Tigercat®

620H/625H/630H/632H/635H SKIDDER

OPERATOR'S MANUAL

SERIAL NUMBER 6209001 TO 62010000
SERIAL NUMBER 6250801 TO 6251000
SERIAL NUMBER 6306001 TO 6307000
SERIAL NUMBER 6320501 TO 6321000
SERIAL NUMBER 6353201 TO 6353700

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Exhaust after treatment Devices (if applicable)

- Diesel Oxidation Catalyst (DOC)
- Diesel Particulate Filter (DPF)
- Selective Catalytic Reduction (SCR)
- Diesel Exhaust Fluid (DEF) tank and dispensing systems

Exhaust Gas Recirculation Systems (EGR)

- EGR valve assembly
- EGR cooler

Cold Start Enrichment Systems

Electronic Control Units, Sensors, Solenoids, and Wiring harnesses used in above systems

Emissions warranty does not cover

- Repairs arising from storage deterioration, failure to maintain the equipment, negligence, alteration, improper use of the equipment, collision or other accident, vandalism, or other casualty, or operation beyond rated capacity or specification.
- Repairs arising from abuse or neglect, including but not limited to: operation without adequate coolant or lubricants, adjustments to the fuel system outside equipment specifications, over-speeding, improper storage, starting, warm-up, or shutdown practices, incorrect fuel or contaminated fuel, oil or other fluids.
- Normal maintenance services, such as engine tune-ups, engine fuel system cleaning, checks, adjustments, shimming, etc.
- Items replaced due to customer demand.
- Labour charges performed by anyone except a dealer authorized by contract to repair the equipment, unless they qualify under special provisions (i.e. outside labour).
- Any and all travel costs for items such as towing, service calls, or transporting a unit to and from the place where the warranty service is performed. Unless otherwise specified on the standard engine warranty certificate.
- Normal maintenance costs, including but not limited to: lubricants, coolants, fluids, fuel, filters, and associated labour.
- Claims involving the inspection or reconditioning of units after storage or prior use.
- Repairs arising from service performed by agents not approved by Tigercat.
- Repairs arising from any unauthorized modification to the product or the use of non-Tigercat parts, implements or attachments.
- Removal, replacement, or installation of non-Tigercat optional equipment, attachments or components.
- Premiums charged for overtime labour costs or out of shop expenses.
- Economic loss including lost profits, crop loss, equipment rental, or other expense.
- Unauthorized modification or updating machines without a warrantable failure.
- Any and all costs of dealer shop supplies incurred with repairs, including but not limited to: solvents, cleaners, anti-seize lubricants, loctite, sealant, adhesive, oil-dry, shop towels, etc.
- Failure of the machine, its implements or attachments caused by improper field application or loading.
- Any and all costs for coolant, fuel, or lube (oil) analysis including supplies and lab recommendations.
- Cost associated with cleaning of machine in preparation for servicing.

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WORKING WITH OIL

Direct contact with oil implies a risk of skin complaints (example: eczema). Strict hygiene should be observed.

Some advice which should be observed:

- Oils used in this machine may be hot enough to cause serious burns.
- Avoid contact with oil, particularly heated oil.
- Oil on the skin should be washed off immediately with soap and water.
- Wear protective gloves. Hands should be clean before putting on gloves. Apply protective cream to the hands to make washing easier.
- Don't put oily rags in your pockets.
- Oil soiled clothing should be changes as soon as possible.
- Keep an extra overall handy, but not in the machine where it can become dirty.
- Cuts and abrasions must be attended to immediately. Clean them and apply first-aid.
- Avoid breathing in oil fumes.
- Wash hands and arms frequently, for example, at each meal break or as often as possible.

SAFETY HAZARDS–VITON SEALS

O-rings and other seals manufactured of Viton material (fluorine rubber) produce a highly corrosive acid (Hydrofluoric) when subjected to temperatures above 315°C (600°F).

This contamination can have extreme consequences on human tissue since it is almost impossible to remove after contact.

The following procedures are recommended when inspecting equipment subjected to high temperatures such as fire:

- Visually inspect any seals or gaskets which have suffered from heat damage. They will appear black and sticky. If these are found, do not touch!
- Determine the material composition of any seals or gaskets, If fluro-elastomer seals (Viton, fluorel, or tecmoflon) have been used, the affected area must be decontaminated before undertaking further work. Natural rubber and nitrile materials are not hazardous.
- Disposable heavy duty gloves (neoprene) must be worn and the affected area decontaminated by washing thoroughly with limewater (Calcium Hydroxide solution).
- Any cloths, residue and gloves must be safely discarded after use.

NOTE: Burning discarded items is not recommended except in an approved incineration process where the dangerous products are treated by alkaline scrubbing.

DOZER BLADE CABLE GUIDES

Dozer Blade Cable Guides (Right Side Shown)
A Cable Guide

Guides installed in the dozer blade are intended to guide cables for proper placement and safe operation.

CABLE TENSION

To prevent damaging the cable assist mounts and front chassis the following acceptable maximum continuous cable tensions must not be exceeded.

- Maximum continuous cable tension for a double shackle configuration is 9,000 kgf (20,000 lbf) for each cable.

⚠ WARNING

Use the proper equipment. Inspect the cable and cable assist mount for damage before using. Never use equipment that shows signs of poor maintenance or damage. Repairs should only be made by qualified personnel.

The second safest location during lightning activity is inside a fully enclosed car, van, truck or bus with a metal roof and metal sides. The electrical energy of a lightning strike to these vehicles is carried to ground by the conducting outer metal surfaces. This is called the skin effect.

Do not seek safety from lightning strikes in vehicles with fibreglass or plastic body shells or in convertible top vehicles. None of these are safe, as they do not offer skin effect lightning protection.

Heavy forestry equipment, such as a skidder, loader, feller buncher, forwarder, etc. with a fully enclosed rollover protective structure (ROPS) cab, takes advantage of the skin effect and are therefore safe in electrical storms.

However, machines with only a rollover canopy, are not safe against lightning strikes as they are open to electrically conductive rainwater and do not benefit from the skin effect. Operators of this equipment must abandon their machines and get to a safer location before lightning strikes.

NOTE: The rubber tires on motor vehicles and heavy equipment do not increase safety from lightning strikes. Lightning has already travelled a great distance through the air to strike the vehicle. In comparison a few inches of rubber in a tire offers absolutely no additional insulation.

WHAT TO DO IF YOU ARE OUTSIDE AND SEE LIGHTNING OR HEAR THUNDER

IF YOU CAN, GET INSIDE:

Run to the nearest building, motor vehicle or fully enclosed ROPS equipment cab immediately. Being anywhere outside is not safe.

IF INSIDE A BUILDING:

- Don’t watch the lightning storm from open windows or doorways. Stay in inner rooms.
- Stay well away from corded telephones, electrical appliances, lighting fixtures, radio microphones, electrical sockets and plumbing pipes and fixtures.

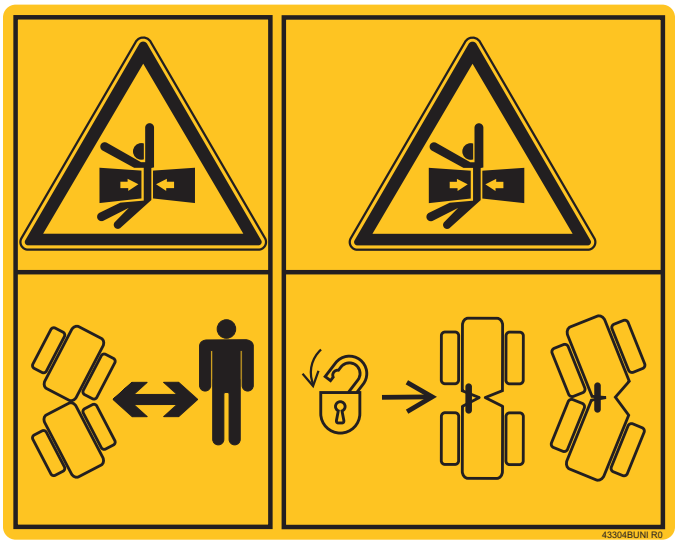
IF INSIDE A MOTOR VEHICLE OR FULLY ENCLOSED ROPS EQUIPMENT CAB:

- Under no circumstances whatsoever step outside of the vehicle or off the equipment to move to another shelter. Very dangerous electrical pathways to ground may go through you.
- Shut down all operation, turn OFF the engine, close all doors and raise all windows.
- Sit squarely in the seat with your hands in your lap and your feet flat on the floor mat.
- Do not touch any metallic objects referenced to the outside of the vehicle. Do not touch any door and window handles, control levers, foot pedals, steering wheels, cab interior walls and any other inside to outside metal objects.
- Do not touch any radio or telephone connected to an outside antenna.

IF YOU ARE CAUGHT OUTSIDE AND HAVE NOWHERE TO GO:

- Avoid wide-open areas where you project above the surrounding landscape.
- Seek shelter in a low place, such as a ditch, ravine, valley, canyon or cave.
- Get away from open water such as ponds or streams.
- Do not take shelter under any isolated tall trees or small groups of trees.
- Seek shelter amongst the dense, thick growth of the shortest trees.
- Avoid entering any small enclosures or shelters.
- Do not seek shelter under any motor vehicle or heavy equipment.
- Keep clear of any materials that can conduct electricity such as wire fences and gates, metal pipes, poles, rails and tools.
- Stay at least 15 m (50 ft) away from metal objects such as a fuel tank, a vehicle or machinery without a cab, motorcycle, ATV, etc.
- Stay at least 5 m (16 ft) apart from any other members of a group so lightning won’t travel between you.
- Do not use the telephone except for emergencies.

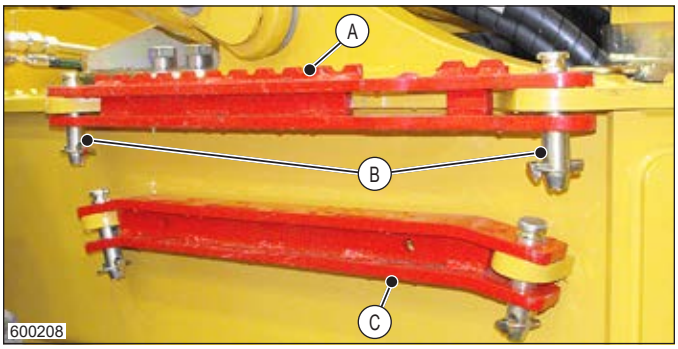
CRUSH HAZARD

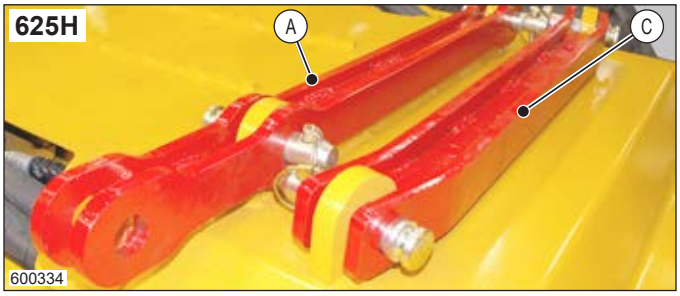


This label warns of the crush zone in the centre joint area. This can occur when the machine steering is used. Do not work in this area until the articulation lock bar is installed!

Before working in the centre joint area, install the chassis articulation lock bar between the chassis and centre joint to prevent accidental articulation which could result in death or serious injury.

Refer to ARTICULATION LOCK in SECTION 3 for complete instructions.





Articulation Lock Stored Position (Rear Chassis)

A Articulation Lock
B Retaining Pins
C Cab Support Brace

Articulation Lock In Straight Locked Position

Articulation Lock In Articulated Locked Position

 = Foot Pedal Control

 = Fuel Information, Total Usage

 = Fuel

 = Fuel Diesel

 = Fuel Reset / Trip Fuel Information

 =Fuel Temperature

 = Grapple CLOSE

 = Grapple Constant Pressure

 = Grapple OPEN

 = Grapple Rotate Clockwise

 = Grapple Rotate Counterclockwise

 = Hand tighten only

 = Horn

 = Hydraulic Filter Pressure

 = Hydraulic oil level

 = Hydraulic Oil Temperature

 = Inclinometer

 = Information Menu Icon

 = Information Message Symbol

 = Lights, Work

 = Load Sense Pressure

 Lock Off

 Lock On

 = Machine Hours

 = Machine Warm Up

 = Main Pump Pressure

 = Maximum speed control

 = Metric Toggle Symbol

 = OFF

 = ON

 = Operator

 = Operator 1 Locked

 = Operator 1 Unlocked

SEAT FREE ROTATION SETTING

The seat free rotation setting is intended for use during regular maintenance checks or other procedures requiring easy repositioning of the seat.

1. Park the machine on level ground.
2. Lower the grapple and dozer blade to rest firmly on the ground.
3. The engine must be running.
4. Press the parking brake OFF switch (green).
5. Press and hold the rotating seat unlock switch and press the parking brake ON switch (red) together.
6. Release the rotating seat unlock switch.
7. The seat rotator control manifold pressure line is now pressurized, the seat rotator is unlocked and the seat will rotate freely.

   NOTE: The engine can be shut down and the seat will remain freely rotating until pressure is released.

