4 - OPERATING INSTRUCTIONS

COMMISSIONING THE UNIT

Engine - Safety rules

⚠ WARNING

Unexpected machine movement!
Before starting the engine, be sure all controls are in neutral or disengaged. This prevents the accidental start up of power-driven equipment.
Failure to comply could result in death or serious injury.

W0169A

⚠ WARNING

Inhalation hazard! Risk to operators and bystanders.
Avoid running the engine in confined areas. Make sure there is adequate ventilation at all times.
Failure to comply could result in death or serious injury.

W0156A

⚠ WARNING

Hazard to bystanders!
Make sure the area surrounding the machine is clear of all persons before starting the engine.
Failure to comply could result in death or serious injury.

W0090A

First tractor use

Before starting your tractor for the first time, make the following checks:

- Make sure the tractor is properly lubricated and greased as described in the maintenance section of this manual.
- Check the engine oil level, engine coolant level, and transmission oil. See the maintenance section of this manual.
- Check that the tractor fuel tank is filled with clean fuel that meets the specifications given in this manual.
- Check that the tractor Diesel Exhaust Fluid (DEF)/AdBlue® tank is filled with clean fluid that meets the specifications given in this manual.
- Check the fuel system, Selective Catalytic Reduction (SCR) system, cooling system and engine for leaks.
- Remove any water or sediment from the water trap of the fuel tank and primary filter.
- Check the air pressure in the tires and check the wheel bolt torque.
- Make sure the Power Take-Off (PTO) guard is in the proper position.

Daily inspection

- Walk around and visually inspect the tractor daily. Check for such items as hoses or wires rubbing against other components, oil leaks, trash buildup, loose bolts or anything that would affect the normal operation of the tractor.
- Inspect the exhaust system and repair if leaking, failed, or damaged.
- Make any necessary corrections before operating the tractor.

Seat belts

Always securely fasten your seat belt before operating the tractor. From time to time, carefully inspect the seat belts for worn areas and replace belts when needed.

NOTE: *An operator presence safety switch is linked to the transmission and Power Take-Off (PTO) control logic and is activated by the operator sitting on the seat.*

⚠ WARNING

Equipment failure could cause accident or injury!
Always fasten seat belt securely before operating the machine. Inspect seat belt parts for wear and/or damage. To ensure operator safety, replace any and all damaged parts of the seat belt prior to operation.
Failure to comply could result in death or serious injury.

W0046A

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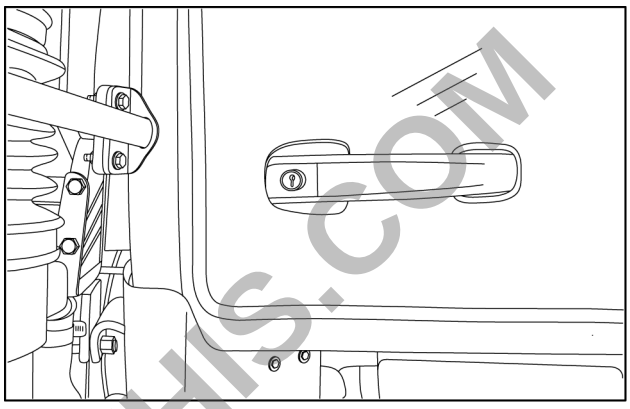
3 - CONTROLS AND INSTRUMENTS

ACCESS TO OPERATOR'S PLATFORM

Tractor access

Cab door lock

Use the key to lock or unlock the cab door from the outside.



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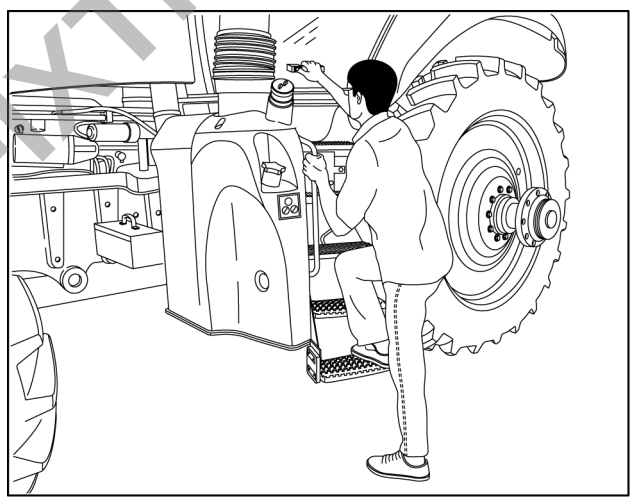
Entering/leaving the cab

⚠ WARNING

Fall hazard!
Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps.
Failure to comply could result in death or serious injury.

W0141A

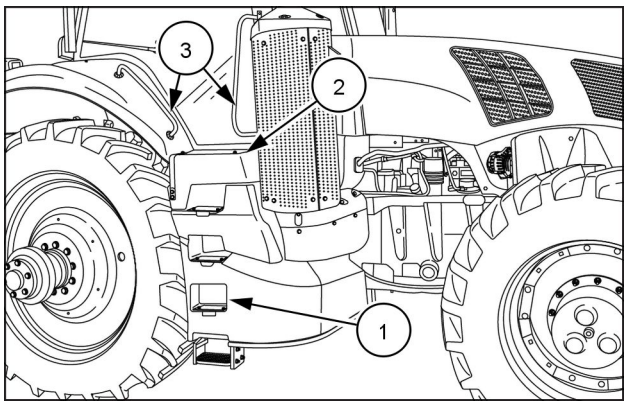
When mounting or dismounting the tractor, use the hand rails and steps provided.



RAIL14TR00588BA 2

Mounting/dismounting the tractor

Steps **(1)**, a platform **(2)** and hand rails **(3)** are also provided on the right-hand side of the tractor.



RAIL14TR00634AA 3

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7 - MAINTENANCE

GENERAL INFORMATION

Safety rules

⚠ DANGER

Improper operation or service of this machine can result in an accident.
Do not operate this machine or perform any lubrication, maintenance, or repair on it until you have read and understood the operation, lubrication, maintenance, and repair information.
Failure to comply will result in death or serious injury.

D0010A

⚠ DANGER

Improper operation or service of this machine can result in an accident.
Any unauthorized modifications made to this machine can have serious consequences. Consult an authorized dealer on changes, additions, or modifications that may be required for this machine. Do not make any unauthorized modifications.
Failure to comply will result in death or serious injury.

D0030A

⚠ WARNING

Improper operation or service of this machine can result in an accident.
Read and understand the SAFETY INFORMATION Section before you perform any maintenance, service, or repairs. Read and understand the specific service procedures for the components you plan to work with before you start servicing the machine.
Failure to comply could result in death or serious injury.

W0138A

⚠ WARNING

Improper operation or service of this machine can result in an accident.
If you do not understand a maintenance procedure, or doubt your ability to perform a maintenance procedure correctly, see your authorized dealer.
Failure to comply could result in death or serious injury.

