ORIGINAL INSTRUCTIONS

SR130 SR200
SR150 SR220
SR175 SR250
SV185 SV250
SV300
Tier 3
Alpha Series Skid Steer Loader

PIN NGM418237 and above

TR270
TR320
TV380
Tier 3
Alpha Series Compact Track Loader

PIN NGM418237 and above

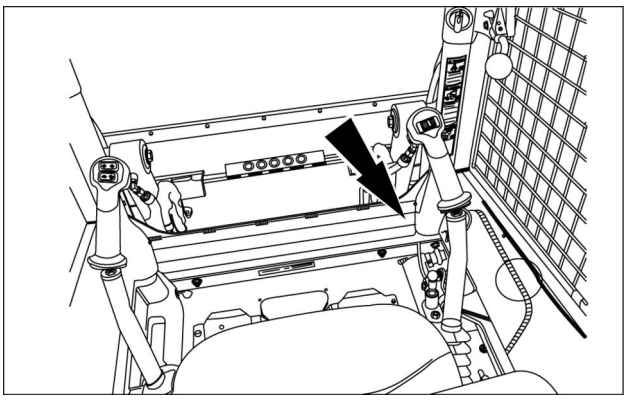
OPERATOR'S MANUAL

Part number 47948671
1st edition English
May 2016

CASE CONSTRUCTION

Roll Over Protective Structure (ROPS) certification plate.

- Front edge (lower) inside cab.



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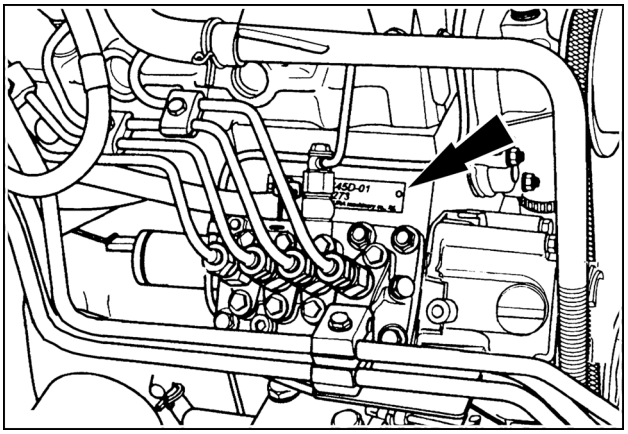
Engine serial number plate.

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



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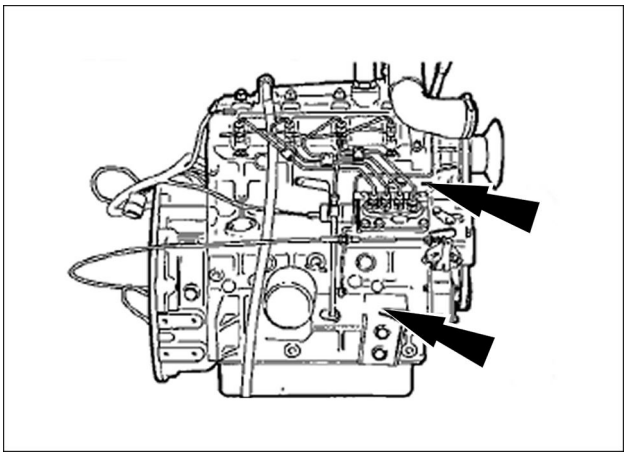


RCPH11SSL004AAD 5

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 (**7-39**).

⚠ 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.

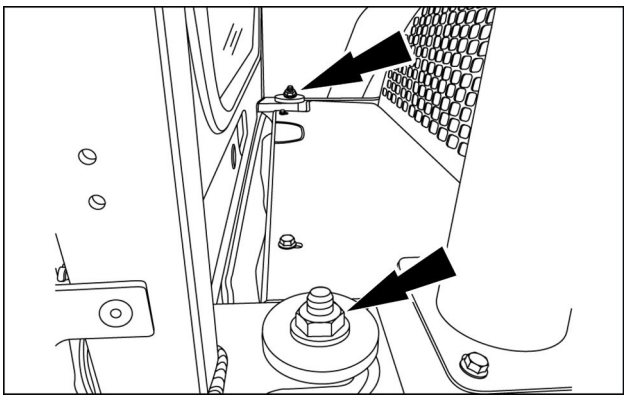
After an accident, fire or rollover, the following MUST be performed before returning the machine to the field or job site:

- 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.

3. Install the retaining nuts. Torque the nuts to **170 N·m** (**125 lb ft**).



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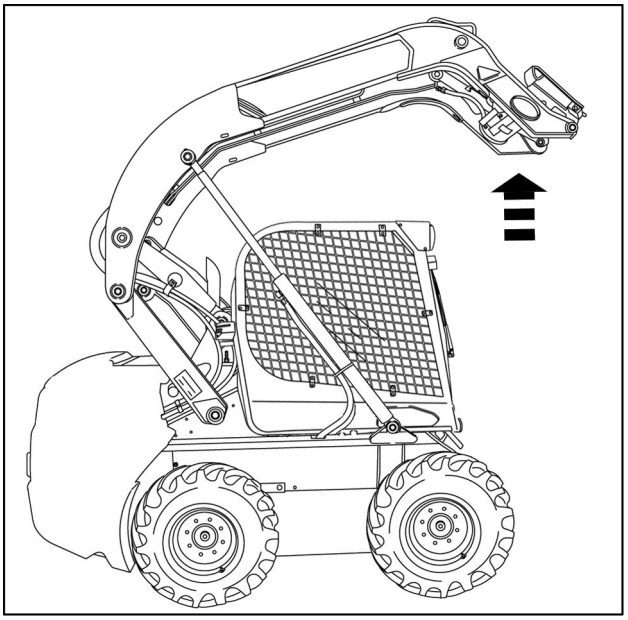
Unlock and lower the loader arm for machine operation

1. Sit in the operator's seat, fasten the seat belt, pull the restraint bar down, and start the engine.
2. Press the operate button to enable the hydraulics.
3. Fully raise the loader arm.



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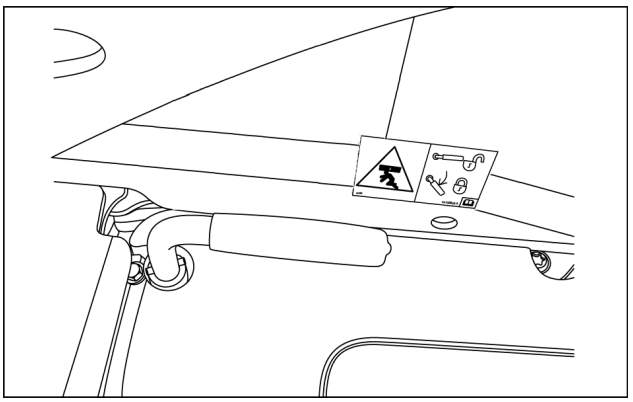
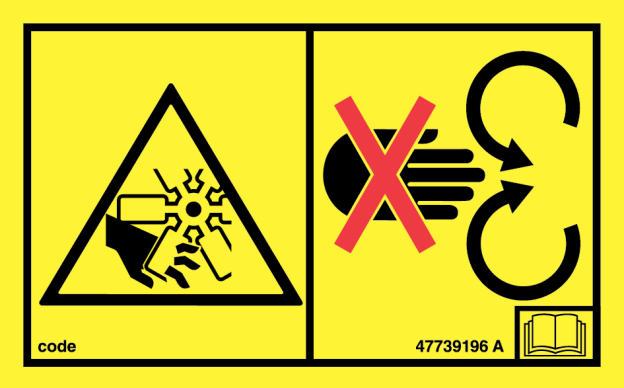
4. Rotate the lock lever away from the seat (counter clockwise) to retract the lock pin(s).
5. Lower the loader arm.
6. Commence work operations or park the machine and stop the engine.



