

# FORD



NEW HOLLAND

## Operator's Manual

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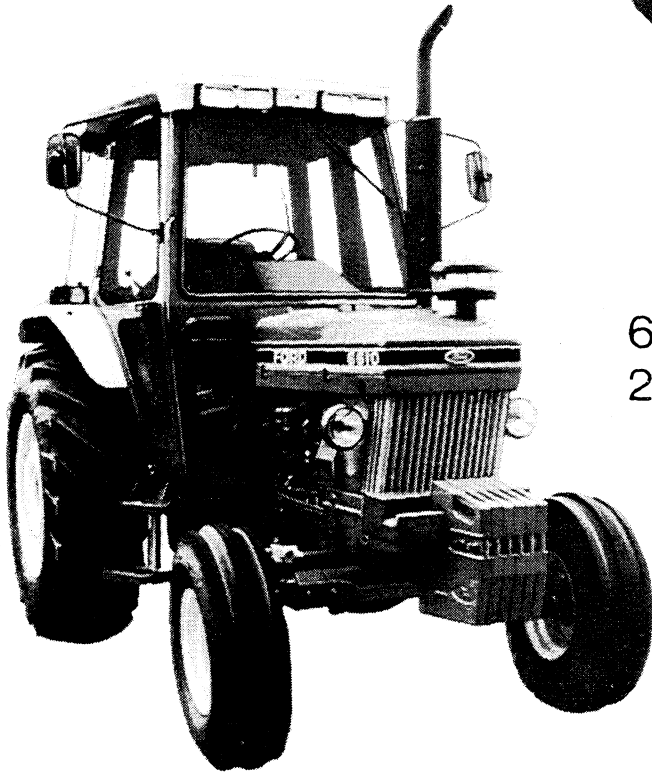
Tractors

5610, 6610, 7610 II

5610  
2 Wheel Drive



6610  
2 Wheel Drive

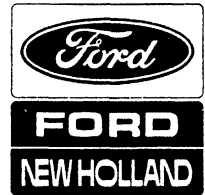


7610  
4 Wheel Drive



SE 4238

**FORD**



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**Operator's Manual Supplement**  
**AGRICULTURAL TRACTORS – ALL MODELS**

**IMPORTANT INFORMATION. PLEASE STUDY IN DETAIL,  
IN CONJUNCTION WITH THE OPERATOR'S MANUAL.**

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## INTRODUCTION

Ford New Holland have made improvements to the engine cooling system of all agricultural tractors. In addition, a viscous fan and a new fuel injection pump are fitted to all 4-cylinder models. Please read this Supplement in conjunction with the Operator's Manual supplied with your tractor.

## OPERATING THE TRACTOR

### Fuel Injection Pump (4-cylinder tractors)

A distributor type fuel injection pump is installed in all 4-cylinder tractors in place of the in-line type pump shown in the Operator's Manual. The new pump has several new features for enhanced performance, including automatic advance and start retard of the injection timing and automatic excess fuel delivery for rapid starting under all conditions.

No excess fuel button is fitted. When starting the engine in cold conditions, follow the method detailed in the Operator's Manual but disregard instructions to depress the excess fuel button fitted to earlier in-line pumps.

The new pump also benefits from a reduced maintenance requirement. See SERVICE REQUIREMENTS on page 3.

### Coolant Inhibitor (3- and 4-cylinder models only)

The ever increasing output of modern, high speed diesel engines, particularly those used in heavy duty agricultural applications, has created the need for an inhibitor in the cooling system.

Ford New Holland has, since 1986, been adding chemical inhibitor to the cooling system of all it's agricultural tractors. During manufacture, the engine cooling system is filled with a high quality antifreeze and water solution to which is

added the inhibitor. This inhibitor increases and extends the protection offered by the existing inhibitor already present in the antifreeze.

The strength of this inhibitor has been increased and, as a consequence, service change intervals have been extended. See SERVICE REQUIREMENTS on page 2.

The added inhibitor will:

- Increase rust prevention
- Reduce scale formation
- Minimize cylinder wall erosion (pitting)
- Reduce foaming of the coolant.

As the chemical inhibitor works and protects the system it gradually loses it's strength and must, therefore, be replenished at intervals with a measured dosage to maintain the optimum protection level. The chemical inhibitor is available in 16 fl. oz. (473 ml) bottles from Ford New Holland dealers.

