

MASSEY FERGUSON CARE INSTRUCTIONS



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Pakistan .

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THE INDEX

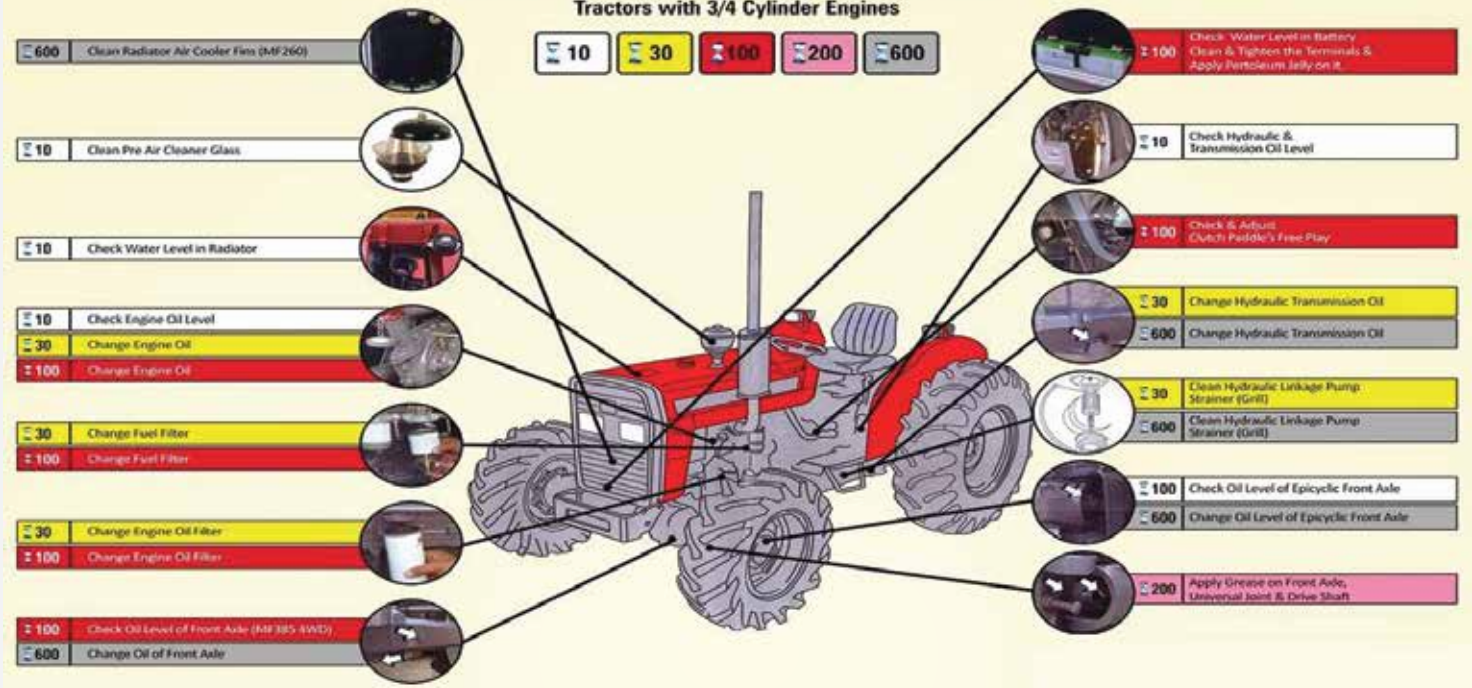
Chapters

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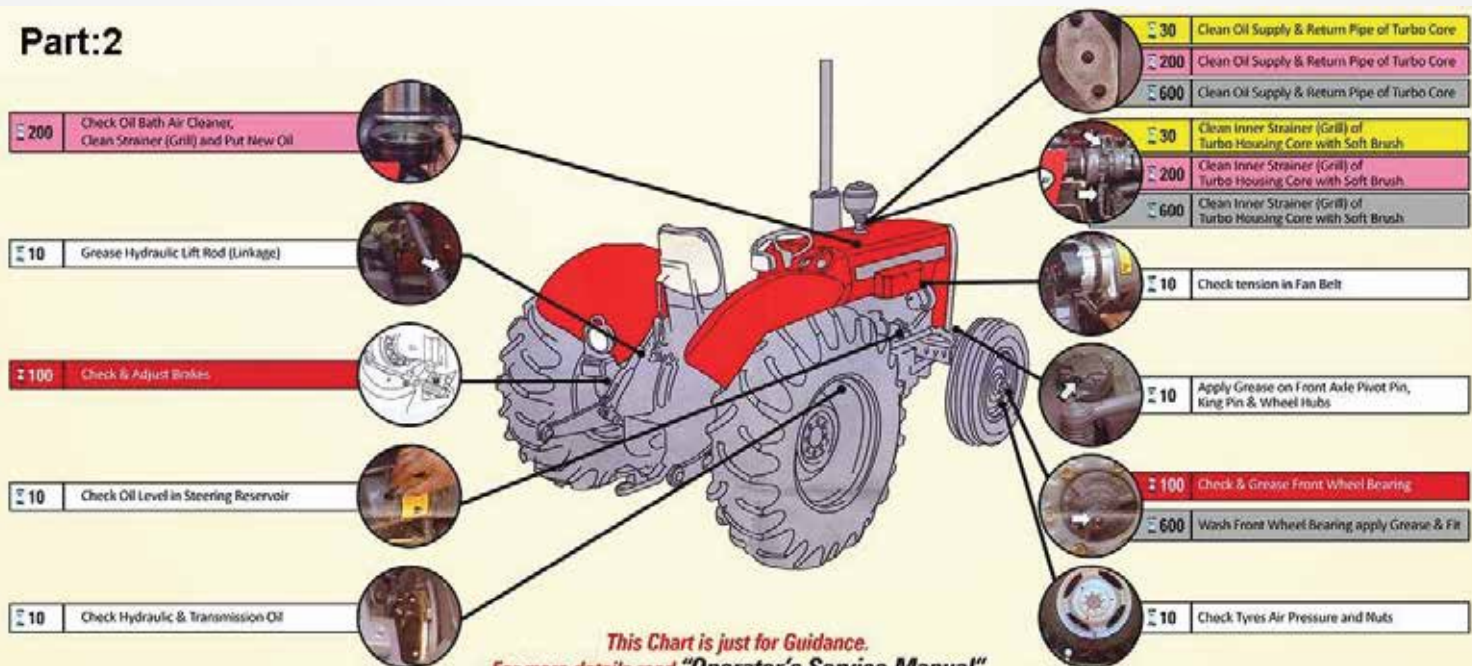
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Introduction

SERVICE CHART FOR TRACTOR MAINTENANCE MF240/350 PLUS/260/360/375/385/385 4WD TRACTORS Tractors with 3/4 Cylinder Engines



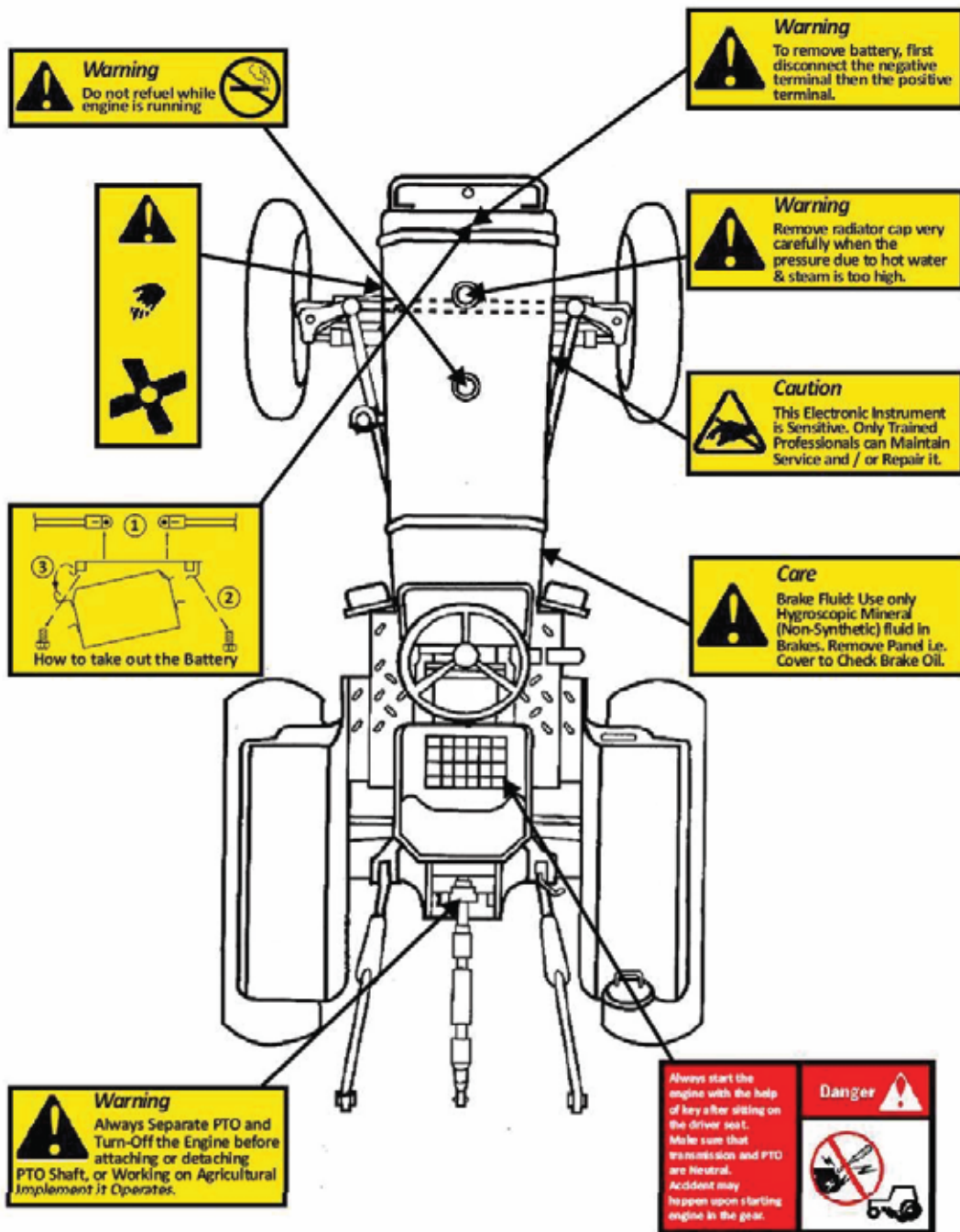
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*This Chart is just for Guidance.
For more details read "Operator's Service Manual"*

Introduction

Locations of Safety Precautions & Warnings on the Tractor



	<p>CAUTION</p> <p>Read operator's manual carefully before operating and during maintenance of the tractor.</p>	<p>Always keep away your hands, legs and clothes from power operated and moveable parts of the tractor.</p>	<p>Before leaving the tractor, engage parking brakes, Lower the plough, Switch off engine and remove key from the ignition switch.</p>
	<p>Do not start the engine until everybody is at a safe distance from tractor and agricultural implements.</p>	<p>Always drive the tractor with complete concentration and care. Press the clutch paddle, if differential lock does not separate automatically.</p>	<p>Check the weight limits of front & rear axles provided in the tractor operator manual before attaching the agricultural implements to the tractor.</p>
	<p>Passengers are prohibited to sit on the tractor & implements except on permitted places.</p>	<p>If brakes do not need to be used separately, lock both brake paddles together.</p>	<p>Make sure that tyre & rim nuts are fastened tightly according to the instructions in the operator manual.</p>

Introduction

How to Record Hours on the Tractor's Meter

Tractor hour meter displays the hours according to average rate of 1500 rounds per minute. First yellow digit on the right side is one-tenth (1/10) of an hour, as shown in the pictures; rest of all digits show the correct usage duration of the tractor.

WARNING:

- For Optimum performance of the engine, keep (Low Idling) at 750 RPM.
- Below 750 RPM, the oil pressure remains low.
- Battery is not charged properly.
- Engine vibration increases and cooling is also reduced.
- In order to use Agricultural Implements in the field, the Engine RPM should be in Green Section (1600/1800 RPM) at Tractor meter.

Tractor Meter MF240/350 Plus/260/360

Tractor Meter MF375/385/385-4WD



Serial & Engine Numbers of the Tractor

Serial Number of MF240/350 PLUS/260/360 tractors are engraved on a small metal plate above the instrumental Panel (Dashboard) near the Hand Throttle. It starts from A MF 240 from P-MF 350 Plus from L MF 360 from J MF-260. The serial number of MF 375/385/385 4WD are engraved on a small metallic plate placed underneath the instrumental panel on the right hand side. It starts from D MF-375 from g MF-385 from H MF-385 4WD.



MF240, 350 Plus, 260, 360

Engine Number

Engine Number of MF240/350 Plus/260/360 is engraved on the left hand side on the Cylinder Block.

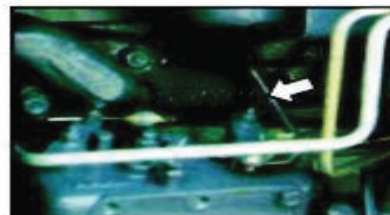
Engine Number of MF375/385/385 4WD is engraved on the right hand side on the Cylinder Block.