RAIL16SSL0012AA 12

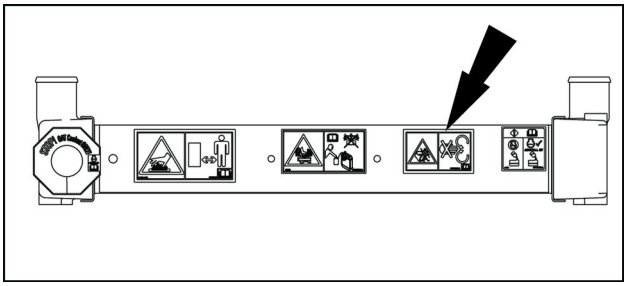
WARNING
Entanglement hazard! Keep hands and clothing away from rotating fan and belts. Failure to comply could result in death or serious injury.

Quantity: 1
Part number: 47739196



47739196_A 18

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



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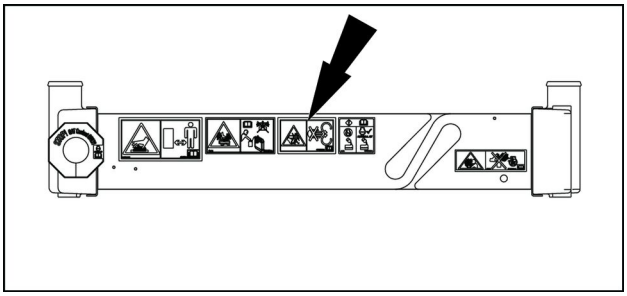
Location:
On top of the radiator under the hood.



RAIL16SSL0015AA 20

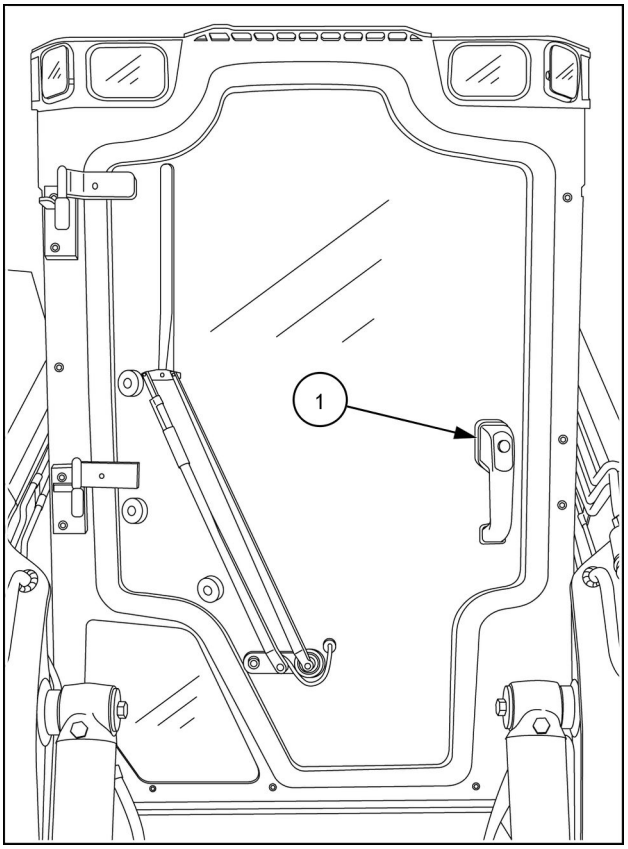
3 - CONTROLS AND INSTRUMENTS

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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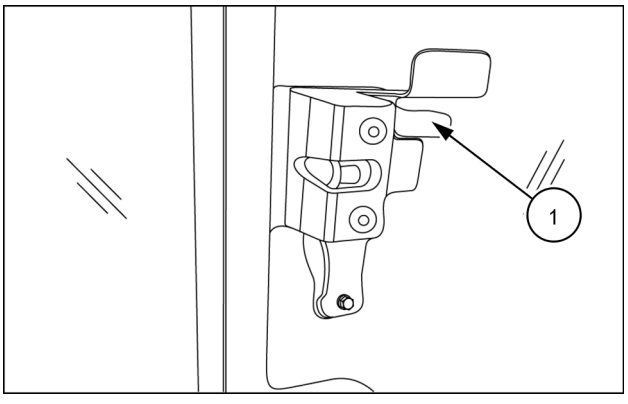
Interior door latch

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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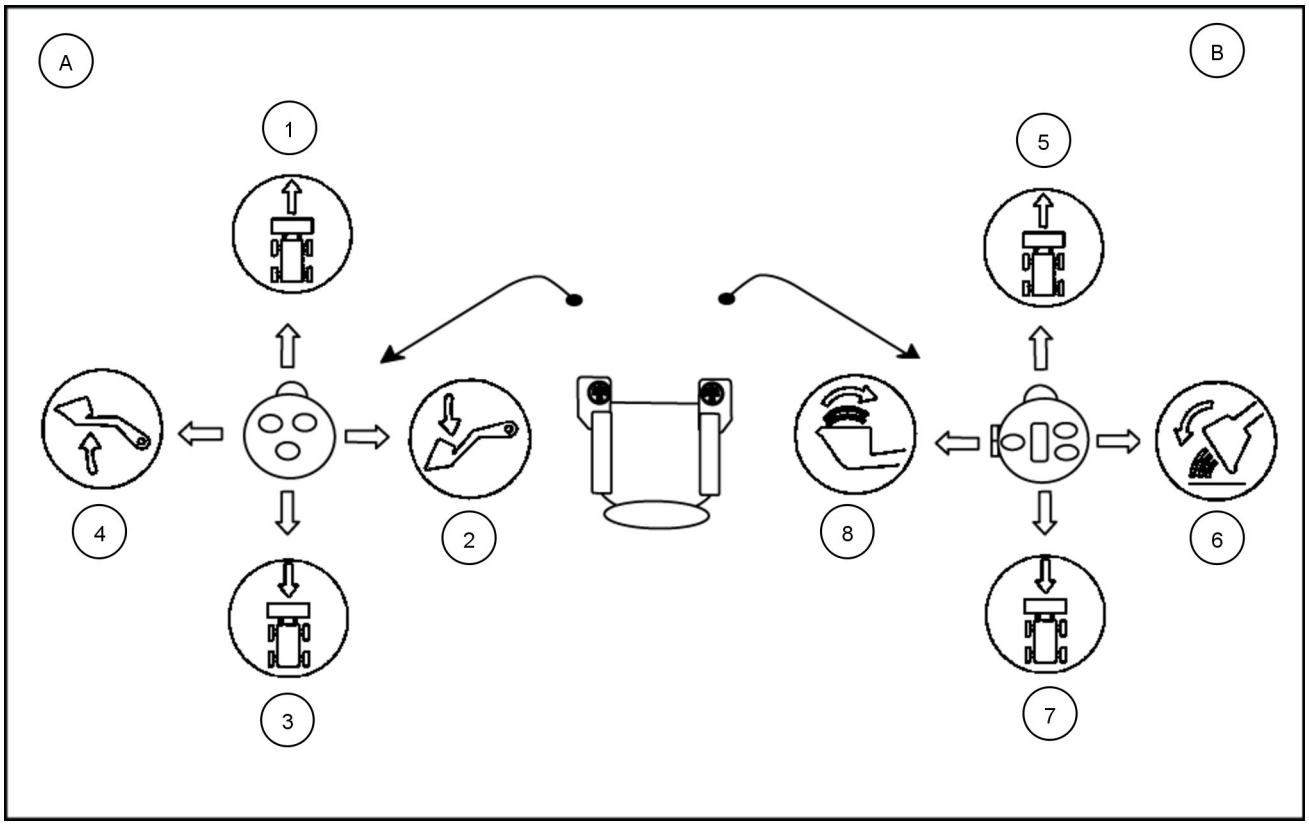
ELECTRO HYDRAULIC CONTROLS

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.

