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Massey Harris Massey Ferguson

Operator's Manual

MFTO35

Diesel

Operator's Manual

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MH-O-MFTO35DSL

MFTO 35

Serial Number:	Year Made:	Plate Location:
TO14001	1955	
TO167156	1956	
TO171741	1957	
178216	1958	
186603	1959	
203360	1960	

Paint

Color Application:	MFG Color Name:
BODY SHEET METAL	FLINT GREY
ENGINE, TRANSMISSION, & FINAL DRIVE	FORREST GREEN ENAMEL

MANUAL PREVIEW

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TO 35

DIESEL TRACTOR

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Massey-Ferguson
DETROIT, MICHIGAN

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Attaching Left Lower Link

7. Remount tractor and attach free end of the upper link to the tractor by moving the tractor forward or backward in low range to line up the connection. Insert lynch pin.



Attaching Upper Link to Tractor

When transporting the implement, turn the leveling crank counterclockwise to remove the slack from the check chains. This will prevent side sway of the implement.

RAISING AND TRANSPORTING IMPLEMENTS

Any lift-type implement can be raised to the transport position with the engine running by simply raising the hydral lever to the top of the position control range.

To level the implement, level the lower links[®] by turning the hand crank on the right lift rod until the circular groove on the rod matches the top of the fork into which it threads.

NOTE: It is important that the ball joints be kept clean; however, they should never be lubricated.



Attaching Right Lower Link



Turning the Link Leveling Crank



Servicing Second Stage Filter

1. Loosen Bleed Line Stud
2. Loosen Filter Sump Union Nut

SECOND STAGE FILTER

The second stage filter, located slightly forward of the first stage filter, further filters the fuel before it is pumped into the engine combustion chamber. It contains a replaceable cartridge filter and is designed to collect any foreign matter and water that may have escaped the first stage filter.

Fuel is pumped from the outside of the filter through the paper cartridge to the injection pump. At this point any air between the pump and the filter will bleed back to the fuel tank through a small permanent bleed line.

Water and sludge must be drained from the filter at regular intervals and the filter cartridge replaced periodically. To drain the filter sump, simply remove the drain plug on the bottom of the sump and permit all of the fuel in the sump to drain out. Replacement of the filter cartridge can be accomplished in the following manner:

1. Drain the filter sump by removing the drain plug in the bottom of the sump.
2. Remove the bleed line union from the filter sump union nut.
3. Loosen the filter union nut until the sump becomes free from the head assembly.
4. Remove the filter cartridge from the sump.
5. Wipe clean the sump and install a new filter cartridge.

6. Secure the sump to the filter head with the union nut.

7. Reinstall the bleed line union.

8. Reinstall the sump drain plug.

The second stage filter should be drained at not more than 100 hour intervals and the filter element replaced at not more than 1000 hour intervals. Refer to page 34 for the proper procedure to follow in air bleeding the fuel filter.

FUEL FILTER REPLACEMENT

The loss of engine power may indicate excessively dirty or "clogged" filters. To determine whether or not the filters are functioning properly, disconnect the fuel pressure line at the injection pump side of the second stage filter and reciprocate the manual lever on the primary fuel pump. If a steady stream of fuel flows from the filter the loss of engine power can be attributed to some other fuel injection or engine malfunction. Refer to the Trouble Shooting Section of the manual on page 56 for other possible causes of engine power loss.

If the fuel does not flow from the filter freely, it will necessitate both first and second stage filter cartridge replacement.