MF260, 360



MF375/385/385-4WD



MF240/350 Plus

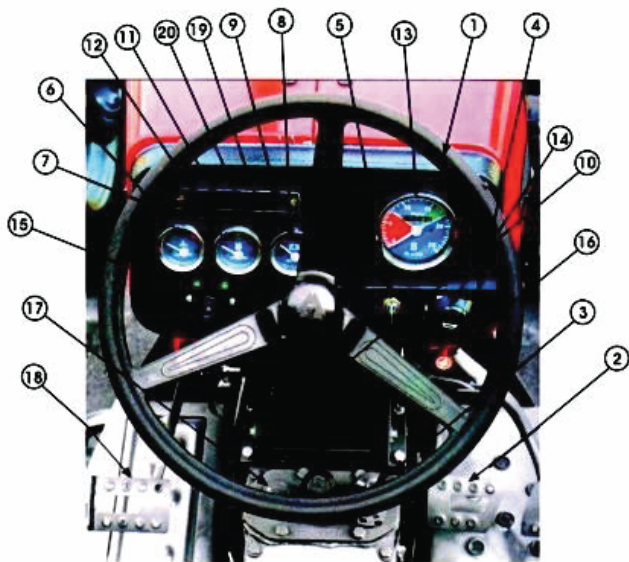


MF375, 385, 385 4WD

Introduction

Instruments and Control Levers

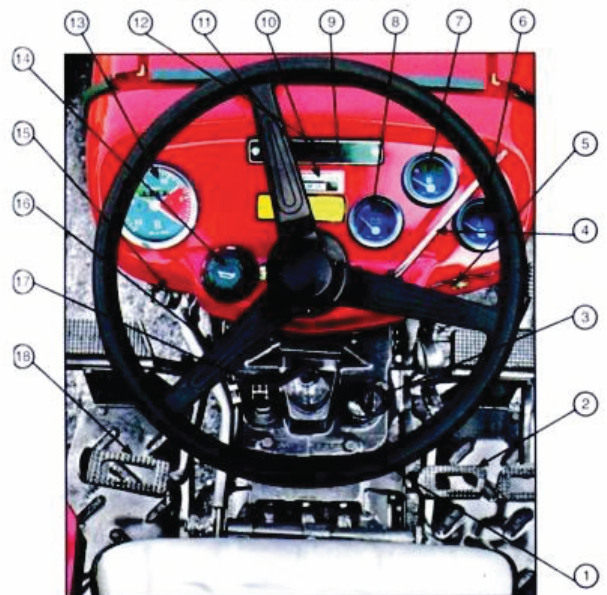
MF375/385/385-4WD



- | | |
|---------------------------------|---------------------------------------|
| 01. Steering Wheel | 11. Alternator Charging Warning Light |
| 02. Brake Pedal | 12. Engine Oil Pressure Warning |
| 03. Low/High Gear Lever | 13. Tractor Meter |
| 04. Hand Throttle Lever | 14. Horn/Light Switch |
| 05. Starting Switch | 15. Indicator Switch |
| 06. Temperature Gauge | 16. Fuel Cut-off Control (Choke) |
| 07. Fuel Gauge | 17. Gear Shifting Lever |
| 08. Battery Gauge | 18. Clutch Pedal |
| 09. Main Beam Light | 19. Differential |
| 10. Tractor Serial Number Plate | 20. Fuel |

Instruments and Control Levers

MF240/350 Plus/260/360



- | | |
|-------------------------|---------------------------------------|
| 01. Steering Wheel | 10. Tractor Serial Number Plate |
| 02. Brake Pedal | 11. Alternator Charging Warning Light |
| 03. Low/High Gear Lever | 12. Engine Oil Pressure Warning |
| 04. Hand Throttle Lever | 13. Tractor Meter |
| 05. Starting Switch | 14. Horn/Light Switch |
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| 07. Fuel Gauge | 16. Fuel Cut-off Control (Choke) |
| 08. Battery Gauge | 17. Gear Shifting Lever |
| 09. Main Beam Light | 18. Clutch Pedal |

Chapter 1

Before starting the tractor daily

- Have you checked and replenished the engine oil?
- Have you checked the transmission / hydraulic oil?
- Have you removed deposits from glass cup of the diesel filter?
- Have cleaned the pre-air cleaner?
- Have you checked and replenished oil in the air-cleaner oil bath?
- Have you checked diesel level in the diesel tank and replenished it?
- Have you checked the fan-belt tension?



Every Week check before starting the tractor...

Have you checked and replenished the radiator fluid?

Have you checked and cleaned the radiator and oil-cooler grills?

Have you greased all the grease points?

Have you checked and corrected the tire pressure according to the prescribed limits?

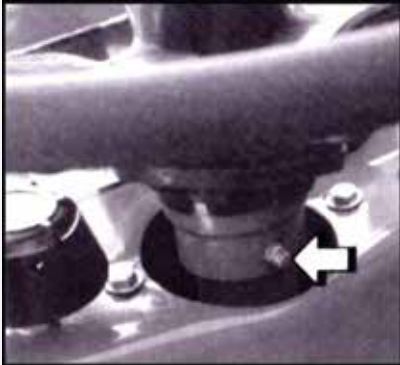
Have you checked the water level in the battery?

VERY IMPORTANT

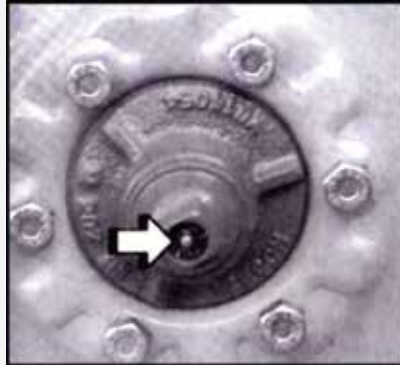
If any of the aforementioned have not been done, leave everything and complete the measures before starting the engine.

Chapter 2

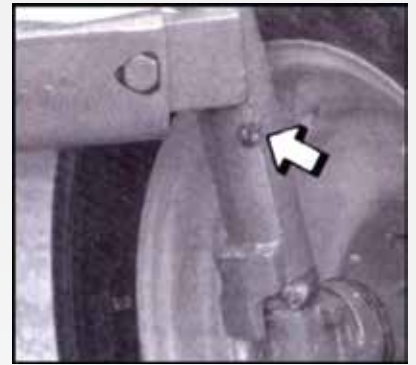
Grease Points on the Tractor



Steering Column MF 240/260/350



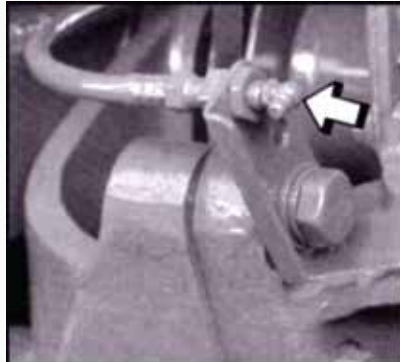
Bearings on Front Wheels
MF 240/350/260/375/385



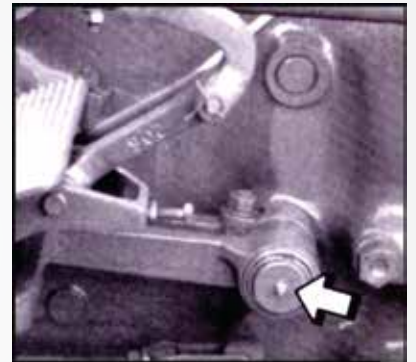
Front Spindles on both sides
MF 240/260/350



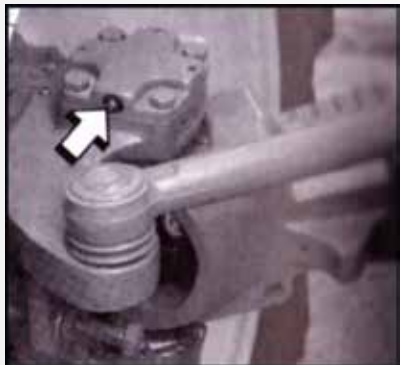
Front Spindles on both sides
MF 375/385



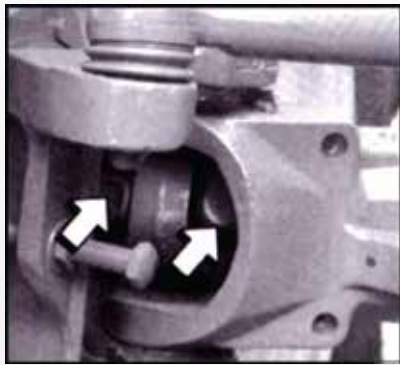
Front axle Pivot Pin
MF 240/350/260



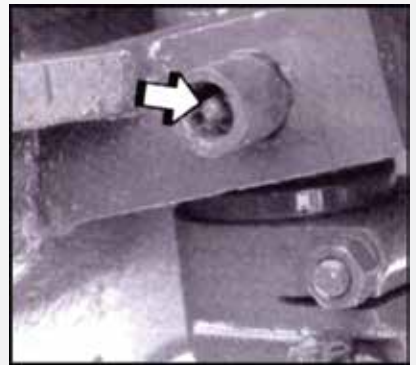
Brake Pedal Bush MF 240/260



Front axle MF 385 4WD



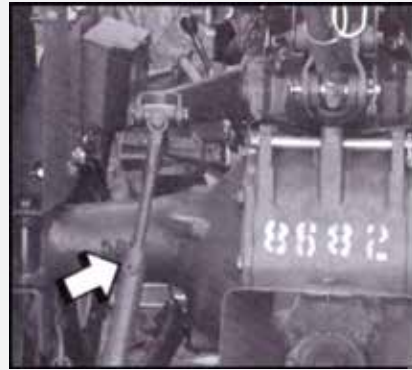
Front axle MF 385 4WD



Steering Pivot pin MF 375/385

Chapter 2

Grease Points on the Tractor



Left Linkage point MF 240/350/260/375/385

Chapter 3

How to Start the Tractor

How to Start the (Massey Ferguson) Tractor ?

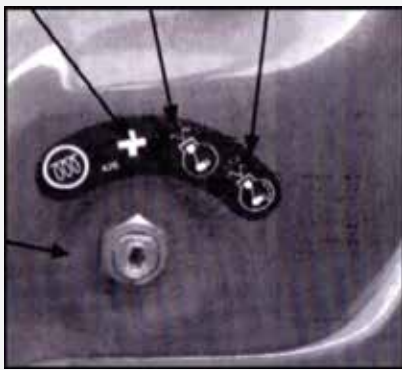
- 1- Press the engine shutting off lever (choke) as far as possible .
- 2- Keep both levers in neutral position .
- 3- Insert key in the ignition at position number 1 .
- 4- Turn the key clockwise to the position number 2, which will turn ON the entire electrical system and all the gauges and meters will start functioning .
- 5- Turning the key to the position number 3 will start the engine. Release the key as soon as the engine starts .
- 6- Before HEAT starting the tractor, turn the key counter-clockwise; then after 15 to 20 seconds turn the key clockwise to the start position .
- 7- NEVER start the tractor with any other key or engine dipstick .

Chapter 4

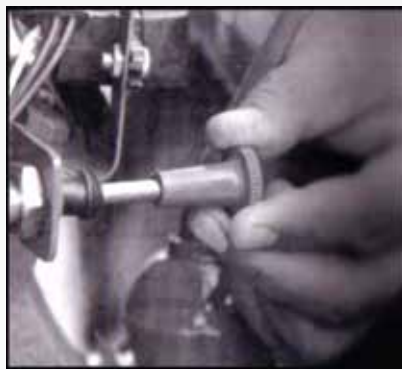
How to Shut Off the Tractor

How to Shut-Off the (Massey Ferguson) Tractor ?

- 1- Press the clutch and put all gears into neutral position
- 2- Pull out the engine shut-off lever (choke) to its maximum limit, engine will shut off
- 3- Bring the key back to position number 1, which will cause all meters and gauges to stop functioning. Then remove the key from ignition



Key Ignition



Choke MF 240/350/260



Choke MF 375/385/385 4WD

Very Important (FOR TURBO ENGINE) :

- 1- After starting, keep the engine running for 2 to 3 minutes at low idle speed.
- 2- Before shutting off, keep the engine running for 2 to 3 minutes at low idle speed.
- 3- Never press the accelerator immediately after starting or before shutting off the engine.

Chapter 5

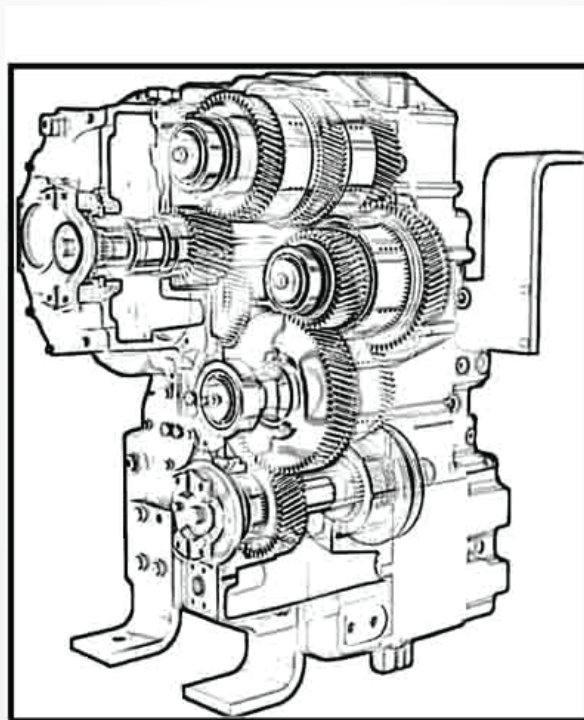
Important Instructions about the Engine

Important instruction about the (Massey Ferguson) tractor engine :

Optimum performance of the engine depends on its proper use and good maintenance. Proper selection of engine speed and gears is essential for proper use.

Proper selection of engine speed and gear can reduce the diesel expense up to 15%. Since the engine continues to consume diesel when running without being used, do not keep the engine running idly for longer periods of time. It is better to shut off the engine and restart when needed again.

It has been commonly observed that 75% of the tractors malfunction or breakdown prematurely due to carelessness in maintenance.



