GEHL®

SL7810E

Form No.
917228

Revision A
06/06

Skid-Steer Loaders

SERVICE MANUAL



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SPECIFICATIONS

	SL7810E
Make of Engine	Cummins (Turbo)
Model	4B4.5T
Fuel	Diesel
Displacement	275 CID (4,5 L)
Horsepower - Net	99 hp (73,8 kW) @ 2200 rpm
Peak Torque	305 lbf-ft (414 N•m) @ 1500 rpm
*SAE Rated Operating Load	3850 lbs (1746 kg)
Operating Weight	10520 lbs (4772 kg)
Shipping Weight	9297 lbs (4217 kg)

SL7810E models	
Capacities	
Hydraulic Reservoir	15 US gal (56,8 L)
Chaincases (each)	11.5 US qts (10,9 L)
Engine Oil	11 US qts (10,4 L)
Fuel Tank	30.5 US gal (115,4 L)
Electrical	
Battery	12-volt DC, 950 CCA
Starter	12-volt DC (4,8 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)	41 gpm (155,2 L/min)
Travel Speed - Single-Speed	0 to 7.5 mph (0 to 12 km/h)
Travel Speed - Two-Speed	0 to 12.5 mph (0 to 20,1 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 (2134 mm)	Dirt/Construction	22.0 cubic feet	0,62 cubic meters
84 inches (2134 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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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 one who operates or works on 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 Lift Arm 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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Fig. 2-1 The lock pin secures the lift arm support device underneath the lift arm.



Fig. 2-2 Pull on the lock pin ring to release the locking mechanism and then pull it off the welded tab to release the lift arm support device.

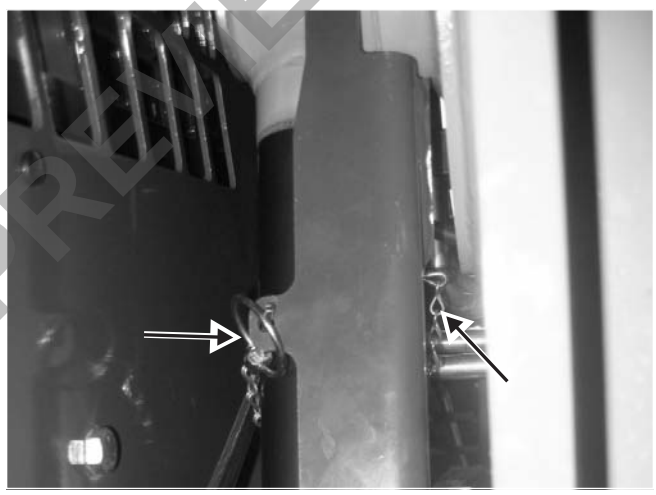


Fig. 2-3 The lift arm support device rests on top of the lift cylinder base on one end. Note the securing latch wraps around lift cylinder rod and secures to support device tab.

Lift Arm Support Device

WARNING

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

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

BE SURE to engage lift arm support device whenever the lift arm is raised. When the device is not being used, secure it to left lift arm using the lock pin provided.

The lift arm 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 lift arm support device.

Lift Arm Support Device Engagement

1. Lower lift arm until contact with loader frame.
2. Turn the keyswitch to the OFF position to stop the engine.
3. Leave operator's compartment. Underneath, at the rear left lift arm, pull on the lock pin ring to release its locking mechanism. Remove lock pin holding the support device to its welded tab and remove the support device. **Figs. 2-1, 2-2**
4. Return to operator's compartment and restart engine. Use lift control to completely raise lift arm. 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 lift arm against support device. Then, stop the loader engine, remove the key and leave the operator's compartment.

