TABLE OF CONTENTS

Specifications **Page**

SPECIFICATIONS. 1

Safety **Page**

General Information 3
Signal Words 3
Additional Safety Reminders 3
Mandatory Safety Shutdown Procedure 4
Lift Arm Support Device 5
Lift Arm Support Device Engagement 5
Lift Arm Support Device Disengagement 5
ROPS – Raising 6
ROPS – Lowering. 7
Relieving Hydraulic Pressure 8
Loader Raising Procedure 8
Loader Lowering Procedure 8

Lubrication **Page**

General Information 9
Hydraulic Oil Reservoir 9
Crankcase Oil 10
Chaincases 11
Grease Fitting Locations. 12
Cooling System Drain Procedure 13

Mainframe **Page**

Introduction. 15
Mainframe (Chassis), Rear Grille and Engine Cover Components 15
Engine Access Cover - Removal and Installation 16
Roll-Over and Falling Object Protective Structure Components - ROPS/FOPS 17
ROPS/FOPS Removal and Installation 18
Seat Removal and Installation 19
Seat Slide Replacement 20
ROPS/FOPS Rear Window Removal and Installation 20
Restraint Bar Components 22

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SPECIFICATIONS

Model	**1640E / 2012**
Engine Make	Yanmar
Engine Model	3TNV82A-BPMS
Fuel	Diesel
Displacement	81.2 CID (1,33 L)
Horsepower - Net	23.9 hp (17,8 kW)
Peak Torque	68 lbf-ft. (86 N•m)
Rated Operating Capacity	850 lbs. (386 kg)
Operating Weight	2980 lbs. (1352 kg)
Shipping Weight	2820 lbs. (1279 kg)
Capacities	**Capacities**
Engine Oil	5.8 US qts. (5,5 L)
Fuel Tank	7.7 US gal. (29,1 L)
Chaincase (each)	6.0 US qts. (5,7 L)
Hydraulic Reservoir	7.2 US gal. (27,2 L)
Engine Coolant	8.0 US qts. (7,57 L)
Electrical System	**Electrical**
Battery	12-V DC, Group 24, 675 CCA, 115 Reserve
Starter	12-V DC (1,7 kW)
Alternator	40 A
Hydraulic System	**Hydraulic System**
Hydraulic System Pressures	2255 PSI (156 bar)
Standard Auxiliary Flow Rate	10.1 gal/min (38,2 L/min)
Travel Speed (with standard tire)	0 to 5.5 mph (0 to 9,0 km/h)
Tire Options	**Tire Options Description**
5.70 x 12 Heavy-Duty 4-Ply	NHS Trac Loader Chevron
23 x 8.50-12 Heavy-Duty 6-Ply	NHS Heavy-Duty 2000
Buckets and Capacities	
Width - Description	**Capacity (Heaped)**
36 inches (914 mm) - Dirt/Construction	5.3 cubic feet ; 0,15 cubic meters
44 inches (1118 mm) - Dirt/Construction	7.4 cubic feet ; 0,21 cubic meters
48 inches (1219 mm) - Utility/Snow	9.8 cubic feet ; 0,28 cubic meters
15.75-19.68-24 inches (400-500-610 mm) Pallet	Not Applicable

*Operating capacity rated with a 5.70 tires, 5.3 cubic foot (0.15 m^3) dirt/construction bucket in accordance with SAE J818, SAE J732 and ISO 14397-1.

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General Information

WARNING

NEVER service this unit when any part of the machine is in motion. ALWAYS BE SURE to exercise the "Mandatory Safety Shutdown Procedure" (see Safety chapter) BEFORE servicing this equipment.

Routine lubrication is an important factor in preventing excessive part wear and premature failures. Loader and engine operation depend on using correct grade, high-quality lubricating oils. This chapter and the chart below list locations, temperature ranges and types of recommended lubricants to be used when servicing this machine. In addition, refer to the engine manual for specific grades and ratings as specified by the engine manufacturer.

IMPORTANT

Whenever service is performed on hydraulic components (valves, cylinders, hoses, etc.), fuel tanks and lines, care must be taken to prevent discharging fluid onto the ground. Catch and dispose of fluid per local waste disposal regulations.

Hydraulic Oil Reservoir

The oil reservoir for hydraulic and hydrostatic systems has a capacity of 7.2 U.S. gallons (27,2 liters). A visual oil level indicator is located on the left riser for convenient maintenance of the hydraulic oil level.



The hydraulic oil reservoir should be drained and filled after every 500 hours of operation or annually (whichever occurs first).