Tractor engine diagram

Chapter 6

Changing the Engine Oil

Changing the Engine Oil Of Massey Ferguson Tractors :

The most important task in maintenance of the tractor is changing the engine oil on time.

Change the oil according to the prescribed schedule in the maintenance booklet.

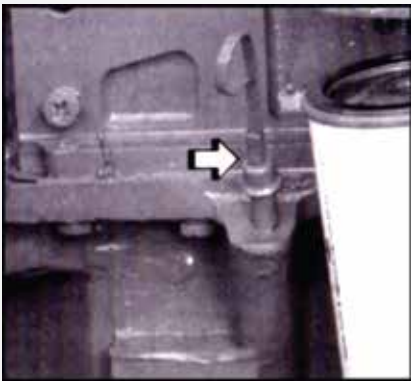
Check the engine oil level daily before starting work.

There are two marks on the dipstick; MIN is written on one and MAX at the other.

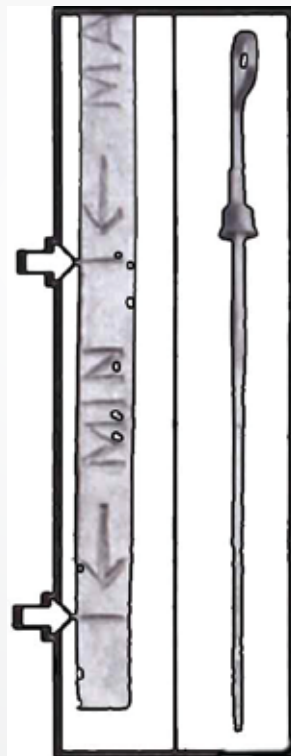
The engine oil level should never be less than MIN or higher than MAX.

The tractor must be parked on a level plane when checking the oil level.

When changing the oil follow the instructions given in the booklet for changing the oil; change the oil filter as well.



Location of checking the engine oil
M-F240/350



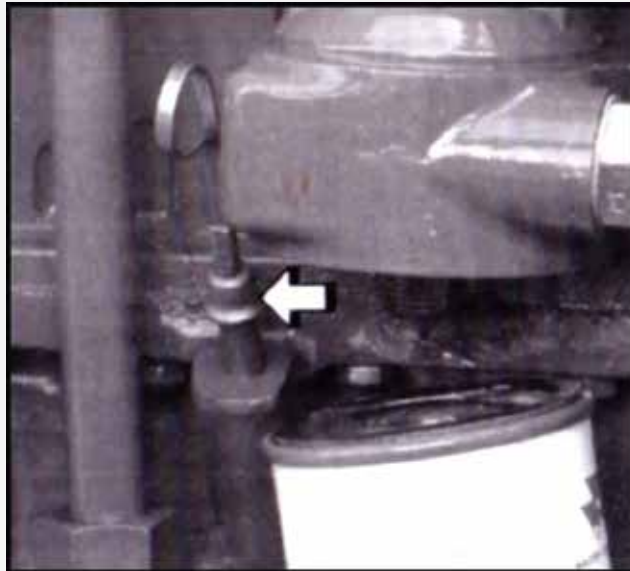
MF-240/350/260 (MIN, MAX)



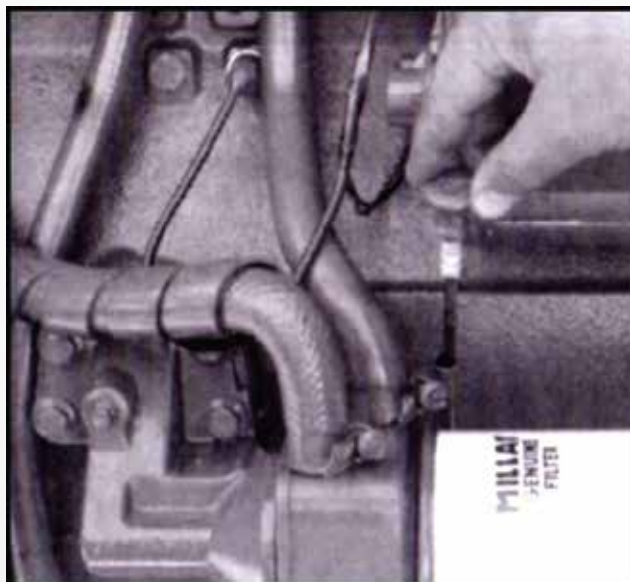
MF-375/385 (MIN, MAX)

Chapter 6

Changing the Engine Oil



Location of checking the engine oil MF-260



Location of checking the engine oil MF-385/385

Chapter 7

Engine Temperature

Engine Temperature of Massey Ferguson Tractors :

The designated temperature of diesel engine is 80 to 85°C. To maintain this temperature, there is a valve called 'thermostat' in the engine. Never detach it from the tractor under any circumstance.

Engine parts have been manufactured to operate at a specific temperature, and the engine may be harmed if the temperature falls under or rises above this temperature. Commonly the inexperienced or ill trained mechanics remove this valve from the engine, which cause the engine to operate at cold temperature.

Engine operation at low temperature causes faster wear out of the piston rings and liners, and soon the engine becomes useless.

Experiments have demonstrated that operating the engine at 40°C instead of 80°C wears out the piston rings twice as fast. Meaning, the service repairs commonly need after four years becomes necessary after just two years.

Moreover, the cold engine operation increases the diesel consumption by 5%.



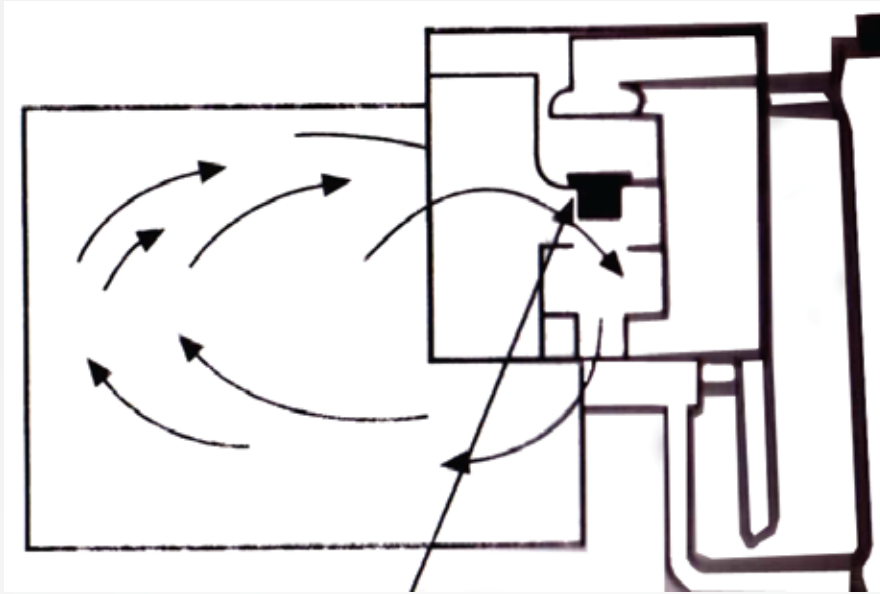
Thermostat valve MF-240/350/260



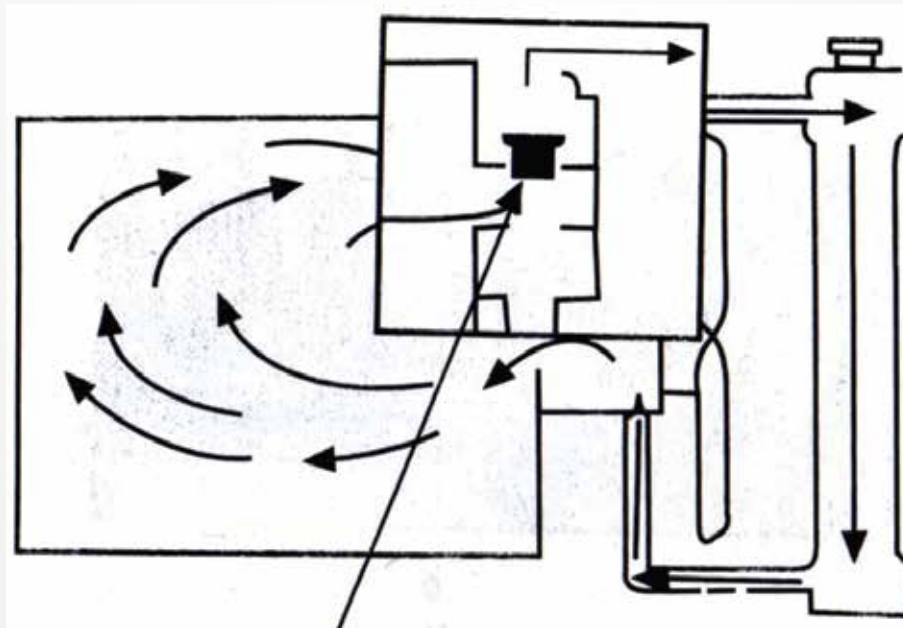
Thermostat valve MF-375/385/385-4WD

Chapter 7

Engine Temperature



The valve is close due to engine being cold



Valve is open when the engine is warm at the prescribed temperature

Chapter 8

Running-in and Driving the Tractor

Method of Running-in the Tractor :

- Do not drive the tractor to farm or home immediately after taking delivery. Have it carried on a truck instead.
- Operate tractor at 75% load from the beginning. Prior to this, drive the tractor in 3rd gear and at full depth in an already ploughed field
- If a trolley is to be pulled then 75%, then the trolley could be filled with weight up to 75% of its capacity. After using the tractor for the first 30 hours, have the nearest dealer or authorized workshop service the tractor for the first time.

- **Very Important :**

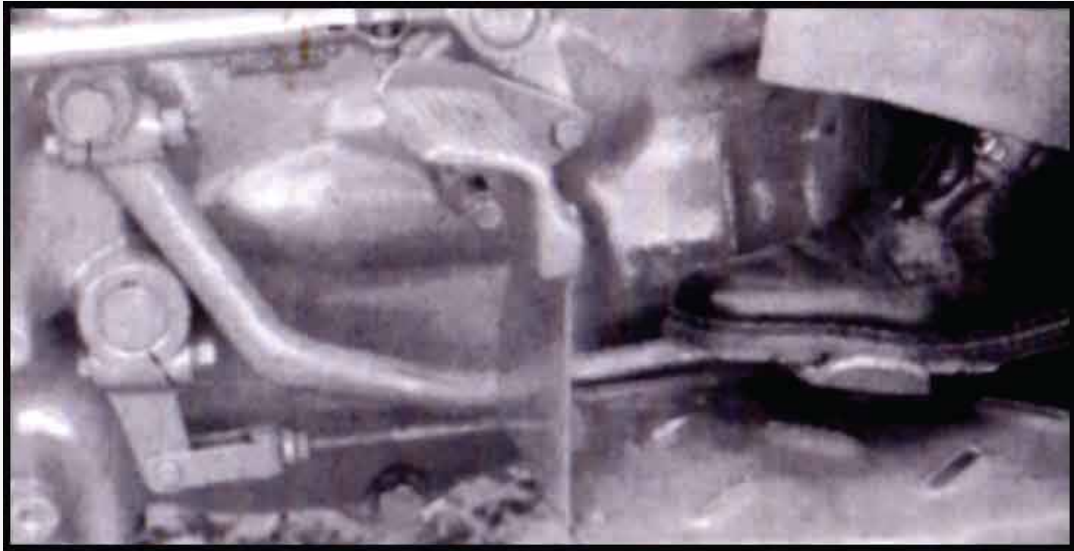
Under no circumstance operate the tractor empty (without load), nor keep the engine running idle for long periods of time.

How to Operate the Tractor ?

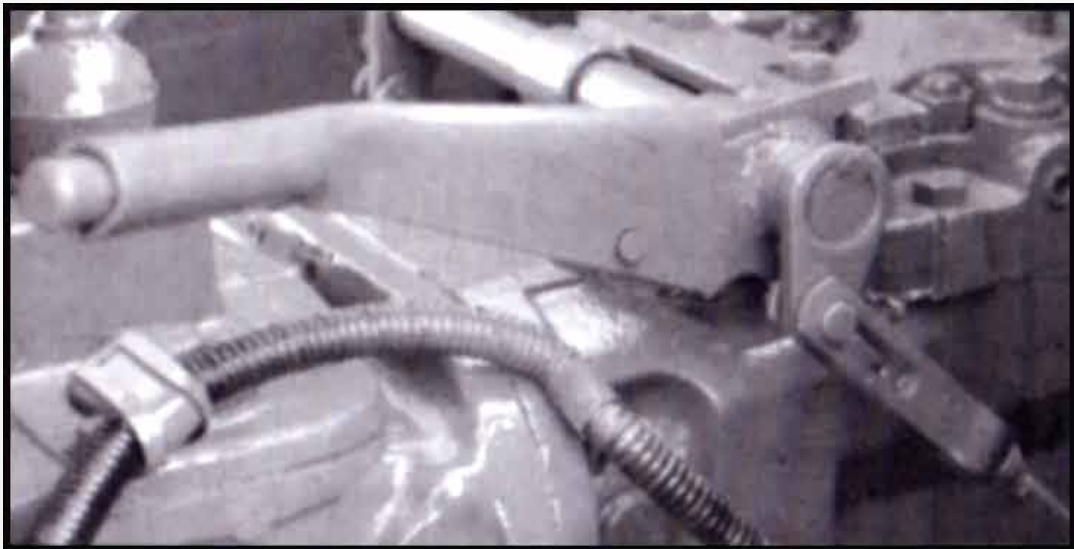
- 1- Press the clutch pedal completely with your foot, shift the tractor in first gear, and select the smaller levers (Low or High) as needed.
- 2- Release hand brake.
- 3- Now increase the engine revolution slowly with the help of foot throttle and simultaneous release the clutch slowly until fully released and your foot is off it.

