

Operator's Manual



**McCORMICK
INTERNATIONAL**

434

TRACTOR

DIESEL AND PETROL MODELS

INTERNATIONAL HARVESTER COMPANY OF GREAT BRITAIN LIMITED

259, CITY ROAD, LONDON, E.C.1.

CONTENTS

	Page No.
DESCRIPTION	1
INTRODUCTION	2
SPECIFICATIONS	3
INSTRUMENTS AND CONTROLS	5
FOR BETTER PERFORMANCE AND SAFE OPERATION	10
BEFORE STARTING A NEW TRACTOR	11
PREPARING THE TRACTOR FOR EACH DAY'S WORK.....	14
OPERATION	
Starting the engine	18
Stopping the engine	18
Adjusting the seat	18
Driving the tractor	19
Towing the tractor	20
Differential lock	20
Power take-off (attachments)	21
Belt pulley (attachments).....	23
Types of hydraulic lifts available	23
Operating the "Vary-Touch" hydraulic system	23
Operating remote control cylinders	28
Auxiliary control valves	29
Operating the hydraulic lift with mechanical depth control.....	29
Controls	29
Three point linkage	34
Automatic hitch (Vary-Touch)	38
Automatic hitch (Standard and mechanical depth control).....	40
Care of tyres.....	42
Adding weight to a tractor	42
PREVENTIVE MAINTENANCE	
ROUTINE SERVICING SCHEDULE	44
ENGINE OIL SPECIFICATIONS	45
LUBRICATION GUIDE.....	48
LUBRICATION CHART	49
COLD WEATHER PRECAUTIONS	53
HOT WEATHER PRECAUTIONS	54
MAINTENANCE	
Cooling system	55
Fan belt	56
Generator belt	57
Aircleaner system	57
Lubricating oil filter	59
Crankcase breather/filler cap	60

