SL3640, SL3840 and SL4240 Skid-Steer Loaders

Form No.
917170

Revision A
01/06



GEHL®

Service Manual

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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 everyone 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.

These topics in this chapter include 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 skid-steer 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 45° to avoid spilling electrolyte.

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SPECIFICATIONS

	SL3640/3840	SL4240
Engine Make	Yanmar	Yanmar
Model	3TNV88-XMS2	4TNV88-XMS2
Fuel	Diesel	Diesel
Displacement	100 CID (1,64 L)	133 CID (2,19 L)
Horsepower - Net (SAE)	35 hp (26 kW) @ 2600 rpm	46 hp (34 kW) @ 2600 rpm
Torque - Maximum	80 ft.-lbs. (108,5 N•m) @ 1200 rpm	103 ft.-lbs. (139,7 N•m) @ 1200 rpm
Rated Operating Load (SAE)*	1050 lbs. (476 kg)	1350 lbs. (612 kg)
Operating Weight	4000 lbs. (1814 kg)	4600 lbs. (2087 kg)
Shipping Weight	3515 lbs. (1594 kg)	4065 lbs. (1844 kg)
Engine Oil	7.6 US qts. (7,2 L)	9.1 US qts. (8,6 L)
Fuel Tank	10.3 US gal. (39 L)	12.4 US gal. (47 L)
Standard Flow Rate	14.5 gpm (55 L/min)	16.5 gpm (62 L/min)
Travel Speed (max)	6.4 mph (10,3 km/h)	6.8 mph (10,9 km/h)

Specifications below apply to all 3640, 3840 and 4240 models	
Capacities	
Chaincases (each)	8.0 US qts. (7,6 L)
Hydraulic Reservoir	8.0 US gal. (30 L)
Electrical	
Battery	12-volt DC, 675 CCA
Starter	12-volt DC (2.0 kW)
Alternator	40 A
Hydraulic System	
Main Hydraulic System Pressure	2750 psi (190 bar)

Tire Options	
7 x 15	SS Narrow
8.5 x 15 - 8 ply	Heavy-Duty Flotation
10.50 x 15 - 8 ply	Heavy-Duty Flotation
10 x 16.5 - 6 ply	Standard Flotation
10 x 16.5 - 8 ply	Heavy-Duty Flotation/Foam-Filled
10 x 16.5 - 10 ply	Severe-Duty/Severe-Duty Foam-Filled
6.5 x 16	Solid Rubber

Buckets and Capacities			
Width	**Description**	**Capacity (Heaped)**	
48 inches (1219 mm)	Dirt/Construction	9.75 cubic feet	0,27 cubic meters
48 inches (1219 mm)	Utility	11.9 cubic feet	0,34 cubic meters
54 inches (1372 mm)	Dirt/Construction	9.5 cubic feet	0,27 cubic meters
54 inches (1372 mm)	Utility	13.5 cubic feet	0,38 cubic meters
55 inches (1397 mm)	Dirt/Construction	10.5 cubic feet	0,30 cubic meters
60 inches (1524 mm)	Utility	15.2 cubic feet	0,43 cubic meters
61 inches (1550 mm)	Dirt/Construction	11.7 cubic feet	0,33 cubic meters
61.5 inches (1562 mm)	Low Profile	12.6 cubic feet	0,36 cubic meters
61.5 inches (1562 mm)	Earth & Foundry	13.0 cubic feet	0,37 cubic meters
61.5 inches (1562 mm)	Construction	13.0 cubic feet	0,37 cubic meters

3640/3840 SAE Rated Operating Load: Operating load rated with a 54" (1372 mm) dirt/construction bucket in accordance with SAE J818.
4240 SAE Rated Operating Load: Operating load rated with a 60" (1524 mm) dirt/construction bucket in accordance with SAE J818.

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Troubleshooting Guide

The following troubleshooting guide lists potential hydrostatic system problems, as well as possible causes and remedies, for GEHL SL36/38/4240 skid-steer loaders.

When a problem occurs, be sure not to overlook possible 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/distributor. 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.
	Hydraulic oil supply is too low.	Check for low oil level in reservoir. Add oil as needed.
	Hydrostatic pump drive is disconnected. Flexible drive plate failure.	Check for broken or worn pump flexible drive plate 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.
	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 the hydrostatic pump and the drive motors are connected wrong.	Reconnect hoses to proper ports on the drive motors. Refer to the schematic in the *Hydraulic System* chapter.