Chapter 8

Running-in and Driving the Tractor



Clutch Pedal
MF-240/260



CHand Brake
MF-240/350/260

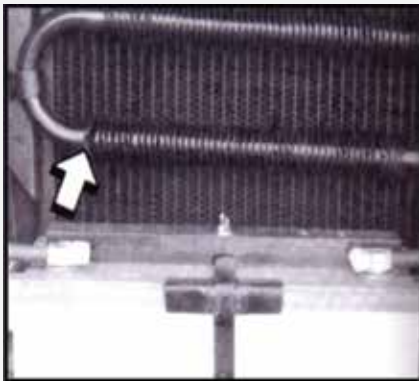
Chapter 9

Maintenance of Radiator and Oil Cooler

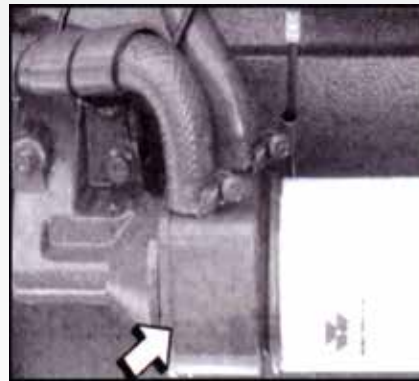
Maintenance of Radiator and Oil Cooler in Massey Ferguson Tractors :

Just like the radiator, to cool the oil with air, there is an oil cooler installed in the MF260.

In the MF375S/385/385 4WD, oil is cooled with an oil cooler that uses water instead of air.



Oil Cooler MF-260



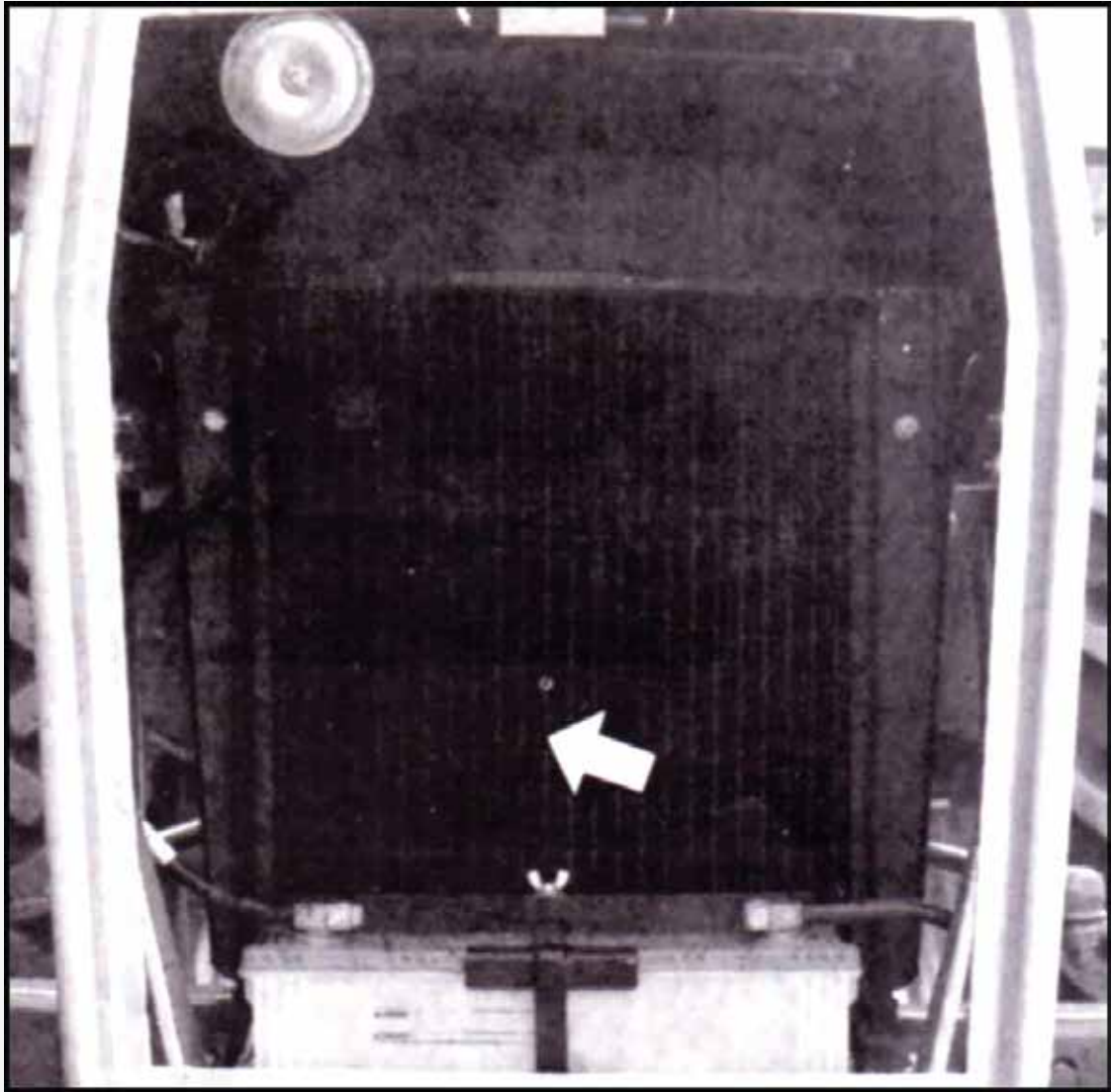
Oil Cooler MF-385/385 4WD

The radiator and oil cooler grills in the MF260 should be checked frequently. If foreign object / debris is found stuck on them; clean with compressed air or water with less than 100 Psi pressure.

When cleaning the grills, make sure the side panels are removed so the dust and debris stuck on them could find a way out. Always use the air / water pressure from behind the grills, so the garbage could be pushed out from the front. Never use diesel to clean the grills. Simple soapy water is enough for cleansing.

Chapter 9

Maintenance of Radiator and Oil Cooler



Radiator Grill MF-240

Chapter 10

Checking the Radiator Water Level

Checking Water Level of the Radiator in Tractor :

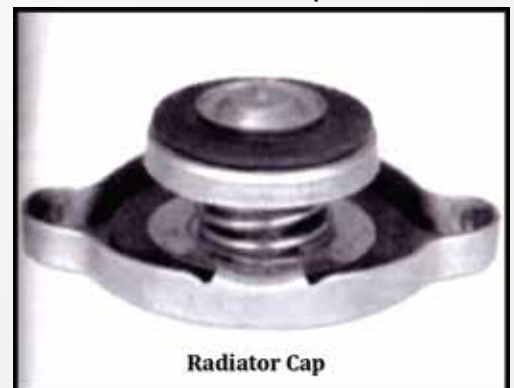
- Before checking the water level in the radiator, it is very important to have the tractor engine turned off; because removing the radiator pressure cap quickly when the engine is hot, the gushing boiling water may harm you.
- Remove the radiator cap with the bonnet flap raised up. If the water level is low, then fill up with normal drinking water.
- If water change is needed, remove the drain plug located at the bottom right side of the radiator.

Importance of the Radiator Cap :

The radiator is a very important part of the temperature maintenance system. There are two valve-springs in the cap. One of the valves lets out the steam from the heated water and the other allows external air in, so vacuum is not created during the cooling process after engine is turned off. Commonly due to lack of knowledge about importance of the radiator cap, when the tractor's original one is lost or broken, the owners replace it with any common cap that fits. This is harmful for the engine.

Very Important (Instructions for the Cold Climates)

If you use the tractor in a cold climate, then is very important to use the anti-freeze is used according to the instructions, or drain the water from the radiator at night and refill with fresh water in the morning before operating the tractor.

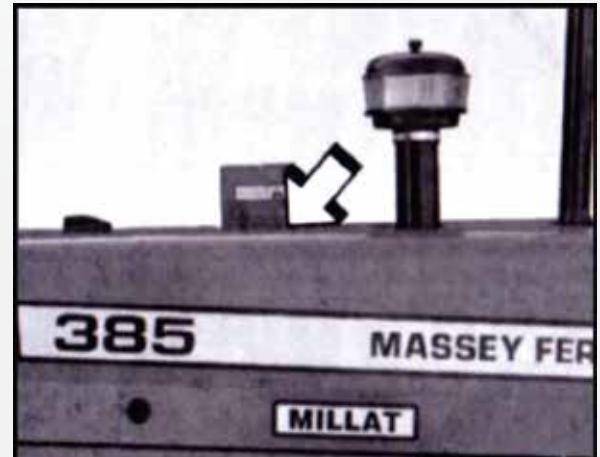
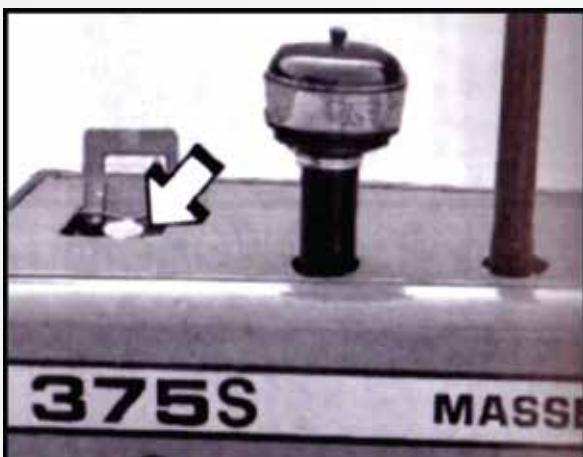
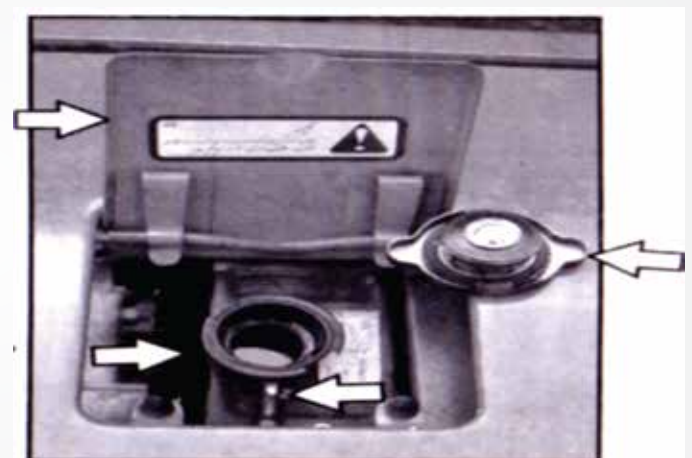
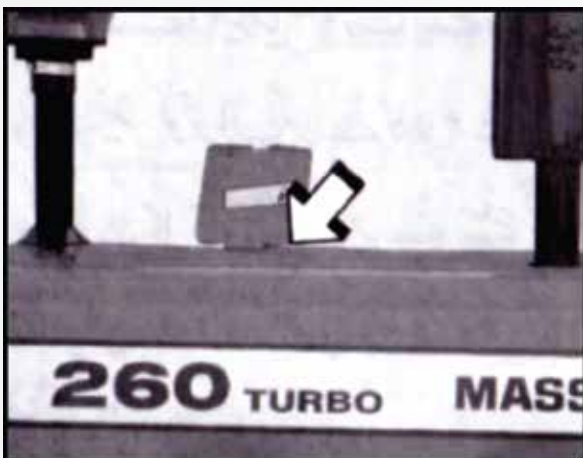
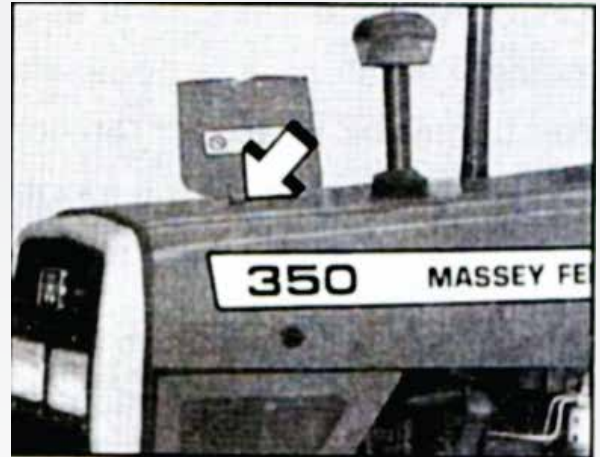


Radiator Cap

Chapter 10

Checking the Radiator Water Level

Water Filling Locations :



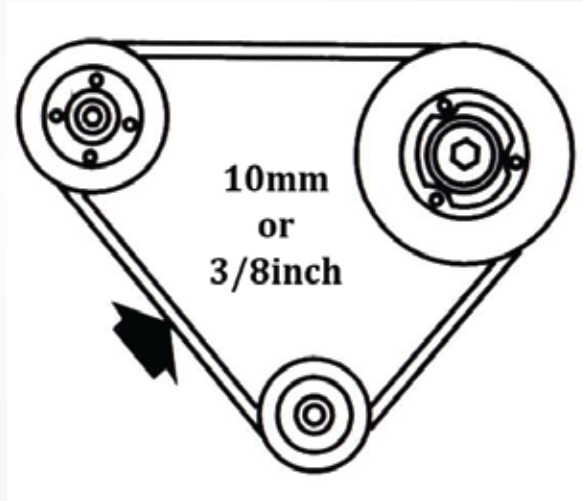
Chapter 11

Checking the Fan-belt Tension

Checking the Fan-Belt Tension of MF Tractor :

Fan-belt being loose or overly tightened may become a reason to overheat the engine and damage the alternator. Therefore, it is necessary to have the fan-belt tightened to proper tension. To check the tension, pressing the longer portion of the belt (between the alternator and crankshaft pulley as shown in the picture) with a force of approximately 10 pounds should loosen the belt 10mm or $\frac{3}{8}$ of an inch.