Hydraulic System Reservoir	Chaincases	Grease Fittings	Crankcase Oil
Use Petro-Canada Premium HVI60, or equivalent that contains anti-rust, anti-foam, and anti-oxidation additives and conforms to ISO VG46. Capacity: 7.2 Gallons (27,2 L)	Use hydraulic system oil or SAE grade 15W-40 motor oil. Capacity (each side): 6.0 Quarts (5,7 L)	Use lithium-based grease	Below 32°F (0°C) use SAE Grade* 10 or 10W-30 Above 32°F (0°C) use SAE Grade* 15W-40 *Service Classification: API - CI-4/SL Capacity (w/ filter change): 5.8 Quarts (5,5 L)

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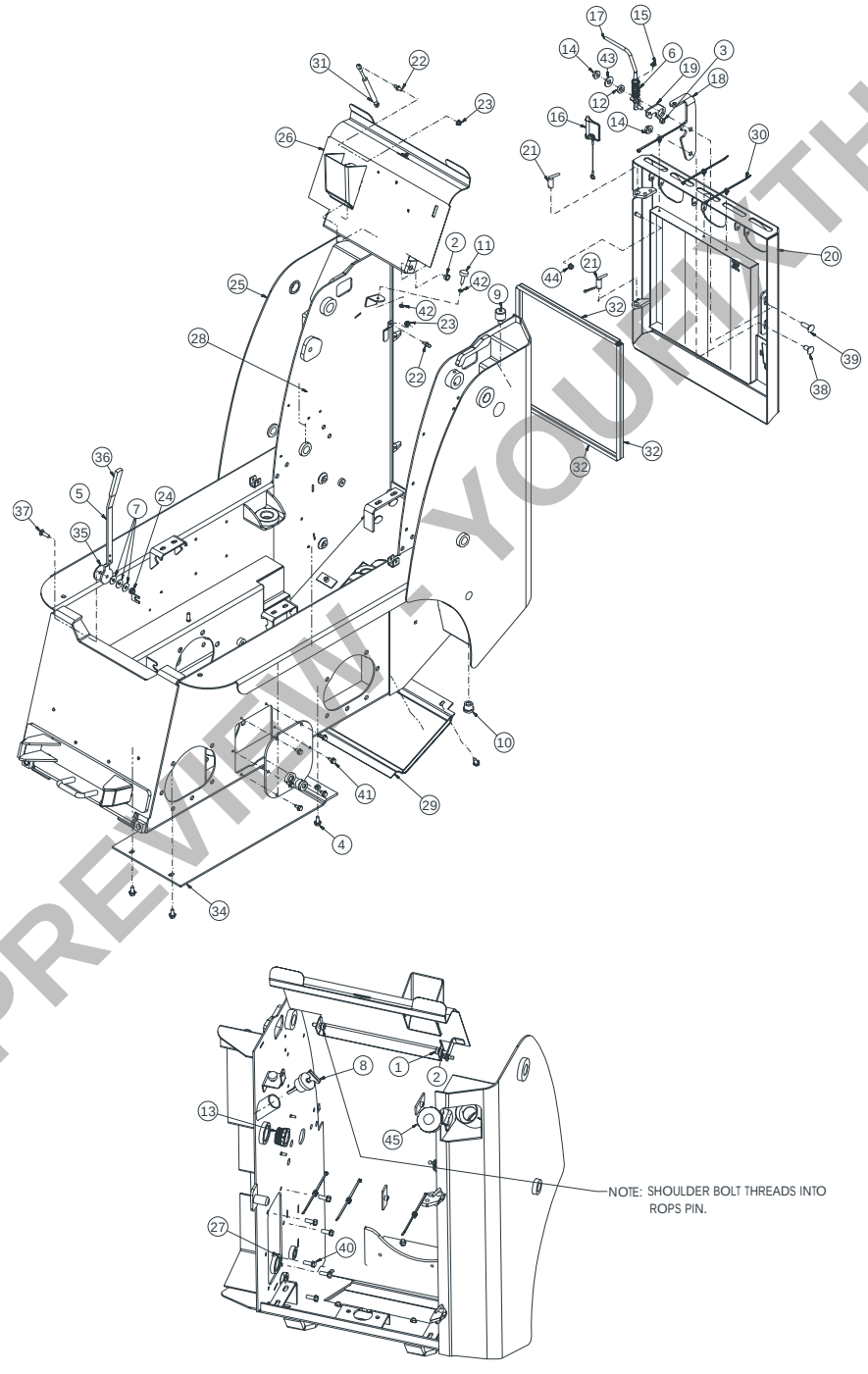
Introduction

Gehl 1640E and Mustang 2012 model skid-steer loaders have a welded steel chassis. Maintenance, service and repair may be performed through standard access panels.

