SR130 SR210
SR160 SR240
SR175 SV185
SV280
Tier 4B (final)

Alpha Series Skid Steer Loader

PIN NGM418237 and above

TR270
TR310
Tier 4B (final)

Alpha Series Compact Track Loader

PIN NGM418237 and above

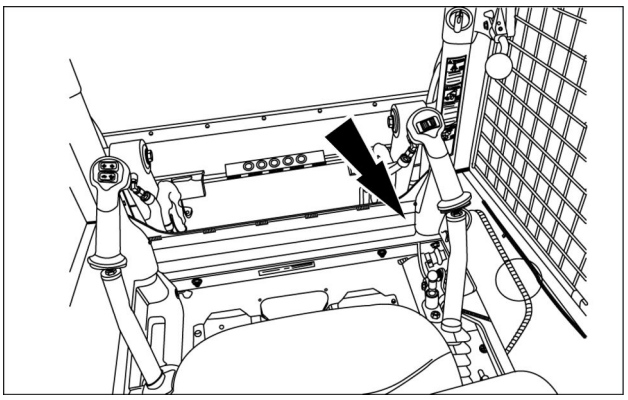
OPERATOR'S MANUAL

Part number 47948412
1st edition English
April 2016

CASE CONSTRUCTION

Roll Over Protective Structure (ROPS) certification plate.

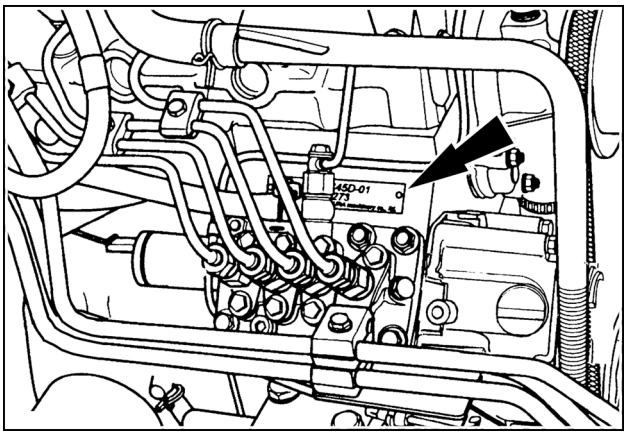
- Front edge (lower) inside cab.



931007505A 3

Engine serial number plate location for Models SR130 and SR160

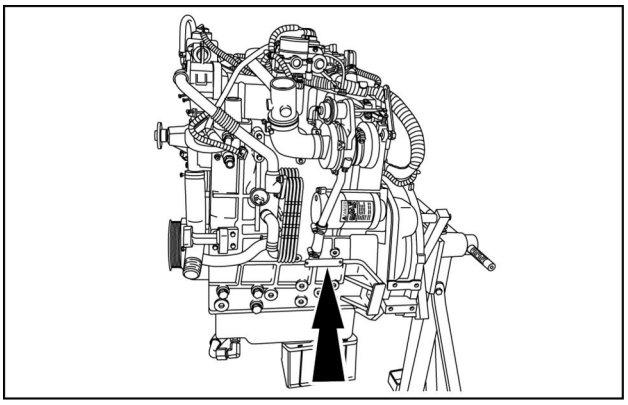
- On the fuel injection pump.



76075756 4

Engine serial number plate location for Models SR175 and SV185

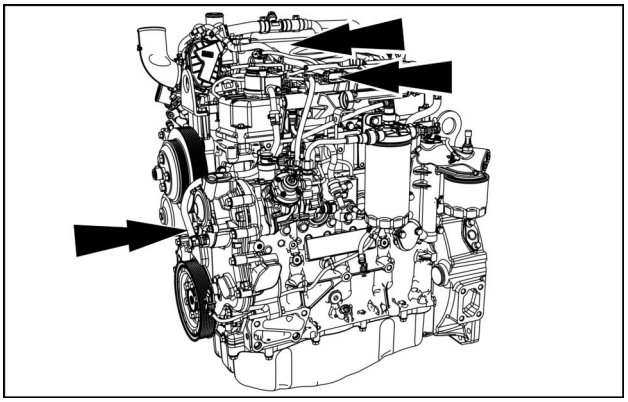
- On the right-hand side of the engine.



RAPH12SSL0406AA 5

Engine serial number plate location for Models SR210, SR240, SV280, TR270, and TR310

- On the side of the Exhaust Gas Recirculation (EGR) cooler.
- On top of the valve cover.
- The serial number is also stamped on the engine front cover.



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Case IH Max Service: 1-877-422-7344
MaxService.na@cnh.com

FEDERAL EMISSIONS WARRANTY

WARRANTY STATEMENT

ISM warrants that your 2013 and later off-road diesel engine was designed, built and equipped to conform to applicable U.S. Environmental Protection Agency (EPA) regulations and is free from defects in materials and workmanship which cause it to fail to conform with such regulations, for the following period of operation:

- For a period of two (2) years or 1,500 hours of operation, whichever occurs first, after the date of delivery to the initial retail owner of any variable speed off-road diesel engine rated at less than **19 kW** (**25 Hp**) and any constant-speed off-road diesel engine rated at less than **37 kW** (**50 Hp**) with rated speed greater than or equal to **3,000 RPM**.
- For a period of five (5) years or 3,000 hours of operation, whichever occurs first, after the date of delivery to the initial retail owner for all other off-road diesel engines.

WARRANTY INFORMATION

The model year, class of diesel engine, and emission application for your engine are identified on the emission control information label affixed to the right hand side of your engine's front side of timing gear case or head cover.

Any emission control system parts that are proven defective during normal use will be repaired or replaced during the warranty period. The warranty repairs and service will be performed by any authorized ISM dealer at the dealer's place of business, with no charge for parts or labor (including diagnosis).

As the engine owner, you are responsible to perform all the required maintenance listed in your owner's manual. ISM will not deny an emission warranty claim solely because you have no record of maintenance; however, a claim may be denied if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering regular maintenance should be retained in the event of questions and these receipts should be passed on to each subsequent owner of the engine.

It is recommended that replacement parts used for maintenance or repairs be ISM Service Parts to maintain the quality originally designed into your emission certified engine. The use of non-ISM parts does not invalidate the warranty on other components unless the use of such parts causes damage to warranted parts.

ISM wishes to assure that the emission control systems warranty is being properly administered. If you believe you have not received the service to which you are entitled to under this warranty, you should contact the nearest ISM Branch Office for assistance. The address and phone number of each Branch Office is in your owner's manual.

EXCEPTIONS

Please note that Emission Warranty does not cover:

1. Systems and parts that were not first installed on the new equipment or engine as original equipment by ISM
2. Part malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of nonrecommended fuels and lubricating oils.
3. Damage caused by accident, acts of nature, or other events beyond ISM's control.
4. Replacement of expendable items made in connection with scheduled maintenance.
5. Parts requiring replacement or inspection or adjustment during scheduled maintenance intervals where the part is not defective.
6. Parts which are not ISM Service Parts.
7. Loss of time, inconvenience, loss of use of equipment/engine or commercial loss.
8. Equipment with an altered or disconnected hourmeter where the hours cannot be determined.
9. Equipment normally operated outside the United States
10. Non-defective parts replaced by other than ISM dealers.

PARTS COVERED

This emission control system warranty applies to the following emission control parts:

- Fuel Injection Pump
- Fuel Injectors

Do not lift load higher than necessary. Lower loads to transport. Remember to leave appropriate clearance to the ground and other obstacles.

Equipment and associated loads can block visibility and cause an accident. Do not operate with insufficient visibility.

Seat belt

The seat belt is an important part of your ROPS. You must wear the seat belt at all times when you operate the machine.

Before you operate this machine, always make sure that the ROPS and operator's seat belt are correctly installed.

No engine power - loader arm down control

⚠ DANGER

Crushing hazard!
Do not enter or exit the operator's compartment while the loader arms are raised or unsupported. Rest the loader arms on the ground or verify that loader arm is being supported by the loader arm strut or loader arm lock pin before entering or exiting the operator's compartment.
Failure to comply will result in death or serious injury.

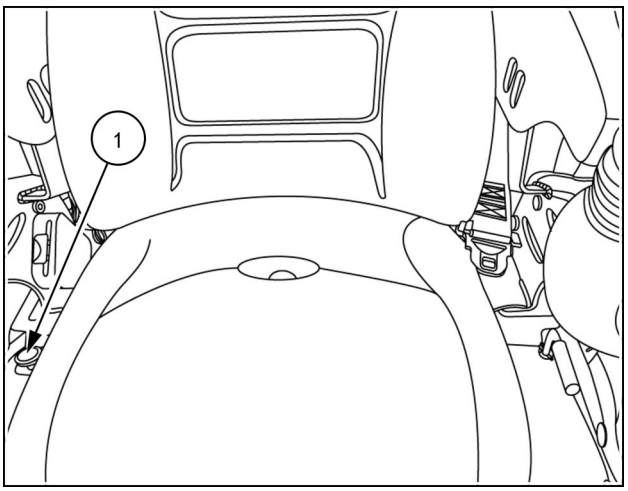
D0168A

In the event of the loss of engine power, this override control will allow the operator to lower the loader arm to the ground.

See the decal on the override control knob **(1)** (red control knob on the right-hand side of the operator's seat).

Before attempting to lower the loader arm/attachment on a machine that has lost engine power, alert personnel in the area of your intention. Do not leave the seat, or unfasten the seat belt or raise the restraint bar. After confirming that personnel and obstacles are clear, pull the control knob UP to lower the loader arm/attachment down to the ground.

NOTE: *The override control knob is for service and emergency situations only and should not be used in day-to-day operations.*



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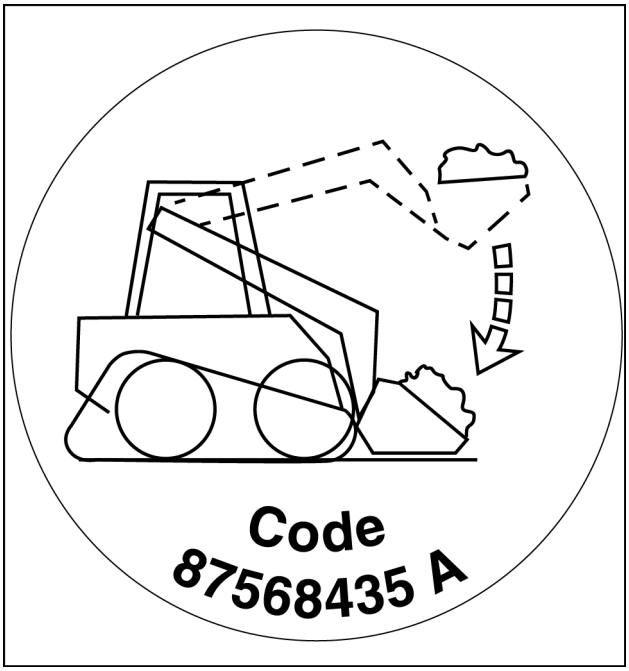

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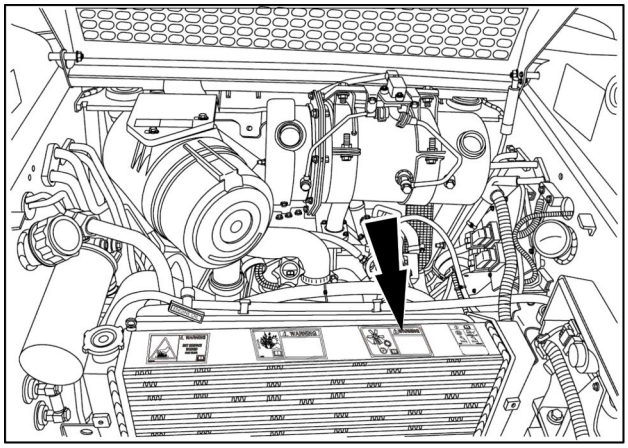
WARNING
Entanglement hazard!
Keep hands and clothing away from rotating fan and belts. Failure to comply could result in death or serious injury.