In case of improper tension in the belt, loosen the alternator and adjusting link nuts, and by pressing the alternator with the help of a lever, tighten the bolts after adjusting the belt's tension. Check the tension again after tightening the bolts.



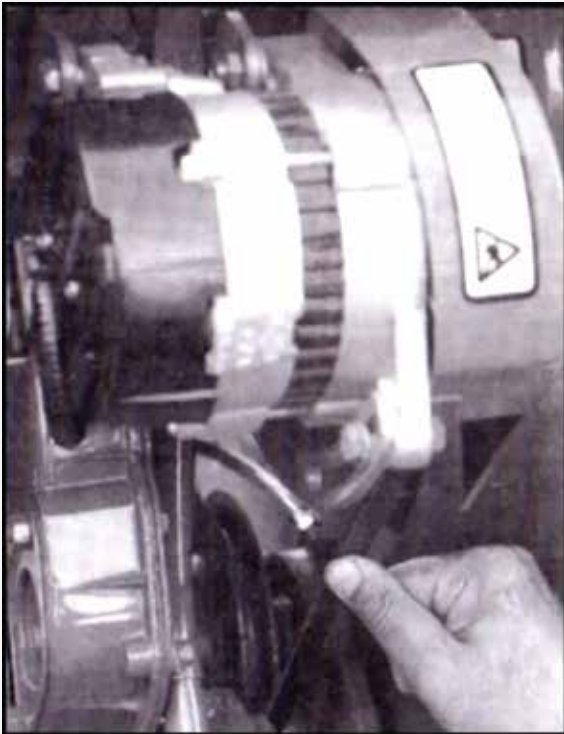
Very Important :

Always use belts of correct size.

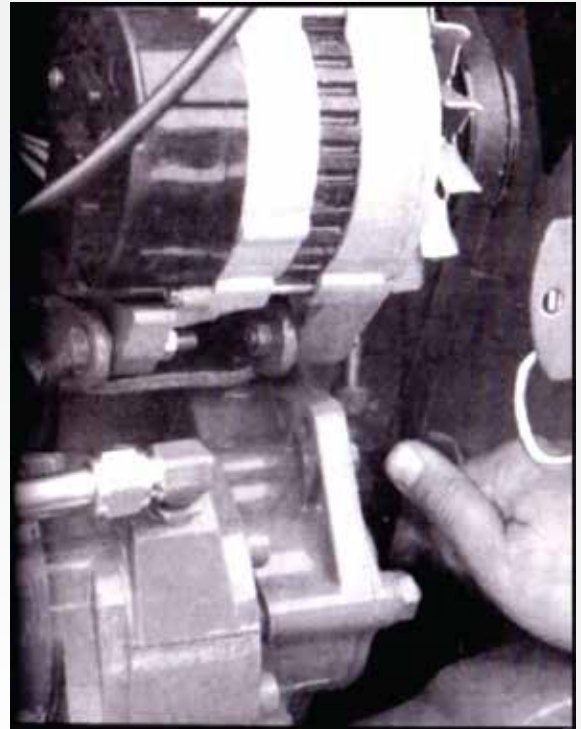
Do not use any kind of oil or grease to mount the belt.

Chapter 11

Checking the Fan-belt Tension



Fan belt MF-240/350/260



Fan belt MF-375/385/385 4WD

Chapter 12

Importance of Air-cleaner and Maintenance

Importance of Air Cleaner and its Maintenance :

Air cleaner that appears unimportant plays an important role in reducing or increasing the engine life. If it is not cleaned in timely, dust particles enter the engine and mix with oil and grease to work as sandpaper to wear out the engine components. A clogged air filter becomes a barrier for air, which reduces the engine strength and increases the diesel expense by 10%. In order to conserve diesel and optimum performance of the engine, it is very important that the air cleaner is cleaned on a regular basis. There are two parts of the air cleaner :

1. Pre-Air Cleaner

The air cleaner is covered by a bowl, which is called the Pre-Air Cleaner. It catches the dust, dry grass, hay, etc and collects in the clear plastic bowl. The pre-air cleaner must be removed and cleaned everyday.



MF-240/350/260 - Pre Air Cleaner



MF-375/385/385-4WD

Very Important

Never pour oil in the pre-air cleaner bowl under any circumstances.

Chapter 12

Importance of Air-cleaner and Maintenance

2. Air-Cleaner Assembly

- Air-Cleaner body (which contains a permanent filter)
- Filter Element
- Oil Bath

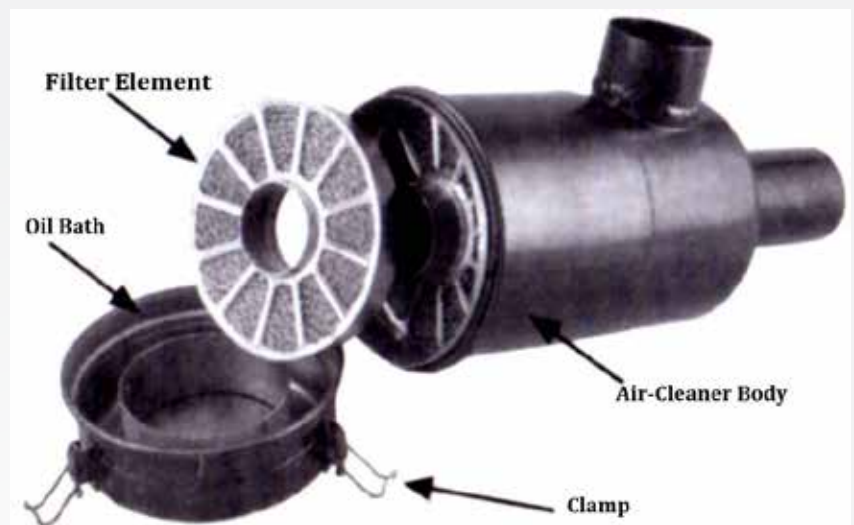
Oil is filled in the oil bath up to the specified mark. Filter element is placed over it, and then oil bath is fitted with the air-cleaner.

When the air coming through the pre-air cleaner makes contact with

the oil in the oil bath, the oil passes through the filter element up to the permanent filter in the air-cleaner body, due to which the filter becomes covered with oil. The dust particles in the air flowing through stick to the oily filter, and the cleansed air enters the engine cylinder. Gradually, the oil becomes dirty due to this process.

Daily before use, remove the oil bath to check the oil level and its condition.

If the oil is below the required level, then fill the bath with more oil. If the oil is thick with dust, then empty the oil, remove oil bath, air cleaner body, and filter element to clean thoroughly with kerosene. After cleaning refill the oil bath up to the mark and attach to the air-cleaner.

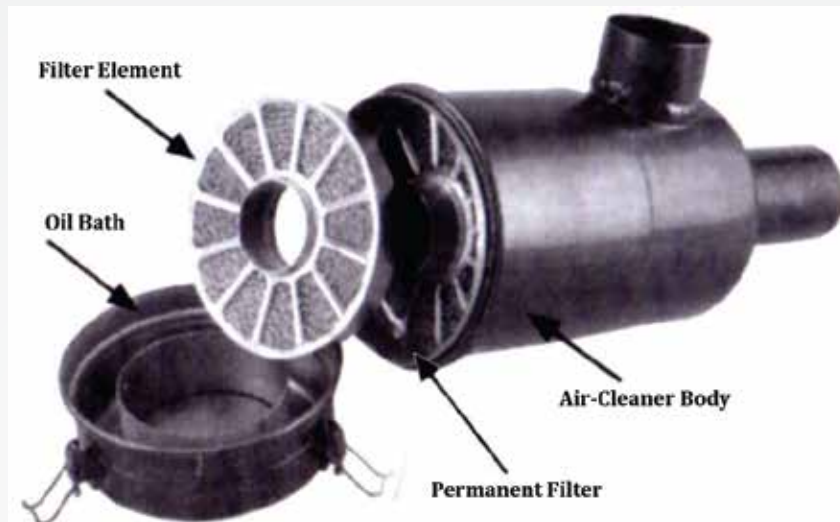


Chapter 12

Importance of Air-cleaner and Maintenance

Very Important

- Daily check oil in the oil bath daily.
- Always use the engine oil in the air-cleaner.
- Always after 100 hours, clean the oil bath, air-cleaner body, and filter element with kerosene. It improves the engine performance.



Oil Lever (oil bath)

Chapter 13

How to Change the Diesel Filter

How to Change the Diesel Filter in Tractor ?

Diesel filters are placed on the left side of the tractors. The glass cup filter is called the 'primary filter' and the other one is called the 'secondary filter'. Check the primary filter daily, if you find water or dust in the diesel then manually open the drain tap under the glass cup to drain the dirty diesel. Stop cock of the diesel tap must be open during while draining the diesel. Daily cleaning of the diesel this way protects important and expensive parts like fuel injection pump and atomizers.

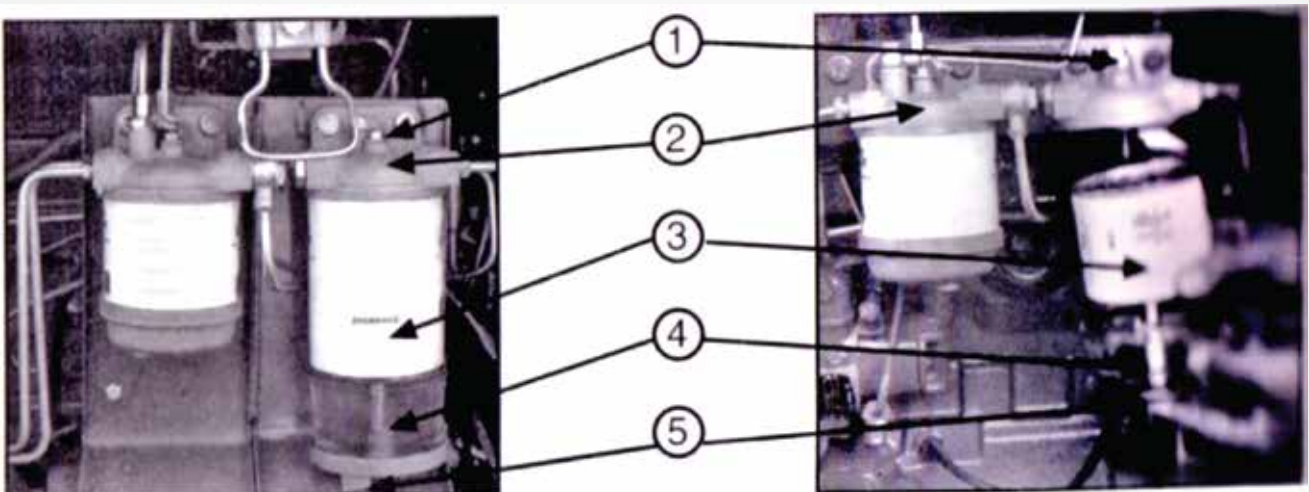
Before installing the diesel filter, first and foremost it is important to close the diesel tank's stop-cock.

Remove the small bolt on top of the filter body with the key provided, and separate the filter. Replace the small rubber ring with a new ring. Similarly after replacing the two bigger rings place the new diesel filter and tighten the bolt.

Open the diesel tank's stop cock, manual restore the diesel supply in the fuel line by pumping the priming lever of the fuel lift pump.

Very Important

Change the diesel filters regularly on timely basis and use only genuine filters. Never use polluted oil.



1) Center bolt 2) Filter head 3) Filter 4) Glass cup 5) Drain tap

Chapter 14

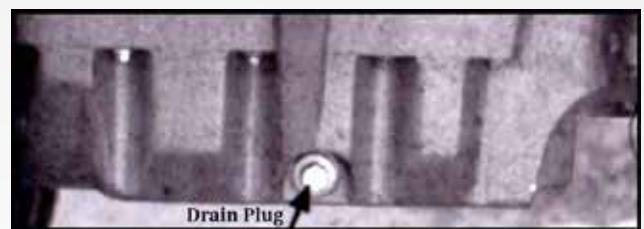
How to Change Engine Oil and Filter

Method and Sequence of Changing the Engine Oil and Filter in Tractor:

- 1- Before changing the engine oil, it is important for the tractor to be properly warmed so oil is thinned and carries out the iron and carbon particles along with it.
- 2- Park the tractor on a level surface and turn off the engine.
- 3- Remove the drain plug located under the engine sump and drain the oil completely.



MF-240/350/260

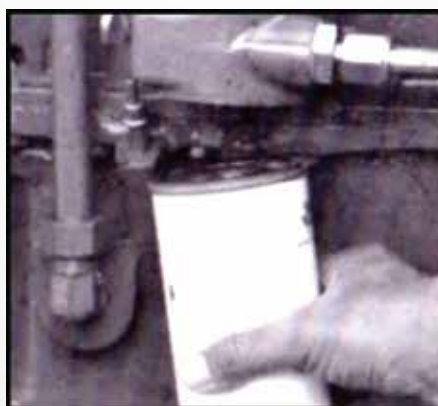


MF-375/385

- 4- Remove oil filter with Filter Remover.
- 5- Clean the filter body thoroughly with a cloth, remove the old rubber ring and replace with a new ring.
- 6- After filling the new filter with oil, tighten with the filter body.



Oil Filter MF-240/350



Oil Filter MF-260



Oil Filter MF-375/385/3854WD

- 7- Slowly fill fresh oil through the oil-inlet until it starts to come out of the oil drain plug hole. Immediately re-plug the drain tightly.

