

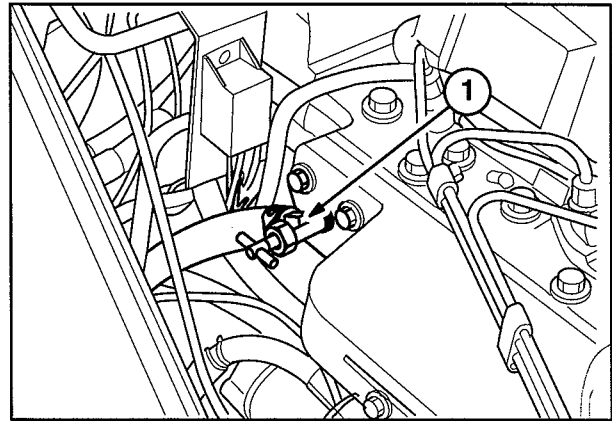
COOLING SYSTEM

Radiator Removal
(Op 10 406)

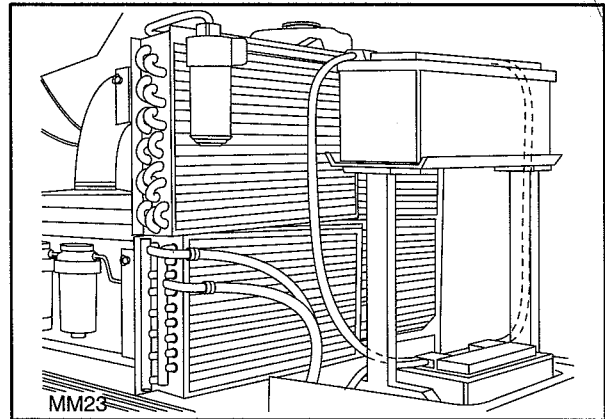
1. Lift the engine hood.
2. Close the cab heater hose tap, situated to the rear of the right hand side of the engine, (1) Figure 159 and turn the heater control knob in the cab to the coldest setting.
3. Attached to the front of the radiator by means of “D” handle bolts, on the right hand side, is the transmission oil cooler radiator and the air-conditioning condenser (when fitted), Figure 160.
4. Loosen the “D” bolts of both coolers and slide out, placing them carefully out of the way with their respective hoses still attached. This is important where air conditioning is fitted, as refrigerant could be lost, if hoses are disconnected from the condenser.
5. Place a suitable container under the tractor. Loosen the radiator lower hose at the base of the radiator and drain the coolant off. Remove the radiator cap to speed up the draining, using caution if the system is hot.

**WARNING**

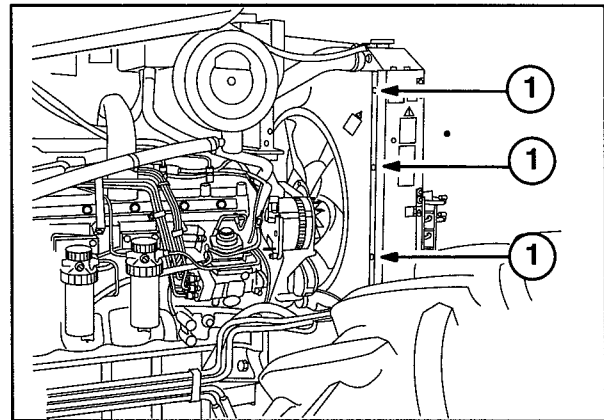
Do not allow anti-freeze to contact skin. Adhere to instructions detailed on anti-freeze container.



159

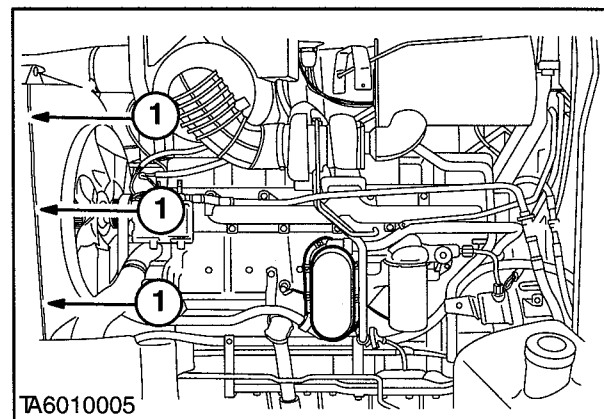


160



161

6. Disconnect the radiator top hose, and oil cooler pipes in the lower part of the radiator.
7. Loosen the fan shroud screws, (1) Figure 161 and (1) Figure 162, placing the fan shroud behind the fan blade.
8. Remove the two bolts securing the radiator to the front support. Ensuring all pipes are disconnected, and looms are unclipped, and away from the radiator assembly. Lift the radiator up and clear of the vehicle.