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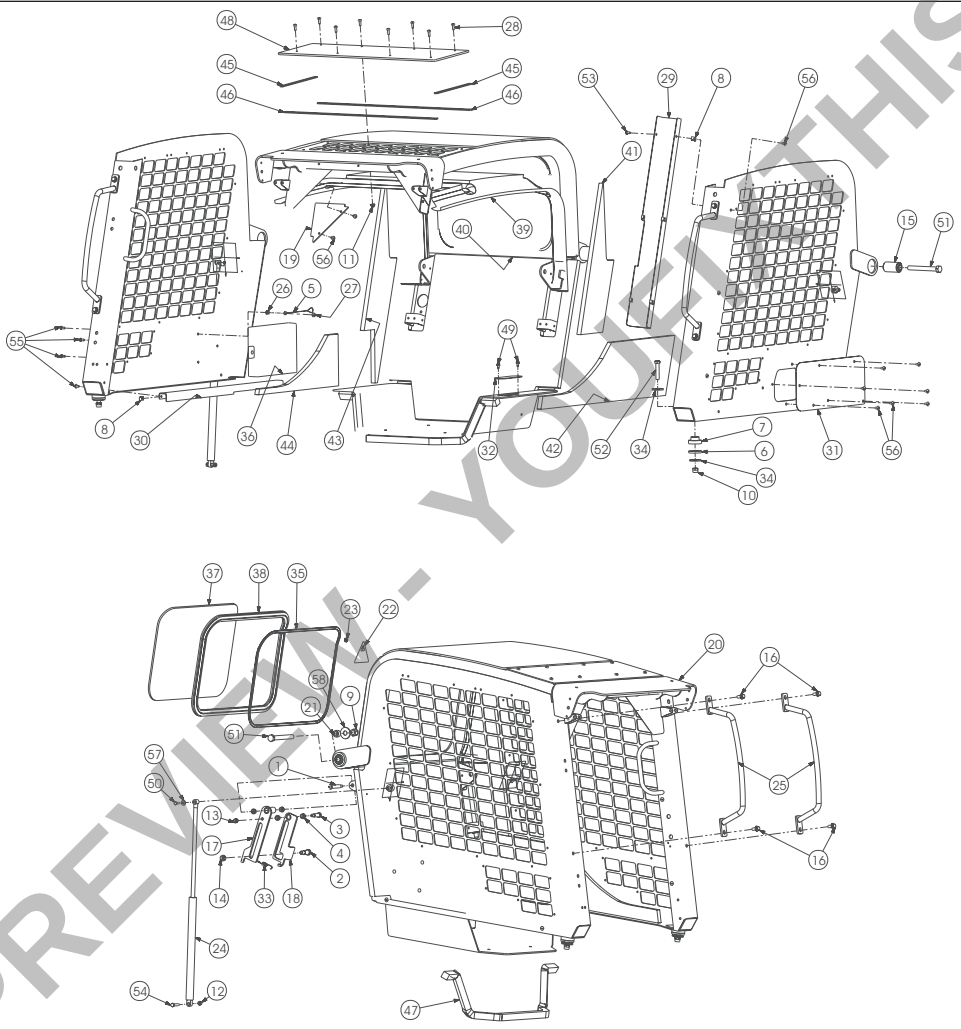
Introduction

Gehl SL36/38/4240 skid-steer loaders have a welded steel mainframe. Maintenance, service and repair can be performed through standard access panels. The left rear mainframe riser serves as the hydraulic reservoir. A welded steel tank bolted to the mainframe behind the ROPS/FOPS serves as the fuel tank.

Two side cases provide mounting for the drive motors and for the front and rear axles. The side cases also serve as sealed housings for the drive chains and sprockets. Oil is used inside these cases to ensure the chains always receive proper lubrication.

The liftarm and the lift and tilt cylinders are mounted with pivot pins. Capscrews are used to secure the pivot pins. A Rollover Protective Structure/Falling Object Protective Structure (ROPS/FOPS) is standard for operator safety, and both the seat and restraint bar include safety interlock switches.

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



1 BOLT/SHOULDER
2 BOLT/SHOULDER
3 BOLT/SHOULDER
4 BUSHING/OILITE
5 TETHER
6 WASHER/FLAT
7 MOUNTING/ISOLATOR
8 NUT/SPEED
9 NUT/LOCK NYLON INSERT
10 NUT/HEX
11 NUT/LOCK SERRATED
12 NUT/LOCK
13 NUT/LOCK
14 NUT/LOCK
15 ISOLATOR/ROPS
16 SCREW/WHIZLOCK
17 SUPPORT/ROPS
18 LATCH/ROPS
19 BRACKET/DOME LIGHT
20 ROPS/FOPS
21 BUSHING
22 TAG/RIP CORD
23 RING
24 GAS SPRING/ROPS
25 HANDLE/GRAB
26 NUT/FLAT
27 NUT/SPECIAL
28 SCREW/MACHINE
29 PANEL/INSTRUMENT LEFT
30 SHIELD/HARNESS
31 PLATE/HEATER SEAL
32 COVER/SEAT PLATE
33 SPRING/EXTENSION
34 WASHER/FLAT
35 STRIP/LOCKING
36 HOLDER/MANUAL
37 WINDOW/REAR
38 SEAL/WINDOW
39 FOAM/HEADLINER
40 FOAM/REAR PANEL
41 FOAM/SIDE LEFT
42 FOAM/SIDE LEFT
43 FOAM/SIDE RIGHT
44 FOAM/SIDE RIGHT
45 GASKET/TOP WINDOW
46 GASKET/TOP WINDOW
47 SPONGE RUBBER/SEAT PLATE
48 WINDOW/TOP
49 SCREW/MACHINE
50 SCREW/CAP
51 SCREW/CAP
52 SCREW/CAP
53 SCREW/CAP
54 SCREW/CAP
55 BOLT/CARRIAGE
56 SCREW/MACHINE
57 WASHER/FLAT
58 WASHER/FLAT

Fig. 4-1 Assembly view of ROPS/FOPS components.

