4 - OPERATING INSTRUCTIONS

Commissioning the unit

Before Operating

⚠ CAUTION

Avoid injury and/or machine damage!
Before driving the machine, make sure that you are familiar with the operation of the machine and the Multi-Function Handle (MFH). Do not use the Shuttle Mode option until you are completely familiar with the operation of the machine and the MFH.
Failure to comply could result in minor or moderate injury.

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Read this section carefully for a thorough understanding of operational requirements. Even if you operate other tractors of different make & model, you should thoroughly read this section of the manual and make sure that you are familiar with the location and function of all the controls of this tractor.

Do not start the engine or attempt to drive or operate the tractor until you are fully accustomed with all controls. It is too late to learn once the tractor is moving. If in doubt about any aspect of operation of tractor, consult your Authorized Dealer.

See Section 7 for lubrication and maintenance requirements. Tractor specifications can be found in Section 9

Running-In Procedure

Your tractor should provide long and trusted service, if given proper care during the first **50 h** running-in period and if serviced at the recommended intervals

Avoid overloading the engine. Operating in a high gear under heavy load may cause engine overloading. Overloading can be ascertained by checking whether engine is responding to a throttle increase.

Do not operate the engine without load. This can be as harmful to the engine as overloading. Ensure that the engine is subjected to heavy as well as light loads during the running-in period.

Use the lower gears when pulling heavy loads and avoid continuous operation at constant engine speeds. Operating the tractor in a low gear with light load and high engine speed will waste fuel. You will be able to save fuel and minimize engine wear by selecting the correct gears for a particular operation.

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7 - MAINTENANCE

General information

Introduction

This section gives full details of the service procedures necessary to maintain your tractor at peak efficiency. The **7-7** provides a ready reference to these requirements. Each operation has been numbered for easy reference. If in doubt about any aspect of lubrication and maintenance, consult your authorized dealer.

Safety precautions

Read and observe all safety precautions listed in “Servicing the Tractor” in the introduction section at the front of this Manual.

NOTE: *Dispose off used filters and fluids properly as per the laws of the country.*

⚠ CAUTION

Avoid injury!
Do not remove the vent caps while the engine is running.
Failure to comply could result in minor or moderate injury.

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During the first 50 hour operation

In addition to the regular maintenance operations listed, check following items every **10 h** or daily during first **50 h** of operation:

1. Check engine oil.
2. Check Transmission oil level
3. Wheel nuts for tightness.
4. Front axle hub oil levels (4 wheel drive)

NOTE: *Park the tractor on level ground and where applicable, extend all cylinders on implements or attachments before checking oil levels.*

The First 50 Hours Service

In the first **50 h** service, make sure that following additional service operations are carried out. Items are listed in the ‘First **50 h** service’ check list (See Warranty Booklet supplied along with this manual).

- Check and adjust fan/alternator belt tension.

