ORIGINAL INSTRUCTIONS

SR130 SR200
SR150 SR220
SR175 SR250
SV185 SV250
SV300
Tier 3

Alpha Series Skid Steer Loader

SR130 PIN NEM464869 and above
SR150 PIN NEM465179 and above
SR175 PIN NDM465666 and above
SV185 PIN NDM466516 and above
SR200 PIN NDM467358 and above
SR220 PIN NDM457573 and above
SR250 PIN NCM442788 and above
SV250 PIN NDM460797 and above
SV300 PIN NCM445403 and above

TR270
TR320
TV380
Tier 3

Alpha Series Compact Track Loader

TR270 PIN NDM462202 and above
TR320 PIN NCM450308 and above
TV380 PIN NDM463725 and above

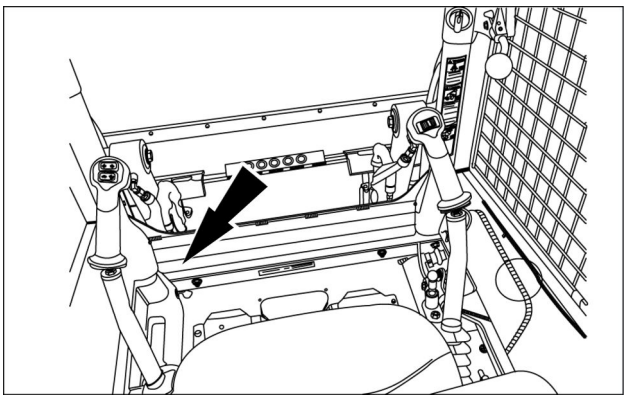
OPERATOR'S MANUAL

Part number 47853514
3rd edition English
June 2015
Replaces part number 47776789

CASE CONSTRUCTION

Roll Over Protective Structure (ROPS) certification plate.

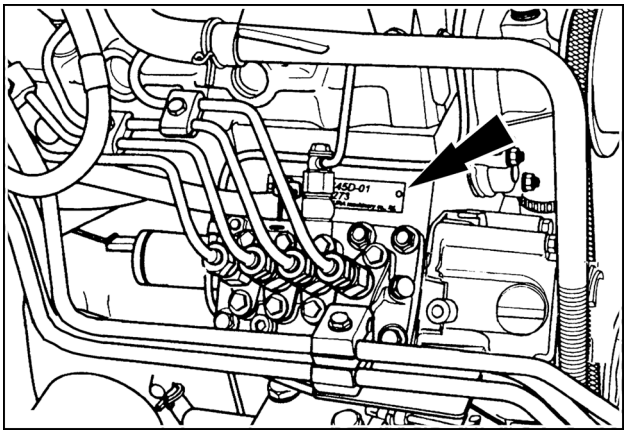
- Front edge (lower) inside cab.



931007505A 3

Engine serial number plate.

On the fuel injection pump - ISM engines.	
SR130	ISM engine
SR150	
SR175	
SV185	



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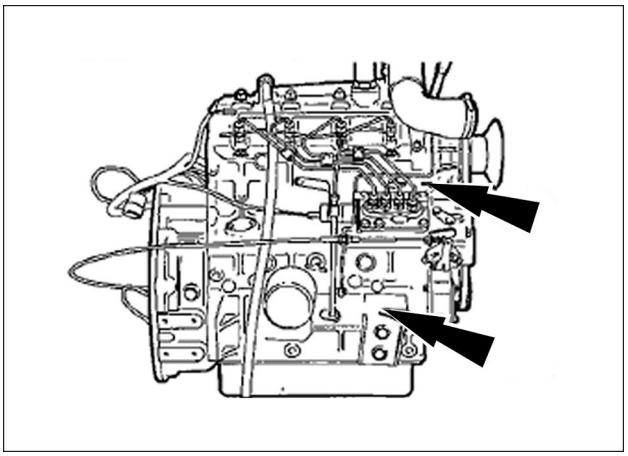


RCPH11SSL004AAD 5

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

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

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

Keep out of reach of children and other unauthorized persons.

⚠ Operator presence system ⚠

Your machine is equipped with an operator presence system to prevent the use of some features while the operator is not in the operator's seat.

Never disconnect or bypass the operator presence system.

If the operator presence system is inoperable, then it must be repaired. Follow the test procedure (**7-42**).

⚠ Reflectors and warning lights ⚠

You must use flashing amber warning lights when you operate equipment on public roads.

⚠ Air-conditioning system ⚠

The air-conditioning system is under high pressure. Do not disconnect any lines. The release of high pressure can cause serious injury.

The air-conditioning system contains gases that are harmful to the environment when released into the atmosphere. Do not attempt to service or repair the system.

Only trained service technicians can service, repair, or recharge the air-conditioning system.

⚠ Personal Protective Equipment (PPE) ⚠

Wear Personal Protective Equipment (PPE) such as hard hat, eye protection, heavy gloves, hearing protection, protective clothing, etc.

⚠ Do Not Operate tag ⚠

Before you start servicing the machine, attach a 'Do Not Operate' warning tag to the machine in an area that will be visible.

⚠ Operator protective structure ⚠

Your machine is equipped with an operator protective structure, such as: a Roll Over Protective Structure (ROPS), Falling Objects Protective Structure (FOPS), or a cab with a ROPS. A ROPS may be a can frame or a two-posted or four-posted structure used for the protection of the operator to minimize the possibility of serious injury. The mounting structure and fasteners forming the mounting connection with the machine are part of the ROPS.

The protective structure is a special safety component of your machine.

Roll Over Protective Structure (ROPS)

⚠ DANGER

Crushing hazard!
DO NOT operate the machine with the Roll-Over Protective Structure (ROPS) removed. Remove the ROPS only for service or replacement.
Failure to comply will result in death or serious injury.

D0032A

⚠ DANGER

Crushing hazard!
Do not change the Roll Over Protective Structure (ROPS) in any way. Unauthorized changes such as welding, drilling, or cutting will weaken the ROPS and decrease your protection. Have an authorized dealer replace the ROPS if damage of any kind occurs. DO NOT TRY TO REPAIR THE ROPS.
Failure to comply will result in death or serious injury.

D0037A

⚠ WARNING

Roll-over hazard!
Securely fasten the seat belt. Your machine is equipped with a Roll-Over Protective Structure (ROPS) cab, ROPS canopy, or ROPS frame for your protection. The seat belt can help ensure your safety if it is properly used and maintained. Never wear a seat belt loosely or with slack in the belt system.
Failure to comply could result in death or serious injury.

W0143A

⚠ WARNING

Tip-over hazard!
Adding additional weight (buckets, attachments, etc.) to the machine can create a tipping hazard. Do not exceed the gross weight indicated by the machine specifications.
Failure to comply could result in death or serious injury.

W0153A

Your machine has a Roll-Over Protective Structure (ROPS). The ROPS or Cab Structural Frame (CSF) is a special safety component of your machine.

DO NOT attach any device to the ROPS or CSF for pulling purposes.

The ROPS or CSF is a certified structural support and any damage, fire, corrosion or modification will weaken the structure and reduce your protection. If this occurs, the ROPS or CSF must be replaced so that it will provide the same protection as a new ROPS or CSF.

After an accident, fire or rollover, the following MUST be performed before returning the machine to the field or job site:

- The ROPS or CSF structure MUST be replaced.
- The ROPS or CSF mounting or suspension, operator seat and suspension, seat belts and mounting components and wiring within the operator's protective system MUST be carefully inspected for damage.
- All damaged parts must be replaced.

Maintenance and inspection of the Roll Over Protective Structure (ROPS)

1. Check the torque of the ROPS mounting bolts. If necessary, tighten the bolts to the correct torque, for the front tighten them down to **42 N·m** (**31.0 lb ft**) and the rear bolts to **170 N·m** (**125.4 lb ft**). Or see ROPS torque specifications in this manual.
2. Check for cracks, rust, or holes in the ROPS and ROPS parts. Age, weather, and accidents can cause damage to the ROPS and ROPS parts. If you have any doubts about the ROPS system, see your dealer.
3. Check the operator’s seat and the mounting parts for the seat belt. Tighten the bolts to the correct torque. Replace the parts that have wear or damage.

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.

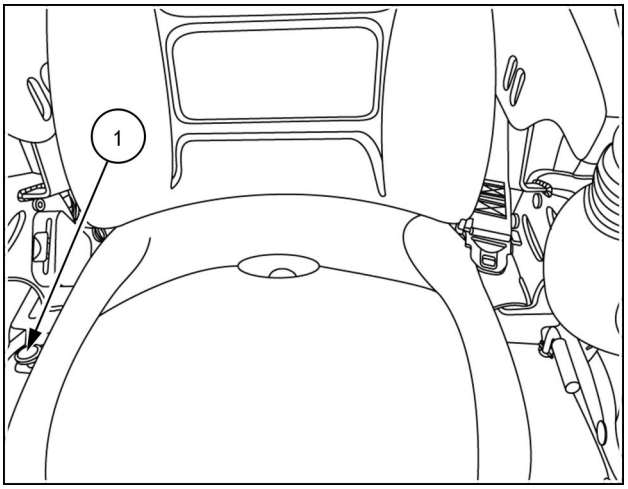
D0168A

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.*



93107465A 1

Ecology and the environment

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

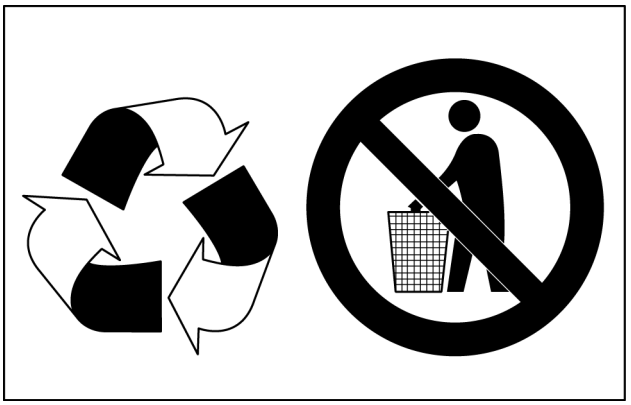
Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances. Your CASE CONSTRUCTION dealer can also provide assistance.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your CASE CONSTRUCTION dealer or air-conditioning specialist has a special extractor for this purpose and can recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. CASE CONSTRUCTION strongly recommends that you return all used batteries to a CASE CONSTRUCTION dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