⚠ WARNING

Do not service the seat rotator control manifold before releasing pressure by locking the seat in place. A stored energy hazard exists when the seat is free to rotate. Servicing the seat rotator control manifold pressure line before releasing pressure could result in death or serious injury.

8. To release pressure and lock the seat in place there must be power to the computer system. Place the ignition key in the RUN position or start the engine.
   a. Press and hold the rotating seat unlock switch, rotate the seat to the desired position and release to lock seat in place.

   OR

   b. Press the parking brake OFF switch (green).

DIFFERENTIAL LOCK - (FRONT) - SWITCH (JOYSTICK STEERING)

This is a momentary switch used to turn the front axle differential lock ON or OFF.

Press the switch to turn the front differential lock ON. This will lock up the front axle differential and provide drive torque to both front wheels.

Press the switch again to turn the front differential lock OFF.

The front differential locks can be engaged or disengaged while the machine is in motion.

The front differential lock indicator light on the joystick will be illuminated when front differential lock is engaged.

NOTE: This machine is equipped with a 10 minute AUTO-OFF feature which automatically deactivates the differential locks after 10 minutes have passed.

IMPORTANT!
Use differential locks sparingly and for brief periods and only when additional traction is needed or serious damage may occur.

DIFFERENTIAL LOCK - (REAR) -SWITCH (JOYSTICK STEERING)

This is a momentary switch used to turn the rear axle differential lock ON or OFF.

Press the switch to turn the rear differential lock ON. This will lock up the rear axle differential and provide drive torque to both rear wheels.

Press the switch again to turn the rear differential lock OFF.

The rear differential locks can be engaged or disengaged while the machine is in motion.

The rear differential lock indicator light on the joystick will be illuminated when rear differential lock is engaged.

NOTE: This machine is equipped with a 10 minute AUTO-OFF feature which automatically deactivates the differential locks after 10 minutes have passed.

IMPORTANT!
Use differential locks sparingly and for brief periods and only when additional traction is needed or serious damage may occur.

PROGRAMMABLE SWITCH '4'

Not used for this application.

NOTE: When travel speed step mode is OFF maximum speed control settings can be adjusted in steps (0%, 2.5%, 7.5%, 10%) then increments of 1% from 10-100% (factory default). When travel speed step mode is ON maximum speed control settings can be adjusted in steps (0%, 2.5%, 5%, 7.5%,10%,15%,20%,30% ,40%,50%,60%,80%,100%). Refer to COMPUTER – ADJUSTMENT MENU -SERVICE SETTINGS – TRAVEL SPEED STEP MODE in SECTION 2 of OPERATOR'S MANUAL.

NOTE: A travel speed preset (25-100%) can be set to a frequently used maximum travel speed. Travel speed preset setting is indicated on screen by an orange arrowhead. Refer to COMPUTER – ADJUSTMENT MENU -SERVICE SETTINGS – TRAVEL SPEED PRESET FORWARD and TRAVEL SPEED PRESET REVERSE in SECTION 2 of OPERATOR'S MANUAL.

INDICATOR LIGHT GRAPPLE CONSTANT PRESSURE

The grapple constant pressure indicator light on the joystick will be illuminated when the grapple constant pressure switch is activated.

BOOM CONTROLS

This machine is equipped with programmable right joystick movement functions. The function of each joystick movement is chosen by the operator according to their preference.

Joystick movement controls operate the boom  and arch  functions as configured by the operator.

Refer to PROGRAMMABLE FUNCTION CONFIGURATION in THIS SECTION for details.

RIGHT JOYSTICK FORWARD/BACK 

- Programmable function.

RIGHT JOYSTICK LEFT/RIGHT

- Programmable function.

PROGRAMMABLE FUNCTION SWITCH 1

- Programmable function.

PROGRAMMABLE FUNCTION SWITCH 2

- Programmable function.

PROGRAMMABLE FUNCTION SWITCH 3

- Programmable function.

PROGRAMMABLE FUNCTION SWITCH 4

- Programmable function.

PROGRAMMABLE FUNCTION SWITCH 5

- Programmable function.

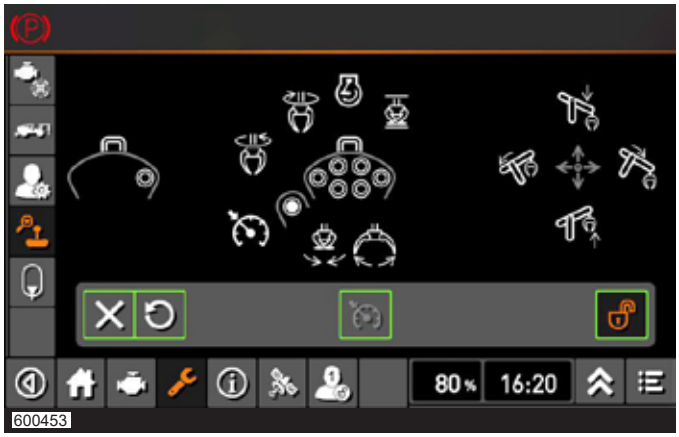
PROGRAMMABLE FUNCTION SWITCH 6

- Programmable function.

RIGHT JOYSTICK TRIGGER 'T' (PROGRAMMABLE FUNCTION)

- Programmable function.

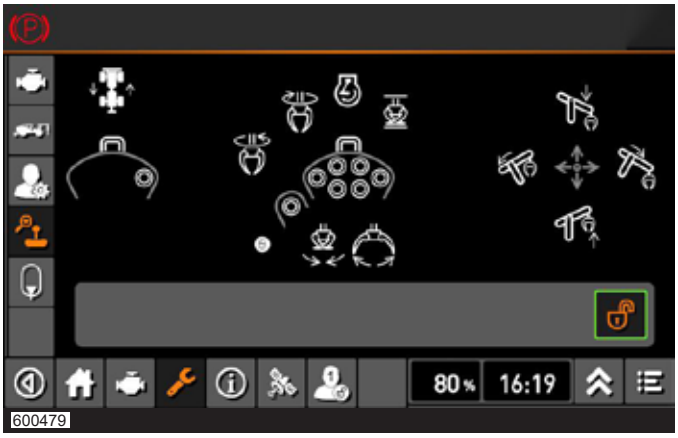
CONFIGURE CRUISE CONTROL (BUTTON 9)



1. Press and hold button 9 on the joystick. The display will illuminate the button chosen and available function icons will be shown.
2. Tap to configure operator preference
   - select a function icon
   - select X to delete current function configuration

EXAMPLE: Cruise control function deleted (no function).

NOTE: The owner can lockout access to programming this function. Refer to COMPUTER – ADJUST RIGHTS in THIS SECTION



After pressing the emergency engine stop button:

1. Lower the attachments to the ground.
2. Apply the service brake pedal.

Functions that are still active with the assist of gravity or external forces are:

- Service brake.
- Boom down.
- Arch out.
- Dozer down.

IMPORTANT!
Turning the ignition key to the STOP position or opening either cab door will turn OFF the interlock system.

⚠ CAUTION

Assess the situation and position of the machine before operating any of the above interlock system functions.

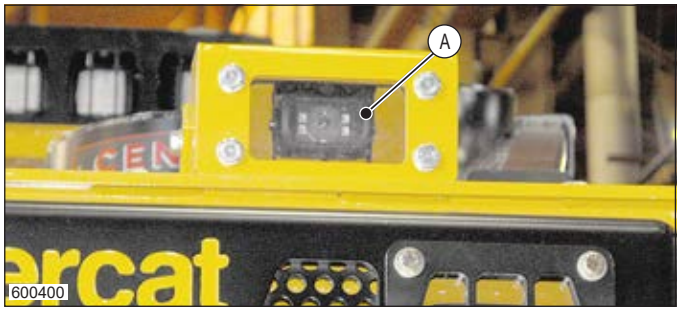
Refer to STOPPING ENGINE and HOT ENGINE SHUTDOWN PREVENTION STRATEGY in THIS SECTION for recommended engine shutdown instructions and information.

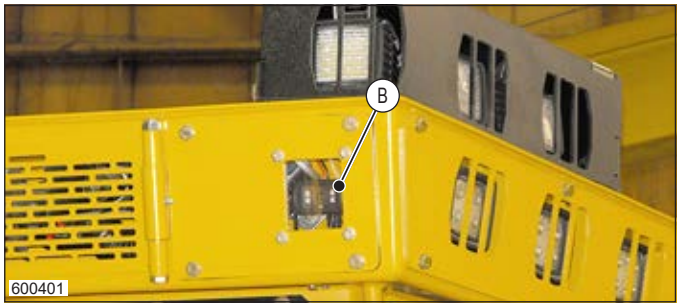
CAMERA-MONITOR

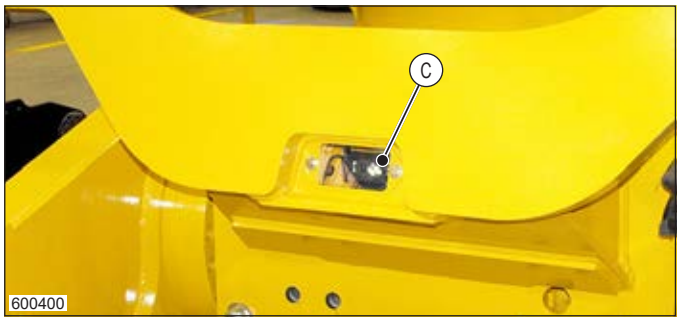
The camera monitor is in the cab. The monitor is a high performance 7" wide format, flat panel, colour, LCD, video display.

The system consists of the monitor, wire harness, junction box, and camera. The camera is mounted on the rear of the cab.

See the manufacturer's owners manual for complete camera system operation instructions.







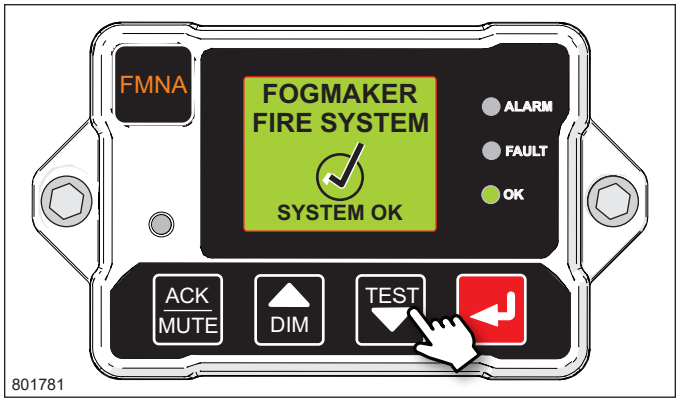
A	Front Camera
B	Rear Camera
C	Rear Camera (Swing Boom Machines)

FIRE SUPPRESSION SYSTEM TEST

The control panel is equipped with a test feature to verify proper function of the audible alarm, fire warning, fault conditions, and fire relay features. The panel cycles as if in a true fire scenario except the system does not discharge.

To test the fire suppression system:

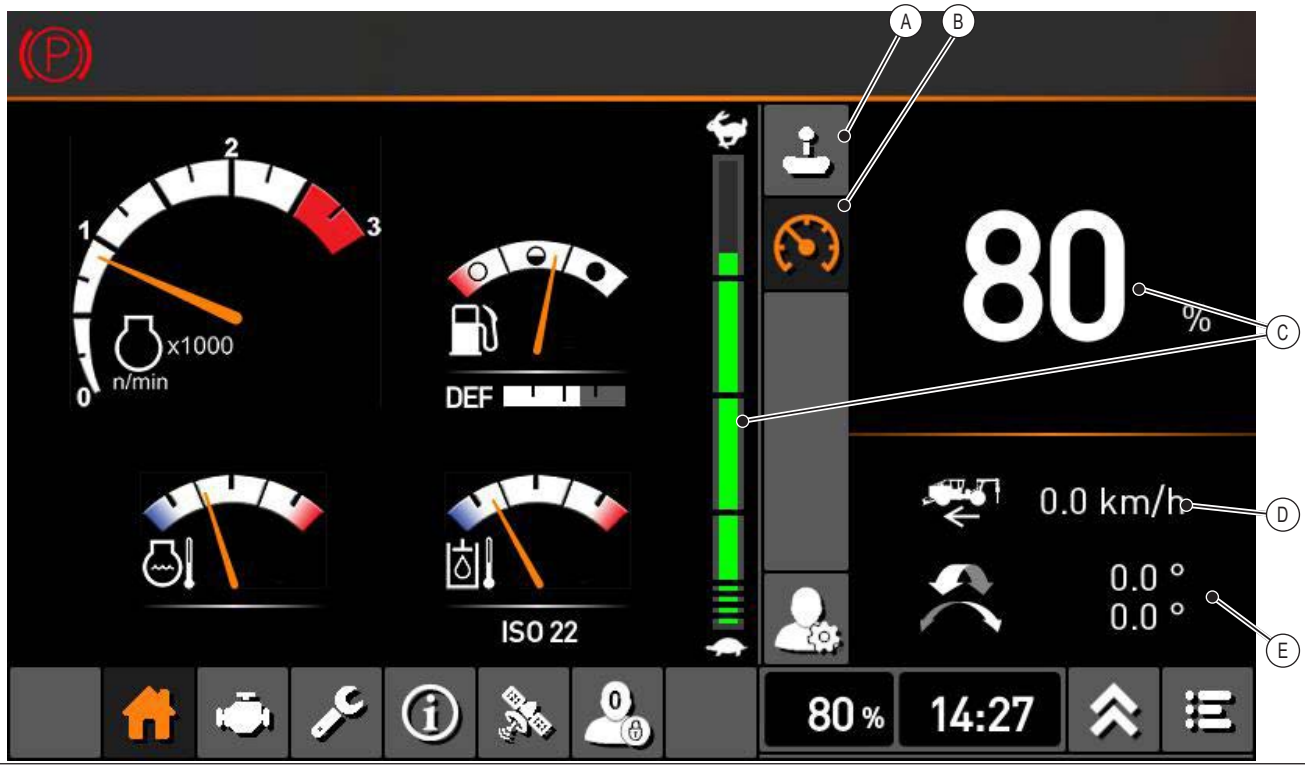
1. Park the machine. Refer to PARKING THE MACHINE in SECTION 1.
2. Apply the parking brake.