Two side chaincases 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 lift arm 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 interlock switches.

Mainframe (Chassis), Rear Grille and Engine Cover Components



1 BOLT/SHOULDER
2 BUSHING/OILITE
3 NUT/HEX LOCK
4 SCREW/CAP WHIZLOCK
5 HANDLE/ THROTTLE
6 SPRING/COMPRESSION
7 WASHER/BELLEVILLE
8 CAP/HYD. RESERVOIR
9 BREATHER/HYD. RESERVOIR
10 PLUG
11 BUMPER
12 BUSHING
13 SIGHT PORT/OIL LEVEL
14 NUT/SPIRALOCK
15 CLIP/RETAINING
16 PIN/LOCK
17 ASSY/LATCH ROD
18 LATCH
19 LATCH/REAR DOOR
20 GRILLE/REAR
21 PIN/DOOR/LOWER
22 STUD/BALL
23 NUT/HEX SERRATED LOCK
24 NUT/HEX CENTERLOCK
25 CHASSIS
26 COVER/ENGINE
27 COVER/HYD. RESERVOIR
28 SENSOR/FUEL
29 BELLYPAN/REAR
30 TIE/ZIP WITH CLIP
31 GAS SPRING/RESTRAINT BAR
32 SEAL/BULB
33 COVER/CHAINCASE
34 BELLYPAN/FRONT
35 WASHER/FRICTION
36 GRIP/THROTTLE
37 BOLT/CARRIAGE
38 BOLT/CARRIAGE
49 BOLT/CARRIAGE
40 SCREW/MACHINE
41 SCREW/TAPPING
42 NUT/HEX JAM
43 WASHER/FLAT
44 NUT/SPIRALOCK
45 CAP/FUEL FILL

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Floor Cover/Step Cover/Kickplate Removal and Installation

The floor cover, step cover and kickplate may be removed for access to handle assemblies, control linkages and connections to control rods, cables and hoses.

WARNING

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

Raise lift arm, engage lift arm support device.

Shut off the engine.

Tilt back ROPS/FOPS until lock engages.

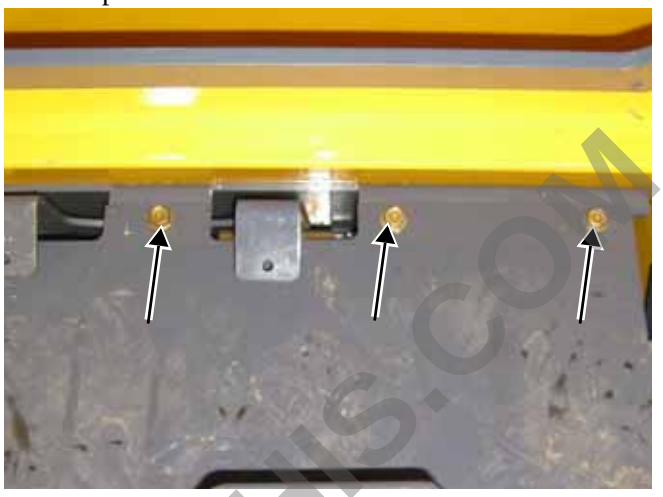
(For detailed instructions, refer to the *Safety* chapter of this manual.)

Removal Procedure

1. On the step cover, remove two thread-forming screws securing the cover to the kickplate and remove the step cover.



2. On the floor cover, remove the five thread-forming screws securing the cover to the control mount and kickplate.



3. **EU Only Skid-Steer Loaders:** At this time, carefully pull the sound pad up and out of the machine.
4. Remove the floor cover from the skid-steer loader.
5. On the kickplate, remove four thread-forming screws securing the kickplate to the crossmember and remove the kickplate.



Installation Procedure - Reverse the removal steps.

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Troubleshooting Guide

The troubleshooting guide lists potential hydrostatic system problems, as well as possible causes and remedies.

If you cannot locate a particular hydrostatic system problem in this chart, consult the troubleshooting chart in the *Hydraulic System* chapter.