Quantity: 1
Part number:
English 9828825
Pictorial 47739196

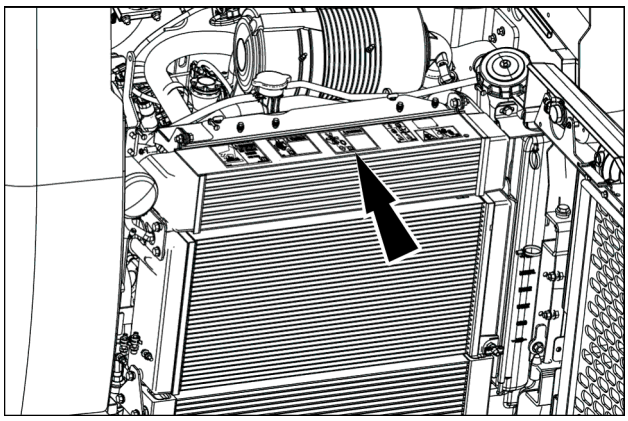
9828825_H 22

Location:
On top of the radiator. Model SR130 only.



RAIL16SSL0034BA 23

Location:
On top of the charge air cooler. Models SR175 and SV185 only.



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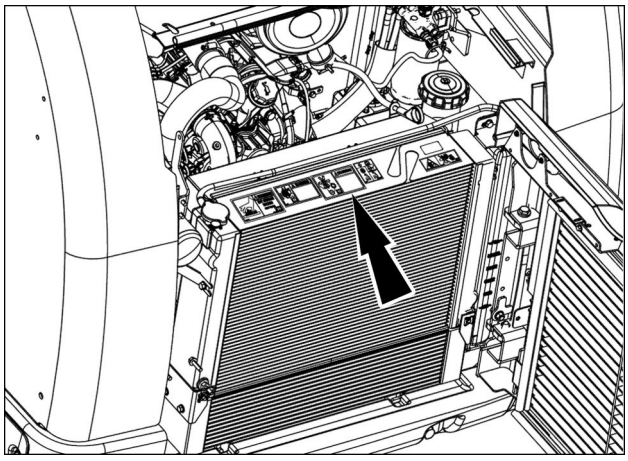
Location:
On top of the radiator. Models SR160, SR210, SR240, SV280, TR270, and TR310 only.



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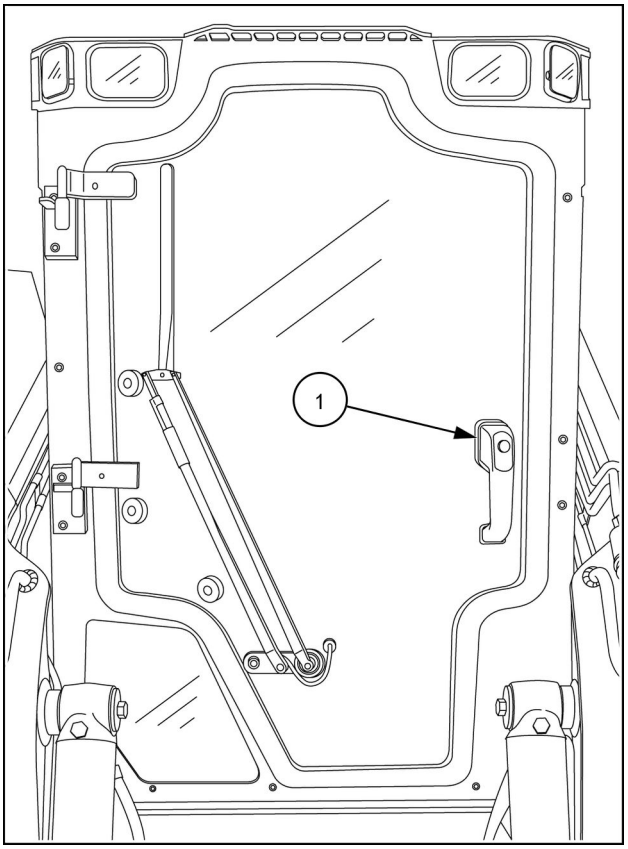
3 - CONTROLS AND INSTRUMENTS

ACCESS TO OPERATOR'S PLATFORM

Door latches, cab

Exterior door latch

Push on the knob **(1)** to release the door for entry. The starter switch key may be used to lock the door.



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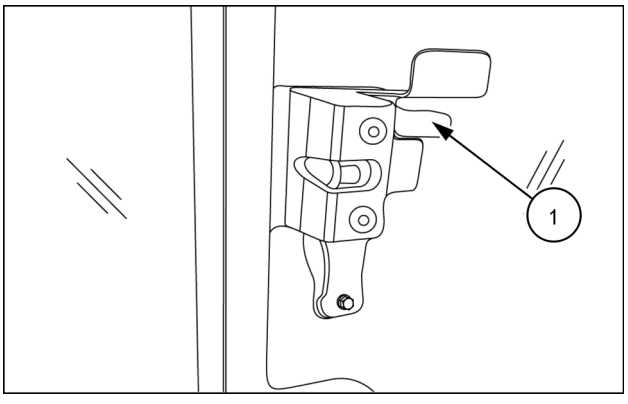
Interior door latch

Push on the lever **(1)** to release the door latch and open door.

NOTICE: *Do not raise or lower loader lift arm until you have confirmed the door is fully closed. Damage may occur to the door assembly.*



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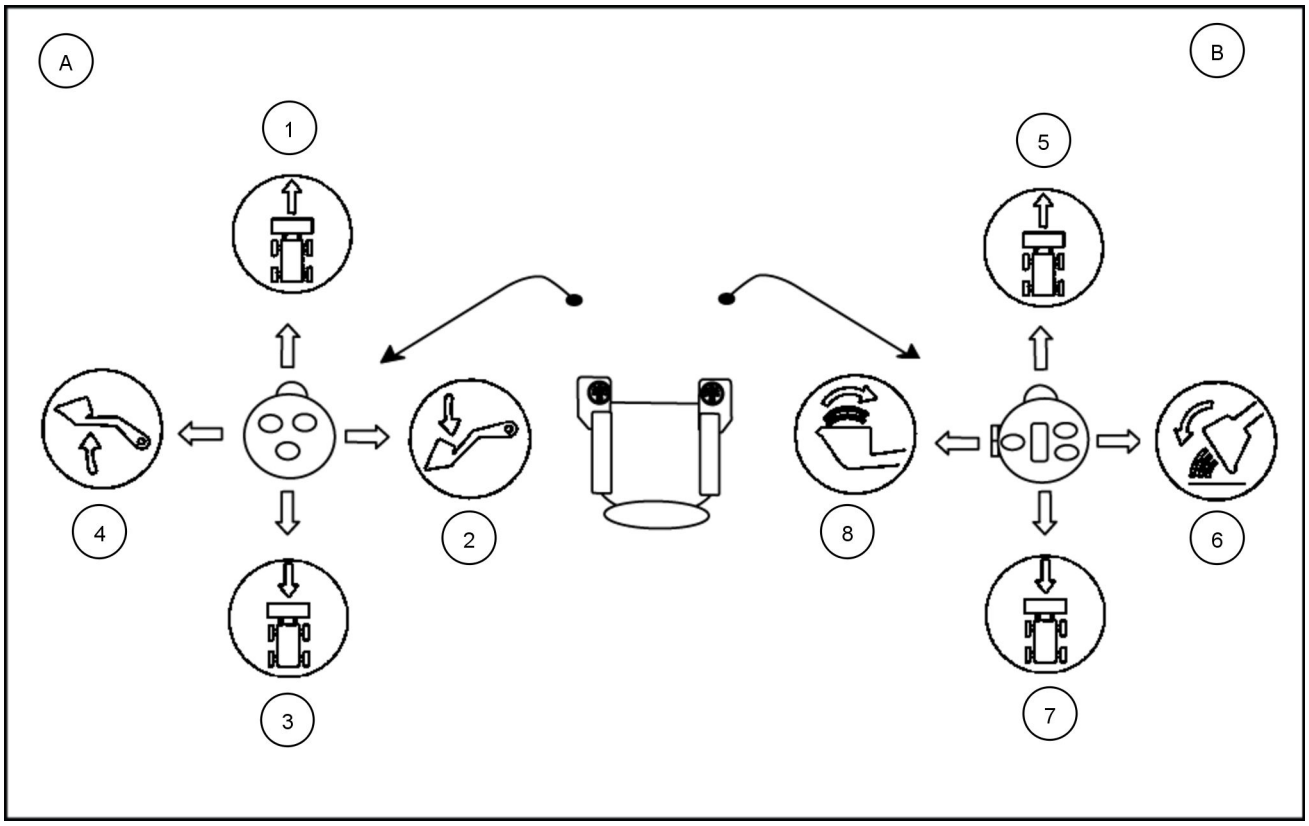
ELECTRO-HYDRAULIC CONTROLS

Control pattern overview

Standard H control pattern



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The chart below will give a description of the control lever functions. The left-hand control lever is represented by the letter (A) and the right-hand control lever by letter (B).

(A) Left-hand control lever	
(1)	Left side drive forward.
(2)	Loader arm lower.
(3)	Left side drive reverse.
(4)	Loader arm raise.

