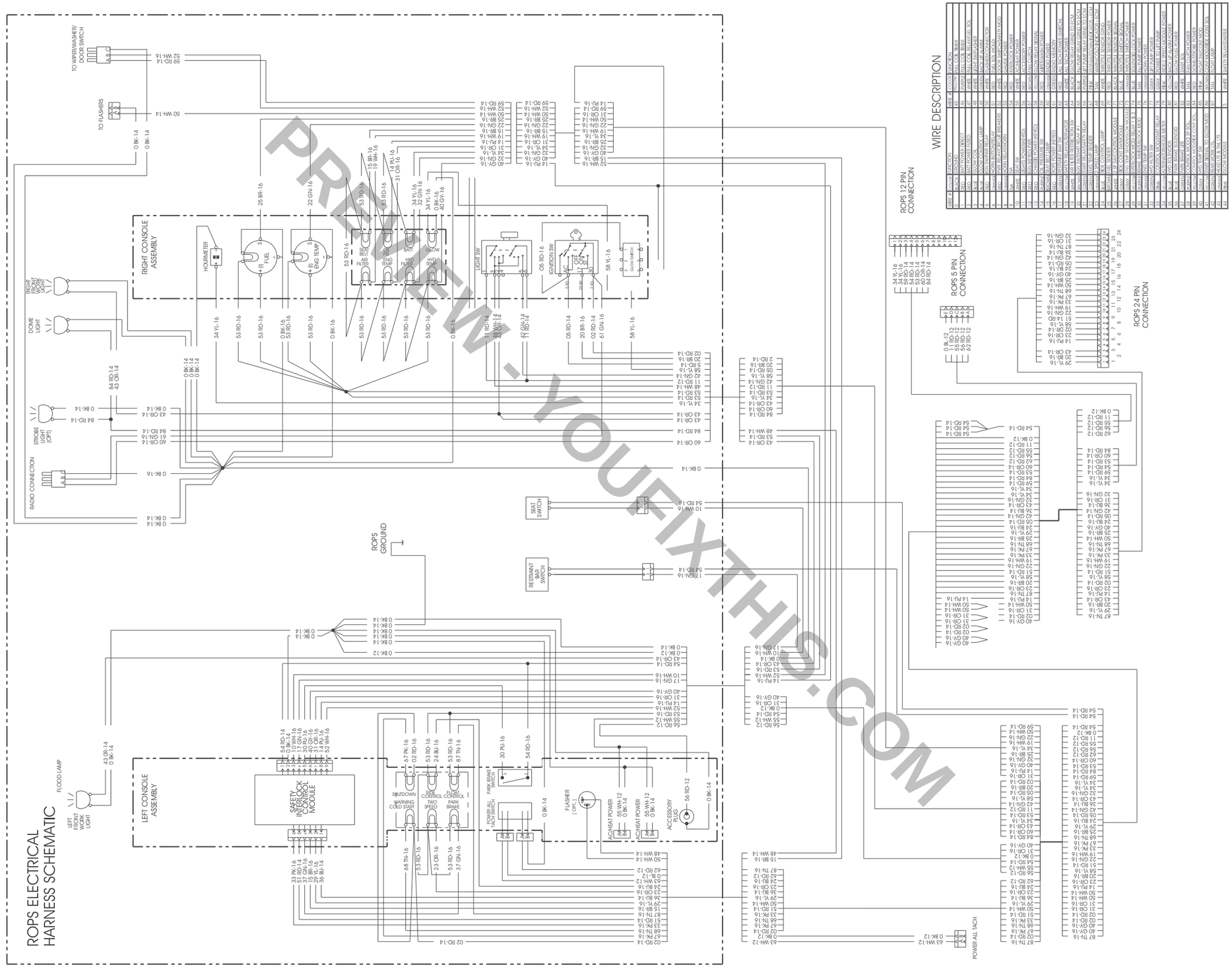
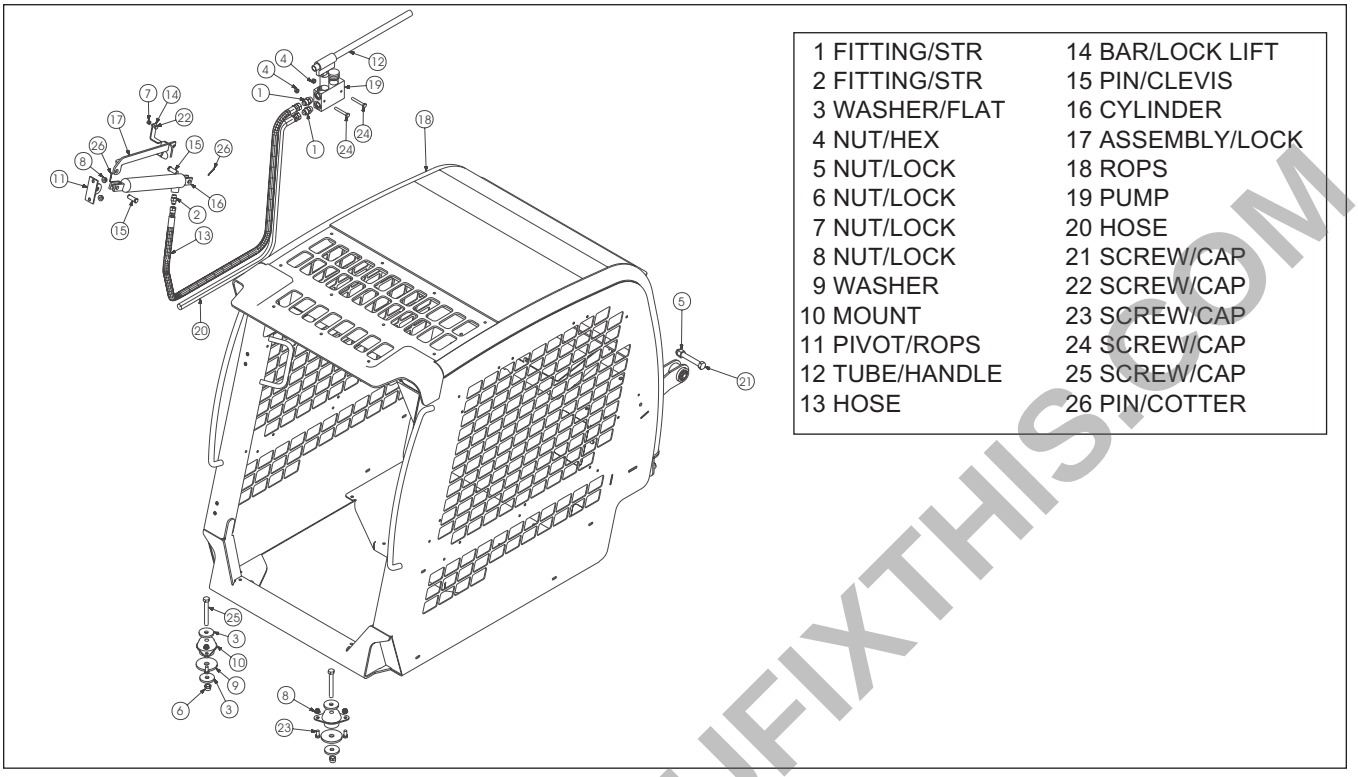
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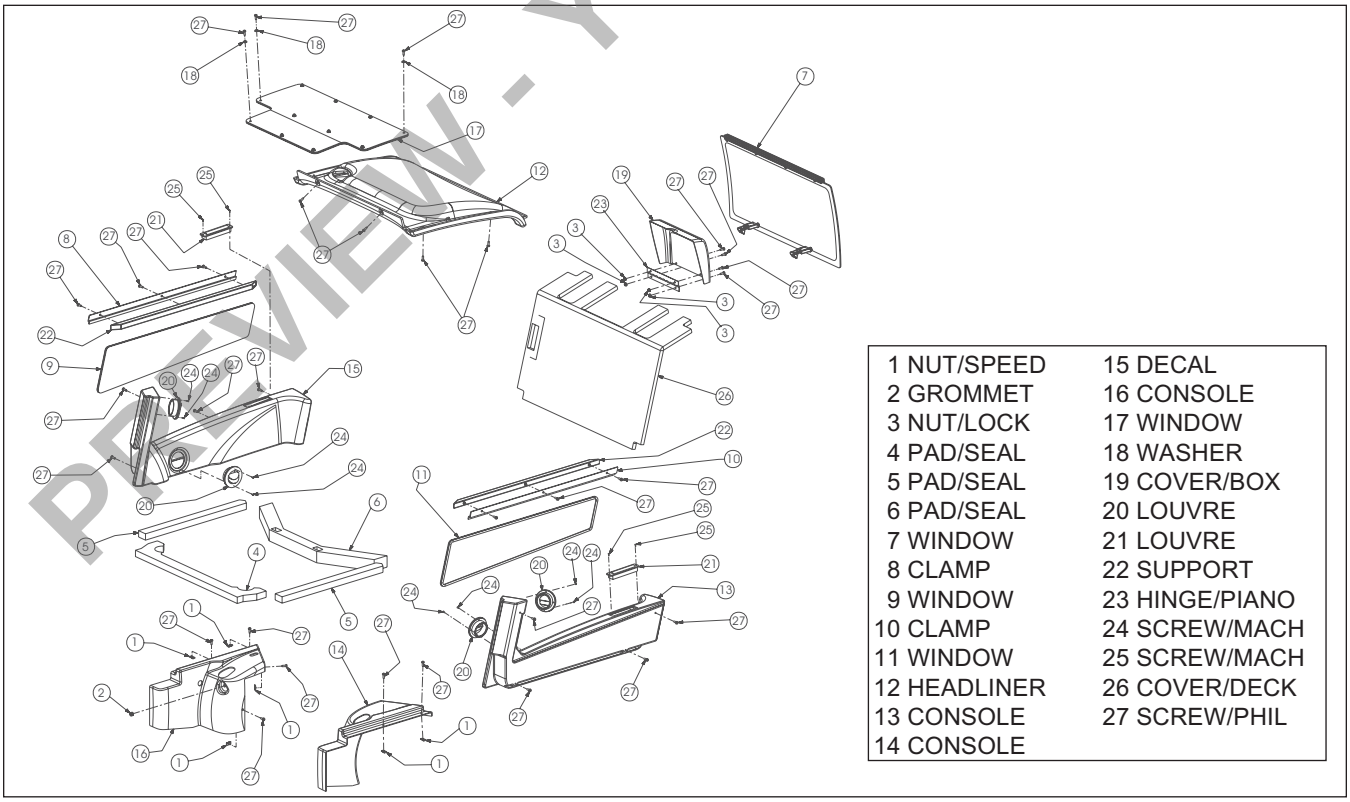
Rollover & Falling Object - Protective Structure (ROPS/FOPS) Components



