

# Mobile Lubrication Library

## Komatsu HD465-8 and HD605-8

### Installation Instructions



Instructions for installing a Graco automatic lubrication system on the Komatsu HD465-8 and HD605-8.

**Part No. 17P600**

*Maximum System Working Pressure: 2750 psi (18.96 MPa, 189.6 bar)*



#### Important Safety Information

Read all warnings and instructions in all Graco related component manuals and all Komatsu equipment manuals. Save all instructions.

#### Related Graco Component Manuals\*

Manual No.	Manual Title
3A3956	Dyna-Star® HP Pump System
3A2960	GLC2200 Controller
308953	Injectors

*\*Refer to these instruction manuals for additional information related to the installation and operation of system components.*

## ! WARNING



#### FLUID INJECTION HAZARD

Fluid leaks from incorrectly installed or ruptured components, and/or failure to verify the components are properly installed and tested, can result in serious injury such as fluid spraying in the eyes or on skin and fluid injection, or equipment damage. Installation must be done by a qualified professional or Komatsu certified technician and tested prior to use.

*The information contained in this document is only a recommendation for an automatic lubrication system and is not intended to replace the installation and maintenance instructions provided by the original equipment manufacturer.*

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# Installation Checklist

The following checklist is provided as a tool to ensure all installation procedures are completed.

Completed	Description	Page
	Walk around the truck; use a grease gun to verify that all lube points receive grease.	6
	Grease all zerks, before removal	6
	Remove zerks and Komatsu extensions.	6
	Install grease point fittings	7
	Assemble Injectors	8
	Install remote fill	13
	Assemble the pump and fittings	14
	Install and route pump power cable	16
	Mount GLC2200 Controller bracket assembly	20
	GLC2200 Controller cable routing	23
	Wire the GLC2200 Controller	25
	Wire the pump to the GLC2200 Controller	27
	Program GLC2200 Controller	31
	Install the main feed line	34
	Cut hoses to length, apply hose wraps and fittings	34
	Hose Routing between Injectors and Grease Points. DO NOT CONNECT	37
	Install P-clamps	46
	Fill the pump reservoir with grease; purge the main feed line	48
	Run test program; verify all connections are tight; verify all points are receiving lubricant	51

# Recommended Tools and Supplies

Tool	Size/Description	
	US	Metric
Combination wrench*	1/4 in. - 3/4 in.	6 mm - 20 mm
Socket set, standard and deep well with ratchet*	3/8 in. - 3/4 in.	9.5 mm - 20 mm
Screwdrivers: standard and Phillips	1 short; 1 long	
Adjustable wrench	1 small; 1 medium	
Impact wrench		
High speed drill (corded or cordless)		
Drill bit - steel, high quality	5/16 in., 11/16 in.	
Center punch	fine point	
Pipe taper tap	1/8 npt	
Hammer		
Angle grinder		
Grinding disc	Heavy grade grinding disc	
Flap disc	60 - 80 grit	
Cutoff disc	High quality disc	
Cutting blade / knife	Razor blade cutting tool	
Standard pliers		
Needle nose pliers		
Side cut pliers (diagonal cutters)		
Slip joint pliers		
Locking pliers	Small or medium	
Electrician's wire stripper / crimper	General duty wire stripper / crimper	
Soldering iron	30 watt minimum	
Electrical solder		
Soldering flux		
Shrink tubing	Various sizes	
Electrical tape	Black, small roll	
Thread sealant	Liquid thread sealant such as Loctite® 656	
Multi-tester / voltmeter	Must test DC/AC/Ohms	
Electrical connectors	Ring connectors (10, 18 and 24 gauge)	
Tape measure	Standard / metric	
Komatsu primer and paint	Color should match the Komatsu equipment	
Documentation / writing implements	Small note pad, pen, pencil, marker	

\*Both US and Metric sizes of these tools are recommended.