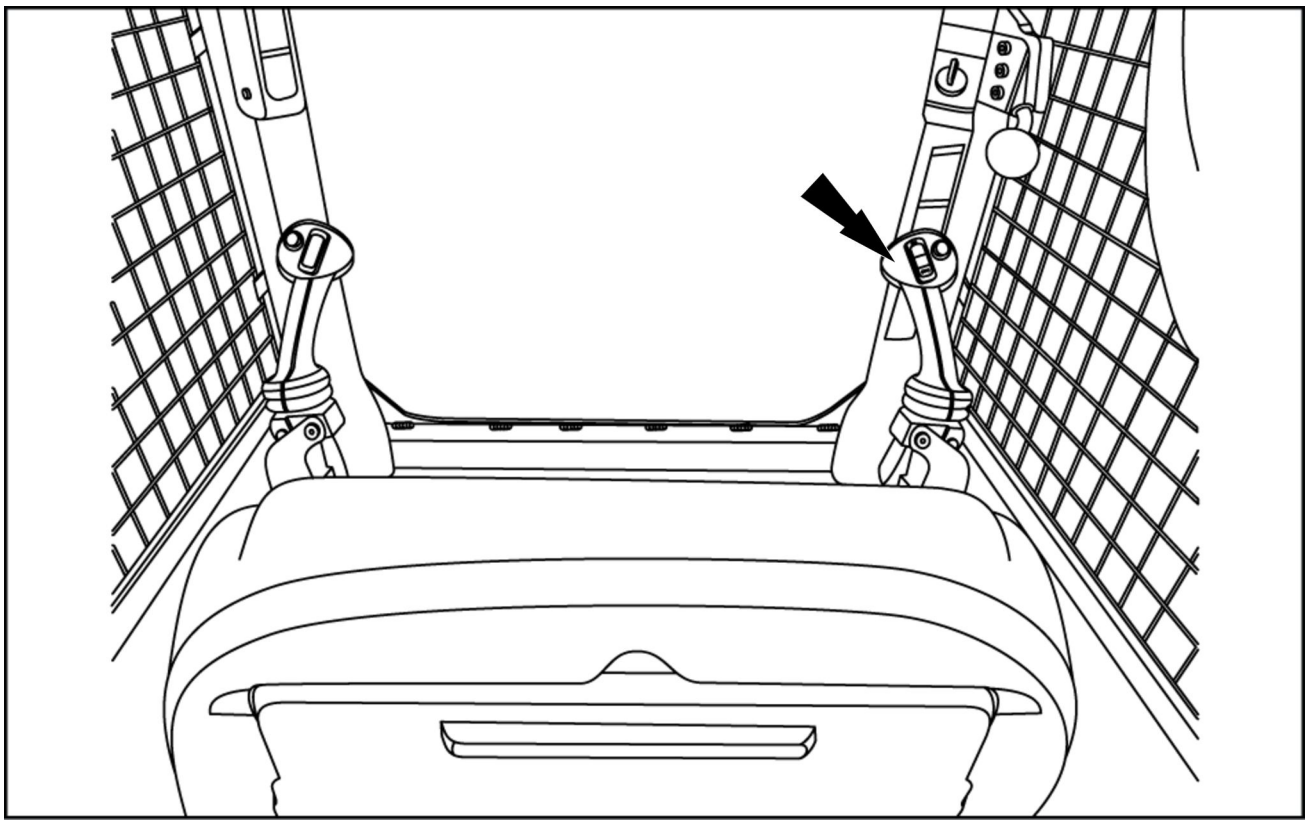
(B) Right-hand control lever	
(5)	Right side drive forward.
(6)	Bucket dump.
(7)	Right side drive reverse.
(8)	Bucket rollback (curl).

NOTE: *The standard H control pattern uses both left-hand and right-hand control levers for ground drive functions.*

NOTICE: *Do not operate the unit until the hydraulic oil is at sufficient operating temperature.*

ISO control pattern lift arm and bucket controls

Lift arm and bucket controls



93109347C 1

Lift arm raise and lower control.

- Pull back on the right-hand control lever to raise (up) the lift arm.
- Push the right-hand control lever forward to lower (down) the lift arm.
- The lift arm spool is equipped with a detent FLOAT circuit. In this detent position the lift arm will float over changing ground contour and the lever will remain in this position until pulled back toward the up stroke slightly.

Engage the float feature:

Press the float button on the right-hand control lever and push the lever partially forward. If the operator has the right-hand control lever already partially in the down stroke position and then presses the float button, the float feature will engage.

Disengage the float feature:

Pull back on the right-hand control lever out of the detent position.

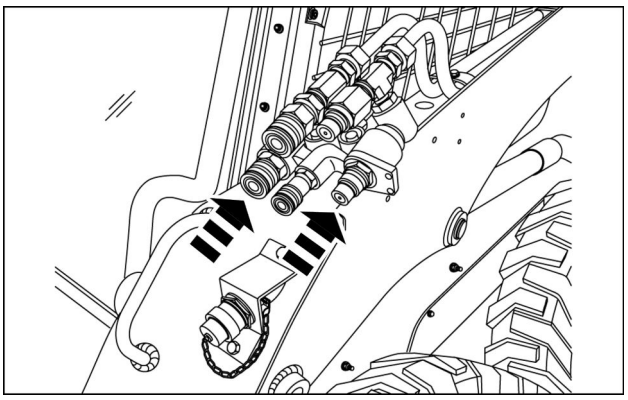
Bucket dump and curl control.

- Pivot the right-hand control lever inward (down) and the bucket will roll back (curl).
- Pivot the right-hand control lever outward (up) and the bucket will dump.

NOTE: *There is no detent or float position on the bucket dump and curl circuit.*

Relieve pressure before disconnecting attachment hoses

1. Lower the loader arm all the way down and ensure that the loader arm or attachment is not supporting the weight of the machine with the front wheels off the ground.
2. Place all controls in the neutral position.
3. Press the Operate button to deactivate the hydraulic system and ground drive system.
4. Stop the engine.
5. Move the controls to ensure that the hydraulic interlock is engaged and the loader arm and bucket cylinders do not move.
6. Raise the restraint bar, unfasten the seat belt, and safely exit the machine.
7. Prior to disconnecting the 5/8 inch high flow attachment hoses, with the palm of your hand push one of the lower, 1/2 inch quick disconnect couplings towards the Connect-Under-Pressure (CUP) valve. When done properly, the coupling will move about **6 mm** (**0.25 in**), relieving any stored pressure in that circuit.
8. Repeat Step 7 on the other 1/2 inch coupling.
9. Disconnect the 5/8 inch high flow attachment hydraulic hoses from the quick disconnects.
10. Install the coupler covers, if equipped.

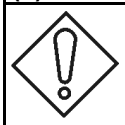


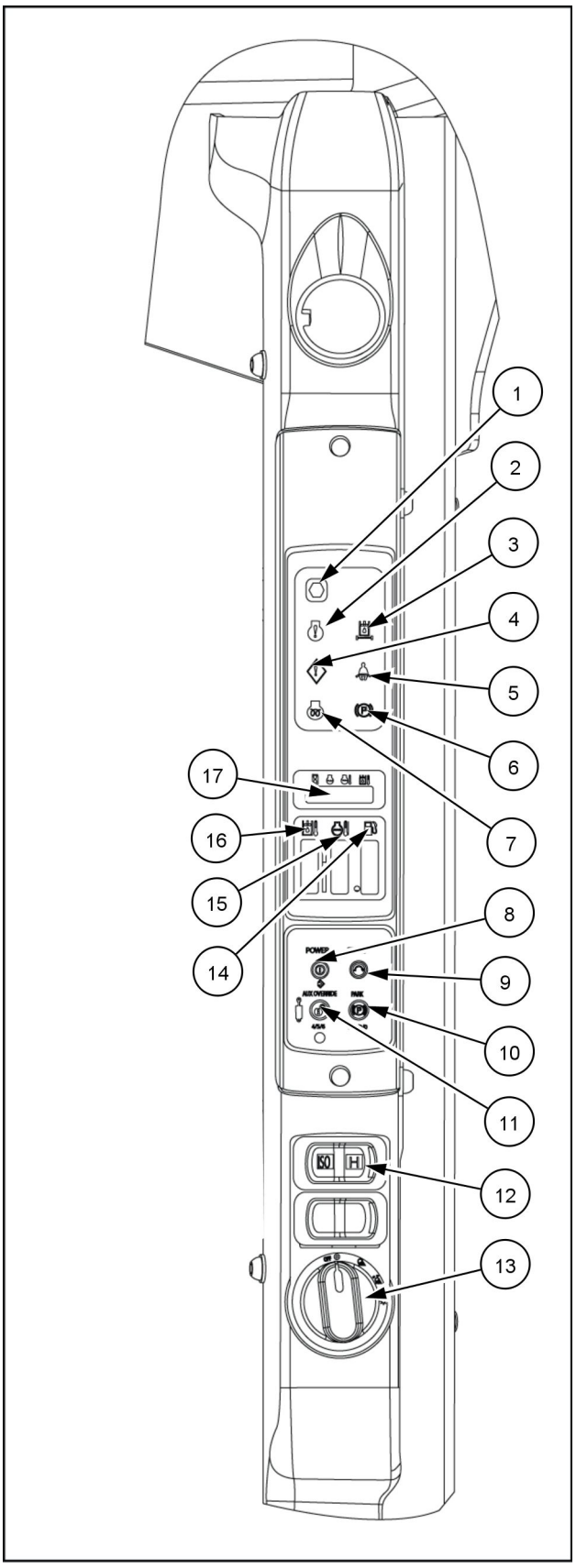
93106839B 3

(1)	STOP
	Severe warning requiring immediate shut down, RED lamp will flash and audible alarm will sound. Use the fault code that appeared in text display and reference it in the troubleshooting section of this manual.

(2)	ENGINE MALFUNCTION
	Yellow Lamp will flash when an engine fault is detected. Use the fault code that appeared in text display and reference it in the troubleshooting section of this manual.

(3)	HYDRAULIC SYSTEM MALFUNCTION
	Yellow Lamp will flash when a Hydraulic fault is detected. Use the fault code that appeared in text display and reference it in the troubleshooting section of this manual.

(4)	ELECTRONIC SYSTEM MALFUNCTION
	This yellow lamp will flash and the alarm will sound. Use the fault code that appeared in text display and reference it in the troubleshooting section of this manual.



93109330 2

Setting controllability with Easy Electro-Hydraulic (EZ-EH)

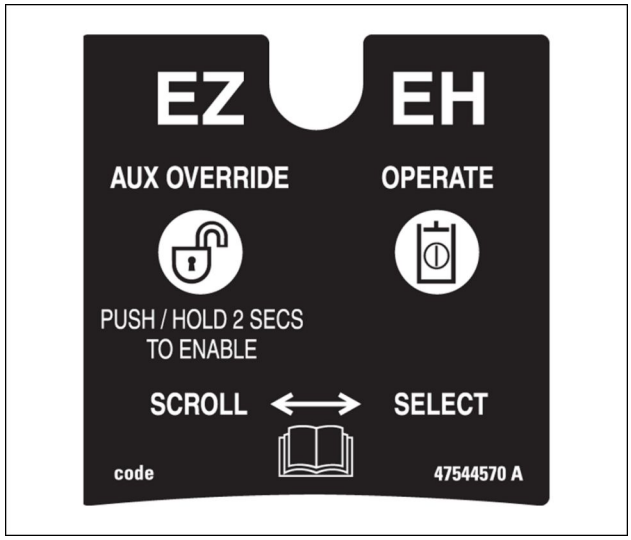
The Easy Electro-Hydraulic (EZ-EH) machines have the EZ-EH information sign located at the top of the instrument cluster on the right-hand column. The following instructions are for the shortcut to the Electro-Hydraulic (EH) setup. Use these settings to set the speed of the drive, lift, and tilt. Also the drive and loader arm settings.