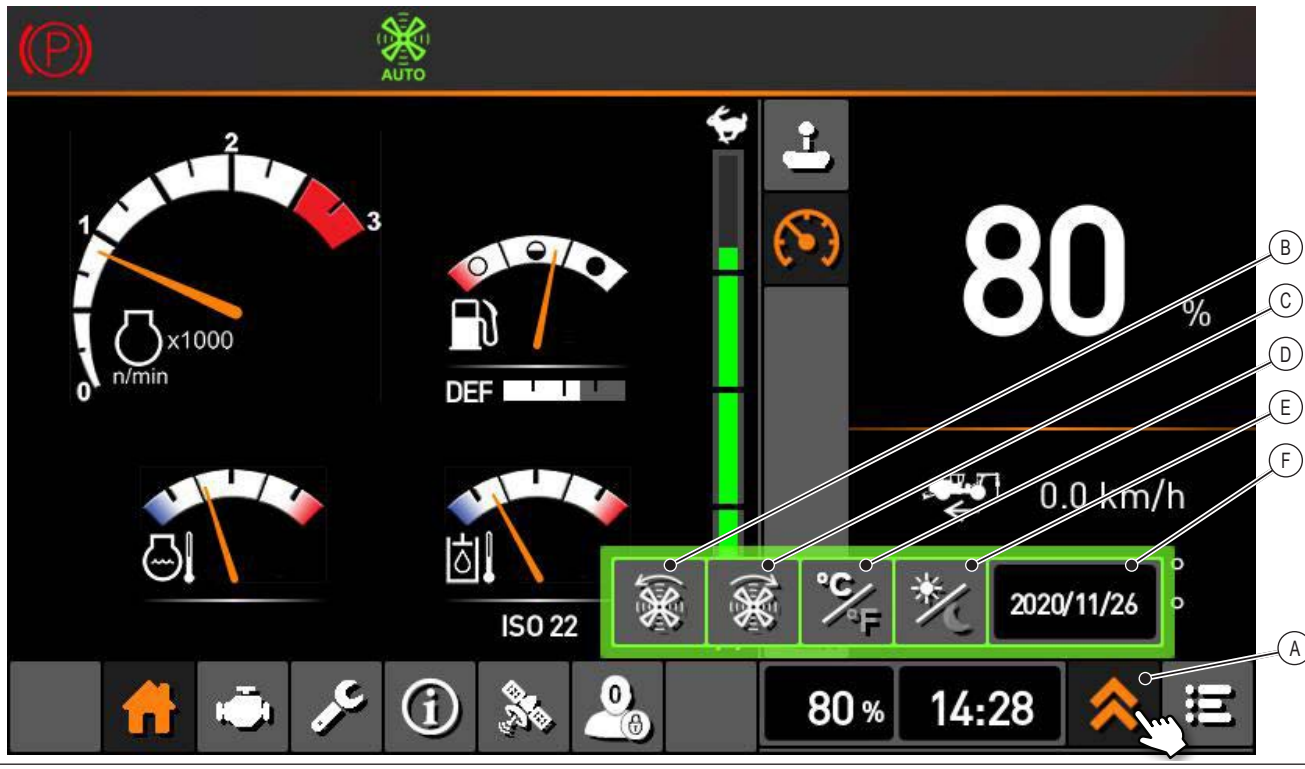
3. From the system status screen, press and hold the system test button.
4. Release the system test button once the test sequence begins.

NOTE: When the timer reaches zero, the engine rpm will change momentarily and any lights that are on will blink.

When the sequence is complete, the 'system ok' screen appears, indicating normal operations.



Home Screen View - Maximum Travel Speed	
A Home Screen View Selection - Gauges/Joystick Functions	D Travel Speed Control Setting (%)/Indicator
B Home Screen View Selection - Maximum Travel Speed	E Inclinometer Speed
C Maximum Speed Control Setting (%)/Indicator	



Pop Up Additional Selections	
A Pop Up Additonal Selections - Tap to Select	D Unit Toggle Selection - Metric/Imperial
B Fan Control Clean Function Manual Selection (if equipped)	E Backlight Selection
C Fan Control - Full On Function Selection (if equipped)	F Date

PROGRAM MODE

Normal*
Engine HP Test Mode
Drive Motor Setup Mode
Drive Pump POR Setup Mode
Drive Pump Regulation Setup
Function Setup Mode
Max Current Setup Mode

Refer to COMPUTER – ADJUSTMENT MENU – EXAMPLE – ADJUSTMENT MENU NAVIGATION for an example of adjustment menu navigation.

IMPORTANT!
Machine must be in the Normal Program Mode to operate normally.

Other program modes are used for service/setup procedures only.

When setup program modes are chosen an information message is shown on the electronic display until the message is acknowledged.

In each program mode some controls are deactivated for safety during setup procedures. Attempting to use these controls will reactivate the information message.

CONSTANT PRESSURE TRIGGER

Range 2700 to 3300 psi (3300* psi)

This setting adjusts the grapple constant pressure switch setting.

During normal operation when the grapple constant pressure switch is activated on a load sense equipped skidder the pressure supplied to the grapple constant pressure function will fall gradually due to normal leakage or more suddenly due to load shift. Pressure will fall until it reaches the grapple constant pressure trigger setting which activates the supply of more pressure to recharge the grapple constant pressure function to full pressure.

CONSTANT PRESSURE ENGINE COMMAND

Off*/On

This setting adjusts the grapple constant pressure engine command setting.

During normal operation when the grapple constant pressure switch is activated on a load sense equipped skidder the pressure supplied to the grapple constant pressure function will fall gradually due to normal leakage or more suddenly due to load shift. Pressure will fall until it reaches the grapple constant pressure trigger setting which activates the supply of more pressure to recharge the grapple constant pressure function to full pressure. Refer to COMPUTER – ADJUSTMENT MENU - SERVICE SETTINGS– CONSTANT PRESSURE TRIGGER for more information.

When OFF the supply of more pressure to the grapple constant pressure function occurs only when other machine functions are activated.

When ON the supply of more pressure to the grapple constant pressure function self activates.

This may be required to hold a load during an extended period of engine idle.

STEERING JOYSTICK DEADBAND

Range 4 to 20 % (4%*)

This setting adjusts the steering joystick deadband.

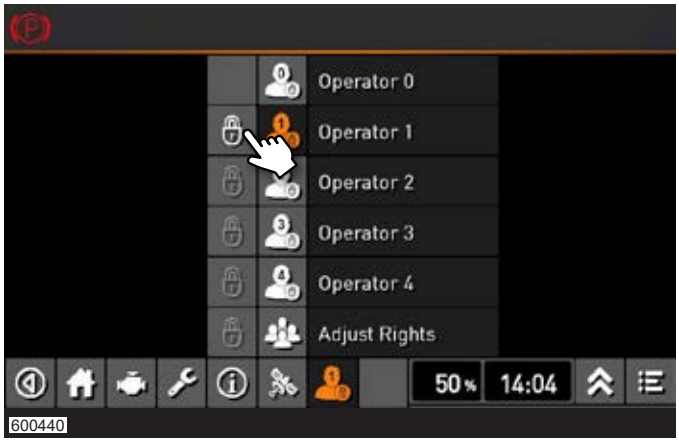
During operation the joystick may loosen over time due to normal wear. This may result in false joystick interlock errors. The steering joystick deadband adjustment allows the deadband to be adjusted to accommodate joystick wear and avoid false interlock errors without replacing the joystick unnecessarily.

OPERATOR UNLOCK

Operator unlock allows the operator to access adjustments for the operator currently selected. An operator pin is required.

When unlocked the operator can:

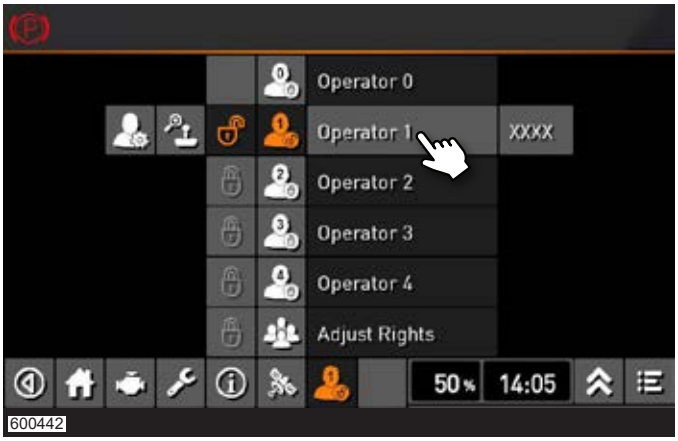
- Change Operator Name
- Change Operator Pin
- Change Programmable Function Configuration to operator preference and save those settings.
- Change Preference Settings to operator preference and save those settings.



1. Tap to unlock operator settings.

2. Enter operator pin.

CHANGE OPERATOR NAME

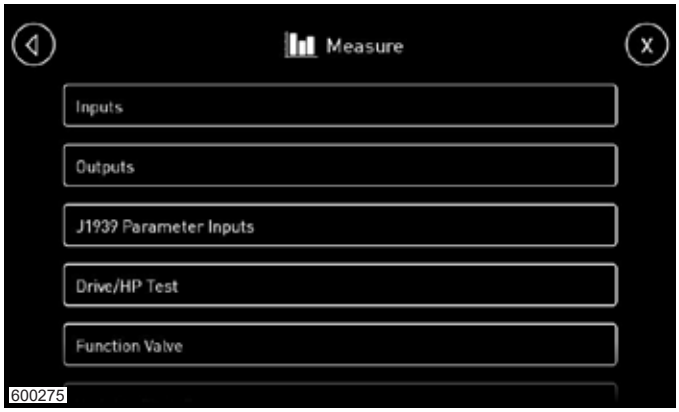


1. Tap operator name to change operator name.

2. Tap the backspace (<-) to delete the existing name.
3. Type the new operator name.

   NOTE: Operator name maximum 15 characters.
4. Tap enter (or tap cancel).
5. Tap back to return to menu.

MEASURE



Home Screen–Main–Measure.

NOTE: Slide your finger up or down on the screen to view all entries.

The measure menu displays the following selections:

- Inputs
- Outputs
- J1939 Parameter Inputs
- Drive/HP Test
- Function Valve
- Variable Pitch Fan
- Differential Locks
- Module Diagnostics
- Clutch Engage
- Carco winch control commands
- Hydrostatic Set-up
- Engage/Release Time
- Telematics (if equipped)
- Transmission Log
- Steering

HYDRAULIC OIL TEMPERATURE HIGH

This message will be displayed, alarm light will flash and alarm will sound when the oil temperature exceeds the recommended operating range for the type of hydraulic oil in use.

If the temperature rises above the recommended operating range for the type of hydraulic oil in use check the following:

- Plugged oil cooler.
- Malfunction in a hydraulic system.
- High loads on the hydraulic system.
- Malfunction of the cooling fan.
- Low hydraulic oil level.
- Correct hydraulic oil grade selection.

If hydraulic oil temperature rises above the recommended operating range do not continue to operate the machine.

This alarm must not be used to monitor the hydraulic oil. The operator must use the hydraulic oil temperature gauge on the home screen, together with the operating range chart in SECTION 3 to prevent damage to the hydraulic system.

Hydraulic oil grade information is shown on the home screen below the hydraulic oil temperature gauge.

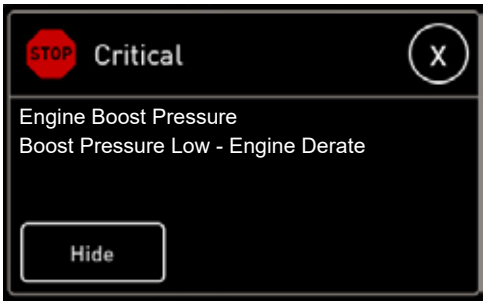
Operating outside the recommended operating range will shorten hydraulic component life.

Refer to COMPUTER – ADJUSTMENT MENU - SERVICE SETTINGS – HYDRAULIC OIL GRADE in THIS SECTION for hydraulic oil grade selection settings information.

Refer to APPROVED HYDRAULIC OILS in SECTION 3 for hydraulic oil operating range information.

Refer to COMPUTER – INFORMATION MODE MENU – HYDRAULIC OIL TEMPERATURE in THIS SECTION for hydraulic oil temperature information display.

ENGINE BOOST PRESSURE LOW–ENGINE DERATE



This message will be displayed, alarm light will flash and alarm will sound when an engine derate is activated due to turbocharger boost pressure being insufficient for engine load.