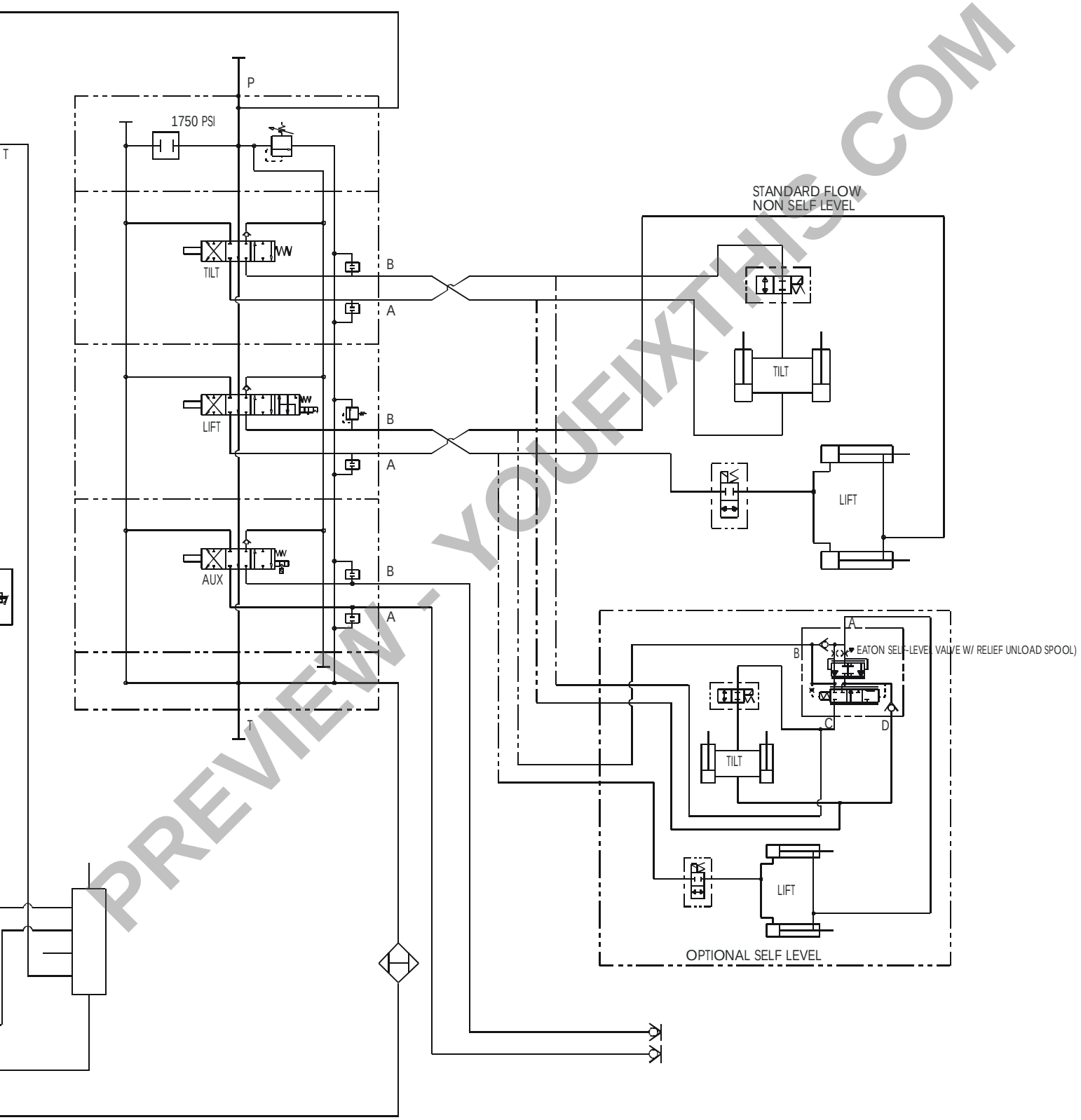
When a problem occurs, don't overlook simple causes. A malfunction could be caused by something as simple as low fluid level in the hydraulic reservoir. After a mechanical failure has been corrected, be sure to locate the cause of the problem.

Problem	Possible Cause	Remedy
No response from the hydrostatic drive or the lift/tilt systems	Hydraulic oil viscosity too high	Allow longer warm-up or replace oil with the proper viscosity oil.
	Hydraulic oil supply too low	Check for low oil level in reservoir. Add oil as needed.
	Hydrostatic pump drive 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 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 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 connected incorrectly	Reconnect hoses to proper ports on the drive motors. Refer to schematic and figures in the *Hydrostatic System* chapter.
Lift/tilt controls fail to respond	Hydraulic oil viscosity too high	Allow longer warm-up or replace with the proper viscosity oil.
	Hydraulic oil level low	Check oil level in reservoir. If oil is low, check for an external leak. Repair and add oil.
	Solenoid valve(s) malfunctioning	Check electrical connections to lift/tilt solenoids and repair.
	Restraint bar or seat switch malfunction	Check switches.

