection
4x2-Two Wheel Drive
4x4-Four Wheel Drive
6x4-Four Wheel Drive

Exhaust Emission Control System
AIP-Air Injection Pump
AIV-Air Injection Valve
EGR-Exhaust Gas Recirculation
EIC-Electronic Injection Control (Diesel Only)
EM-Engine Modification
DBC-Dual Bed Catalyst
HOS-Heated Oxygen Sensor
OC-Oxidation Catalyst
OS-Oxygen Sensor
SPL-Smoke Puff Limiter or Throttle Delay
TOC-Trap Oxidizer, Continual
TOP-Trap Oxidizer, Periodical
TWC-Three-Way Catalyst
WUOC-Warm-up Oxidation Catalyst
WUTWC-Warm-up Three-Way Catalyst

Special Features
CCV-Combustion Chamber Valve
CFI-Central Fuel Injection or Throttle Body Injection
DID-Diesel Injection-Direct
DIP-Diesel Injection-Prechamber
EPFI-Electronic Port Fuel Injection
IC-Intercooler/Aftercooler
MPFI-Mechanical Port Fuel Injection
OBD-On-Board Diagnostics
SC-Supercharger
SFI-Sequential Fuel Injection
TC-Turbocharger

(1) AIP applies only to A, W and F car lines with manual transmission.

ISSUED: 02-02-88 REV. NO.: 001

0190V/11V

17-K1G3.1W8XGZ9-Index 1A

(For CARB Use Only)

(1989)

SECTION 17

C-P-C SUPPLEMENTAL DATA AND CERTIFICATION REVIEW SHEETS

Section and Page No.	Rev. No. or Date	Item
17-K1G3.1W8XGZ9-Index 1A 17-K1G3.1W8XGZ9-Index 2A	011	Table of Contents
17-K1G3.1W8XGZ9-1A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-2A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-3A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-4A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-4.1A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-5A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-6A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-7A	008	Supplemental Data Sheet
17-K1G3.1W8XGZ9-8A	002	Supplemental Data Sheet
17-K1G3.1W8XGZ9-9A	001	Certification Review Sheet
17-K1G3.1W8XGZ9-10A	010	Certification Review Sheet
17-K1G3.1W8XGZ9-11A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-12A	001	Supplemental Data Sheet
17-K1G3.1W8XGZ9-13A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-13.1A	010	Supplemental Data Sheet
17-K1G3.1W8XGZ9-14A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-14.1A	011	Supplemental Data Sheet
17-K1G3.1W8XGZ9-15A	001	Certification Review Sheet
17-K1G3.1W8XGZ9-16A	010	Certification Review Sheet

NOTES:

(1) See page one for abbreviations and family information.

(2) Please refer to manufacturer's HP lists for correct dyno test HP settings based on model and equipment.

(3) If two test weights are listed, the lower weight will be used for testing.

(4) Letter derivative codes are the same as corresponding numeric codes except as indicated.

ISSUED: 02-02-88 . REV. NO.: 001
002 (RC K1-026)
003 (RC K1-023)
004
005
006
007 (RC K1-074)
008 (Corr RC K1-074)
009 (RC K1-081)
010 (RC K1-090)
011 (RC K1-097)

17-K1G3.1W8XGZ9-2A

(For CARB Use Only)
(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
GASOLINE-FUELED PASSENGER CARS

Executive Order No. A-6-432-A

VEHICLE MODELS: 1 J U 2 7 (EXAMPLE)

Digit 1
Selling Division

1-Chevrolet
2-Pontiac
3-Oldsmobile
4-Buick
6-Cadillac

Digit 2 - Body Designation

A-Celebrity, 6000, Cutlass Ciera, Cutlass Cruiser, Century
B-Caprice, Safari Wagon, Custom Cruiser, LeSabre/Electra Wagon
C-Ninety-Eight Regency, Electra, DeVille, Fleetwood, Limousine
D-Brougham
E-Toronado, Riviera, Eldorado, Reatta
F-Camaro, Firebird, Trans Am, Formula
G-Monte Carlo, El Camino, Caballero
H-Bonneville, Delta 88 Royale, LeSabre
J-Cavalier, Sunbird, Firenza, Skyhawk, Cimarron
K-Seville
L-Corsica, Beretta
N-Grand Am, Calais, Somerset/Skylark
P-Fiero
T-Lemans
V-Allante
W-Grand Prix, Regal, Cutlass Supreme
Y-Corvette
Z-Commercial Chassis

Digit 3
Trim Level

Digits 4 & 5 - Body Style

07-2Dr Sport Coupe
08-2Dr Hatchback Coupe
11-2Dr Notchback Coupe/Sedan
19-4Dr Sedan
23-4Dr Auxiliary Seat Sedan
27-2Dr (Notchback) Coupe
33-4Dr Auxiliary Seat Sedan
35-4Dr Station Wagon
37-2Dr Hardtop Coupe
47-2Dr Hardtop Coupe
57-2Dr Hardtop Coupe
67-2Dr Convertible Coupe
68-4Dr Hatchback Sedan
69-4Dr (Notchback) Sedan
77-2Dr Hatchback Coupe
80-2Dr Sedan Pickup
87-2Dr Hatchback Coupe
90-Commercial Chassis
97-2Dr Hardtop Coupe