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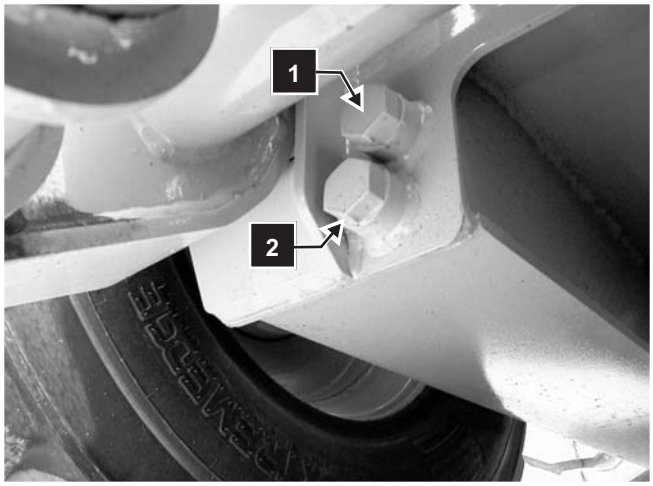


Fig. 3-7 Location of chaincase check plug (1) and drain plug (2) at lower right front of chaincase. Left side same.



Fig. 3-8 Location of the left chaincase oil fill plug. This fill location also serves as a breather vent. Fender cover has been removed. Right side same.



Fig. 3-9 Grease fitting locations.

Chaincases

Each chaincase requires 11.5 quarts (10,9 L) of motor oil. This quantity of oil should be maintained at all times. The oil in both chaincases should be drained and refilled every 500 hours of operation or annually, whichever occurs first.

Change Chaincase Oil

1. Remove drain plug on chaincase and drain the oil. **Fig. 3-7**
2. Reinstall the drain plug.
3. Remove both oil fill and oil level check plugs. **Figs. 3-7, 3-8**
4. Add oil through the fill plug until the oil starts to flow out of the check plug. **Figs. 3-7, 3-8**
5. Reinstall the check plug, then the fill plug.

Grease Fitting Locations

Use lithium-based grease on all grease fittings. **Figs. 3-9, 3-10**

Grease every 10 hours of operation (or daily)