W0157A

⚠ WARNING

Personal Protective Equipment (PPE) required.
When assembling, operating, or servicing the machine, wear protective clothing and PPE necessary for the particular procedure. Some PPE that may be necessary includes protective shoes, eye and/or face protection, hard hat, heavy gloves, filter mask, and hearing protection.
Failure to comply could result in death or serious injury.

W0353A

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8 - TROUBLESHOOTING

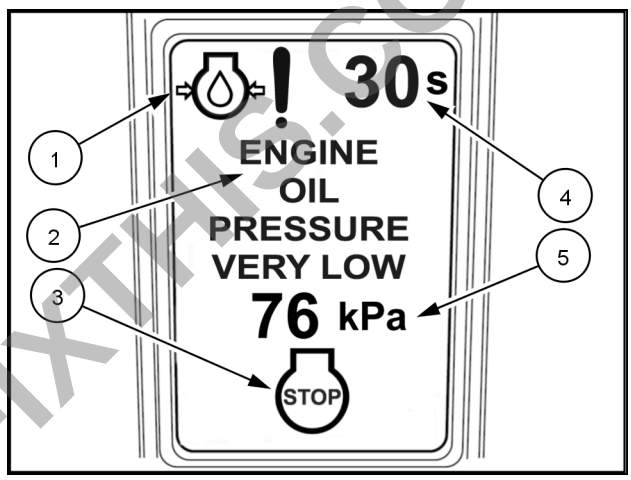
ALARM(S)

Display warnings overview

The lower display notifies the operator when there is a problem with the engine, transmission, hydraulics or other operational systems that require corrective action. The warnings include an audible alarm, one or more indicator lights and a text message in the lower display. The warnings are divided into 4 levels of importance and a descending order of priority within each level. In the case of multiple faults or warnings, the higher level or higher priority within a level will be the warning displayed.

With Level 1 warnings, the message screen contains:

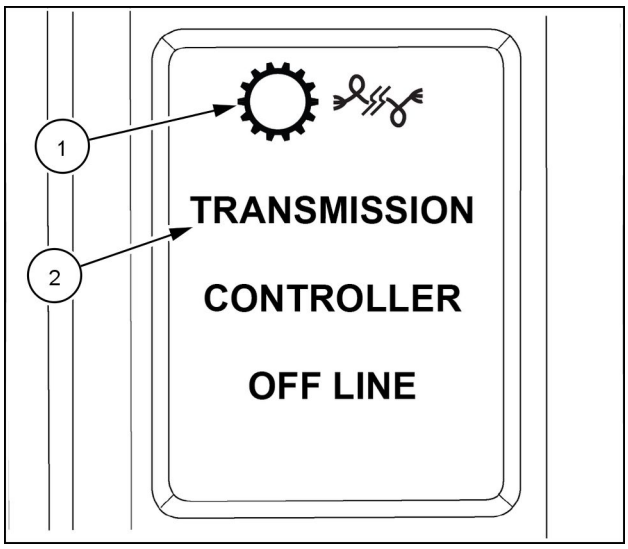
1. an icon for the affected system,
2. the warning message,
3. the engine shut down icon,
4. the 30 second countdown timer which displays on performance instrumentation,
5. and the recorded temperature or pressure which is out of range.



RAIL13TR00965BA 1

With other warnings, the message screen contains:

1. an icon for the affected system,
2. and the warning message.



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9 - SPECIFICATIONS

Engine specifications

Diesel engine

Type	Six cylinder, four stroke cycle, turbocharged, 4 valve per cylinder head, air to air aftercooled
Firing Order	1-4-2-6-3-5
Bore	**117 mm**
Stroke	**135 mm**
Piston displacement	**8.7 l**
Compression ratio	15.9 :1
Cylinder sleeves	Wet type, removable
High engine idle	**2240 RPM ± 25 RPM**
Rated engine speed	**2000 RPM**
Low engine idle	**900 RPM ± 50 RPM**

Lubrication system

All models

Oil pressure	**300 – 500 kPa** (**43 – 75 psi**)
System type	Constant pressure with piston oil cooling

Fuel system

All models

Fuel injection pump	
Type	Electronic
Make	High Pressure Common Rail Bosch CP3.3
Fuel injectors	Bosch electronically controlled

Air intake system

All models

Type	Dry type, air induction system, two stage

Cooling system

All models

Type	Pressure system, thermostat controlled bypass, centrifugal type pump
Radiator	Aluminum furnace brazed
Thermostat	Starts to open at approximately **84 °C** (**183 °F**) ± **2 °C** (**3.6 °F**) fully open at **94 °C** (**201.2 °F**) ± **2 °C** (**3.6 °F**)
Pressure cap, deaeration tank	**120 kPa** (**17.4 psi**)
Fan drive type	Viscous

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NOTE: *The Operator's Manual consists of two volumes. The first volume contains operating information, the second volume the maintenance and diagnostic information.*

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2 - SAFETY INFORMATION

Safety rules and signal word definitions

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

⚠ DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

⚠ WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation that, if not avoided, could result in machine or property damage.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information that clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

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Make sure that the brake pedal latch is engaged. You must lock brake pedals together for road travel.

Use safety chains for trailed equipment when safety chains are provided with machine or equipment.

Lift implements and attachments high enough above ground to prevent accidental contact with road.

When you transport equipment or a machine on a transport trailer, make sure that it is properly secured. Be sure the SMV on the equipment or machine is covered while being transported on a trailer.

Be aware of overhead structures or power lines and make sure that the machine and/or attachments can pass safely under.

Travel speed should be such that you maintain complete control and machine stability at all times.

Slow down and signal before turning.

Pull over to allow faster traffic to pass.

Follow the correct towing procedure for equipment with or without brakes.

Safety rules - Fire and explosion prevention

⚠ Fire and explosion prevention ⚠

Fuel or oil that is leaked or spilled on hot surfaces or electrical components can cause a fire.

Crop materials, trash, debris, bird nests, or flammable material can ignite on hot surfaces.

Always have a fire extinguisher on or near the machine.

Make sure that the fire extinguisher(s) is maintained and serviced according to the manufacturer's instructions.

At least once each day and at the end of the day, remove all trash and debris from the machine especially around hot components such as the engine, transmission, exhaust, battery, etc. More frequent cleaning of your machine may be necessary depending on the operating environment and conditions.

At least once each day, remove debris accumulation around moving components such as pulleys, belts, fans, etc. More frequent cleaning of your machine may be necessary depending on the operating environment and conditions.

Inspect the electrical system for loose connections and frayed insulation. Repair or replace loose or damaged parts.

Do not store oily rags or other flammable material on the machine.

Do not weld or flame cut any items that contain flammable material. Clean items thoroughly with non-flammable solvents before welding or flame-cutting.