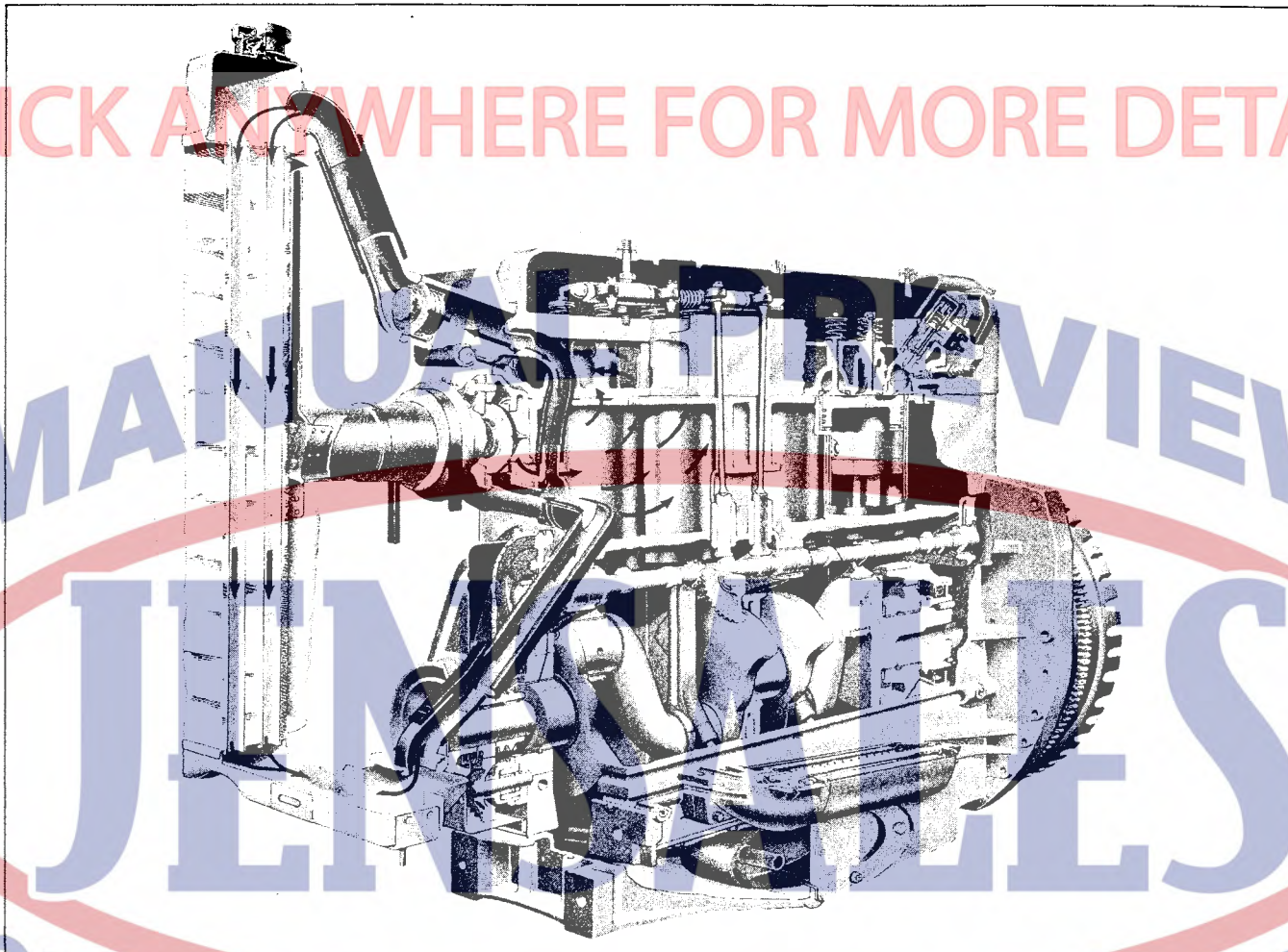
If any of the fuel system filters or pressure lines are opened for any reason, it may necessitate air bleeding of the entire fuel system. Refer to page 34 in this section of the manual for the proper procedure to air bleed the system.

Although it is not necessary to replace the second stage filter cartridge when replacing the first stage filter, it is of utmost importance that when a second stage filter cartridge is replaced a first stage filter cartridge be replaced also for proper fuel filtering.

NOTE: Use only genuine filter cartridges purchased from your MF Dealer.

INJECTION PUMP

Fuel is dispersed under pressure to the injectors, and into the engine combustion chambers in a correct timing sequence by means of an injection pump. The pump is gear driven by a helical gear on the camshaft and is located on left side of the engine block. Some of the fuel is injected into the engine through the injectors and the rest flows through a metered hole in the pump to lubricate the lower parts of the pump.



Engine Cooling System

COOLING SYSTEM

The cooling system of your tractor consists of a radiator, pressure type radiator cap, fan, thermostat, water pump and 9 U.S. quarts of coolant. The coolant conducts heat from around the cored passages in the engine block and circulates it through the radiator, where the heat is transferred by the copper fins to the air passing through the radiator. The cooling system incorporates a thermostat by-pass hose which allows a more rapid and even engine warm-up by by-passing a metered amount of the coolant through the water pump back into the block before the thermostat opens.