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8 - TROUBLESHOOTING

Fault code resolution

Maintenance - Troubleshooting

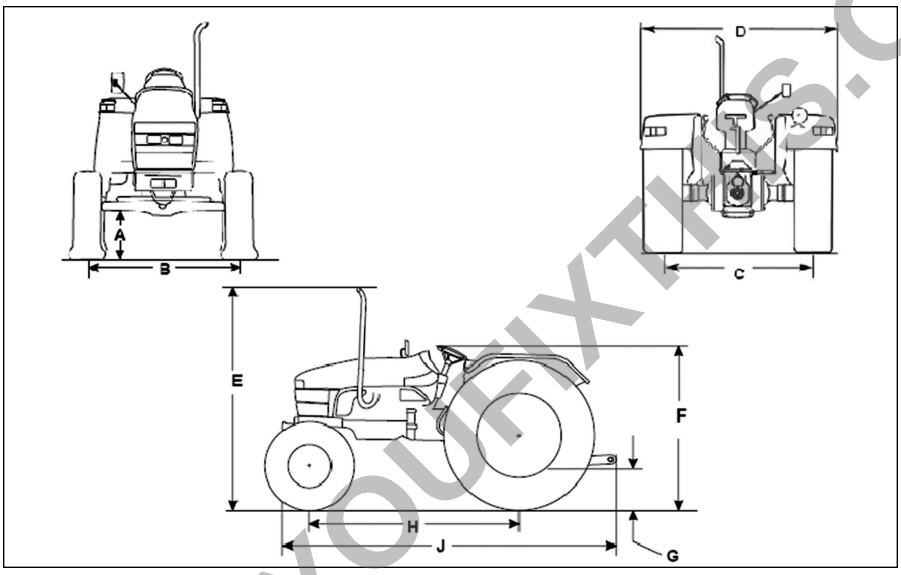
Problem	Possible Cause	Correction
The engine does not start or starts with difficulty	Incorrect starting procedure.	See starting procedure
	Tractor in gear.	Put shuttle lever in neutral.
	Fuel level low or empty.	Check fuel level & fill
	Air in fuel system.	Bleed fuel system.
	Fuel system choked	Contact your authorised dealer.
	Fuel filter clogged.	Replace filter.
	Fuel pump injector faulty.	Contact your authorised dealer.
	Fuel shut off knob is in pulled condition (Off condition)	Bring it back to normal position.
Improper engine running or stalls after start	Fuel filter clogged	Replace filter
	Poor diesel quality	Drain tank and fill with filtered diesel
	Fuel system choked.	Contact your authorised dealer
	Fuel injector faulty.	Contact your authorised dealer
Engine does not achieve maximum power	Engine overloaded.	Change to lower gear or reduce load.
	Air cleaner dirty	Carry out maintenance on air cleaner.
	Fuel filter clogged.	Replace filter.
	Engine overheating.	See engine overheating.
	Low engine operating temperature.	Check thermostat.
	Fuel injector faulty.	Contact your authorised dealer.
	Tappet clearance incorrect.	Get it adjusted by your authorised dealer.
	Throttle control lever mechanism faulty	Contact your authorised dealer.
Abnormal engine knock	Oil level low.	Top up the oil level.
	Spill cut-off timing incorrect	Contact your Authorised Dealer
	Oil pressure low.	Contact your authorised dealer
	Engine over heating	See engine overheating

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9 - SPECIFICATIONS

Dimensions



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NOTE: *The following dimensions are based on standard tractors fitted with tire sizes as shown. Allowance must be given for tires of larger or smaller dimensions.*

Model	3510	4010	4510	4710
Tire size	6.00x16 12.4x28	6.00x16 12.4x28	6.00x16 13.6x28	6.00x16 13.6x28
(A) Ground clearance under front axle	**370.0 mm** (**14.6 in**)	**500.0 mm** (**19.7 in**)	**385.0 mm** (**15.2 in**)	**382.0 mm** (**15.0 in**)
(B) Front track width (standard)	**1275.0 mm** (**50.2 in**)	**1275.0 mm** (**50.2 in**)	**1385.0 mm** (**54.5 in**)	**1350.0 mm** (**53.1 in**)
(C) Rear track width (standard)	**1330.0 mm** (**52.4 in**)	**1330.0 mm** (**52.4 in**)	**1340.0 mm** (**52.8 in**)	**1335.0 mm** (**52.6 in**)
(D) Overall width (standard)	**1700.0 mm** (**66.9 in**)	**1700.0 mm** (**66.9 in**)	**1700.0 mm** (**66.9 in**)	**1705.0 mm** (**67.1 in**)
(E) Height to top of exhaust	**2250.0 mm** (**88.6 in**)	**2250.0 mm** (**88.6 in**)	**2250.0 mm** (**88.6 in**)	**2260.0 mm** (**89.0 in**)

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Check the instruments frequently. Keep the radiator and various oil reservoirs filled to the recommended levels.