1 FITTING/STR	14 BAR/LOCK LIFT
2 FITTING/STR	15 PIN/CLEVIS
3 WASHER/FLAT	16 CYLINDER
4 NUT/HEX	17 ASSEMBLY/LOCK
5 NUT/LOCK	18 ROPS
6 NUT/LOCK	19 PUMP
7 NUT/LOCK	20 HOSE
8 NUT/LOCK	21 SCREW/CAP
9 WASHER	22 SCREW/CAP
10 MOUNT	23 SCREW/CAP
11 PIVOT/ROPS	24 SCREW/CAP
12 TUBE/HANDLE	25 SCREW/CAP
13 HOSE	26 PIN/COTTER

Fig. 4-4 Assembly view of ROPS/FOPS components.

Rollover & Falling Object - Protective Structure Interior Components



1 NUT/SPEED	15 DECAL
2 GROMMET	16 CONSOLE
3 NUT/LOCK	17 WINDOW
4 PAD/SEAL	18 WASHER
5 PAD/SEAL	19 COVER/BOX
6 PAD/SEAL	20 LOUVRE
7 WINDOW	21 LOUVRE
8 CLAMP	22 SUPPORT
9 WINDOW	23 HINGE/PIANO
10 CLAMP	24 SCREW/MACH
11 WINDOW	25 SCREW/MACH
12 HEADLINER	26 COVER/DECK
13 CONSOLE	27 SCREW/PHIL
14 CONSOLE	

Fig. 4-5 Assembly view of ROPS/FOPS interior components.

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Drive Chain Adjustment

Skid-steer loader drive chain tension should be checked every 250 hours of operation.

Adjustment Procedure

⚠ WARNING

BEFORE beginning this service procedure, perform the following SAFETY procedures:

- ❑ **Shut off the engine.**
- ❑ **Raise and securely block the loader so all four tires are off the ground.**

(For detailed instructions, refer to the *Safety* chapter in this manual).