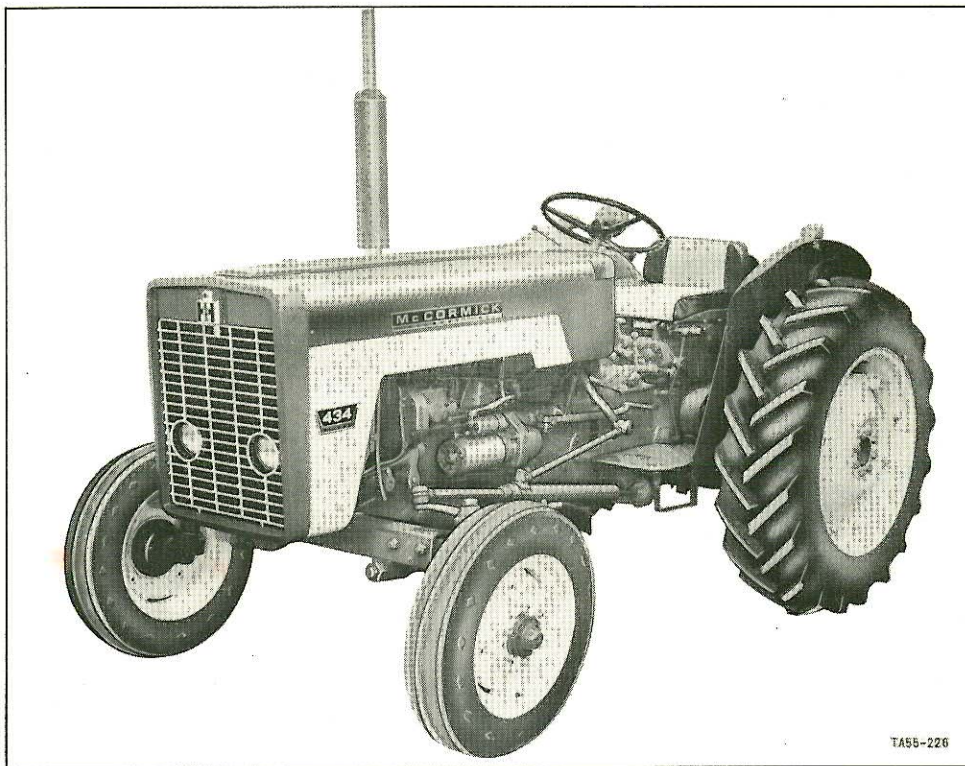
CONTENTS - continued

MAINTENANCE - continued

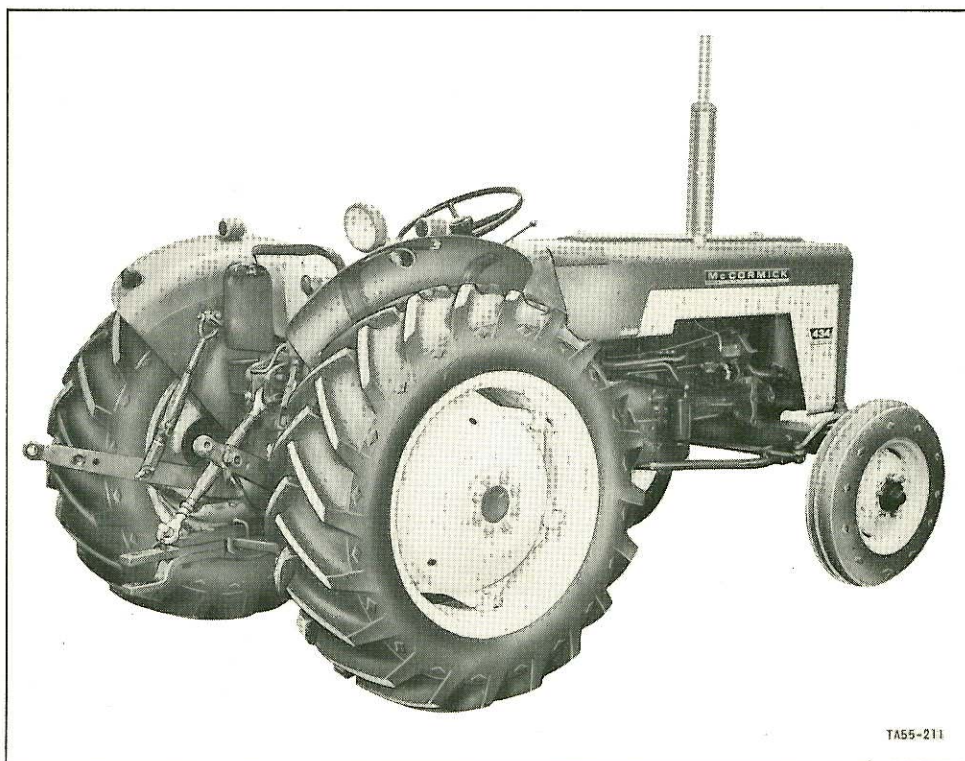
Page No.

Fuel system	61
Diesel fuel storage	64
Minor engine servicing	64
Front wheels	65
Brakes	67
Engine clutch	68
The hydraulic system	68
The electrical system	70
 FAULT TRACING	 81
 STORING THE TRACTOR	 82
 SPECIAL EQUIPMENT	 83