NHIL14GEN0038AA 1

Mandatory battery recycling

NOTE: *The following requirements are mandatory in Brazil.*

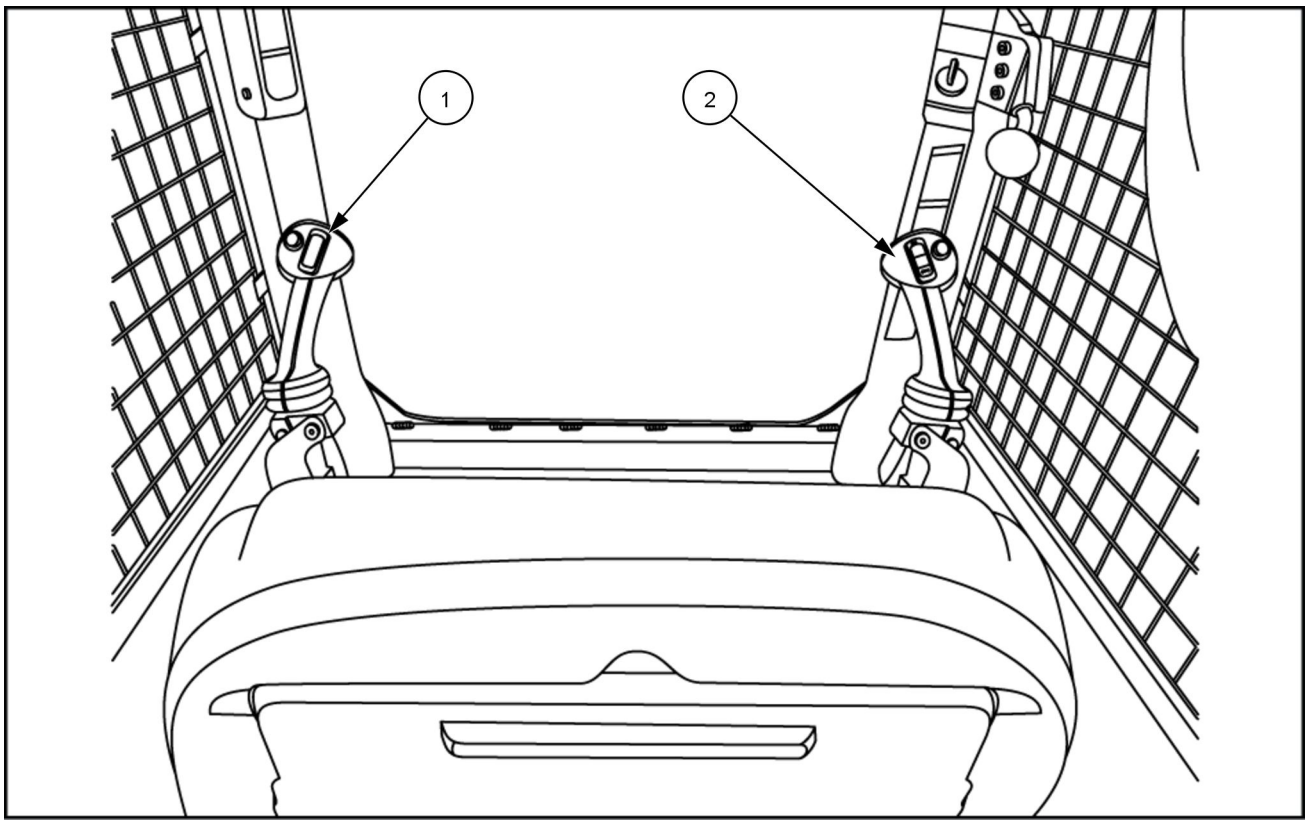
Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Lift arm and bucket controls

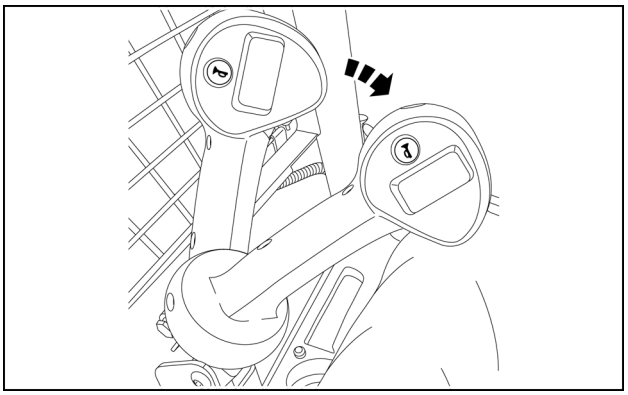
Hand controls



93109347C 1

Lift arm raise and lower control.

- The left-hand control lever **(1)** controls the lift arm. The lift arm will raise by pivoting the handle “UP” to the outside of the cab. Pivoting the handle “DOWN” to the inside of the cab will lower the lift arm.
- The lift arm spool is equipped with a detented “FLOAT” circuit if the operator wants the lift arm to float over changing ground contour. To put the valve in “FLOAT” position, pivot the left handle “DOWN” until a slight “jump” is felt. In this position, the handle is locked in float and does not return to the neutral position unassisted, but will do so when light pressure is applied to the handle to pivot it “UP”.

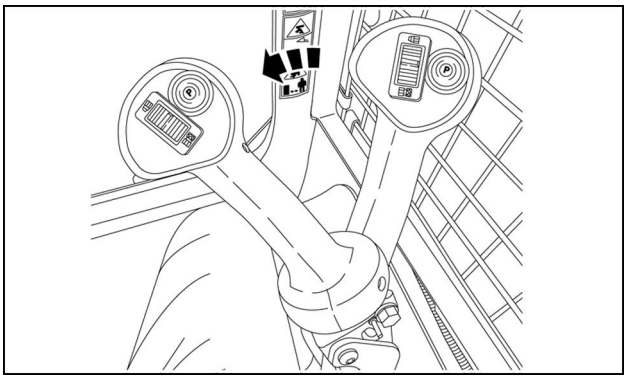


RAIL13SSL0957AB 2

Bucket dump and curl control.

- The right hand control lever **(2)** controls the bucket. The bucket will dump by pivoting the handle “UP” to the outside of the cab. Pivoting the handle “DOWN” to the inside of the cab and the bucket will roll back (curl).

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



RAIL13SSL0956AB 3

Moving the machine

⚠ WARNING

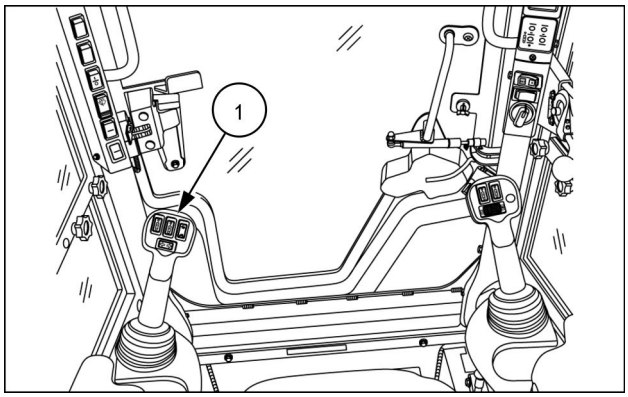
Loss of control hazard!
Keep hands and feet on the appropriate controls at all times to maintain control of the machine.
Failure to comply could result in death or serious injury.

W0237A

⚠ WARNING

Collision hazard!
Always make sure the area behind the machine is clear of all persons, animals, and obstructions BEFORE backing up.
Failure to comply could result in death or serious injury.

W0232A



931007524 1

All steering and travel controls are directed with the left-hand control lever **(1)** only. Use the face of a clock for orientation. The machine will move in the direction the lever is moved from neutral, center. Release the lever and it will detent to neutral. Although the machine will turn and counter-turn sharply, it is best to travel through forward or reverse gradually when turning.

NOTE: *Use the arm rest for maximum stability of controls and to reduce operator fatigue.*

Straight forward drive:

- Push the control lever straight forward (12:00 position) and the machine will move forward.

Straight rearward drive:

- Pull the control lever straight rearward (6:00 position) and the machine will move rearward.

AUXILIARY HYDRAULICS

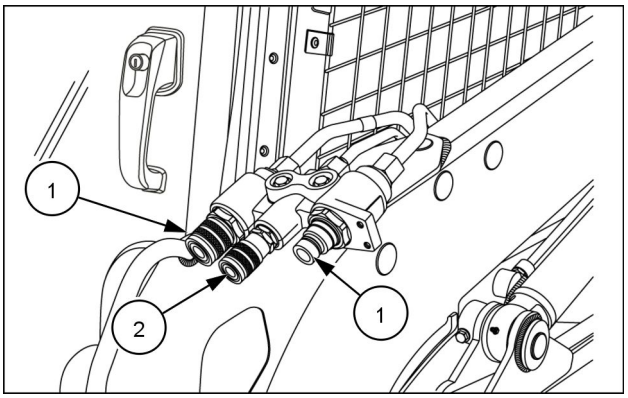
Standard auxiliary hydraulics

Follow the attachment's operator's manual on specific installation procedures, operation, and removal procedures.

Auxiliary hydraulic couplers are located on the left-hand loader arm.

