Detroit Diesel Mbe 4000 Engine Epa04 Operators Manual Ddc Svc Man 0056

Full download: http://manualplace.com/download/detroit-diesel-mbe-4000-engine-

DDC-SVC-MAN-0056

EPA04 MBE 4000 Operator's Manual



13400 Outer Drive, West, Detroit, Michigan 48239-4001 Telephone: 313-592-5000 www.detroitdiesel.com

Specifications are subject to change without notice. Detroit Diesel Corporation is registered to ISO 9001:2001. Copyright © Detroit Diesel Corporation. All rights reserved. Detroit Diesel Corporation is a Daimler company. Printed in U.S.A.

CALIFORNIA Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

42824

To the Operator

This Manual contains instructions on the safe operation and preventive maintenance of your Detroit Diesel MBE 4000 engine. Maintenance instructions cover routine engine services such as lube oil and filter changes in enough detail to permit self-servicing if desired.

The operator should become familiar with the contents of this Manual before operating the engine or carrying out maintenance procedures.

Power-driven equipment is only as safe as the person operating the controls. You are urged, as the operator of this diesel engine, to keep fingers and clothing away from the revolving belts, drive shafts, etc. on engine installation.

Throughout this Manual **CAUTIONS** regarding personal safety and **NOTICES** regarding engine performance or service life will appear. To avoid personal injury and ensure long engine service life, always heed these instructions.

Whenever possible, it will benefit you to rely on an authorized Detroit Diesel® service outlet for all your service needs from maintenance to major parts replacement. Authorized service outlets worldwide stock factory original parts and have the specialized equipment and

experienced, trained personnel to provide prompt preventive maintenance and skilled engine repairs.

The information and specifications in this publication are based on the information in effect at the time of approval for printing. Contact an authorized Detroit Diesel service outlet for information on the latest revision. The right is reserved to make changes at any time without obligation.

NOTICE:

Coolant must be inhibited with the recommended Supplemental Coolant Additives (SCA) listed in this Manual. In addition, the engine can be equipped with a coolant filter/inhibitor system as an installed option or as an after-sale item. Failure to check and maintain SCA levels at required concentrations will result in severe damage corrosion to the engine cooling system and related components.

Trademark Information

Detroit Diesel®, DDEC®, and Diagnostic Link® are registered trademarks of Detroit Diesel Corporation. NexiqTM is a trademark of Nexiq Technologies, Inc. All other trademarks are the property of their respective owners.

TABLE OF CONTENTS

CAUTION SUMMARY	1
ENGINE OPERATION	1
PREVENTIVE MAINTENANCE	2
ELECTRICAL SYSTEM	4
COOLING SYSTEM	5
AIR INTAKE SYSTEM	5
FUEL SYSTEM	7
COMPRESSED AIR	
LUBRICATING OIL AND FILTERS	8
IDENTIFICATION	
PERSONNEL REQUIREMENTS	
ENGINE CONVERSIONS AND MODIFICATIONS	
GENERAL VIEW OF THE MBE4000 ENGINE	
ENGINE TYPE PLATE	
DETAILS ON THE PLATE	13
ENGINE FEATURES	
EXHAUST BRAKE/CONSTANT-THROTTLE VALVES	
TURBO BRAKE, OPTIONAL	
EXHAUST GAS RECIRCULATION	
ELECTRONIC ENGINE CONTROL SYSTEM	
DDEC-ECU — ENGINE-RESIDENT CONTROL UNIT	
VEHICLE CONTROL UNIT	
SENSOR LOCATIONS	19
OPERATION	21
BEFORE STARTING THE ENGINE	21
CHECKING THE BATTERIES	
CHECKING THE OIL LEVEL	22
CHECKING THE COOLANT LEVEL (COLD CHECK)	23
ADDING FUEL	23
PRIMING THE FUEL SYSTEM	23
STARTING THE ENGINE	
CHECKING THE COOLANT LEVEL (HOT CHECK)	24

STARTING AN ENGINE THAT HAS NOT BEEN RUN FOR A	
LONG TIME	
MONITORING ENGINE OPERATION	26
BATTERY CHARGE	26
OIL PRESSURE	26
EXCESSIVE IDLING	27
CHANGING THE IDLE SPEED	27
SHUTTING DOWN THE ENGINE	27
SHUTTING DOWN AFTER HIGH LOAD OPERATION	27
EMERGENCY RUNNING MODE	28
STOP ENGINE OVERRIDE OPTION	28
COLD WEATHER OPERATION	29
WINTER FRONTS	29
CLEANING AND STORAGE	
CLEANING THE ENGINE	
HIGH-PRESSURE CLEANING EQUIPMENT	
CLEANING THE COOLING SYSTEM	
DEGREASING	
STORAGE	32
TROUBLESHOOTING	22
EMERGENCY STARTING	
TROUBLESHOOTING THE ELECTRONIC ENGINE CONTROL	აა
	22
SYSTEMGENERAL TROUBLESHOOTING	
GENERAL TROUBLESHOUTING	34
SERVICE PRODUCTS	47
DIESEL FUELS	
FLOW IMPROVERS	
KEROSENE	
ENGINE OILS	
SYNTHETIC OILS	
COOLANT	
FULLY-FORMULATED ANTIFREEZE	
WATER	
COOLANT SPECIFICATIONS	
COOLANT CONCENTRATION	50