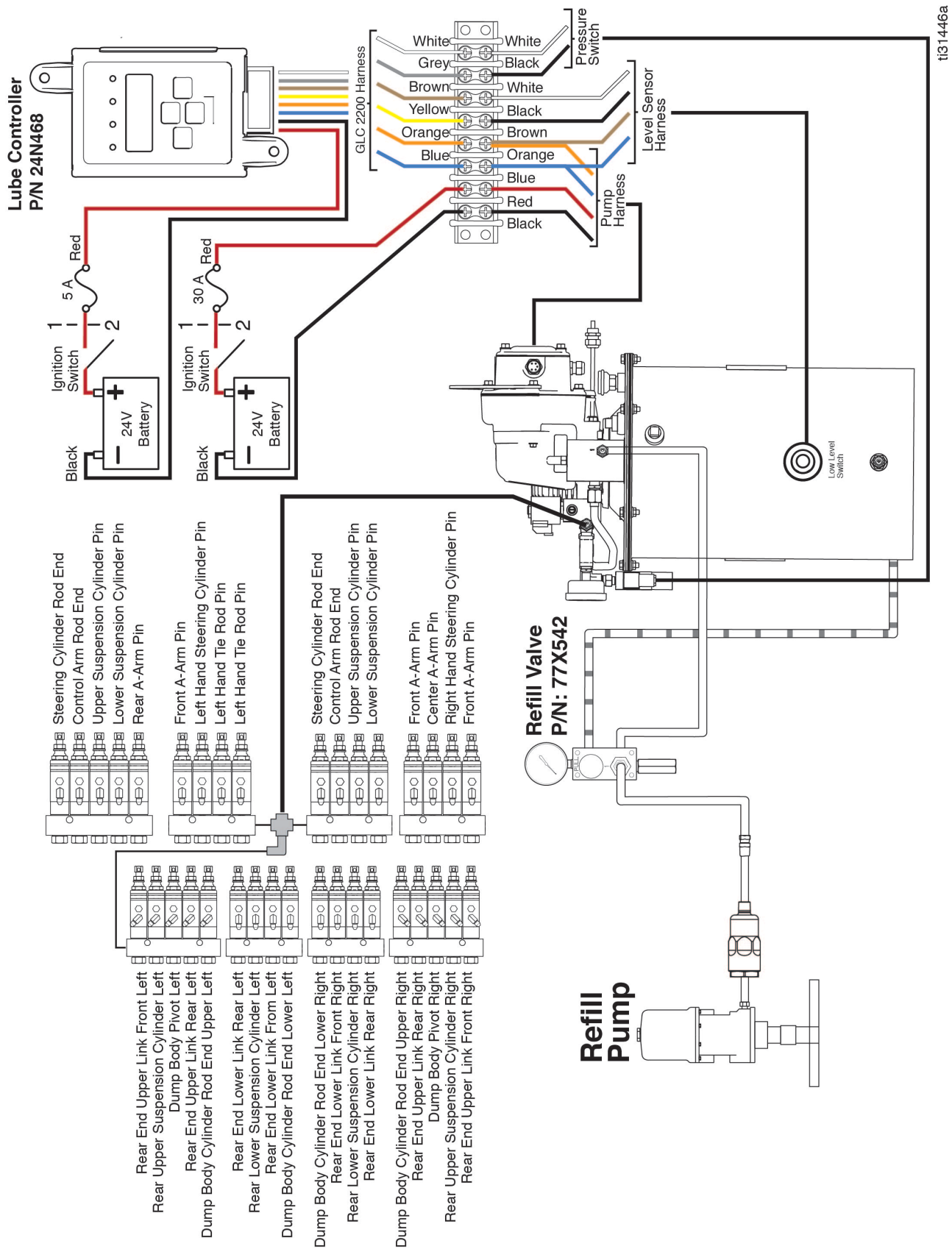
Loctite® is a registered trademark of the Henkel Corporation.

All other Trademarks used herein are the property of their respective owners.

## Installation Notes

- Do not use PTFE tape on fitting threads. Liquid pipe sealant is recommended for use in lubrication systems to eliminate the potential for contamination. If you must use PTFE tape, always skip the first two threads on the fitting.
- Refer to the Installation Checklist provided on page 3 to ensure all installation procedures have been completed.
- Prime and paint all bare metal surfaces prior to installation with matching Komatsu primer and paint.



# Typical Installation



ti31446a

**NOTE:** Photographs may include optional equipment.

# Installation

<b>! WARNING</b>	
 	Disconnect battery before installing the lubrication equipment (FIG. 1). Installing lubrication equipment on powered machinery could result in serious injury from skin injection or parts moving unexpectedly.