1. Remove wheels and tires on side of loader serviced.
2. Remove 18 machine screws on chaincase access cover (between tires) to gain access to drive chain. **Fig. 5-2**
3. Correct chain deflection is ½" @ 20 lbs of force (13 mm @ 89 N) - halfway between the sprockets.
4. To adjust chain tension, loosen eight locknuts on two axles on one side of the loader. Using a spreader bar push axles outward in their slots to tighten chain. **Figs. 5-3, 5-4**
5. After proper chain tension is obtained, retighten locknuts on axle. Axle housing locknuts should be torqued to 280 ft-lbs (380 N•m).
6. Remove spreader bar.

NOTE: The drive chain must have a minimum of ½" (13 mm) deflection, overtightening causes premature drive chain and sprocket wear.

7. Remove front fender cover to expose the chaincase breather vent. Remove vent. **Fig. 5-2**
8. Refill chaincase oil level (SAE motor oil) until oil is up to oil level check plug. Reinstall chaincase access covers using oil-resistant RTV sealant between cover and chaincase.
9. Reinstall tires. Wheel nut torque is: 180 ft-lbs (244 N•m).
10. Repeat adjustment procedure for other side.

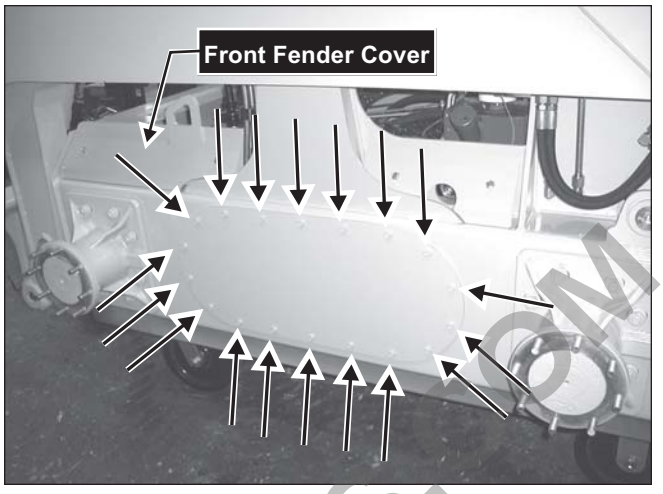


Fig. 5-2 Remove machine screws on the chaincase access cover located between the wheels of the loader (tires removed for clarity).

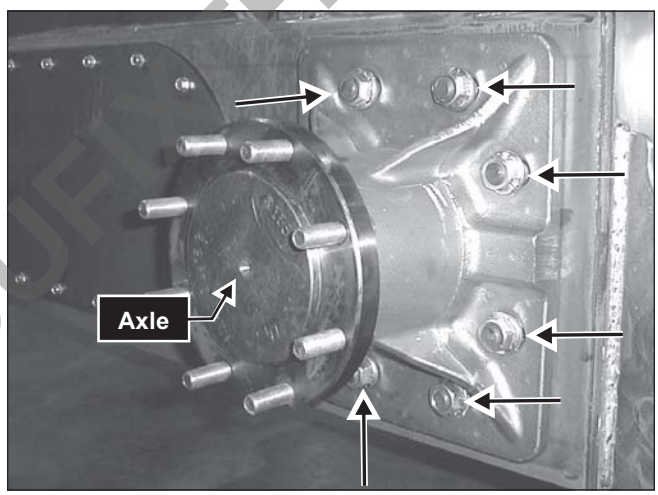


Fig. 5-3 Six of eight (6 of 8) locknuts on the axle to loosen for chain adjustment (tire removed for clarity).

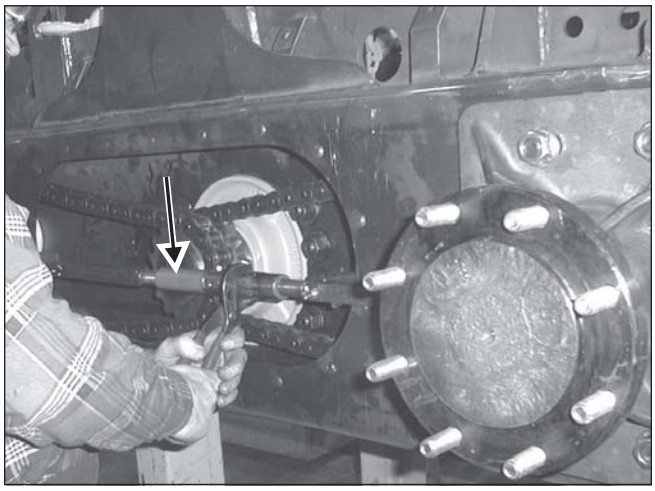


Fig. 5-4 Use a spreader bar to increase the distance between axles.

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Fig. 2-1 The lock pin secures the liftarm support device on the rear link of the liftarm.

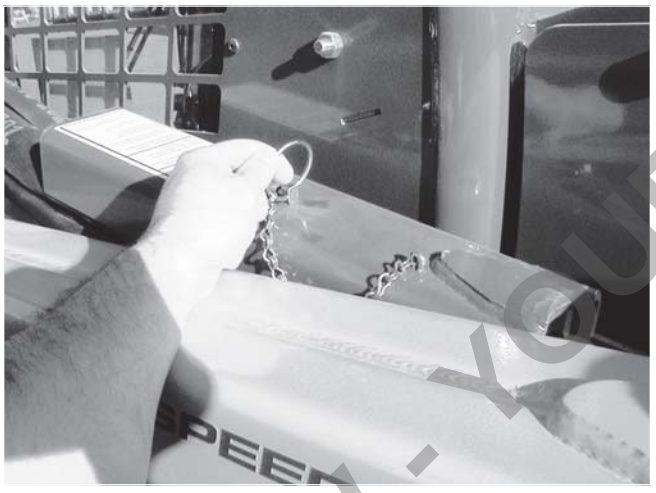


Fig. 2-2 Press in and hold the lock pin button and pull it out of the rear link.