1. Grease lift arm pivots
2. Grease tilt cylinder pivots
3. Grease All-Tach™ attachment pivots

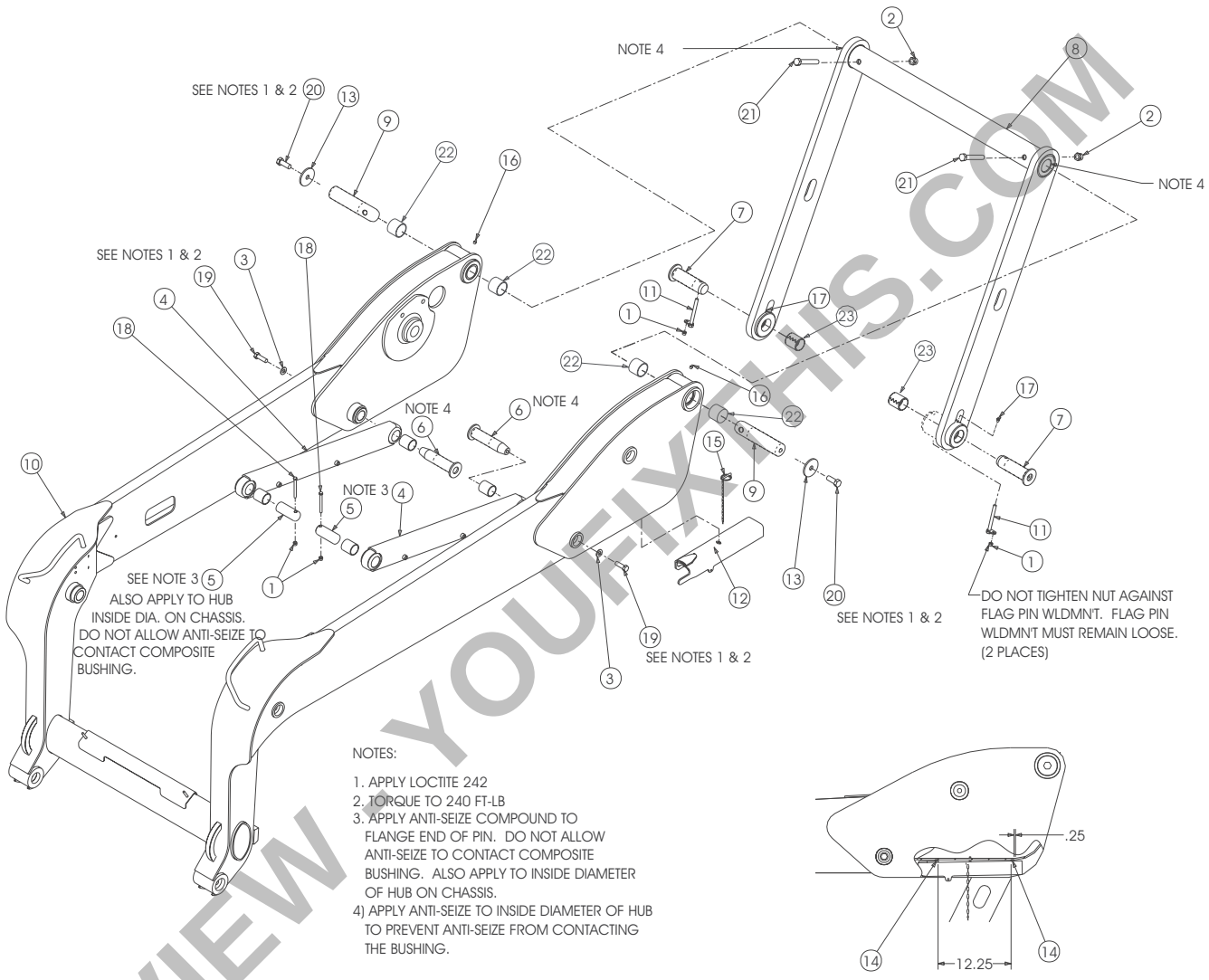


Fig. 3-10 Grease fitting locations.

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Lift Arm



1 NUT/HEX	13 WASHER/THRUST
2 NUT/HEX	14 PAD
3 WASHER/FLAT	15 LYNCH/PIN WITH CHAIN
4 LINK/TIMING	16 FITTING/GREASE
5 PIN/PIVOT	17 FITTING/GREASE
6 PIN/TIMING LINK	18 SCREW/CAP
7 PIN/LOWER REAR LINK	19 SCREW/CAP
8 LINK/REAR TIMING	20 SCREW/CAP
9 PIN/REAR ARM PIVOT	21 SCREW/CAP
10 LIFT ARM	22 BUSHING/COMPOSITE
11 PIN/FLAG	23 BUSHING/SPRING
12 ASSEMBLY/SUPPORT	

Fig. 4-36 Exploded view of the lift arm components.