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Fig. 2-1 The lock pin secures the liftarm support device inside the left liftarm to a welded pin.

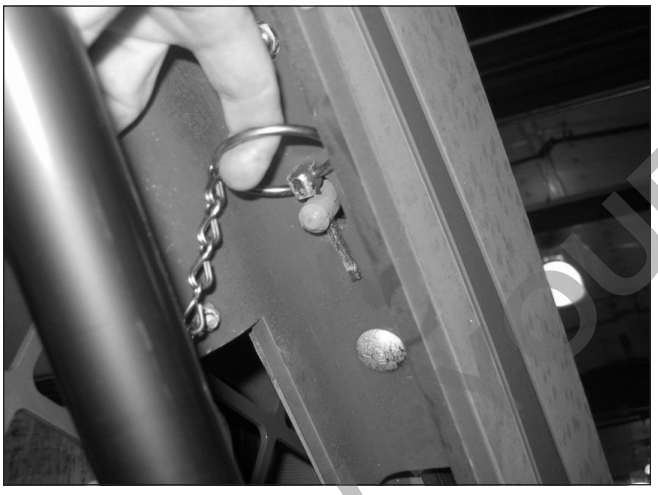


Fig. 2-2 Pull down and pull out on the lock pin to release the liftarm support device.

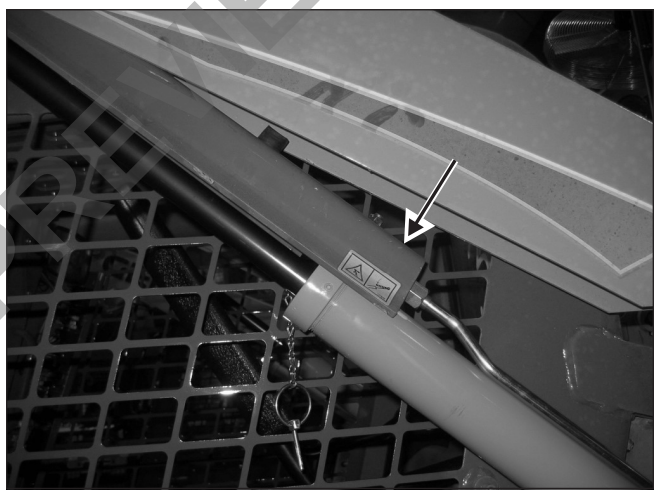


Fig. 2-3 The liftarm support device rests on top of the lift cylinder base.

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 lowering unexpectedly.

BE SURE to engage the liftarm support device whenever the liftarm is raised. When the device is not being used, secure it to the anchor on the underside of the liftarm using the lock pin and retainer 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.