TA6010005

162

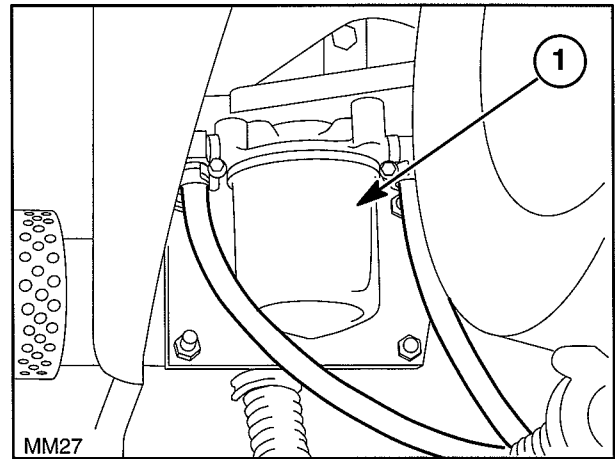
Inspection and Repair

9. Inspect the fins for damage and repair as required, ensuring they are free from any obstruction.
10. Check the radiator for leaks, and repair as required. The radiator is fitted with an engine oil heat exchanger in the lower tank which should be checked for leaks. If the lower tank is found to be leaking replace the radiator.

Installation

Installation of the radiator follows the removal procedure in reverse, but upon installation observe the following requirements.

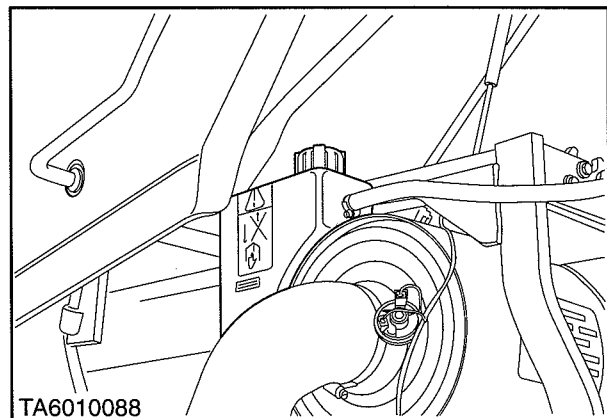
1. Ensure the correct grade, and quantity of antifreeze is added to the coolant. Recommended content mixture is 50% Water, with 50% New holland Antifreeze.



163

NOTE: It is necessary to replace the filter/conditioner if the cooling system is drained or a large water loss has occurred, to ensure maximum engine protection is maintained. Item 1, Figure 163.

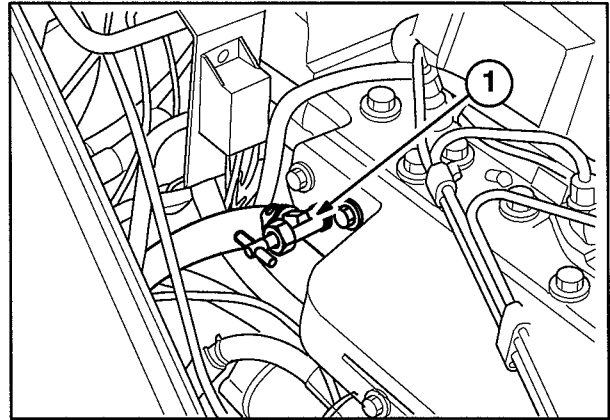
2. Refill the system through the radiator pressure cap until completely full. Re-install the 14.5 lb/in² (1 bar) radiator cap and continue filling through the expansion tank until the coolant is seen through the sight glass. Refit expansion cap, Figure 164.
3. If engine oil cooler tubes have been disturbed check the engine oil level.
4. Run the engine for several minutes checking for leaks, topping up any fluid levels that may have settled during testing.