Pre-operation checks

Before operating the tractor, ensure that you are thoroughly familiar with the location and operation of the controls.

Perform daily lubrication and maintenance operation in accordance with Section 7 .

After completing the daily maintenance operations, take a walk around tractor for visual inspection. Pay particular attention and check the following items:

1. Fan belt for cracks.
2. Engine area for accumulation of debris.
3. Hoses, lines and fittings for leaks and damages.
4. Tires for damage.
5. Hardware for looseness.
6. Leakage at joints.

Make necessary repairs before using the tractor.

Starting the unit

Starting the tractor with jumper cables

⚠ DANGER

Eye injury hazard!
Wear eye protection when jump-starting the machine and when charging the battery.
Failure to comply will result in death or serious injury.

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Maintenance planning

Maintenance chart

Maintenance requirements	Lubricate	Clean	Check	Change	Adjust	Drain	Top up	Page No.
Every 10 hours or daily								
Engine oil level	■							**7-10**
Radiator coolant level	■						■	**7-10**
Air pre cleaner		■						**7-11**
Air cleaner oil Bowl (if required)		■					■	**7-11**
Hydrostatic steering oil level	■						■	**7-12**
Water drain plug (fuel filters)						■		**7-12**
First 50 hours								
Engine oil				■				**7-23**
Engine oil filter				■				**7-23**
Change fuel filter (Primary)								**7-13**
Hydraulic oil filter				■				**7-20**
Front axle differential housing – Four-Wheel Drive (4WD)	■						■	**7-20**
Front axle reduction hubs 4WD	■						■	**7-25**
Every 50 hours or weekly								
Clutch pedal free play	■				■			**7-14**
Brake pedal free play	■				■			**7-14**
Wheel, nuts and bolts	■				■			**7-15**
Tire pressure	■				■			**7-15**

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Problem	Possible Cause	Correction
	Tappet setting incorrect	Contact your authorised dealer.
Low engine operating temperature	Thermostat malfunction	Replace thermostat.
	Water temperature gauge faulty	Get it checked by your authorised dealer
Engine oil pressure warning light glows (Oil Pressure low)	Oil level low.	Top up the oil level, as required.
	Incorrect grade of oil.	Drain and refill with oil of correct grade and viscosity.
	Oil pump faulty.	Contact your authorised dealer.
Excessive oil consumption	Oil level too high.	Reduce oil level.
	Incorrect grade of oil.	Use oil of correct viscosity
	Oil leakage	Contact your authorised dealer.
Engine over heating	Radiator cap defective.	Replace cap.
	Radiator core / fins clogged.	Clean
	Engine overloads	Change to lower gear or reduce load.
	Engine oil level low.	Top up oil level.
	Coolant level low.	Top up coolant level in radiator tank; check system for leakages. In case leakage still persists, contact your authorised dealer.
	Fan/Alternator belt slipping or wornout.	Check belt tension. Replace belt, if worn.
	Thermostat defective.	Change.
	Cooling system clogged internally.	Flush cooling system
	Thermostat not properly functioning.	Check thermostat.
	Hoses leaking.	Tighten hose connections.
	Temperature indicator or gauge not working properly.	Contact your authorised dealer.
Excessive fuel consumption.	Air cleaner dirty or clogged.	Carry out maintenance on air cleaner.
	Engine overloaded.	Change to lower gear or reduce load.
	Tappet clearance wrong.	Contact your authorised dealer.
	Implement wrongly adjusted..	Contact your authorised dealer.
	Engine temperature too low.	Contact your authorised dealer.