DESCRIPTION

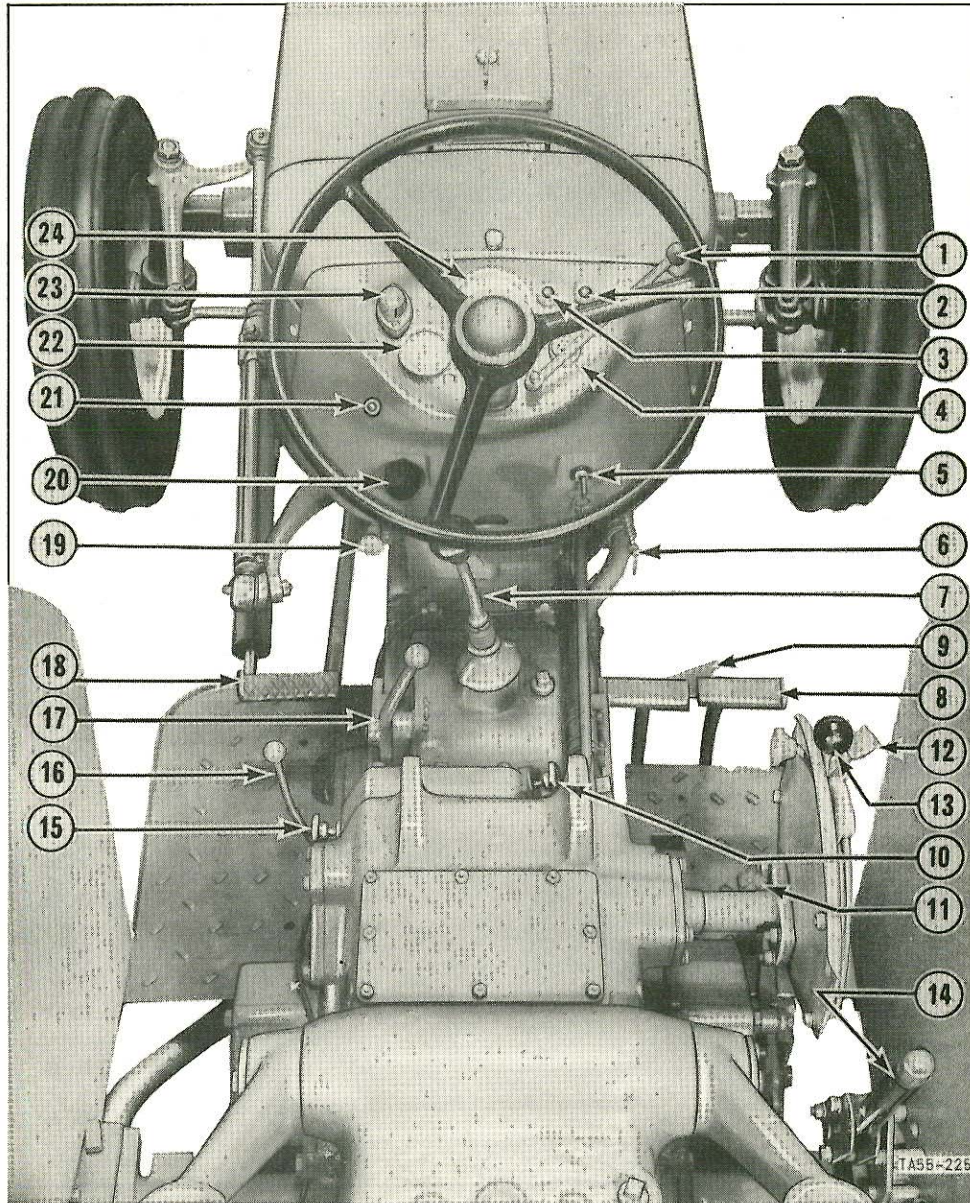


Illust.1 Left Hand View of the 434 Tractor



Illust.2 Right Hand View of the 434 Tractor

I N S T R U M E N T S & C O N T R O L S



- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Governor control lever 2. Generator warning light 3. Engine oil pressure warning light 4. Glowplug indicator 5. Keyswitch 6. Radiator shutter control 7. Gear shift lever 8. Brake pedals 9. Brake pedal latch 10. Isolating valve 11. Differential lock pedal 12. Draft control lever | <ul style="list-style-type: none"> 13. Position control lever 14. Hand brake lever 15. Response control 16. Rear P. T. O. lever 17. Hi-low shift lever 18. Engine clutch pedal 19. Engine stop control 20. Light switch 21. Horn button 22. Engine heat indicator 23. Panel light 24. Tractormeter |
|--|--|

Illust.5 Instruments & Controls

Service Manual



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SM-25

SERVICE MANUAL

INTERNATIONAL

434 TRACTOR

The black tabs shown on the right side of this page line up with the corresponding tabs in the catalogue.

NOTE

Refer to the SUPPLEMENT AND CHANGE INDEX for a list of supplements, and to the end of the appropriate group for the latest instructions, before carrying out work on this equipment.