Do not expose the machine to flames, burning brush, or explosives.

Promptly investigate any unusual smells or odors that may occur during operation of the machine.

Safety rules - General battery safety

⚠ General battery safety ⚠

Always wear eye protection when you work with batteries.

Do not create sparks or have open flame near a battery.

Ventilate the area when you charge a battery or use a battery in an enclosed area.

Disconnect the negative (-) terminal first and reconnect the negative (-) terminal last.

When you weld on the machine, disconnect both terminals of the battery.

Do not weld, grind, or smoke near a battery.

When you use auxiliary batteries or connect jumper cables to start the engine, use the procedure shown in the operator's manual. Do not short across terminals.

Follow the manufacturer's instructions when you store and handle batteries.

Battery post, terminals, and related accessories contain lead and lead compounds. Wash hands after handling. This is a California Proposition 65 warning.

Battery acid causes burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

Keep out of reach of children and other unauthorized persons.

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Vehicle vibration levels

In compliance with 78/764/EEC, the operator's vibration level for the T8. series tractors are described below.

Standard air suspension seat

Vibration dampening

Load	Maximum amplitude ratio	Frequency
40 kg	1.18	**1.36 Hz**
80 kg	1.10	**1.18 Hz**

Vibration transmission – Input vibration: Category A, Class II – Ambient temperature: 21 °C

Driver	Corrected vibration level on the seat
Heavy **98.4 kg**	**0.94 m/s²**
Light **58.5 kg**	**1.16 m/s²**

Vibration transmission – Input vibration: Category A, Class III – Ambient temperature: 21 °C

Driver	Corrected vibration level on the seat
Heavy **98.4 kg**	**0.95 m/s²**
Light **58.5 kg**	**1.18 m/s²**

Semi active air suspension seat

Vibration dampening

Load	Maximum amplitude ratio	Frequency
40 kg	0.668	**1.17 Hz**
80 kg	0.820	**1.17 Hz**

Vibration transmission – Input vibration: Category A, Class II – Ambient temperature: 21 °C

Driver	Corrected vibration level on the seat
Heavy **95 kg**	**0.484 m/s²**
Light **59 kg**	**0.722 m/s²**

Vibration transmission – Input vibration: Category A, Class III – Ambient temperature: 21 °C

Driver	Corrected vibration level on the seat
Heavy **95 kg**	**0.4814 m/s²**
Light **59 kg**	**0.750 m/s²**

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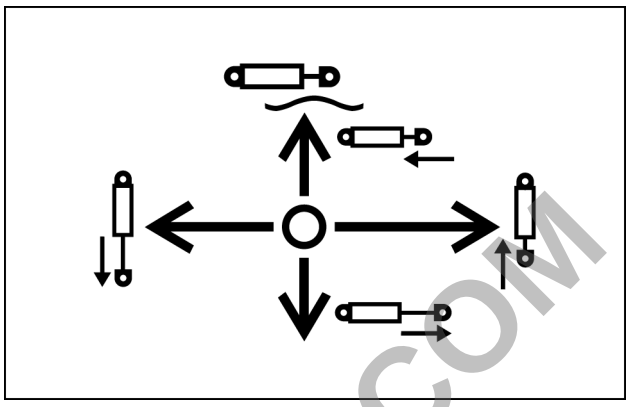
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Joystick

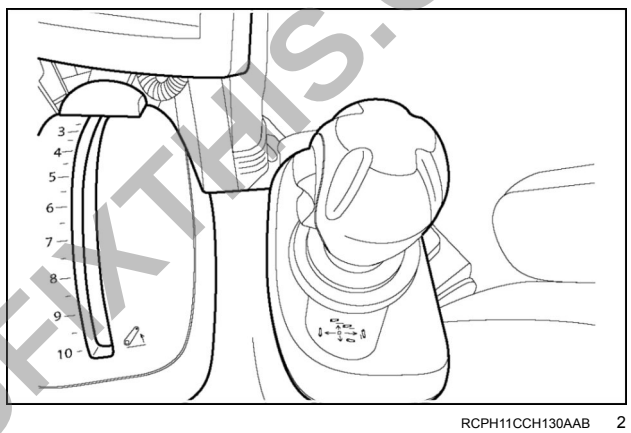
What the joystick controls depends on how many remote valves are available and whether the tractor is equipped with a front hitch or front working tool. See the table below to match your vehicle configuration with its functions.

Use the table below to view the functions available for your vehicle configuration, based on these assumptions:

1. When the joystick selector button on the control panel has no function, two audible beeps sound when the button is pressed.
2. If the front hitch is installed, remote valve four is dedicated to front hitch operation.
3. The front working tool option requires the joystick and minimum of five remote valves on the tractor.
4. When the front working tool option is enabled:
   - if five remote valves are present, the tool is operated by joystick using remote valves four and five,
   - or, if six remote valves are present, the tool is operated by joystick using remote valves four, five and six.
5. Front working tool controls are allocated as follows:
   - remote valve four controls raise/lower,
   - remote valve five controls dump/crowd,
   - remote valve six, if equipped, controls the third function.
6. When the front working tool option is enabled, automatic functions (timer, HTS) for the joystick are disabled.
7. In the case where a joystick is added as a dealer installed accessory, the tractor may have five or six remote valves and only four paddles. Paddle four is inoperative in this situation.



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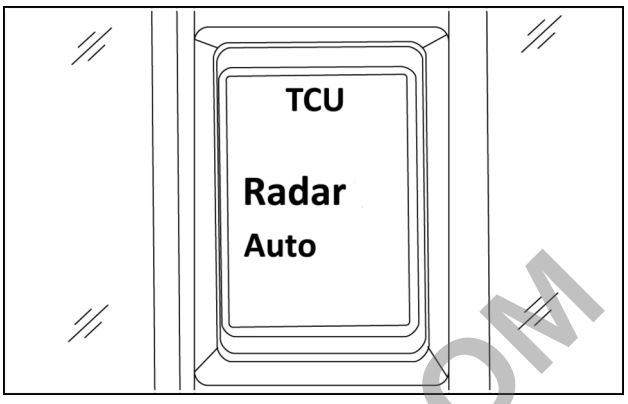
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Automatic calibration

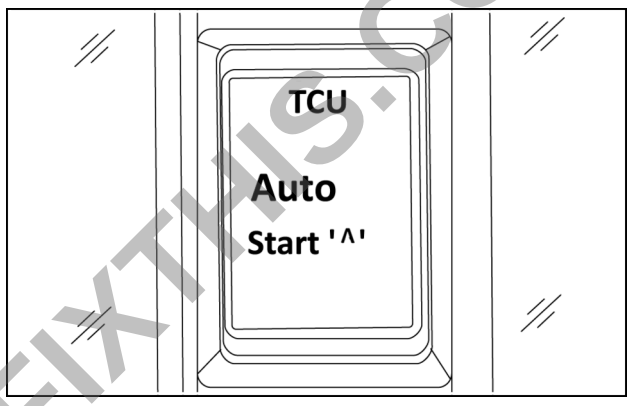
Select an area of hard, level ground and measure a course **60 m** (**197 ft**) in length. Clearly mark the start and finish point of this course with items easily visible from the operator's seat.