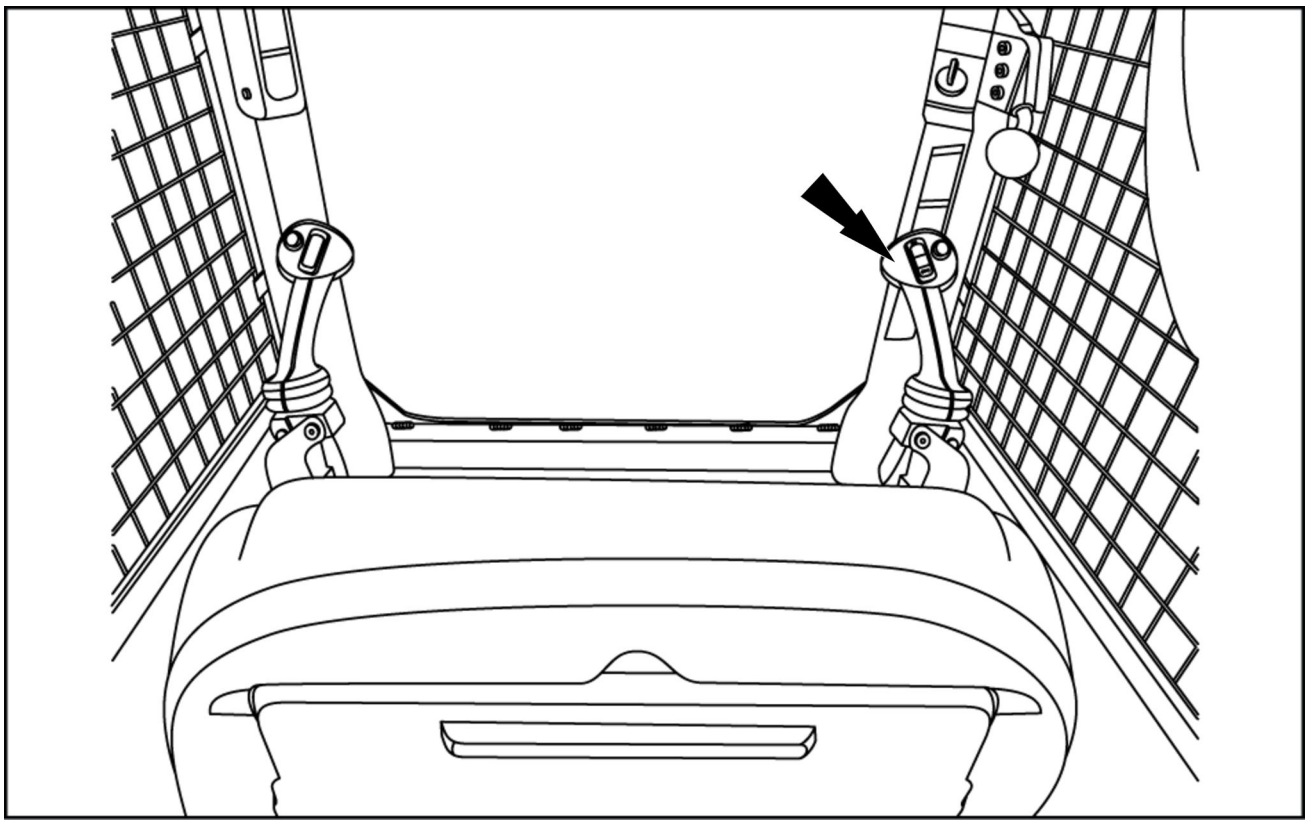
(B) Right-hand control lever	
(5)	Right side drive forward.
(6)	Bucket dump.
(7)	Right side drive reverse.
(8)	Bucket rollback (curl).

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.

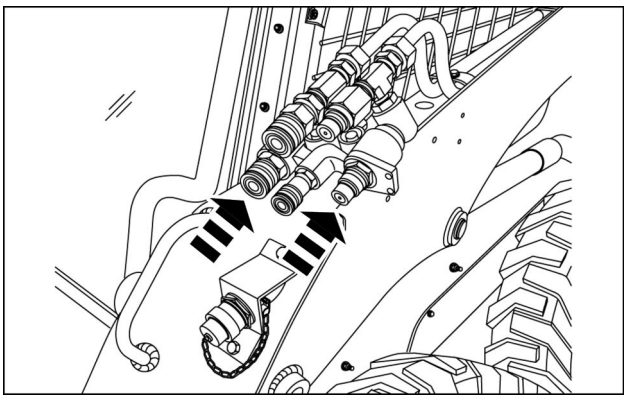
Bucket dump and curl control.

- 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

Advanced Instrument Cluster (AIC)

The Advanced Instrument Cluster (AIC) is on the right-hand cab post.

Once in the seat, the alarm sounds and selected lamps illuminate briefly. Monitor these lamps on a daily basis to confirm that they will function in the event of a system alarm. The fuel gauge and hour meter will remain illuminated for operator monitoring.

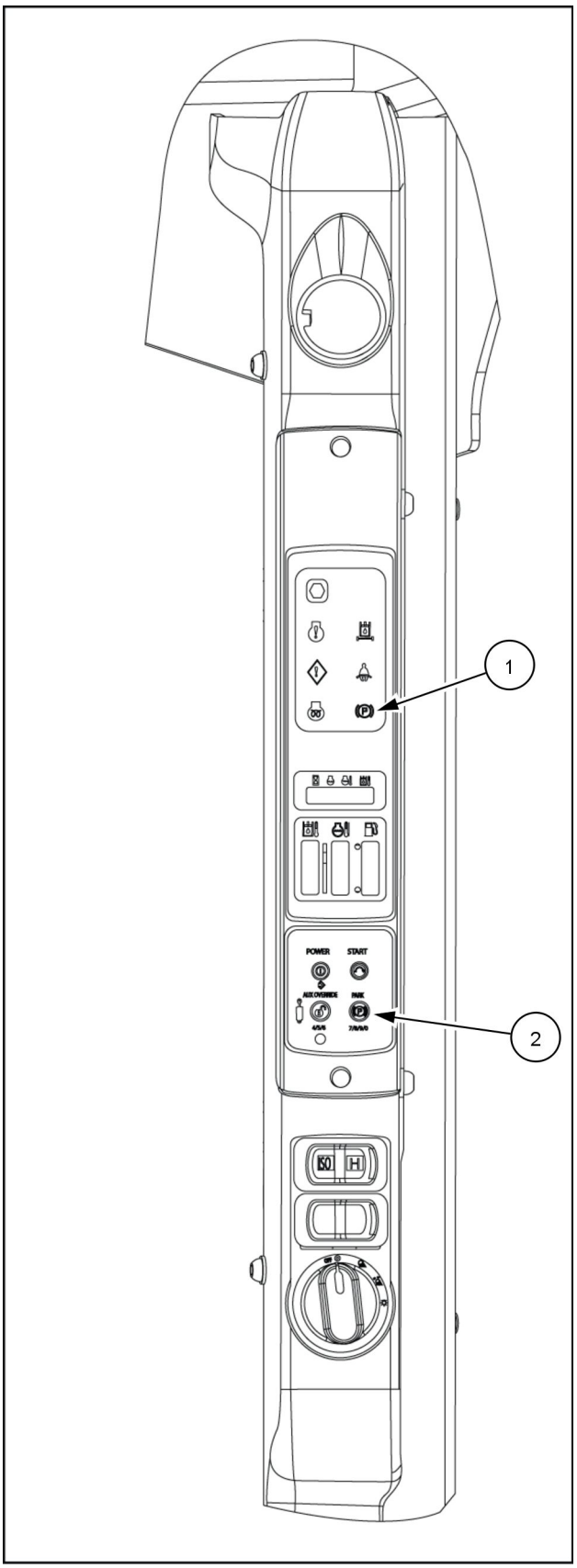
When started, the machine will be in park with the park brake **(1)** lamp illuminated. The park brake button is on the right-hand control lever.