When low boost pressure is detected a message will be displayed to alert the operator.

This message results in the following derate sequence:

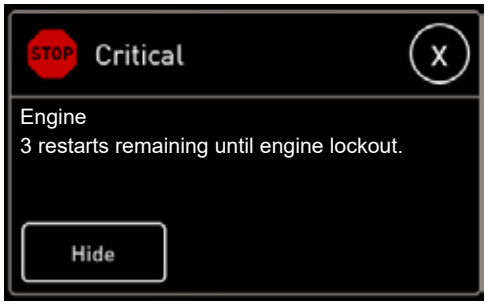
- When low boost pressure is detected for more than 5 seconds the critical symbol will flash.
- Engine speed will immediately begin to derate at 30% per second.
- When boost pressure increases to normal levels engine speed will automatically ramp up at 5% per second.

IMPORTANT!
Do not continue to operate machine.

Safely stop the machine, set engine speed at LOW and turn OFF the engine. Contact dealer for service.

NOTE: An ENGINE TORQUE DERATE ACTIVE message will also be activated as the engine begins to derate. Refer to COMPUTER–MESSAGES–ALERTS–ENGINE TORQUE DERATE ACTIVE in THIS SECTION.

ENGINE RESTARTS REMAINING UNTIL ENGINE LOCKOUT



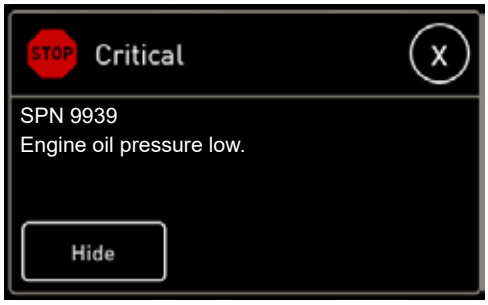
NOTE: The aftertreatment system and its related components are applicable to Tier 4f machines only.

This message will be displayed, alarm light will flash and alarm will sound to inform the operator of the number of restarts available before the engine is locked out.

Note that an engine is locked out after several other critical aftertreatment system messages regarding the cause of the problem and this message regarding the number of restarts until engine lockout.

Refer to COMPUTER – MESSAGES - CRITICAL – ENGINE LOCKED OUT in THIS SECTION.

ENGINE OIL PRESSURE LOW

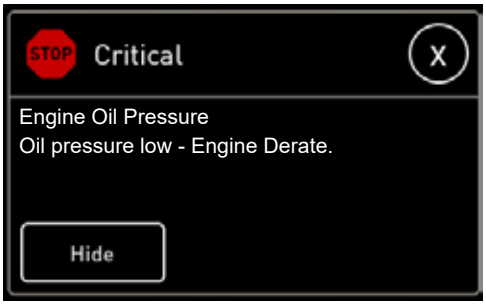


This message will be displayed, alarm light will flash and alarm will sound when engine oil pressure falls below recommended minimum pressure.

Stop the engine immediately when this alarm is activated. Use the Emergency Engine Stop Button to bypass the hot engine shutdown strategy. Check engine oil levels.

Refer to STARTING ENGINE in THIS SECTION for more information.

ENGINE OIL PRESSURE LOW ENGINE DERATE



This message will be displayed, alarm light will flash and alarm will sound when an engine derate is activated due to low engine oil pressure. This message may be accompanied by Engine Fault Code Messages related to engine oil pressure.

This message results in the following derate sequence:

- When engine oil pressure readings fall below 1.2 bar (17 psi) for more than 5 seconds this message will be shown and the engine will immediately begin to derate at 50 rpm/s to a set creep speed allowing the operator to safely stop the machine (creep speed setting is programmed to suit each machine type/ model). Do not continue to operate machine.

  Safely stop the machine and turn the engine OFF. Refer to MESSAGES - CRITICAL – ENGINE OIL PRESSURE LOW in THIS SECTION for recommended corrective action. If the problem continues contact dealer for service.

- When engine oil pressure readings rise above 1.4 bar (20 psi) for more than 5 seconds this message will be turned off and the engine will automatically ramp up engine speed at 50 rpm/s to full operating speed.

NOTE: An Engine Torque Derate Active message will also be activated as the engine begins to derate. Refer to COMPUTER – MESSAGES - CRITICAL – ENGINE TORQUE DERATE ACTIVE in THIS SECTION.

PILOT MANIFOLD PRESSURE HIGH

This message will be displayed when high pressure is detected in the multifunction manifold (pilot manifold).

Check multifunction manifold pressure reducing valve and relief valve for proper operation. Refer to MULTIFUNCTION MANIFOLD in SECTION 9.

CLUTCH SLIP DETECTED

This message will be displayed when a clutch slip is detected.

This message results in the following:

- When a clutch slip is detected for more than 2 seconds the alert symbol will flash.
- Drivetrain output will immediately be reduced until the clutch slip is resolved.

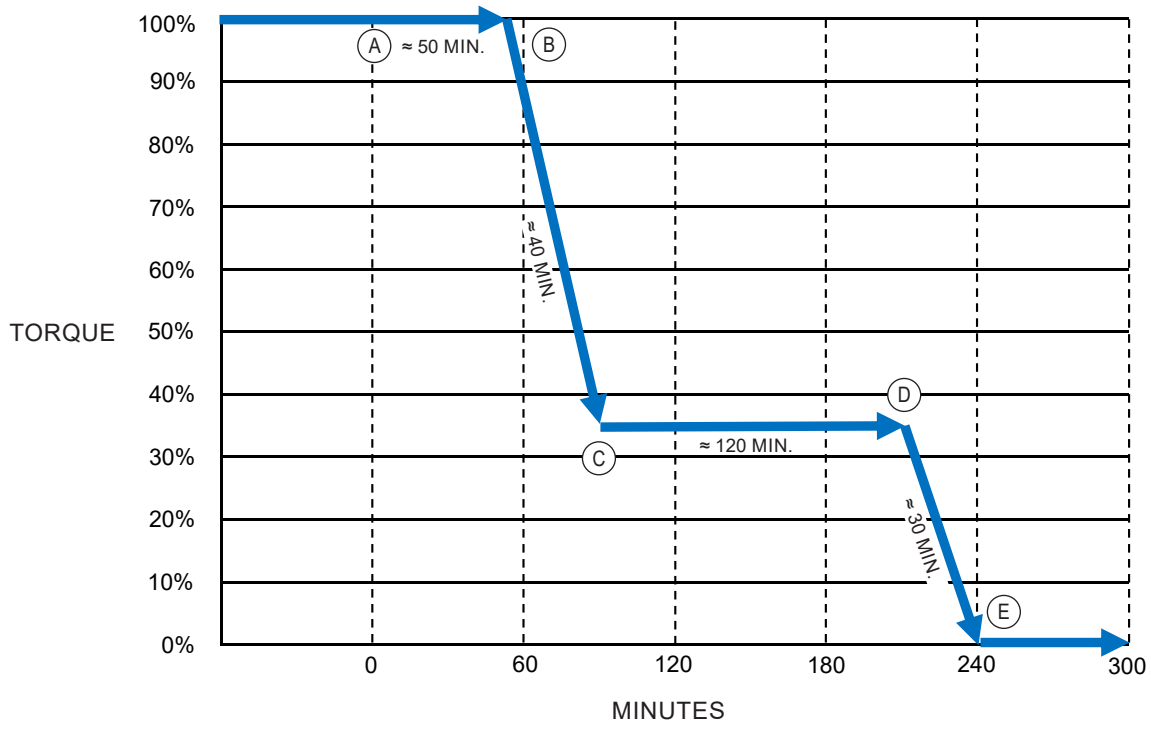
LOW CLUTCH PRESSURE DETECTED

This message will be displayed when low clutch pressure is detected.

This message results in the following:

- When low clutch pressure is detected for more than 2 seconds the alert symbol will flash.
- Drivetrain output will immediately be reduced until the clutch pressure returns to normal levels.

DEF QUALITY–ENGINE DERATE SEQUENCE



A Alert Message: Poor DEF quality detected.

B Engine torque begins to reduce.

C Engine torque reduced to 35% after approximately 40 minutes.

D Engine torque begins to reduce further after approximately 120 minutes.

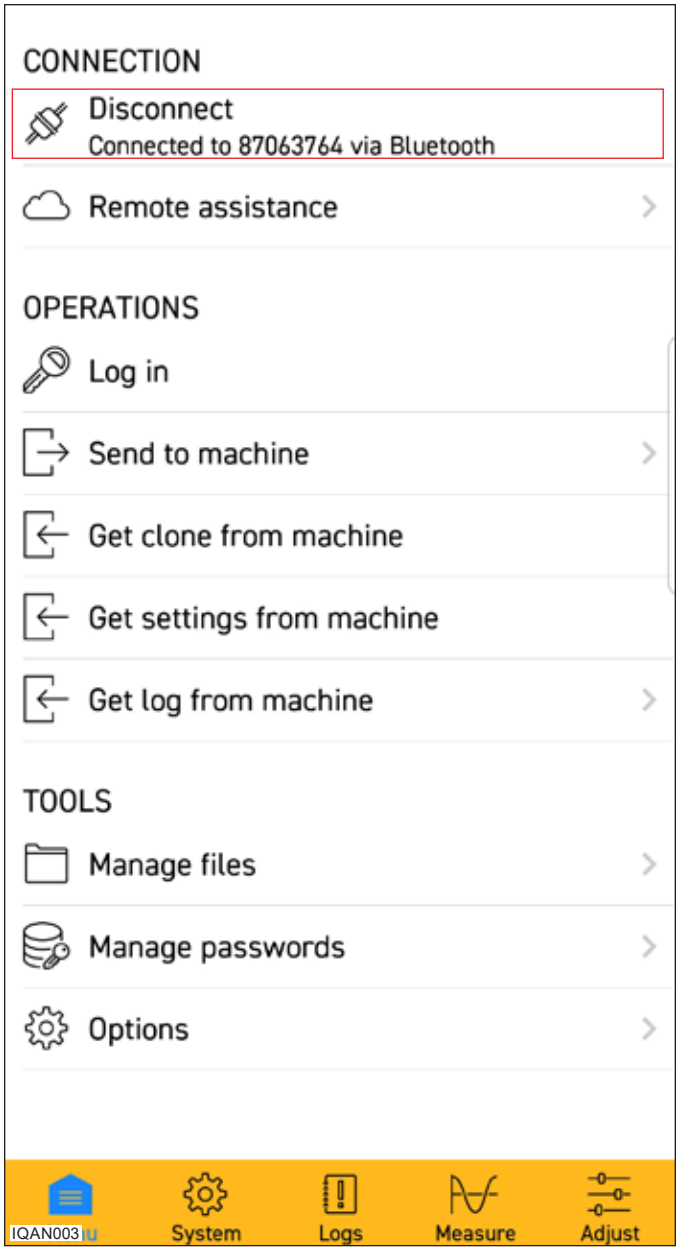
E Engine reduced to idle after 30 minutes.

ENGINE TORQUE DERATE ACTIVE

NOTE: The aftertreatment system and its related components are applicable to Tier 4f machines only.

The Engine ECU has derated the engine. The code for a Torque Derate due to too high NOx emissions is shown above as an example.

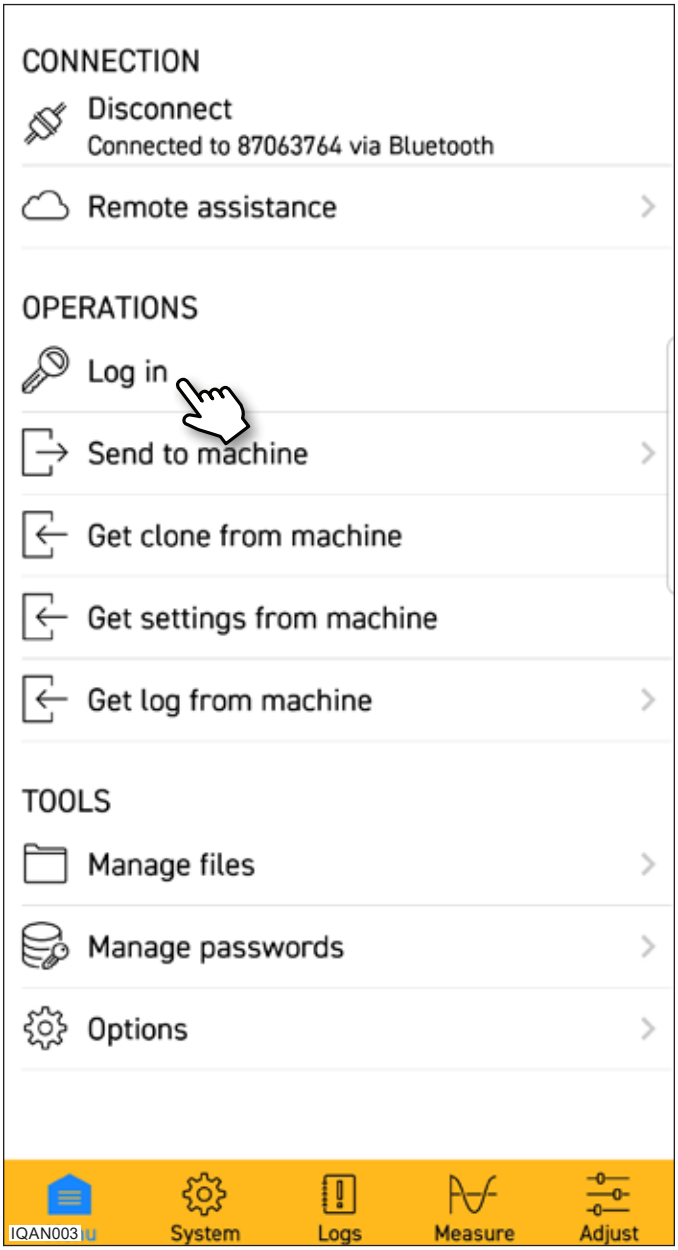
Refer to Engine Manuals for code information to identify the cause(s) of engine derating and more information regarding failure cause and repair.