1. Work ports — 1/2 inch coupler size
2. Case drain — 3/8 inch coupler size

Use the Proportional Auxiliary "rotary" switch on the right-hand control lever to operate the attachment connected to the standard auxiliary hydraulics ports. See your control lever switch configurations **3-23** for more details.

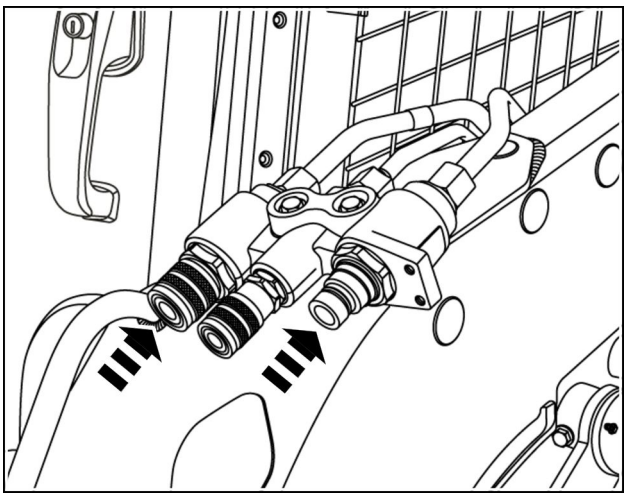


63106839 1

Relieve pressure before connecting attachment hoses

Machines with auxiliary hydraulic ports are built with a Connect-Under-Pressure (CUP) valve for the auxiliary hydraulic quick disconnects. Follow this procedure to relieve the pressure prior to connecting the hydraulic hoses from the attachment:

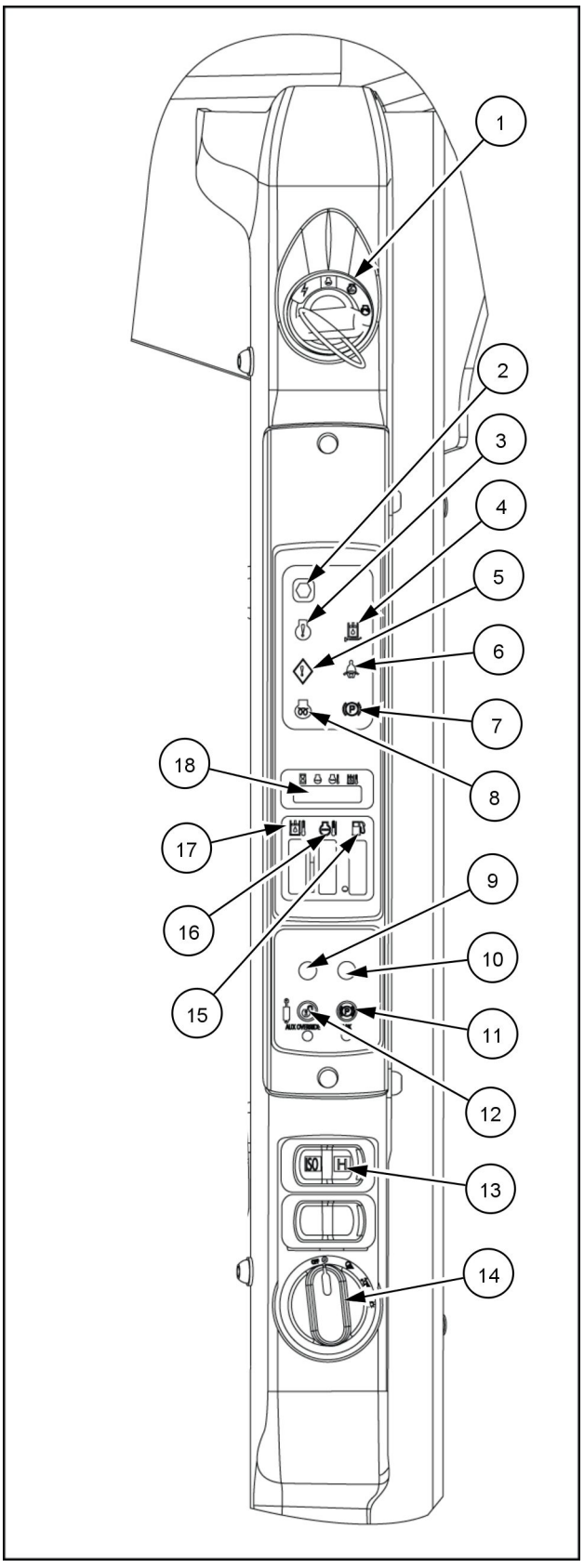
1. Using the palm of your hand push the 1/2 inch female quick disconnect coupling toward CUP valve. When done properly, the coupling will move about **10.0 mm** (**0.4 in**), relieving the stored pressure.
2. Perform the same action for the 1/2 inch male quick disconnect coupling, relieving the stored pressure.



631068399 2

(13)	H / ISO control pattern selector, if equipped
	This selects the drive pattern type of hand control operation. Read the proper steps listed in this chapter to activate.

(14)	WORK LIGHTS
	This knob controls the external working lights and road lights. Work light switch positions: • **(1)** - All lights OFF. • **(2)** - Front work lights ON, side work lights OFF, rear work lights ON, rear red lights OFF. • **(3)** - Front work lights ON, side work lights OFF, rear work lights OFF, rear red lights ON. • **(4)** - Front work lights ON, side work lights ON, rear work lights ON, rear red lights OFF.



93109329A 5

Instrument cluster

Menu navigation controls

Use the four switch buttons to navigate through the instrument cluster Menu by following the setup menu functions. Many of the setup menu functions are intended for service technicians and owners. Contact your dealer for the service manual or security code information.

(1) TEXT DISPLAY

Displays the menu text.

(2) START

Navigates selections on every menu level.

Certain menus will prompt the user to enter an access code or allow the user to change a numerical value.

NOTE: *Pushing the Start button will increment the flashing digit 1,2,3 for number entry.*

(3) OPERATE

Increments the flashing digit 7,8,9,0 for number entry.

(4) AUX OVERRIDE :

Exits the sub-menu and moves top level to the next option.

Increments the flashing digit 4,5,6 for number entry.

(5) POWER

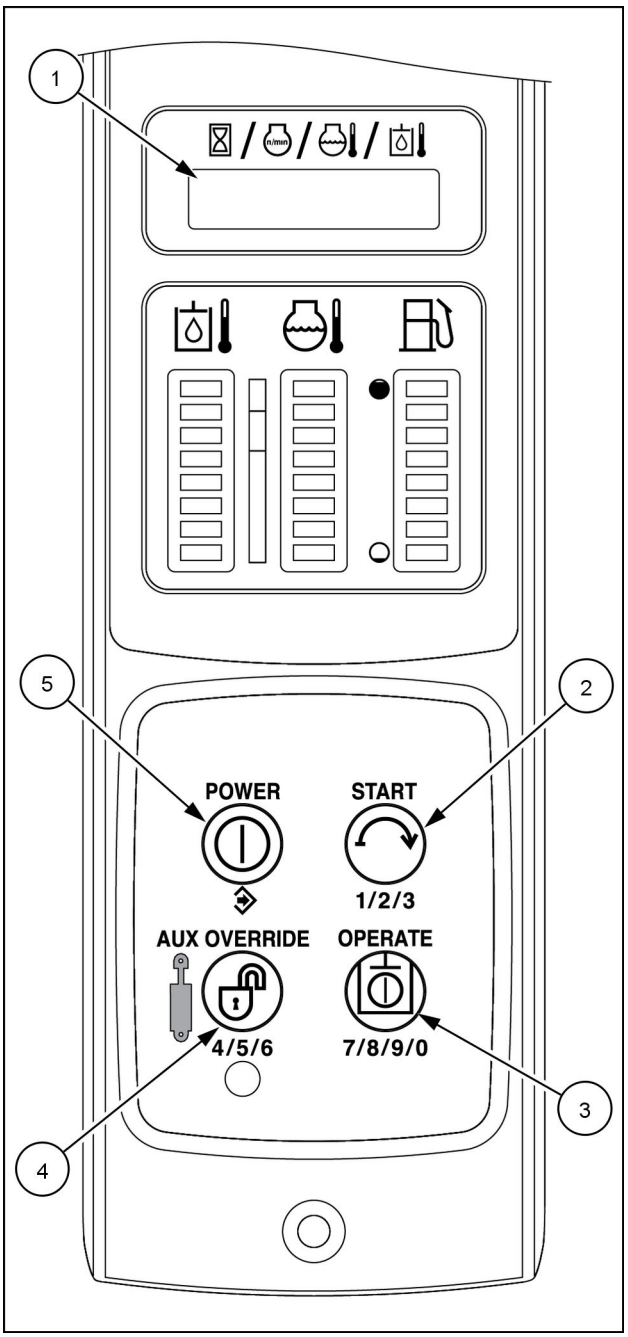
For number entry, moves flashing digit to the next place.

Saves entry.

Enters the sub-menu.