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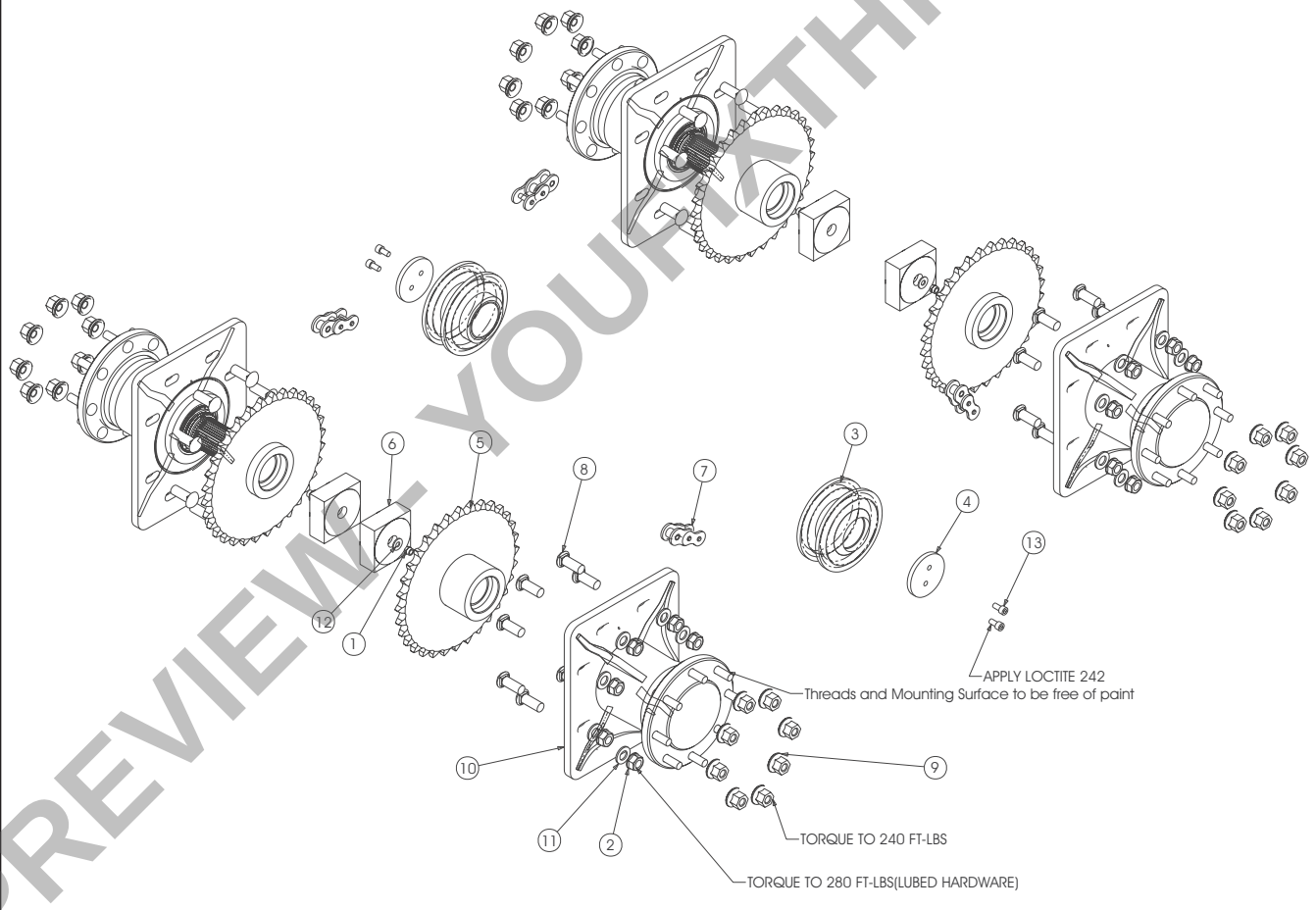
Introduction

This chapter covers removal, installation, assembly, and adjustment procedures for wheel drive system components on Gehl SL7810E skid-steer loaders. Wheel drive components covered in this chapter are shown below.

SL7810E skid-steer loaders are equipped with a hydrostatic pump assembly coupled to the diesel engine providing hydrostatic power to the two fixed-displacement hydrostatic drive motors. The drive motors are directly connected to chaincases. Single speed or two-speed, each motor drives one set of wheels on each side of the loader through a chain and sprocket system.

Service procedures related to the hydrostatic pump and drive motors can be found in the *Hydrostatic System* chapter.

Wheel Drives



1 NUT/LOCK	6 STOP/AXLE SPROCKET	11 WASHER/FLAT
2 NUT/SPIRALOCK™	7 CHAIN/ROLLER	12 WASHER/FLAT
3 SPROCKET 16T	8 BOLT/CARRIAGE	13 SCREW/CAP
4 WASHER/SPECIAL	9 NUT/WHEEL	
5 SPROCKET 100-32	10 ASSEMBLY/AXLE	

Fig. 5-1 Exploded view of the wheel drive components.

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Introduction

This chapter covers removal, installation, assembly, and adjustment procedures for standard and optional control equipment on Gehl SL7810E skid-steer loaders.

Equipment Identification

Because of the variety of options available for the SL7810E, it is IMPORTANT to properly identify equipment BEFORE beginning service procedures. Illustrations and photographs are provided with procedures to aid in servicing this equipment.

Joystick Controls

On loaders with "Joystick controls", the left joystick handle controls forward and reverse directions of hydrostatic drive motors and pumps for both sides of the loader. The right joystick handle controls the lift and tilt functions of the lift arm and bucket. Engine speed is controlled with foot and hand throttles. Auxiliary hydraulics is controlled by a foot pedal. A manual flow control knob adjusts hydraulic flow. On high-flow models, a lever activates high-flow auxiliary hydraulics.