### Coolant Inhibitor/Filtration System (6-cylinder models only)

In order to maintain the original factory protection, a "throw-away" filter is incorporated in the cooling system of 7810 and TW models. This filter provides the same protection for the cooling system as the oil filter provided for the engine lubrication system and, like the oil filter, it will trap particles that would otherwise flow around the cooling system and be deposited in the water jacket and clog the small orifices in the radiator matrix.

The filter canister, Figure 11 or 12, in addition to containing the filter element also contains inhibitor in the form of a paste. As coolant flows through the filter the paste quickly dissolves and mixes with the coolant to provide optimum

protection between normal coolant change intervals.

The strength of this inhibitor paste has been increased and, as a consequence, service change intervals have been extended. See **SERVICE REQUIREMENTS** on this page.

### Coolant Recovery System (all models)

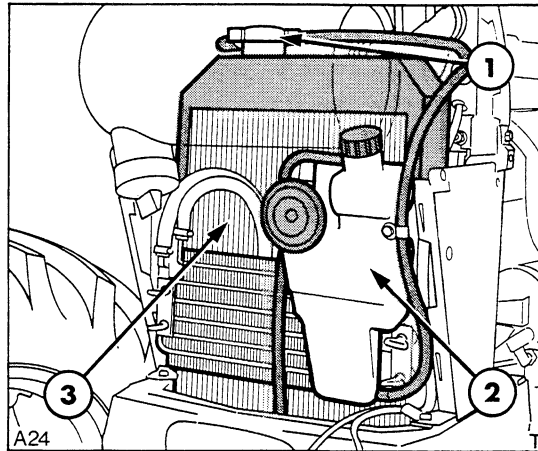
With the number of connections in the cooling system, good preventive maintenance is always necessary. Having good condition hoses and clips is very important but so are topping-up practices.

What generally happens is that the engine radiator is checked frequently, usually every day, and filled right up to the neck. Then as soon as the engine reaches operating temperature, the coolant expands and is forced out of the radiator via the overflow pipe and lost. Next day, it is topped up again and sometimes up to 2 pints (1 litre) may need to be added.

In summer, this is often plain water. In winter a good operator may add a 50% solution of water and antifreeze. This continual loss and topping-up causes the antifreeze and inhibitor solution to quickly become weakened or diluted. To combat this effect, Ford New Holland has added a coolant expansion recovery system to its range of agricultural tractors.

TW models already have this system. On these models it is built into the header tank of the main radiator and consists of a separate chamber which will receive the additional expanded volume without allowing the coolant to be expelled from the overflow. The result is that less "topping-up" is required.

On all other models a separate expansion bottle has now been provided, see Figure 1, that collects the expanded volume and allows it to be syphoned back into the main radiator when the engine is stopped and the coolant cools.



1. Coolant Recovery System (schematic)

1. Double seal radiator cap
2. Coolant recovery bottle
3. Radiator

Provided the radiator cap is of the correct type and is in good condition, this action will remove any need for top-ups but, of course, do continue to check the coolant level on a daily basis. See **SERVICE REQUIREMENTS** below.

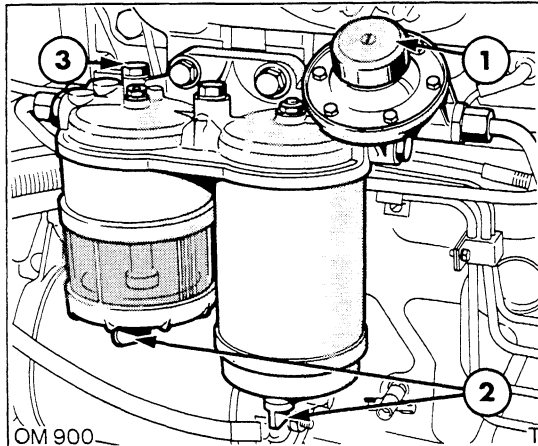
## SERVICE REQUIREMENTS

### Fuel Injection Pump (4-cylinder tractors)

Routine maintenance of the injection pump is no longer required. You should, therefore ignore the maintenance instruction in the Operator's Manual to check the oil level in the pump every 50 hours and to replenish the oil every 300 hours.