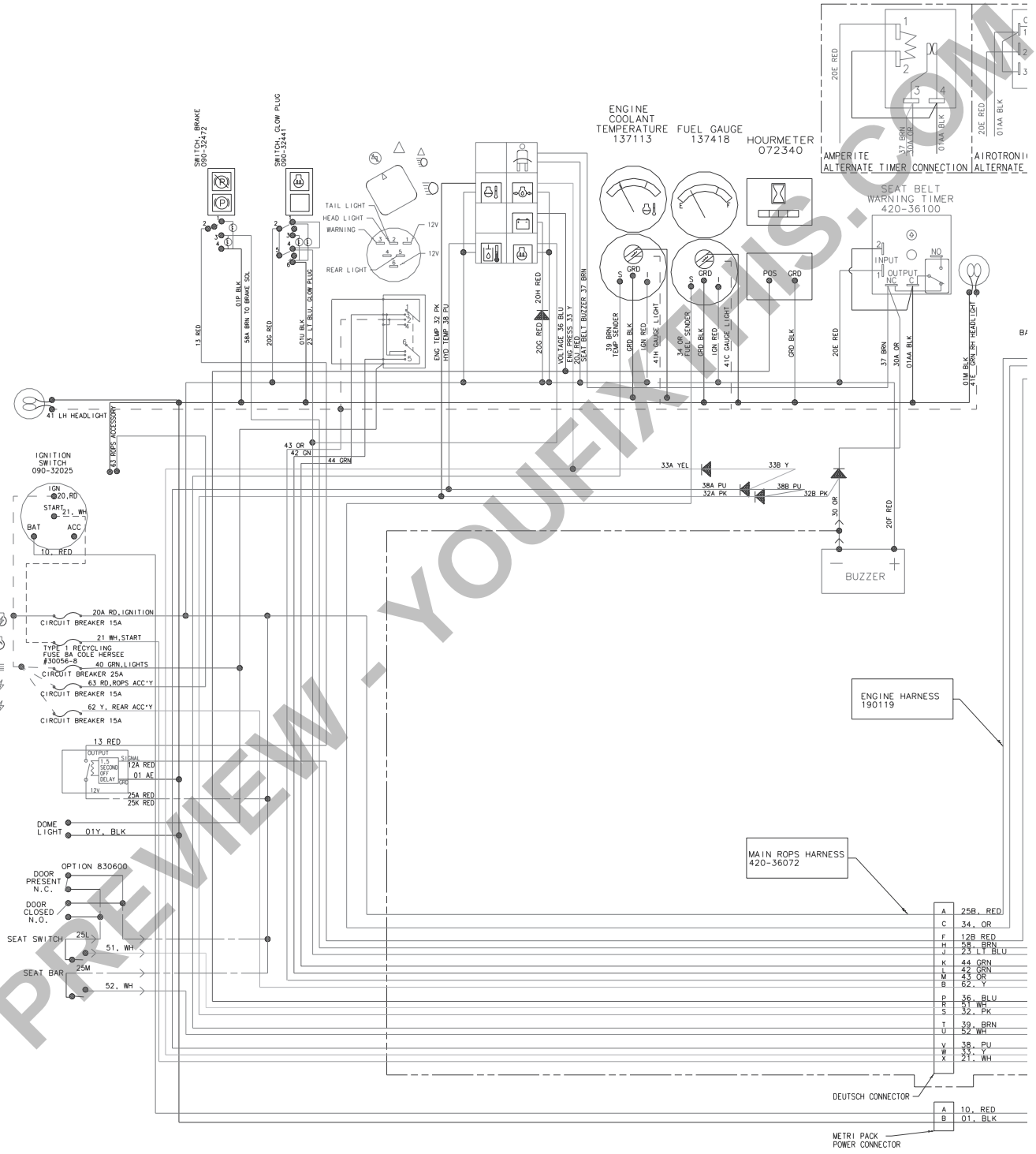
Liftarm Support Device Engagement

1. Lower liftarm until contact with loader frame.
2. Turn the keyswitch to the OFF position to stop the engine.
3. Leave the operator's compartment. Pull down on lock pin button to release its locking mechanism. Pull out lock pin holding support device up against liftarm. Allow support device to come down into contact with lift cylinder. **Figs. 2-1, 2-2, 2-3**
4. Return to the operator's compartment and restart the engine.
5. Use lift control to raise liftarm until the lift arm support device drops over the end of the lift cylinder and around cylinder rod. Slowly lower liftarm until the free end of the support device contacts the top (rod end) of the lift cylinder. **Fig. 2-4**
6. Make sure the support device is secure against the cylinder end. Then, stop the engine, remove the key and leave the operator's compartment.

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Electrical System Schematic (schematic overlaps onto following page)



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Introduction

This chapter covers removal, installation, assembly, and adjustment procedures for standard and optional controls equipment on GEHL SL36/38/4240 skid-steer loaders.

Equipment Identification

Because there are a variety of options available for the SL36/38/4240, it is IMPORTANT to properly identify the equipment BEFORE beginning service procedures. Illustrations and photographs are provided with each procedure 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 farther forward than the other and the loader turns. Separate foot pedals control the lift and tilt functions of the liftarm and bucket. Engine speed is controlled with the hand throttle lever located to the right of the operator's seat. The auxiliary hydraulics are actuated by the right control handle.

T-Bar Controls

On loaders with "T-Bar controls," the left T-Bar controls the forward and reverse directions of the hydrostatic drive motors and pumps for both sides of the loader. The right T-Bar controls the lift and tilt functions of the liftarm and bucket. For control of engine speed, both foot and hand throttles are provided. A pivoting foot pedal control on the floor is provided for control of the auxiliary hydraulics.

