4 - OPERATING INSTRUCTIONS

COMMISSIONING THE UNIT

Engine break-in procedure

Your tractor will provide long and dependable service if given proper care during the first 50-hour break-in period. During the first 50 hours of operation:

1. Avoid "lugging" the engine. Operating in too high a gear under heavy load may cause engine lugging, which is indicated when the engine will not respond to a throttle increase.
2. Use the lower gear ratios when pulling heavy loads and avoid continuous operation at constant engine speeds. You will save fuel and minimize engine wear by selecting the correct gear ratio for a particular operation. Operating the tractor in low gear with a light load and high engine speed wastes fuel.
3. Avoid prolonged operation at either high or low engine speeds without a load on the engine.
4. Check the instruments frequently and keep the radiator and oil reservoirs filled to recommended levels. Daily checks include the engine oil level, radiator coolant, and air cleaner.
5. After the first 50 hours of use, be sure to perform the maintenance items listed in the maintenance schedule.

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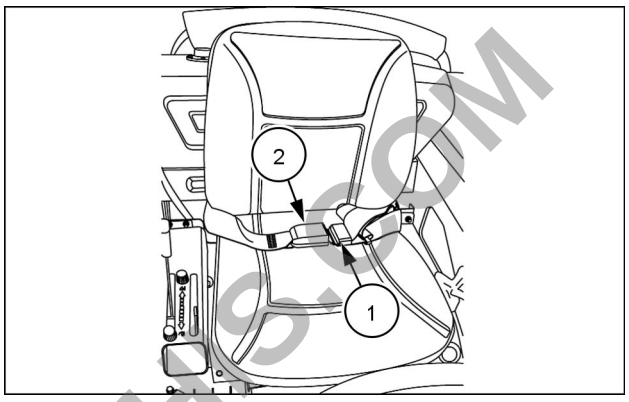
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3 - CONTROLS AND INSTRUMENTS

OPERATOR'S SEAT

Seat belt

The male end of the seat belt **(1)** is located on left-hand side of the seat. To extend length of seat belt, pull out on the male end until correct length is obtained. To latch seat belt, insert male end into the buckle **(2)** located on right-hand side of the seat. Make sure the belt is securely buckled and belt length is adjusted correctly for the size of operator.



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Use soap and water to clean the seat belt if necessary. Do not use carbon tetrachloride, naphtha, etc., as these chemicals will weaken the webbing. Additionally, do not bleach or dye the webbing, as these products will also weaken the webbing.

The seat belt must be examined regularly, and be replaced if it becomes damaged or worn.

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MAINTENANCE CHART

Maintenance chart

Maintenance action	Check	Change fluid	Replace	Tighten	Grease	Test	Bleed	Adjust	Drain fluid	Cleaning	Page no.
Every 10 hours or daily											
Engine oil level - Check	x										**7-16**
Engine cooling system - Check	x										**7-17**
After first 50 hours											
Engine oil and oil filter - Change		x									**7-18**
Fuel filter - Replace			x								**7-20**
Hydraulic oil filter - Replace - Hydraulic system			x								**7-20**
Hydrostatic Transmission (HST) oil filter - Replace			x								**7-21**
Roll Over Protective Structure (ROPS) - Check	x										**7-21**
Wheel bolts and nuts - Check				x							**7-22**
Every 50 hours											
Grease fitting - Lubrication					x						**7-23**
Transmission fluid level - Check	x										**7-24**
Clutch pedal free play - Check	x										**7-25**
Brake pedal free play - Check	x										**7-26**
Hydrostatic transmission (HST) neutral adjustment - Check	x										**7-27**
Fan belt tension - Check	x										**7-28**
Tire pressure - Check	x										**7-29**
Front axle differential fluid level - Check	x										**7-30**
Air cleaner - Clean - Primary element						x					**7-31**
Every 100 hours											
Fuel filter water separator - Drain fluid									x		**7-32**
Every 300 hours											
Engine oil and oil filter - Change		x									**7-18**
Hydraulic oil filter - Replace - Hydraulic system			x								**7-20**
Hydrostatic Transmission (HST) oil filter - Replace - HST system			x								**7-33**
Fuel filter - Replace			x								**7-33**
Fan belt - Adjust								x			**7-33**
Roll Over Protective Structure (ROPS) - Check - Maintenance and inspection	x										**7-34**
Wheel bolts and nuts - Check				x							**7-22**
Front wheel toe - in - Check	x										**7-34**
Air cleaner element - Replace			x								**7-35**
Every 600 hours											
Front axle differential oil - Change fluid		x									**7-36**
Transmission fluid - Change - Rear axle and hydraulic system		x									**7-37**
Every 1000 hours											
Air cleaner element - Replace			x								**7-38**
Engine coolant - Change		x									**7-39**
General maintenance											
Fuel injection system - Bleed							x				**7-39**
Fuel injectors - Bleed							x				**7-41**