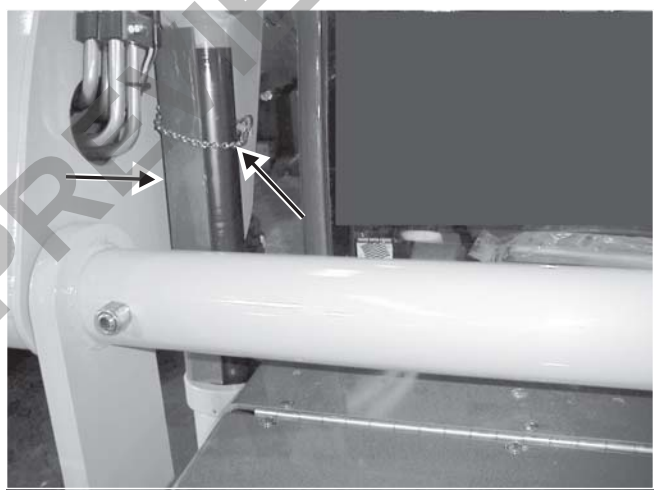


Fig. 2-3 The liftarm support device rests on top of the lift cylinder base on one end. Note the securing latch wraps around lift cylinder rod and secures to support device tab.

Liftarm Support Device

WARNING

BEFORE leaving the operator's compartment to work on the loader with the liftarm raised, ALWAYS engage the liftarm support device. Turn the keyswitch to OFF, remove the key and take it with you.

Many service procedures require a raised liftarm to allow easier access to loader components. For operator and service personnel safety, a liftarm support device is standard on Gehl skid-steer loaders. Used as a cylinder block, it helps prevent a raised liftarm from unexpectedly lowering.

BE SURE to engage liftarm support device whenever the liftarm is raised. When the device is not being used, secure it to left side of the timing link using the lock pin and cradle provided.

The liftarm support device is a safety device which must be kept in proper operating condition at ALL times.

The following procedures outline the correct way to engage and disengage the liftarm support device.

Liftarm Support Device Engagement

1. Lower liftarm until contact with loader frame.
2. Turn the keyswitch to the OFF position to stop the engine.
3. Leave operator's compartment. Press in and hold lock pin button to release its locking mechanism. Remove lock pin holding support device against liftarm hoses. Remove support device. **Figs. 2-1, 2-2**
4. Return to operator's compartment and restart engine. Use lift control to completely raise liftarm. Turn keyswitch to the OFF position to stop engine.
5. Leave operator's compartment. Vertically install support device around lift cylinder rod with u-shaped end up and out. Secure support device to lift cylinder rod with attached lock pin. **Fig. 2-3**
6. Return to operator's compartment and restart engine. Lower liftarm against support device. Then, stop the loader engine, remove the key and leave the operator's compartment.

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Interlock Control Module Test

The following procedure can be used to test interlock control module inside the left instrument panel.

⚠ WARNING

BEFORE beginning this service procedure, perform the following SAFETY procedure:

❑ **Shut off the engine.**

(For detailed instructions, refer to the *Safety* chapter in this manual).

1. Remove four Phillips-head screws securing left instrument panel to ROPS. It should be possible to expose wiring and interlock control module without disconnecting any wires from panel.
2. Most module troubleshooting can be done by observing green diagnostic LED indicators.
   - Disconnect 12-pin and 6-pin connectors and inspect terminals. Be sure no pins are bent on module and no sockets are damaged on harness. Replace damaged components and reconnect harness to control module.
3. Refer to truth table (**Fig. 9-15**) to analyze functionality of module. The module controls operation of components listed in OUTPUTS section of truth table. The ON or OFF state of various outputs is determined by ON or OFF state of various input conditions listed in INPUTS section of truth table. The keyswitch must be in ON position.
   - **Example 1** (initial keyswitch ON): At initial keyswitch ON, input LED "12 VDC In" should light, output LED "Fuel Solenoid" should light, and internal seat belt alarm should sound for five seconds.
   - **Example 2** (low engine oil pressure condition): At initial keyswitch ON, allow seat belt alarm condition to time out. Input LED "12 VDC In" and "Oil Pressure Switch" should be lit. In output section, internal "Engine Shut Down Alarm" will sound intermittently and output LED "Fuel Solenoid" will shut OFF after 30 seconds.
4. The truth table section "Diagnostic LED States" specifies active (ON) state of each input and output.
   - **Example:** Active (ON) state of engine oil pressure switch input (connector #1, pin #8) is a low or grounded input. Active state of seat switch input (connector #1, pin #3) is a high or 12 VDC input.

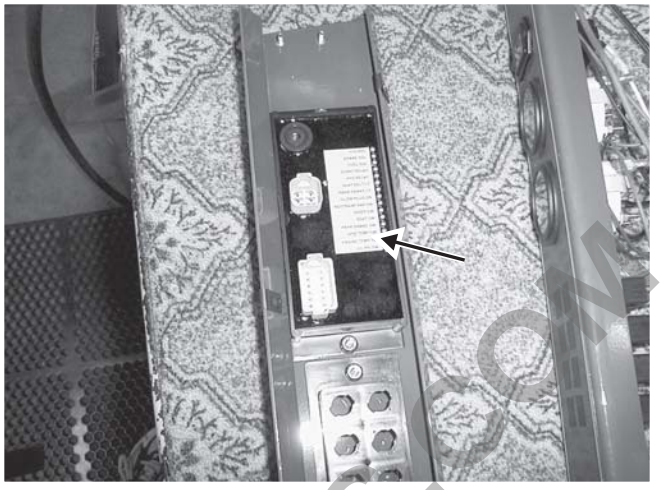


Fig. 9-15 Location of the interlock control module in the left instrument control panel.

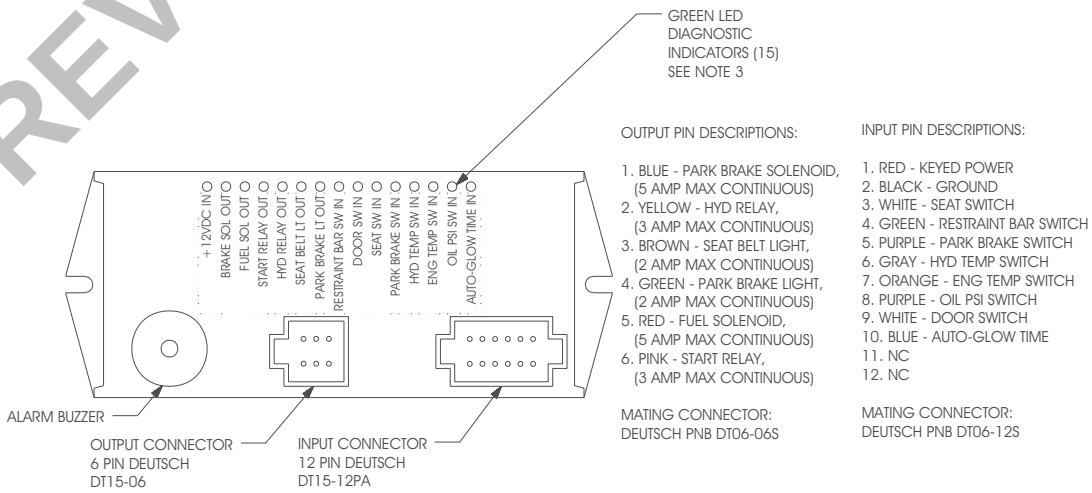


Fig. 9-16 Illustration of the interlock control module.