FAN AND WATER PUMP

A four blade pull type fan, mounted on the water pump pulley, draws air through the radiator and blows it around the engine. The 6-Vane impeller type water pump circulates approximately 32 gallons per minute at 2000 RPM. The fan belt drives the fan, water pump and genera-

tor. The water pump shaft is supported by the widely spaced ball bearings and are grease lubricated through a fitting located on the right side of the pump housing. If the fan belt is removed and a new one installed, the generator pivoting bolts will have to be loosened and the generator pivoted toward the engine. When assembled, the generator should be positioned and secured so that the fan belt has sufficient tension (approximately $\frac{1}{2}$ inch deflection) to properly turn the pulleys without slippage.

RADIATOR AND PRESSURE-TYPE CAP

Located on top of the radiator is a pressure-type cap which permits 6 to 8 pounds per square inch of pressure to build up within the cooling system. This raises the boiling point of the coolant 18° to 24° . It is essential that the pressure cap be used and installed tightly at all times.

The radiator fins can be cleaned by first removing the tractor grill. To do this, remove the two slotted thumb nuts at the top of the grill, tilt the

Specifications

CAPACITIES

Fuel Tank	10 U.S. gallons 8 Imperial gallons
Cooling System	9 U.S. quarts 7.5 Imperial quarts
Crankcase	7 U.S. quarts 5.6 Imperial quarts
Transmission, Differential and Hydraulic System	8 U.S. gallons 6.5 Imperial gallons

Manual Steering Gear

Housing	Approximately 2 U.S. pints 1.5 Imperial pints
Air Cleaner Oil Bath	Fill to mark

DIMENSIONS

Wheel Base	72 inches
Overall Length	71 inches
Normal Tread—Front	48 inches
Normal Tread—Rear	52 inches
Overall Width (52 in. rear tread)	63½ inches
Overall Width (76 in. rear tread)	87½ inches
Ground Clearance— Under Front Axle	20½ inches
Ground Clearance—Under Center	13½ inches
Turning Circle (Using Brakes)	18 feet
Weight (Dual Clutch) (Fully equipped for operating)	3150 pounds

ENGINE

Cylinder Bore	3-5/16 inches
Stroke	4 inches
Piston Displacement	137.8 cubic inches
Compression Ratio	20 to 1
Idle Speed	500 RPM
Top Speed	2,200 RPM
Governor	Built in injection pump
Valves	Overhead high lift
Tappet Clearance	
Intake	0.012 inches cold
Exhaust	0.008 inches cold

Firing Order 1-3-4-2

Lubrication—Pressure by vane type pump to crankshaft, camshaft, connecting rod, rocker arms, and injection pump drive.

Oil Filter—Replaceable cartridge type. Filter from outward inward.

Cooling—Circulating by centrifugal type pump with recirculating passage. Flow controlled thermostatically through tube and fin type radiator.

Air Cleaner—Oil bath type.

FUEL SYSTEM

Fuel—Pressure fed.

Primary Fuel Pump—Diaphragm type, driven by camshaft gear.

Fuel Filters—Two filters, full flow, with replaceable elements.

Injection Pump—C.A.V. Distributor Type.

Fuel Injectors:

Nozzle Holders—Pintaux type.

Nozzle—Pintaux type.

Injection Timing—17° B.T.D.C.

Injector Setting—1910 P.S.I.

ELECTRICAL SYSTEM

Batteries—Two 6-volt, 21-plate, 135-ampere hour, negatively grounded.

Starting—12-volt, 4-pole starting motor.

Charging—12-volt, 3-brush generator.

Output 10-12 amps. Combination voltage-current control and cutout relay regulator.

POWER TRAIN

Clutch—Dual dry disc type.

Dual Range Transmission—Constant mesh helical primary reduction gears with change-speed gears, spur-type. Transmission operates in conjunction with planetary reduction gear assembly which provides 6 speeds forward, 2 reverse.

Differential and Pinion—Spiral bevel gear final drive with straddle mounted pinion. 6.17 to 1 ratio.