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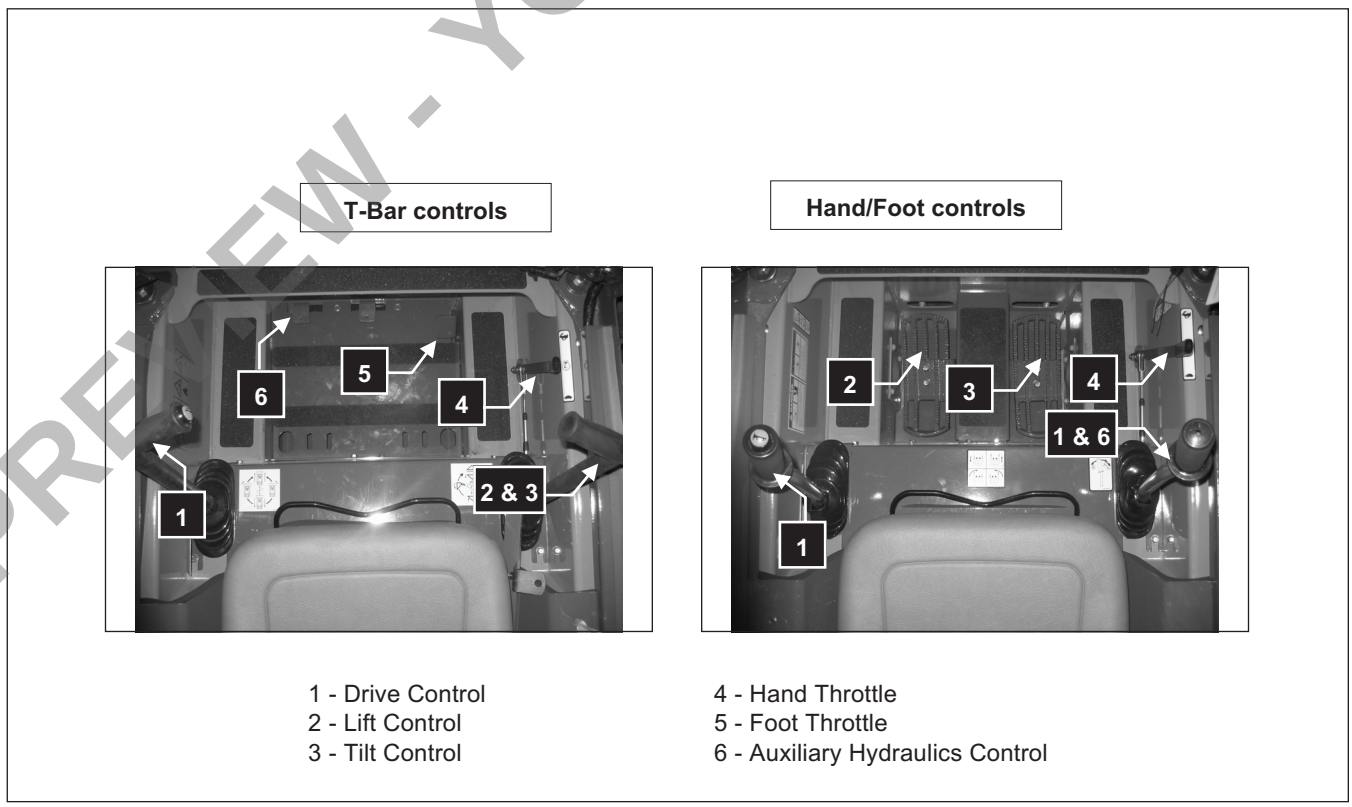


Fig. 6-1 Control locations on T-Bar and Hand/Foot controls.

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Introduction

This chapter covers troubleshooting, removal, installation, and adjustment procedures for engine components on GEHL SL36/38/4240 skid-steer loaders. The primary engine system components are shown below and on following pages.

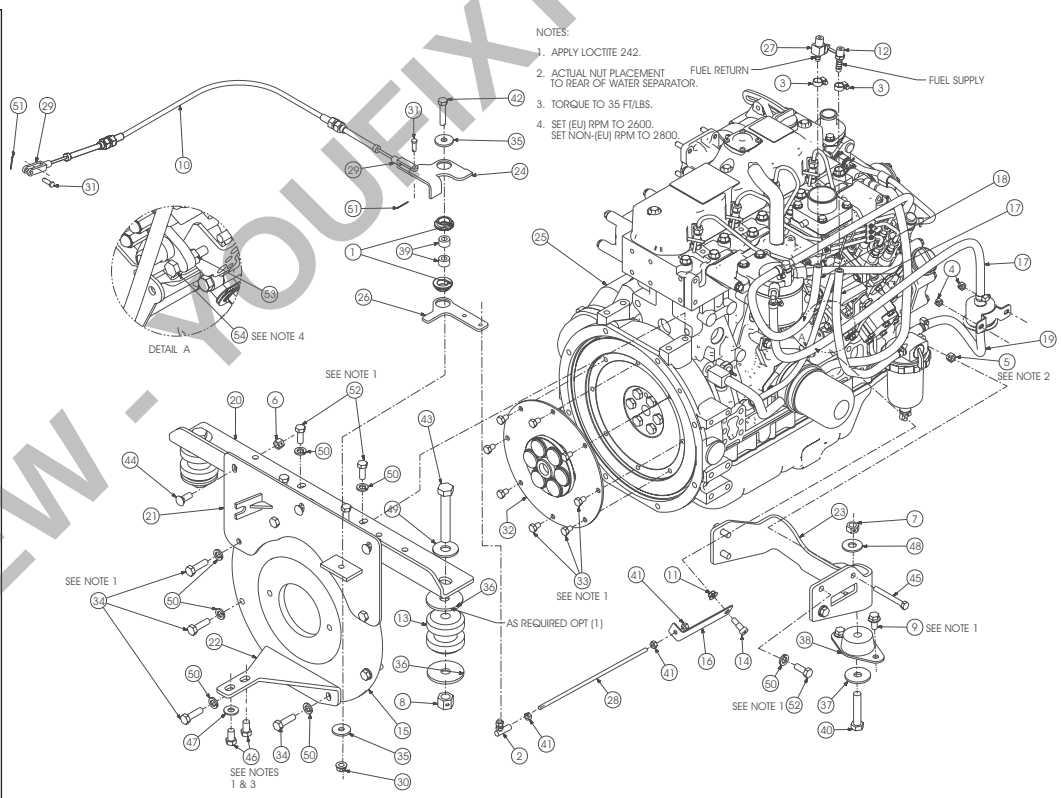
SL36/3840 skid-steer loaders are equipped with a Yanmar 3TNV88-XMS2 naturally-aspirated diesel engine. It is a three-cylinder, 100-cubic-inch displacement (1,64 L) engine witha compression ratio of 18.5:1. It is a four-stroke engine that uses direct fuel injection. The firing order is 1, 3, 2.