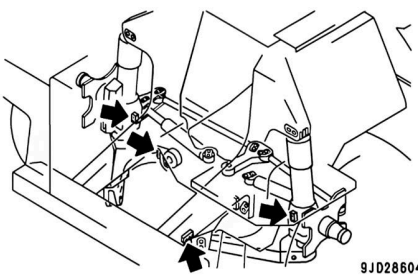
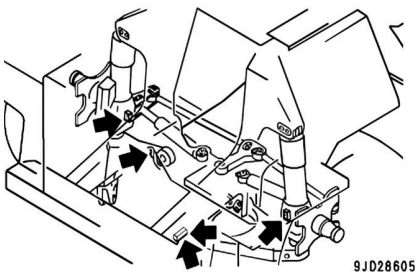
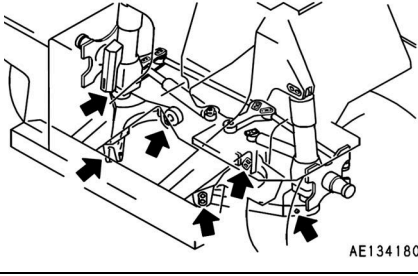
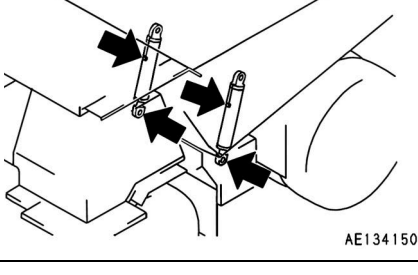
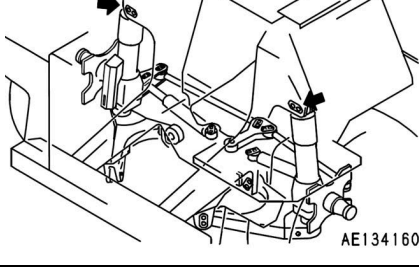
## Zerk Fittings

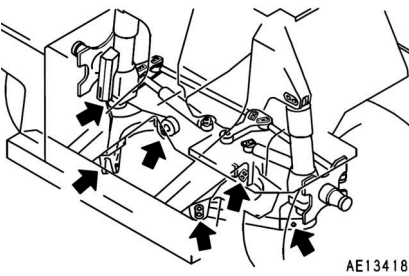
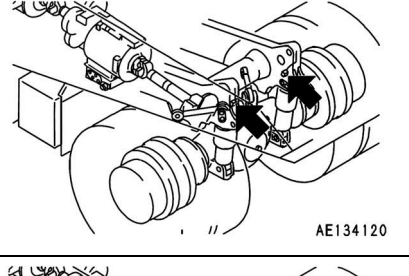
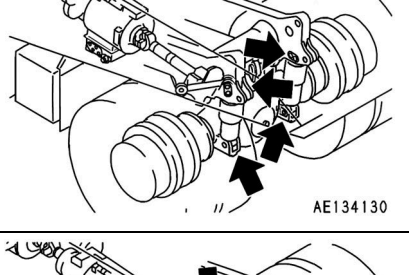
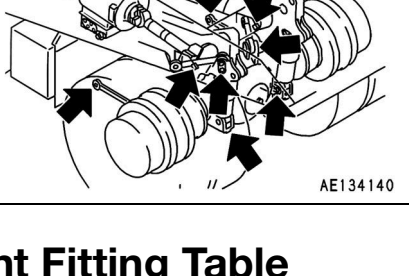
1. Lubricate all grease fittings and verify that every grease point is accepting grease.
2. Use a clean cloth or rag to remove any remaining grease, contaminants or dirt from the area around the passage way to the grease points.
3. Remove zerk fittings and extensions.