Chapter 14

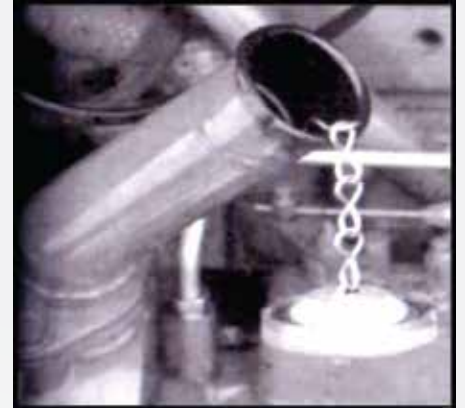
How to Change Engine Oil and Filter



Oil Filter MF-240/350



Oil Filter MF-260

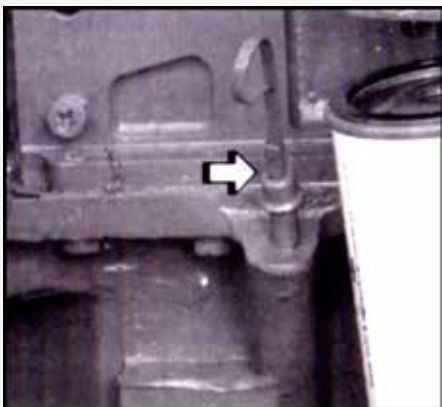


Oil Filter MF-375/385/385 4WD

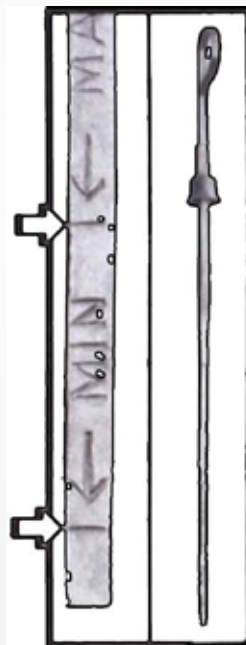
8- Now pour more oil until it reaches the “Max” level marked on the dipstick.

9- The oil level must be somewhere between the “Min” and “Max” marks on the dipstick.

However, it must never be below the “Min” mark or above the “Max” mark.



Location of checking the engine oil
MF-240/350



MF-240/350/260 (MIN, MAX)



MF-375/385 (MIN, MAX)

10- Always use the oil in the engine accordingly.

11- The MF-240/350/260 engines hold 6.8 liters of oil, whereas MF-375/385/385 4WD hold 7.5 liters.

Chapter 15

Air-lock and How to Remove it

Air Lock and how to Remove it from the fuel system of tractor ?

If air somehow enters fuel system of the tractor, it stops the fuel-supply and in turn stops the engine. This is called 'engine is air-locked'. It is important to remove this air from the fuel system before restarting the tractor.

1. Reason for Air-Lock

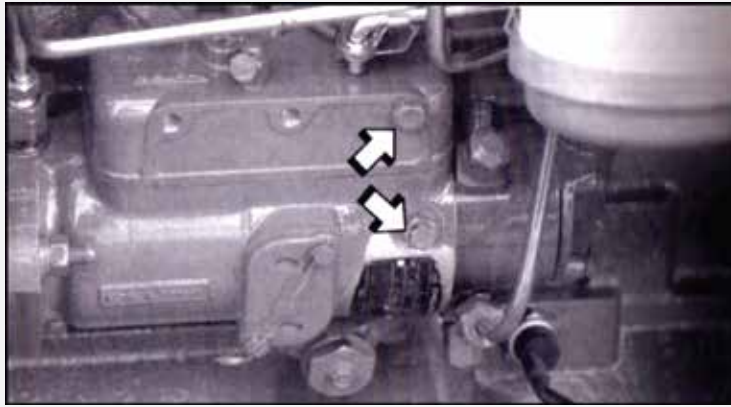
- Empty diesel tank.
- Closed diesel stop-cock.
- Choked / closed fuel filters.
- Loose fuel pipes, nuts and bolts.

2. How to Remove the Air-Lock

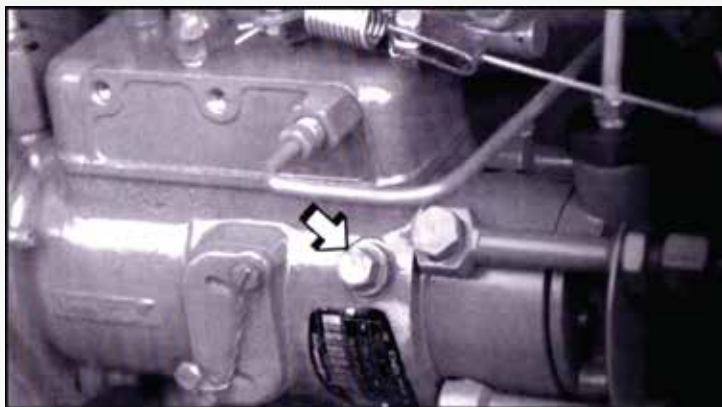
- Tighten all pipes and nuts of the fuel system.
- First open the upper Vent Plug of the primary fuel filter and pump the fuel lift pump of the priming lever, so that airless diesel starts to flow. Close the Vent Plug.
- Now loosen the two screws on the fuel injection pump and keep moving the priming lever until diesel without air bubble begins to flow out. First tighten the lower screw and then the upper one.
- First loosen high pressure pump of the cylinder's the automizer.
- Start the tractor with the key and tighten the high pressure pipe as the engine sound becomes clearer/ stable.

Chapter 15

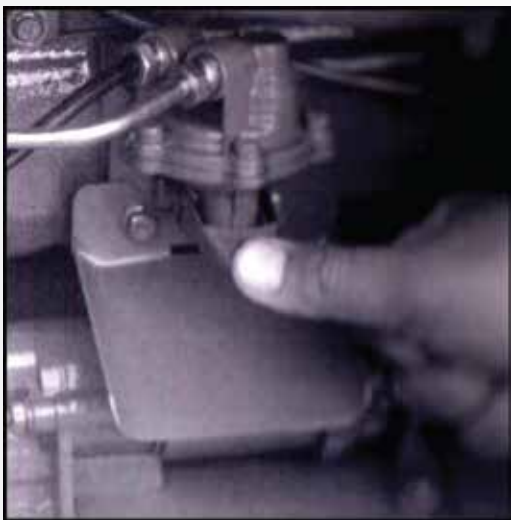
Air-lock and How to Remove it



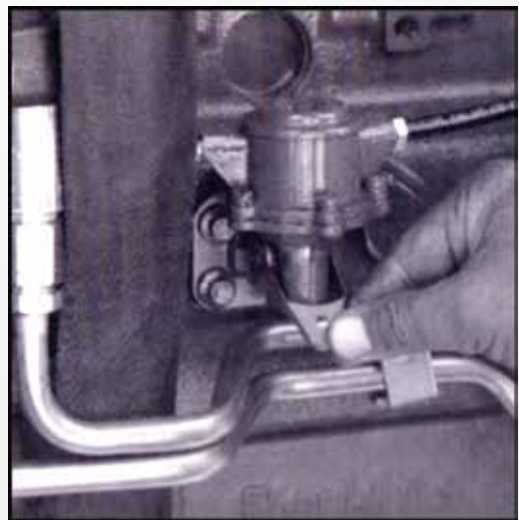
BLEEDING SCREWS MF-240/260/350



BLEEDING SCREWS MF-375S/385/385 4WD



HAND PRIMING PUMP LEVER MF-240/260



HAND PRIMING PUMP LEVER MF-375/385

Chapter 16

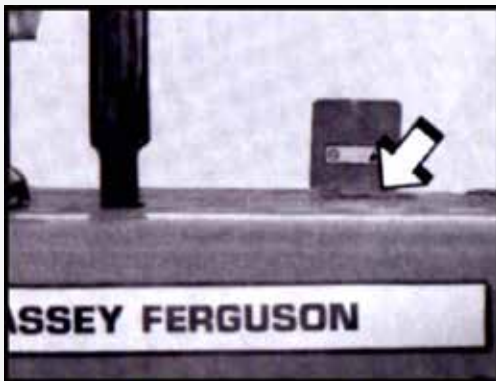
How to Fill the Diesel Tank

How to Fill the Diesel Tank of Massey Ferguson Tractor ?

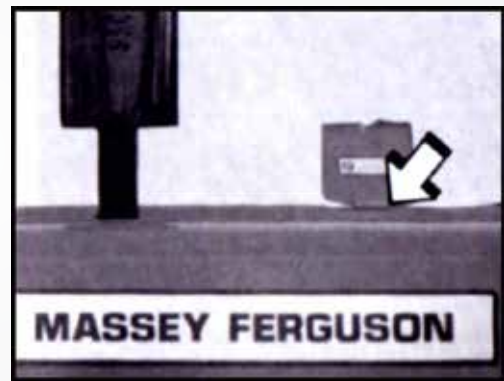
Always use uncontaminated diesel; i.e. that does not contain sand, water, kerosene, and other unnecessary elements, because these ruin the costly and delicate parts of the fuel injection pump and automizer which deteriorate engine performance.

To protect the parts described and described above, it is important that you refill the diesel tank after completion of work. Refilling the tank will decrease air in it. The less air in the tank will create fewer water vapors, and the parts will be safe from harm. Never mix oil in the diesel.

Diesel Inlets :



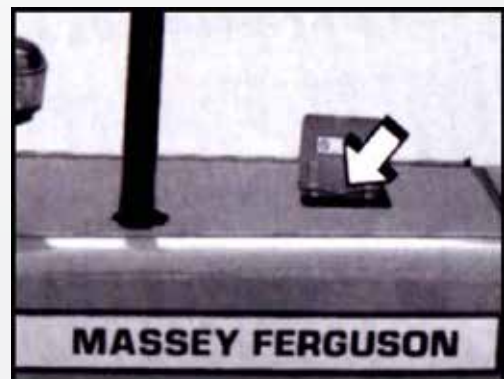
Massey Ferguson-260



Massey Ferguson-240/350



Massey Ferguson-375/385



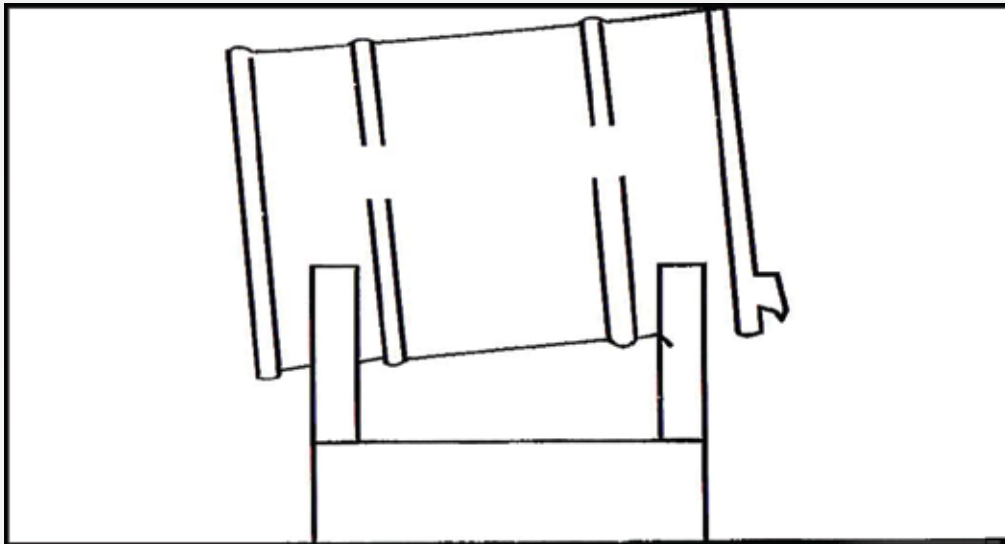
Massey Ferguson-375/385 4WD

Chapter 17

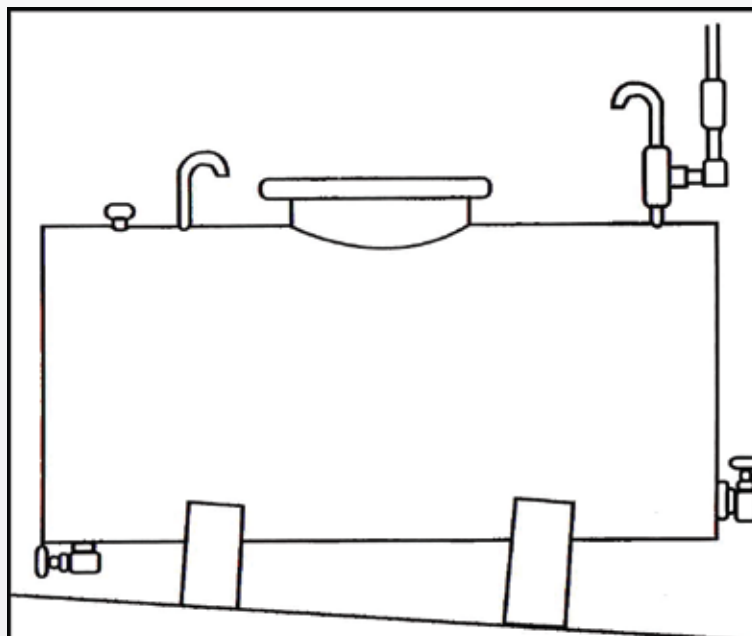
How to Store Diesel

Storing the Diesel :

If diesel is to be stored in drums, then tilt the diesel filled drums as shown in the picture below. Front end of the drum must be 3 to 4 inches higher than its rear end, so that all unwanted deposits like sand, rust, dust settle at the back end, and clean diesel comes out from the front.



