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The engine cooling system includes the water pump and fan, radiator, thermostat and housing, temperature gauge and water passages in cylinder block and cylinder head.

The water pump draws coolant from bottom of radiator and circulates through water passages in cylinder block and cylinder head. The coolant is discharged from cylinder head through thermostat housing and radiator inlet hose to upper part of radiator.

As the coolant passes from top to bottom of radiator, the coolant dissipates its heat to the atmosphere by air drawn through radiator core by the cooling fan. The coolant then is drawn from bottom of radiator by the water pump and circulates back to cylinder block and cylinder head.

A cooling system filter is available. If engine is equipped with a coolant filter, do not use soluble oil or other conditioners in the cooling system. However, filter efficiency is not affected by use of permanent type anti-freeze.

**CAUTION:** If a leak stopper is added to the cooling system, do not allow it to circulate through the filter. Shut-off valves are provided in the inlet and outlet hoses for isolating the filter from remainder of cooling systems.

The field service filter installation kit is 4021756-4. The purpose of the cooling system filter is to extend normal engine life and prevent premature failures due to inadequate cooling.

Replacement of the thermostat is necessary if it corrodes and sticks in the open or closed position. If the engine overheats or does not reach and maintain a minimum temperature of 180°F, the thermostat should be removed and tested as a possible cause of trouble.

1. **Thermostat Removal**
   a. Drain cooling system.
   b. Remove capscrews and lockwashers securing water outlet flange to top of thermostat housing.
   c. Raise water outlet flange with hose intact and position it to one side.
   d. Remove outlet flange gasket and thermostat.
   e. Clean and inspect thermostat flange and housing.

2. **Thermostat Testing**
   a. Suspend thermostat in a container of clean water. Thermostat must be completely immersed but not touching bottom of container.
   b. Heat water gradually and stir so heat is evenly distributed.

The filter establishes and maintains a rust free, scale free and a corrosion free cooling system. The filter contains a replaceable corrosion resistor plate to control electrolytic action and prevent pitting of metal parts within the cooling system.

The cooling system is pressurized by a 7 PSI pressure cap. By pressurizing the system, the normal boiling point of 212°F of clean water at sea level is raised approximately 3°F. per PSI. Consequently, coolant in the system at sea level will not boil until a temperature of 215°F, plus 21°F, or a total of 236°F, is reached. Temperatures above this figure will cause loss of coolant and result in engine overheating. Altitude affects the point at which coolant will boil, that is, the higher the altitude, the sooner the coolant will boil. To estimate coolant boiling point at various altitudes above sea level, deduct 1-1/2°F. per 1000 ft. altitude, from 236°F. The boiling point established with a 7 PSI pressure cap at sea level.

**IMPORTANT:** The engine thermostat begins to open at 180°F. and is fully open at 200°F. Operating the engine in this temperature range is not harmful. However, some temperature gauges are not always exactly accurate and may indicate a higher than actual temperature. This can lead the operator to believe the engine is overheating when actually it is operating normally.

Overheating is always associated with loss of coolant. In the event of any doubt, the coolant level in the radiator should be checked.

**THERMOSTAT**
The starter assembly consists of the starter and a solenoid mounted on top of the starter. The starter is located on the right side of the engine and access to the starter is accomplished by removing the side skirt. The starter is attached with three capscrews and lockwashers. To remove the starter disconnect the wiring at the solenoid and remove the three capscrews that attach the starter. Pull the starter forward and down to clear the flywheel, and lift it out.

To install the starter guide it past the flywheel, and push it flush with the adapter plate. Install the three attaching capscrews and lockwashers. Connect the battery cable, and the wire from the ammeter and voltage regulator to the battery ("B") terminal. Connect the wire from the starter pushbutton to the "S" terminal (small terminal nearest the engine block), and connect the resistor by-pass wire to the "R" terminal (gasoline only). Install the side skirt.

**CAUTION** Do not use capscrews to fasten the starter that are so long that they stick through the adapter plate; because capscrews that are too long will bottom against the torque housing and buckle the adapter plate.
STATOR SUPPORT ASSEMBLY

REMOVAL

To remove stator support; remove torque housing, hollow shaft and turbine shaft. Remove capscrew attaching retainer assembly to stator support and remove retaining assembly. Remove snap ring from rear of stator support. Press or drive turbine shaft out rear of stator support. Replace all damaged or worn parts.

NOTE: On latter production tractors the stator support housing is notched out for snap ring removal. The stator support can be removed without removal of the turbine shaft assembly.

ASSEMBLY

Press bearing cone on shaft, with large dia-

meter to front. Install snap ring in groove in front of bearing cone. Install sealing ring in front groove on turbine shaft. Install stator support on turbine shaft using caution not to damage sealing ring. Install bearing cup over rear of turbine shaft with small bore to rear and drive or press cup in stator support. Install snap ring in rear of stator support behind the bearing cup. Install bushing in retainer assembly.

Install seal in retainer assembly with lip to rear. Use a new gasket and attach retaining assembly to stator support with capscrew and star washer.
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The major components of the track assembly are: track frame, track rollers, track support roller, track release, track idler and track.

The track frame is a welded rigid frame, each track frame is secured at the rear by the pivot shaft. The rear pivot shaft is welded to the main frame. The track frames support the tractor main frame by use of a rigid front cross beam, which is welded directly to the main frame. The rigid front cross beam is machined on the underside to fit with close tolerance on the track frame. It is mounted at the right angles with capscrews bolted to the top and side of main track frame.

The track rollers turn on steel backed bronze bushings to insure long track roller life and are precision built to absorb shock loads. They are attached to the track frames by capscrews inserted through the track wheel attaching brackets into tapped blocks.

The track idler also turns on steel backed bronze bushings like the track rollers which have a seal washer assembly and O-rings to keep out dirt and water.

The track idlers are supported by idler brackets which are guides. On the top and bottom of the roller frames, there are wear plates which are replaceable to give the proper clearance. Located on the outside of the end caps retainer, guide plates are provided. Under these plates shims are used to center the idler between the frames and to remove excess end movement of assembly.

The idler yoke is located between the front idler and track release mechanism where it fits on the idler brackets on dowel pins. The machining of this yoke gives permanent idler alignment. This heavy release mechanism is necessary to keep the sprocket from slipping on the track when loading the front idler and also helps protect the track when loading the front idler and also helps protect the track in trashy conditions.