5. The 'Connect' line changes to 'Disconnect– Connected to machine serial number via Bluetooth'. The main menu will also change for additional options.

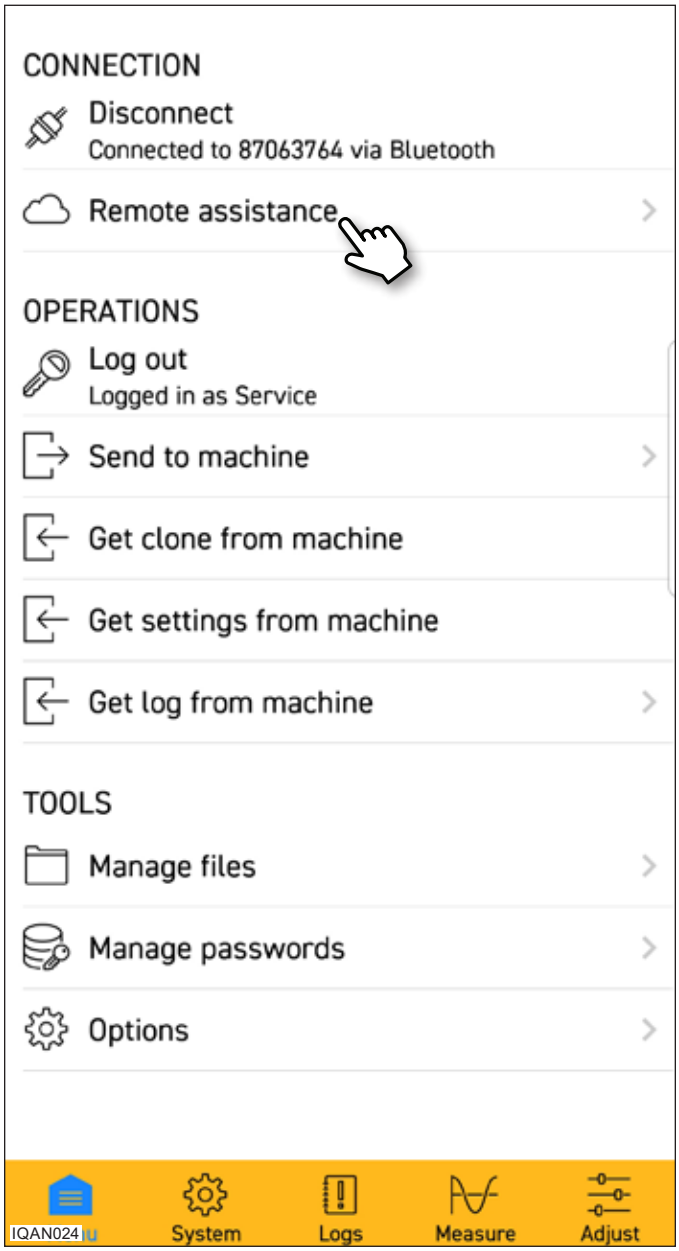
LOG IN

NOTE: Log in is required for additional options and functions for service.

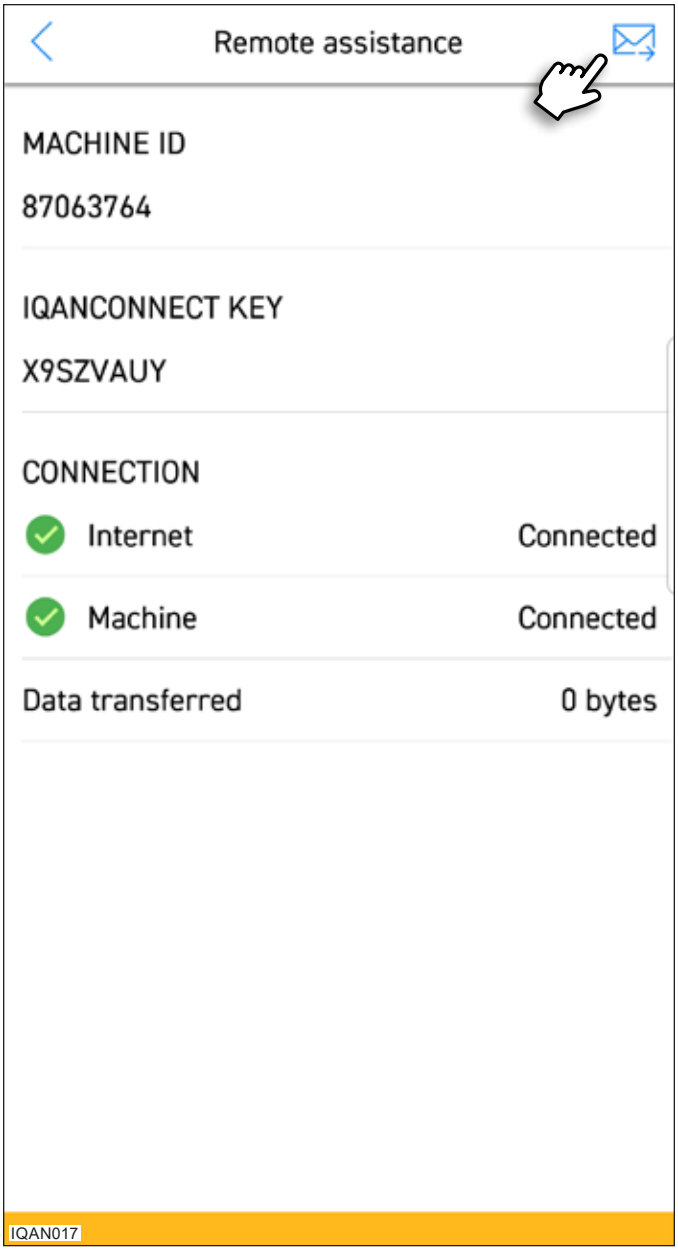


1. Tap ‘Log in’.

REMOTE ASSISTANCE



1. Tap ‘Remote assistance'.



2. The app will connect the machine to the internet. Provide the service technician the IQANCONNECT key to remote into the machine. Alternatively, tap the send icon to send the IQANCONNECT key to the service technician.

   NOTE: Data charges may apply.

CHASSIS

DOORS AND ACCESS PANELS

Front Door
A Bolts

TO OPEN:

1. Park the machine on level ground.
2. Lower the grapple and dozer blade to rest firmly on the ground.
3. Engage the parking brake.
4. Turn OFF the engine.
5. Remove the ignition key.
6. Turn OFF the battery disconnect switch.
7. Block wheels.
8. Install the articulation lock bar.
9. Remove the two bolts from the left side of the door and swing open.
10. When the maintenance is complete, close the door and reinstall bolts.

Access Panels Left Side
A Bolt On Access Panels
B Maintenance Access Doors

Access Panels Right Side
A Bolt On Access Panels
B Maintenance Access Doors

STARTING ENGINE

1. Ensure that PRE-START CHECKS have been performed and the area is clear of personnel prior to starting the engine.
2. Parking brake ENGAGED.

   NOTE: The engine will not turn over unless the parking brake is ENGAGED.
3. Turn ignition key to RUN position and observe computer display.

4. Wait for WAIT TO START message on computer display to turn off.
5. Sound horn to warn personnel of machine start-up.
6. Turn ignition key to the START position to crank the engine. When engine is started place key in RUN position and observe computer display.

   NOTE: The computer control system will automatically perform a bulb test when the key is released to the RUN position. The alarm light will flash and the master alarm will sound briefly to test for proper operation.
7. Engine speed setting will automatically default to LOW. Keep engine speed low for three to five minutes before operating with load. Low engine oil pressure will trigger an alarm.

   IMPORTANT!
   If engine oil pressure does not register on the computer display (ENGINE MENU - ENGINE FUNCTIONS) within 10 seconds, stop engine and investigate cause.

   Refer to COMPUTER – MESSAGES - CRITICAL – ENGINE OIL PRESSURE LOW in THIS SECTION.

   NOTE: If the engine does not start after three attempts, check the fuel supply system. Absence of blue or white exhaust smoke during cranking indicates no fuel is being delivered.

⚠ CAUTION

Do not start engine by shorting across starter terminals. Start engine only from operator's seat.

   If engine stalls while operating the machine, turn the ignition key to the STOP position and REPEAT STEPS (1) THROUGH (6).
8. Before applying any load to the engine proceed with SYSTEM TEST AND WARM UP.

   IMPORTANT!
   Allow a cold engine to warm up at LOW speed for at least five minutes before applying any load. Check all gauges often during the warm up period.

NOTE: For cold weather conditions refer to MACHINE WARM UP OPERATION in THIS SECTION.

TRAVELLING WITHOUT A LOAD:

Raise the grapple and place the dozer blade in the UP position.

1. Disengage parking brake.

   NOTE: Machine will not move if the parking brake is not fully off.

2. Check the position of the maximum speed control to ensure that it is set to the desired position.

   Using the maximum speed control the operator is able to set the maximum travel speed of the machine. This allows the operator to maintain any desired travel speed with full drive pedal operation. Machine travel speed reduction can still be achieved by not fully pressing the foot pedal.

   This control can be used while the machine is in motion.

⚠ CAUTION

Setting the maximum speed control to the minimum setting lowers maximum travel speed only, it will NOT prevent the machine from travelling when the forward or reverse travel controls are used.

3. JOYSTICK STEERING
   Use the direction selection switch to choose forward or reverse and press the travel foot pedal to move the machine in that direction.

   STEERING WHEEL
   Operate the drive travel pedals to move the machine forward or reverse.

4. Be aware of the type of steering control (and steer valve option - if applicable) the machine is equipped with. Steering control operation varies with the type of controls in use.

   Generally, this machine is equipped with Load Sensing Steering. The speed that the vehicle responds to steering control input will vary, depending on the speed that the steering control is moved.

   When operating on the road, a slow movement of the steering control will not overcorrect and will steer a straight normal course.

   Operating in the woods requires quick steering changes and this is produced by a rapid movement of the steering control, which will quickly change the vehicles direction.

   Refer to CAB CONTROLS – STEERING in THIS SECTION for more detailed steering control information.

5. Use differential locks sparingly and ONLY when additional traction is required. Never continuously drive the machine with the differential locks on. Serious damage to the axles can result from using the differential locks when they are not needed for additional traction.

   NOTE: This machine is equipped with a 10 minute AUTO-OFF feature which automatically deactivates the differential locks after 10 minutes have passed.

NOTE: The high engine speed adjust function is available. This function is intended to allow the automatic reduction of the high engine speed limit when travelling without a load. Refer to COMPUTER – ADJUSTMENT MENU - ENGINE SETTINGS – HIGH ENGINE SPEED ADJUST in THIS SECTION.

LIFTING POINTS

Lifting of the machine should be done for transportation purposes only.

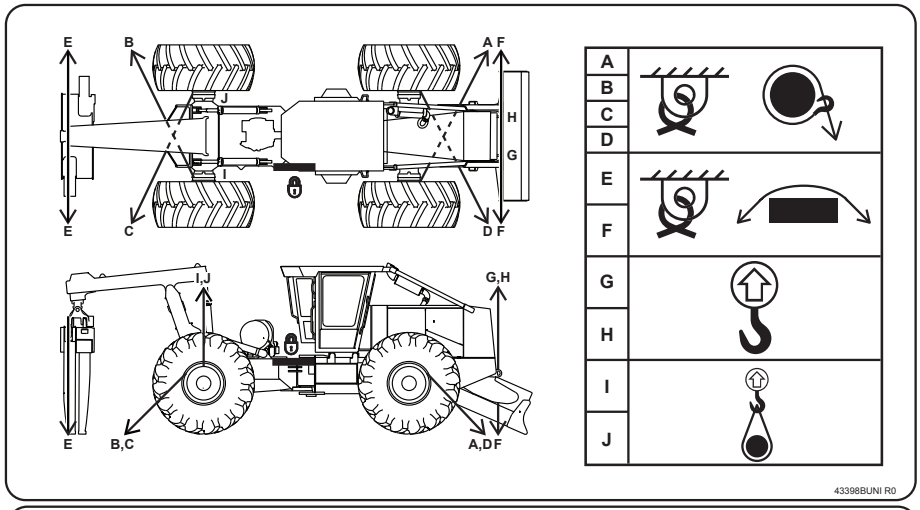
⚠ WARNING

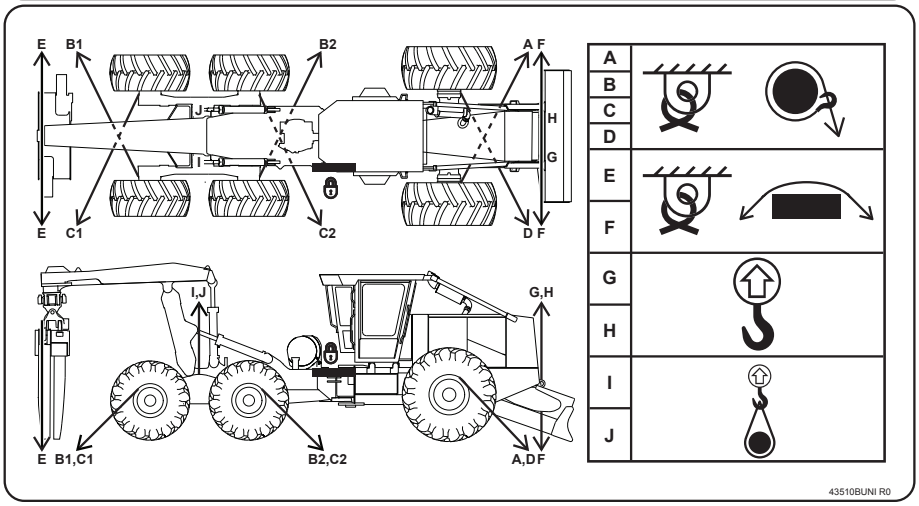
Use shackles and chains that are appropriately sized for the load to be lifted.