The operator must be in the seat with seat belt fastened and the restraint bar lowered. After the machine starts, the operator must push the OPERATE button **(2)** to activate the loader arms and ground drive.

A semi-hidden “Setup” menu allows the user to view, select, change and customize a number of machine settings. A security code may be entered into the Instrument Cluster. Once the security code has been entered, each user will have to enter the code before the machine will start. Contact your dealer for detailed information on the “Setup” menu and security feature activation.

NOTE: *Fault code definitions are located in the troubleshooting section. The updated fault code is visible to the operator on the display on the right-hand column.*

NOTICE: *Low hydraulic charge pressure will cause engagement of the park brake. With an Electro-Hydraulic (EH) control unit, the park brake **(1)** lamp will flash and an audible alarm will sound, if this condition exists.*



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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 lift arm settings.

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

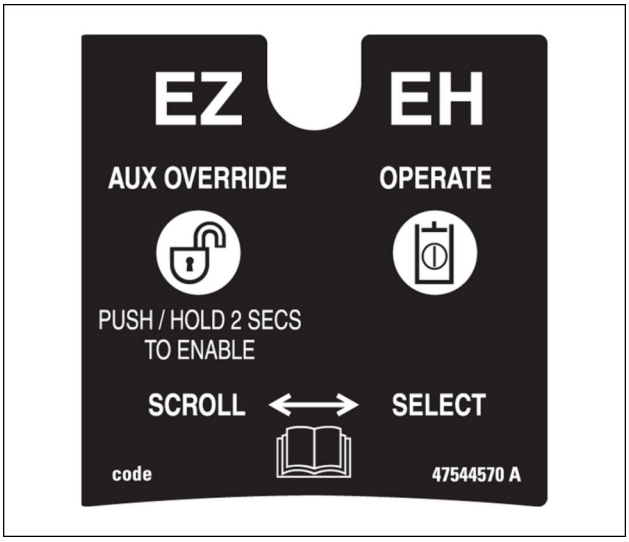
1. Press and hold the AUX OVERRIDE button **(1)** for two seconds to enter the EH shortcut menu.
2. SPEEd will display on the display **(2)**. Press the AUX OVERRIDE button **(1)** to select a different menu item (DRIVE, EXIT, HOUR, HOILT, COOLT, RPM, or CYCLE).
3. Press the OPERATE button **(3)** to 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.

Speed setting	Drive, lift, and tilt response to control lever movement
SP-C	Custom or default setting
SP-L	Slow response
SP-M	Medium response
SP-H	Quick response

Control setting	Drive and loader arm response to control lever movement
CR-C	Custom or default setting
CR-L	Smooth response
CR-M	Medium response
CR-H	Aggressive response



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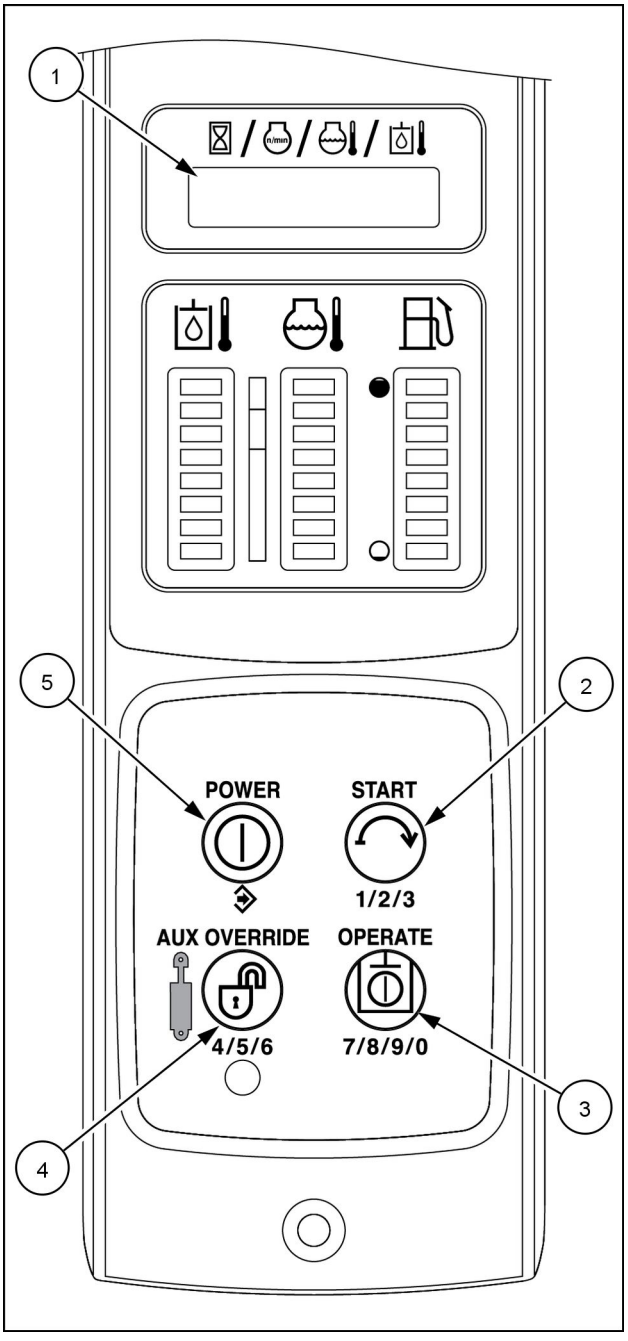

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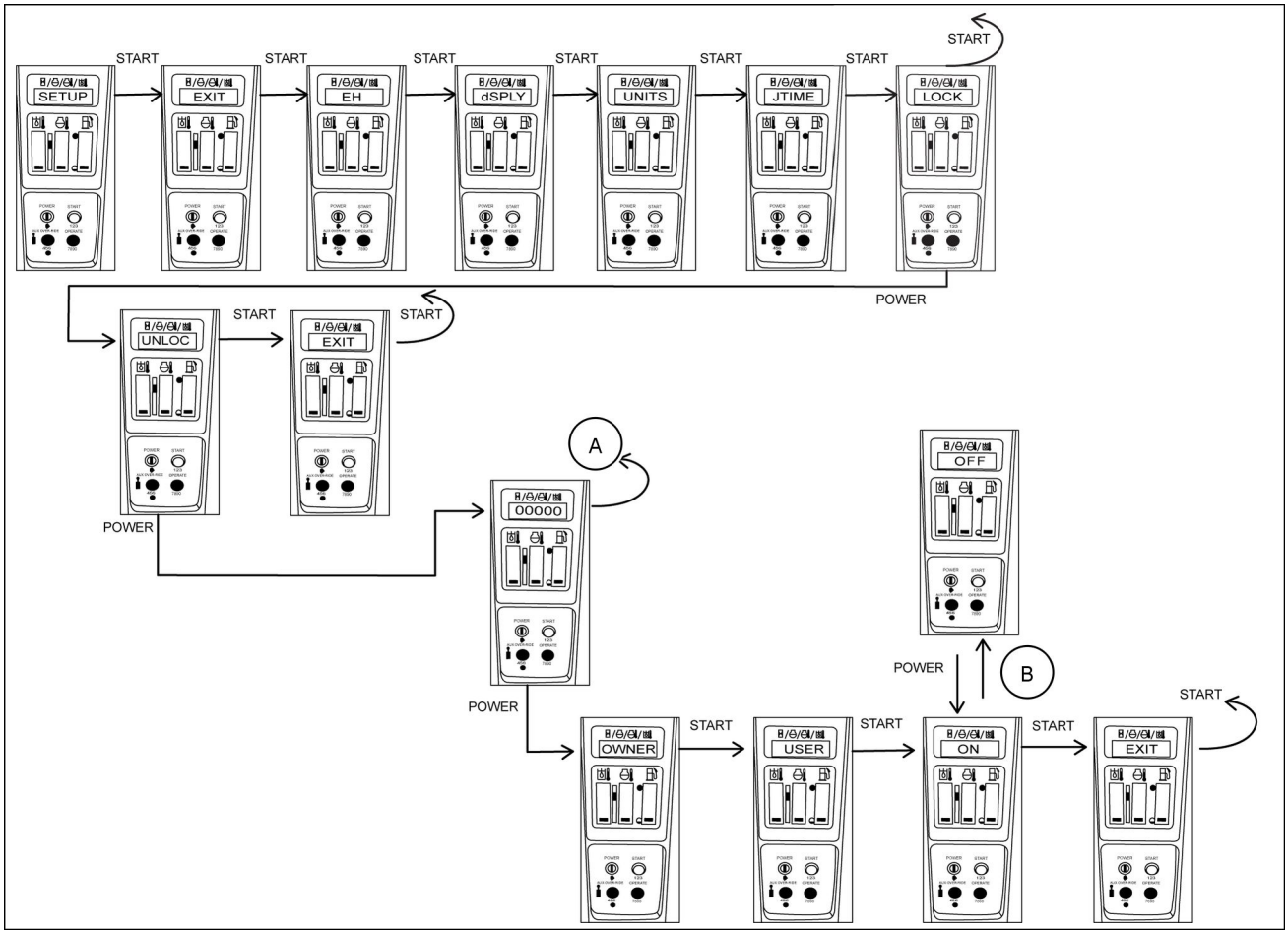
If an owner code has been created and LOCK function is disabled