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8 - TROUBLESHOOTING

SYMPTOM(S)

Engine - Troubleshooting

Problem	Possible Cause	Correction
The start motor does not rotate with the key switch in the (START) position.	Low battery charge	Charge or replace
	Loose battery or starter cable terminals	Tighten the terminal
	Key switch faulty	Repair or replace switch
	Safety start switch not completing circuit	Depress clutch pedal fully
	PTO safety switch is not in "OFF" position	Place PTO switch in "OFF" position
	Starter motor faulty	Repair or replace starter motor
The start motor rotates but the engine does not start	Low battery charge	Charge or replace battery
	Air in fuel system	Bleed out the air
	Fuel filter clogged	Clean or replace the filter
	Fuel shutoff valve on fuel filter in closed position	Open the valve
	Fuel shutoff solenoid on fuel injection pump stuck in off position	Check solenoid for proper operation, repair as needed
Engine speed is irregular	Air in fuel system	Bleed the fuel system
	Fuel filter clogged	Clean or replace the filter
	Injection nozzle clogged	Repair or replace nozzle
	Fuel leakage	Repair fuel system
	Irregular fuel injection	Repair or replace fuel injection pump
Engine speed is more than maximum rated high idle speed	Governor malfunction	Repair injection pump as needed
Engine stops suddenly during operation	Fuel shortage	Add fuel and bleed air from fuel system
	Faulty fuel injector	Repair or replace injector
	Faulty fuel injection pump	Repair or replace injection pump
	Internal parts of engine seized due to lack of lubrication	Repair engine as needed
Engine stops at low speed	Faulty injection pump	Repair or replace injection pump as needed
	Engine valve gap is not correct	Adjust the gap
	Low fuel injector pressure	Repair fuel injector as needed
Engine overheating	Lack of coolant	Add coolant as needed
	Fan belt slipping or belt is broken	Adjust belt tension or replace belt
	Dirt attached to the radiator or prescreen	Clean radiator fins or screen as needed
The color of exhaust smoke is white	Low engine operating temperature	Allow engine to obtain higher operating temperature
	Engine burning engine oil	Repair engine as needed
	Engine coolant entering engine exhaust	Repair engine as needed
The color of exhaust gas is black.	Air filter clogged	Clean or replace engine air filter
	Excessive fuel supply	Repair fuel injection pump as needed
	Faulty fuel injector	Repair or replace fuel injector
Low engine power	Fuel injector nozzle clogged	Repair injector as needed
	Carbon accumulation on valve seat	Repair valve and seats as needed
	Incorrect valve gap adjustment	Adjust valve gap to correct amount
	Incorrect fuel injection timing	Check and adjust fuel injection timing as needed
	Lack of fuel supply	Check fuel system for restriction
	Air filter clogged	Clean or replace air filter

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9 - SPECIFICATIONS

Wheel tread settings

NOTE: *Tread settings are measured from center of tire to center of tire.*

Front wheel settings

Tire Type	Setting
Agricultural, R1 7-12	**1158 mm** (**45.6 in**)
Turf, R3 25 x 8.50-14	**1214 mm** (**47.8 in**)
Turf,R3, Galaxy Garden Pro 240/60/R 12	**1240 mm** (**48.8 in**)
Flotation 300/65–12 122 AB	**1330 mm** (**52.36 in**)
Galaxy Turf Special, R3 24x13LLx12	**1303 mm** (**51.30 in**)

NOTICE: *Never attempt to widen the tread setting by reversing front wheels on a front-wheel drive system.*