Engine: Front

Drive: FWD

ISSUED: 02-02-88 REV. NO.: 001

0190V/11V

17-K1G3.1W8XGZ9-3A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS_X_ LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS_X_ DIESEL___

Liters (CID): 2.8 (173) Type: V6 (RPO:LB6) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: AIP-EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
53	1AW19 1AW27 2AJ69	M5	3250	16076891	17087247	17087105	25104584	DBB
	1AW35 2AJ35 2AH69		3375					
65	2WJ37 2WK37 3WH47 3WS47			16070091			25104596	DBF
	2WP37 3WR47		3500					
65A				16125761, 16132551				
65E				16134691				

ISSUED: 02-02-88 REV. NO.: 001 010
003 011
005
006
009

0190V/11V

17-K1G3.1W8XGZ9-4A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS X LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS X DIESEL___

Liters (CID): 2.8 (173) Type: V6 (RPO:LB6) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
74	1LV37 1LW37 1LT68 1LT69 1LZ69	M5	3125	16076971	17087247	17087105	25104588	AXY
83	1JC35 6JG69		3000 3125	16077061			25104590	AYY
84	1JF37 1JF67		3000				25104592	

Comments: See page one for abbreviations and family information. Please refer to manufacturer's HP lists for correct dyno test HP settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

ISSUED: 02-02-88 REV. NO.: 001

0190V/11V

17-K1G3.1W8XGZ9-4.1A

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(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS_X_ LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS_X_ DIESEL___

Liters (CID): 2.8 (173) Type: V6 (RPO:LB6) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
74A	1LV37 1LW37 1LT68 1LT69 1LZ69	M5	3125	16125691, 16132521	17087247	17087105	25104588	AXY
74E				16134661				
83A	1JC35 6JG69		3000 3125	16125731, 16132461			25104590	AYY
83E				16134621				
84A	1JF37 1JF67		3000	16125731, 16132461			25104592	
84E				16134621				

ISSUED: 003 REV. NO.: 009
010
011

0190V/11V

17-K1G3.1W8XGZ9-5A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS_X_ LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS_X_ DIESEL___

Liters (CID): 3.1 (191) Type: V6 (RPO:LHO) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
66	2WJ37 2WK37 3WH47 3WS47 4WB57 4WD57	A4	3500	16120272, 16132581	17087247	17087106	25104596	AYC
	2WP37 3WR47		3625					
66E				16134721				

ISSUED: 02-02-88 REV. NO.: 001
009
011

0190V/11V

17-K1G3.1W8XGZ9-6A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS X LIGHT DUTY TRUCKS ___ MEDIUM DUTY VEHICLES ___ GAS X DIESEL ___

Liters (CID): 3.1 (191) Type: V6 (RPO:LHO) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: AIP-EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
67	2WJ37 2WK37 3WH47 3WS47	M5	3375	16120231	17087247	17087105	25104596	AYB
	2WP37 3WR47		3500					

Comments: See page one for abbreviations and family information. Please refer to manufacturer's HP lists for correct dyno test HP settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

ISSUED: 02-02-88 REV. NO.: 001

0190V/11V

17-K1G3.1W8XGZ9-7A

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(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS_X_ LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS_X_ DIESEL___

Liters (CID): 2.8 (173) Type: V6 (RPO:LB8) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
91	1FP87	A4	3500	16087171	17089015, 17085039	17085913	25104586	DBT
91C				16130521				
92	2FS87			16087181				DBU
92C				16130521				

ISSUED: 02-02-88 REV. NO.: 001
002
007
008

0190V/11V

17-K1G3.1W8XGZ9-8A

(For CARB Use Only)

(1989)

AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

PASSENGER CARS_X_ LIGHT DUTY TRUCKS___ MEDIUM DUTY VEHICLES___ GAS_X_ DIESEL___

Liters (CID): 2.8 (173) Type: V6 (RPO:LB8) Executive Order No. A-6-432-A

NX Std: 0.7 Exh Emiss Cont Sys: AIP-EGR-TWC-OS (EPFI)

ENG CODE	VEH MODELS	TRANS TYPE	ETW	IGN SYSTEM (ECU) PART NO.	FUEL SYSTEM (EPFI) PART NO.	EGR VALVE PART NO.	CATALYST PART NO.	TLC
93	1FP87	M5	3375	16053011	17089015, 17085039	17085914	25104586	DBR
94	2FS87		3500	16053431				DBS

Comments: See page one for abbreviations and family information. Please refer to manufacturer's HP lists for correct dyno test HP settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

ISSUED: 02-02-88 REV. NO.: 001
002

0190V/11V