Top level menu options

- EXIT — Exit the setup menu.
- EH — Customize the speed of the machine's Electro hydraulic controls (if equipped).
- dSPLY — Alternate method to select between the selected display parameters.
- UNITS — Allows the operator to select Fahrenheit (Imperial units) or Celsius (Standard Imperial units).
- JTIME — Job timer. Timer that displays engine operating hours since last reset. Ideal for rentals or job tracking.
- LOCK — Used to create/change owner and user codes



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NOTE: *The Advanced Instrument Cluster (AIC) images are shown in this section for the four switch buttons* ***(2)****,* ***(3)****,* ***(4)*** *and* ***(5)*** *used to navigate through the instrument cluster. The top two switch buttons on the Electronic Instrument Cluster (EIC) are function buttons and function the same as the POWER* ***(5)*** *and START* ***(2)*** *switch buttons on the AIC instrument panel for the setup menu functions.*

Anti-theft operation

Locking the instrument panel:

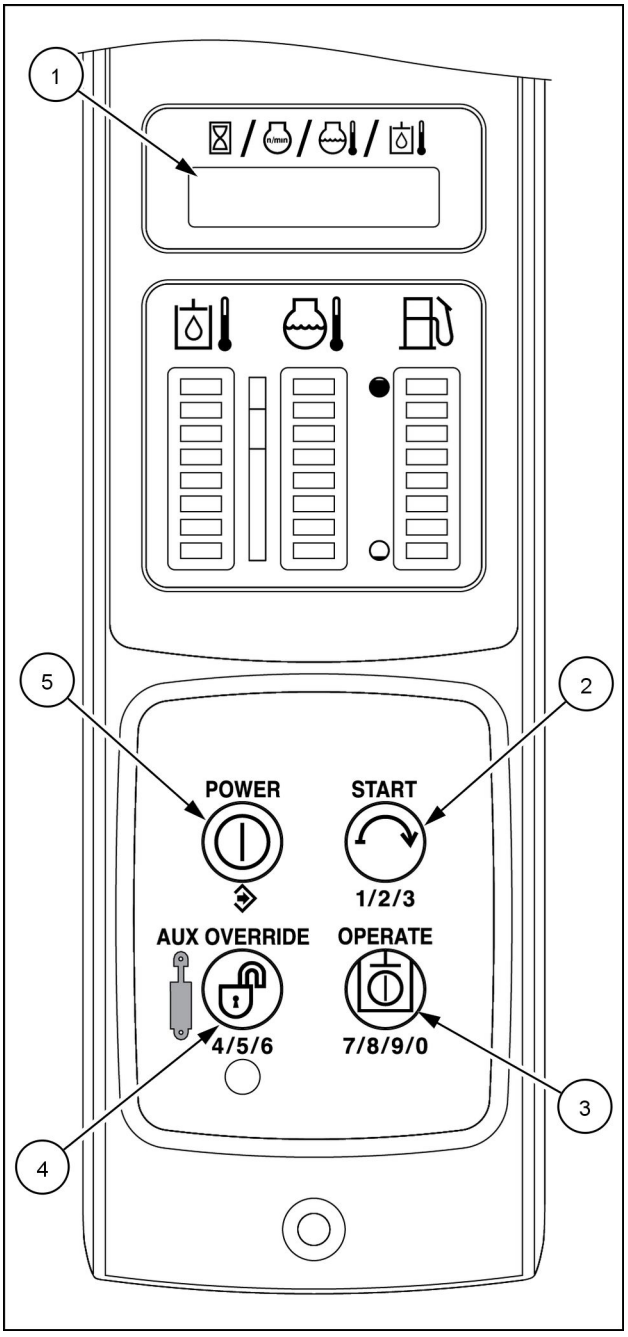
If a lock code has been entered; immediately after shutting off the engine the display will show lock? and the AUX OVERRIDE button will flash. Anti-theft is set by pressing the AUX OVERRIDE button. The panel is now locked and LOCKd is displayed. Restarting requires entering the code. If the AUX OVERRIDE button is not pressed, the machine can be started without a code. The panel does not automatically lock. If a lock code has not been entered; when the engine is shut off the display will not show " lock?" and the engine can be started without a code until a lock code is entered.

Unlocking the instrument panel:

1. Sit in the seat to power the instrument panel. The warning lamps will illuminate and there will be an audible beep.
2. Press the flashing POWER button **(5)**. The display **(1)** will show UNLOC.
3. 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.*
4. Press the POWER button **(5)** after the fifth digit to enter the code. The engine preheat lamp will illuminate and the display **(1)** will begin the thirty second countdown.

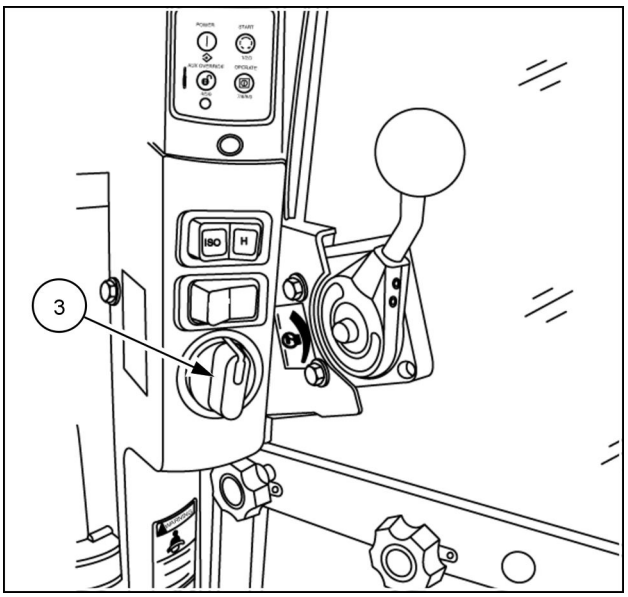
   NOTE: *If the incorrect code is entered, ERROR is displayed, followed by 00000 prompting the operator to enter the correct code.*



RAIL15SSL0143CA 11

Machine lights

If equipped, the cab exterior lights **(3)** are activated by a rotary switch located at the bottom portion of the right-hand instrument panel. This rotary switch has four positions indicated by the symbol. The switch will remain in the position last selected. This switch is not functional without a key or POWER button engaged.



931007504A 1

Work light switch positions:

- **(1)** - All lights OFF.
- **(2)** - Front work lights ON, side work lights OFF, rear work lights ON, rear red lights OFF.
- **(3)** - Front work lights ON, side work lights OFF, rear work lights OFF, rear red lights ON.
- **(4)** - Front work lights ON, side work lights ON, rear work lights ON, rear red lights OFF.

MOVING THE UNIT

Machine operation

⚠ WARNING

Loss of control hazard!
Keep hands and feet on the appropriate controls at all times to maintain control of the machine.
Failure to comply could result in death or serious injury.

W0237A

⚠ WARNING

Impact hazard!
Refer to the cold weather operations section of this manual for start-up and operation in low temperatures 0 °C (32 °F). Follow these procedures to avoid sluggish operation or a change in operation characteristics.
Failure to comply could result in death or serious injury.

W1239A

⚠ WARNING

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

W0141A

⚠ WARNING

Roll-over hazard! A full bucket in the raised position alters the center of gravity of the machine.
When operating a loader with a full bucket on slopes, observe the following precautions:
1. Avoid turning the machine on slopes.
2. Always drive slowly straight up and down slopes.
3. Always carry the load as low as possible.
Failure to comply could result in death or serious injury.

W0018A

⚠ WARNING

Misuse hazard!
Multiple sensors on your machine control safety functions. For example, a sensor in the operator's seat automatically disengages the drive to the attachment when the operator leaves the seat. To ensure a safe operating mode, DO NOT disconnect or bypass these sensors. Repair all inoperable sensors.
Failure to comply could result in death or serious injury.

W0014A

⚠ WARNING

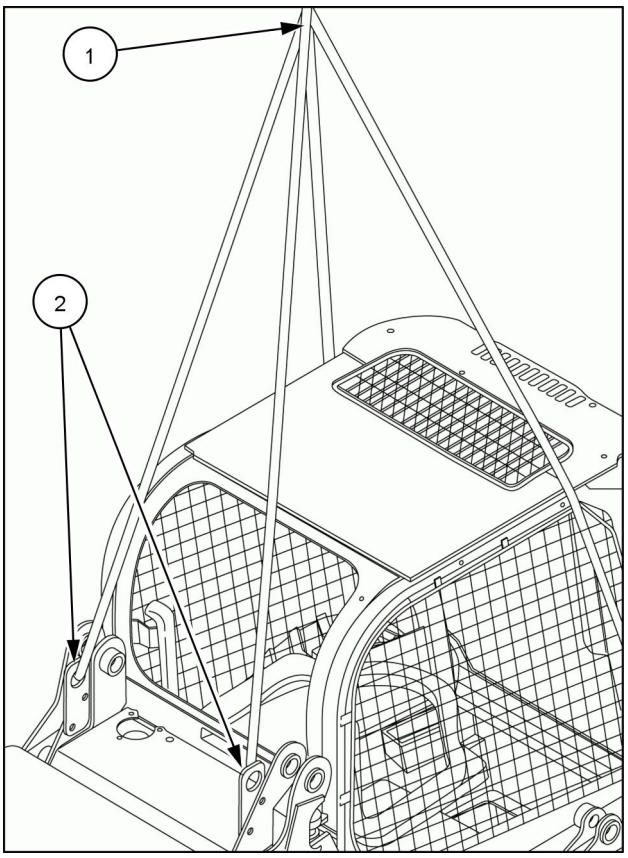
Avoid injury!
Do not operate the machine while under the influence of alcohol or drugs.
Failure to comply could result in death or serious injury.

W0160A

NOTICE: *Before you operate the machine, check the control levers, instruments, warning lamps, engine throttle, and attachment hydraulic controls. Also check the seat belt/seat - restraint bar switch. If you know there is a malfunction, missing part, or part that needs adjustment, stop the machine, and correct the problem immediately.*

NOTICE: *For Electro-Hydraulic (EH) machines, when the operator presses the OPERATE button on the right-hand instrument cluster to enable the hydraulic system and a control lever is not in the neutral position; the hydraulics will not enable. JOYNU will appear on the display to inform the operator. Move the control levers to their neutral positions and press the OPERATE button. If JOYNU continues to appear contact your Dealer.*

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.