All changes must be made with the hydraulics disabled and the operator in the operator's seat.

1. Press and hold the AUX OVERRIDE button **(1)** for two seconds to enter the EH shortcut menu.
2. SPEEd will display on the display **(2)**. Press the AUX OVERRIDE button **(1)** to select a different menu item (DRIVE, EXIT, HOUR, HOILT, COOLT, RPM, or CYCLE).
3. Press the OPERATE button **(3)** to enter the SPEEd menu. The current setting will be displayed.
4. Press the AUX OVERRIDE button **(1)** to change the SPEEd setting.
5. Press the OPERATE button **(3)** to save a new setting. If EXIT is selected, you will exit back to the top menu level.

   NOTE: *If a new setting is saved, SAVEd will be displayed and you will exit to the top level shortcut menu.*

The CTRL menu works the same as the above SPEEd menu.



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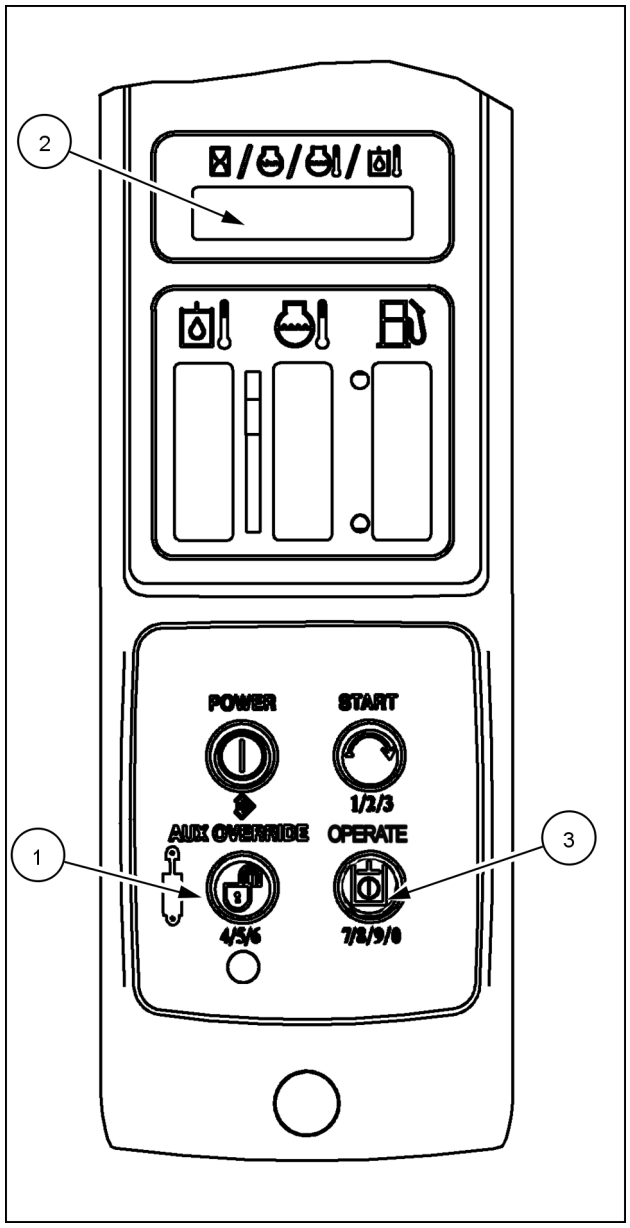


931002267 7

Creating codes

The panel cannot be locked until a code is created. The instrument panel has one owner code and up to ten user codes. The owner code will always unlock the panel. The owner code will be required to create or change user codes and to modify the owner code.

Owner code:

Once in the SETUP menu, press the START button to move to the LOCK menu. Press the POWER button to enter the LOCK menu.

To create an owner code:

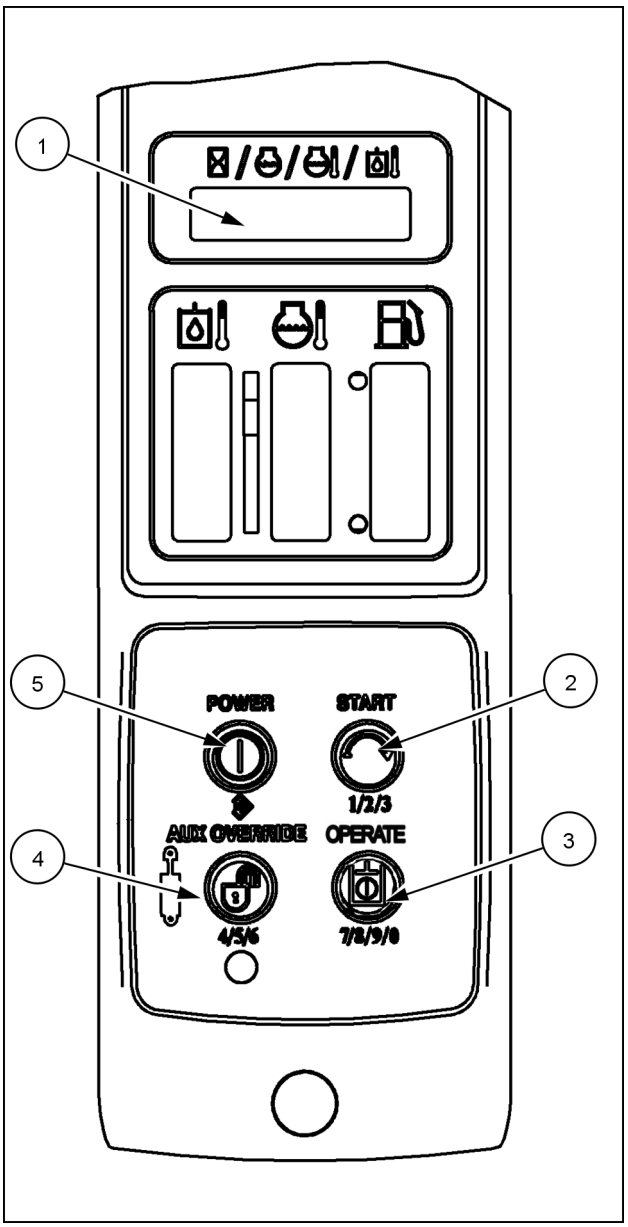
If no owner code exists, the display will show the word OWNCR (Owner Create), followed by 00000 . Write down the planned 5 digit code or use a code you already know.

NOTICE: *Once the code is created, the panel cannot be unlocked without the code. If the panel cannot be unlocked, contact your Dealer.*

1. Enter code by using multiple presses of the START button **(2)**, AUX OVERRIDE button **(4)**, and OPERATE button **(3)**. Press the POWER button **(5)** to save each digit and move to the next.

   NOTE: *For numbers 1, 2, 3 use the START button. For numbers 4, 5, 6 use the AUX OVERRIDE button. For numbers 7, 8, 9, 0 use the OPERATE button.*

2. Press the POWER button **(5)** after the fifth digit to enter the code. The engine preheat lamp will illuminate and the display will begin the thirty second countdown.
3. Press the START button **(2)** to move to the exit menu, and press the POWER button **(5)** to exit the “Setup” menu. The panel is not locked at this point.



931002267 15

4 - OPERATING INSTRUCTIONS

COMMISSIONING THE UNIT

Operating Instructions

Before each operating period, it is the responsibility of the operator to confirm that the machine is safe and serviced.

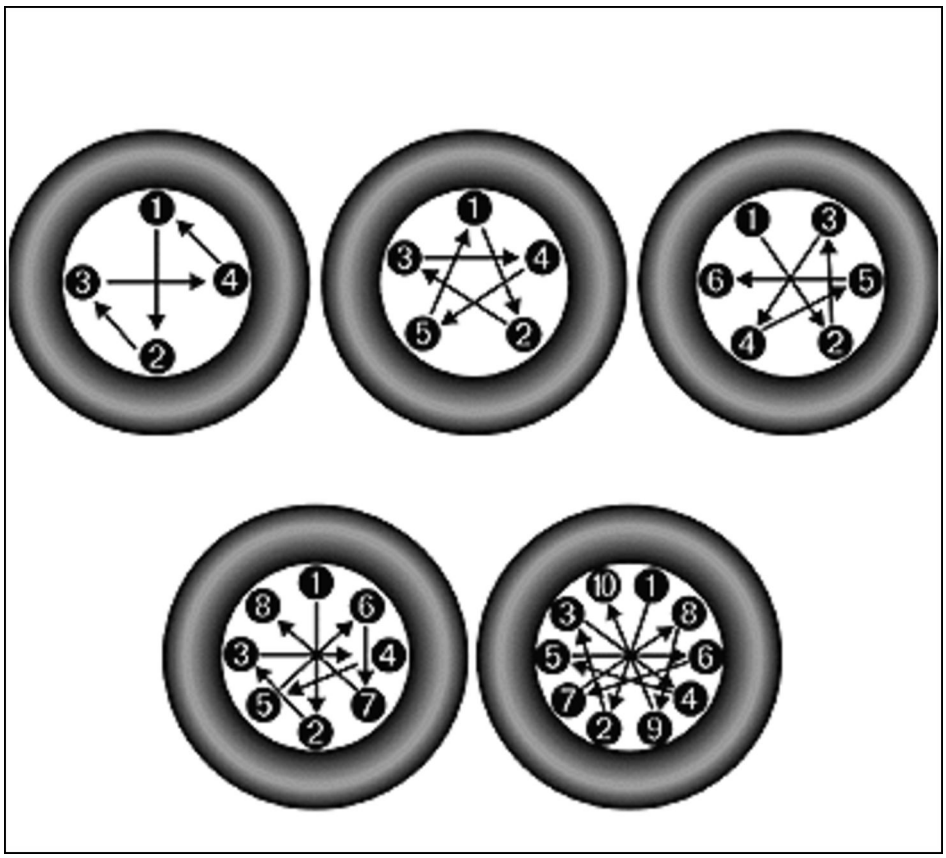
During the first 20 hours of operation, make sure to do the following:

1. If possible, operate the engine at intermittent heavy loads and engine speeds for this period to ensure proper engine break-in.
2. Keep the engine at normal operating temperature.
3. Do not run the engine at idle speeds for long periods of time.
4. During the first 20 hour break-in period, check the oil level at approximately one hour intervals. Oil consumption may be higher during the initial break-in period.
5. It is recommended that the operator run the engine at full throttle when operating conditions permit.

Wheel bolts

If the machine is new or if a wheel is removed for service, check and tighten the wheel bolts every 2 hours of operation until they remain tight. If the machine is equipped with stamped center wheels, the lug nuts will be tapered. Tighten each lug nut to a torque of **162.7 - 196.6 N·m** (**120 - 145 lb ft**).

If the machine is equipped with solid center wheels, the lug nuts will be flanged. Tighten each lug nut to a torque of, **189.8 - 223.7 N·m** (**140 - 165 lb ft**).