To automatically calibrate radar:

1. Press and hold the Enter key on the key pad within the first ten seconds of turning the key switch to the on position. The CONFIG MENU screen displays.
2. Use the Up or Down arrow key to select TCU and press the Enter key.
3. Use the Up or Down arrow key to select ETC and press the Enter key.
4. Use the Up or Down arrow key to select "TRANS RADAR" and press the Enter key.
5. Use the Up or Down arrow key to select "Radar Auto" and press the Enter key.
6. Align the tractor with the course and drive at a constant speed above **2 km/h** (**1.2 mph**). At the starting point, press the Up arrow key.
7. Drive the course at a constant speed. Press the Down arrow key at the finish point.
8. Press the Enter key to save the value and return to the CONFIG TCU menu.
9. If configuration is complete, select Exit to return to the normal operating screens.



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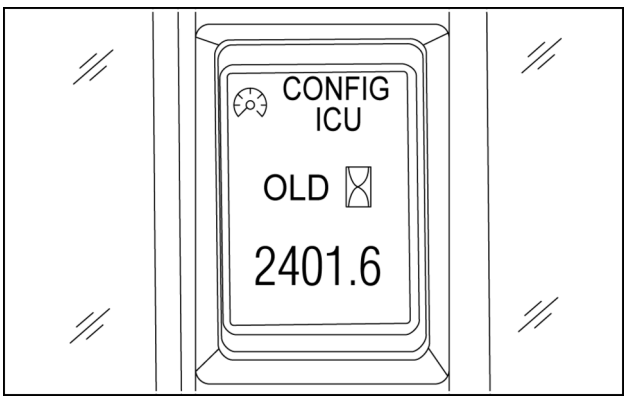
Old hours

The old hours feature is used when the Instrument Control Unit (ICU) is replaced and the existing hours on the tractor are lost. When the new ICU is installed, tractor hours restart at 0 (zero) hours on the display. The hours lost on the old ICU can be recorded with the old hours feature. The old hours are never combined with the hours on the new ICU, but can be displayed at any time by pressing and holding the engine hour key. The saved old hours display for 5 seconds.

To record old hours:

1. Enter the CONFIG ICU menu as described above.
2. Use the Up or Down arrow key to select Old Hours, and press the Enter key to access the screen.

1. Press the Enter key to display the hourglass symbol and the previously stored number or 0 (zero).
2. Use the Up arrow key to increase the stored value; use the Down arrow key to decrease the stored value.
3. Press the Enter key to save the value and return to the CONFIG ICU menu.
4. If configuration is complete, select Exit to return to the normal operating screens.



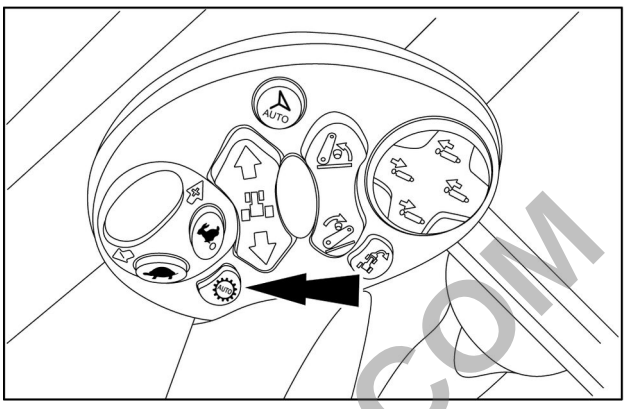
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Ground Speed Management (GSM)

Overview



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In standard operation, the engine RPM is set by the throttle lever. Transmission gears are selected by up or down shift buttons. To maintain a desired groundspeed, the operator adjusts both the gear setting and the throttle lever position.

Ground Speed Management (GSM) provides automatic control of tractor ground speed without the need to adjust engine speed or transmission gear for the Powershift transmission.

GSM operates in two modes: GSM field (plow icon) and GSM road (trailer icon). GSM road operates in gears 1-18/19 with continuously adjustable ground speed. The lowest gear used depends on an operator selection or the default. GSM field operates in gears 1-17, with continuously adjustable ground speed.

Press and release the auto button on the multi function handle to turn GSM field on, or press the auto button twice to turn GSM road on.

NOTE: *When in 15th gear or higher, only press the auto button once to turn GSM road on.*

In Ground Speed Management (GSM), the hand throttle is used to select the desired ground speed. Engine RPM and transmission gears are automatically selected to attain and maintain the selected ground speed.

The minimum throttle lever position is the minimum possible vehicle speed. The maximum throttle lever position is the maximum possible vehicle speed. Speed ranges differ between GSM field and GSM road.

Once the operator picks the desired ground speed, the control system picks the gear and engine RPM for the vehicle.

If the tractor is operating under a heavy load,

- The GSM system selects a lower gear so the powertrain can handle the heavier load.
- Engine RPM increases to produce more horsepower and maintain the target ground speed.
- If vehicle load continues to increase, the system selects lower gears and increases engine RPM to maintain the desired ground speed and accommodate the vehicle load, until maximum power is reached.

If the tractor is operating under light load,

- The GSM system selects a higher gear so that the powertrain operates most efficiently for the lighter load.
- Engine RPM decreases to produce less horsepower and maintain the target ground speed.
- If vehicle load continues to decrease, the system selects higher gears and reduces engine RPM to maintain ground speed and accommodate the load, until minimum power is reached.

By automatically matching engine RPM and the selected gear to the current load, the tractor operates at maximum efficiency at all times.

GSM interacts with other vehicle systems in this manner:

- Constant engine speed – Constant engine speed takes priority over GSM in both field and road mode. When constant engine speed is engaged, GSM only permits gearshifts in response to load changes.

  NOTE: *GSM Field mode only functions with constant engine speed settings of* ***1600 RPM*** *or higher.*
- Powerboost – Powerboost has no effect on GSM , but additional torque availability is managed by GSM.
- Electronic end of row – GSM modes are not recorded as part of an end of row sequence.

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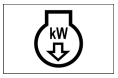
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Diesel Exhaust Fluid (DEF)/AdBlue® instrumentation warning

ATTENTION: *The fuel system, exhaust after-treatment system, and engine on your machine are designed and built to government emissions standards. Tampering by dealers, customers, operators, and users is strictly prohibited by law. Failure to comply could result in government fines, rework charges, invalid warranty, legal action, and possible confiscation of the machine until rework to original condition is completed. Engine service and/or repairs must be done by a certified technician only!*

Your NEW HOLLAND machine is equipped with a warning system to inform the operator of the DEF/AdBlue® level, system malfunctions, and engine power loss that may result from the SCR system for reducing exhaust emissions.