NOTE: *Torque front wheel bolts and nuts to* ***176 – 196 N·m (130 – 145 lb ft)****.*

Rear wheel settings

Tire Type	Setting
Agricultural, R1 320/70R24 125B	**1039 mm** (**40.9 in**)
Turf, R3 41 x 14.00-20	**1076 mm** (**42.4 in**)
Turf, R3, Galaxy Garden Pro 320/70R 20	**1161 mm** (**45.7 in**)
Flotation 425/70–18 155B	**1185 mm** (**46.6 in**)
Galaxy Turf Special, R3 22.5LL/16.1	**1302 mm** (**51.3 in**)

NOTE: *Torque rear wheel bolts and nuts to .* ***176 – 196 N·m (130 – 145 lb ft)***

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Power Take-Off (PTO) operation

Rear Power Take-Off (PTO)

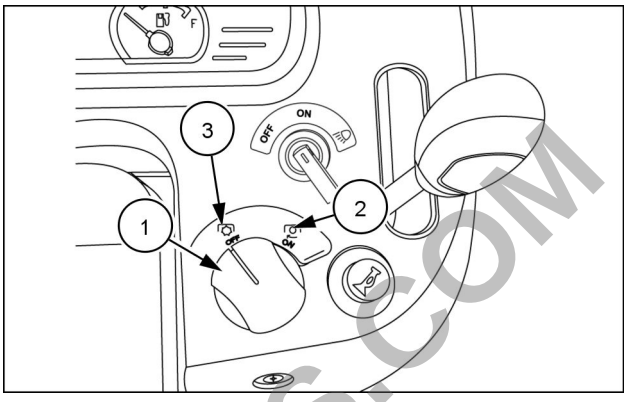
1. To engage the PTO, push the PTO switch **(1)** down and rotate the switch to the "ON" position **(2)**.

   NOTE: *When the PTO is engaged the PTO indicator light **(A)** will be illuminated on the instrument panel.*

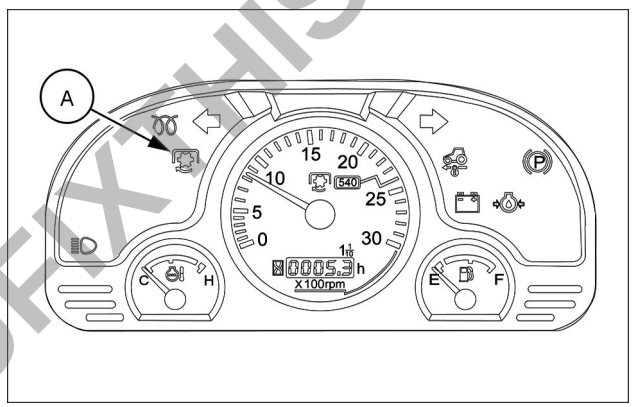
2. The PTO system is totally independent of the tractor ground speed, and the following operations can be performed.

- The tractor ground travel can be stopped without stopping the PTO.
- Stop the PTO by disengaging the PTO clutch without stopping the tractor ground travel.

3. To disengage the PTO, push down on the PTO switch and the switch will automatically return to the "OFF" position **(3)**
4. On mechanical transmission model tractors, depressing the clutch pedal will disengage the PTO.



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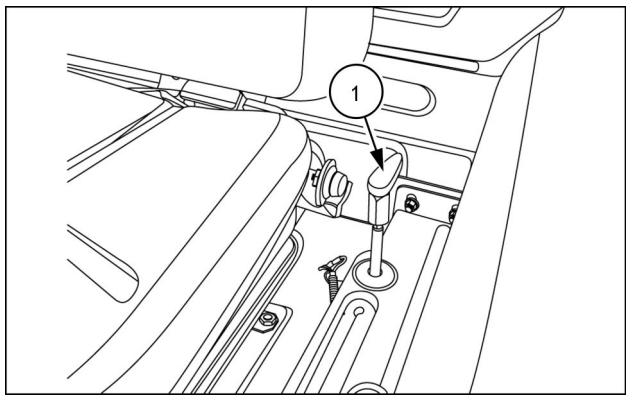
Mid Power Take-Off (PTO) (Optional)

1. To engage the mid PTO, pull up on the mid PTO lever **(1)**, and push down on the PTO switch and rotate the switch to the "ON" position.