1. The articulation lock bar must be installed so the machine is oriented in the straight locked position.
2. There are two lifting points located at the front of the front chassis in front of the heat exchanger. These points are labeled 'G' and 'H' on the machine lifting/tie-down label.

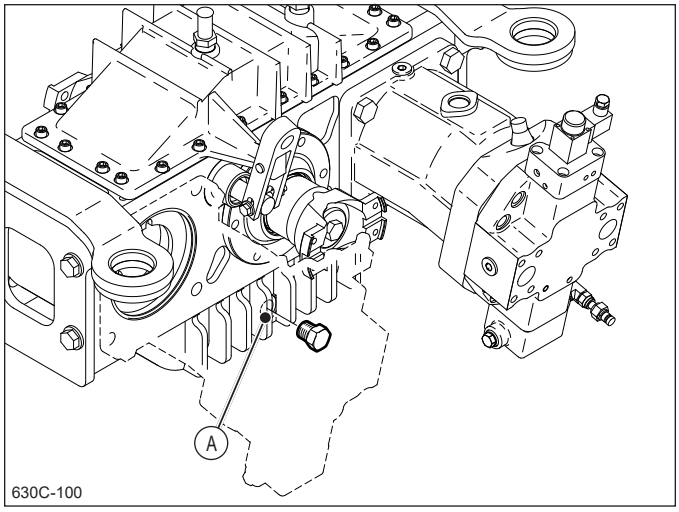
   These points are designed to accept a lifting chain shackle.
3. Additionally there are lifting points located at the rear chassis on each end of the rear axle. These points are labeled 'I' and 'J' on the machine lifting/tie-down label.

   These points are designed to accept a lifting chain/hook in either a basket or choker hitch configuration.
4. All lifting points must be used during a lifting operation.
5. Position the hoist above the centre of gravity to ensure machine stability and levelling.



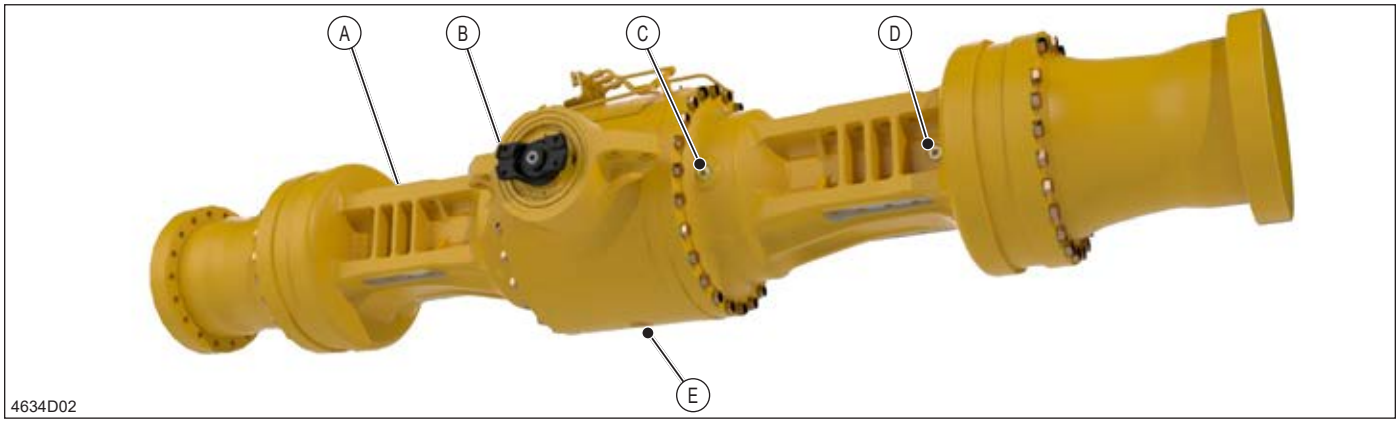


TRANSMISSION AND AXLE OIL SAMPLES:



Transmission Oil
A Sample Location / Transmission Drain

- These samples can be taken during the oil change process.
- To obtain a representative oil sample, ensure the oil is warm and has not settled very long (within 30 minutes of shutdown).
- Place the required drain container under the machine to capture the used oil to be discarded using approved recycling methods.
- Remove the drain plug and allow approximately 50% of the oil to drain, then place the sample bottle in the stream of draining oil to obtain a representative sample.



Severe Duty Axle Drain and Fill Locations (620H/625H/630H/632H/635H Front Axle)	
A Axle Level Check and Fill (Far Side)	D Axle Level Check and Fill
B Brake Inspection Port (Far Side)	E Axle Drain / Sample Location
C Brake Inspection Port	

2000 HOURS

- FREQUENTLY maintenance.
- 8 HOUR maintenance.
- 24 HOUR maintenance (Swing Boom only).
- 48 HOUR maintenance.
- 125 HOUR maintenance.
- 250 HOUR maintenance.
- 500 HOUR maintenance.
- 1000 HOUR maintenance.

CHECK

- All air intake tubing, rubber couplings and band clamps for signs of wear and leakage.
- DEF tank strainer. Refer to DIESEL EXHAUST FLUID TANK in this section for more information.

  NOTE: The aftertreatment system and its related components are applicable to Tier 4f machines only.

REPLACE

- Replace engine fuel filter.

  NOTE: This replacement interval supersedes the one shown in the engine manufacturer's operation and maintenance manual due to the dual fuel filters also used on this machine.

- All air intake rubber components such as elbows and connectors.

  High temperatures in this area can cause the rubber to harden.

  NOTE: High-temperature silicone connectors do not need to be replaced unless they are damaged.

  Refer to AIR CLEANER MAINTENANCE in THIS SECTION

- Hydraulic tank breather.
- In-line DEF strainer.*

  NOTE: The aftertreatment system and its related components are applicable to Tier 4f machines only.

- DEF dosing module filter.*

  NOTE: The aftertreatment system and its related components are applicable to Tier 4f machines only.

Refer to ENGINE OPERATION AND MAINTENANCE MANUAL for additional required maintenance.

2 YEARS

REPLACE

- Engine coolant.

Refer to engine OPERATION AND MAINTENANCE MANUAL for additional required maintenance.

635H SKIDDER
SERVICE AND LUBRICATION POINTS
REFER TO OPERATOR'S MANUAL FOR FURTHER INFORMATION

SERVICE POINT NO.	ITEM	SERVICE EVERY						CAPACITY			DESCRIPTION
		8 ⧖	125 ⧖	250 ⧖	500 ⧖	1000 ⧖	2000 ⧖	LITERS	USG	QTY	
1	COOLING SYSTEM	CHK	CHANGE COOLANT EVERY 2 YEARS					34.4	9.1		SEE ENGINE MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL FOR REQUIRED ANTIFREEZE SOLUTION AND MIXTURE.
2	ENGINE OIL/FILTER	CHK •		REP •				•	•		• SEE ENGINE MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL FOR PROCEDURES AND CAPACITIES.
3	CRANKCASE VENTILATION FILTER - T4F ONLY				REP •					1	
4	FUEL FILTER, ENGINE						REP			1	THIS REPLACEMENT INTERVAL SUPERCEDES THE ONE SHOWN IN THE ENGINE MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL DUE TO THE DUAL FUEL FILTERS ALSO USED ON THIS MACHINE
5	FUEL FILTER, DUAL				REP					2	
6	FUEL FILTER/WATER SEPARATOR	DRN		REP						1	REFER TO SECTION 3 OF THE MANUAL FOR DETAILS.
7	DEF TANK FILLER SCREEN		CHK							1	
	DEF TANK STRAINER						CHK			1	
8	IN-LINE DEF STRAINER					CHK	REP			1	
9	DEF DOSING MODULE FILTER						REP			1	
10	FUEL TANK FILLER SCREEN		CHK							1	
11	AIR INTAKE PRECLEANER/INLET HOOD	CHK								1	CLEAN AS REQUIRED.
12	AIR INTAKE PRIMARY ELEMENT	CHK								1	CHECK FILTER RESTRICTION INDICATOR. REFER TO 8 HOUR SCHEDULED MAINTENCE FOR DETAILS.
	AIR INTAKE SAFETY ELEMENT	CHK								1	
13	AIR CLEANER UNLOADER VALVE	CHK				REP				1	REFER TO SECTION 3 OF THE MANUAL FOR DETAILS.
14	AIR INTAKE CONNECTIONS	CHK					REP			1	CHECK FOR LOOSE CLAMPS AND DAMAGED RUBBER COMPONENTS. REPLACE RUBBER COMPONENTS. INCLUDES CCV FILTER CONNECTION HOSES.
15	HYDRAULIC TANK	CHK						123	32.5	1	DRAIN AND REFILL AS REQUIRED BY SEASONAL OIL CHANGE. (SEE HYDRAULIC OIL CHART)
16	HYDRAULIC FILTER, FULL FLOW, INCLUDES: 1 BLUE WATER ABSORBING ELEMENT 3 WHITE HIGH PERFORMANCE FILTER				REP †					4	**NOTE**: MUST USE: 1 BLUE FILTER ELEMENT. 3 WHITE FILTER ELEMENT.
17	CHARGE PRESSURE FILTER				REP †					1	CHECK FILTER RESTRICTION INDICATOR ON FILTER WITH ENGINE RUNNING AT FULL AND WITH OIL FLOW.
18	TRANSMISSION OIL FILTER				REP †					1	
19	HYDRAULIC TANK BREATHER						REP			1	
20	PRESSURIZED WATER SYSTEM	CHK	TEST			D/R		52	13.7		SEASONAL DRAIN AND REFILL.
21	TRANSMISSION TRANSMISSION, EHS (OPTIONAL)	CHK			D/R			6.2 12.6	1.6 3.3	1	FILL WITH MIL-L-2105C OR API-GL-5 LUBRICANT GRADE 75W-90.
22	AXLE, SEVERE DUTY: FRONT		CHK			D/R ***		39	10.3	1	FILL WITH MIL-L-2105C OR API-GL-5 LUBRICANT GRADE/WEATHER TEMPERATURE: BELOW -10°F(-23°C) USE 75W-90 UP TO 100°F(38°C) USE 80W-90 ABOVE 100°F(38°C) USE 85W-140
23	BOGIE AXLE - DIFFERENTIAL		CHK			D/R ***		246	65	1	
24	BOGIE AXLE - HOUSING										
25	BOGIE AXLE - SLEWING RINGS					LUB		PURGE		4	LITHIUM BASE EP2 GREASE ◆
26	PINION GREASE SEAL - FRONT AND REAR AXLE					LUB		PURGE		2	ONE FITTING PER AXLE LITHIUM BASE EP2 GREASE ◆
27	AXLE-PIVOT (FRONT ONLY)	LUB						PURGE		2	LITHIUM BASE EP2 GREASE ◆
28	FRONT DRIVE SHAFT				LUB			PURGE		1	LITHIUM BASE EP2 GREASE ◆
	MID DRIVE SHAFT	LUB **								1	
	REAR DRIVE SHAFT BEARINGS	LUB								2	
29	CENTER JOINT	LUB						PURGE		2	LITHIUM BASE EP2 GREASE ◆
	CENTER JOINT BEARING PRELOAD	CHK 48 ⧖				CHK					REFER TO SECTION 3 OF THE MANUAL FOR DETAILS.
30	STEERING CYLINDERS	LUB						PURGE		4	LITHIUM BASE EP2 GREASE ◆
31	DUAL ARCH CYLINDER & PIVOTS	LUB						PURGE		12	LITHIUM BASE EP2 GREASE ◆
32	DOZER BLADE CYLINDER & PIVOTS	LUB						PURGE		6	LITHIUM BASE EP2 GREASE ◆
33	GRAPPLE	SEE LUBRICATION POINTS DIAGRAM									
34	WINCH: CARCO	CHK				D/R		12	3		REFER TO WINCH MAINTENANCE IN SECTION 3 OF MANUAL. SEE ALSO WINCH MANUFACTURER'S MANUAL.
35	DOOR HINGES				LUB			PURGE		2	LITHIUM BASE EP2 GREASE ◆
36	CABIN AIR AND A/C FILTERS		CHK		REP †					2	CLEAN OR REPLACE AS NECESSARY

94509B R1

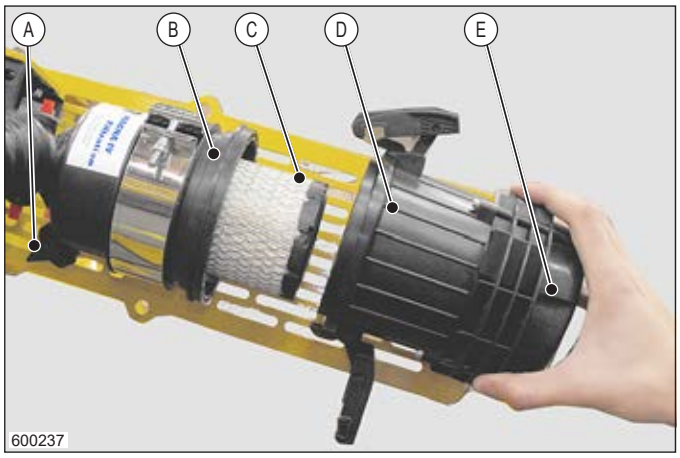
CAB FRESH AIR FILTER MAINTENANCE

The cab fresh air filter is located in a compartment at the rear of the cab roof and accessible from outside the cab.