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GROUP INDEX	
GENERAL	1
COOLING SYSTEM	2
FUEL SYSTEM	3
ENGINE	4
ENGINE CLUTCH	5
ELECTRICAL AND INSTRUMENTS	6
TRANSMISSION	7
DIFFERENTIAL	8
AXLES AND WHEELS	9
STEERING	10
BRAKES	11
HYDRAULICS	12
POWER TAKE OFF	13
SPEED AMPLIFIER	14

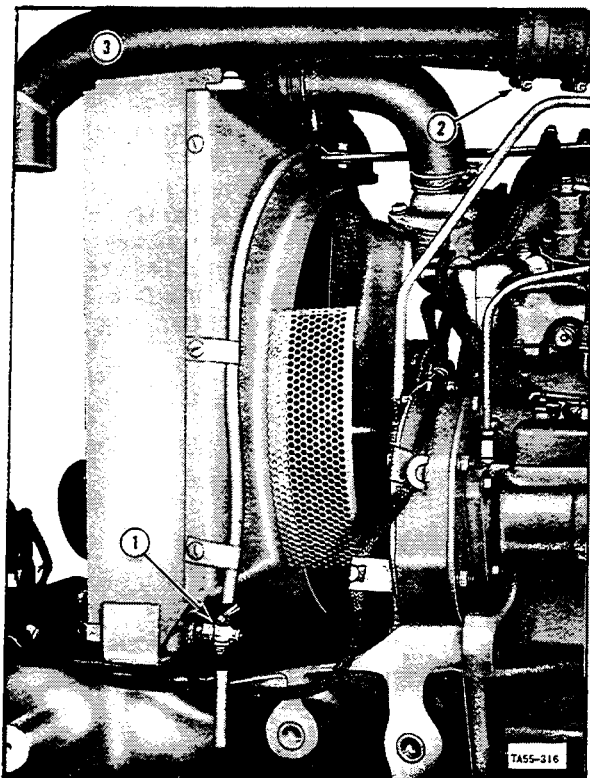


FIG. 4

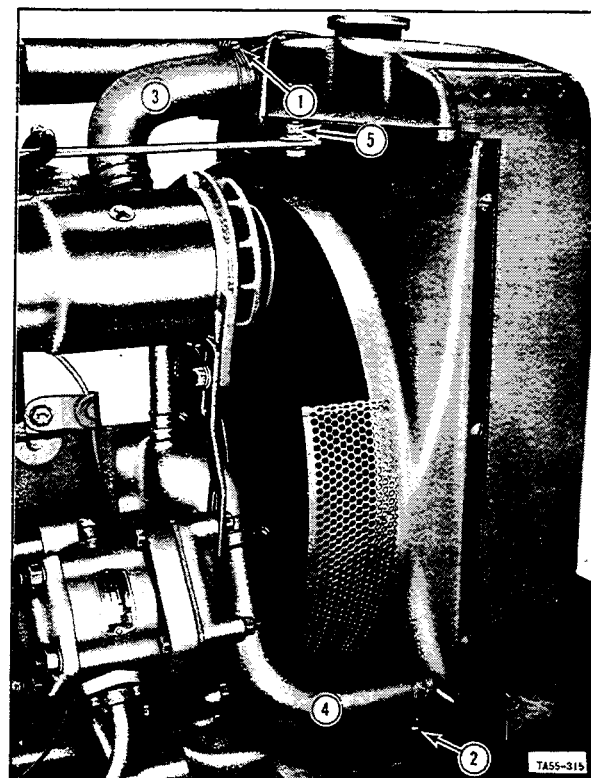


FIG. 5

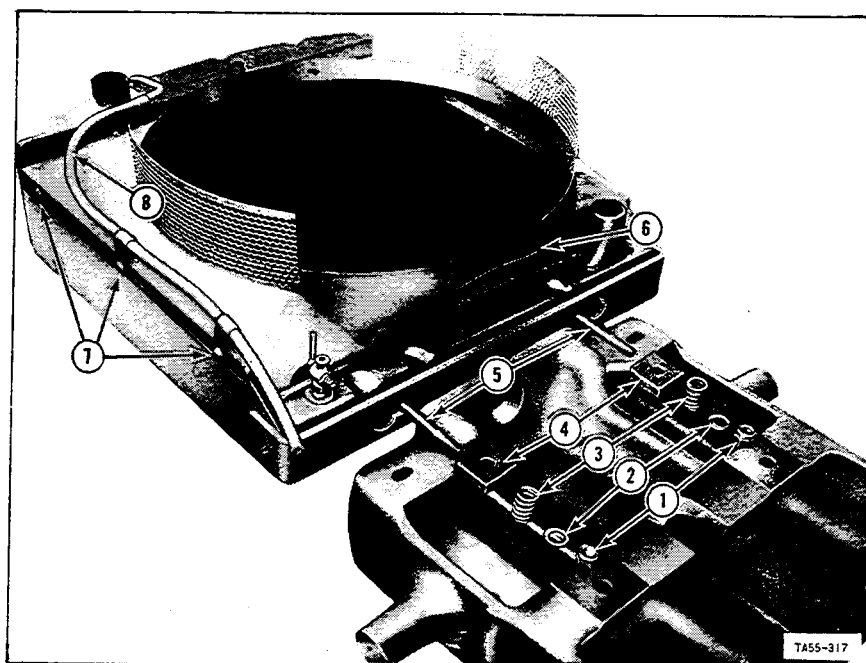


FIG. 6

3. THE RADIATOR

3a. REMOVAL

1. Remove exhaust muffler (2-3) and hoodsheet as detailed below.
2. Remove grille (2-1) and grille mesh (3-1) by turning the quick release screw (1-1) anti-clockwise.
3. Remove capscrew (1-2) and electrical lead (2-2) from horn and securing clips.

NOTE: Disconnect battery earth leads before disconnecting any part of the electrical system.

4. Slacken hose clips (3-2) and remove aircleaner hose (4-2) from the air-cleaner pipe (3-4).
5. Remove capscrews (1-3) from both sides of the hoodsheet, tilt forward and, lift clear of the tractor.
6. Slacken the hose clip (2-4) and remove the pipe (3-4).
7. Open the radiator drain tap (1-4) then slacken the hose clips (1 & 2-5) and remove top and bottom hoses (3 & 4-5) from the radiator connections.
8. Disconnect radiator shutter control (if fitted).
9. Remove the two radiator securing nuts (1-6) flat washers (2-6) and springs (3-6).

NOTE: Access holes for radiator securing nuts are located on the underside of the front axle support.