1. If you enter an incorrect code **(A)**, you will return to OWNCR.
2. Press the POWER button at point **(B)** in the diagram to turn ON or OFF the Anti-Theft feature.



RAIL13SSL0758GA 14

STARTING THE UNIT

Engine operation

⚠ DANGER

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

D0010A

⚠ WARNING

Explosion hazard!
DO NOT use ether starting fluid. Explosion, death, serious personal injury, or serious engine damage could occur.
Failure to comply could result in death or serious injury.

W0148B

⚠ WARNING

Equipment failure could cause accident or injury!
Always fasten the seat belt securely before you operate the machine. Inspect seat belt parts for wear and damage. Replace any and all worn or damaged parts of the seat belt prior to operation.
Failure to comply could result in death or serious injury.

W0046C

Walk-around inspection

Each day before you start the engine:

- Check for leaks under the machine.
- Check tire condition and pressure or track condition.
- Check the machine, equipment and attachments for wear, damaged, or missing parts.
- Check the machine for debris, especially around the radiator and engine area. Make sure these areas are clean.
- Clean or replace any safety or instructional signs that cannot be read.
- Clean the steps, hand rails, and operator compartment. Remove any loose items in the operator's compartment.
- See the maintenance chart in this manual and do all the items under **10 h**.

Engine speed

NOTICE: *Prevent damage to the turbocharger. If the engine stalls during normal operation, immediately return the throttle to idle before restarting.*

NOTE: *This machine is not intended to be driven on public roads or highways. Contact your local and regional authorities before operating this machine on public roads or highways.*

NOTICE: *DO NOT run the engine at idle speed for more than **3 h**. This can cause a low operating temperature, which can cause acids and deposits in the engine oil. It is recommended that you run the engine at full throttle when operating conditions permit and when safe.*

Lifting the machine with a four-point lifting device

⚠ 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

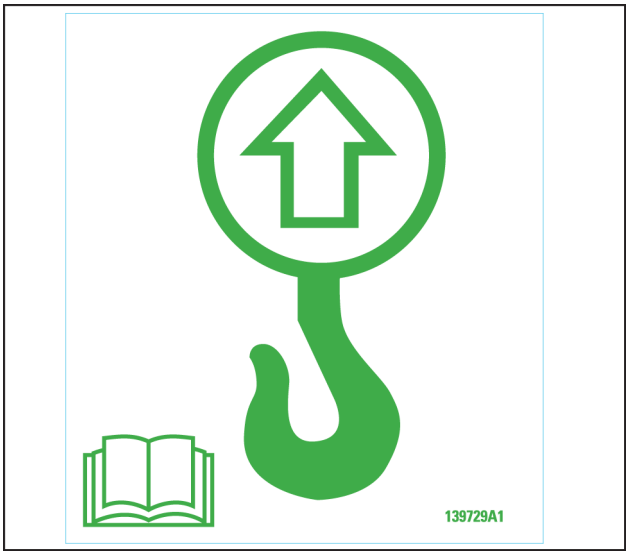
NOTICE: *Only personnel with heavy machine lifting experience should attempt lifting the machine. Contact your dealer for assistance.*

These machines are designed for a four-point lifting device. Use only lifting equipment with a rated capacity to handle the weight of the machine model being lifted. The lifting equipment weight must be added.

1. Remove any and all attachments before lifting the machine.
2. Use the two front lift points and the two rear lift points (one on each side).

NOTICE: *To prevent damage to the cab, synthetic slings must be used for the front lift points.*

Use the correct sling lengths to ensure the proper lift hook point above the cab is maintained for a level machine lift.



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The following precautions must be followed when craning (lifting or lowering) a machine.

- Only attach suitable lifting equipment to the machine at the designated lift points identified with the decal shown.
- Secure suitable lifting equipment to the designated lift points using hooks or shackles with the proper capacity rating.
- Never allow personnel on the machine while craning.
- Remove attachments before craning.
- Use only properly rated lifting devices.
- The weight of the lifting equipment must be added to the machine weight for the proper lift capacity requirement.
- Always inspect the lifting equipment to confirm safe condition. DO NOT use if worn or damaged.
- Do not attach lifting devices to the loader arms or attachments on the machine.
- Make sure that the loader arms are in the lowest position.
- Make sure that the engine is off and parking brake is engaged before craning.
- Keep bystanders a safe distance away from the machine while craning.

RECOVERY TRANSPORT

Moving a disabled machine

⚠ WARNING

Loss of control!
Only tow at safe speeds. Use caution when making corners or meeting traffic.
Failure to comply could result in death or serious injury.

W0126A

NOTICE: *CASE CONSTRUCTION does not recommend towing the machine. Do not attempt to move the machine if you believe more damage to the machine will occur. You may damage the machine more severely if you attempt to tow or move a disabled machine. If possible, repair the machine at the job site. Contact your dealer if the machine is disabled.*

Digging

⚠ WARNING

Loss of control hazard!
Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
Failure to comply could result in death or serious injury.

W0233A

⚠ WARNING

Tip-over hazard!
Raising an overloaded bucket could cause an accident. If this situation should occur, and the machine should start to tip forward, IMMEDIATELY lower the lift arms.
Failure to comply could result in death or serious injury.

W0255A

⚠ WARNING

Loss of control hazard!
A full bucket in the raised position may cause the machine to slide when operating over rough ground. Keep the bucket as low as possible during operation for better stability and visibility. Always operate the machine at slow speeds over rough ground.
Failure to comply could result in death or serious injury.

W0271A

⚠ 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

When digging with the skid steer, remove a thin layer with each pass. This method is efficient and minimizes wheel slippage. When encountering firmly packed materials, flutter the bucket control valve to assist penetration.

NOTE: *If the engine pulls down as the skid steer is engaging a load, the directional controls are being held to far in the direction of travel. Maximum torque is obtained at minimum ground speed in low range for all skid steers.*

Transporting the load

When backing out and transporting a load, carry the bucket just high enough to clear obstacles in the loaders path. Raising the bucket higher than necessary reduces stability.

Dumping the bucket

Coordinate the forward ground speed and lift arm lift speed to attain the desired bucket height when arriving at the dump site.

Before the forward and lifting motions are stopped, begin dumping the bucket to gradually empty the load at minimum lift arm height. By emptying before stopping, machine stability can be maximized.