SUPPLEMENTAL COOLANT ADDITIVES FOR FULLY	
FORMULATED COOLANT	51
DROPOUT	
NON-APPROVED COOLANTS	
RECYCLED ANTIFREEZE	
CORROSION INHIBITORS	
DISPOSAL	
COLD WEATHER PRODUCTS	
WINTER-GRADE DIESEL FUEL	
LOW-VISCOSITY ENGINE OIL	
WINTER COOLANT ANTIFREEZE PROTECTION	
BATTERIES	
FECHNICAL DATA	55
ENGINE DATA	56
TESTING AND ADJUSTING VALUES	57
MAINTENANCE	
SCHEDULED INTERVALS	
MAINTENANCE SCHEDULE TYPES	
SEVERE SERVICE	
SHORT-HAUL	
LONG-HAUL	60
MAINTENANCE SCHEDULE AND INTERVAL	
	60
= = =	60
MAINTENANCE OPERATION SETS	60
	61
	62
	68
	68
	68
GAINING ACCESS TO THE VALVES	68
CHOOSING A METHOD	69
METHOD ONE	70
METHOD TWO	71
ADJUSTING VALVE LASH	72
RESTORING THE VEHICLE TO OPERATING CONDITION	72

FUEL/WATER SEPARATOR PREFILTER ELEMENT	
CLEANING	73
FUEL PRO® 382 FUEL/WATER SEPARATOR ELEMENT	
REPLACEMENT	74
MAIN FUEL FILTER ELEMENT CHANGING	
ENGINE OIL AND FILTER CHANGING	
OPTIONAL OIL CENTRIFUGE	
COOLANT CONCENTRATION AND INHIBITOR LEVEL	
CHECKING	80
COOLANT INHIBITOR TEST INTERVALS	
INHIBITOR LEVEL CHECKING	
COOLANT FLUSHING AND CHANGING	
COOLING SYSTEM INSPECTING	85
REAR ENGINE POWER TAKE-OFF (REPTO)	86
REPTO TORSIONAL DAMPER INSPECTION	
REPTO TORSIONAL DAMPER CLEANING	
CUSTOMER ASSISTANCE	
WORKING WITH DDC SERVICE OUTLETS	92
STEP ONE	92
STEP TWO	92
STEP THREE	93
LIMITED WARDANTY ON NEW RETROIT DIEGEL MRE 4000	
LIMITED WARRANTY ON NEW DETROIT DIESEL MBE 4000	
ENGINES USED IN ON-HIGHWAY VEHICLE APPLICATIONS	
TERMS OF COVERAGE	
USES	
DEFECTS	
REPAIRS	
WARRANTY PERIOD	
LIKE REPLACEMENT ENGINE	
SERVICE SUPPLIES ENGINE REMOVAL AND REINSTALLATION	
THIS WARRANTY DOES NOT COVER:	
REPAIRS DUE TO ACCIDENTS, MISUSE, STORAGE DAMAGE,	
NEGLIGENCE OR CERTAIN MODIFICATIONS	
FUEL INJECTION SYSTEM AFTER 100,000 MILES/160, 000	90
FUEL INJECTION STSTEM AFTER 100,000 MILES/160, 000	
KILOMETEDS	0e
KILOMETERS	

DDC-SVC-MAN-0056

INCIDENTAL OR CONSEQUENTIAL DAMAGESOTHER LIMITATIONS	
LIMITED WARRANTY ON NEW DETROIT DIESEL MBE 4000 ENGINES USED IN FIRE TRUCK OR CRASH VEHICLE	
APPLICATIONS	98
TERMS OF COVERAGE	98
USES	98
DEFECTS	98
REPAIRS	98
WARRANTY PERIOD	98
LIKE REPLACEMENT ENGINE	
SERVICE SUPPLIES	99
ENGINE REMOVAL AND REINSTALLATION	99
THIS WARRANTY DOES NOT COVER:	99
REPAIRS DUE TO ACCIDENTS, MISUSE, STORAGE DAMAGE,	
NEGLIGENCE OR CERTAIN MODIFICATIONS	99
FUEL INJECTION SYSTEM AFTER 100,000 MILES/160, 000	
KILOMETERS	
MAINTENANCE	
INCIDENTAL OR CONSEQUENTIAL DAMAGES	100
OTHER LIMITATIONS	100

Detroit Diesel Mbe 4000 Engine Epa04 Operators Manual Ddc Svc Man 0056 Full download: http://manualplace.com/download/detroit-diesel-mbe-4000-engine-		
TABLE OF CONTENTS		