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Troubleshooting Guide

The following troubleshooting guide lists potential hydrostatic system problems, as well as possible causes and remedies, for Gehl 7010 Series skid-steer loaders.

When a problem occurs, don't overlook simple causes. A malfunction can be caused by something as simple as low oil level. After a mechanical failure has been corrected, be sure to locate and correct the cause of the problem.

IMPORTANT

DO NOT attempt to service or repair major hydrostatic system components, such as the hydrostatic pumps or drive motors, unless authorized to do so by your Gehl dealer. Any unauthorized repair will void the warranty.

Problem	Possible Cause	Remedy
No response from the hydrostatic drive or the lift/tilt systems.	Hydraulic oil viscosity is too high.	Allow longer warm-up or replace oil with the proper viscosity oil.
	Restraint bar is in its UP position.	Lower the restraint bar.
	Hydraulic oil supply is too low.	Check for low oil level in reservoir. Add oil as needed.
	Hydrostatic pump drive is disconnected. Drive coupling failure.	Check for broken or worn pump Drive Coupling and replace, as needed.
Traction drive will not operate in either direction.	Parking brake is engaged.	Disengage parking brake.
	Hydraulic oil supply too low.	Check for low oil level in reservoir. Add oil if necessary.
	Control rod linkage disconnected.	Check linkage connection at control levers and neutral centering mechanisms. Reconnect linkage.
	Broken charge line, low or no charge pressure.	See hydrostatic pump manual.
	Hydrostatic pump relief valves are malfunctioning.	Inspect and clean the relief valves. Replace them as needed.
Drive wheels do not turn in proper direction for T-Bar movement.	High pressure hydraulic hoses between hydrostatic pump and drive motors are connected wrong.	Reconnect hoses to proper ports on the drive motors. Refer to schematic and figures in hydrostatic chapter.

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SPECIFICATIONS

	7610/7710	7810
Make of Engine	Perkins	Perkins (Turbo)
Model	1104C-44	1104C-E44T
Fuel	Diesel	Diesel
Displacement	269 CID (4,41 L)	269 CID (4,41 L)
Horsepower - Net	86 hp (64 kW) @ 2400 rpm	115 hp (86 kW) @ 2400 rpm
Peak Torque	223 lbf-ft (302 N•m) @ 1400 rpm	291 lbf-ft (394 N•m) @ 1400 rpm
*SAE Rated Operating Load	3400 lbs (1542 kg)	3675 lbs (1724 kg)
Operating Weight	10180 lbs (4618 kg)	10260 lbs (4654 kg)
Shipping Weight	8980 lbs (4073 kg)	9060 lbs (4110 kg)

Specifications below apply to all 7610, 7710 and 7810 models	
Capacities	
Hydraulic Reservoir	18.5 US gal (70 L)
Chaincases (each)	3 US gal (11,4 L)
Engine Oil	8.9 US qts (8,4 L)
Fuel Tank	28.9 US gal (109,4 L)
Electrical	
Battery	12 volt DC with 950 CCA
Starter	12 volt DC (3 kW)
Alternator	85 A
Hydraulic System	
Hydraulic System Pressure	3300 psi (228 bar)
Standard Auxiliary Flow Rate (Single)	2-29 gpm (8-110 L/min)
High-Flow Auxiliary Flow Rate (Dual)	40 gpm (151 L/min)
Travel Speed - Single Speed	0 to 8.0 mph (0 to 13 km/h)
Travel Speed - Two-Speed (optional on 7610/7710)	0 to 14 mph (0 to 22,5 km/h)

Tire Options	
14 x 17.5 - 14 ply	Foam-Filled tires
14 x 17.5 - 14 ply	High Clearance Flotation tires
14 x 17.5 - 14 ply	Severe Duty tires
15 x 17.5 - 14 ply	Foam-Filled tires - Severe Duty
33 x 15.5 x 16.5 - 12 ply	Extra Wide Heavy Duty tires
12 x 35	Solid Rubber tires

Buckets and Capacities			
Width - inches (millimeters)	**Bucket Description**	**Capacity (Heaped)**	
84 inches (2083 mm)	Dirt/Construction	22.0 cubic feet	0,62 cubic meters
84 inches (2083 mm)	Dirt/Construction	28.0 cubic feet	0,79 cubic meters
90 inches (2286 mm)	Dirt/Construction	29.3 cubic feet	0,83 cubic meters
48 inches (1219 mm)	Pallet Fork	N/A	N/A

*Operating load rated with a 84 inch (2134 mm) dirt/construction bucket in accordance with SAE J818.

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Self-Leveling Valve Adjustment

Adjustment Procedure

1. Raise and lower liftarm several times to insure there is no air in the hydraulic system.
2. Lower liftarm completely then fully retract tilt cylinders (roll back).
3. Raise liftarm to its maximum height, then lower it to the ground.
4. Measure how far tilt cylinder rod extends from tilt cylinder. distance should be between 8 and 8-1/4" (203-210 mm). If measurement is outside this range, self-leveling valve needs to be adjusted according to the following steps of this procedure. **Fig. 8-57**

WARNING

BEFORE continuing this service procedure, perform the following SAFETY procedures:

- ❑ **Raise liftarm, engage liftarm support device.**
- ❑ **Shut off the engine.**
- ❑ **Roll ROPS back until lock engages.**

(For detailed instructions, refer to the *Safety* chapter in this manual).

WARNING

Surfaces inside the engine compartment may be extremely hot, particularly the engine muffler and exhaust pipes. Serious injury may occur from touching components, which have become hot while the engine was running.