### Draining the Fuel Sedimentor / Filter (4-cylinder tractors)

Drain the fuel sedimentor/filter assembly every 50 hours or whenever water or sediment can be seen in the glass bowl, as described in the Operator's Manual.



**2. Fuel Sedimenter/Filter Assembly**

- |                |                |
|----------------|----------------|
| 1. Primer      |                |
| 2. Drain plugs | 3. Bleed screw |

*Models with low-mounted fuel tank(s) only: It may be necessary to slacken the bleed screw on top of the filter to allow contaminated fuel to escape from the drain plugs. After draining, tighten the drain plugs and the bleed screw. See Figure 2.*

**Priming the Fuel System (4-cylinder tractors)**

The fuel injection pump is self-bleeding. However, it will be necessary to prime the system:

- After draining the fuel sedimenter/filter to remove water or dirt.
- If the tractor is allowed to run out of fuel.
- After replacing any part of the injection system.

A plunger-type primer is located on top of the filter. Press the rubber plunger several times until resistance is felt, indicating the system is free of air. See Figure 2.

**Cooling System (all models)**

All cooling system service items described in section B of your Operator's Manual should be ignored.

Service requirements have been simplified and servicing is now only required at 10 hour/daily intervals and 1200 hour/2 year intervals, as described in the following text:

**EVERY 10 HOURS or DAILY**

Check the coolant level with the engine **cool**, i.e. **before** commencing work, as follows:

**⚠ WARNING:** *Coolant should be kept off the skin. Adhere to the precautions outlined on the antifreeze container.*

**56/66/76/7810 tractors less air-conditioner and all 3-cylinder tractors**

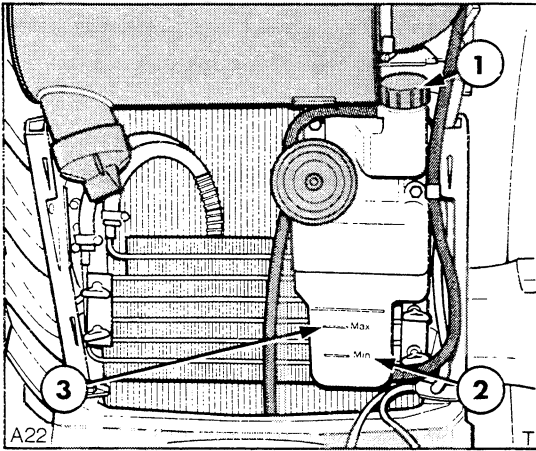
Remove the radiator cap and check that the coolant level is up to the overflow pipe in the filler neck.

Remove the pre-cleaner and raise the front of the hood to gain access to the coolant recovery bottle located in front of the radiator. See Figure 3. Check that the coolant is between the MIN and MAX level marks moulded into the coolant bottle.

If the level is below the MIN mark, remove the filler cap and top up the bottle with the correct pre-mixed solution of clean water/antifreeze/-inhibitor. See text entitled GENERAL MAINTENANCE on page 8.

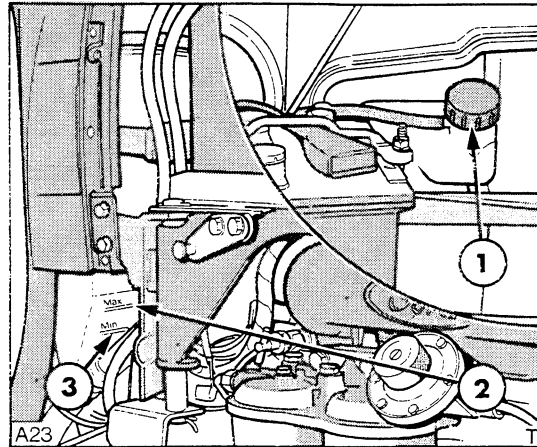
**56/66/76/7810 tractors with air-conditioner**

Raise the right-hand side of the hood. Remove the radiator cap and check that the coolant level is up to the overflow pipe in the filler neck.



3. Coolant Level (Ford 7810 illustrated)

- 1. Filler cap
- 2. MIN level
- 3. MAX level



4. Coolant Level (Ford 6610 illustrated)

- 1. Filler cap
- 2. MAX level
- 3. MIN level

The coolant recovery bottle is located behind the battery. See Figure 4. Check that the coolant is between the MIN and MAX marks moulded into the coolant bottle.