A precleaner discharge chute is located in the bottom left side of the filter compartment.

A	Door Fastener
B	Discharge Chute

1. Remove the fastener (left side) securing the door to the frame. This will provide access to the filter.



Cab Fresh Air Filter

A	Unloader Valve
B	Body
C	Filter
D	Precleaner
E	Discharge (facing down)

2. Pinch the unloader valve to release dust buildup.
3. Inspect hose for damage and ensure it is securely attached to both the cab fresh air filter and the cab bulkhead pipe for proper filter operation.
4. Unfasten the top hasp securing the precleaner to the body.
5. Turn the precleaner clockwise and unfasten the bottom hasp.
6. Remove the precleaner.
7. Pull the air filter element out from the body.
8. Clean filter and replace or replace with a new element.
9. Place the precleaner onto the body.

   NOTE: The precleaner must be installed with the discharge facing down so that debris can be discharged through the chute on the left side of the filter compartment when in use.
10. Fasten the bottom hasp.
11. Turn the precleaner counterclockwise.
12. Fasten the top hasp.

    NOTE: The hasps must be off-centre (top and bottom) to allow the air cleaner assembly to fit through the opening.

FUEL FILTERS

This machine is equipped with four fuel filters. The engine fuel filter, dual remote fuel filters and the fuel filter/water separator. The fuel filter/water separator is a combination unit with a replaceable fuel filter and a removable water sediment bowl on the bottom of the unit. The water sediment bowl is only replaced if it becomes damaged or non-functional.

FUEL FILTERS

IMPORTANT!

Failure to service and replace filters at the proper intervals specified in the manufacturer's manuals, could cause damage to the machine and result in the product warranty becoming NULL and VOID. Check Tigercat parts catalog for replacement filters

NOTICE

Tigercat does not recommend the pre-filling of spin-on filters due to the risk of damage to the fuel system caused by unfiltered fuel. Unfiltered fuel used to pre-fill filters enters directly into the fuel circuit. Contaminants in unfiltered fuel can cause significant and costly damage to fuel system components. The cleanliness of fuel cannot be guaranteed unless it is pre-filtered before use.

Use of filters other than genuine Tigercat replacement filters is not recommended. Replace filters at the recommended time intervals. Refer to scheduled maintenance in this section.

IMPORTANT!

Filters that are an integral part of the engine (fuel and lubricating oil) should be serviced and replaced according to the ENGINE OPERATION AND MAINTENANCE MANUAL.

The engine fuel injection system requires extremely clean fuel. To accomplish this, the engines typically use filters with a finer micron rating.

These engines use filters with a very fine micron rating. If the fuel supply is dirty, the fuel filter must be replaced more frequently than recommended in the owner’s manual. Operating the machine with a clogged fuel filter will result in low engine power and severe fuel injection system damage.

It is also recommended the fuel/water separator bowl be drained daily.

AIR CLEANER

Engine Air Cleaner	
A	Air Cleaner
B	Air Cleaner Unloader Valve

The air cleaner on this machine uses two filter elements, a primary element and a safety element accessible from the right side of the engine compartment.

To ensure maximum engine protection, it is important the elements be serviced correctly and at proper servicing intervals.

A filter restriction indicator is mounted to the output side of the filter, this should show green when the engine is running under load. Service is required if the indicator shows red. This machine is also equipped with a switch used to send a signal to the computer control system in the event of a filter restriction.

When a signal is received from the restriction indicator switch on the engine air cleaner a message will be displayed. Refer to COMPUTER – MESSAGES - ALERT – ENGINE AIR INTAKE FILTER RESTRICTED in SECTION 2.

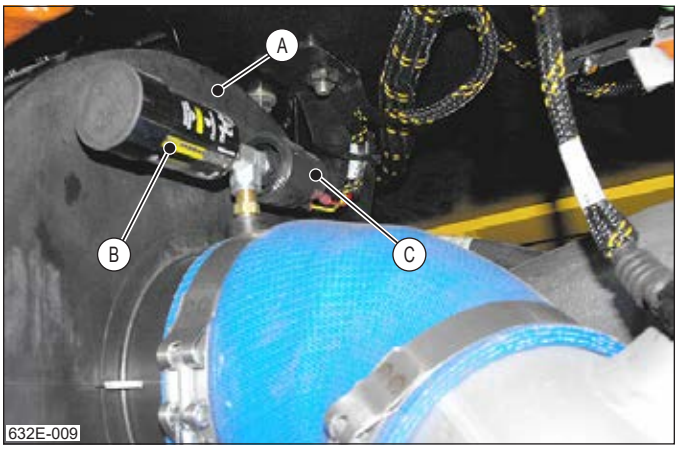
AIR CLEANER UNLOADER VALVE

This rubber valve on the tube of the air cleaner housing should be checked at the beginning of every shift (8 hours). If this valve is missing, damaged or has become hard, it will cause the air cleaner to become ineffective.

This valve should be replaced every 1000 hours. Remove the unloader valve from the tube of the air cleaner housing. Check and clean the valve. A good valve should be soft and flexible. If it is plugged, be sure to check the filter elements as they may need replacing as well. Reattach the valve to the tube.

When operating in high dust conditions, the unloader valve should be checked and squeezed every 2 hours to release dust buildup.

FILTER RESTRICTION INDICATOR



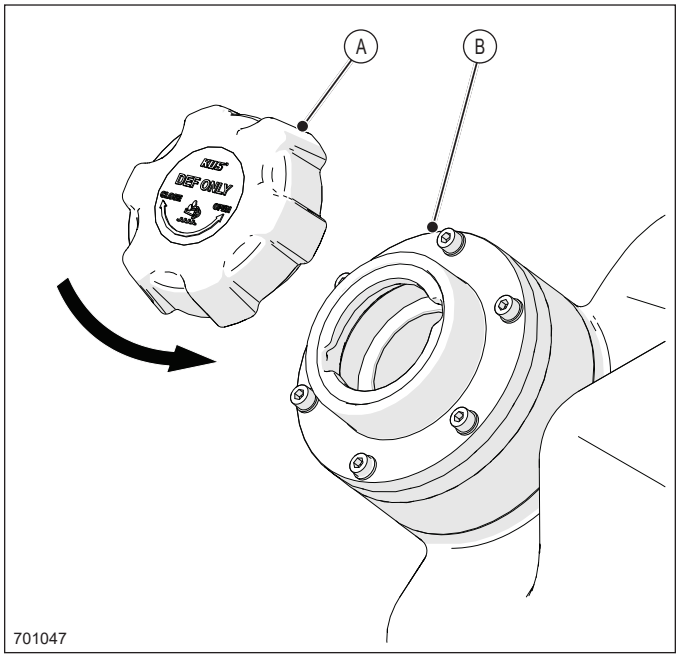
A	Air Cleaner
B	Filter Restriction Indicator
C	Filter Restriction Switch

A filter restriction indicator is connected to the outlet side of the air filter. Replace the primary air filter when the indicator shows RED. This indicator provides a continuous reading whether the engine is running or is shut down. After replacing the filter, reset the indicator by pressing the reset button.

NOTE: Replace the safety element every third primary filter change.

FILLING THE DEF TANK

1. Park the machine on level ground and install the articulation lock bar. Refer to PARKING THE MACHINE in SECTION 1.
2. Clean the area around the top of the fill cap to prevent DEF contamination.



A	Fill Cap
B	Fill Neck

3. Remove the fill cap. Clean the area under the fill cap to prevent DEF contamination.

NOTICE

Do not remove the DEF fill strainer when filling the tank. Contamination of the DEF can occur.

IMPORTANT!
Avoid contamination of DEF when performing maintenance on the system as this may cause costly damage to SCR system components and will affect the proper operation of the aftertreatment system and the engine.

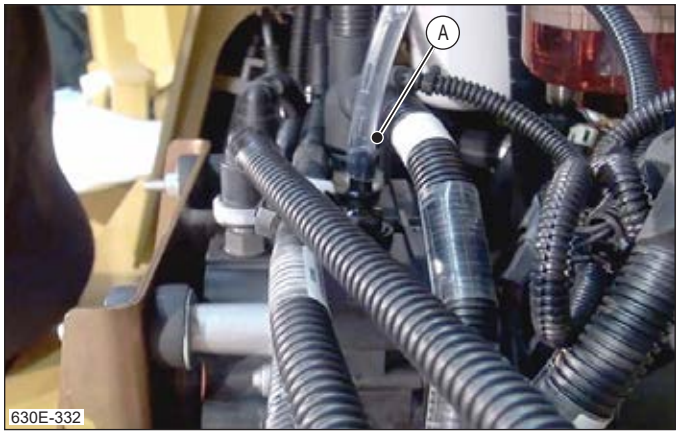
4. Insert the filling container spout into the flap on the top of the fill strainer and fill the tank. Do not remove the fill strainer to fill the tank.

NOTE: To avoid contamination, do not re-use DEF. Fill the tank with new DEF only. Refer to DIESEL EXHAUST FLUID (DEF) in THIS SECTION for DEF specifications.

NOTE: A section of the DEF tank remains empty when the DEF level reaches the strainer to accommodate DEF expansion when it freezes.

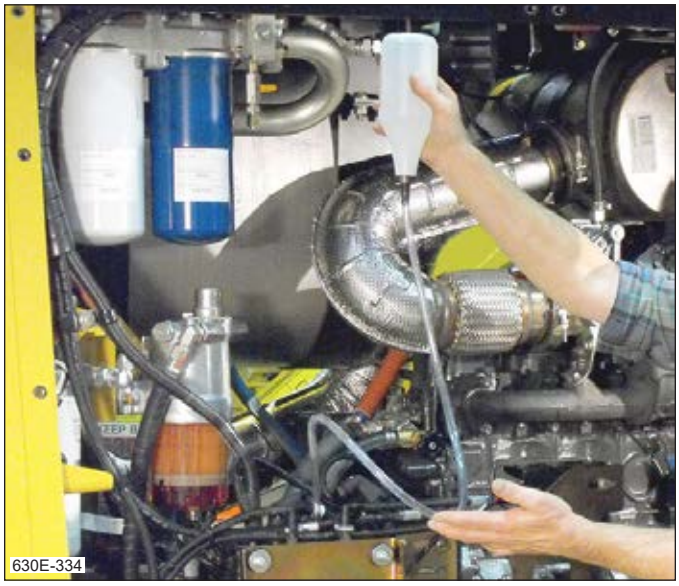
5. Install the fill cap.