5. The self-leveling valve is located in front of hydraulic oil fill tube on inside of timing link tower.
6. Remove adjustment cap and loosen adjuster screw locknut on self-leveling valve. **Fig. 8-58**
7. Insert an Allen wrench into adjuster screw on self-leveling valve and adjust valve. Turn screw IN (clockwise) to shorten cylinder extension. Turn screw OUT (counterclockwise) to lengthen cylinder extension. **Fig. 8-59**

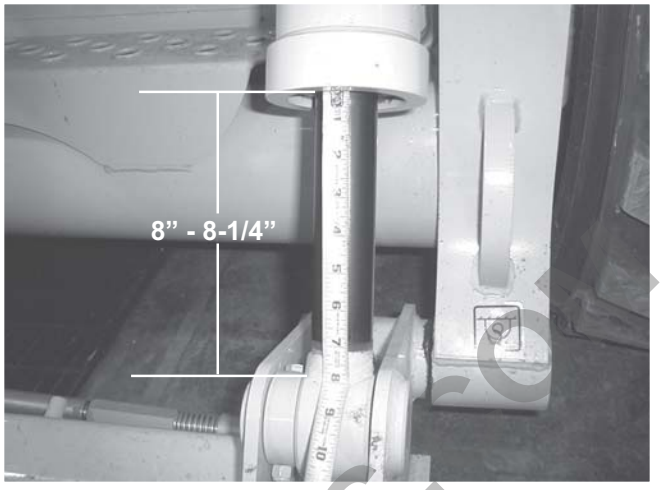


Fig. 8-57 Tilt cylinder rod extension should be between 8" and 8-1/4" (203 mm - 201 mm) in length.



Fig. 8-58 Location of adjustment locknut on the self-leveling valve.

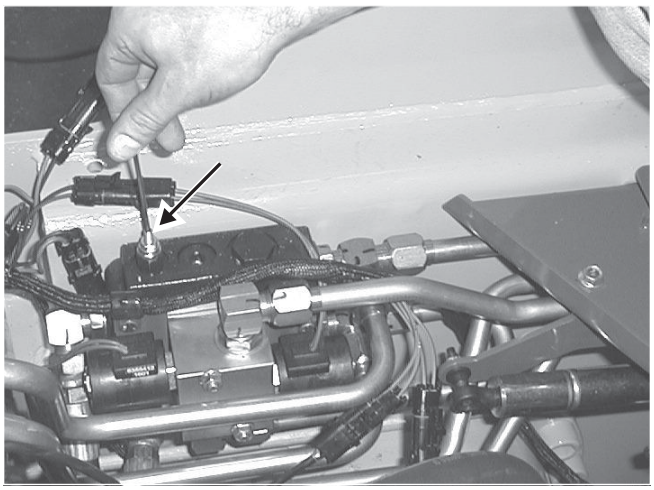


Fig. 8-59 Use an Allen wrench on the self-leveling adjuster screw.

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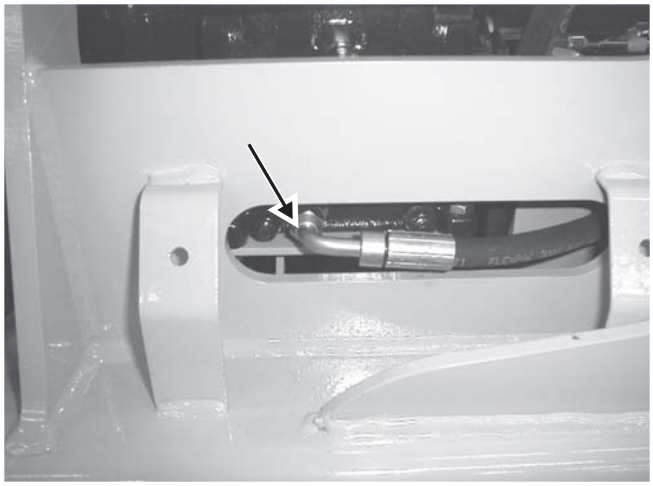


Fig. 8-6 Location of where to "tee" into system on the main control valve. Right rear fender cover has been removed.

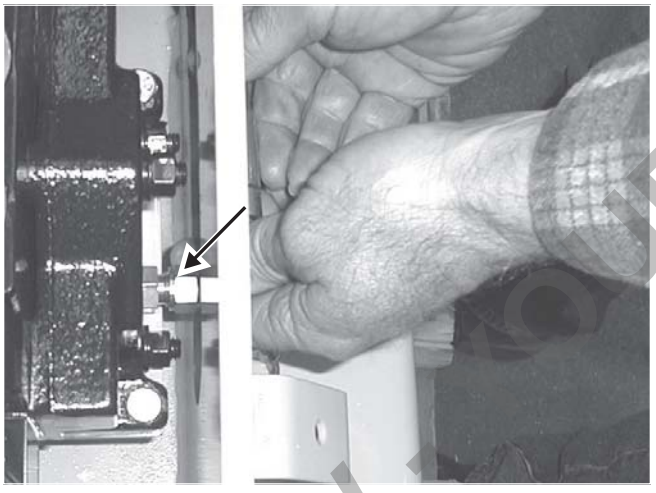


Fig. 8-7 Insert tee fitting into control valve and connect line and pressure gauge on opposite ends of tee fitting.

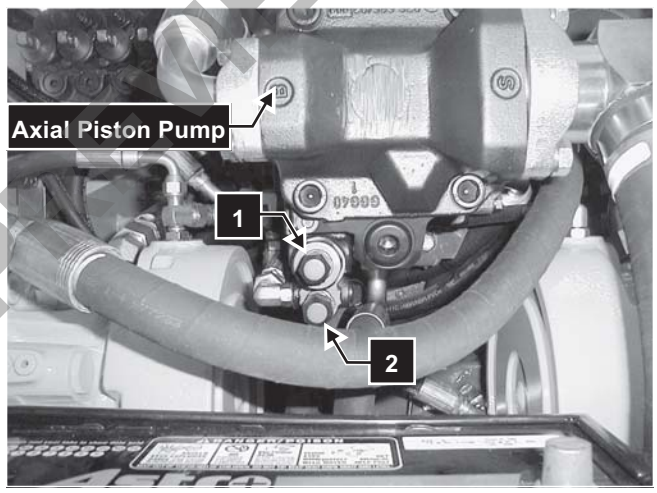


Fig. 8-8 Location of system high and low pressure compensator adjustment screws at front and bottom of the axial piston pump, (1) system pressure, (2) load-sense standby pressure.