10. Remove radiator brace securing nut, lockwasher and bolt (5-5).

NOTE: Set the fan blades vertical to allow the fan blade to pass through the cut-out (6-6) provided in the fan housing.

11. Remove the radiator assembly and rubber pads (4-6).
12. Store the radiator in a vertical position to prevent accumulated sediment from the bottom of the tank, passing into the tubes.

3b. DISMANTLING

1. Remove radiator curtain attachment (if fitted).
2. Remove the screws, nuts and lockwashers (7-6) securing the fan housing to radiator.
3. Remove the overflow pipe (8-6) and lift the housing (6-6) clear of the radiator.

3c. CLEANING, INSPECTION & REPAIR

1. Flush out the inside of the radiator core and clean any dirt from between the radiator fins with a water hose under pressure. Use steam cleaning if the radiator core is greasy.
2. Inspect the upper and lower tanks for cracks and the cooling fins and tubes for damage.
3. If there is no visible evidence of leaks, replace the radiator cap. Blank off either the inlet or outlet side and connect an air line, with suitable fittings; including a pressure gauge to the other side.
4. Submerge the unit into a tank of water, or fill the radiator with water and apply air pressure NOT EXCEEDING 7 lb/in². Check for air bubbles if the unit is submerged or water leakage if the radiator is filled.

NOTE: Air will escape from the overflow pipe when air pressure reaches the blow-off pressure of the radiator filler cap.