SL4240 skid-steer loaders are equipped with a Yanmar 4TNV88-XMS2 turbo-diesel engine. It is a four-cylinder, 133-cubic-inch displacement (2,19 L) engines with a compression ratio of 18.5:1. It is a four-stroke engine that uses direct fuel injection. The firing order is 1, 3, 4, 2.

A "full-flow" oil filter is used in the lubrication system. As in any engine, clean oil, fuel, and air are critical to satisfactory performance and long engine life. If properly maintained, this engine will provide thousands of hours of trouble-free operation.

When ordering engine parts, always check the GEHL Service Parts Manual to see if any special parts have been fitted to the engine. If GEHL parts are required, they can be ordered from GEHL Company.

Engine and Engine Controls Assembly



1 BUSHING/OILITE
2 JOINT/BALL
3 CLAMP/HOSE
4 NUT/LOCK
5 NUT/LOCK
6 NUT/LOCK
7 NUT/LOCK
8 NUT/LOCK
9 SCREW/LOCK
10 CABLE/THROTTLE
11 NUT/LOCK
12 FITTING/BARB
13 ISOLATOR
14 SCREW/SHOULDER
15 PLATE/MOUNT
16 BRACKET
17 HOSE/FUEL
18 HOSE/FUEL
19 HOSE/FUEL
20 BRACE/ENGINE
21 MOUNT/ENGINE
22 SUPPORT/PUMP
23 MOUNT/ENGINE
24 PIVOT/THROTTLE
25 ENGINE/YANMAR
26 PIVOT/THROTTLE
27 VALVE/SHUT OFF
28 ROD/THROTTLE
29 YOKE
30 NUT/HEX LOCK
31 PIN/CLEVIS
32 PLATE/DRIVE
33 SCREW/CAP
34 SCREW/CAP
35 WASHER

36 WASHER	43 SCREW/CAP	50 WASHER/LOCK
37 WASHER/FLAT	44 BOLT/CARRIAGE	51 PIN/COTTER
38 MOUNT/ENGINE	45 SCREW/CAP	52 SCREW/CAP
39 BUSHING	46 SCREW/CAP	53 NUT/HEX
40 SCREW/CAP	47 WASHER/FLAT	54 SCREW/CAP
41 NUT/HEX	48 WASHER/FLAT	
42 SCREW/CAP	49 WASHER/FLAT	

Fig. 10-1 Assembly view of the major engine components.