Pressure Tests, System and Load-Sense Standby

The control valve, located inside right of the chassis, controls liftarm lift and tilt functions, standard and high flow auxiliary hydraulics. There are two adjustable pressure compensators on the bottom of the axial piston load-sensing pump. One is used to set maximum system pressure, the other, to set load-sense standby pressure.

System Pressure Test Procedure

WARNING

BEFORE beginning this service procedure, perform the following SAFETY procedures:

- ❑ **Raise liftarm, engage liftarm support device.**
- ❑ **Shut off the engine.**
- ❑ **Relieve hydraulic system pressure.**
- ❑ **Roll ROPS back until lock engages.**

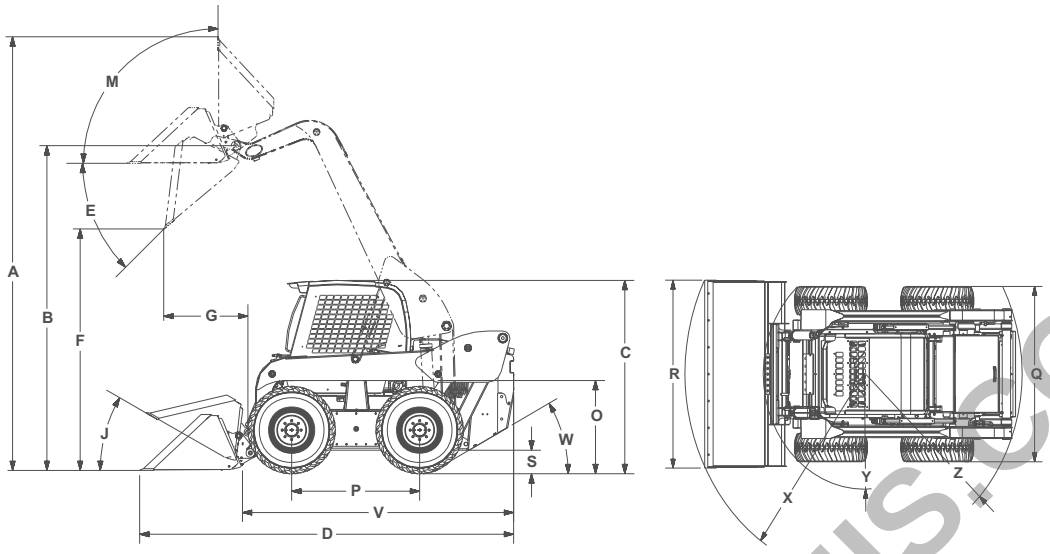
(For detailed instructions, refer to the *Safety* chapter of this manual).

NOTE: To prevent contamination, ALWAYS clean the area around the hydraulic fittings before disconnecting any hydraulic plug, hose or tube.

1. **What you'll need:** an assistant, and a minimum 5000 PSI (345 bar) pressure gauge, tee fitting and Allen Wrench.
2. On right fender, remove two capscrews securing access cover to chassis at right of control valve.
3. Remove hose from fitting at side of inlet section of control valve and insert tee fitting. **Figs. 8-6, 8-7**
4. Attach hose just removed and pressure gauge to tee fitting.
5. Lower ROPS, climb into operator's seat, lower restraint bar, and start engine. For the test, engine should be running at HIGH idle. Have assistant read pressure gauge.
6. Using tilt control handle, roll bucket all the way back. Hold tilt control handle in this position.
7. Have assistant observe system pressure reading on gauge. Pressure reading should be at least 3250 PSI (224 bar), but NOT more than 3350 PSI (231 bar).

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Dimensional Specifications		7610 Models 0.81 cu. yd. bkt. w/ 14 x 17.5 tires		7810 Models 1.0 cu. yd. bkt. w/ 14 x 17.5 tires	
		inches	millimeters	inches	millimeters
A	Overall operation height - fully raised	185.5	4719	187.8	4770
B	Height to hinge pin - fully raised	142	3607	142	3607
C	Overall height - top of ROPS	81	2057	81.1	2060
D	Overall length - bucket down	159	4039	161	4089
E	Dump angle @ full height	38°		38°	
F	Dump height	109.5	2781	107	2718
G	Dump reach - bucket (full height)	36.8	935	38.2	970
J	Rollback at ground	28.5°		28.5°	
M	Rollback angle at full height	85°		85°	
O	Seat-to-ground height	41	1041	41	1041
P	Wheelbase - nominal	55	1397	55	1397
Q	Overall width - less bucket	81	2057	81	2057
R	Overall bucket width	84	2134	84	2134
S	Ground clearance to chassis (between wheels)	9.1	231	9.1	231
U	Maximum back grading angle	81.5°		81.5°	
V	Departure angle	21°		21°	
W	Clearance circle - front (with bucket)	98.5	2502	101.7	2583
X	Clearance circle - front (less bucket)	60.6	1539	60.6	1539
Y	Overall length (less bucket)	30°		30°	
Z	Clearance circle - rear	80.5	2045	80.5	2045

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Introduction

This chapter covers removal, installation, assembly, and adjustment procedures for standard and optional control equipment on Gehl 7010 Series skid-steer loaders.

Equipment Identification

Because there are a variety of options available for 7010 Series, it is IMPORTANT to properly identify equipment BEFORE beginning service procedures. Illustrations and photographs are provided with procedures to aid in servicing this equipment.

Hand/Foot Controls

On loaders with "Hand/Foot controls," left and right drive control handles operate independently of each other. Pushed forward together moves the loader forward, but push either one further forward than the other and the loader turns. Separate foot pedals control lift and tilt functions of liftarm and bucket. Engine speed is controlled with hand throttle lever located right of operator's seat. A lock pin is located on right control handle and controls auxiliary hydraulics. A flow control knob below handle manually adjusts hydraulic flow. On high flow models, a lever on crossmember activates high flow hydraulics and a panel light.

T-Bar Controls

On loaders with "T-Bar controls," the left T-Bar controls forward and reverse directions of hydrostatic drive motors (traction control) and pumps for both sides of loader. The right T-Bar controls lift and tilt functions of liftarm and bucket. For control of engine speed, foot and hand throttles are standard. A pivoting foot pedal control is standard on floor for control of standard flow auxiliary hydraulics. A flow control knob below right control handle manually adjusts hydraulic flow. On high flow models, a lever on crossmember activates high flow auxiliary hydraulics and a panel light.