   NOTE: *When the mid PTO is engaged the rear PTO will also be engaged. The mid PTO cannot be engaged separately.*

2. To disengage the mid PTO, push the mid PTO lever **(1)** down to the "OFF" position and , push down on the PTO switch and the switch will automatically return to the "OFF" position.

   NOTE: *To start the engine the mid PTO lever must be in the down (disengaged) position and the PTO switch in the "OFF" position.*



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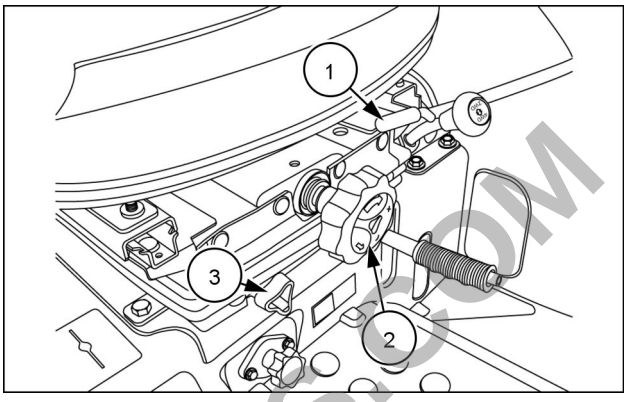
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Seat controls

Adjusting the Tractor Seat

ROPS tractors



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Your tractor is equipped with an adjustable suspension seat.

To move the seat forward or backwards, raise the adjustment lever **(1)**. After the seat is adjusted, release the adjustment lever.

To adjust the seat suspension, turn the weight adjustment knob **(2)**. Rotate the knob clockwise for a firmer ride or counter-clockwise for a softer ride.

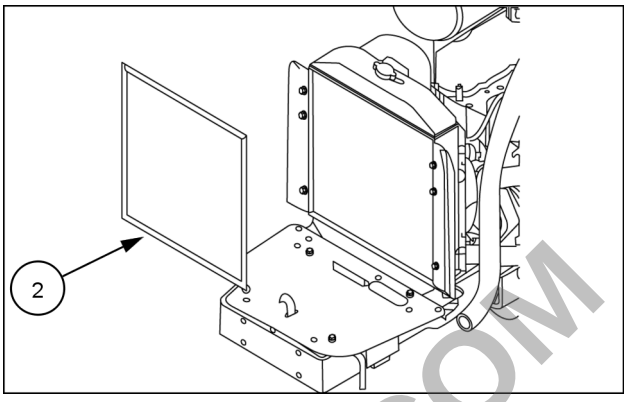
NOTE: *Before adjusting seat height, release tension on seat suspension by rotating knob* ***(2)*** *counter-clockwise.*

To adjust the seat height, turn the height adjustment knob **(3)**. Turn the knob clockwise to lower the seat and counter-clockwise to raise the seat.

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4. Check and clean front radiator screen **(2)** every 10 hours of operation.



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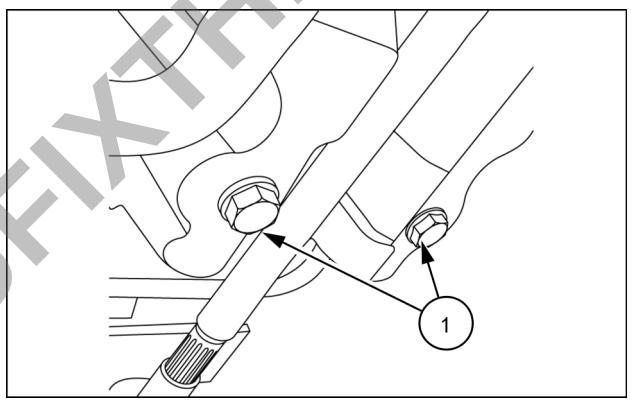
After first 50 hours

Engine oil and oil filter - Change

NOTE: *Change the engine oil and filter after the first 50 hours of operation, then every 300 hours thereafter. If the tractor is operated for extended periods of time at maximum rated power and speed, or under other types of continuous, severe operating conditions, the engine oil and filter should be changed at 200 hour intervals following the initial oil change.*