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Hydrostatic/Hydraulic Schematic



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Lift Arm Support Device

WARNING

BEFORE leaving 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 and Mustang skid-steer loaders. Used as a cylinder block, it helps prevent a raised lift arm from unexpectedly lowering.

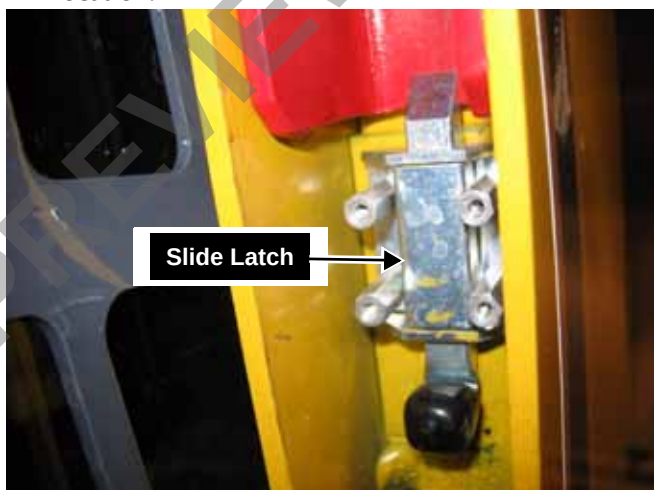
BE SURE to engage the lift arm support device whenever the lift arm is raised. When the device is not being used, secure it to the anchor on the underside of the lift arm using the slide latch and retainer provided.

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. Raise the lift arm fully.
2. Turn keyswitch to OFF position to stop engine.
3. Remove the lift arm support device from its storage location.



4. Place the lift arm support device on the left cylinder rod.



5. Return to the operator's compartment and restart the engine.
6. Slowly lower the lift arm until the support device contacts the top end of the lift cylinder.
7. Be sure the support device is secure against the cylinder end. Then, stop the loader engine, remove the key and leave the operator's compartment.

Lift Arm Support Device Disengagement

WARNING

NEVER leave the operator's compartment to disengage the lift arm support device with the engine running.

To return the lift arm support device to its storage position, proceed as follows:

1. Raise the lift arm completely.
2. Turn the keyswitch to the OFF position to stop the engine, remove the key and take it with you.