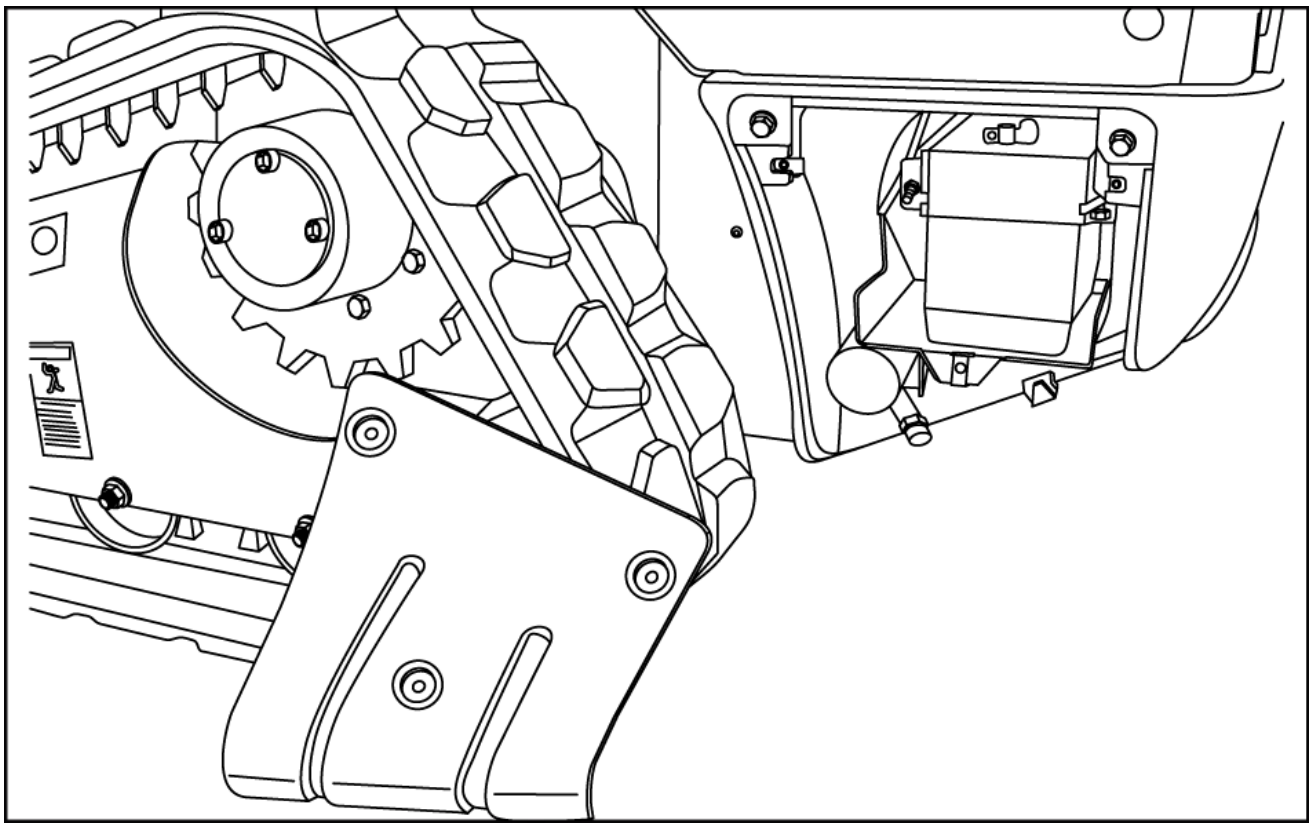
When loading into a truck, the bucket can be used to push materials to the far side of the truck if the bucket is in a tilted down position. For greatest efficiency this should be done as the load is being dumped, before the machine's forward motion is stopped. Try to spot the truck so that you dump over the low side and into the far side of the truck first.

When handling adhesive materials, the bucket can be fluttered to loosen the materials which tend to stick to the back of the bucket.

⚠ 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



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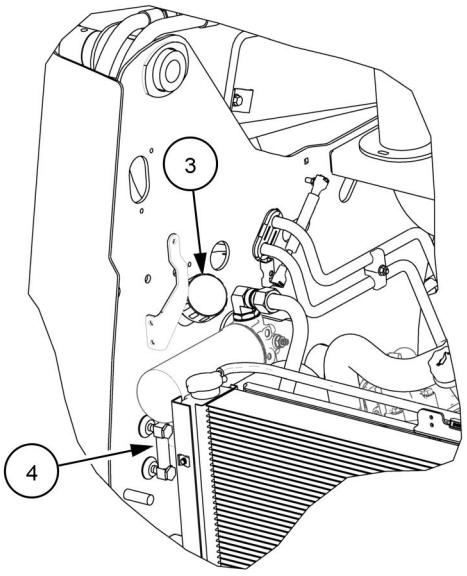
Check the battery as required, for dirt corrosion and damage. Dirt mixed with electrolyte or moisture on the top of the battery can cause a discharged condition in the battery. Clean the battery by using baking soda or ammonia and flush the outside of the battery with water. Spray the battery terminals with battery terminal protector. DO NOT use grease.

Open the rear service door to access the following:

- Hydraulic oil fill **(3)**.
- Hydraulic oil level indicator sight glass **(4)**.

NOTE: *If the hydraulic oil fill cap is to be removed, wipe clean before removing to prevent hydraulic system contamination.*

NOTE: *See the top figure for radial lift machines and the bottom figure for vertical lift machines.*



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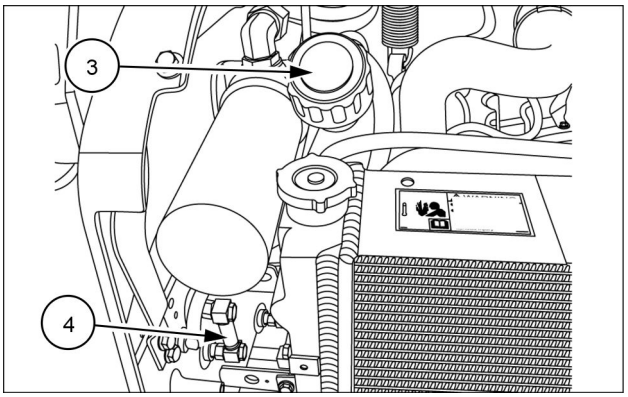

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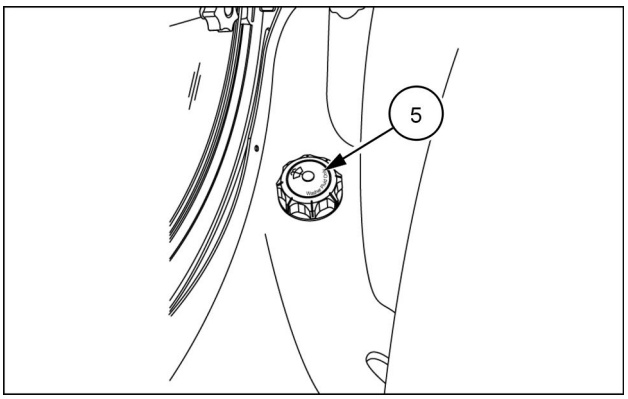
The rear inside cab.

- Windshield washer reservoir **(5)** is inside the cab, right-hand side of the seat between the side window and the seat.



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Tire pressure and wheel hardware torque

⚠ WARNING

Explosion hazard!
Always maintain correct tire pressure as indicated in this manual. DO NOT inflate tires above the recommended pressure. Excessive pressure could result in tire failure.
Failure to comply could result in death or serious injury.

W0109A

⚠ WARNING

Explosion hazard!
Tires must be replaced by skilled personnel with the proper tools and technical knowledge. Unskilled personnel replacing wheels or tires could result in serious physical injuries, tire damage, and/or wheel distortion. Always have a qualified tire mechanic service wheels and tires.
Failure to comply could result in death or serious injury.