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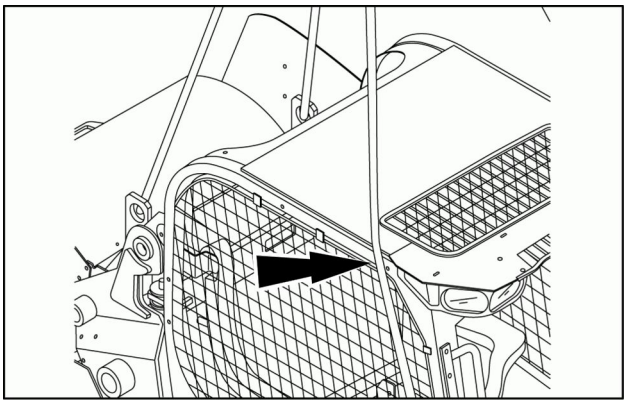
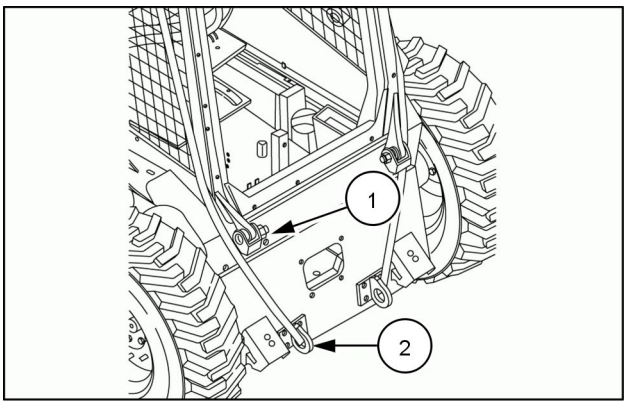
3. Route the front sling down the right-hand side of the Roll Over Protective Structure (ROPS).



RAIL14SSL0401BA 18

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.



RAIL14SSL0400BA 19

Installing the attachment

1. Confirm the red markings on the indicator pins **(2)** are visible (unlock position). If the red markings are not visible, press and hold the hydraulic coupler switch **(1)** in the unlock direction. With the other hand activate and hold the control lever's auxiliary switch.
2. Tilt the hydraulic coupler forward.
3. Slowly move the machine toward the attachment until both tabs on top of the coupler are underneath and in alignment with the attachment's mounting points.
4. Raise the loader arm enough to engage the attachment.
5. Curl the coupler back towards the machine until the attachment is completely resting on the coupler and off the ground.

   NOTE: *In the next step, if the indicator pins do not retract you may need to reposition the attachment on the coupler.*
6. Activate the auxiliary switch on the control lever to the end of its control stroke. The indicator pins **(2)** on the coupler will retract into the lock position and the red markings will no longer be visible on the indicator pins.
7. Slowly raise and roll the attachment outward. Do not leave the operator seat but make a visual inspection from the cab that the hydraulic coupler's lower lock pins **(1)** extend fully into the attachment's lower tab slots.

⚠ WARNING

Falling object hazard!
Before operating the machine, always make sure the bucket or attachment is securely locked into the coupler. A loader bucket or attachment that is not securely locked into the coupler could come off during loader operation.
Failure to comply could result in death or serious injury.

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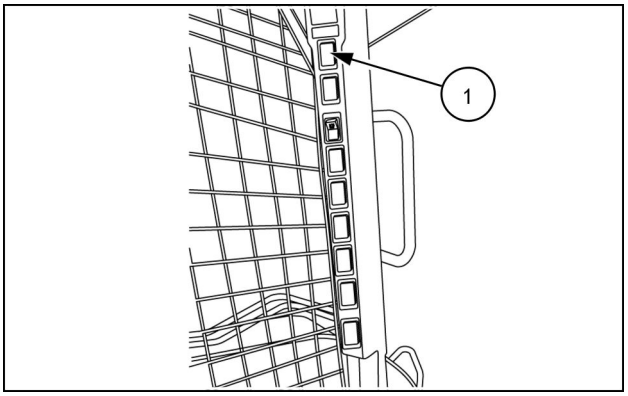

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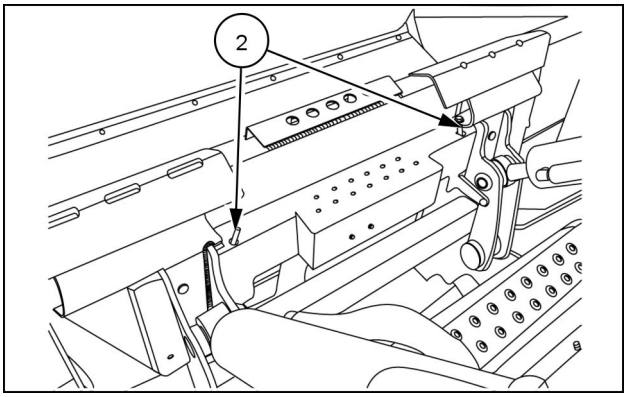

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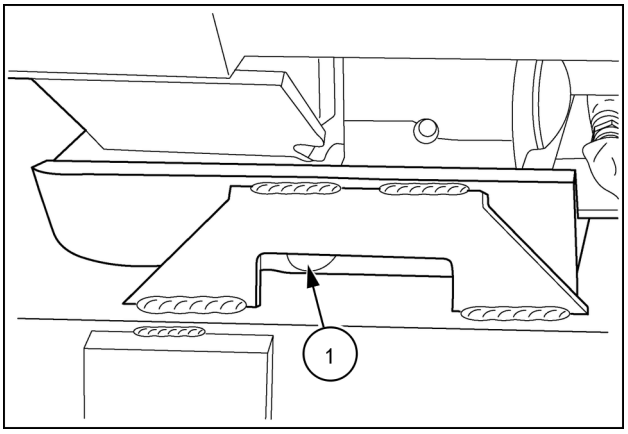

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8. Make sure that the attachment is secure and safe to use. Operate the attachment through the full range of motions before you begin normal work operations.

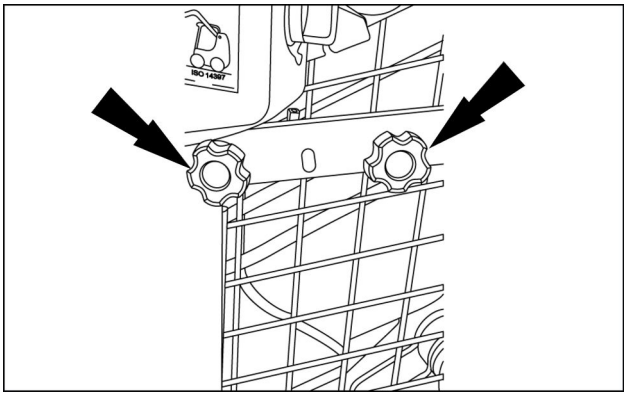
Window removal and cleaning

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**).



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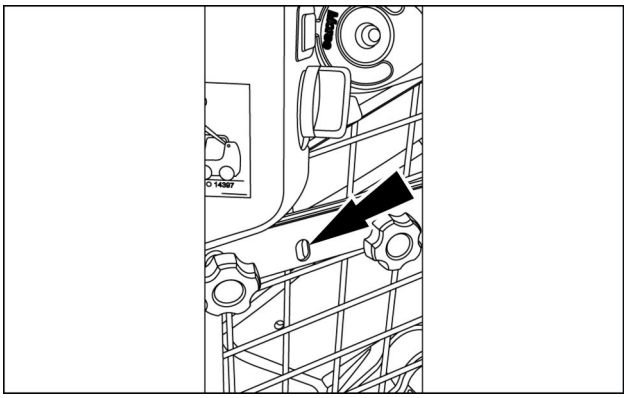
2. Slide the front two knobs and the rear two knobs toward the center of the window until the green indicator has changed to red. Now the window bar can drop down slightly, allowing the top of the window to drop down just below the window frame.



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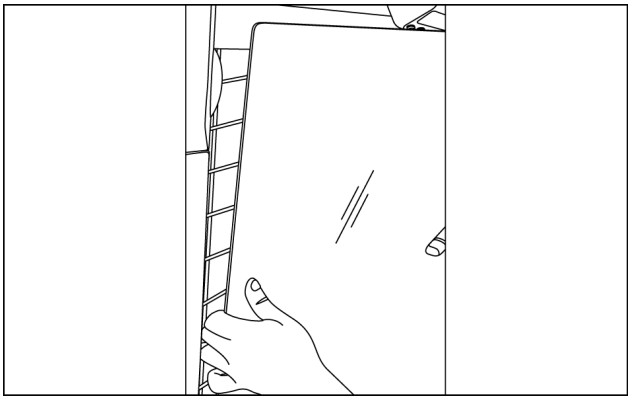
NOTE: *The restraint bar must be in the operating position for window removal.*

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



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Biodiesel fuel

Fatty Acid Methyl Ester Biodiesel (Biodiesel Fuel) consists of a family of fuels derived from vegetable oils treated with methyl esters.

NOTICE: *Biodiesel Fuel blends are approved for your engine only if they comply with* ***EN14214*** *Specification Standards or* ***ASTM D6751****.*

NOTICE: *It is imperative that you check which blend is approved for your engine with your CASE CONSTRUCTION dealer. Be aware that the use of Biodiesel Fuel that does not comply with the Standards mentioned above could lead to severe damage to the engine and fuel system of your machine. The use of fuels that are not approved may void CASE CONSTRUCTION Warranty coverage.*

Biodiesel fuel usage conditions

NOTICE: *The Biodiesel Fuel must meet the fuel Specification mentioned above.*

Biodiesel Fuel must be purchased from a trusted supplier that understands the product and maintains good fuel quality. Biodiesel Fuel must be pre-blended by the supplier. Mixing Biodiesel Fuels on-site can result incorrect mixture that can lead to problems with both engine and fuel system.

Engine performance is affected by the use of Biodiesel Fuel. There may be up to **12 %** reduction in power or torque depending on the blend used.

NOTICE: *DO NOT modify the engine and/or injection pump settings to recover the reduced performance.*

The reduced power must be accepted if using any Biodiesel Fuel blend.

Some modification may be required to allow your engine to run Biodiesel Fuel. Consult you dealer for complete information on these modifications.

Biodiesel Fuel has a higher cloud point than Diesel Fuel.