WARNING

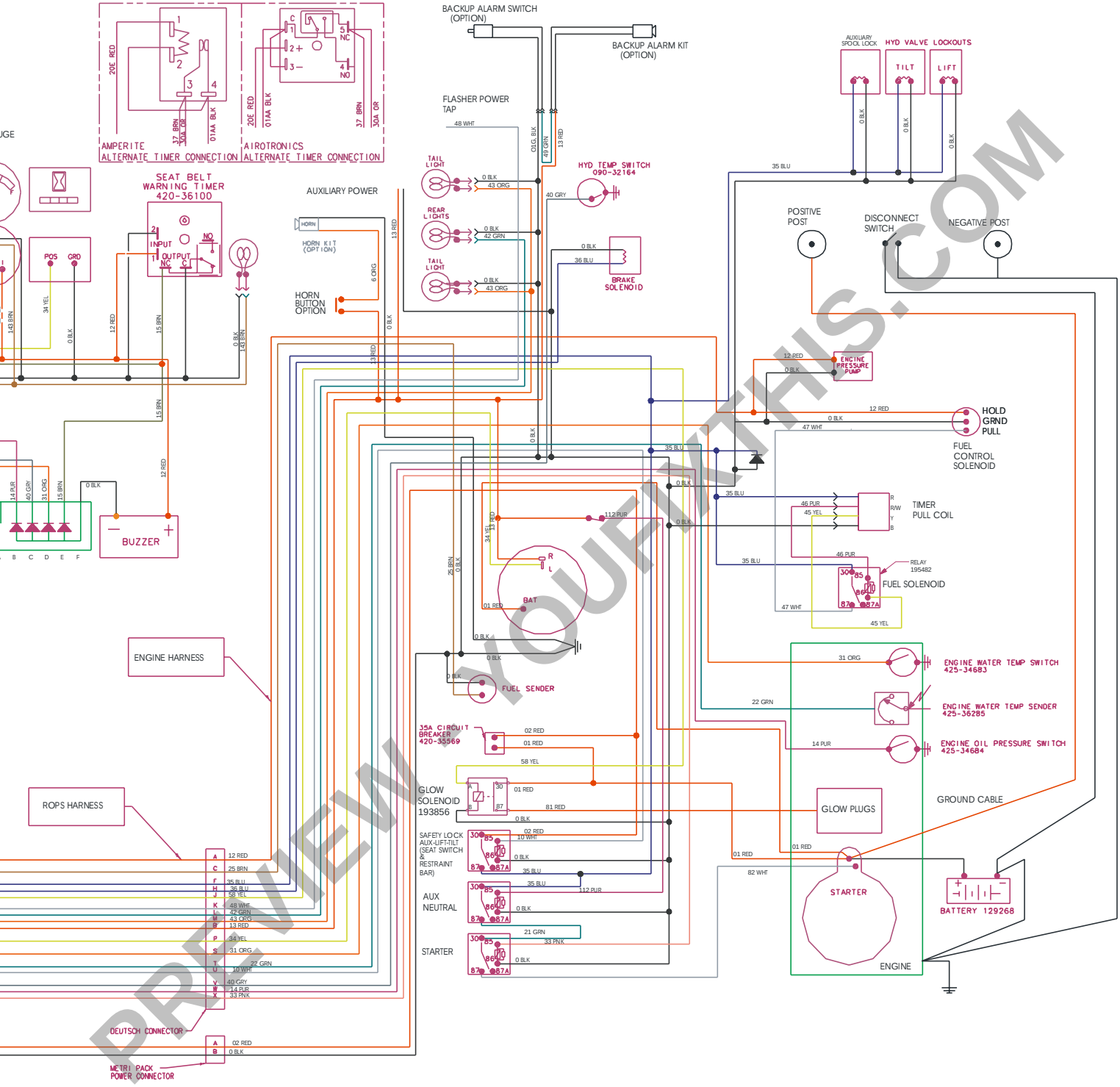
BEFORE testing the machine, ALWAYS clear people from the area.

3. Before leaving the operator's compartment, check to be sure the lift arm is being held in the raised position by the solenoid valve (See NOTE).

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Electrical Schematic



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All-Tach® Hitch Components . . . 23
Restraint Bar Removal and Installation . . . 24
All-Tach® Hitch Removal and Installation . . . 25
Lift Arm Removal and Installation . . . 25
Lift Arm Components . . . 26
Lift Arm Bushing Replacement . . . 29
Lift Arm Stop Installation and Adjustment . . . 29
Floor Cover/Step Cover/Kickplate Removal and Installation . . . 30
Crossmember Removal and Installation . . . 31
Fuel Sensor Removal and Installation . . . 32
Rear Grille Removal and Installation . . . 33
Rear Grille Latch Removal and Installation . . . 33

Wheel Drives **Page**

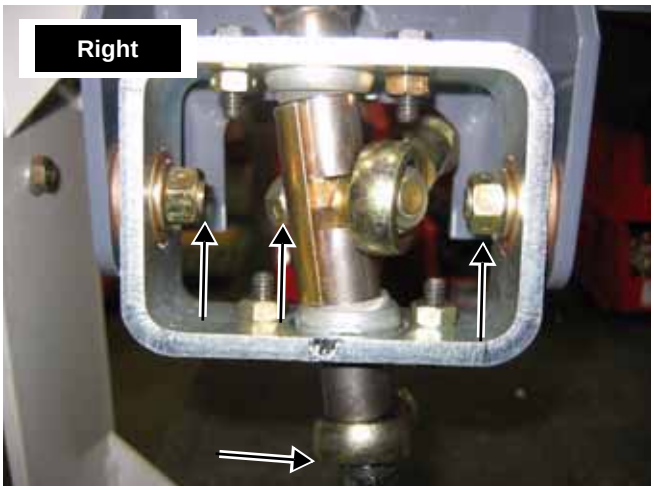
Introduction . . . 35
Wheel Drive Components . . . 35
Drive Chain Adjustment . . . 36
Axle Housing Assembly Removal and Installation . . . 37
Drive Chain Removal and Installation . . . 39
Axle and Wheel Bearing Disassembly and Assembly . . . 40