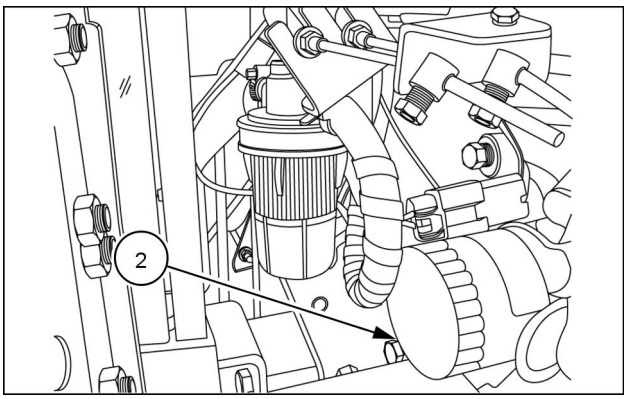
To change the engine oil:

1. Place a suitable container beneath the drain opening to catch the used oil. With the tractor engine off but at normal operating temperature, remove the drain plugs, **(1)**. Reinstall the plug after all of the oil has been drained.



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2. Place a container below the oil filter, **(2)** to catch the used oil and unscrew the oil filter. Discard the used oil and filter.
3. Coat the gasket on the new filter with a film of clean oil. Screw the filter into place until the gasket contacts its mating surface, then turn the filter approximately three-quarters of a turn by hand. Do not overtighten.



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Problem	Possible Cause	Correction
Instrument panel engine oil pressure indicator light is "ON" during operation.	Lack of engine oil	Add engine oil as needed
	Low viscosity of engine oil	Replace oil with proper viscosity type
	Faulty pressure switch	Replace switch
	Faulty engine oil pump	Repair oil pump as needed
	Engine oil filter clogged	Replace the filter
Instrument panel battery charging indicator is "ON" during operation.	Bad electrical connection	Check battery terminals, ground, and repair as needed
	Faulty alternator	Repair or replace alternator as needed
	Faulty battery	Replace battery
	Incorrect fan belt tension or belt broken	Adjust belt tension or replace belt

Clutch - Troubleshooting

Problem	Possible Cause	Correction
Clutch slips	Incorrect adjustment of clutch pedal free play	Adjust the pedal free play correctly
	Clutch disc lining worn or broken	Replace clutch disc
Clutch does not release	Excessive clutch pedal free play	Adjust the pedal free play
	Clutch disc damaged	Repair or replace clutch disc

Hydraulic service brakes - Troubleshooting

Problem	Possible Cause	Correction
After engaging brake pedal, pedal will not return	Return spring damaged	Replace the spring
	Lack of lubrication in brake shaft linkage parts	Clean and lubricate linkage as needed
	Damaged internal brake parts	Repair internal brake parts as needed
Brake does not work or only one side works.	Incorrect brake pedal free play	Adjust brake pedal free play to correct specification
	Brake disc lining worn or broken	Replace brake discs as needed
	Left/right pedal free play is different	Adjust both brake pedal free play to same specification

Hydraulic Lift System - Troubleshooting

Problem	Possible Cause	Correction
The three-point linkage will not raise	Lack of transmission / hydraulic oil	Add oil as needed
	Air in the hydraulic suction pipe	Tighten the hydraulic filter and check all hydraulic suction connections
	Hydraulic filter clogged	Replace hydraulic filter
	Faulty hydraulic pump	Check pump for proper flow replace pump if needed
	Faulty control valve	Check hydraulic control valve and linkage for proper operation repair as needed
	Faulty hydraulic lift cylinder	Repair lift cylinder as needed
	Faulty hydraulic relief valve	Check hydraulic system for correct pressure setting, repair as needed
Oil leakage	Connecting part loosened	Tighten
	Oil seal damaged	Replace
	Pipe cracked	Replace

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Tire pressures and permissible loads

Tire pressure must be considered when adding weights, implements, or attachments to the tractor or damage to the tractor may occur.

The chart below outlines tire inflation pressures and permissible loads.