NOTICE: *The use of high Biodiesel Fuel blends are not recommended in cold weather conditions.*

With Biodiesel Fuels, it may be necessary to change the engine oil, engine oil filter and fuel filter elements more frequently than with Diesel Fuels. Biodiesel Fuel can remove rust and particles from the inside of on-site fuel storage tanks that would normally adhere to the sides of the tank. Like particle deposits that commonly occur with Diesel Fuel, these particles can become trapped by the machine fuel filters, causing blockage and shortening filter life. In cold weather, this is more likely to happen. Consult your CASE CONSTRUCTION dealer for information on cold weather operation and proper maintenance intervals when using any Biodiesel Fuel blend.

When handling Biodiesel Fuel, care must be taken not to allow water into the fuel supply. Biodiesel Fuel will actually attract moisture from the atmosphere.

Fuel tanks must be kept as full as possible to limit the amount of air and water vapors in them. It may be necessary to drain the fuel filter water tap more frequently.

Potential oxidation and stability could be a problem with the fuel stored in the machine.

NOTICE: *Machines must not be stored for more than three months with Biodiesel Fuel blends in the fuel system.*

If long storage periods are necessary, the engine must run on Diesel Fuel for 20 hours to flush the Biodiesel Fuel out of the engine fuel system prior to storage.

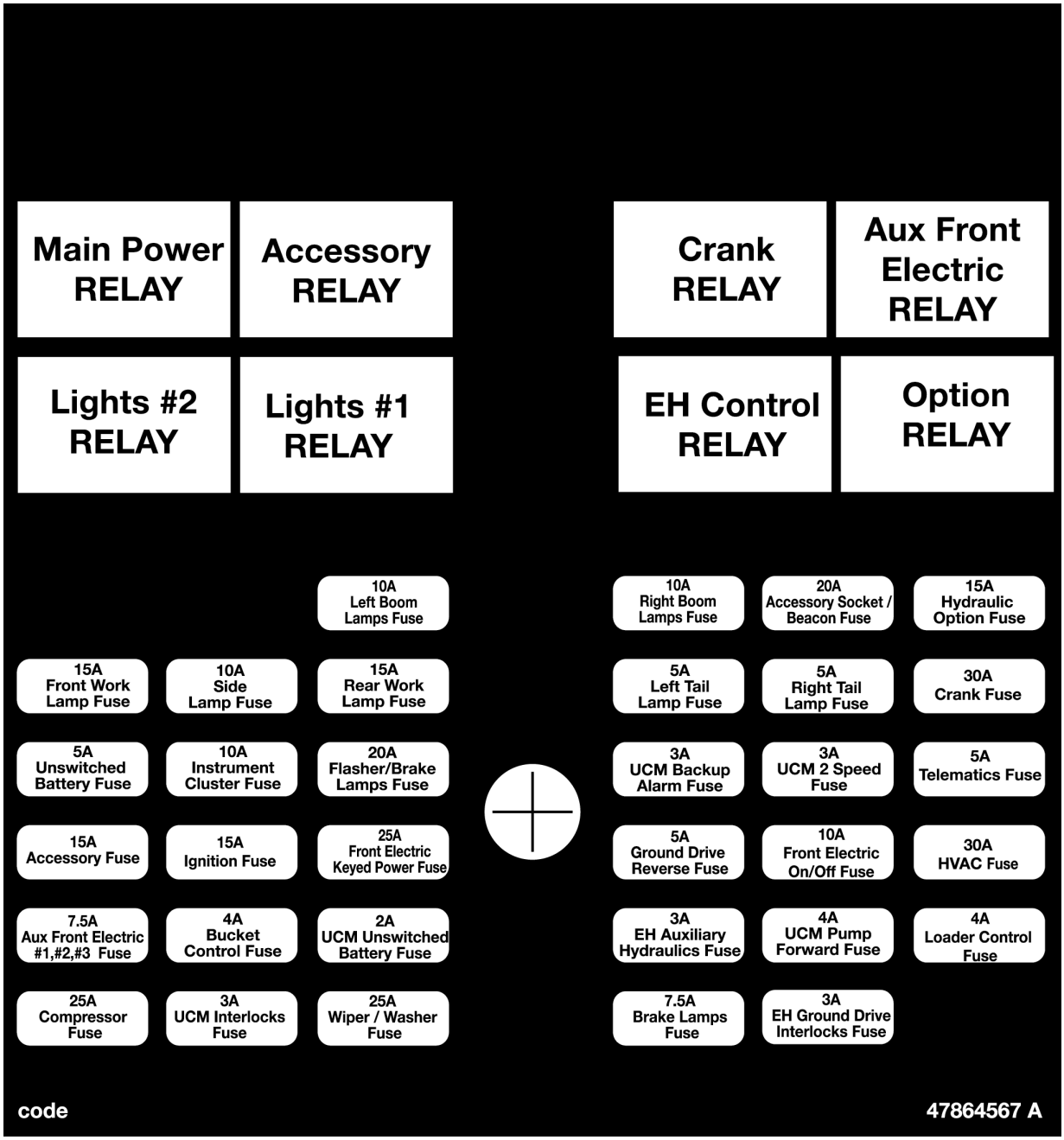
NOTICE: *Biodiesel Fuel must not be stored in on-site storage tanks for more than three months.*

Any spillage of Biodiesel Fuel must be cleaned up immediately before it can cause damage to the environment and the paint finish of the machine.

Before using Biodiesel Fuel blends you should consult with your dealer to receive full information about the approved blend for your machine and any detailed conditions of its usage.

NOTICE: *Be aware that not fulfilling the requirements and conditions of Biodiesel Fuel usage will void your machine's CASE CONSTRUCTION Warranty coverage.*

SR175, SV185, SR200, SR220, SR250, SV250, SV300, TR270, TR320, and TV380 machines with Electro-Hydraulic (EH) controls



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Alternator and air conditioning compressor (if equipped) belt tension

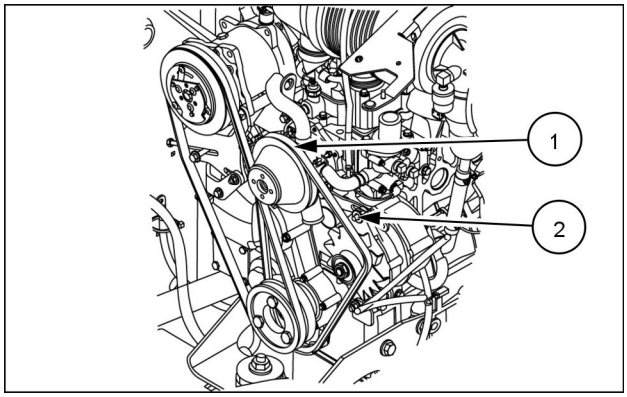
NOTE: *The alternator belt and air-conditioning belt tension check and adjust procedure only apples to models SR130, SR150, SR175, and SV185.*

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

Alternator belt tension check and adjust

Use the following procedure to adjust the alternator belt tension.

1. Loosen the adjusting bracket bolt **(2)**.
2. Pull the alternator toward the outside of the machine to tighten the belt. The belt is tightened properly when a force of **1 kg** (**2 lb**) is applied perpendicular to the belt at the center of the span with a **3 mm** (**0.118 in**) deflection.
3. Tighten the adjusting bracket bolt **(2)**.



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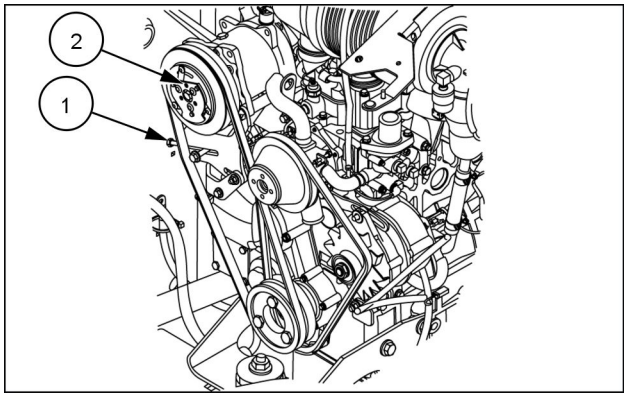
Air conditioning belt tension check and adjust

If your machine is equipped with air conditioning, use the following procedure to adjust the air conditioning belt tension.

1. Loosen the adjusting bracket bolt **(1)**.
2. Pull the air compressor **(2)** toward the outside of the machine to tighten the belt. The belt is tightened properly when a force of **1 kg** (**2 lb**) is applied perpendicular to the belt at the center of the span with a **3 mm** (**0.118 in**) deflection.
3. Tighten the adjusting bracket bolt **(1)**.



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NOTE: *Models SR200, SR220, SR250, SV250, SV300, TR270, TR320, and TV380 equipped with an authorized CNH belt 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.*

Engine oil and filter

Change the engine oil and filter after the initial **50 h** of operation on a new machine or a rebuilt engine. Change engine oil and filter at **500 h** intervals after the initial service.

Engine oil specification: **CASE AKCELA UNITEK NO. 1™ SBL CJ-4 SAE 10W-40** see the “Engine oil viscosity chart” **7-13** for more details.