Controls **Page**

Introduction . . . 43
Control Locations - T-Bar . . . 43
Wheel Drive, Foot Throttle and Lift Tilt Components - Illustration - Later Models . . . 44
Wheel Drive, Foot Throttle and Lift Tilt Components - Parts Listing - Later Models . . . 45
Wheel Drive, Foot Throttle and Lift Tilt Components - Illustration - Earlier Models . . . 46
Wheel Drive, Foot Throttle and Lift Tilt Components - Parts Listing - Earlier Models . . . 47
Control Handle Removal and Installation . . . 48
Control Handle Position Adjustment . . . 49
T-Bar Control Handle Assembly . . . 50
Backup Alarm Components . . . 51
Pivot Tube Removal and Installation . . . 52
Pump Control Arm Assembly Removal and Installation . . . 53
Lift/Tilt Controls Removal and Installation . . . 53
Lift/Tilt Control Adjustment . . . 54
Auxiliary Hydraulics Cable Removal and Installation . . . 55
Auxiliary Hydraulics Cable Adjustment . . . 57
Engine and Hand Throttle Components . . . 58
Hand Throttle, Foot Throttle Pedal and Throttle Cables/Throttle Rod Removal and Installation . . . 59
Hand Throttle Tension Adjustment . . . 61
Foot Throttle Adjustment . . . 61

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4. Remove two capscrews, washers and locknuts on the elastomeric rod ends attaching the control handle assembly to the chassis crossmember. Remove the handle assembly.

Installation Procedure: Follow all warnings first, then reverse the removal steps (see NOTE below).

NOTE: When the control handle is installed, and if the control rod(s) are adjusted correctly, the control handle shafts are vertically straight, up and down. If changes are needed, refer to the "Control Handle Position Adjustment" procedure in this chapter.

Control Handle Position Adjustment

Control handles are adjusted two ways for proper operation: a vertically straight appearance and the handle orientation.

Adjustment Procedure

WARNING

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

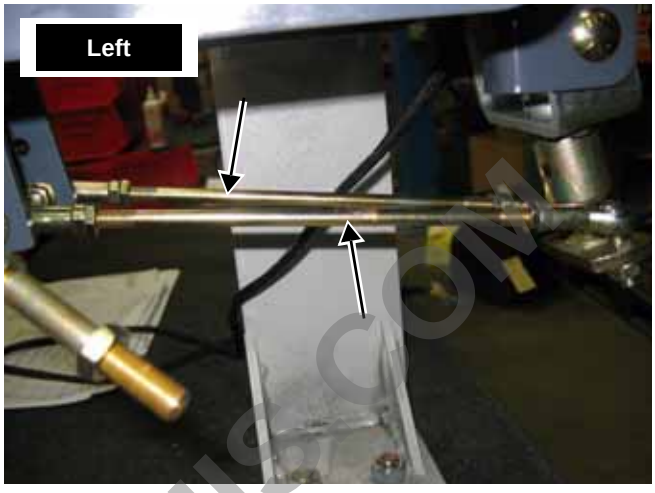
Raise lift arm; engage lift arm support device.

Shut off the engine.

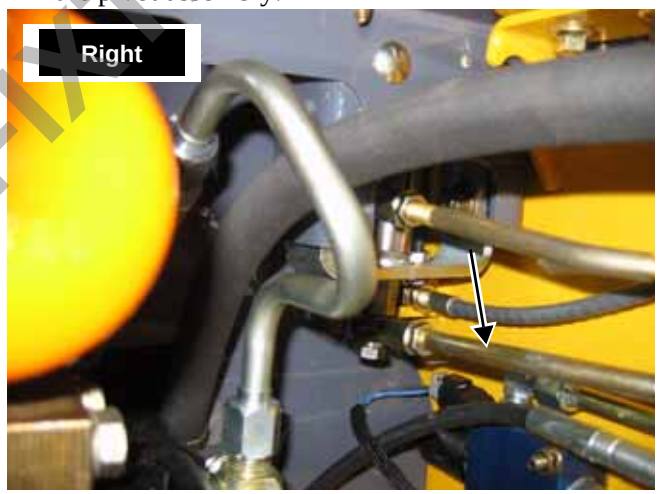
Tilt back ROPS/FOPS until lock engages.

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

1. Left control handle: Adjust the two control rod lengths connected at the pivot assembly, so the bracket on the pivot assembly is oriented 90° to the chassis.



2. Right control handle vertical orientation: Change the lift control rod length attached to the bottom of the pivot assembly.