Dual Hand Controls

On loaders with "Dual Hand controls," left and right drive control handles with pivoting grips operate independently of each other. Pushed forward together moves loader forward, but push either one further forward than the other and the loader turns. The left control handle also operates lift functions of liftarm. The right control handle also operates tilt functions of bucket. Engine speed is controlled by hand and/or foot throttles. Standard flow auxiliary hydraulics is controlled by a foot pedal. A flow control knob below right control handle manually adjusts hydraulic flow. On high flow models, a lever on crossmember activates high flow auxiliary hydraulics and a panel light.

Two-Speed Control

Two-speed loaders have a high and low speed option. The two-speed option is controlled by a button switch in left control handle and lights a panel light. More information may be found in the *Electrical* chapter of this manual.

Hydraglide™ Ride Control

The Hydraglide™ Ride Control option on loaders is controlled by a button switch in right control handle and lights a panel light. More information may be found in the *Hydraulics* chapter of this manual.

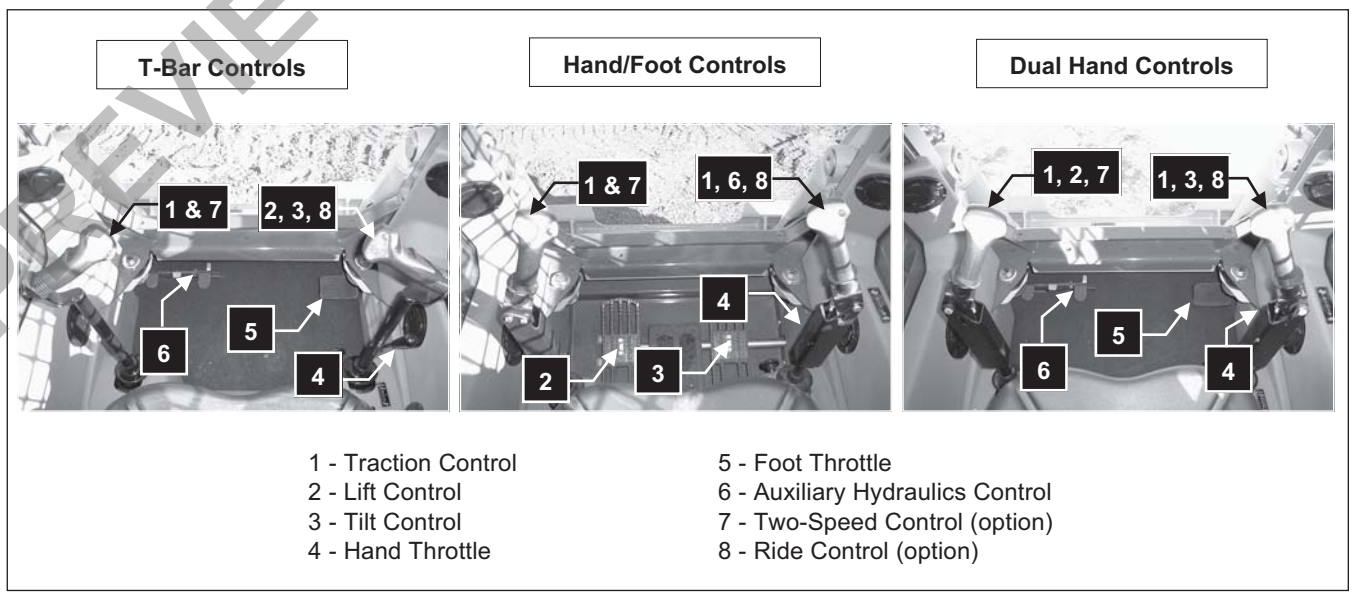


Fig. 6-1 Control locations on T-Bar, Hand/Foot and Dual Hand controls.

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General Information

The above safety alert symbol means: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! It stresses an attitude of "Heads Up for Safety" and can be found throughout this service manual and on the decals on the machine.

Before operating or working on this machine, read and study the following safety information. In addition, be sure that every individual who operates or works with this equipment is familiar with these safety precautions. It is essential to have competent and careful operators, who are not physically or mentally impaired, and who are thoroughly trained in the safe operation of the machine and the handling of loads. It is recommended that the operator be capable of obtaining a valid motor vehicle operator's license.

The use of skid steer loaders is subject to certain hazards that cannot be eliminated by mechanical means, but only by exercising intelligence, care and common sense. Such hazards include, but are not limited to, hillside operation, overloading, instability of the load, poor maintenance and using the equipment for a purpose for which it is not intended or designed.

The Gehl Company ALWAYS considers the operator's safety when designing its machinery and guards exposed moving parts for the operator's protection. However, some areas cannot be guarded or shielded in order to assure proper operation. Furthermore, the Operator's Manual and the decals on the machine warn of additional hazards and should be read and observed closely.

This section of the manual includes procedures, which when followed, will allow safe performance of service procedures: Mandatory Safety Shutdown Procedure, Lift Cylinder Liftarm Support Device, Roll Over Protective Structure (ROPS)/Falling Object Protective Structure (FOPS) Lock Mechanism, Loader Raising and Lowering Procedures, and Relieving Hydraulic Pressure.

Signal Words

DANGER

"DANGER" indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

"WARNING" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

"CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. May also alert against unsafe practices.

Additional Safety Reminders



Read and understand the Service Manual and all decals before maintaining, adjusting or servicing this equipment.

Doors, Guards and Shields - Some photographs in this manual may show doors, guards and shields open or removed for illustrative purposes only. BE SURE all doors, guards and shields are in their proper operating positions BEFORE starting engine to operate unit.

Damaged or Worn-out Parts - For safe operation, replace damaged or worn-out parts with genuine Gehl service parts, BEFORE operating this equipment.

Attachments - Gehl loaders are designed and intended to be used only with Gehl Company attachments or approved referral attachments. The Gehl Company cannot be responsible for operator safety if the loader is used with a non-approved attachment.

Battery Safety - To avoid injury from a spark or short circuit, disconnect the negative battery cable (-) before servicing any part of the electrical system. Do not tip the battery more than 45º to avoid spilling electrolyte.



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