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Model	3510	4010	4510	4710
(F) Height to top of steering wheel	**1620.0 mm** (**63.8 in**)	**1620.0 mm** (**63.8 in**)	**1570.0 mm** (**61.8 in**)	**1570.0 mm** (**61.8 in**)
(G) Ground clearance under rear axle	**410.0 mm** (**16.1 in**) & **455.0 mm** (**17.9 in**)	**410.0 mm** (**16.1 in**)	**410.0 mm** (**16.1 in**) & **455.0 mm** (**17.9 in**)	**455.0 mm** (**17.9 in**)
(H) Wheel base	**1910.0 mm** (**75.2 in**)	**1910.0 mm** (**75.2 in**)	**1910.0 mm** (**75.2 in**)	**1965.0 mm** (**77.4 in**)
(J) Overall length	**3440.0 mm** (**135.4 in**)	**3440.0 mm** (**135.4 in**)	**3440.0 mm** (**135.4 in**)	**3440.0 mm** (**135.4 in**)
Minimum radius of turning circle	**3210 mm**	**3210 mm**	**3210 mm**	**3210 mm**

NOTE: *If your tractor has tires of a different size, then the above dimensions will vary due to the difference in the rolling radius and section width of the tires fitted.*

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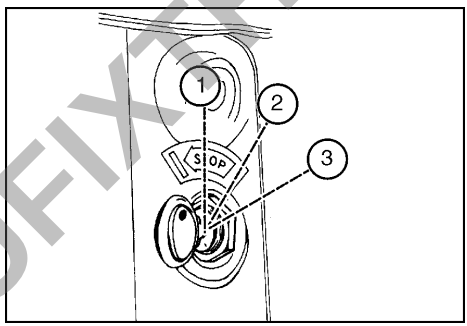
- If engine fails to start, repeat the above procedure operating the starter motor for up to max10 seconds for a single crank. If engine still fails to start, repeat the whole procedure after **4 - 5 min**.
- Do not remove thermostat as this could cause engine problems.
- Do not cover engine or radiator during cold weather.

Stopping the unit

Stopping the engine

To stop the engine, carry out the following procedure:

- Remain in the driver seat.
- Bring the hand throttle lever to the idle position.
- Apply the parking brake.
- Ensure that both gear shift levers are in neutral and that the PTO. lever is in dis-engaged position.
- Move the hydraulic lift Position control lever fully forward to lower all hydraulic equipment to the ground.
- Bring the key start switch to position 1.



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⚠ WARNING

Avoid injury!
Always stay clear of the implement operating area. In particular, DO NOT stand between the tractor and the trailed vehicle or either three-point linkage when operating lift controls. Make sure no bystanders are within or near these operating areas.
Failure to comply could result in death or serious injury.

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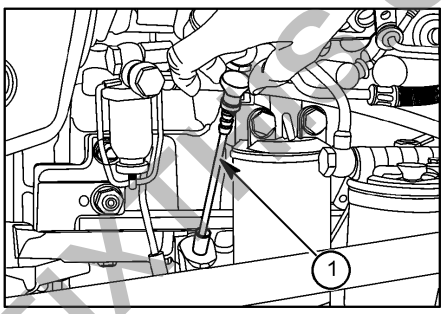
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Every 10 Hours of Operation or Daily (Whichever Occurs First)

Check engine oil level

1. Before checking the oil level, ensure that the tractor is on level ground, stop the engine and wait for a short period to allow the oil to drain back into the sump.
   Check the oil level by means of the dipstick **(1)** . If the level is below min. mark, top up with fresh oil after removing the filler cap.
   Do not fill above the upper (max.) line. Excessive oil will be burned off within a short time and give a false impression of oil consumption.
   See Section 9 for the correct oil specifications and quantity.



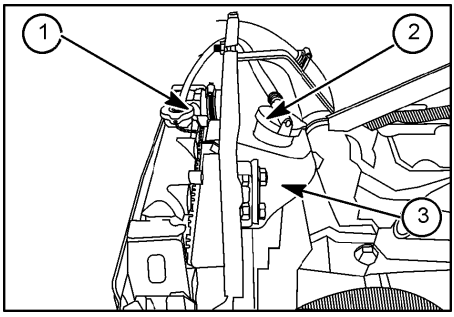
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Engine cooling system - Check

Check Radiator Coolant Level

1. Peak power operation, followed by a rapid reduction in power requirement and engine speed, may cause the coolant to boil and be discharged from the radiator overflow tube. Normally, this loss of coolant is small and of little consequence, but repeated loss can significantly lower the coolant level and necessitate topping up.