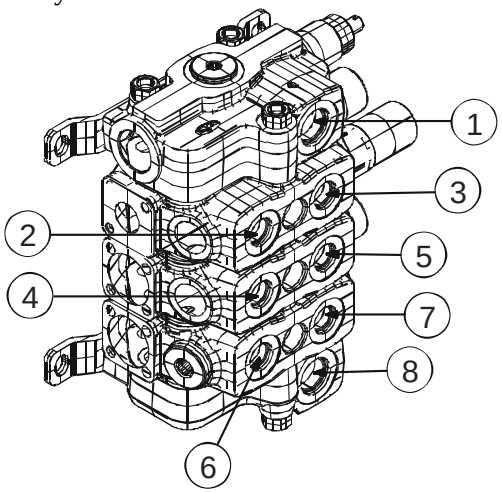
3. Right control handle orientation: Change the tilt control rod length attached to the handle above the pivot assembly. Adjust the tilt rod length until it is oriented 90° to the chassis. BE SURE the adjustment allows for the full actuation of the control valve in both directions of handle operation.



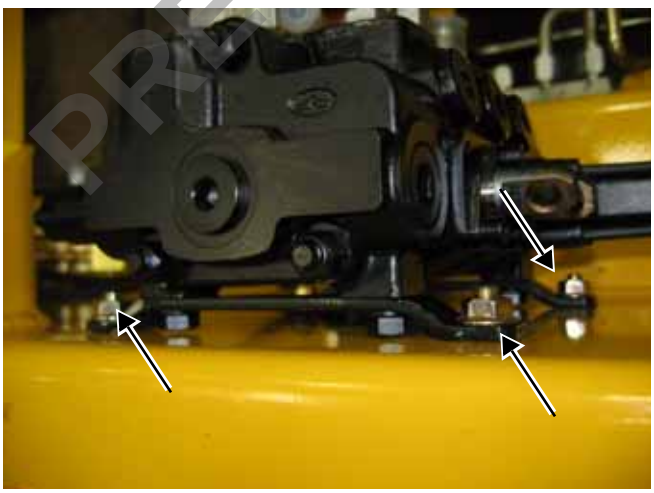
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NOTE: To aid in re-assembly of hydraulic hoses and tubes, mark hoses and tubes to be removed before disassembly.



5. Port 1: Disconnect the hydraulic hose from the 90° fitting on the control valve (other end connects to gear pump).
6. Port 2: Disconnect the hydraulic self-leveling valve tube from the long 90° fitting on the control valve.
7. Port 3: Disconnect the hydraulic self-leveling valve tube from the 90° fitting on the control valve.
8. Port 4: Disconnect the hydraulic self-leveling valve tube from the long 90° fitting on the control valve.
9. Port 5: Disconnect the hydraulic self-leveling valve tube from the 90° fitting on the control valve.
10. Port 6: Disconnect the auxiliary hydraulic tube from the straight fitting on the control valve.
11. Port 7: Disconnect the auxiliary hydraulic tube from the straight fitting on the control valve.
12. Port 8: Disconnect the hydraulic oil cooler tube from the bottom 90° fitting on the control valve.
13. Remove four capscrews and locknuts securing the control valve to the chassis.



14. Lift out the control valve. Removal may require loosening the opposite ends of some of the disconnected tubes.

NOTE: Cap or plug ALL hydraulic hoses, tubes, fittings and control valve ports immediately after being disconnected to prevent fluid loss and contamination of the hydraulic system.

Installation Procedure

1. Secure the control valve to the chassis with four capscrews and locknuts. If straight or 90° fittings are not in the valve, install them at this time.
2. Port 8: Connect the hydraulic oil cooler tube to the bottom 90° fitting on the control valve.
3. Port 7: Connect the auxiliary hydraulic tube to the straight fitting on the control valve.
4. Port 6: Connect the auxiliary hydraulic tube to the straight fitting on the control valve.
5. Port 5: Connect the hydraulic self-leveling valve tube to the 90° fitting on the control valve.
6. Port 4: Connect the hydraulic self-leveling valve tube to the long 90° fitting on the control valve.
7. Port 3: Connect the hydraulic self-leveling valve tube to the 90° fitting on the control valve.
8. Port 2: Connect the hydraulic self-leveling valve tube to the long 90° fitting on the control valve.
9. Port 1: Connect the hydraulic hose at the 90° fitting on the control valve (other end connects to gear pump).



10. Re-connect the auxiliary hydraulics spool lock electrical connector at the front of the control valve.
11. Re-connect the electrical connector on the neutral centering spool lock at the rear and bottom of the control valve to the main chassis electrical harness.

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