Storing the diesel on smaller scale



Storing the diesel on a larger scale

Chapter 18

Checking/Changing Transmission and Hydraulic Oil

Checking and Changing the Transmission and Hydraulic Oil for tractor :

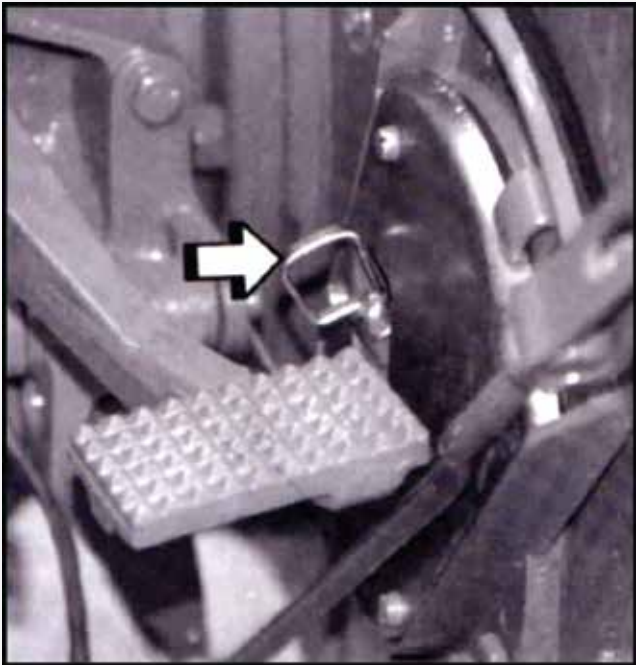
- To check the transmission oil, it is important to park the tractor on a level surface and turn off the engine.
- Remove and clean the small gauge (dipstick) under the driver seat with a cloth.
- Reinsert and remove the gauge and hold it tilted to check the oil level. In case of low level, replenish the oil.
- If you plan to use the tractor only to plough or pull trolleys, then maintain the oil level anywhere in the zone marked on the gauge as XX, as shown in the picture labeled 'B'. If you wish to use the oil in the gearbox to operate any external instruments, for example front blade and tipping trolley etc, then in that case the oil mark should be at the 'Max' level 'C'; as shown in the figure.

Very Important

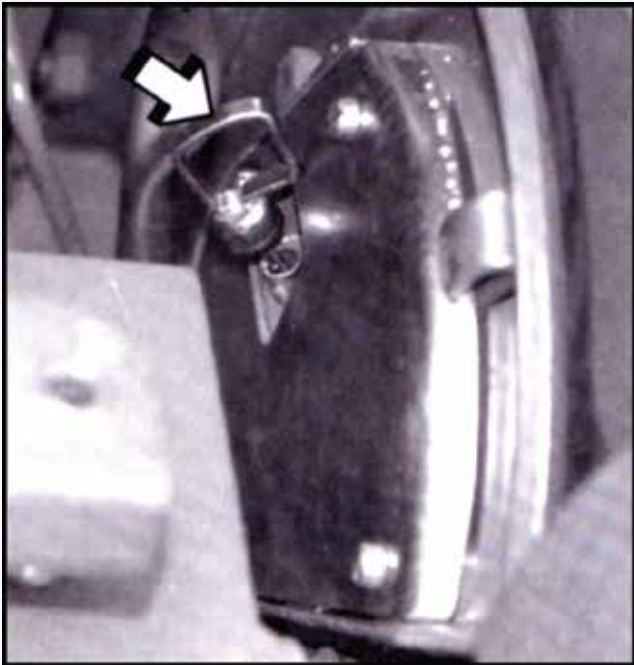
- You must have the transmission oil changed after hours from a reputable workshop.
- Not changing the oil allows the iron dust, mixed with the oil, to ruin the gearbox and the hydraulic system parts.
- After the first 600 hours, have the transmission oil changed by a recognized workshop.
- Changing the hydraulic oil after completing every 600 hours, and clean the hydraulic pump filter with diesel.
- MF240/350 has a capacity of 33 liters for the transmission/hydraulic oil, whereas MF260/375/385 can hold 36 liters, and MF385 4WD reservoir can hold 42 liters.
- For external hydraulic components in the MF240/350, the oil capacity is 36 liters, whereas 39 liters in MF260/375/385, and 45 liters in MF385 4WD.

Chapter 18

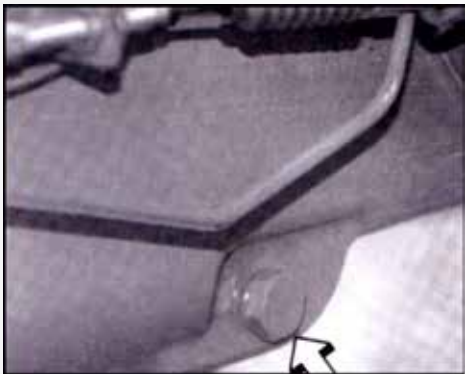
Checking/Changing Transmission and Hydraulic Oil



MF-240/260/375 Provision for changing Transmission / Hydraulic oil



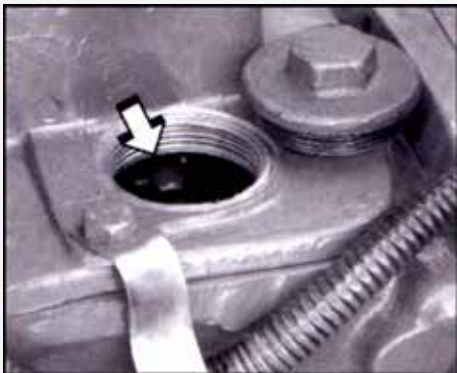
MF-385S/385 4WD Provision for changing Transmission / Hydraulic oil



Drain Plug



Drain Plug



Opening for filling the Oil MF-240/260/375S



Opening for filling the Oil MF-385/385 4WD

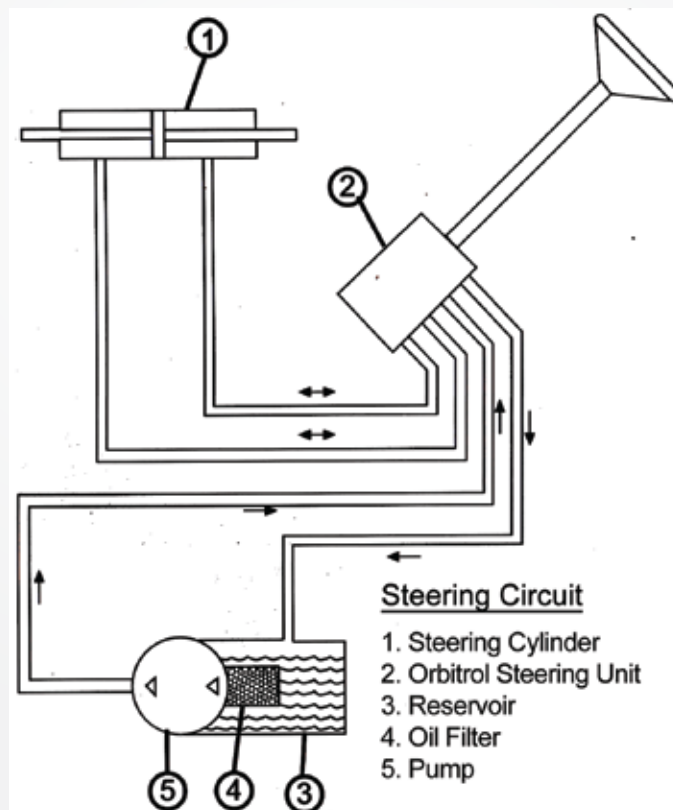
Chapter 19

Hydrostatic Power Steering System

Hydro-Static Power Steering System :

This system is installed in the MF385/385 4WD tractors, which allows the driver/operator to control the steering system with ease. Hydro-static power steering system is a complete power steering system in which there is no mechanical connection between the steering wheel and the front wheels, which allows the steering wheel to be turned with only one or two fingers. This tractor is especially suitable for working with front-end loaders.

In this oil system is supplied to the steering control unit through steering pump, due to which controlled quantity of oil reaches the right and left sides by the steering cylinder when the steering wheel is turned; and when the steering wheel is straight, the steering unit bypasses the oil supply.



NOTE:

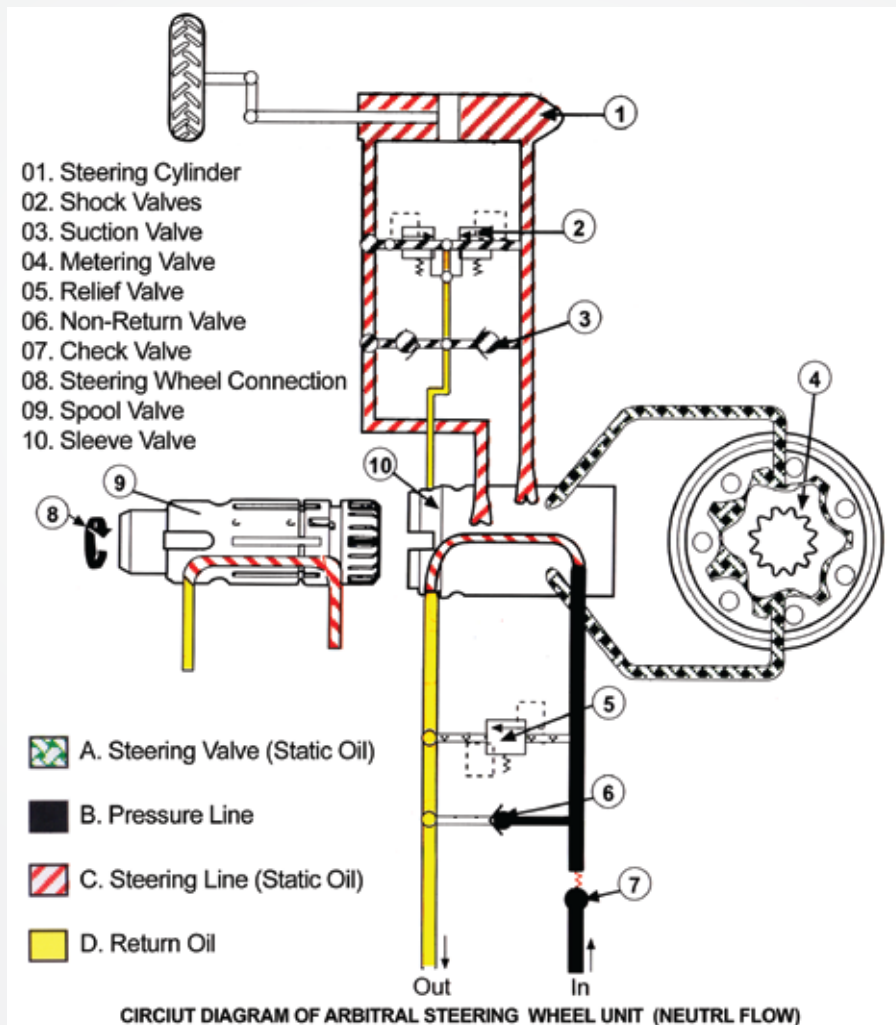
Always use the reputable and reliable oil in MF350/260/375/385/385 4WD Tractors

Chapter 19

Hydrostatic Power Steering System

A. Neutral Oil Flow When Tractor is Moving Straight :

This is the neutral position of the steering unit. In this position the oil flows from the hydraulic pump to the steering unit, and because of the oil spool and sleeve hole being in straight position the oil returns to the steering pump. In this system two shock valves and two suction valves are fitted on the right and left sides of the steering unit. Shock valves are used between the steering rim cylinder and steering ring control unit to protect this system, whereas the suction valves are used to compensate any shortage of oil in the system.



Chapter 19

Hydrostatic Power Steering System

B. Turning of the Steering when the Engine is Running :

On first movement of the steering wheel the right and left turning holes become straight with each other, so that oil can be supplied to the oil hand pump. Subsequently, the second movement turns the steering and the hand pump. Simultaneously, the hand pump measures the quantity of oil and pushes it back towards the spool and sleeve. The oil coming back enters the spool valve through the grooves, which connect the holes together straightly so that the oil could go to the direction in which the steering wheel was turned. With the spool valve and sleeve holes being face to face with each other, the oil coming back from the steering cylinder returns to the circuit. The relief valve between the inlet and the spool inside the steering unit, which protects against the high-pressure created inside the pump, for example, due to an obstruction while the front wheels are turning. From the steering pump to the steering unit, there is a check valve installed on the way. This is a one-way valve that prevents high-pressure while the steering is being turned.

C. Turning the Steering when the Engine is OFF :

The pump stops working when the engine is turned off, due to which the oil starts to pass through a bypass valve installed inside the steering unit between the supply and return holes. As the pump starts to function, the oil pressure shuts off the valve by pushing it onto its seat.

When the pump cylinder is low, the oil returning from the steering cylinder towards the valve inlet side is bypassed. With the help of this function, the oil can move from one side to the other inside the steering cylinder to maintain uninterrupted steering control.

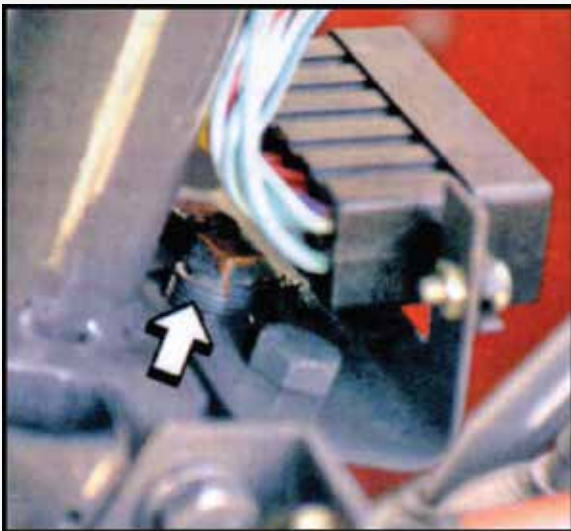
Chapter 20

Checking/Changing Steering Oil

Checking and Changing the Steering Oil and Filter :

MF-350/260

Mechanical steering has been installed in this tractor, in which to check oil in the steering box, remove the plug located on the steering box. Make sure the oil is completely filled with oil. Replenish if the oil level is low and tighten the plug back on.