164

Thermostat Removal (Op 10 402)

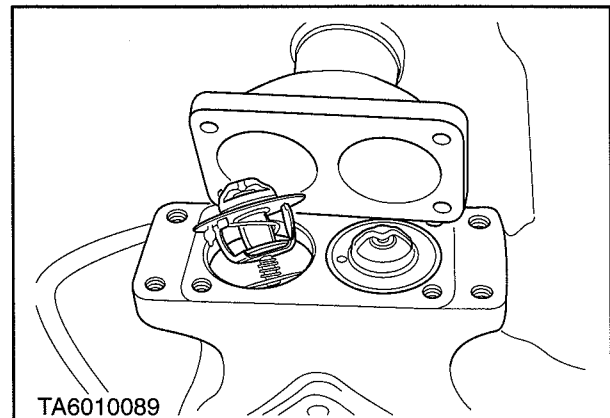
1. Drain the coolant system below that of the level of the thermostat housing. Where a cab is fitted, shut off heater hose tap, (1) Figure 165 and turn the heater control knob in the cab down to the coldest setting.
2. Remove the thermostat housing retaining bolts and move the housing with tube attached to one side.
3. Withdraw the thermostat from the housing, along with the gasket, Figure 166.



165

Inspection and Repair

1. Place the thermostat in a container of water, and raise the temperature to 212°F (100°C). If the thermostat fails to open when hot, or close properly when cooled, it must be replaced, Figure 167.

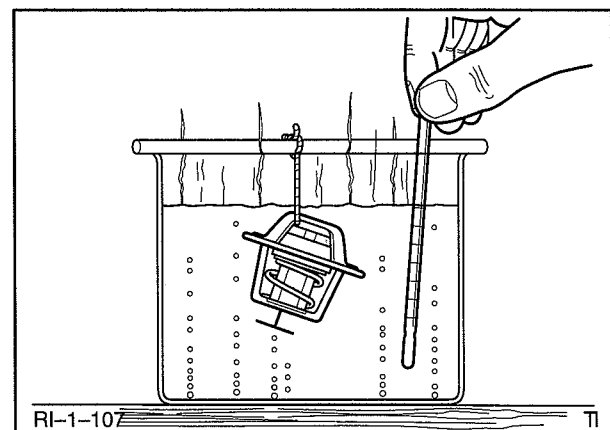


166

Installation

Installation of the thermostat is the reverse of the removal procedure but observing the following.

1. Coat a new gasket with sealer and position in the recess on the thermostat housing, prior to installing the thermostat.
2. Coat the edge of the thermostat with grease and install, with the heat element located in the cylinder head.
3. Refit the thermostat housing and torque the two bolts to 20–28Nm (15–21 lbf.ft).



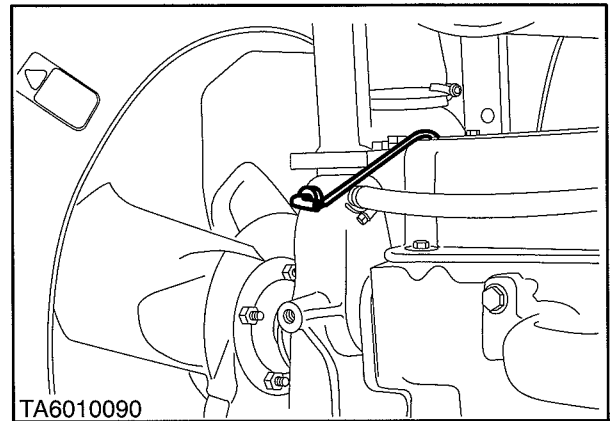
167

Temperature Warning Sender

1. The temperature sender for the gauge is located on the left hand side of the thermostat housing, Figure 168.

Installation

1. If the sender is suspected of being faulty refer to the “Electrical System” section to correctly diagnose the fault. If a new sender is to be fitted apply sealant to the threaded portion of the new sender body and torque the sender to, 16–24Nm (12–18 lbf.ft).