19. Fill the plastic bottle with distilled/demineralized water.



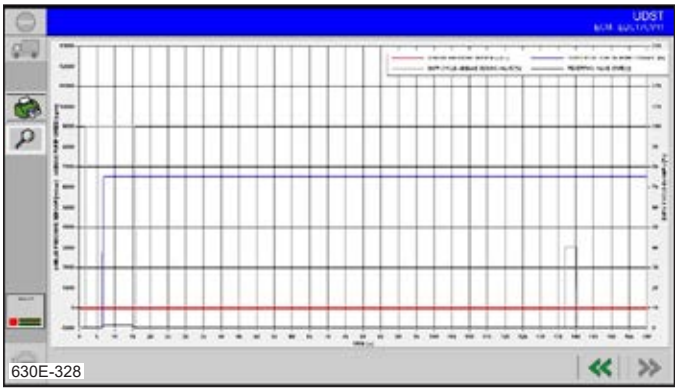
A	Inlet Port

20. Connect the water bottle hose to the inlet port of the DEF supply module.

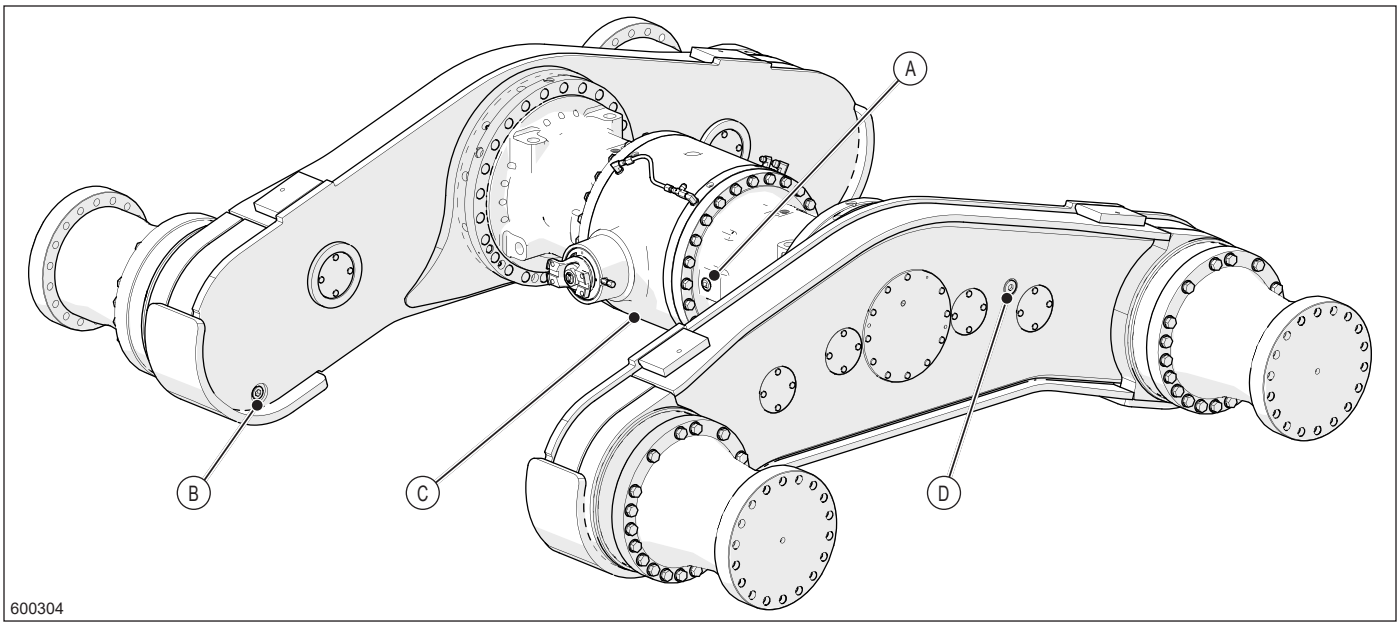


21. Raise the water bottle above the DEF supply module.
22. A small amount of water will flow through the DEF supply module and out the bottom where the filter has been removed.
23. With the aid of an assistant run a UDST test from the laptop computer. Refer to PT Box Manual for UDST test information.

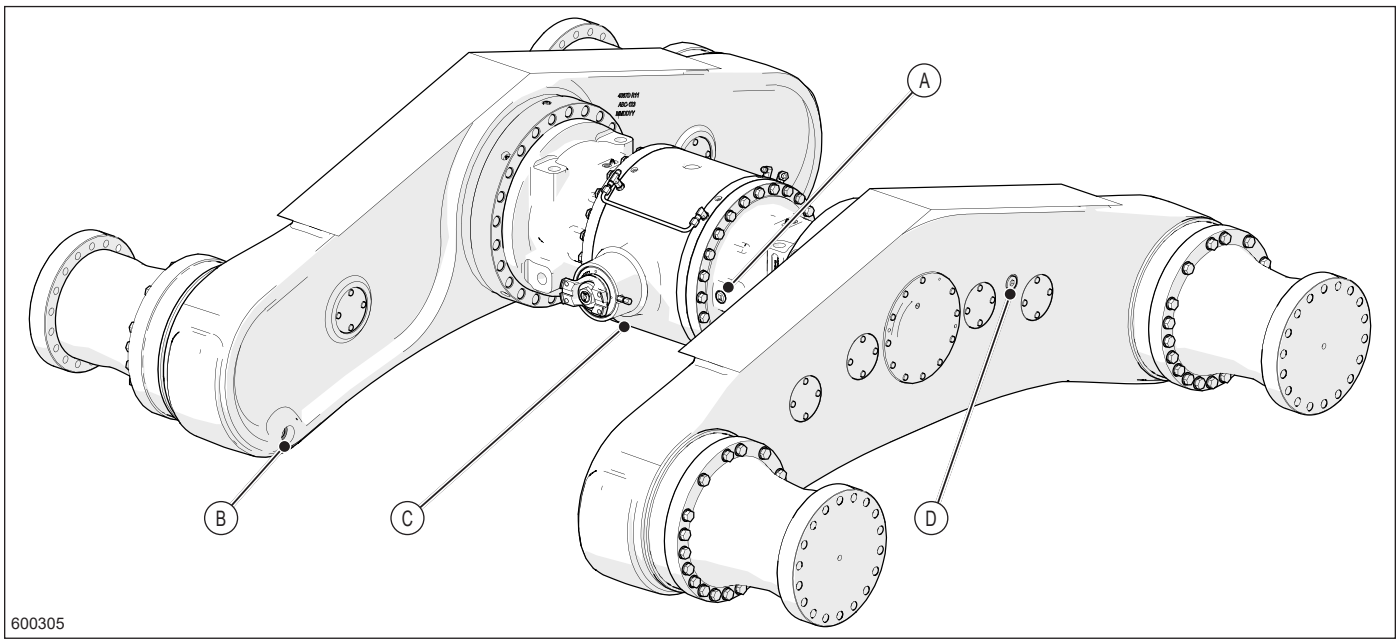
24. Distilled water will be drawn from the bottle and flushed through the DEF supply module. Suction may begin to collapse the bottle and water flow out the bottom of the module will increase.



25. The results of the UDST will show a flat line for DEF pressure (red line) because the pump cannot build pressure without the filter in place.
26. Repeat the UDST test a second time to ensure the DEF supply module is thoroughly flushed and working correctly.
27. When the UDST flushing procedure has been performed twice successfully remove the bottle and hose.
28. Reinstall the DEF module inlet hose.



Bogie Axle Fill, Drain and Level Plugs (625H)	
A Fill/Level/Brake Inspection Port (2 Places)	C Differential Drain Plug (1 Place)/ Sample Location
B Bogie Housing Drain Plug (4 Places) / Sample Locations	D Bogie Housings Fill/Level Plug (2 Places)/ Sample Locations



Bogie Axle Fill, Drain and Level Plugs (635H)	
A Fill/Level/Brake Inspection Port (2 Places)	C Differential Drain Plug (1 Place)/ Sample Location
B Bogie Housing Drain Plug (4 Places) / Sample Locations	D Bogie Housings Fill/Level Plug (2 Places)/ Sample Locations

SLEW BEARING LUBRICATION - BOGIE AXLES

The slew bearing requires regular lubrication. Refer to SERVICE AND LUBRICATION POINTS for the correct machine model and SCHEDULED MAINTENANCE in THIS SECTION for maintenance interval and lubrication point information.

10. Slowly unscrew fill plug two full turns. Any remaining air in the tank will be heard expelling from the special fill plug. Do not remove fill plug until all air has been expelled.
11. Close water shut-off valve.
12. Fill tank with clean water.
13. When temperatures below 0°C (32°F) are anticipated, use a 60/40 solution of Nontoxic R. V. Antifreeze or other suitable antifreeze. Antifreeze solution must meet GM 6038M specifications.

    NOTE: Most Nontoxic R.V. Anti freeze solutions contain corrosion and algae inhibitors, it is therefore suggested that this solution be added to the water on a continual basis regardless of temperature conditions.

14. Install fill plug in tank.

    NOTE: This is a special plug designed to withstand pressurization of the water tank. Do not substitute.

15. Pressurize the system to 4 bar (60 psi) as indicated on pressure gauge by connecting an air hose to air charge valve beside the pressure gauge.
16. Open the water shut-off valve.
17. Discharge about 2 L (1/2 US gal) of fluid into an empty antifreeze jug or other suitable container.

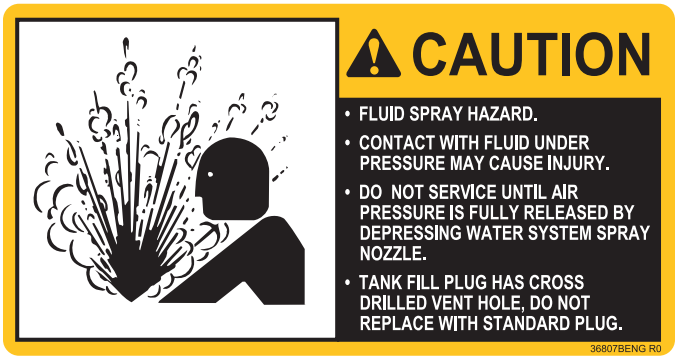
    There will be significant foaming as the fluid is discharged into the jug. Continue until a very forceful flow is obtained and any contamination that may have been in the tank is flushed from the system.

18. Check fluid in the jug for contamination. If fluid is dirty dispose of it properly.
19. Close the water shut-off valve.
20. Release pressure and fluid from the hose.
21. Pressurize the system to 4 bar (60 psi) as indicated on pressure gauge by connecting an air hose to air charge valve beside the pressure gauge.
22. Return the hose to the hose compartment.

PURGING PRESSURIZED WATER SYSTEM

Purging should be carried out whenever the flow of water does not forcefully discharge from the end of the hose with the pressure gauge reading 4 bar (60 psi).

1. Park the machine on level ground.
2. Lower the grapple and dozer blade to rest firmly on the ground.
3. Engage the parking brake.
4. Turn OFF the engine.
5. Remove the ignition key.
6. Turn OFF the battery disconnect switch.
7. Block wheels.
8. Install the articulation lock bar.
9. Open water shut-off valve and completely discharge all water and compressed air from the tank via the hose end nozzle.



10. Slowly unscrew fill plug two full turns. Any remaining air in the tank will be heard expelling from the special fill plug. Do not remove fill plug until all air has been expelled.
11. Close the water shut-off valve and add 8 L (2 US gal) of clean water to the tank.
12. Install the fill plug

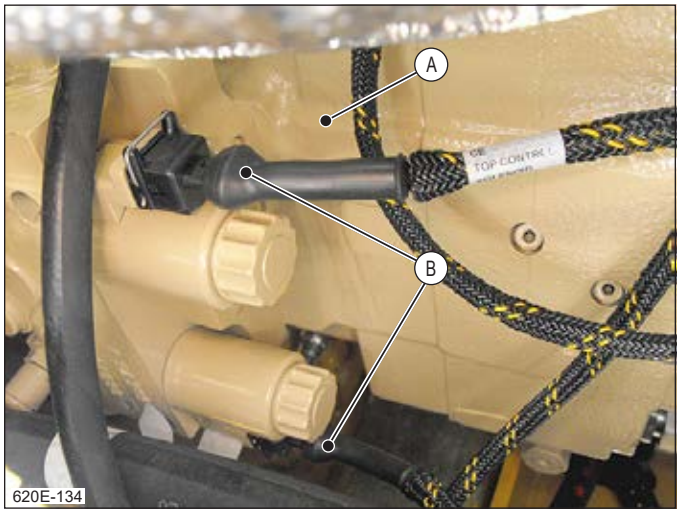
    NOTE: This is a special plug designed to withstand pressurization of the water tank. Do not substitute.

13. Pressurize the system to 4 bar (60 psi) as indicated on pressure gauge by connecting an air hose to air charge valve beside the pressure gauge.
14. Open the shut-off valve and completely discharge all the water in the tank via the hose end nozzle.
15. Discharge all the water into an empty antifreeze jug or other suitable container.

    There will be significant foaming as the fluid is discharged into the jug. Continue until a very forceful flow is obtained and any contamination that may have been in the tank is flushed from the system.

16. If a forceful discharge was not achieved, repeat the purging procedure. If a second purging does not work, remove lines and check for an obstruction.
17. After the purging operation, fill and charge the system as described in FILL AND CHARGE PRESSURIZED WATER SYSTEM in THIS SECTION.

8. Bleed brakes (front axle) if required.



Disconnect Two Connectors on Drive Pump Prior to Performing Procedure
A Drive Pump
B Connectors

- Prior to bleeding brakes disconnect the two connectors on the drive pump. This is a safety precaution to prevent the machine from travelling while brake bleeding is being performed.
- With engine at LOW, parking brake engaged, hold foot brake down, bleed brakes in front axle (both sides). Refer to FRONT AXLES – SERVICE BRAKES – BRAKE BLEEDING in SECTION 8 of the SERVICE MANUAL.
- Reconnect two connectors on drive pump.

9. Set engine speed to LOW and run each function for 2 minutes to purge air from circuit.
10. Set engine speed to HIGH and run each function again for 2 minutes to flush circuit.
11. Top up the radiator with clean coolant.
12. With cylinders fully retracted, top up the main hydraulic oil tank with clean hydraulic oil.

NOTE: If the machine was on wheels, the steer and drive functions were not properly purged or flushed. Remove the articulation lock bar and at LOW engine speed, slowly operate the steer function right and left a few times. With the parking brake disengaged and at LOW engine speed, slowly operate the drive function forward and reverse a few times.

NOTE: If possible, allow the machine to stand for 4 to 6 hours before setting any of the operating pressures. This will allow any air bubbles in the oil to escape and is a good time to check for leaks.