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5 - TRANSPORT OPERATIONS

SHIPPING TRANSPORT

Transporting the machine

⚠ WARNING

Transport hazard!
The machine can slip or fall from a ramp or trailer. Make sure the ramp and trailer are not slippery. Remove all oil, grease, ice, etc. Move the machine on or off the trailer with machine centered on the trailer or ramp.
Failure to comply could result in death or serious injury.

W0152A

⚠ WARNING

Driving hazard!
Hillside operations can be dangerous. Rain, snow, ice, loose gravel, or soft ground, etc. can change the ground conditions. You must make a judgment if it is safe to operate your machine on any hillside or ramp.
Failure to comply could result in death or serious injury.

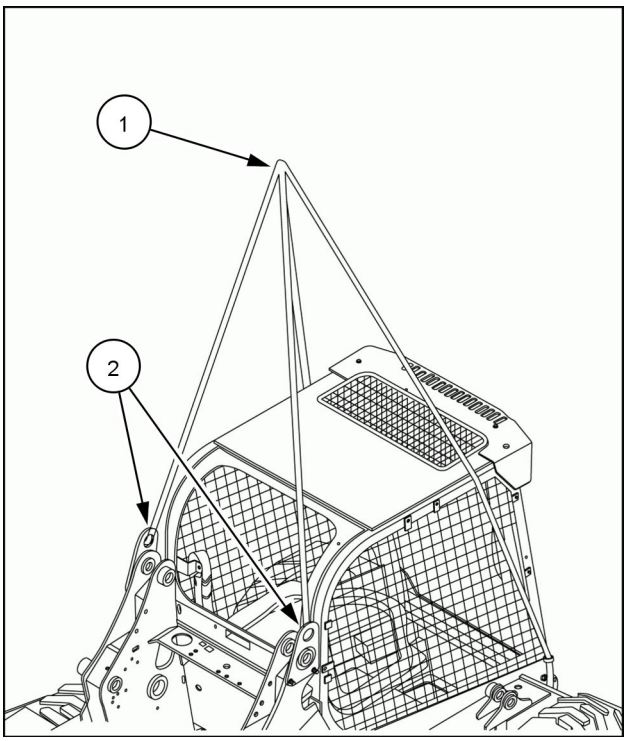
W0144A

⚠ WARNING

Transport hazard!
Only use the identified tie-down points to secure the machine for transport on a trailer.
Failure to comply could result in death or serious injury.

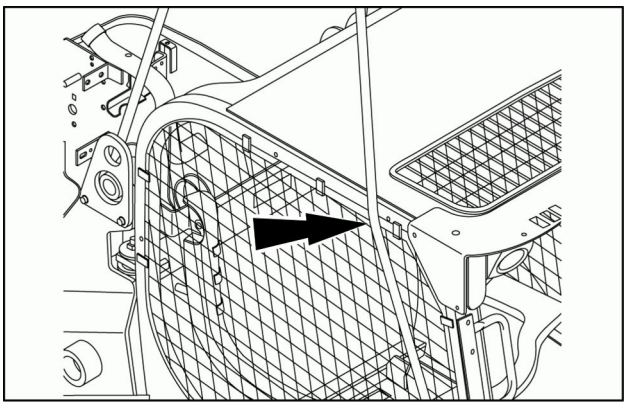
W1431A

1. Connect all slings to a single point **(1)** on the suitable craning equipment above the cab.
2. Attach chains to the machine's rear lifting points **(2)** on the machine.



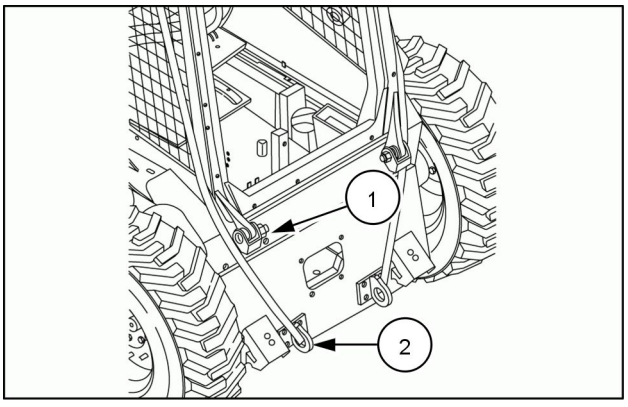
RAIL14SSL0415BA 23

3. Route the front sling down the right-hand side of the Roll Over Protective Structure (ROPS).



RAIL14SSL0417BA 24

4. Route the front sling down the outside of the ROPS front pivot point **(1)** and attach to the machine's right-hand side lifting point **(2)**.
5. Repeat on the left-hand side of the machine.
6. Clear the area.
7. Lift the machine just off the ground. The machine should stay level. If it is not level lower the machine to the ground and adjust the length of the rear chains. Repeat until you achieve a level lift.



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Job layout

For efficient operation, arrange the job to minimize the time required to perform the work cycle. In spotting the dump site, consider wind direction, and ground slope. Whenever possible, position the dump site so that the wind will carry dust away from the operator. Before the operator begins work, take a few minutes to level off the work area if it is not smooth. Minimize transport distances for a faster work cycle.

Operating load capacities

⚠ WARNING

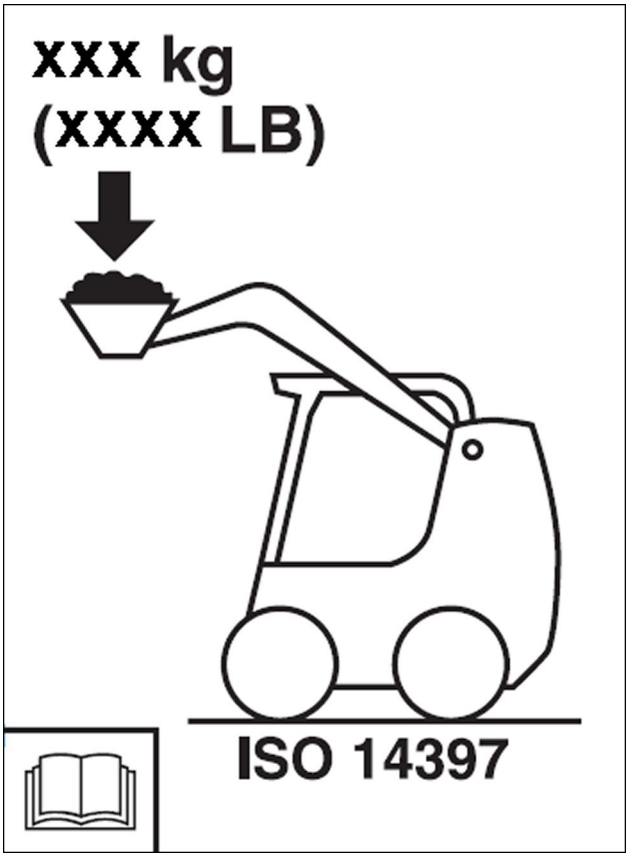
Overturning hazard!
The operator must know the correct OPERATING LOAD capacity of the machine before attempting to operate the machine. Always follow the recommended load limits.
Failure to comply could result in death or serious injury.

W0216A

⚠ WARNING

Roll-over hazard!
Overloading the rated capacity of the machine could cause the machine to roll over. Always follow the recommended load limits. Never overload the rated capacity of the machine.
Failure to comply could result in death or serious injury.

W0217A



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See page **9-2** for a list of models and specifications. For your specific machine, see the decal on your machine for the operating load capacity. The decal is located on the cab right-hand console post. If you have questions about the load capacity of your machine, contact your dealer.

- Before starting work, familiarize yourself with the work area. Locate holes, obstacles, and debris that can be cleared from the site. Be aware that the job site may change repeatedly during the course of the work day.
- Locate any unavoidable danger areas such as, power lines, bridges, and tight corners to make sure that you can operate safely in these areas.
- Confirm the possibility of other personnel in the machine vicinity and clear the area of unauthorized personnel.
- If possible, arrange the job site to minimize the time required to perform the work cycle. Consider wind direction and ground slope. Position the dump site so that the wind will carry dust and dirt away from the operator.
- Use low range for maximum machine efficiency.

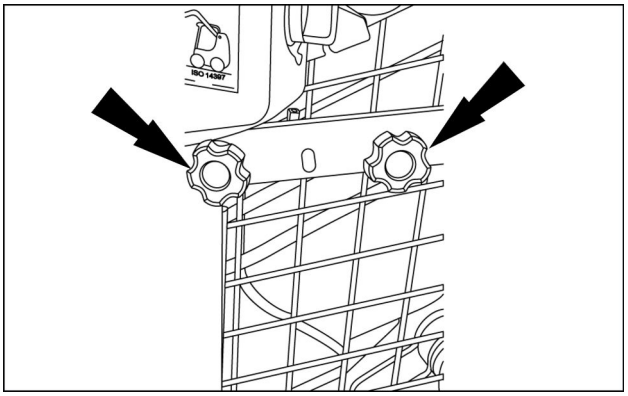
Window removal and cleaning

NOTICE: *DO NOT change the window position without properly locking the window latch! Improper use WILL result in premature wear.*

Removal

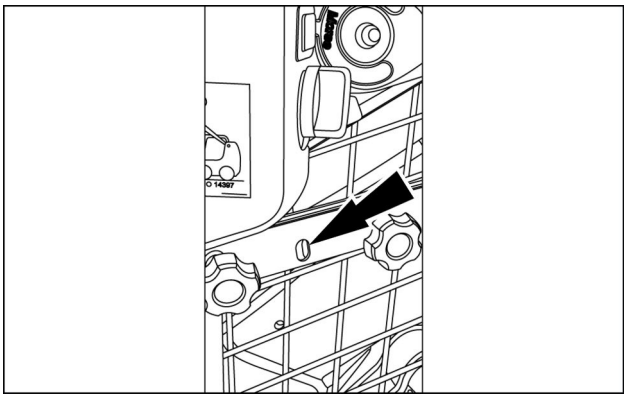
It is very important that the windows stay clean, clear, and visible. Debris on window can severely obstruct the operator's vision. Follow the instructions provided to remove the side windows for cleaning.

1. Loosen the four engagement knobs at both ends of the window, until they are backed out about **13 mm** (**0.5 in**).



93109340 1

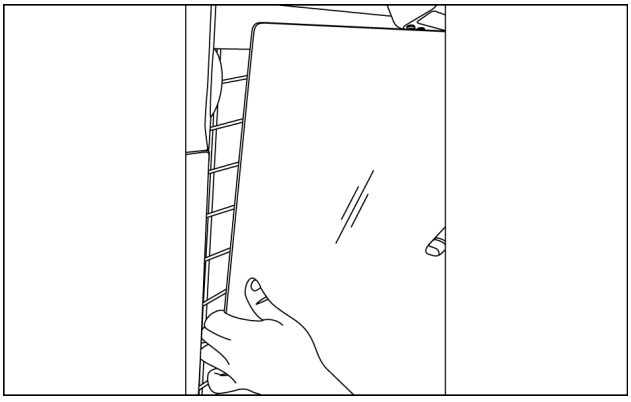
2. Slide the front two knobs and the rear two knobs toward the center of the window until the green indicator has changed to red. Now the window bar can drop down slightly, allowing the top of the window to drop down just below the window frame.