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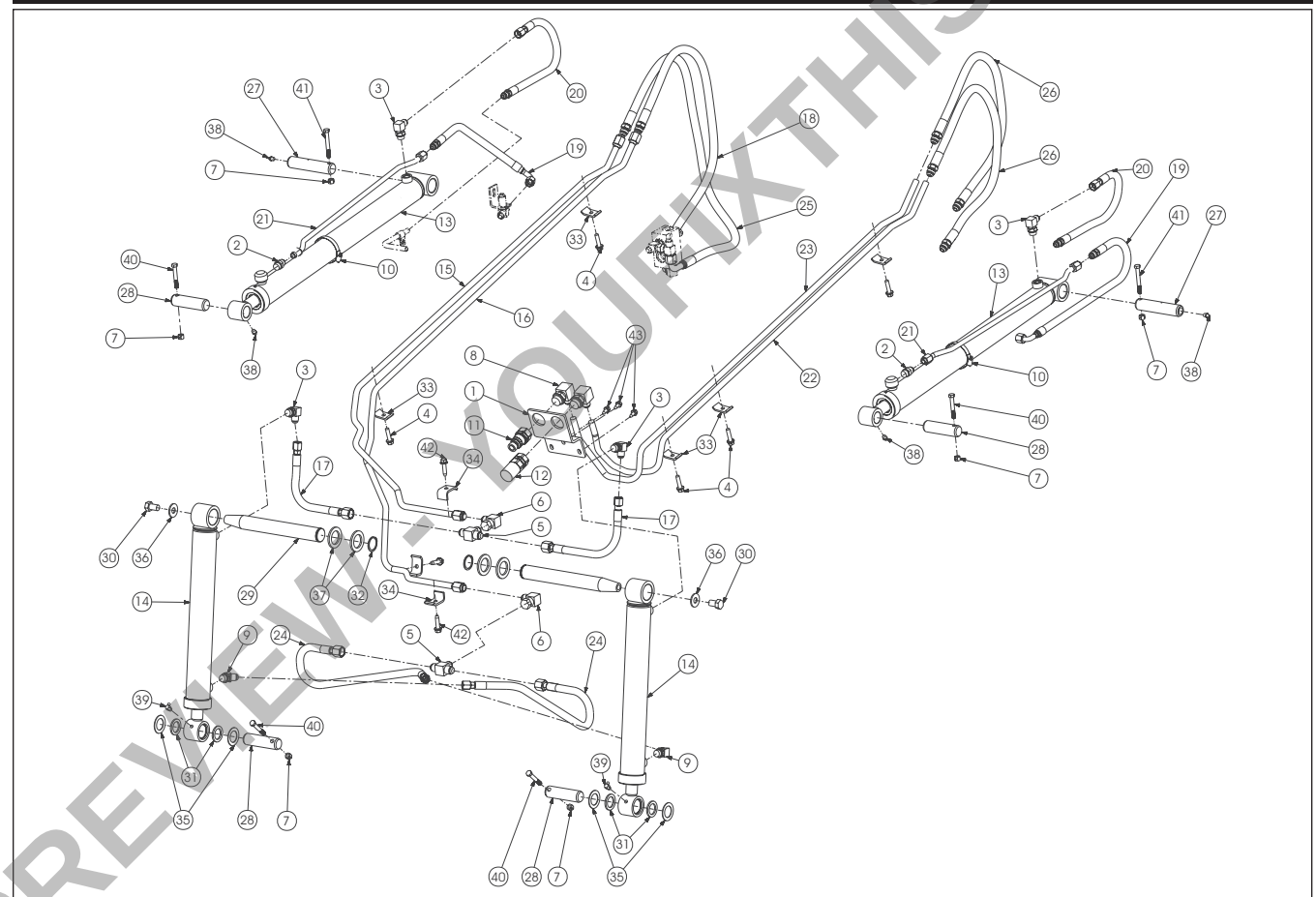
Introduction

This chapter covers troubleshooting, testing, removal, installation, and adjustment procedures for hydraulic system components on GEHL SL36/38/4240 skid-steer loaders. The primary hydraulic system components covered in this chapter are shown below and on following pages.

Power for the liftarm functions and auxiliary hydraulics is provided by a gear pump attached to the front of the hydrostatic pumps. Models include a standard flow auxiliary hydraulics system with connections on the left liftarm for attachment hookup.

Information on recommended hydraulic fluids, capacities and filter change intervals is in the *Lubrication* chapter. For detailed information on gear pump or control valve internal repair, consult the GEHL Service Department and/or the hydraulic component manufacturer's service manual. Hydraulic components related to the drive system are covered in the *Hydrostatic System* chapter.