T-Bar Controls

On loaders with “T-Bar controls,” the left T-Bar handle controls forward/reverse directions of hydrostatic drive motors and pumps for both sides of loader. The right T-Bar handle controls lift/tilt functions of the lift arm and bucket. Engine speed is controlled with foot and hand throttles. Auxiliary hydraulics is controlled by a foot pedal. A manual flow control knob adjusts hydraulic flow. On high-flow models, a crossmember lever activates high-flow auxiliary hydraulics.

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 lift arm and bucket. Engine speed is controlled with a hand throttle lever. A lock pin on the right handle, controls auxiliary hydraulics. A manual flow control knob adjusts hydraulic flow. On high-flow models, a crossmember lever activates high-flow auxiliary hydraulics.

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 operates lift functions of lift arm. The right control handle operates tilt functions of bucket. Engine speed is controlled with foot and hand throttles. Standard auxiliary hydraulics is controlled by a foot pedal. A manual flow control knob adjusts hydraulic flow. On high-flow models, a crossmember lever activates high-flow auxiliary hydraulics.

Two-Speed Control

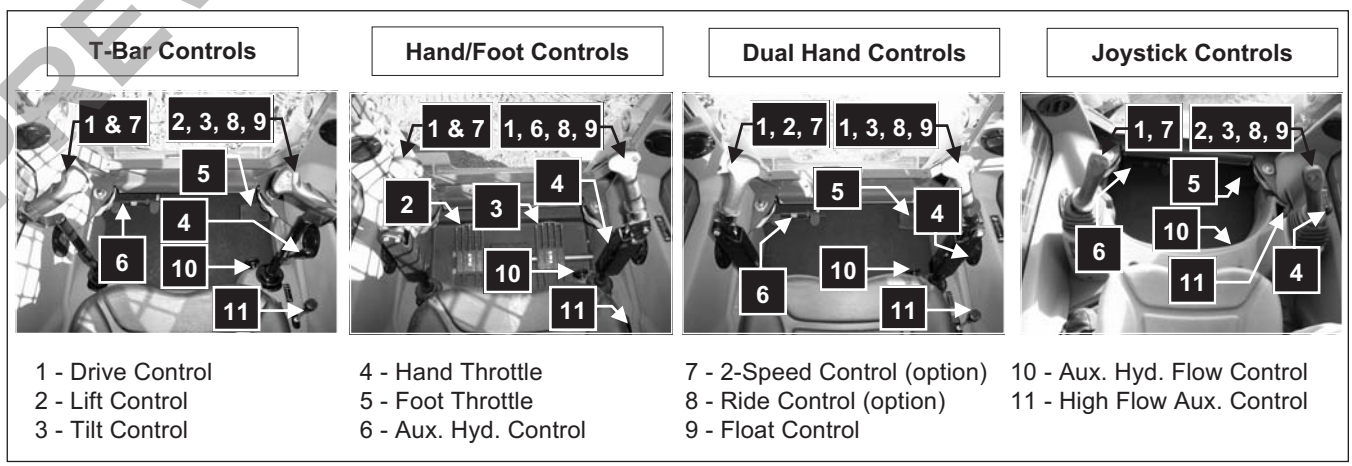
Two-speed loaders have a high and low speed option. The two-speed option is controlled by a button switch in the left control handle and lights a panel light.

Hydraglide™ Ride Control

The Hydraglide™ Ride Control option on loaders is controlled by a button switch in the right control handle and lights a panel light.

Float Control

The Float Control option on skid-steer loaders is controlled by a button switch in the right control handle and lights a panel light.



1 - Drive Control
2 - Lift Control
3 - Tilt Control
4 - Hand Throttle
5 - Foot Throttle
6 - Aux. Hyd. Control
7 - 2-Speed Control (option)
8 - Ride Control (option)
9 - Float Control
10 - Aux. Hyd. Flow Control
11 - High Flow Aux. Control

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

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Troubleshooting Guide

The following troubleshooting guide lists potential hydrostatic system problems, as well as possible causes and remedies, for Gehl SL7810E 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