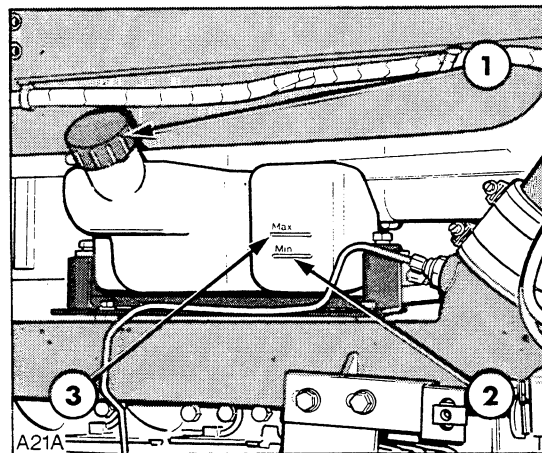
If the level is below the MIN mark, remove the filler cap and top up the bottle with the correct pre-mixed solution of clean water/antifreeze/-inhibitor. See text entitled GENERAL MAINTENANCE on page 8.

If the level is below the MIN mark, swing the battery tray out to gain access to the coolant bottle filler. Remove the filler cap and top the bottle up with the correct pre-mixed solution of clean water/antifreeze/-inhibitor. See text entitled GENERAL MAINTENANCE on page 8.

**All 7710 tractors**

Remove the radiator cap and check that the coolant level is up to the overflow pipe in the filler neck.

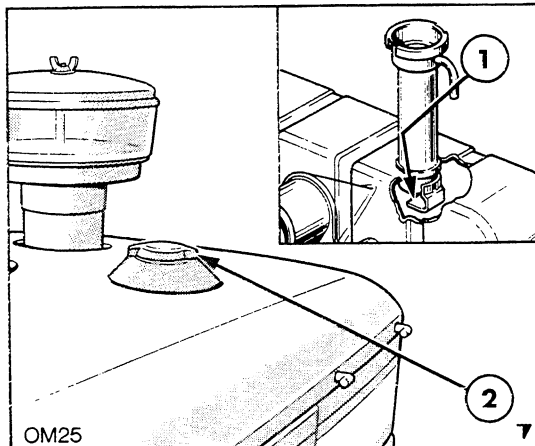
Remove the right-hand side panel from the hood. The coolant recovery bottle is located over the intake manifold. See Figure 5. Check that the coolant level is between the MIN and MAX marks moulded into the coolant bottle.



5. Coolant Level (Ford 7710 illustrated)

- 1. Filler cap
- 2. MIN level
- 3. MAX level





6. Coolant Level (Ford TW tractors)

1. Level indicator
2. Radiator cap

**All TW tractors**

Remove the radiator cap and check that the coolant level reaches the indicator in the bottom of the filler neck. See Figure 6. If necessary, top up with the correct pre-mixed solution of clean water/antifreeze/inhibitor. See text entitled GENERAL MAINTENANCE on page 8.

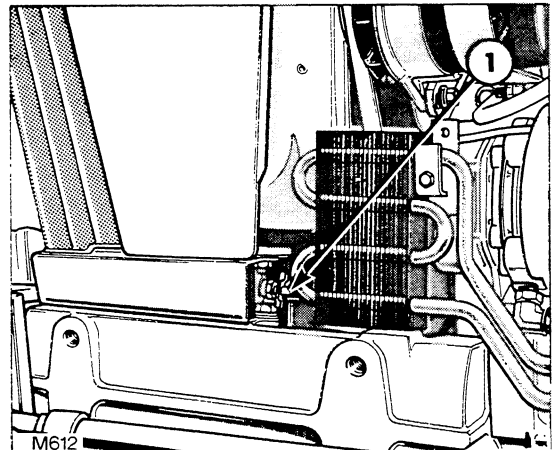
**EVERY 1200 HOURS or TWO YEARS, whichever occurs first**

**TRACTORS WITHOUT COOLANT FILTER (3- and 4-cylinder models only)**

With the engine cool, drain and refill the cooling system, as follows:

**⚠ WARNING:** *Coolant should be kept off the skin. Adhere to the precautions outlined on the antifreeze container.*

If your tractor has a cab, turn the heater temperature control knob to the maximum heat position.

