

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-10-398
Relating to Certification of New Heavy-Duty Motor Vehicle Engines

FORD MOTOR COMPANY

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102 and 43103 of the Health and Safety Code; and

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

IT IS ORDERED AND RESOLVED: That the following Ford Motor Company 1989 model-year diesel engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 14,000.

<u>Engine Family</u>	<u>Displacement Liters (Cubic Inches)</u>		<u>Exhaust Emission Control Systems (Special Features)</u>
KFM07.8EPC8	6.6	(401)	(Diesel Injection - Direct) (Turbocharger)
KFM07.8FPD1	7.8	(474)	(Diesel Injection - Direct) (Turbocharger) (Intercooler)
KFM07.8FPE2	7.8	(474)	(Diesel Injection - Direct) (Turbocharger) (Intercooler)
KFM07.8FPF3	7.8	(474)	(Diesel Injection - Direct) (Turbocharger) (Intercooler)
	6.6	(401)	

Engine models and codes are listed on attachments.

The following are the certification emission standards for these engine families:

<u>Hydrocarbons gm/bhp-hr</u>	<u>Carbon Monoxide gm/bhp-hr</u>	<u>Nitrogen Oxides gm/bhp-hr</u>	<u>Particulates gm/bhp-hr</u>
1.3	15.5	6.0	0.60

\$\$\$ following are the certification emission values for these engine families.

<u>Engine Family</u>	<u>Hydrocarbons gm/bhp-hr</u>	<u>Carbon Monoxide gm/bhp-hr</u>	<u>Nitrogen Oxides gm/bhp-hr</u>	<u>Particulates gm/bhp-hr</u>
KFM07.8EPC8	0.8	2.2	5.2	0.58
KFM07.8FPD1	0.6	1.7	5.9	0.38
KFM07.8FPE2	0.7	2.2	5.4	0.42
KFM07.8FPF3	0.6	2.2	5.6	0.42

BE IT FURTHER RESOLVED: That the Executive Officer has been provided all material required to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2036).

Engines 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 attachments.

Executed at El Monte, California this 19th day of August, 1988.



K. D. Drachand, Chief
Mobile Source Division

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer Ford Motor Company Engine Family KFM07.8EPC8
E

Evaporative Family Not applicable Engine Type I6

Liters (CID) 7.8L (474 CID) 6.6L (401 CID)

ABBREVIATIONS

Ignition System

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

Exhaust Emissions Control System

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

Special Features

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

Fuel System

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

ENGINE MODELS: Reference page 17.01-1

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

E.O. # A-10-398

Manufacturer Ford Motor Company Engine Family KFM07.8EPC8

Liter (CID) 6.6L (401 CID) Eng. Type I6

Emission Control Sys. (Special Features) DID, TC, IC

Engine Code	Fuel Injection Pump BOSCH (PN)	Fuel Injector BOSCH (PN)	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/hr)
8-80B-R00	E6HN -9A543- DA	E6HN -9F593- DA	170 @ 2600	86.5	420 @ 1800	92.7

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Revisions:

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer Ford Motor Company Engine Family KFM07.8FPD1
 Evaporative Family Not applicable Engine Type I6
 Liters (CID) 7.8L (474 CID)

ABBREVIATIONS

Ignition System

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

Exhaust Emissions Control System

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

Special Features

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

Fuel System

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

ENGINE MODELS: Reference page 17.01-1

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

E.O. # A-10-398

Manufacturer Ford Motor Company Engine Family KFM07,8FPD1

Liter (CID) 7.8L (474 CID) Eng. Type I6

Emission Control Sys. (Special Features) DID, TC, IC

Engine Code	Fuel Injection Pump (mfr/PN)	Fuel Injector (mfr/PN)	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/hr)
8-85D-R03	E6HN -9A543- BB	E5HN -9F593- BA	210 2 2400	107.3	575 @ 1500	122.1

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1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer Ford Motor Company Engine Family KFM07.8FPE2
 Evaporative Family Not applicable Engine Type I6
 Liters (CID) 7.8L (474 CID)

ABBREVIATIONS

Ignition SystemExhaust Emissions Control SystemSpecial Features

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

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

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

Fuel System

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

ENGINE MODELS: Reference page 17.01-1

1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

E.O. # A-10-398

Manufacturer Ford Motor Company Engine Family KFM07.8FPE2

Liter (CID) 7.8L (474 CID) Eng. Type I6

Emission Control Sys. (Special Features) DID, TC, IC

Engine Code	Fuel Injection Pump (mfr/PN)	Fuel Injector (mfr/PN)	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/hr)
8-85F-R01	E6HN -9A543- CB	E5HN -9F593- BA	240 @ 2400	120.0	657 @ 1500	134.5
8-85N-R00	E6HN -9A543- FA	E5HN -9F593- BA	215 @ 2400	107.3	588 @ 1500	119.8

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1989 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer Ford Motor Company Engine Family KFM07.8FPF3
 Evaporative Family Not applicable Engine Type I6
 Liters (CID) 7.8L (474 CID) 6.6L (401 CID)

ABBREVIATIONS

Ignition System

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

Exhaust Emissions Control System

AIP-Air Injection Pump
 AIV-Air Injection Valve
 EGR-Exhaust Gas Recirculation
 EIC-Electronic Injection Control
 (Diesel Only)
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 Throttle Delay
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 TOP-Trap Oxidizer, Periodical
 DBC-Dual Bed Catalyst
 OC-Oxidation Catalyst
 TWC-Three-Way Catalyst
 WUOC-Warm-Up Oxidation Catalyst
 WUTWC-Warm-Up Three-Way Catalyst
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 HOS-Heated Oxygen Sensor

Special Features

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

Fuel System

CFI, EPFI, MPFI, SFI, DID, DIP, HOS, OS
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HEAVY-DUTY DIESEL ENGINES

E.O. # A-10-398

Manufacturer Ford Motor Company Engine Family KFM07.8FPF3
 Liter (CID) 7.8L (474 CID), 6.6L (401 CID) Eng. Type I6
 Emission Control Sys. (Special Features) DID, TC, IC

Engine Code	Fuel Injection Pump (mfr/PN)	Fuel Injector (mfr/PN)	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/hr)
9-80A-R00	E7HN -9A543- BA	E7HN -9F593- BA	185 @ 2400	91.3	474 @ 1500	99.8
9-85B-R00	E7HN -9A543-	E7HN -9F593-	270 @ 2400	135.0	735 @ 1500	148.0

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