Warning symbols



Engine power loss occurring



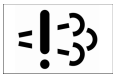
Engine stop



DEF/AdBlue®



Stop engine light



SCR failure



Low DEF/AdBlue® level

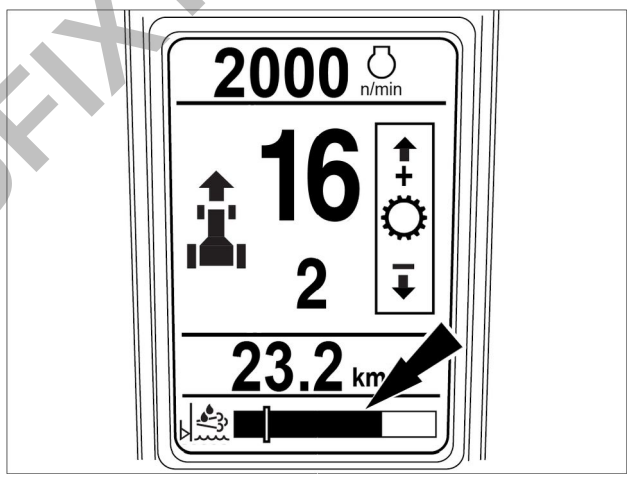


Warning/Fault light

The SCR system needs diesel exhaust fluid to control your vehicle's emissions. Accordingly, the tractor uses display indicators and messages to monitor the DEF/AdBlue® level and quality. The tractor warns the operator when the supply is low, when the supply is of poor quality or when the SCR system has a problem.

The upper display shows the DEF/AdBlue® fluid level at all times with a bar graph.

NOTE: *The bar graph is the same whether a tractor has a Powershift or Continuously Variable Transmission (CVT); the screen for a tractor equipped with a Powershift transmission is shown.*



RAIL17TR01836BA 2

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RECOVERY TRANSPORT

Safety rules

Freeing a stuck tractor

⚠ WARNING

Flying object!
Do not use chains, cables, or rope to pull the machine. If the chain, cable, or rope breaks or slips, it may whip with great force. Use only rigid drawbars or tow bars to pull your machine.
Failure to comply could result in death or serious injury.

W0328A

⚠ WARNING

Roll-over hazard!
Attempting to free a stuck machine can involve safety hazards: the stuck machine or the towing vehicle may tip or overturn, or the tow bar may fail. Always use the proper towing equipment to free a stuck machine.
Failure to comply could result in death or serious injury.

W0327A

To free a stuck tractor:

- Always attempt to back the tractor out if it gets stuck.
- Unhitch any towed implements or equipment.
- Clear mud from behind the rear wheels. Back the tractor out slowly.
- If necessary, clear mud from in front of all wheels and drive ahead slowly.

If it becomes necessary to pull with another vehicle:

- Use a tow bar hitched to the rear drawbar of the towing vehicle.
- Make sure that the towing devices are of adequate size and strength.
- Remove the front ballast weights to gain access to the tow clevis in the weight carrier. DO NOT ATTEMPT TO USE THE TOW CLEVIS ATTACHED TO THE FRONT WEIGHTS.
- Before moving or attempting to pull, ALWAYS make sure the area is clear of persons. When you are certain that it is safe to do so, drive ahead slowly and smoothly.

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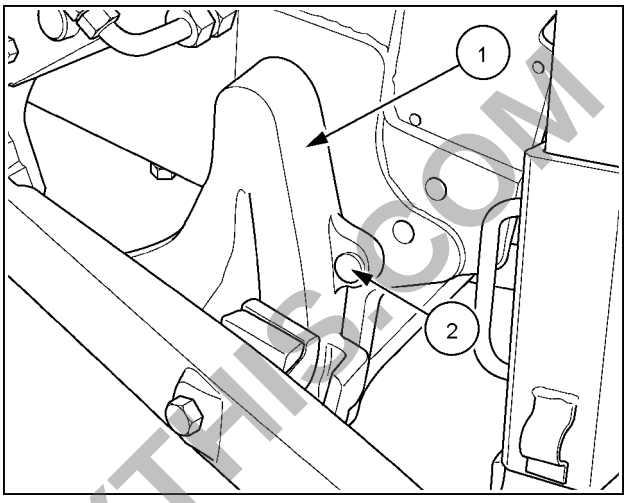
Sway limiter adjustment

The sway limiters for the three-point hitch can be mounted in three positions to control the side to side movement of the lower arms. The left-and and right-hand sway limiter must be adjusted to the same position.

No sway position

In the no sway position, the sway limiters (1) allow minimum side to side movement in both the working and transport positions of the hitch. The no sway position is recommended for row crop work.

NOTE: *The headed pins* ***(2)*** *must be installed from the outside of the sway limiters and secured with quick attach cotter pins.*

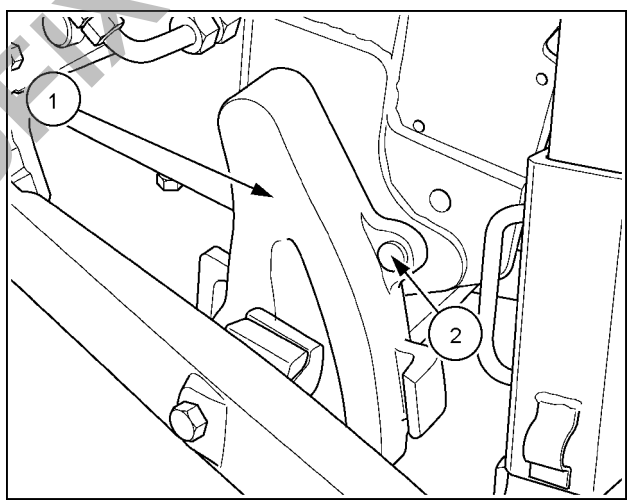


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Limited sway position

In limited sway position, the sway limiters **(1)** allow moderate side to side movement. The limiters are tapered to provide limited sway when the hitch is lowered and no sway when the hitch is raised (transport). The limited sway position is recommended when hitch to tire clearance is minimal.