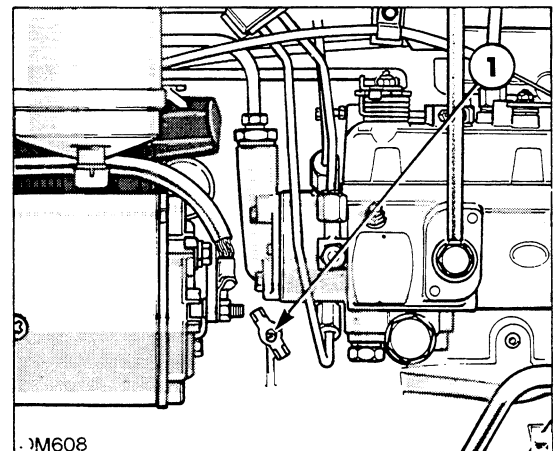


7. Engine Coolant (Ford 4610 illustrated)

1. Radiator drain cock

The heater shut-off valves on the inlet pipe to the water pump and on the rear of the inlet manifold must also be fully open. Open the drain cock (Figure 7) to drain the radiator. Remove the radiator cap at this stage to increase the drainage rate.

Open the drain cock (Figure 8) and drain the engine block.



8. Engine Coolant (Ford 4610 illustrated)

1. Block drain cock

Flush the cooling system via the radiator filler.

After flushing, close the drain cocks and refill the system via the radiator filler tube using a 50% solution of clean water and antifreeze premixed with 5% inhibitor. The inhibitor is available from Ford New Holland dealers under the part number FW15. It is supplied in 16 fl. oz. (473 ml) bottles, the side of the bottle being marked in 1 fl. oz. increments. See page 9 for the proportions to be used in your tractor.

Install the radiator cap and pour approximately 2 pints (1 litre) of the water/antifreeze mixture into the coolant recovery bottle.

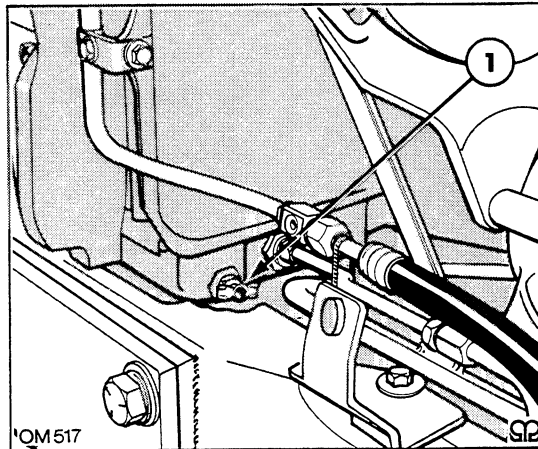
Start and run the engine to circulate the coolant. Stop the engine and, if necessary, top up the radiator and recovery bottle.

**NOTE:** *If your tractor has a cab, turn the heater temperature control knob to the maximum heat position. The heater shut-off valves on the inlet pipe to the water pump and on the rear of the inlet manifold must also be fully open. The coolant level will drop as it is pumped around the heater system. In this case it will be necessary to top up the system, repeating the method described in the previous three paragraphs.*

**⚠ WARNING:** *The cooling system is pressurised and care should be taken when removing the radiator cap if the engine is hot. Coolant should be kept off the skin. Adhere to the precautions outlined on the antifreeze container.*

If the engine is not going to be operated immediately following this coolant change, run the engine for 1 hour to ensure that the chemical inhibitor is dispersed into the cooling system.

Allow the engine to cool and make a final check to ensure the coolant level is satisfactory before operating the tractor.



9. Engine Coolant (Ford TW-25 illustrated)

1. Radiator drain cock

### TRACTORS WITH COOLANT FILTER (6-cylinder models only)

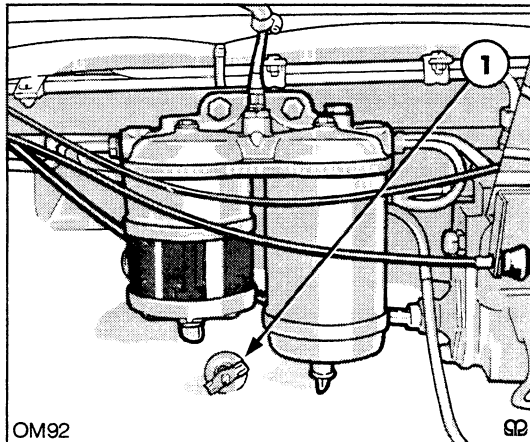
With the engine cool, drain and refill the cooling system and install a new filter, as follows:

**⚠ WARNING:** *Coolant should be kept off the skin. Adhere to the precautions outlined on the antifreeze container.*

If your tractor has a cab, turn the heater temperature control knob to the maximum heat position. The heater shut-off valves on the inlet pipe to the water pump and on the rear of the inlet manifold must also be fully open.