W0171A

The skid steer will be hard to turn and the tires will wear faster if the correct pressure is not maintained. When a worn or damaged tire is replaced, the replacement must be the same size and tread design as the other tires on the machine. Two different sized tires on one side of the machine will cause accelerated tire wear, loss of power, and excessive strain on the drivetrain. Replace worn tires in pairs with the two new tires used on the same side of the loader. If this tilts the loader too much, replace all four tires.

Adding air to the tire

NOTICE: *Tire pressure gauges should be checked at regular intervals for calibration and accuracy.*

1. Check the tire pressure.
2. Before you add air, have the wheel correctly installed on the machine or put the wheel in a restraining device (tire inflation cage).
3. Use an air hose with a remote shutoff valve, self-locking air chuck and wear eye protection.
4. Stand BEHIND the tread of the tire and make sure ALL persons are away from the side of the tire before you start to add air.
5. Inflate the tire to the recommended air pressure. DO NOT inflate the tire more than the recommended maximum pressure given on the tire.

TIRE	SIZE	PRESSURE
Heavy Duty	10 x 16.5	**290 - 345 kPa** (**42 - 50 psi**)
	12 x 16.5	
	14 x 17.5	**359 - 414 kPa** (**52 - 60 psi**)
Premium	27/10.5 x 15	**290 - 345 kPa** (**42 - 50 psi**)
	10 x 16.5	
	12 x 16.5	
	14 x 17.5	**359 - 414 kPa** (**52 - 60 psi**)
Premium with liner	10 x 16.5	**290 - 345 kPa** (**42 - 50 psi**)
	12 x 16.5	
Severe Duty	10 x 16.5	**290 - 345 kPa** (**42 - 50 psi**)
	12 x 16.5	
	14 x 17.5	**531 - 586 kPa** (**77 - 85 psi**)
Flotation	31.5 x 13 x 16.5	**179 - 241 kPa** (**26 - 35 psi**)
	33 x 15.5 x 16.5	**290 - 345 kPa** (**42 - 50 psi**)
Mining	12 x 16.5	**290 - 345 kPa** (**42 - 50 psi**)
Non-Pneumatic	12 x 16.5	not required
	14 x 17.5	

Loader arm and bucket hydraulic interlock

⚠ WARNING

Machine damage can cause accidents!
If you discover any problem or defect on the machine, repair it immediately or see your authorized dealer. Do not operate the machine until all problems are corrected.
Failure to comply could result in death or serious injury.

W0159A

The seat switch, restraint bar, loader arm, and bucket interlock prevents the operation of loader arm and bucket function from movement if the operator raises the restraint bar or leaves the seat with the ignition switch on.

Check the interlock operation:

1. Enter the machine, sit in the seat, connect the seat belt, and lower the restraint bar.
2. Start the engine and run at idle speed.
3. Make sure that the loader arm is completely lowered to the ground and the attachment is empty.
4. Push the operate button to activate the hydraulic and ground drive systems.
5. Engage the park brake, push the Park Brake button on the right-hand control lever.
6. Operate the loader arm and bucket controls to ensure they function properly.
7. Raise the restraint bar and attempt to move the loader arm and bucket controls. The operation should be locked.
8. Lower the restraint bar, and push the Operate Button to reactivate the hydraulic functions.
9. Operate the loader arm and bucket controls to ensure they function properly.
10. Lift yourself for **5 s** with no more than **25 mm** (**1 in**) off the seat and attempt to move the loader arm and bucket controls. The operation should be locked.
11. If the controls are not locked properly, contact your dealer for assistance. Do not operate the machine until the fault is resolved.

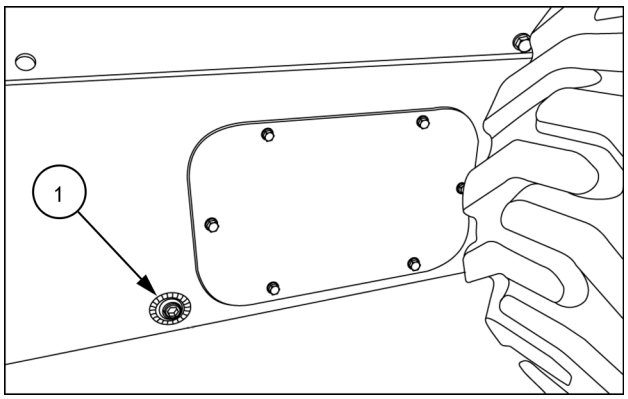
4. Press the POWER button or turn the key switch to the RUN position. Wait approximately a minute to allow the fuel pump to purge any air form the fuel system
5. Start the engine.
6. Inspect the area around the in-line fuel filter for leaks.

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

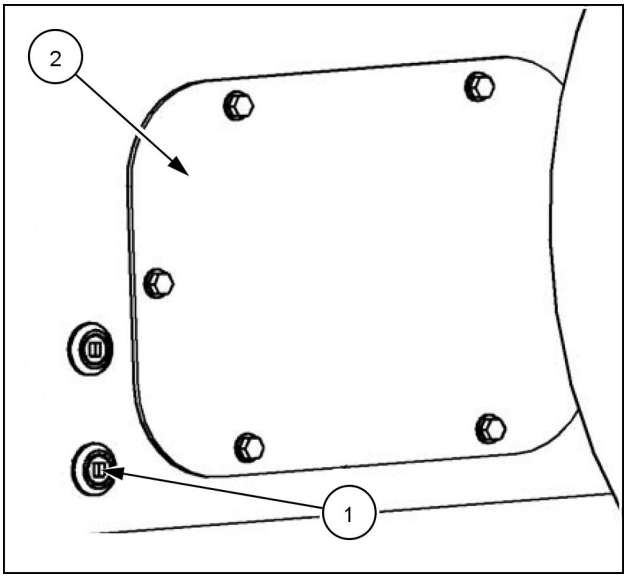
1. Park the machine on firm level surface.
2. Clean the area around the chain tank drain plugs (not shown), located on the bottom of the drive chain tank, near the rear of the drive chain tank, one on each side.
3. Clean the area around the chain tank fill/level plug **(1)**.
4. Place a suitable container 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 restraint bar is in the down position. If OPRPr continues to be displayed contact your dealer for support.

CRKOn – Hydraulic enable error (EH machines only)

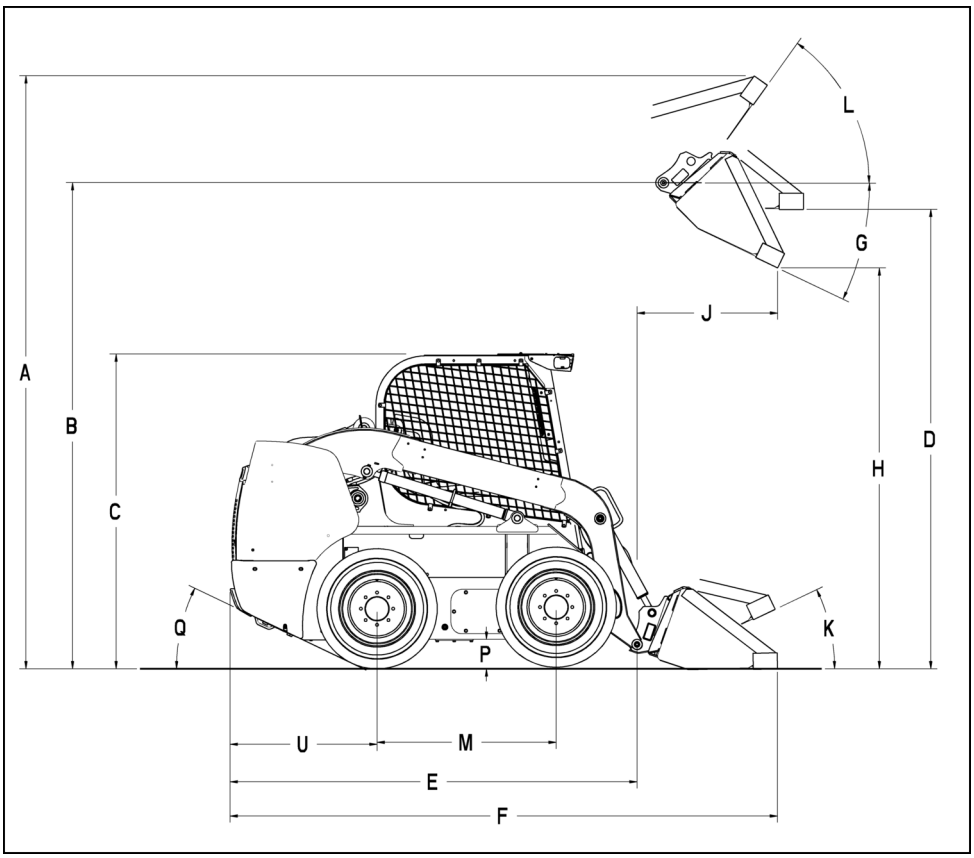
CRKOn appears on the instrument panel. CRKOn indicates the OPERATE button is being pressed while attempting to start the machine. Follow the starting procedure as described in this manual. If CRKOn continues to be displayed contact your dealer for support.