NOTE: *The headed pins* ***(2)*** *must be installed from the outside of the sway limiters and secured with quick attach cotter pins.*

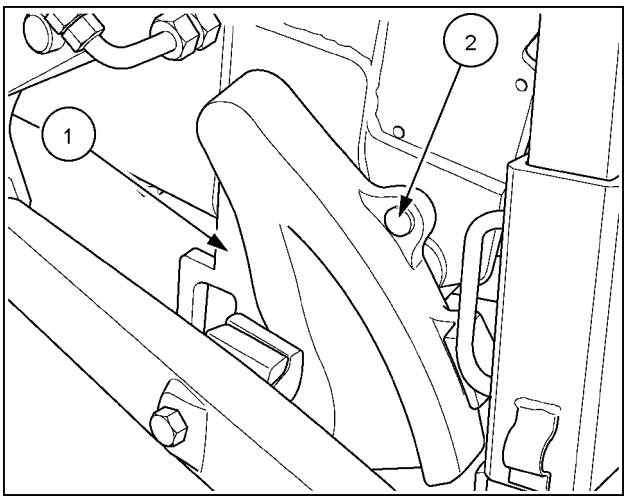


RCPH08CCH379AAC 2

Sway position

In sway position, the sway limiters **(1)** allow maximum side to side movement. The limiters are tapered to provide maximum sway when the hitch is lowered and no sway when the hitch is raised (transport). The sway position is recommended for tillage work.

NOTE: *The headed pins* ***(2)*** *must be installed from the outside of the sway limiters and secured with quick attach cotter pins.*



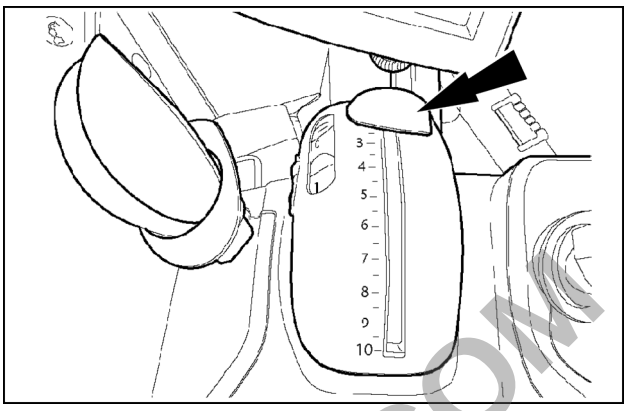
RCPH08CCH380AAC 3

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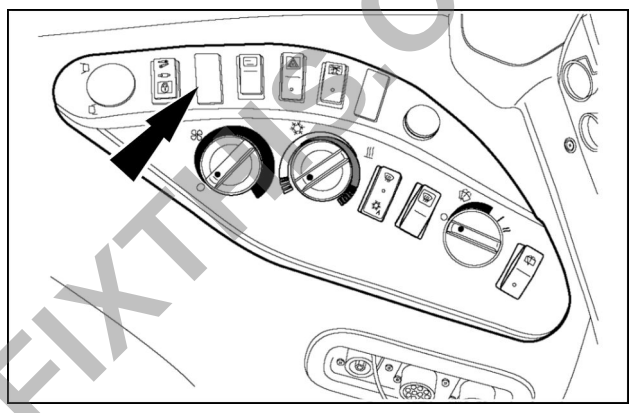
Raising the auto pickup hitch

1. Move the hitch position control fully rearward **(2)** to the raise/transport position.
2. Retract the auto hitch hook fully using the control lever for the remote valve. The mechanical latches will automatically snap into latched position.



RCPH11CCH133AAB 4

3. Push and release the bottom of the auto hitch/ride control switch.



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Ballast worksheet (continued)

			Front weight	Rear weight	Total weight	lbs/PTO HP	Weight split %	
							Front	Rear
Tractor without implement								
Ballasted Tractor Weight:								
Tire pressure (psi):	Front tire pressure	Rear tire pressure						
Maximum permitted weight check:	Front tire max load:	Front axle max load:	Rear tire max load:		Rear axle max load:		Total tractor max load:	
Tractor with implement								
Front implement:								
Rear implement:								
Ballasted tractor with implement weight								
Tire pressure (psi):	Front tire pressure	Rear tire pressure						
Maximum permitted weight check:	Front tire max load:	Front axle max load:	Rear tire max load:		Rear axle max load:		Total tractor max load:	

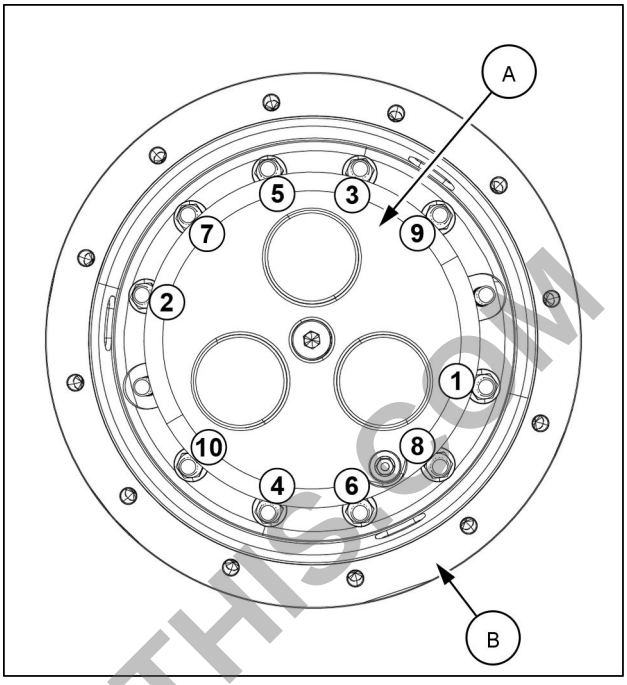
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Front singles

Spacer adapter to MFD axle hub bolts	
385 – 425 N	**285 – 315 lb ft**

A. MFD axle hub
B. Spacer adapter



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Rear wheel tread settings — singles (2.55 m overall width)

Rear axle size	Rear tire width	Wheel turned in Minimum/maximum tread Width	Wheel turned out Minimum/maximum tread width
102 mm diameter x **2490 mm** (**4.0 in** diameter x **98 in**)	650 / IF650	**1753 – 1880 mm** (**69 – 74 in**)	N/A
	710 / IF710	**1829 mm** (**72 in**)	N/A
	800	N/A	N/A
	900 / IF900	N/A	N/A
115 mm diameter x **2490 mm** (**4.5 in** diameter x **98 in**)	650 / IF650	**1753 – 1880 mm** (**69 – 74 in**)	N/A
	710 / IF710	**1829 mm** (**72 in**)	N/A
	800	N/A	N/A
	900 / IF900	N/A	N/A
127 mm diameter x **2490 mm** (**5.0 in** diameter x **98 in**)	650 / IF650	**1753 – 1880 mm** (**69 – 74 in**)	N/A
	710 / IF710	**1829 mm** (**72 in**)	N/A
	800	N/A	N/A
	900 / IF900	N/A	N/A

N/A = not achievable

NOTICE: *Maximum rear axle operating weight must be reduced if the maximum tread width used in its calculation is exceeded. Do not exceed maximum axle or tractor operating weight.*

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Water in fuel message

⚠ WARNING

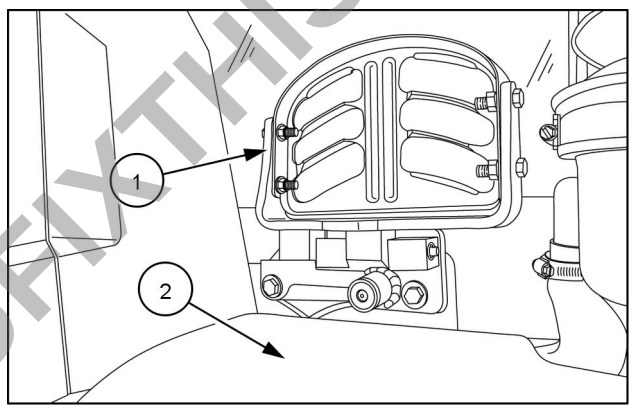
Chemical hazard!
When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.
Failure to comply could result in death or serious injury.