Front tire pressures and permissible loads			
Tire Type	**Tire Size**	**Pressure**	**Load**
Agricultural:	7.00-12, 6PR, R1	**210 – 250 kPa** (**30 – 36 psi**)	**487 kg** (**1074 lb**)
Turf	25 x 8.50-14, 4PR, R3	**70 – 310 kPa** (**10 – 45 psi**)	**599 kg** (**1321 lb**)
Turf, Galaxy Garden Pro	240/60/R 12	**240 kPa** (**35 psi**)	**580 kg** (**1279 lb**)
Galaxy Turf Special	24 x 13LL x 12, 4PR,R3	**40 – 70 kPa** (**6 – 10 psi**)	**560 kg** (**1235 lb**)
Flotation	300/65–12 122 AB	**80 – 340 kPa** (**12 – 49 psi**)	**1060 kg** (**2337 lb**)

Rear tire pressures and permissible loads			
Tire Type	**Tire Size**	**Pressure**	**Load**
Agricultural	320/70R24 125B, 6PR, R1	**60 – 90 kPa** (**9 – 13 psi**)	**1250 kg** (**2756 lb**)
Turf	41 x 14.00-20, 4PR, R3	**70 – 170 kPa** (**10 – 25 psi**)	**1395 kg** (**3075 lb**)
Turf, Galaxy Garden Pro	320/70/R 20	**160 kPa** (**23 psi**)	**1150 kg** (**2535 lb**)
Galaxy Turf Special	22.5LL 16.1, 6PR,R3	**40 – 70 kPa** (**6 – 10 psi**)	**1690 kg** (**3726 lb**)
Flotation	425/70–18 155B	**80 – 350 kPa** (**12 – 51 psi**)	**2725 kg** (**6008 lb**)

NOTE: *Do not under inflate or overinflate tires. Do not exceed maximum inflation pressure listed.*

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Attaching three-point equipment

⚠ WARNING

Entanglement hazard!
Before attaching or detaching equipment or changing the Power Take-Off (PTO) shaft: 1) Apply the parking brake. 2) Move all controls to neutral and PTO control knob to the disengaged position. 3) Stop the engine and remove the key. 4) Wait for the PTO shaft to stop turning before leaving the cab.
Failure to comply could result in death or serious injury.

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NOTICE: *When attaching mounted or semi mounted implement to the three-point linkage, ensure that there is adequate clearance between the implement and the rear of the tractor. The clearances in the raised position should be checked by raising the implement carefully with the position control lever. With the implement fully raised there must be at least* ***100 mm*** *(****4 in****) of clearance between the implement and the nearest part of the tractor.*

Most implements can be attached to the tractor as follows:

1. Position the tractor so that the lower link hitch points are level with and slightly ahead of the implement hitch pins. Carefully bring the tractor rearwards to match the tractor and implement hitch points. First attach the left-hand lower link, then by adjusting the leveling box, attach the right lower link.
2. Lengthen or shorten the top link until the implement mast pin can be inserted through the mast and upper link of the implement.
3. When detaching the implement, the procedure is the reverse of attaching. The following hints will make detaching easier and safer.