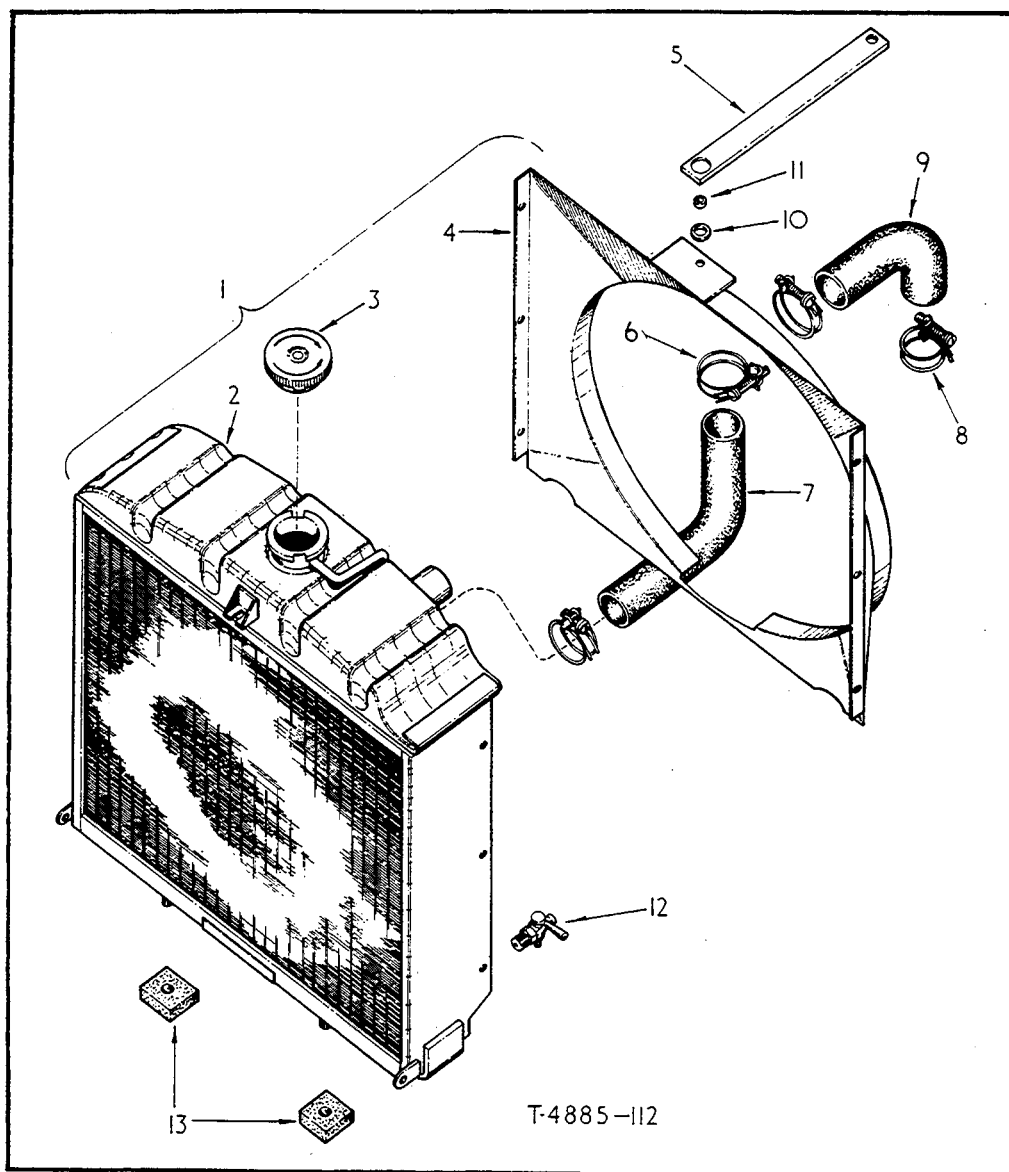
5. Replace or repair the radiator core as necessary.
6. Replace any hoses which show signs of rupture or perishing.