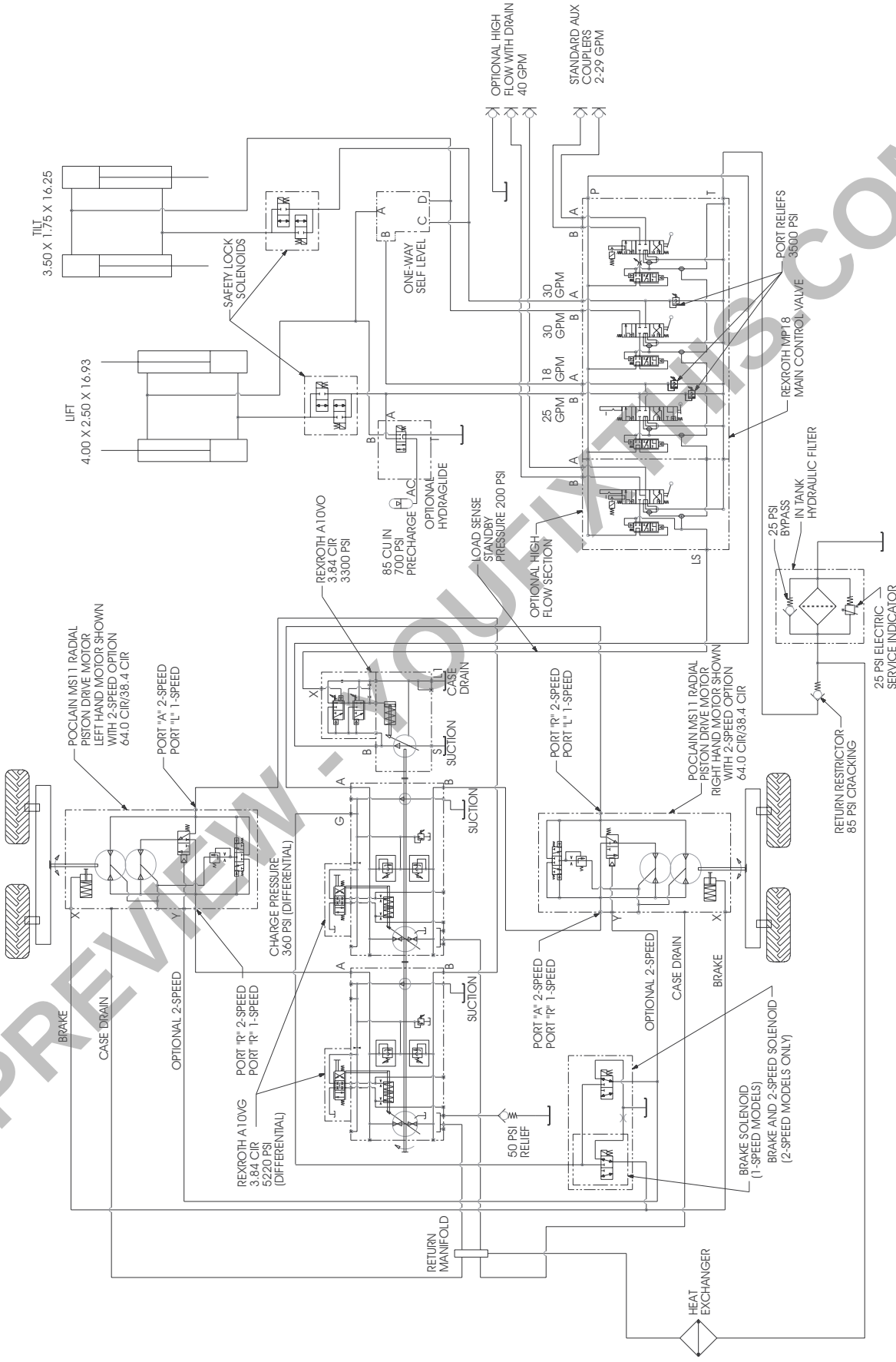
DO NOT attempt to service or repair major hydrostatic system components, such as the hydrostatic pumps or drive motors, unless authorized to do so by your Gehl dealer. Any unauthorized repair will void the warranty.

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.
	Inadequate pilot supply pressure to joystick control.	Check supply oil pressure.
Drive wheels do not turn in proper direction for 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.
	Joystick pilot controller hoses connected wrong.	Reconnect hoses to proper ports on the hydrostatic tandem pump. Refer to schematic and figures in *Hydrostatic System* chapter.