Hydraulics - Liftarm



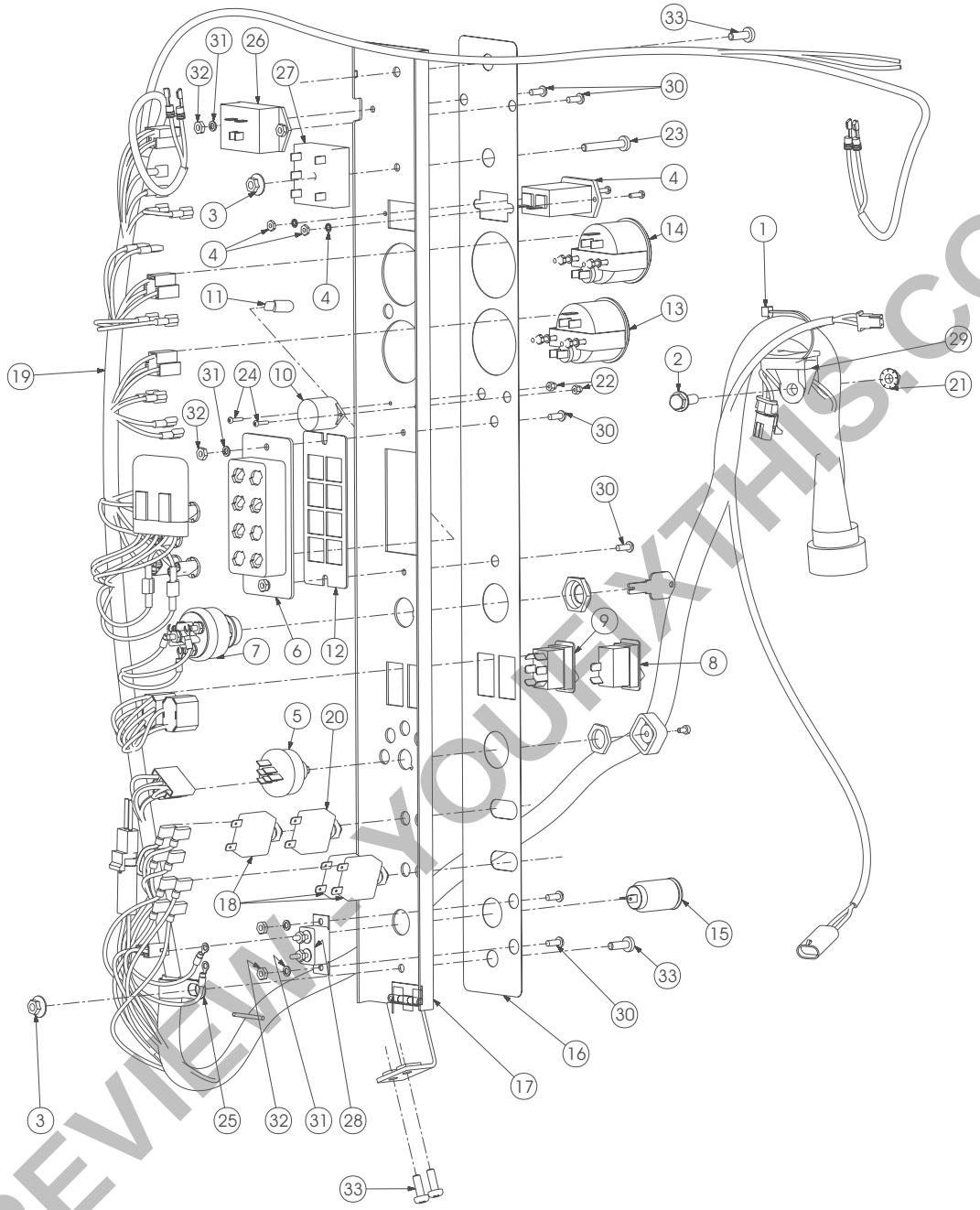
1 BRACKET/COUPLER	12 COUPLER/FEMALE	23 HYDRAULIC LINE	33 CLIP/HYDRAULIC LINE
2 ADAPTOR/STRAIGHT	13 CYLINDER/LIFT	24 HOSE	34 CLIP/HYDRAULIC LINE
3 FITTING/ELBOW 90°	14 CYLINDER/TILT	25 HOSE	35 WASHER/SPECIAL
4 SCREW/CAP LOCKING	15 HYDRAULIC LINE/OUTER	26 HOSE	36 WASHER/SPECIAL
5 FITTING/TEE TUBE	16 HYDRAULIC LINE/INNER	27 PIN/PIVOT LIFT	37 WASHER/SPECIAL
6 ELBOW/SWIVEL 90°	17 HOSE/HYDRAULIC	28 PIN/PIVOT	38 ZERK/GREASE
7 NUT/LOCK	18 HOSE AND TUBE	29 PIN/PIVOT TILT	39 ZERK/GREASE 90°
8 FITTING/90°	19 HOSE AND TUBE	CYLINDER	40 SCREWCAP
9 FITTING/45°	20 HOSE	30 SCREW/CAP	41 SCREW/CAP
10 CLAMP/HOSE	21 LINE/LIFT CYLINDER	31 SEAL	42 SCREW/TAPPING
11 COUPLER/MALE	22 HYDRAULIC LINE	32 RING/SNAP	43 SCREW/CAP

Fig. 8-1 Assembly view of the liftarm hydraulics.

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Electrical - Instrument Panel



1 TIE/WIRE	12 GASKET/DISPLAY HOUSING	23 SCREW/MACHINE
2 SCREW/CAP LOCK	13 GAUGE/WATER TEMP	24 SCREW/PHILLIPS
3 NUT/LOCK SERRATED	14 GAUGE/FUEL LEVEL	25 CLAMP
4 GAUGE/HOURMETER	15 CONNECTOR/12 V	26 TIMER/DELAY
5 SWITCH/LIGHT	16 DECAL/INSTRUMENT PANEL	27 TIMER/SEAT BELT
6 HOUSING/DISPLAY	17 PANEL/INSTRUMENT	28 BREAKER/CIRCUIT 8 A
7 SWITCH/IGNITION	18 BREAKER/CIRCUIT 15 A	29 MOUNT/WIRE
8 SWITCH/GLOW PLUG	19 WIRE/HARNESS ROPS	30 SCREW/MACHINE
9 SWITCH/BRAKE	20 BREAKER/CIRCUIT 25 A	31 WASHER/LOCK
10 BUZZER	21 NUT/HEX WHIZLOCK	32 NUT/HEX MACHINE SCREW
11 BULB/LAMP	22 NUT/HEX ACORN	33 SCREW/MACHINE

Fig. 9-2 Assembly view of the electrical instrument panel.

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