3d. ASSEMBLY

1. Assembly is the reversal of the "DISMANTLING" procedure.

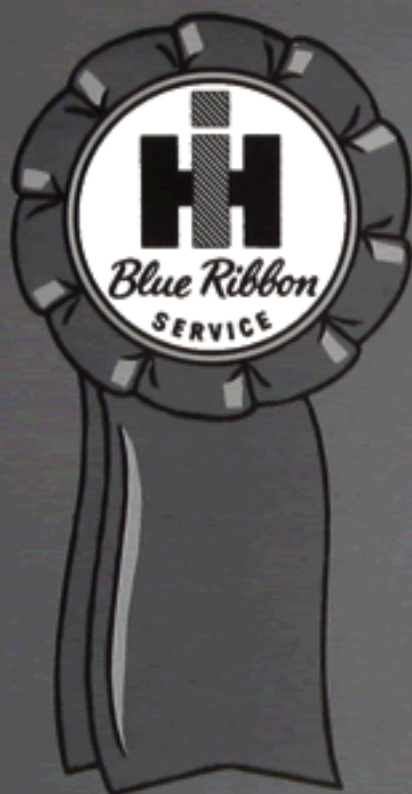
3e. INSTALLATION

1. Reverse the "REMOVAL" procedure.
2. Refill the radiator and check for leaks.



- | | |
|-----------------------------|----------------|
| 1. Radiator and fan housing | 8. Clamp |
| 2. Radiator | 9. Inlet hose |
| 3. Filler cap | 10. Ring |
| 4. Fan housing | 11. Brace bush |
| 5. Brace | 12. Drain cock |
| 6. Clamp | 13. Pad |
| 7. Outlet hose | |

FIG. 7 EXPLODED VIEW OF THE RADIATOR ASSEMBLY



Blue Ribbon Service

**BC144, BD144A and
BD154 Engine**

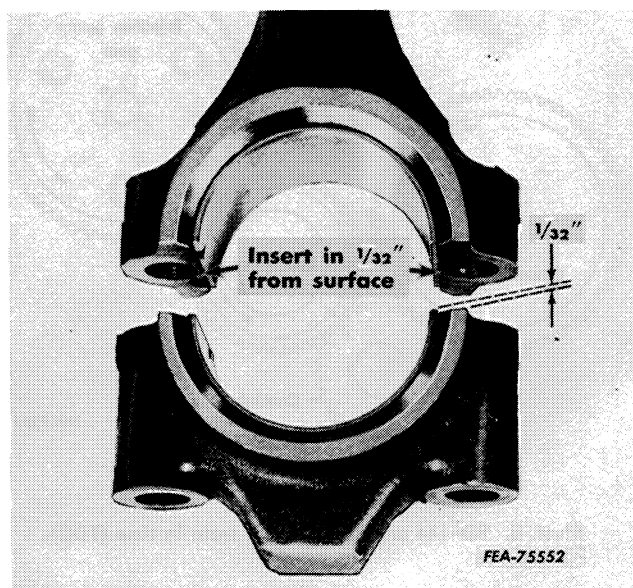
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CONTENTS

	Page
Specifications	4
Service Procedure	
Cylinder Head Installation	14
Multi-piece Oil Control Ring Installation	14
Connecting Rod Bearing Installation	15
Camshaft Bearing Installation	15
Lubricating Oil Pump Removal (Engine Model BC-144 Only)	16
Gear Train Timing	16
Break-In Procedure of Rebuilt Diesel Engines	17
Break-In Procedure of Rebuilt Gasoline Engines	18

Connecting Rod Bearing Installation



Illust. 4. Correct connecting rod bearing installation.

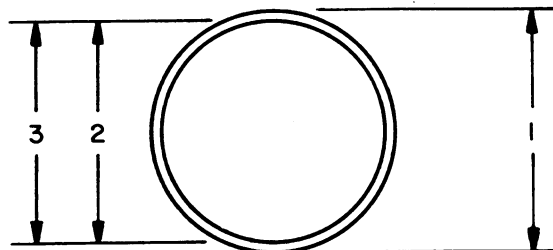
When correctly positioned, the connecting rod cap bearing half will stand out $\frac{1}{32}$ inch on both sides above the cap surface and engage inside the rod half bore. See Illust. 4.

Install connecting rod assemblies in the engine so that the nibs on the connecting rod bearings face the camshaft, regardless of where the connecting rod number is stamped.

Camshaft Bearing Installation

When installing the front and rear bearings ensure that the edges marked 'FRONT' are to the front of the engine and that the holes in the bearings line up with the oil passages in the crankcase. The holes in the center bearing are equal distance from either edge. There is no front marking, but the oil holes must line up with the oil passages.

Press the center bearing into position first, then the other bearings. The rear bearing must be pressed in flush with the front of the bore in the crankcase.



BEARING DIMENSIONS				
		REAR	CENTER	FRONT
1	O.D.	1.634-1.637	1.712-1.715	1.947-1.950
2	I.D. SEMI-FINISH	1.490-1.493	1.568-1.571	1.803-1.806
3	I.D. LINE REAMED AFTER ASSEMBLY	1.5015-1.5025	1.5795-1.5805	1.8135-1.8145

FEA-75553

Illust. 5. Dimensions of camshaft bearing.