Open the drain cock (Figure 9) to drain the radiator. Remove the radiator cap at this stage to increase the drainage rate. Open the drain cock (Figure 10) and drain the engine block.

After draining, unscrew and remove the coolant filter and flush the cooling system via the radiator filler.



10. Engine Coolant (Ford TW-25 illustrated)

1. Block drain cock

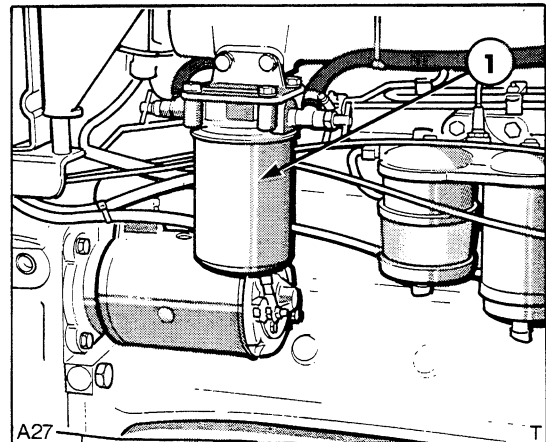
**NOTE:** *The filter is mounted at the rear of the inlet manifold on 7810 tractors and beneath the right-hand foot-step on all TW tractors. See Figure 11 or 12, as appropriate.*

**IMPORTANT:** *The coolant filters on some models have an adjacent tap or taps. The taps are installed as an aid to production and should be kept open at all times.*

After flushing, close the drain cocks. Clean the sealing face of the manifold and install a new filter. Do not overtighten.

**IMPORTANT:** *The new filter contains a measure of chemical corrosion inhibitor in paste form. The measure of inhibitor and size of the filter element is matched to the capacity of the cooling system of your tractor. It is important that this filter is changed every 1200 hours or two years, whichever occurs first, if total protection of the engine cooling system is to be maintained. The use of a non-approved filter may jeopardize this protection.*

**IMPORTANT:** *Anti-leak additives should be avoided. The clogging properties of these additives could affect the performance of the filter.*



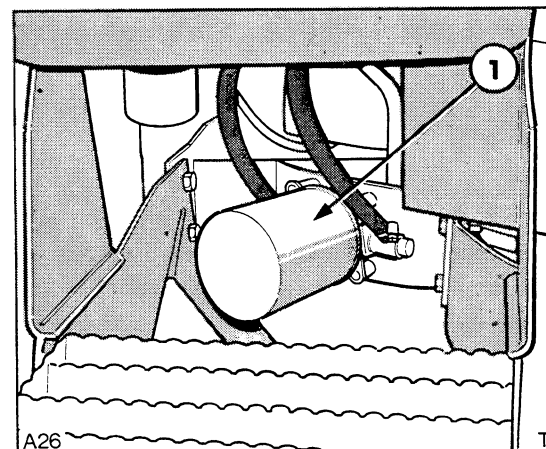
11. Coolant Inhibitor/Filter (Ford 7810 illustrated)

1. Filter

Refill the system via the radiator filler tube using a 50% solution of clean water and antifreeze.

See SPECIFICATIONS on page 9 for coolant capacity, antifreeze specification and clean water properties.

**NOTE:** *To avoid trapping air in the system, fill the radiator as slowly as practicable thereby allowing any air pockets to disperse.*



12. Coolant Inhibitor/Filter (Ford TW-25 illustrated)

1. Filter

## TW models only

Fill the radiator up to the level indicator only. See Figure 6. Install the radiator cap.

## 7810 only

Fill the radiator up to the overflow pipe in the filler neck. Install the radiator cap and pour approximately 2 pints (1 litre) of the water/antifreeze mixture into the coolant recovery bottle.

## All models

Start and run the engine to circulate the coolant. Stop the engine and, if necessary, top up the radiator.