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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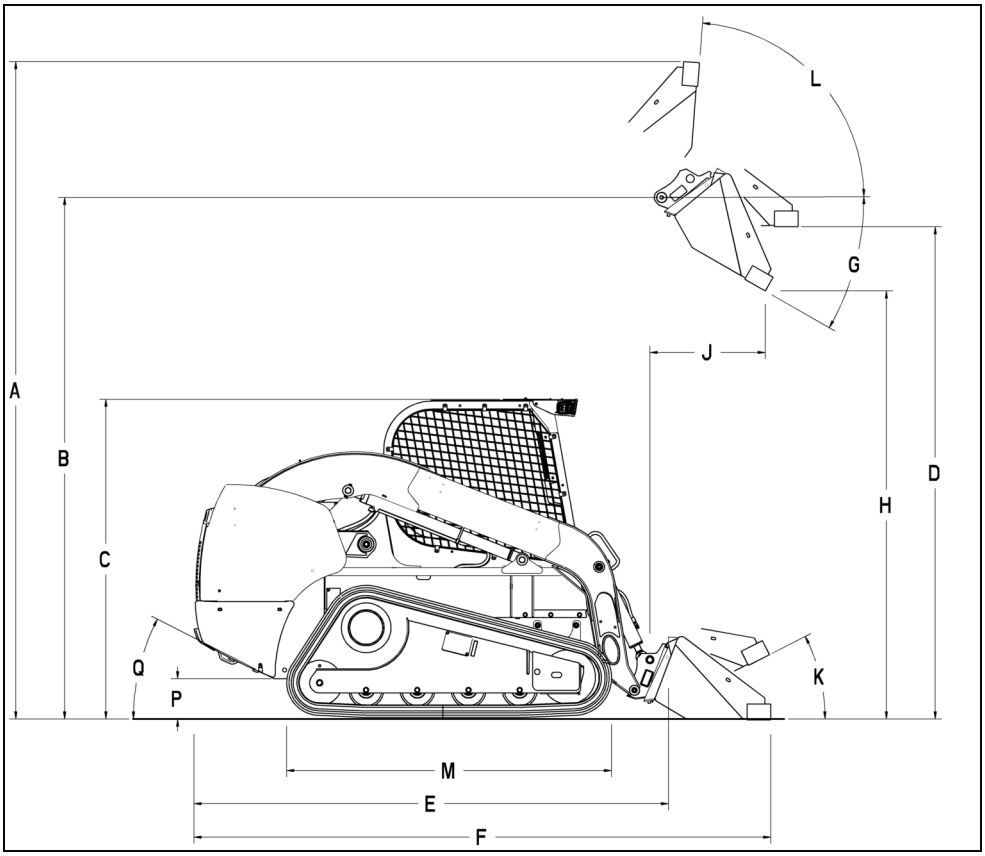
MEDIUM VERTICAL FRAME WHEEL UNIT (SV185)

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)

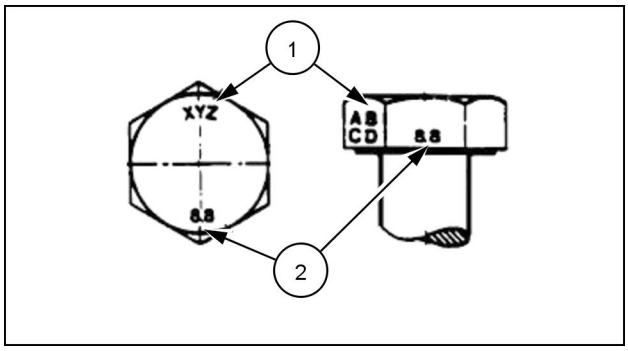
LOCATION	COMPONENT	MEASUREMENT
A	Overall Operating Height (Fully Raised)	**4009 mm** (**157.8 in**)
B	Height to Hinge Pin (Fully Raised)	**3215 mm** (**127 in**)
C	Cab Height	**2043 mm** (**80.4 in**)
D	Highest Level Bucket Height	**3038 mm** (**119.6 in**)
E	Overall Length (No Attachment)	**2981 mm** (**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.*		

METRIC 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	2.4 N·m (21 lb in)	3.2 N·m (28 lb in)	3.5 N·m (31 lb in)	4.6 N·m (41 lb in)	2.2 N·m (19 lb in)	3.1 N·m (27 lb in)
M5	4.9 N·m (43 lb in)	6.5 N·m (58 lb in)	7.0 N·m (62 lb in)	9.4 N·m (83 lb in)	4.4 N·m (39 lb in)	6.4 N·m (57 lb in)
M6	8.3 N·m (73 lb in)	11 N·m (96 lb in)	12 N·m (105 lb in)	16 N·m (141 lb in)	7.5 N·m (66 lb in)	11 N·m (96 lb in)
M8	20 N·m (179 lb in)	27 N·m (240 lb in)	29 N·m (257 lb in)	39 N·m (343 lb in)	18 N·m (163 lb in)	27 N·m (240 lb in)
M10	40 N·m (30 lb ft)	54 N·m (40 lb ft)	57 N·m (42 lb ft)	77 N·m (56 lb ft)	37 N·m (27 lb ft)	53 N·m (39 lb ft)
M12	70 N·m (52 lb ft)	93 N·m (69 lb ft)	100 N·m (74 lb ft)	134 N·m (98 lb ft)	63 N·m (47 lb ft)	91 N·m (67 lb ft)
M16	174 N·m (128 lb ft)	231 N·m (171 lb ft)	248 N·m (183 lb ft)	331 N·m (244 lb ft)	158 N·m (116 lb ft)	226 N·m (167 lb ft)
M20	350 N·m (259 lb ft)	467 N·m (345 lb ft)	484 N·m (357 lb ft)	645 N·m (476 lb ft)	318 N·m (235 lb ft)	440 N·m (325 lb ft)
M24	607 N·m (447 lb ft)	809 N·m (597 lb ft)	838 N·m (618 lb ft)	1118 N·m (824 lb ft)	552 N·m (407 lb ft)	

IDENTIFICATION

Metric Hex head and carriage bolts, classes 5.6 and up



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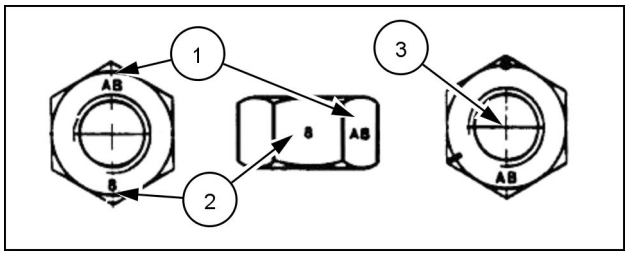
1. Manufacturer's Identification
2. Property Class

Metric Hex nuts and locknuts, classes 05 and up



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1. Manufacturer's Identification