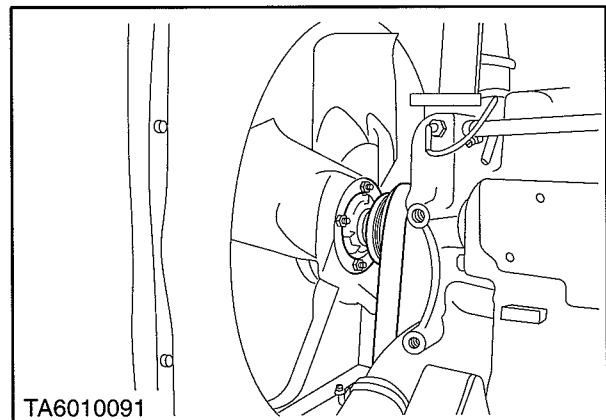
168

Viscous Clutch Testing

Where it is suspected that the viscous clutch is not operating correctly, it should be tested as follows:–

1. Using an electronic stroboscopic rev/min. counting device, determine the engaged speed of the fan while operating the engine at approx. 1800 rev/min. with the engine coolant temperature above the normal operating range.
2. If the fan speed is less than 85% of the fan pulley speed then the unit is not operating correctly and should be replaced. The following table gives an example of calculating the percentage:

Observed fan speed	=	2600 rev/min
Engine speed	=	1800 rev/min
Pulley ratio	=	1.67:1
Fan pulley speed	=	1.67x1800=3006
Percentage	=	$\frac{2600 \times 100}{3006} = 86.5\%$



169

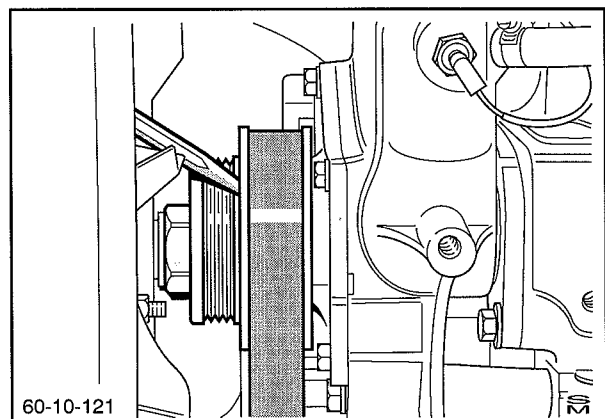
Viscous Clutch Assembly Removal (Op 10 414)

1. To remove the fan and clutch assembly (where fitted), hold the pump pulley in a fixed position. Placing an open ended spanner on the nut to the rear of the clutch assembly spacer, undo the nut in a clockwise direction.