**NOTE:** *If your tractor has a cab, turn the heater temperature control knob to the maximum heat position. The heater shut-off valves on the inlet pipe to the water pump and on the rear of the inlet manifold must also be fully open. The coolant level will drop as it is pumped around the heater system. In this case it will be necessary to top up the system, repeating the method described in the previous three paragraphs.*



**WARNING:** *The cooling system is pressurised and care should be taken when removing the radiator cap if the engine is hot. Coolant should be kept off the skin. Adhere to the precautions outlined on the antifreeze container.*

If the engine is not going to be operated immediately following this filter change, run the engine for 1 hour to ensure that the chemical additive within the filter is dispersed into the cooling system.

Allow the engine to cool and make a final check to ensure the coolant level is satisfactory before operating the tractor.

## GENERAL MAINTENANCE

In the event of a loss of coolant, for example a leaking hose or gasket, it is important to firstly, correct the leak and secondly, top-up with a pre-mixed solution of water, antifreeze and inhibitor of the correct proportions.

Ford New Holland recommends that a solution of 50% clean water and 50% antifreeze, no matter what degree of freeze protection is required, be pre-mixed with 5% inhibitor and used as a top-up solution. The inhibitor is available from Ford New Holland dealers under the part number FW15. It is supplied in 16 fl. oz. (473 ml) bottles and when this amount is mixed with 2.4 U.S. Galls. (9.0 litres) of water/antifreeze solution it will provide the correct inhibitor charge.

Always keep this pre-mixed solution in a specially marked container for top-up purposes. Always investigate the cause of leakage and repair properly. Do not use anti-leak additives.



**WARNING:** *Inhibitor solution is irritating to eyes and skin. It contains buffered potassium hydroxide:*

- *Avoid contact with eyes or prolonged and repeated skin contact.*
- *Wear protective eyewear when using.*
- *In case of contact with eyes, flush with water for 15 minutes and obtain medical attention.*
- *Wash skin with soap and water after use.*
- *Keep out of the reach of children.*

# AGRICULTURAL TRACTORS

## SPECIFICATIONS

### Radiator Pressure Cap

Double seal type – 13 lbf/in<sup>2</sup> (0.9 bar)

### Antifreeze

Antifreeze ESEM97B-18C/D (available from Ford New Holland) or SSM97B-9103A (available from Motorcraft).

### Clean water

Total hardness      300 parts per million  
 Chlorides              100 parts per million  
 Sulphates              100 parts per million

## COOLANT CAPACITY

### 7810 and TW models:

The total coolant capacity of these models (excluding recovery bottle, where fitted) is as shown in the following table. Tractors with coolant inhibitor/filter should be refilled with a 50% solution of clean water and antifreeze only.

Models with Coolant Filter	Total Coolant Capacity *	
	U.S. Pints	Litres
7810 less cab	39.7	18.8
7810 with cab	42.8	20.2
TW-5/TW-15 less cab	43.8	20.8
TW-5/TW-15 with cab	46.8	22.2
TW-25/TW-35 less cab	46.0	21.8
TW-25/TW-35 with cab	49.0	23.2

\* 50% clean water/antifreeze only.

For tractors not fitted with a coolant filter, it is recommended that you mix coolant in the following proportions and keep the excess in a clearly identified container for top-up purposes:

### All models from 2810 to 6610 inclusive:

Mix **two** complete bottles of FW15 inhibitor with 2.4 U.S. gallons (9.0 litres) of clean water and 2.4 U.S. gallons (9.0 litres) of Ford antifreeze.

### 7610 and 7710 tractors:

Mix **three** complete bottles of FW15 inhibitor with 3.6 U.S. gallons (13.5 litres) of clean water and 3.6 U.S. gallons (13.5 litres) of Ford antifreeze.

Models not fitted with coolant filter	Total Coolant Capacity *	
	U.S. Pints	Litres
2810 to 4610 less cab	22.0	10.4
2810 to 4610 with cab	24.0	11.4
5610 to 6610 less cab	27.0	12.8
5610 to 6610 with cab	29.0	13.8
7610 less cab	36.0	17.0
7610 with cab	38.0	18.0
7710 less cab	38.0	18.0
7710 with cab	41.0	19.4

\* 50% clean water/antifreeze plus 5% inhibitor FW-15.

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