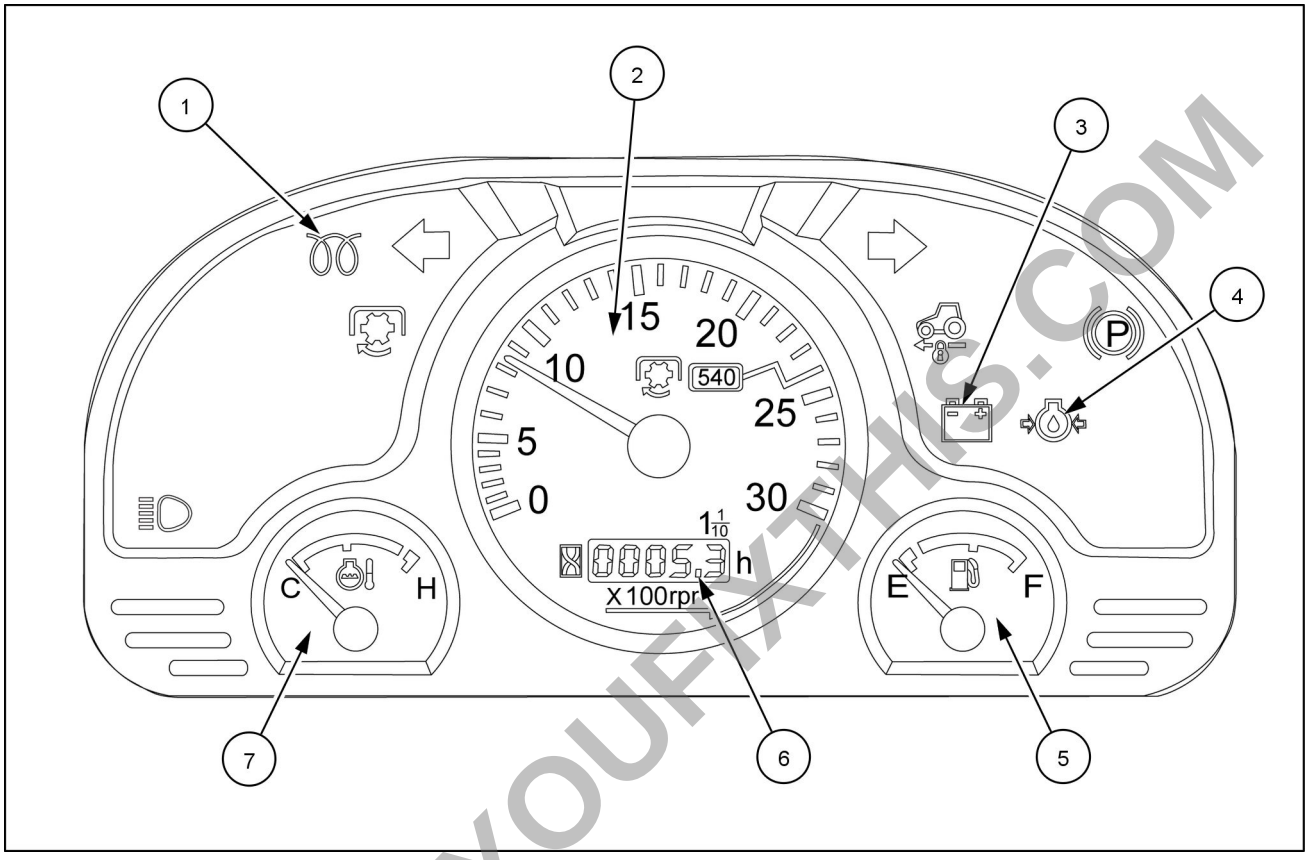
- Always park the implement on a level, firm surface.
- Implement should be supported so that it cannot tip or fall when detached from the tractor.
- Always relieve all hydraulic pressure in any remote cylinders before detaching.

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FORWARD CONTROLS

Instrument panel



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1. Cold Starting Indicator Light - Illuminates when the key switch is first turned to the "ON" position. It remains lit for approximately eight seconds, during which time the glow plugs are heating the precombustion chambers.
2. Tachometer - Registers engine rpm (Revolutions Per Minute). The gauge is marked in increments of 100 and will return to zero when the engine is not running.
3. Battery Charge Warning Light - Illuminates when the key switch is in the "ON" position and goes out when the engine is started. If this bulb becomes lit during operation, it indicates that the charging system is not operating normally. As the battery can become fully discharged under these conditions, the problem should be investigated as soon as possible.
4. Engine Oil Pressure Warning Light - Illuminates with the key switch in the "ON" position and remains lit for a short period of time after the engine is started. The light indicates oil pressure only and goes out when sufficient oil pressure is present at the oil sender. If the bulb becomes lit during operation, stop the tractor engine immediately and investigate the cause.
5. Fuel Gauge - Indicates the amount of diesel fuel remaining in the tank. The gauge is activated when the key switch is in the "ON" position. It will register "empty" with the key switch in the "OFF" position.
6. Hour Meter - Records the hours and portions of hours that your tractor has been operated regardless of engine RPM. Use the hour meter as a guide to determine hourly service and maintenance intervals.
7. Temperature Gauge - Indicates coolant temperature. It is activated when the key switch is turned to the "ON" position. The gauge will register cold with the key switch in the "OFF" position. If the needle registers in the white range of the gauge, this indicates a normal operating temperature. If the needle moves to the red portion of the gauge, this indicates an overheated condition. Stop the tractor engine immediately and investigate the cause.

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