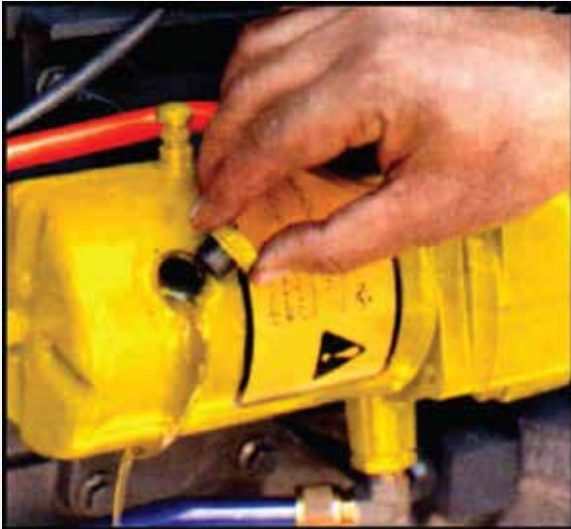
Place to check / refill oil in the steering assembly

MF-385/375/385 4WD

Power steering has been installed in this tractor. To check the oil in this unit, remove the oil reservoir plug located next to the steering pump at front of the engine. If the oil trickles slowly out of the hole, place the plug back in and tighten. Replenish if the oil level is low.

Chapter 20

Checking/Changing Steering Oil



Place to check / refill oil in the steering pump MF 375/385/385 4WD

How to Remove Power Steering Oil :

Remove the bolts located behind the steering box, remove the filter etc and drain the oil.

How to Replenish Oil :

Remove the plug on the reservoir. Start the engine. Straighten the front wheels and then turn the steering clockwise one complete circle. Turn off the engine and replenish oil.

Oil Capacity :

The steering pump reservoir in MF385/385 4WD can hold up to 2 liters of oil. Change the power steering oil with the filter after every 250 hours.



How to change power steering filter MF-385/385 4WD

Chapter 21

Battery Maintenance

Battery Care of Massey Ferguson Tractor :

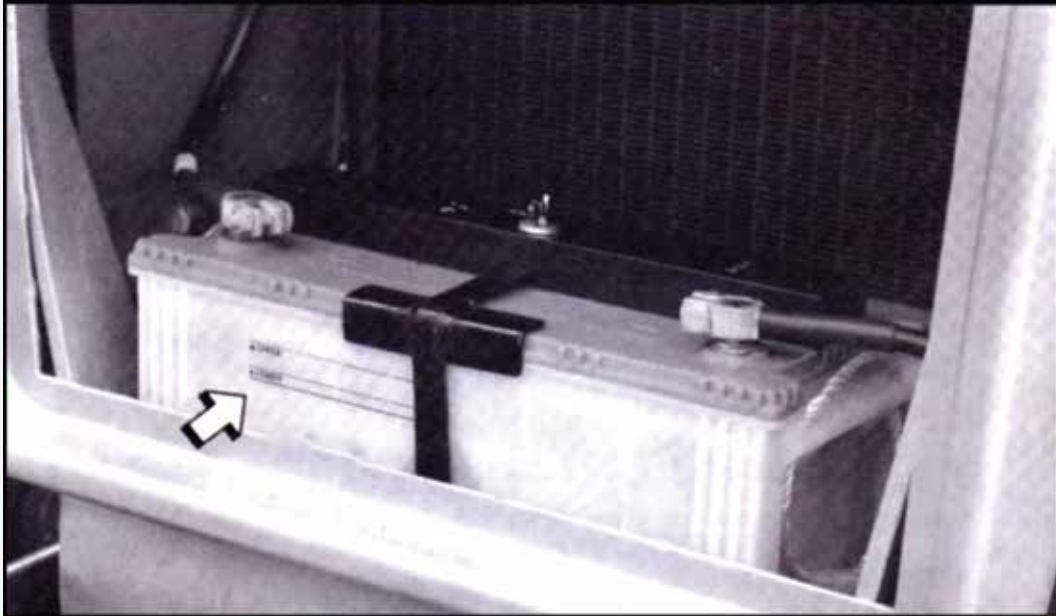
Maximum benefit can be obtained from the battery by following the instructions described below.

- The tractor battery should never be used without the 'bracket'; otherwise the battery could be damaged. Secure the battery clips tightly.
- If there is white or blue substance on the battery terminals, wash the terminals with warm water and dry; and apply some petroleum jelly.
- Remove all Vent Plugs of the battery and then look in each cell to see whether the plates are submerged in the battery solution or not. If not, then fill with distilled water up to the 'Max' point.
- Before replacing the caps, check to make sure the Vent Holes on them are not closed; because the battery could be harmed if the holes are closed.
- Never use hammer or heavy object to push wire clamps on the terminals. Otherwise, the battery will be ruined very soon.
- The battery wires should never be loose. Otherwise, starting the tractor will be difficult.
- Replace the faulty wire and/or clamps

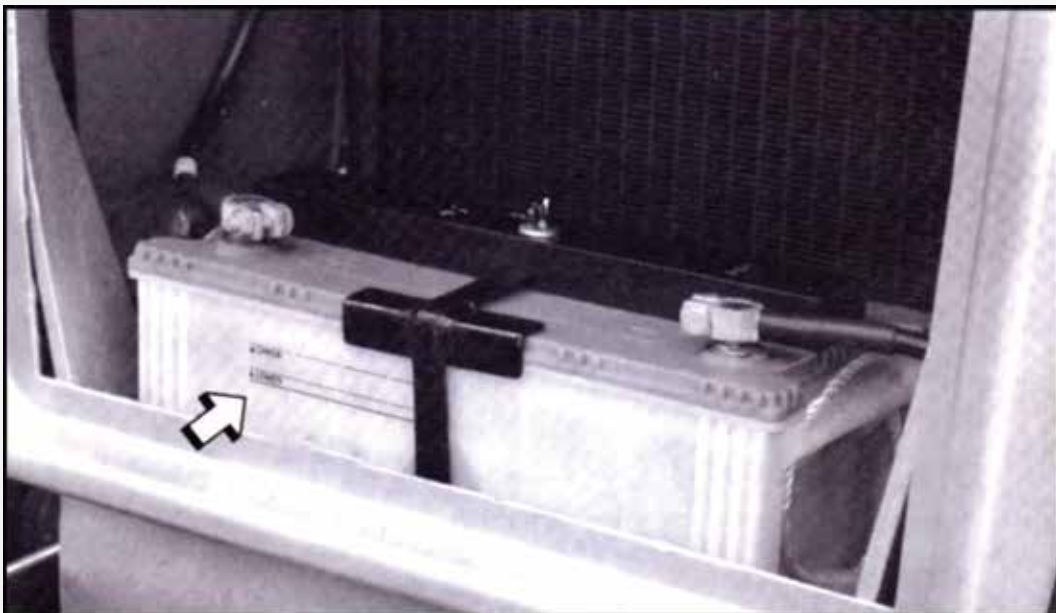
Often farmers leave the engine running during meal breaks when the battery is weak, which wastes a lot of diesel. The tractor battery should always be well charged, because high power is required to start the engine. If the battery does not have the required power, the engine starts with difficulty, which also wastes diesel.

Chapter 21

Battery Maintenance



Battery MF-240/260/375 (water level)



Battery MF-385/385 4wd (inlets to pour distilled water)

Chapter 22

Air Pressure in the Tyres and its Importance

Proper Air Pressure in the Tyres and its Importance :

In order to get proper performance out of the tractor, proper air pressure in the tires is very important because engine power is wasted when the air pressure is low or high and required productivity is not obtained, either. It is important for every tractor owner to have an air gauge and a manual air pump handy.

Improper air pressure can cause the following harm:

- Tire life is reduced and these crack at the sides.
- It causes unnecessary load on the engine which overheats the engine.
- The tractor emit smoke and does not pull well.
- Diesel consumption is increased and time is wasted as well.
- Parts of field remain un-ploughed.
- Rear tires slip during operation, which causes more wear out.

Use the instructions below to maintain proper air pressure in **Massey Ferguson tractors** :

Tractor Model	Air Pressure				Tyres Size	
	Front Tyres		Rear Tyres		Front Tries	Rear Tries
	With Plough	With Trolley	With Plough	With Trolley		
MF-240	26 psi	26 psi	14 psi	18 psi	6.00 – 16 6PR	12.4/11–28 6PR
MF-350	26 psi	26 psi	14 psi	18 psi	6.00 – 16 6PR	14.9/13–28 6PR
MF-260	28 psi	28 psi	14 psi	18 psi	7.50 – 16 6PR	14.9/13–28 6PR
MF-375	30 psi	30 psi	12 psi	18 psi	7.50 – 16 6PR	16.9/14–30 6PR
MF-385	30 psi	26 psi	12 psi	18 psi	7.50 – 16 6PR	18.4/15–30 6PR
MF-385 4WD	12 psi	18 psi	12 psi	18 psi	12.4–11–24 12PR	18.4/15–30 6PR

Chapter 22

Air Pressure in the Tyres and its Importance

VERY IMPORTANT :

If there is additional load on front part of the tractor, like front-end loader or front blade is used, inflate the front tires to 40 psi. Using oil or grease to clean the tires reduces their life. Water is sufficient to clean these.

Chapter 23

Method and Benefit of Filling Water in Tyres

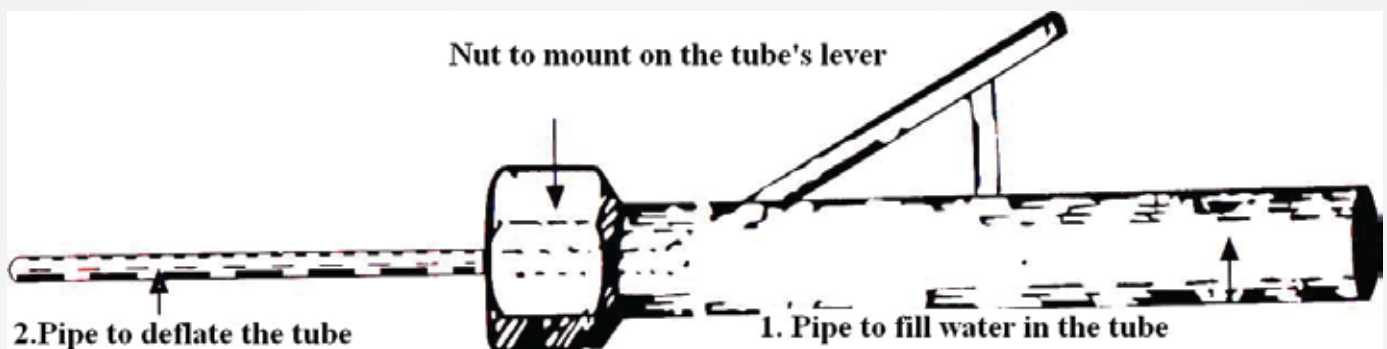
Benefits of Filling Water in the Tyres and its Method :

The probability of tires to slip increases when the tractor is light and is operating on hard ground. It reduces the performance, which cause increases diesel consumption.

Experiments show that proper tire grip on the surface, tractor performance increases by 10 to 25 percent.

To increase the surface grip in the rear tires, filling water in the tires is recommended.

Below is the method to fill water in the tires with a simple instrument.



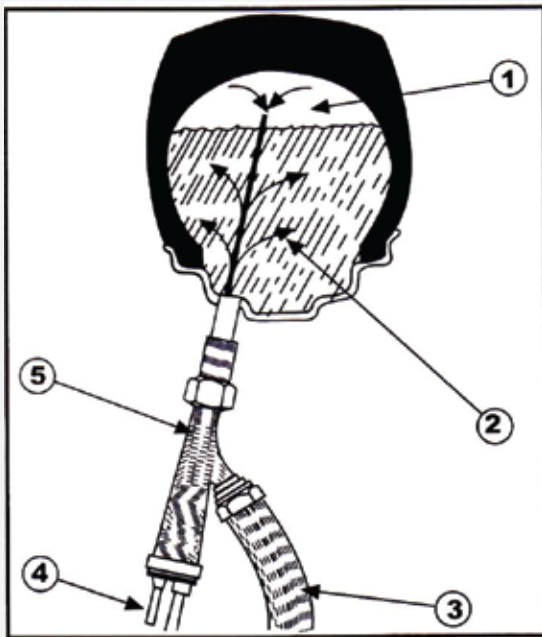
Water Can Be Filled In the Tyre Using the Instrument :

- 1- Raise the rear tires with the help of the jack, and raise the inflation valve to its highest position.
- 2- Remove the inflation valve from the tube's nozzle and let the entire air out.
- 3- Now mount the water filling nut on the tube's nozzle.
- 4- Connect the water filling tube to the tank as shown in the diagram. The water tank should be at least 5 feet above the instrument. Open the tank's valve so water could flow in the tire's tube.
- 5- Close the tank's valve when the water starts to flow out the air pipe.
- 6- Detach the water filling instrument from the tire-tube and let the extra water flow out of it.
- 7- After the extra water is drained, place the inflation valve on the tube's nozzle.

Chapter 23

Method and Benefit of Filling Water in Tyres

8- Inflate the tire to 12 – 14 psi.



1. Air
2. Pressurized entry of water in the tube
3. Pipe to fill water
4. Deflation pipe
5. Instrument shell

Precautions :

- In places where temperature falls to freezing point or below, NEVER water in the tires or mix Calcium Chloride in the water to fill in the tires.
- Fill water in the tire at a place where there is a facility to inflate the tire with air too.
- If water filled tires need to be removed, then remove the water first and then remove the tire from the tractor and then remove the tire from the tractor. Otherwise the heavy tire will damage stud threads used to fasten the wheels.