Remote engine oil drain

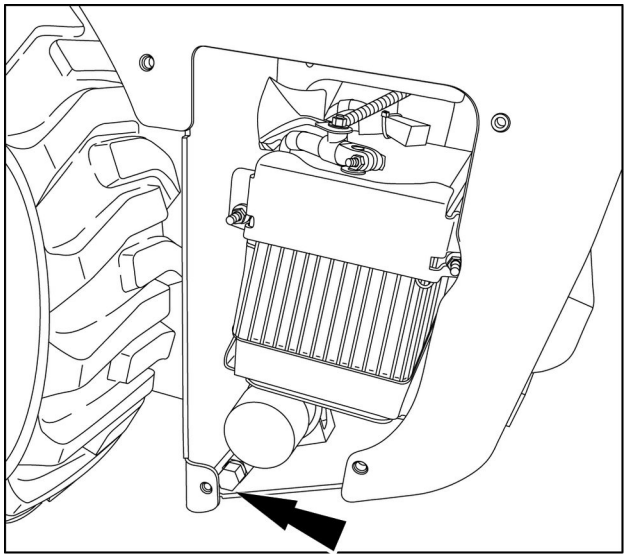
NOTE: *For a more complete removal of foreign material, change the engine oil when the engine is still warm, but not hot from operation.*

1. Place the machine on firm, level ground, with brakes on and in transport position.
2. Remove the access cover at the rear lower left of the machine exposing the engine oil drain hose and remote filter for draining engine oil.
3. If applicable, use compressed air to clean the engine oil filter assembly and drain hose.

NOTE: *If compressed air is not available, use a clean rag or cloth to wipe the area clean to reduce the potential of dirt contamination into the engine.*

4. Remove the cap from the engine oil drain hose.
5. Turn the old engine oil filter counter-clockwise to remove.
6. Dispose of the filter properly.
7. Use a clean cloth and wipe sealing surface of the old filter base to remove all dirt.
8. Apply a thin layer of clean grease or oil to the gasket of the new filter and put new oil into the new filter.
9. Turn the new oil filter clockwise onto the base until the gasket makes contact with the base.
   - SR200, SR220, SR250, SV250, SV300, TR270, TR320, and TV380 (F5 engines only) – Continue to tighten the filter one full turn or apply a torque of **35 N·m** (**26 lb ft**) to the engine oil filter.

     NOTICE: *For models SR130, SR150, SR175, and SV185 (ISM engines only), DO NOT use a filter strap wrench to install the oil filter. An oil filter strap wrench can cause a leak if the filter is dented or overstressed.*
   - SR130, SR150, SR175, and SV185 (ISM engines only) – Continue to hand tighten the filter 1/2 or 3/4 of a turn.
10. Install the drain plug once all old oil has finished draining. Tighten to a torque of **68 - 82 N·m** (**50 - 60 lb ft**).



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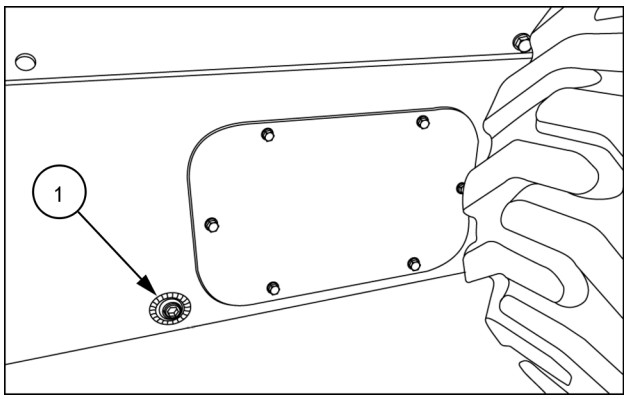
4. Press the POWER button or turn the key switch to the RUN position. Wait approximately a minute to allow the fuel pump to purge any air form the fuel system
5. Start the engine.
6. Inspect the area around the in-line fuel filter for leaks.

SR130, SR150, SR220, SR250, SV250, and SV300 models only

1. Park the machine on firm level surface.

NOTE: *For Models SR130 and SR150 only: Raise the machine enough to remove the wheels and block the machine with support blocks to secure the machine in a level position. Remove the front right wheel and the rear left wheel from the machine to access the chain tank fill/level plug* ***(1)****.*

2. Clean the area around the chain tank fill/level plug **(1)**.
3. Remove the chain tank fill/level plug **(1)**. The oil should be up to the bottom of the inspection orifice.



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4. Add oil if necessary.
5. Replace the chain tank fill/level plug **(1)**.

NOTE: *Use* ***LOCTITE® 545™*** *or an equivalent product on the threads of the plug.*

6. Repeat this procedure for the other side.

Capacity - each side	
SR130, SR150	**6.25 l** (**6.6 US qt**)
SR220, SR250, SV250, SV300,	**22.2 l** (**23.5 US qt**)

Final drive chain tank oil

Change the oil in the chain tanks every **1000 h** of operation.

Final drive chain tank oil specification: **TUTELA AUTO SUPREME™ ENGINE OIL SAE 10W-30**

SR175 and SV185 models only

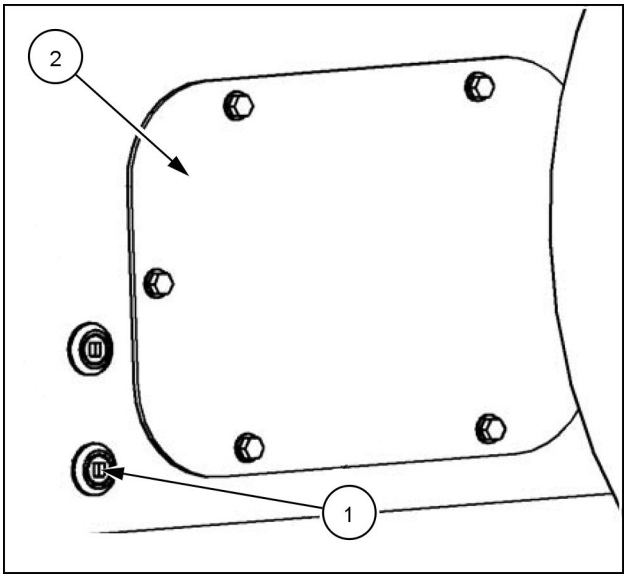
1. Park the machine on firm level surface.
2. Clean the area around the chain tank drain plugs (not shown), located on the bottom of the drive chain tank, near the rear of the drive chain tank, one on each side.
3. Clean the area around the chain tank fill/level plug **(1)**.
4. Place a suitable container under the chain tank drain plug and slowly remove the drain plug.

NOTE: *Use a jack and raise the front of the machine slightly for better draining.*

5. Remove the chain tank fill/level plug **(1)**.
6. After the oil has been completely drained, replace the chain tank drain plug.
7. Fill the tank with new oil and replace the chain tank fill/level plug **(1)**.

NOTE: *Use **LOCTITE® 545™** or an equivalent product on the threads of the plugs.*

8. Repeat this procedure for the other side.



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NOTE: *The chain tank may be cleaned with a solvent based cleaner by removing the inspection cover **(2)** on each side, after the oil has been removed. Allow the tank to dry thoroughly before filling with oil.*

Capacity - each side	
SR175, SV185	**7.4 l** (**7.9 US qt**)

8 - TROUBLESHOOTING

FAULT CODE RESOLUTION

Error code index

NOTE: *If you have a fault code associated with a red light flashing and an audible alarm, shut the unit down and call your dealer for support. For a fault code associated with a yellow amber light, record the code number and use the Aux Override button to move past this fault code. If the code appears again, contact your dealer for support.*

JOYNu – Control handle error

JOYNu appears on the instrument panel. Make sure that the control handles and the auxiliary thumbwheel are in the neutral position. If JOYNu continues to be displayed contact your dealer for support.

OPRPr – Operator presence error

OPRPr appears on the instrument panel. Make sure that you are sitting in the operator seat and the lap bar is in the down position. If OPRPr continues to be displayed contact your dealer for support.

CRKOn – Hydraulic enable error (EH machines only)

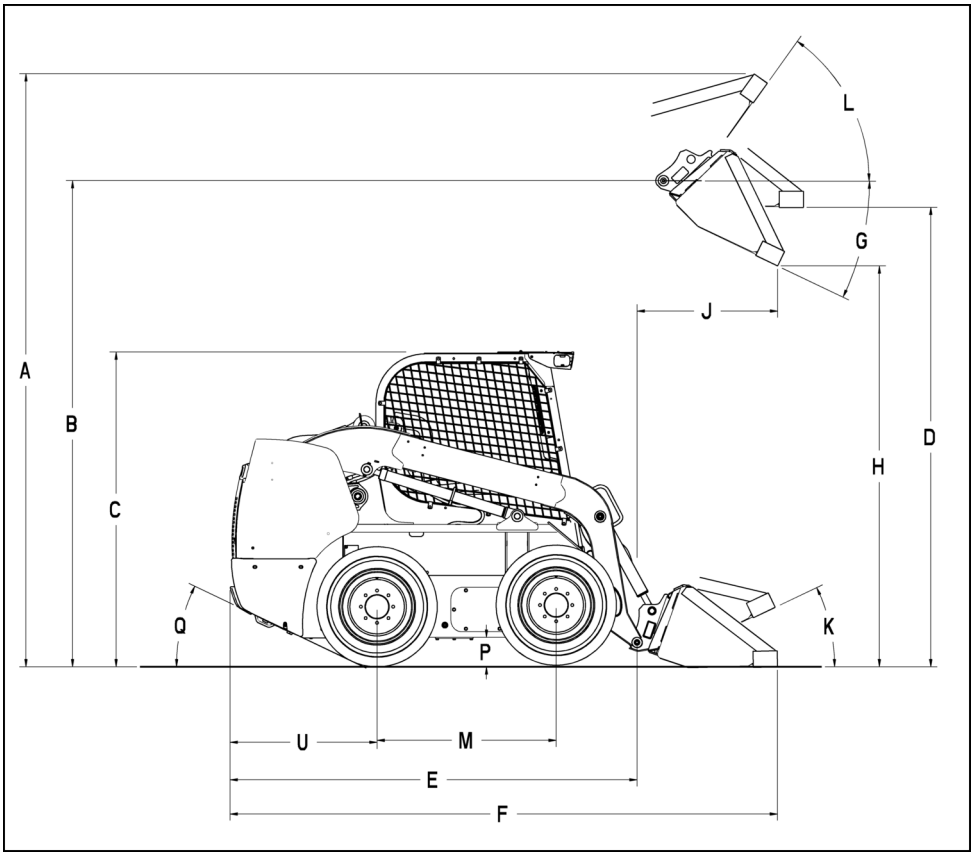
CRKOn appears on the instrument panel. CRKOn indicates the OPERATE button is being pressed while attempting to start the machine. Follow the starting procedure as described in this manual. If CRKOn continues to be displayed contact your dealer for support.