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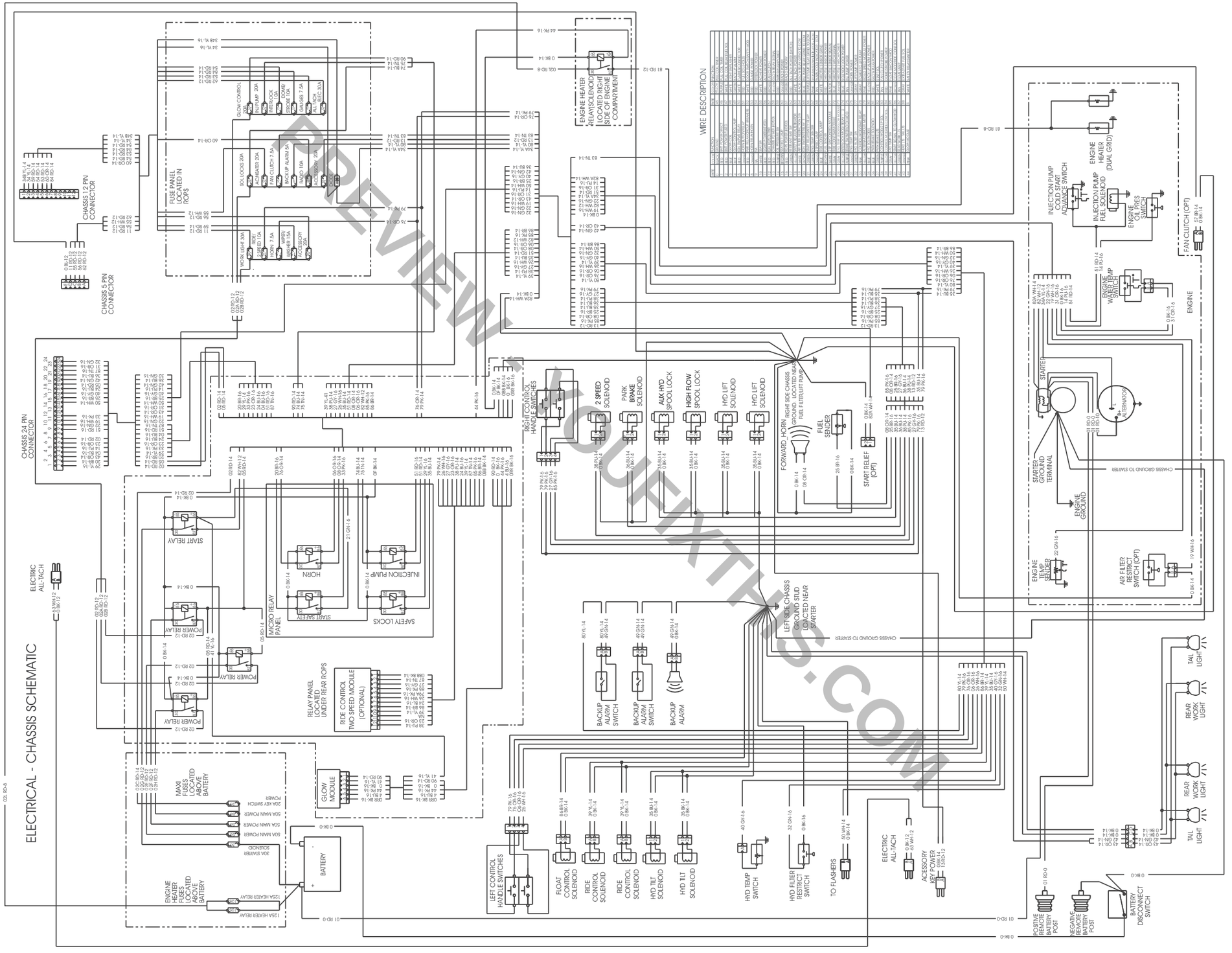
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Hydraulic/Hydrostatic System Schematic - T-Bar, Hand/Foot and Dual Hand Controls



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