93109336A 2

NOTE: *The restraint bar must be in the operating position for window removal.*

3. Tilt the top of the forward most window inward so it can be lifted up and out for proper window cleaning.



93109338 3

You may notice the older version of the OAT decal (CNH Industrial part number 47488993) on some applications.

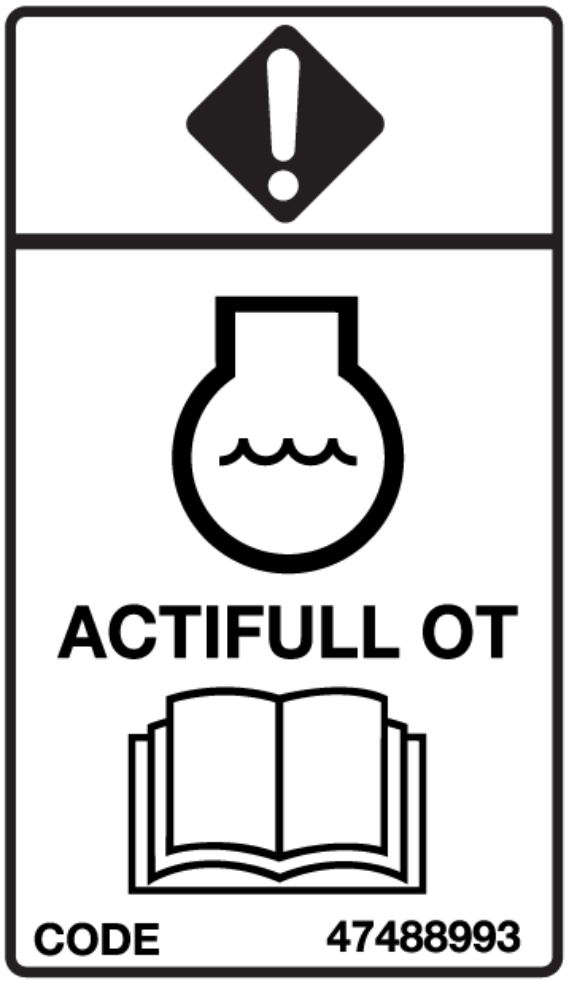
Definitions

Conventional coolant:

A coolant that relies on inorganic inhibitors such as silicates, nitrites, and phosphates for corrosion and cavitation protection.

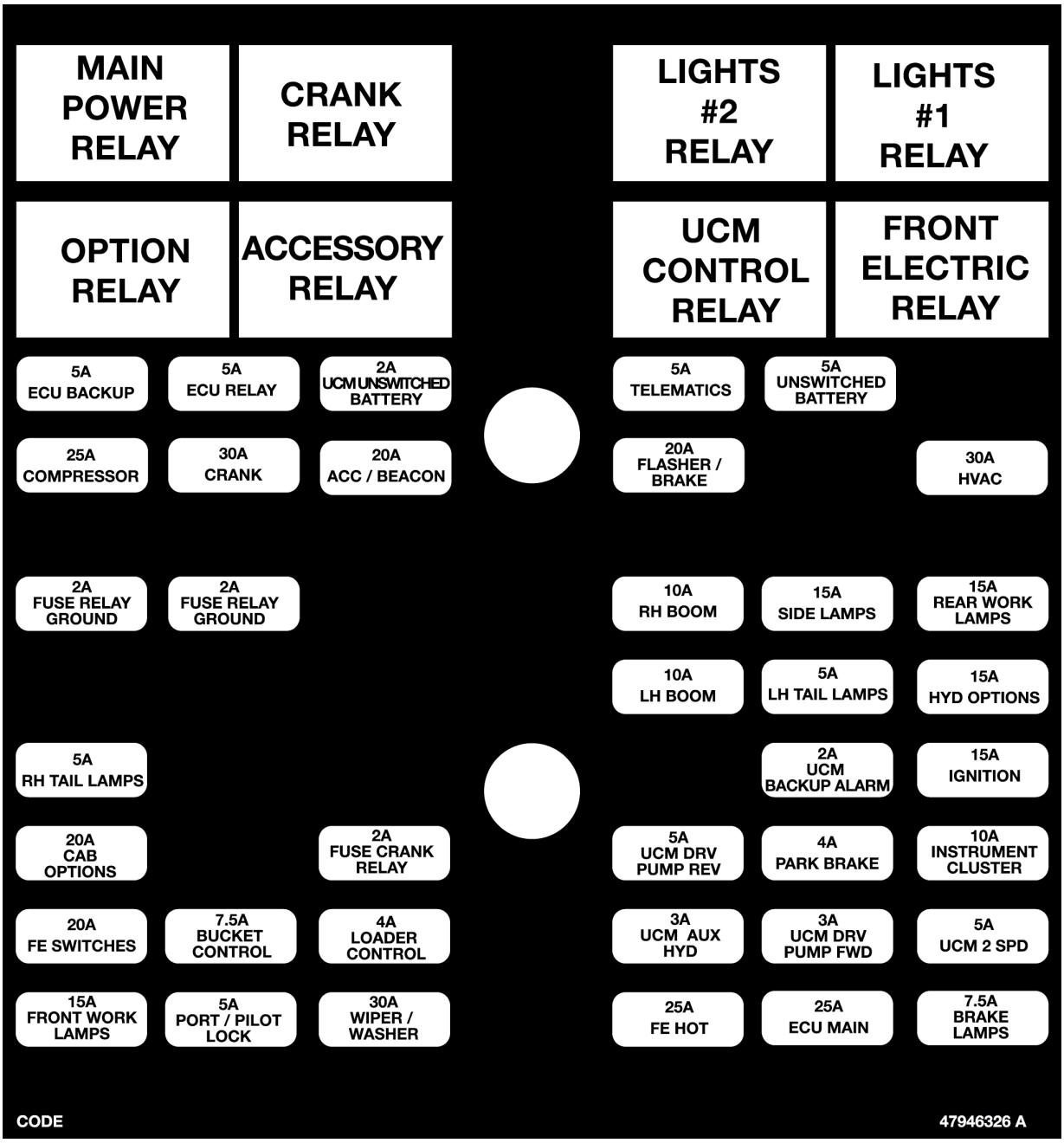
Organic Acid Technology (OAT) coolant:

A coolant that relies on inhibitors such as organic acid salts for corrosion and cavitation protection.



47488993 2

SR175 and SV185 with Electro-Hydraulic (EH) controls



47946326 10

Alternator and air conditioning compressor (if equipped) belt tension (models SR130, SR160, SR175, and SV185 only)

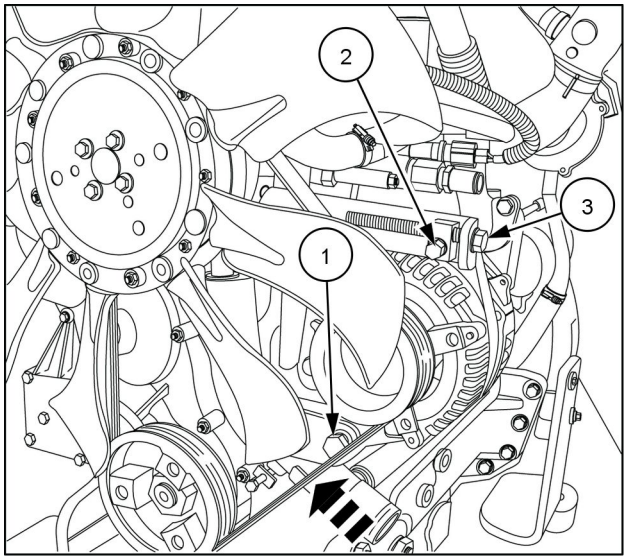
NOTE: *Models SR210, SR240, SV280, TR270, and TR310 with a CASE CONSTRUCTION approved self-adjusting belt, do not require a belt tension check. The proper adjustment is with the alternator in its fully extended mounting position. The same machines equipped with air-conditioning (AC) the AC compressor must also be in the fully extended mounting position.*

NOTE: *An eight rib alternator pulley is used with a six rib belt. When installing a belt; install the belt on the six ribs furthest from the engine. The two ribs closest to the engine will not be used.*

Check the alternator belt tension after the first **10 h** of operation on a new machine or if a new belt has been installed.

Measure the deflection of the belt at center of the span between the crankshaft pulley and the alternator pulley. Adjust as necessary.

1. Loosen the pivot bolt **(1)** and the locking bolt **(2)**.
2. Turn bolt **(3)** clockwise to tighten. The belt is tightened properly when a force of **5.0 kg** (**11.0 lb**) is applied perpendicular to the belt at the center of the span between the crankshaft pulley and the alternator pulley with a **5 mm** (**0.2 in**) deflection.
3. Tighten the locking bolt **(2)** and the pivot bolt **(1)**.



RAPH12SSL0407BA 1

Seat restraints - Check

NOTE: *State or Local regulations may require a* ***7.6 cm*** *(****3.0 in****) webbing seat belt available through Dealer Service Parts. This belt may be necessary in some industrial applications. Check your local codes.*

Seat belt inspection and maintenance:

- Keep seat belts in good condition.
- Keep sharp edges and items than can cause damage away from the belts.
- Periodically check belts, buckles, retractors, tethers, slack take-up system, and mounting bolts for damage and wear.
- Replace all parts that have damage or wear.
- Replace belts that have cuts that can make the belt weak.
- Check that bolts are tight on the seat bracket or mounting.
- If belt is attached to seat, make sure seat or seat brackets are mounted securely.
- Keep seat belts clean and dry.
- Clean belts only with soap solution and warm water.
- Do not use bleach or dye on the belts because this can make the belts weak.

Fuel filter

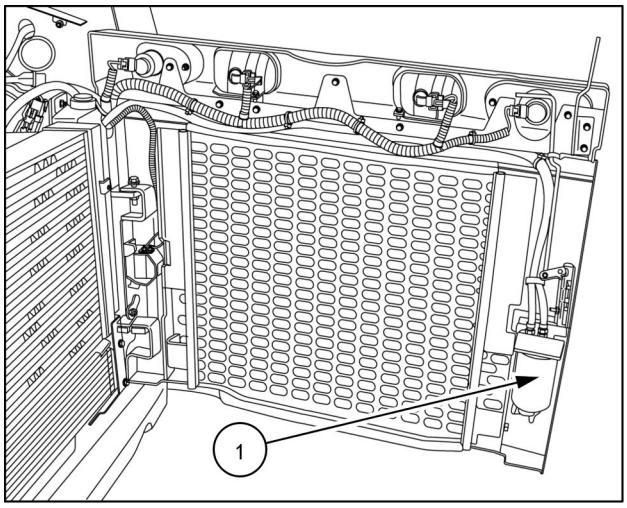
Replace the fuel filter every **500 h** of operation.