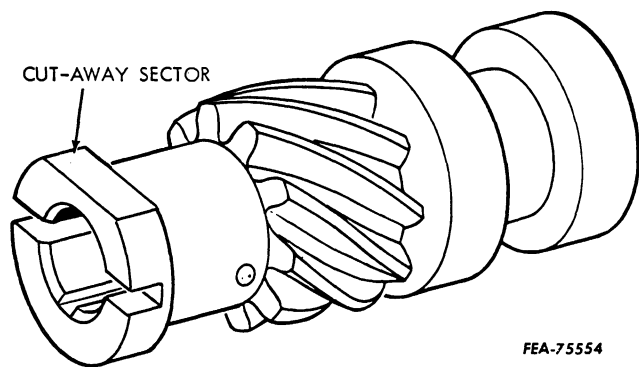
Bearings supplied for service are semi-finished and are to be line-reamed after installation. See Illust. 5.

NOTE: For specified bearing clearances refer to "Specifications."

After reaming, thoroughly blow-out the casting and oil passages to ensure that there are no metal deposits present. Install the rear bearing expansion plug. Use a sealing compound on the plug and seat.

Lubricating Oil Pump Removal

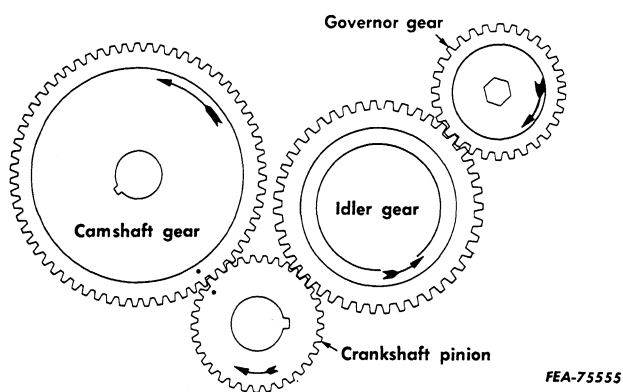
(Engine Model BC-144 Only)



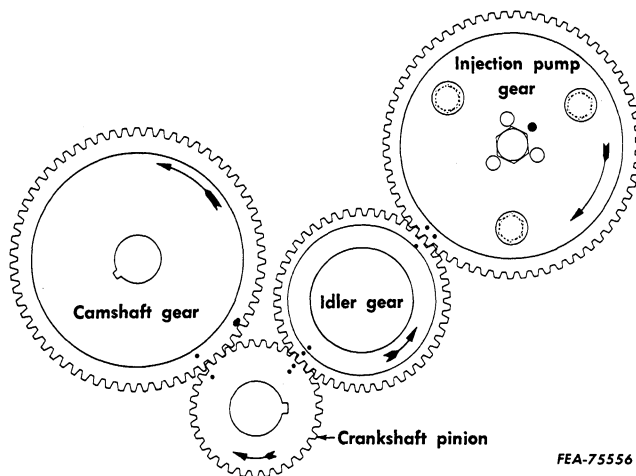
Illust. 6. Oil pump drive pinion.

On the BC-144 series engine the oil pump can only be removed and installed when No. 4 piston is at top dead center of the compression stroke. This is due to the flange of the distributor drive having to pass the teeth of the oil pump drive gear on the camshaft. The distributor drive flange has a sector cut away to allow it to pass the gear. See Illust. 6.

Gear Train Timing



Illust. 7. BC-144 gear train in time (TDC).



Illust. 8. BD-144 and BD-154 gear train in time (TDC).

Break-In Procedure of Rebuilt Diesel Engines

1. The cylinder head bolts should be properly torqued and valve levers adjusted to proper clearance.
2. The engine crankcase should be filled to the proper level with "Mil" SAE 20 lubricating oil. These oils are Mil-L-2104A or MS classification. Series 3 should not be used for break-in since this oil does not contain adequate "break-in" qualities. Use of Series 3 for break-in can result in improper "wear-in" of piston rings and excessive oil consumption. Supplementary oil additives are not to be used during the break-in period.
3. Start the engine and run at 1/4 throttle with no load until normal operating temperature is reached. Cover radiator if necessary to bring engine up to temperature.