W0371A

NOTICE: *Before loosening or disconnecting any part of the fuel injection system, thoroughly clean the area to be worked on to prevent contamination.*

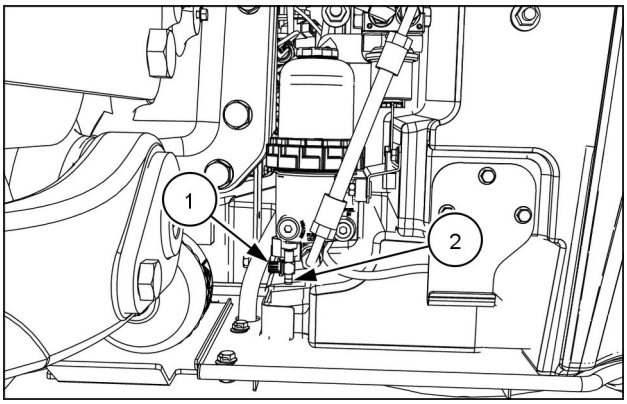
When the symbol appears on the tractor instrumentation, water has been detected in the auxiliary fuel filter.

1. Pull the windshield step **(1)** forward to release the magnetic latch, and raise the step.
2. Pull the filter cover **(2)** forward to release the magnetic latch, and raise the cover for the filter compartment to remove it.



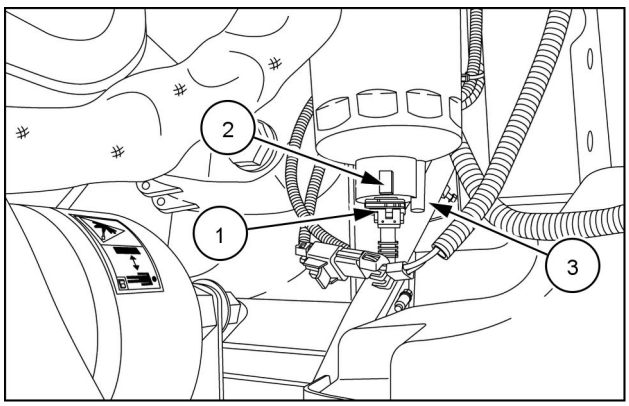
RAIL14TR00357AA 1

3. To drain the heavy duty fuel filter assembly:
   A. Be prepared to collect the water and fuel mixture in a suitable container.
   B. Open the drain by rotating the knob **(1)** approximately **90°**. Water and fuel will drain from the tube **(2)**.
   C. Drain until only clean fuel runs out, and then close the drain.
   D. Dispose of the water saturated fuel properly.



RAIL14TR00723AA 2

4. To drain the standard duty fuel filter assembly:
   A. Be prepared to collect the water and fuel mixture in a suitable container.
   B. Remove the sensor connector **(1)** to allow the collar to rotate.
   C. Open the drain by rotating the collar **(2)** approximately **180°** on the sensor. Water and fuel will drain from the tube **(3)**.
   D. Drain until only clean fuel runs out, and then close the drain.
   E. Dispose of the water saturated fuel properly.



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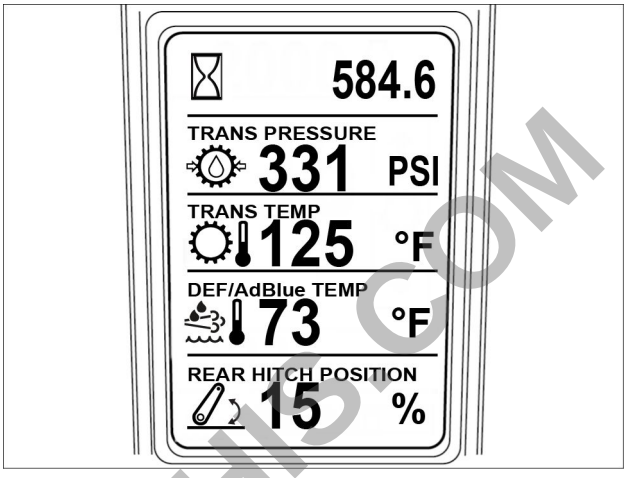
Transmission oil pressure

NOTE: *Expected oil pressure in the transmission is* ***2240 – 2450 kPa*** *(****325 – 355 psi****) when the transmission sump temperature is greater than* ***49 °C*** *(****120 °F****) and the engine operating at* ***1500 RPM****.*

1. Press the up arrow or down arrow key on the key pad until the TRANS TEMP window is reached.

NOTE: *Screen order is set by the operator. The transmission oil temp and system pressure screens could be together depending on setup. See Chapter 3 for more information on adjusting the screen contents on the tractor lower display.*

2. Operate the engine at **1500 RPM** until the transmission oil temperature displayed on the instrumentation reads at least **49 °C** (**120 °F**) .
3. Press the up arrow key until the transmission system pressure screen displays. With the engine operating at **1500 RPM**, check the transmission oil pressure on the instrumentation.
4. The value displayed should read be between **2240 – 2450 kPa** (**325 – 355 psi**). If the value is outside this range, see your dealer for adjustment of the regulated pressure setting.



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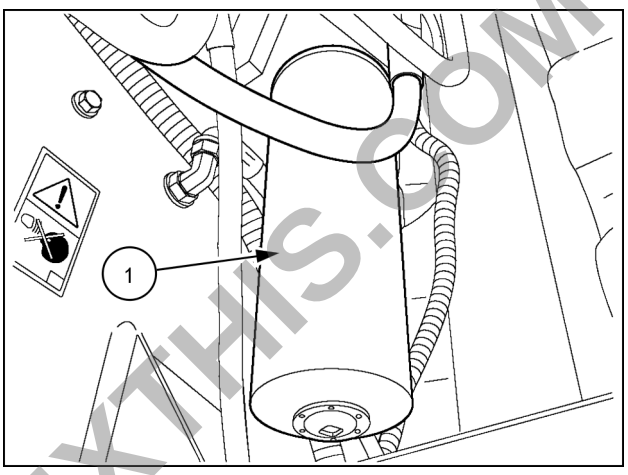
Regulated system oil filter*

NOTE: *You tractor hydraulic system is equipped with high performance, long life filters. The long life filter provides a longer change interval without reducing filtering efficiency.*

NOTICE: *Change the oil filter at the recommended time interval or when indicated by the service monitor. Your dealer has approved filters. Do not use other type filters.*

Powershift transmission

1. Use the following procedure to change the filter:
   A. Remove the oil filter **(1)** with a strap wrench or a drive ratchet on the bottom of the filter. Turn counter clockwise to remove.
   B. Apply clean oil to the gasket on a new filter.
   C. Install the new filter. Turn filter clockwise until gasket makes contact with the filter head. Tighten filter another one-third turn.
   D. Start engine and check for leaks. Shut engine off.
   E. Check oil level in the transmission. Add **NEW HOLLAND AMBRA MASTERTRAN® ULTRACTION** as needed.