Models SR130 and SR160 only

1. Open engine hood and rear service door. Engage the rear service door latch located near the lower hinge. The fuel filter is on the inside of the rear service door.
2. Clean the area around the fuel filter **(1)** before proceeding.
3. Use a strap wrench and remove the filter.
4. Remove the rubber seal from the stud on the filter head.
5. Use a cloth and clean the gasket surfaces of the filter body.
6. Apply clean engine oil to the new rubber seal.
7. Install the rubber seal on the filter head stud.
8. Apply clean engine oil to the gasket of the new filter. DO NOT fill the new filter with fuel before installation.
9. Turn the filter onto the filter body until the filter gasket makes contact with the filter body. Continue to tighten the filter with your hand for 1/2 to 3/4 turn.

NOTICE: *DO NOT use a strap wrench to tighten the filter.*

10. Start the engine and check for fuel leaks around the fuel filter.
11. Close engine hood.



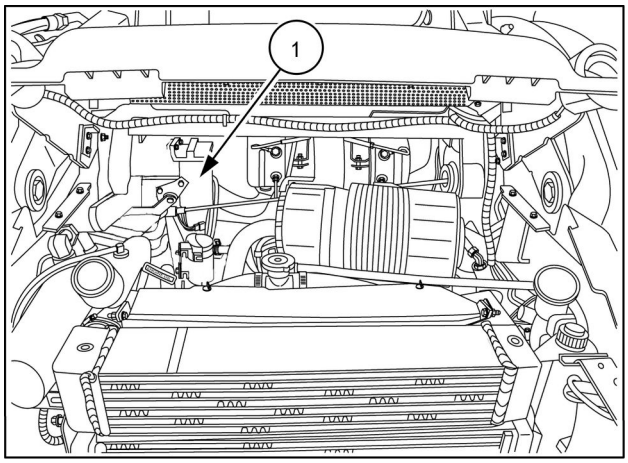
RAIL13SSL0153BA 1

Models SR175 and SV185 only

1. Open engine hood. The fuel filter is located on the left side of the engine compartment.
2. Clean the area around the fuel filter **(1)** before proceeding.
3. Use a strap wrench and remove the filter.
4. Remove the rubber seal from the stud on the filter head.
5. Use a cloth and clean the gasket surfaces of the filter body.
6. Apply clean engine oil to the new rubber seal.
7. Install the rubber seal on the filter head stud.
8. Apply clean engine oil to the gasket of the new filter. DO NOT fill the new filter with fuel before installation.
9. Turn the filter onto the filter body until the filter gasket makes contact with the filter body. Continue to tighten the filter with your hand for 1/2 to 3/4 turn.

NOTICE: *DO NOT use a strap wrench to tighten the filter.*

10. Start the engine and check for fuel leaks around the fuel filter.
11. Close engine hood.



RAPH12SSL0412BA 2

EVERY 1000 HOURS

Hydraulic fluid and filter

⚠ WARNING

Heavy objects!
Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders.
Failure to comply could result in death or serious injury.

W0398A

⚠ WARNING

Hazardous chemicals!
Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.
Failure to comply could result in death or serious injury.

W0006A

⚠ WARNING

Chemical hazard!
When lifting a plastic-cased battery, excessive pressure on the end walls could cause acid to spill through the vent caps. Lift a plastic-cased battery with a battery carrier or with your hands positioned on opposite corners of the battery. Always wash your hands after handling.
Failure to comply could result in death or serious injury.

W0385A

⚠ 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

Every **1000 h** of operation or if a major hydraulic component has been replaced, rebuilt, or damaged, the hydraulic oil and filter should be changed.

Hydraulic oil specification – **TUTELA AUTO SUPREME™ ENGINE OIL SAE 10W-30** or see “Hydraulic oil viscosity” chart **7-13** for other options.

NOTE: *The drain plug for the hydraulic tank is in the battery compartment. The battery must be removed before draining the hydraulic oil.*

NOTICE: *See **7-57** to replace the hydraulic oil filter.*

1. Park the machine on firm level surface.
2. Lower the loader arms to the ground and shut off the engine.

Engine cooling system - Change fluid – SR210, SR240, SV280, TR270, and TR310 only

⚠ WARNING

Burn hazard!
Do not handle engine coolant, engine oil, or hydraulic oil at temperatures that exceed 49 °C (120 °F).
Allow fluids to cool before proceeding.
Failure to comply could result in death or serious injury.

W0330A

⚠ WARNING

Hot surface possible!
Wait for all components to cool before performing any operation.
Failure to comply could result in death or serious injury.

W0251A

⚠ WARNING

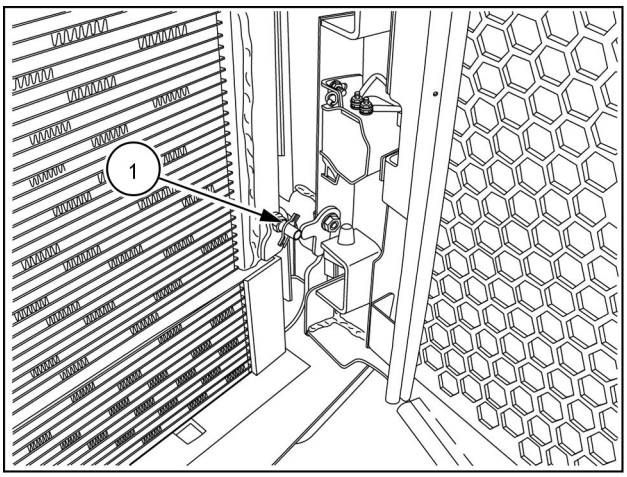
Burn hazard!
Hot coolant can spray and scald if you remove the radiator or deaeration tank cap while the system is hot. To remove the cap: allow the system to cool, turn the cap to the first notch, and wait for all pressure to release. Remove the cap only after all pressure has released.
Failure to comply could result in death or serious injury.

W0367A

Drain and flush the cooling system every 2000 hours of operation or every two years. Clean the system and replace the coolant if the coolant becomes dirty or has the color of rust.

Coolant specifications – **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**

1. Remove coolant reservoir cap.
2. Attach a hose to the radiator drain valve **(1)** and run to a suitable container that will hold at least **18.9 L** (**5.0 US gal**).
3. Open the radiator drain valve and drain.



RAPH12SSL0025BA 1

4. After all coolant has drained, close radiator drain valve.
5. Add a cleaning solution to the cooling system and fill the system with clean water. Follow the directions included with the cleaning solution.

NOTE: *Contact your local CASE CONSTRUCTION dealer for the proper cleaning solution.*

6. After draining the solution, flush with clean water.

8 - TROUBLESHOOTING

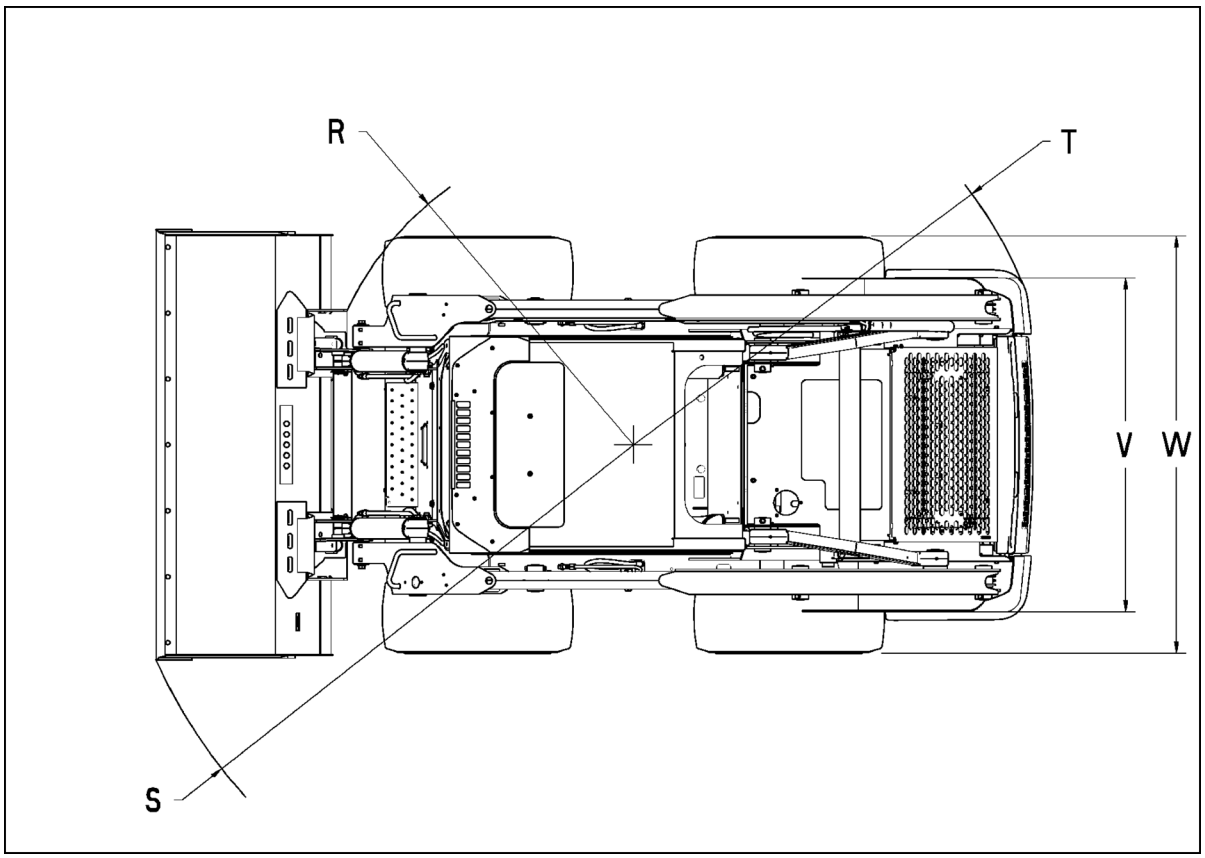
FAULT CODE RESOLUTION

Display warnings

The table provides a list of messages that may appear on the instrument cluster display, the possible cause, and the corrective action the operator may take.

Message on the display	Possible cause	Action
ATS FAIL	The Diesel Particulate Filter (DPF) system and/or Exhaust Gas Recirculate (EGR) system detected a malfunction.	Follow the manual regeneration procedure in this manual.
		Contact your dealer if ATS FAIL continues to appear.
CRKON	The OPERATE button is being pressed while attempting to start the machine.	Do not push the OPERATE button while attempting to start the machine.
ENG OIL SERV	The instrument cluster is telling the operator that the machine needs an engine oil change.	Replace the engine oil, filter, and reset the oil life meter on the instrument cluster.
EOLT	The instrument cluster does not have the latest software.	Contact your dealer.
JOYNU	One or both of the control levers are not in the neutral position.	Move the control levers to the neutral position.
	One or both of the control levers are not calibrated correctly.	Contact your dealer.
LOCK?	The instrument cluster is asking the operator if he/she wants to lock the machine to prevent unwanted machine operation.	No action needed. The machine is working as designed. Do not press the AUX OVERRIDE button. This will lock the machine controls. You will not be able to start the machine without an owner's code if the AUX OVERRIDE button has been pressed.
OPRPR	The restraint bar is not engaged.	Release and re-engage. Contact your dealer if the problem continues.
	The seat switch does not detect an operator in the machine.	Contact your dealer.
30 s count down	The instrument cluster detected a critical machine error which will result in an engine shutdown.	Contact your dealer.