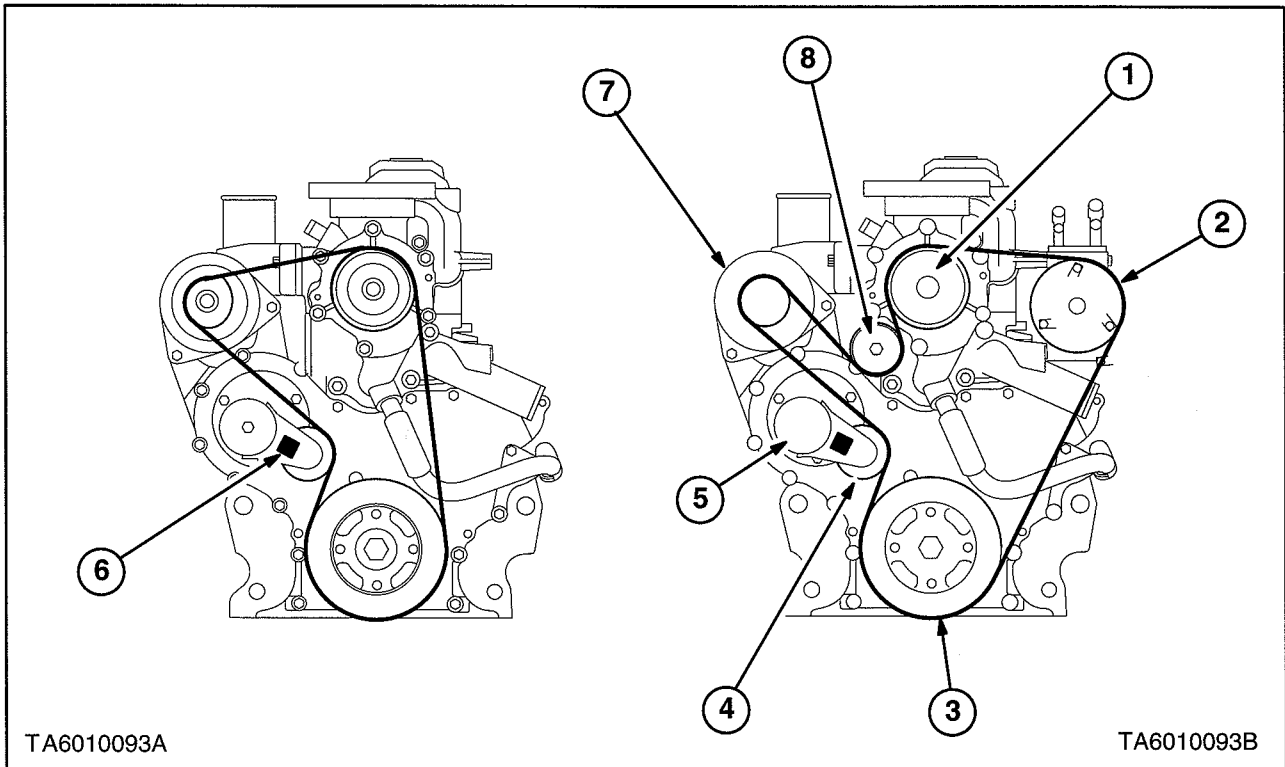
NOTE: Hold the pulley by inserting a suitably sized punch/rod through the hole in the pulley and wedge against the flange of the water pump cover. Figure 170.

Installation

1. On re-assembly of the fan assembly tighten the attaching nut in an anti-clockwise direction, and torque to, 54 Nm (40 lbf.ft).



170



TA6010093A

TA6010093B

Fan Belt Tensioner

171

A. Fan Belt Less Air Conditioning

1. Water Pump Pulley
2. Air Conditioning Compressor
3. Crankshaft Pulley
4. Tensioner Pulley

B. Fan Belt With Air Conditioning

5. Tensioner Attaching Bolt
6. 1/2in. Square Drive Hole
7. Alternator
8. Idler Pulley with Air Conditioning Only

**Fan Blade Removal
(Op 10 414)**

1. Remove the viscous clutch assembly as described above. Remove the four nuts retaining the fan blade to the viscous unit and remove the fan.

Re-Assembly

1. Re-assemble the fan blade using the four attaching bolts and torque the bolts to, 20–25 Nm (15–18 lbf ft) Re-install fan and viscous unit.

**Fan Belt Tensioner Removal
(Op 10 414)**

1. The fan belt should be removed in the following manner. Attach a 1/2in. square drive ratchet into the tensioner arm, (6) Figure 171. Rotate clockwise and remove the fan belt from the pulley and allow the tensioner to return to its untensioned position once the belt has been removed.
2. Remove the tensioner from the pump by loosening and removing the centre attaching bolt.

Inspection and Repair

1. Checking of the tensioner assembly operation should be carried out, with the tensioner assembly still attached to the front cover. To check the spring load, place a “break back” torque bar pre-set to, 70–85Nm (52–63 lbf ft) on to the pulley attaching bolt. Raise the lever up through an arc of 20° maximum. If the torque bar does not “break” within the range a new tensioner assembly is required.
2. Ensure the tensioner pulley, rotates freely by hand. If not replace with new parts.

Re-Assembly

1. Fit a new pulley to the assembly if required, and torque the attaching bolt to, 46.5–60Nm (34.5–44 lbf ft)
2. To re-assemble the arm assembly, position the tensioner on to the front cover, fit the mounting bolt through the assembly, and torque the bolt to, 46.5–60Nm (34.5–44 lbf ft).
3. Refitment of the fan belt is the reverse of the removal procedure, but ensure the “Poly V” belt, is positioned correctly onto all of the pulleys.