FIG. 1

## Grease Point Fittings

Location	Reference
Steering cylinder pin (4 places)	 9JD28604
Steering link pin (5 places)	 9JD28605
Steering linkage (3 places each, right and left)	 AE134180
Hoist cylinder pin (2 places each, right and left) <b>NOTE:</b> Perform the greasing when the dump body is lowered.	 AE134150
Front suspension (1 place each, right and left) <b>NOTE:</b> Perform the greasing when the steering is set to the straight travel.	 AE134160

Steering linkage (3 places each, right and left)	 AE134180
Dump body hinge pin (1 place, right and left)	 AE134120
Rear suspension (2 places each, right and left)	 AE134130
Differential support (4 places each, right and left)	 AE134140

## Grease Point Fitting Table

Lubrication Point	Part No.	Description	Qty
Front Lower	17K062	1/8 bspt Long Extension	2
Suspension Pins	17K061	1/8 bspt x 1/8 npt Elbow	2
	555749	1/8 npt x -4 JIC Straight	2
All Other Front Lubrication Points	17K061	1/8 bspt x 1/8 npt elbow	15
	555749	1/8 npt x -4 JIC Straight	15
Dump Body Cylinders	17K061	1/8 bspt x 1/8 npt elbow	4
	555749	1/8 npt x -4 JIC Straight	4
All Rear Axle Lubrication Points	17K061	1/8 bspt x 1/8 npt elbow	14
	555749	1/8 npt x -4 JIC Straight	14

## Injector Assembly and Installation

Install the -4JIC x 90° elbows in the lower ports of the injectors and the Zerk cap into the top ports of the injectors (FIG. 2).