FAULT CODE	ENGINE TYPE	DETECTED BY	FAULT DESCRIPTION
3823	F5H	ENGINE	Throttle Valve Actuator: Short circuit to ground on Out1 TVA Pin A49 error for H-bridge
3824	F5H	ENGINE	Throttle Valve Actuator: Short circuit to ground on Out2 TVA Pin A34error for H-bridge
3825	F5H	ENGINE	Throttle Valve Actuator: Short circuit over load error for H-bridge
3826	F5H	ENGINE	Throttle Valve Actuator: Temperature dependent over current error for H-bridge
3827	F5H	ENGINE	Throttle Valve Actuator: Under voltage error for H-bridge
3830	ISM-DI	ENGINE	Intake valve position Signal Too High
3830	F5H	ENGINE	Throttle Valve Actuator: DFC for valve position sensor physical SRC high
3831	ISM-DI	ENGINE	Intake valve position Signal Too Low
3831	F5H	ENGINE	Throttle Valve Actuator: DFC for valve position sensor physical SRC low
3834	F5H	ENGINE	Throttle Valve Actuator - ECU Power stages: Throttle valve actuator power stage: SRC High
3835	F5H	ENGINE	Throttle Valve Actuator - ECU Power stages: Throttle valve actuator power stage: SRC low
3838	F5H	ENGINE	Diesel Particulate Filter (DPF) Temperature Sensor: Diagnostic fault check for SRC high in Oxidation Catalyst upstream temperature
3839	F5H	ENGINE	Diesel Particulate Filter (DPF) Temperature Sensor: Diagnostic fault check for SRC low in Oxidation Catalyst upstream temperature
3840	ISM-IDI	ENGINE	Diesel Particulate Filter (DPF) IN Temperature Sensor: Out of Voltage - High
3840	F5H	ENGINE	Diesel Particulate Filter (DPF) Upstream Temperature Sensor: Diagnostic fault check for SRC high
3841	F5H	ENGINE	Diesel Particulate Filter (DPF) Upstream Temperature Sensor: Diagnostic fault check for SRC low
3842	F5H	ENGINE	Turbine Upstream Temperature Sensor: SRC High for turbine upstream temperature sensor
3843	F5H	ENGINE	Turbine Upstream Temperature Sensor: SRC low for turbine upstream temperature sensor
3844	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Max value injector 1
3845	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Max value injector 2
3846	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Max value injector 3
3847	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Max value injector 4
3848	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Minimum value injector 1
3849	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Minimum value injector 2
3850	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Minimum value injector 3
3851	F5H	ENGINE	Injector - Zero Fuel Calibration by Lambda: DFC reporting error state on comparing energizing time to Minimum value injector 4
3852	F5H	ENGINE	Lambda Sensor: The maximum allowed time for blow out is exceeded
3870	F5H	ENGINE	CAN Bus Communication: CAN message not received from Vehicle Controller (BC2EDC1)
3885	ISM-IDI	ENGINE	Diesel Particulate Filter (DPF) Outlet Pressure #1: P1 is Out of Voltage - High
3886	ISM-IDI	ENGINE	Diesel Particulate Filter (DPF) IN Temperature is over **700 °C** (**1292 °F**)
3887	ISM-IDI	ENGINE	Diesel Oxidation Catalyst (DOC) IN Temperature is over **700 °C** (**1292 °F**)
3899	F5H	ENGINE	Coolant Temp High: Engine temperature exceeded pre-warning level
3900	F5H	ENGINE	Coolant Temp High: Engine temperature exceeded warning level
3906	F5H	ENGINE	Injector: Number of injections is limited by quantity balance of high pressure pump



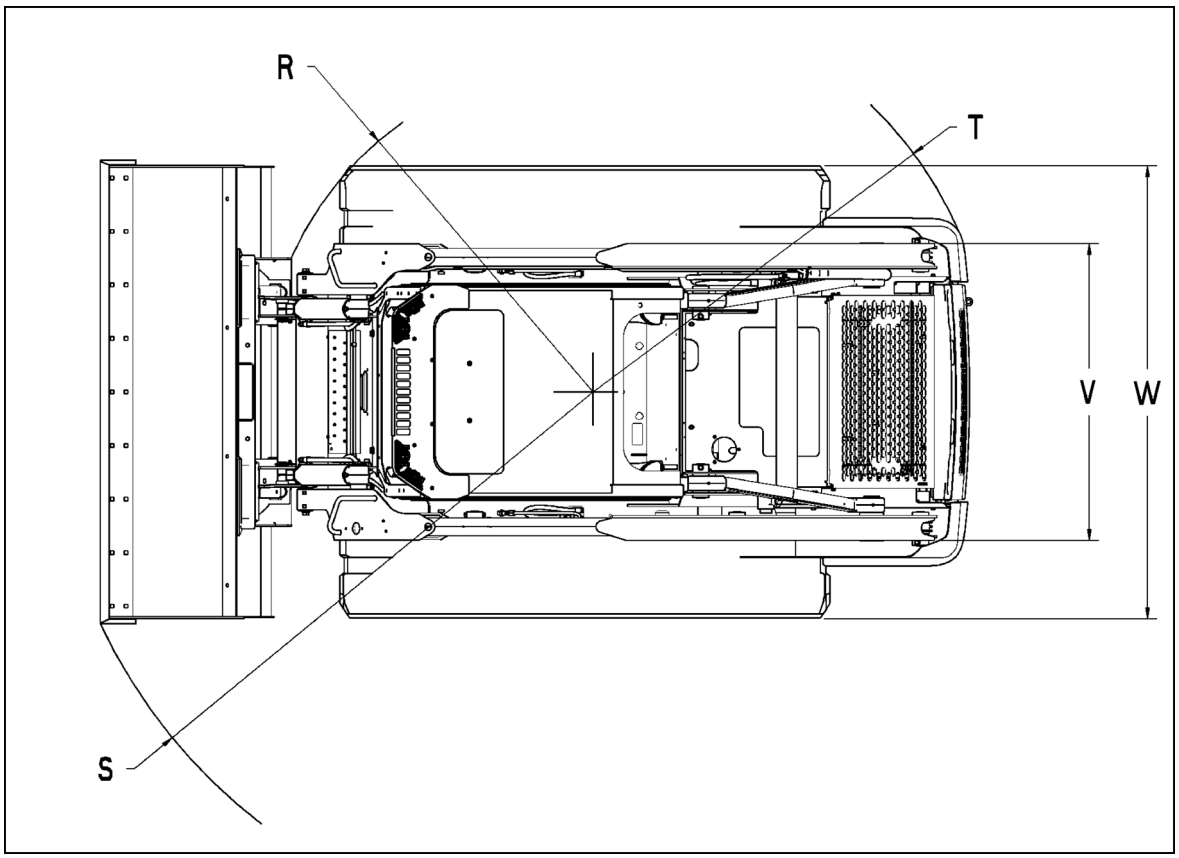
RAIL14SSL0432FA 4

MEDIUM RADIAL FRAME WHEEL UNITS (SR175)

ITEM	COMPONENT	MEASUREMENT
R	Clearance circle radius without tool	**1325.0 mm** (**52.2 in**)
S	Clearance circle radius with **1676.4 mm** (**66.0 in**) DF bucket	**2015.0 mm** (**79.3 in**)
S	Clearance circle radius with **1676.4 mm** (**66.0 in**) LP bucket	**2110.0 mm** (**83.1 in**)
S	Clearance circle radius with **1676.4 mm** (**66.0 in**) LPE bucket	**2228.0 mm** (**87.7 in**)
T	Clearance circle radius rear	**1599.0 mm** (**63.0 in**)
V	Over the tire width	**1371.0 mm** (**54.0 in**)
W	Overall width	**1642.0 mm** (**64.6 in**)
Operating weight		**2860 kg** (**5181.0 lb**)
SAE Rated Operating Capacity (ROC)		**790 kg** (**1742 lb**)
Tipping load		**1588 kg** (**3501 lb**)
Counter weight (optional)		**63.8 kg** (**140.7 lb**)
Cab side glass (optional)		**21.3 kg** (**47.0 lb**)
Cab glass door (optional)		**34.0 kg** (**75.0 lb**)
Cab Lexan door (optional)		**34.0 kg** (**75.0 lb**)
Suspension seat (optional)		**10.0 kg** (**22.0 lb**)

NOTE: *Measurements are based on machines with 10 x 16.5 tires and a* ***1676.4 mm*** *(****66.0 in****) Dirt & Foundry (DF) bucket.*

NOTE: *Clearance Circle Radius (R, S, T) values were calculated using a 50/50 weight distribution (center point of counter rotation centered between the axles) and with the bucket resting flat on ground.*



RAIL14SSL0431FA 14

MEDIUM RADIAL FRAME TRACK UNITS (TR270 and TR310)

ITEM	COMPONENT	MEASUREMENT	
		TR270	TR310
R	Clearance circle radius without tool	**1410.0 mm** (**55.5 in**)	
	Bucket size	**1828.8 mm** (**72.0 in**) bucket	**1981.2 mm** (**78.0 in**) bucket
S	Clearance circle radius with DF bucket	**2132.0 mm** (**83.9 in**)	**2166.0 mm** (**85.3 in**)
S	Clearance circle radius with LP bucket	**2226.0 mm** (**87.6 in**)	**2263.0 mm** (**89.1 in**)
S	Clearance circle radius with LPE bucket	**2344.0 mm** (**92.3 in**)	**2374.0 mm** (**93.5 in**)
T	Clearance circle radius rear	**1501.0 mm** (**59.1 in**)	
V	Over the track width	**1356.0 mm** (**53.4 in**)	
W	Overall width	**1676.0 mm** (**66.0 in**)	
Operating weight		**3750 kg** (**8267 lb**)	**4027 kg** (**8878 lb**)
SAE Rated Operating Capacity (ROC)			
	35% of tipping load	**860 kg** (**1896 lb**)	**984 kg** (**2169 lb**)
	50% of tipping load	**1225 kg** (**2701 lb**)	**1406 kg** (**3100 lb**)
Tipping load		**2450 kg** (**5401 lb**)	**2810 kg** (**6195 lb**)
Counter weight (optional)		**63.8 kg** (**140.7 lb**)	
Cab side glass (optional)		**21.3 kg** (**47.0 lb**)	
Cab glass door (optional)		**34.0 kg** (**75.0 lb**)	
Cab Lexan door (optional)		**34.0 kg** (**75.0 lb**)	
Suspension seat (optional)		**10.0 kg** (**22.0 lb**)	

NOTE: *All measurements are based on machines with a* ***1828.8 mm*** *(****72.0 in****) Dirt & Foundry (DF) bucket.*

NOTE: *Clearance Circle Radius (R, S, T) values were calculated using a 50/50 weight distribution (center point of counter rotation centered between the axles) and with the bucket resting flat on ground.*