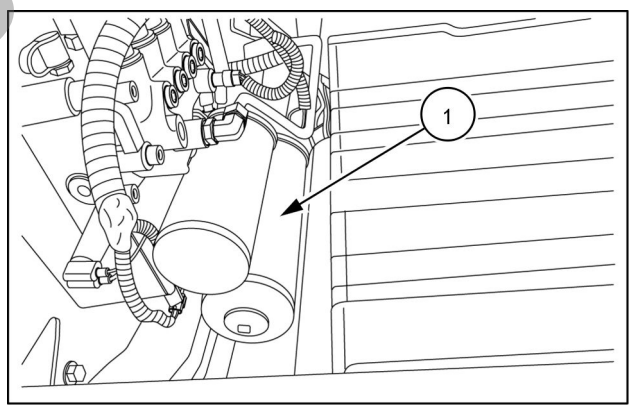


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NOTICE: *Do not use a filter wrench to install the filter. Overtightening can cause damage to the gasket and filter.*

Auto Command transmission

2. Use the following procedure to change the filter:
   A. Remove the oil filter **(1)** with a strap wrench on the bottom of the filter. Turn counter clockwise to remove.
   B. Remove the hydraulic filter **(1)** with a strap wrench on the bottom of the filter. Turn counter clockwise to remove.
   C. Apply clean oil to the gasket on a new filter.
   D. Install the new filter. Turn filter clockwise until gasket makes contact with the filter head. Tighten filter another one-third turn.
   E. Start engine and check for leaks. Shut engine off.
   F. Check oil level in the transmission. Add **NEW HOLLAND AMBRA MASTERTRAN® ULTRACTION** as needed.



RAIL12TR03289AA 2

NOTICE: *Do not use a filter wrench to install the filter. Overtightening can cause damage to the gasket and filter.*

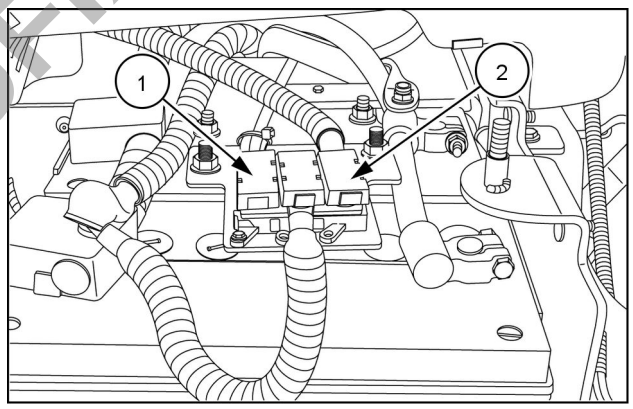
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Fuse no.	Circuit	Fuse amp
F-065	Luxury cab outlet 2	**10 A**
F-066	Luxury cab outlet 3	**10 A**
F-067	Luxury cab outlet 4 (unswitched)	**30 A**
F-068	Luxury cab outlet 5 (unswitched)	**30 A**
F-069	Luxury cab outlet 4 (switched)	**30 A**
F-070	Luxury cab outlet 5 (switched)	**30 A**
F-072	Side lights	**20 A**
F-073	Center lights	**30 A**
F-074	Left-hand high beam	**15 A**
F-075	Right-hand high beam	**15 A**
F-076	Left-hand low beam	**15 A**
F-077	Right-hand low beam	**15 A**
F-085	Tractor Control Unit (TCU) B+ (+12VA, VB, VR)	**5 A**
F-088	Foot throttle/fuel sender	**5 A**
-	-	-
F-090	12V Latch	**10 A**
F-091	Cab pressure fan relay	**5 A**
F-092	iTBV (Intelligent Trailer Brake) unswitched B+	**10 A**
F-093	iTBV (Intelligent Trailer Brake) switched B+	**10 A**
F-094	Trailer ABS (Automatic Braking System)	**10 A**

Battery compartment fuse identification

1.	F-082 Engine power distribution – **60 A**
2.	F-081 Cab power distribution – **200 A**



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Power train specifications

Transmission - Powershift

Standard	18 speed full power shift with hydraulically actuated clutches
Speed selection	18 forward and 4 reverse
Optional	23 speed full power shift (includes creeper) with hydraulically actuated clutches
Speed selection	23 forward and 6 reverse
Optional	19 speed full power shift with hydraulically actuated clutches (**40 km/h** or **50 km/h**)
Speed selection	19 forward and 4 reverse
Shift control	Electronically controlled switch actuated
Oil cooler	Transmission, hydraulic, steering and brake fluid

Transmission - Continuously Variable Transmission (CVT)

Type	Hydraulic CVT, input coupled
Pump type	Variable displacement (swash plate)
Motor type	Fixed displacement (bent axis)
Number of mechanical ranges	
Forward	4
Reverse	4
Output shaft speed in forward (RPM)	
Group 49 tires	**40 km/h** (**24.9 mph**) = **2931 RPM** **50 km/h** (**31.1 mph**) = **3656 RPM**
Group 48 tires	**40 km/h** (**24.9 mph**) = **3100 RPM** **50 km/h** (**31.1 mph**) = **3850 RPM**
Maximum reverse speed	Limited to **25 km/h** (**15.5 mph**)

Brakes

Type	Hydraulic, power-assisted, self-adjusting multiple wet plate type differential brakes

Axle differential and planetaries – Mechanical Front Drive (MFD) axles

Axle type	
Class 4.5 fixed - 4 pin, 12 bol	electrically controlled,
Class 4.75 fixed - 3 pin, 12 bolt	engaged with spring pressure clutch,
Class 4.75 saddle suspended -3 pin, 12 bolt	disengaged hydraulically
Class 5.0 fixed - 3 pin, 12 bolt	Full locking, electronically controlled differential
Class 5.0 saddle suspended -3 pin, 12 bolt	

Interaxle ratio – Front/Rear

***Front axle reduction ratio – T8.320 and T8.350**

Class 4.75 fixed and saddle suspended	1.32431	*21.500

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