The following is a display of error codes and associated functions.

1000 to 1999 (vehicle errors)

Code	Function	Description
1002	Engine Coolant Temperature	High Temperature
1004	Hydraulic Oil Filter Restriction	Filter Restricted
1009	Hydraulic Oil Temperature	High Temperature
1014	Cluster System Voltage	Over Voltage
1015	Cluster System Voltage	Under Voltage
1025	Load Control	Short Circuit
1030	Load Control	Open Circuit
1041	RPM Monitoring	Over Speed
1045	Fuel Level Monitoring	Open Circuit
1201	Hydraulic Oil Filter Restriction	Open Circuit
1202	RPM Monitoring	Over Speed
1203	RPM Monitoring	Open / Short Circuit
1204	Start Sequence	Engine State Plausibility Check
1205	Hydraulic Enable	Short Circuit to Power
1206	UCM	Configuration Time out
1207	UCM	Invalid Configuration

Code	Function	Description
1350	Hydraulics Enable	Switch Implausible State
1511	Right Brake Light Actuation	Open Circuit
1512	Right Brake Light Actuation	Short Circuit
1513	Right Brake Light Actuation	Short Circuit to Ground
1521	Left Brake Light Actuation	Open Circuit
1522	Left Brake Light Actuation	Short Circuit to Ground
1523	Left Brake Light Actuation	Short Circuit
1531	Backup Alarm Activation	Open Circuit
1532	Backup Alarm Activation	Short Circuit to Ground
1533	Backup Alarm Activation	Short Circuit
1901	Power Supply	Supply Voltage High
1903	Power Supply	Low Voltage
1904	Power Supply	Input Voltage Out of Range
1905	Power Supply	Supply Voltage Out of Range
1906	Power Supply	Supply Voltage Out of Range
1907	Power Supply	Aux Retract Input Power OFF



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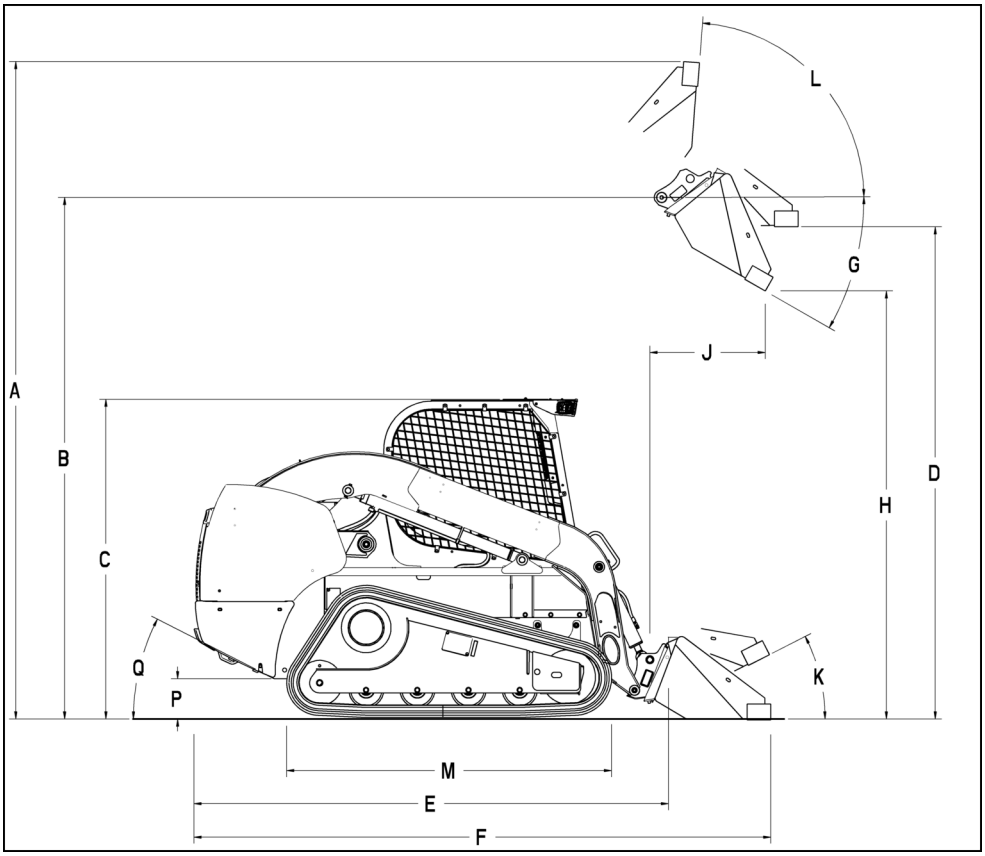
MEDIUM VERTICAL FRAME WHEEL UNIT (SV185)

ITEM	COMPONENT	MEASUREMENT
A	Overall Operating Height (Fully Raised)	**3820 mm** (**150.4 in**)
B	Height to Hinge Pin (Fully Raised)	**3048 mm** (**120 in**)
C	Cab Height	**1974 mm** (**77.7 in**)
D	Highest Level Bucket Height	**2877 mm** (**113.3 in**)
E	Overall Length (No Attachment)	**2685 mm** (**105.7 in**)
F	Overall Length (With standard Bucket)	**3345 mm** (**131.7 in**)
G	Dump Angle (Fully Raised)	**51.9 °**
H	Dump Height (Maximum Reach)	**2380.0 mm** (**93.7 in**)
J	Dump Reach (Fully Raised)	**783 mm** (**30.8 in**)
K	Maximum Rollback @ Ground	**35 °**
L	Maximum Rollback (Fully Raised)	**87.6 °**
M	Wheel Base	**1128 mm** (**44.4 in**)
P	Ground Clearance (Belly Pan)	**178 mm** (**7 in**)
Q	Angle of Departure	**23 °**
U	Rear Axle to Bumper	**924 mm** (**36.4 in**)
NOTE: *Measurements are based on machines with 10 x 16.5 tires and a* ***1676.4 mm*** *(****66.0 in****) Dirt & Foundry (DF) bucket.*		



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LARGE RADIAL FRAME TRACK UNITS (TR320)

LOCATION	COMPONENT	MEASUREMENT
A	Overall Operating Height (Fully Raised)	**4009 mm** (**157.8 in**)
B	Height to Hinge Pin (Fully Raised)	**3215 mm** (**127 in**)
C	Cab Height	**2043 mm** (**80.4 in**)
D	Highest Level Bucket Height	**3038 mm** (**119.6 in**)
E	Overall Length (No Attachment)	**2981 mm** (**117.4 in**)
F	Overall Length (With standard Bucket)	**3611 mm** (**142.2 in**)
G	Dump Angle (Fully Raised)	**38.1 °**
H	Dump Height (Maximum Reach)	**2602 mm** (**102.4 in**)
J	Dump Reach (Fully Raised)	**548 mm** (**21.6 in**)
K	Maximum Rollback @ Ground	**29.7 °**
L	Maximum Rollback (Fully Raised)	**99.7 °**
M	Track length on ground	**1639 mm** (**64.5 in**)
P	Ground Clearance (Belly Pan)	**243 mm** (**10 in**)
Q	Angle of Departure	**32 °**
NOTE: *All measurements are based on machines with a* ***1981.2 mm*** *(****78.0 in****) Dirt & Foundry (DF) bucket.*		

Torque charts - Minimum tightening torques for normal assembly

METRIC NON-FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT		LOCKNUT CL.8 W/CL8.8 BOLT	LOCKNUT CL.10 W/CL10.9 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr		
M4	2.2 N·m (19 lb in)	2.9 N·m (26 lb in)	3.2 N·m (28 lb in)	4.2 N·m (37 lb in)	2 N·m (18 lb in)	2.9 N·m (26 lb in)
M5	4.5 N·m (40 lb in)	5.9 N·m (52 lb in)	6.4 N·m (57 lb in)	8.5 N·m (75 lb in)	4 N·m (36 lb in)	5.8 N·m (51 lb in)
M6	7.5 N·m (66 lb in)	10 N·m (89 lb in)	11 N·m (96 lb in)	15 N·m (128 lb in)	6.8 N·m (60 lb in)	10 N·m (89 lb in)
M8	18 N·m (163 lb in)	25 N·m (217 lb in)	26 N·m (234 lb in)	35 N·m (311 lb in)	17 N·m (151 lb in)	24 N·m (212 lb in)
M10	37 N·m (27 lb ft)	49 N·m (36 lb ft)	52 N·m (38 lb ft)	70 N·m (51 lb ft)	33 N·m (25 lb ft)	48 N·m (35 lb ft)
M12	64 N·m (47 lb ft)	85 N·m (63 lb ft)	91 N·m (67 lb ft)	121 N·m (90 lb ft)	58 N·m (43 lb ft)	83 N·m (61 lb ft)
M16	158 N·m (116 lb ft)	210 N·m (155 lb ft)	225 N·m (166 lb ft)	301 N·m (222 lb ft)	143 N·m (106 lb ft)	205 N·m (151 lb ft)
M20	319 N·m (235 lb ft)	425 N·m (313 lb ft)	440 N·m (325 lb ft)	587 N·m (433 lb ft)	290 N·m (214 lb ft)	400 N·m (295 lb ft)
M24	551 N·m (410 lb ft)	735 N·m (500 lb ft)	762 N·m (560 lb ft)	1016 N·m (750 lb ft)	501 N·m (370 lb ft)	693 N·m (510 lb ft)

NOTE: *M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.*