NOTE: *Never use tractor without radiator cap* ***(1)*** *as this will result into boiling and hence evaporation of coolant.*



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Problem	Possible Cause	Correction
	Incorrect ballast	Add ballast to eliminate wheel slippage. Contact your authorised dealer for further details.
	Fuel injector nozzles faulty.	Contact your authorised dealer.
	Excess tyre pressure/tyre slippage or incorrect ballast.	Inflate tyres to recommended pressure.
	Brakes system faulty/ jammed.	Contact your authorised dealer.
The electrical system does not work.	Battery terminals loose or corroded.	Clean and tighten terminals.
	Sulphated batteries.	Check electrolyte level. After that contact your authorised dealer.
	Low sp. gravity or lack of continuity	Change or re-fill with electrolyte to required sp. gravity.
Low starter motor speed and difficulty in starting engine.	Connections loose or corroded.	Rectify
	Battery discharged.	Check electrolyte level.
Starter motor does not work.`	High-low selector gear & Gear shifter levers engaged.	Move gear levers to neutral.
	Connections loose or corroded.	Clean and tighten loose connections.
	Battery totally discharged.	Charge or replace battery
	Starter motor defective	Contact your authorised dealer.
Alternator Warning light flashes when engine is running.	Engine idling speed is low.	Increase idling speed.
	Fan/Alternator belt loose/ cut.	Check belt tension/ replace if cut.
	Battery faulty.	Check electrolyte level. After that contact your authorised dealer.
	Alternator faulty.	Contact your authorised dealer.
Battery not charging	Terminals loose or corroded.	Clean and tighten terminals.
	Sulphated batteries.	Check electrolyte level
	Belt loose or wornout.	Check belt tension, If necessary, replace the belt.
	Battery defective.	Change
The hydraulic system is not working properly.	Oil level low.	Top up the oil.
	Hydraulic filter clogged.	Replace hydraulic filter.

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Tractor weight – 2WD

Weight	3510	4010	4510	4710
On front axle	**730 kg**	**735 kg**	**735 kg**	**750 kg**
On rear axle	**1040 kg**	**1040 kg**	**1075 kg**	**1100 kg**
Total weight	**1770 kg**	**1775 kg**	**1810 kg**	**1850 kg**

***NOTE:** * with 6 jerican weights of **30 kg** each*

***NOTE:** The above weights are based on standard built units, without ballast or optional equipment and should be used as a guide only.*

Model		**4710 4WD**
Front		**9.50 - 24**
Rear		**13.6. - 28**
A	Ground clearance under below front axle center	**370.0 mm** (**14.6 in**)
B	Front track width (Std.)	**1440.0 mm** (**56.7 in**)
C	Rear track width (Std.)	**1335.0 mm** (**52.6 in**)
D	Overall width (Std.)	**1740.0 mm** (**68.5 in**)
E	Height to top of Exhaust	**2300.0 mm** (**90.6 in**)
F	Height to top of steering wheel	**1671.0 mm** (**65.8 in**)
G	Ground clearance under rear axle	**385.0 mm** (**15.2 in**)
H	Wheel base	**2005.0 mm** (**78.9 in**)
J	Overall length	**3400.0 mm** (**133.9 in**)

4WD (Tractor weight)

	Un-ballasted mass with standard ballast (kg)	**Max permissible ballasted mass (kg)**
Front	**1010 kg**	**1160 kg**
Rear	**1245 kg**	**2035 kg**
Total	**2265 kg**	**3195 kg**

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