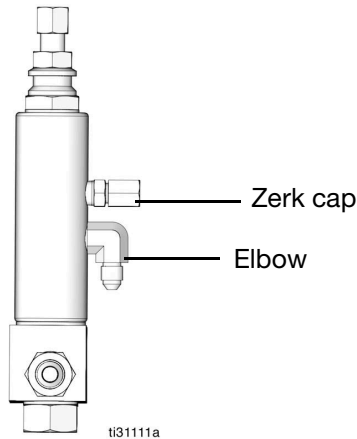


FIG. 2

### Left Side Injectors - 9 points (FIG. 3) Right Side Injectors - 8 points (FIG. 4)

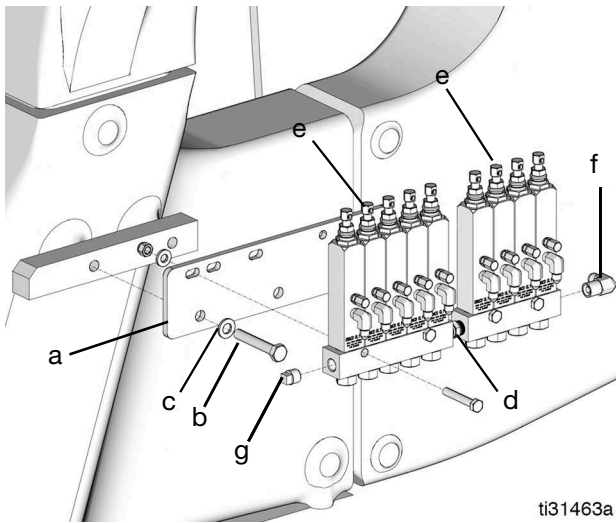


FIG. 3: Left Side Injectors - 5 bank and 4 bank

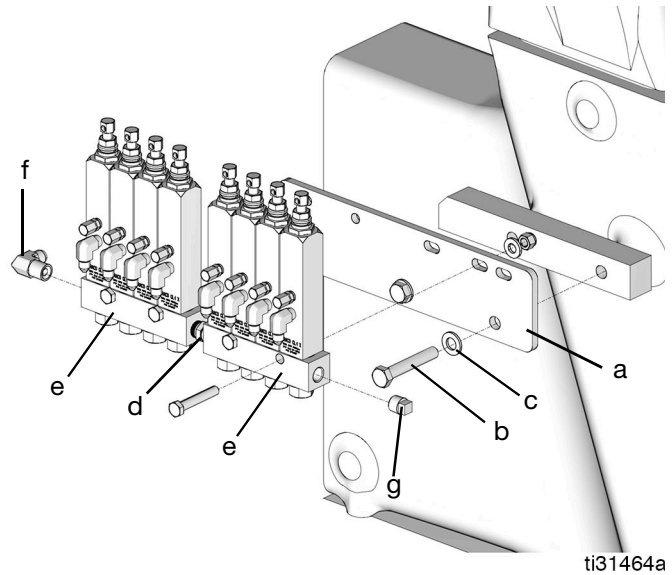


FIG. 4: Right Side Injectors - 4 bank and 4 bank

1. Remove 2 x M12 bolts located behind the suspension cylinder, holding the hose manifold in place.
2. Install the injector mounting plate (a) using 2 x M12 bolts (b) and washers (c) (supplied) (FIG. 3 and FIG. 4).
3. Install a 3/8 in. nipple adapter fitting (d) between the injector manifolds (e) (FIG. 3 and FIG. 4).
  - Left Side Manifold: one 5-bank injector; one 4-bank injector
  - Right Side Manifold: two 4-bank injector
4. Install a 3/8 in. x -6 JIC npt inlet elbow (f) (FIG. 3 and FIG. 4) into the injector manifold assembly (e) facing the back of the injector.
  - Left Side Manifold: elbow (f) is installed in the right side of the injector manifold assembly.
  - Right Side Manifold: elbow (f) is installed in the left side of the injector manifold assembly.
5. Loosely install a 3/8 npt injector plug (g) (FIG. 3 and FIG. 4) into the left side of the injector manifold assembly (e).
  - Left Side Manifold: plug (g) is installed in the left side of the injector manifold assembly.
  - Right Side Manifold: elbow (g) is installed in the right side of the injector manifold assembly.

**NOTE:** Plug (g) is used to purge the system, when needed.



## Rear Injectors - 18 points (FIG. 5)

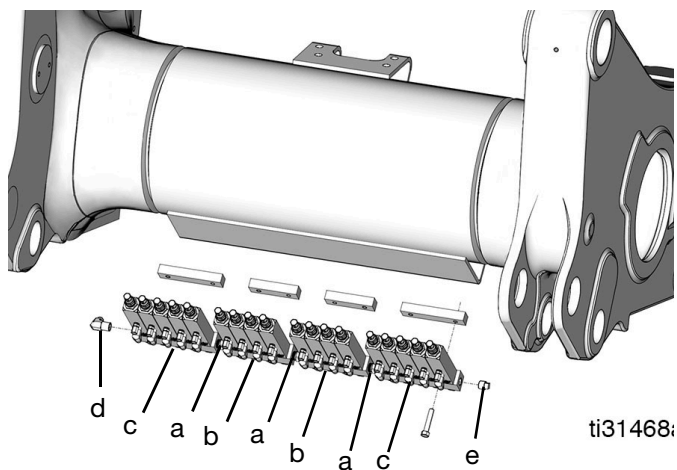


FIG. 5

1. Install a 3/8 npt nipple adapter fitting (a) between each of the injector manifolds (b and c). (See FIG. 5.)

**NOTE:** The two outer injector manifolds are 5-bank (c) manifolds. The two center injector manifolds are 4-bank (b) manifolds. (See FIG. 5.)

2. Install a weld bar bracket to the injector assemblies (b and c, FIG. 5).
3. Position the injector assembly on the flat plate under the rear cross-member over the rear-end. The weld bar should be 1.18 in. from the bend and 1.18 in. from the centerline of the plate as shown in FIG. 6. Mark location of the weld bars.

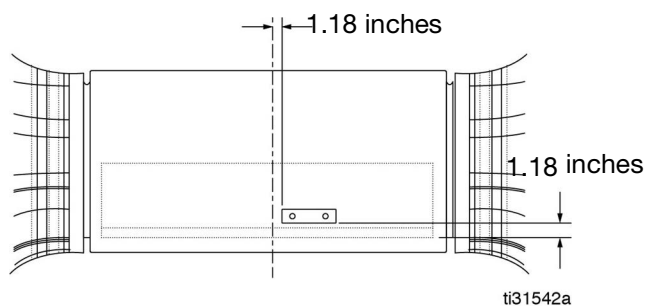


FIG. 6

4. Remove paint from flat plate to prepare surface for welding.
5. Remove one of the weld bars from one of the inner, 4-bank injectors (b) (FIG. 5). Weld in place marked in Step 3.

6. Mount injector assembly to weld bar installed in Step 5. Securely tack remaining weld bars in place.
7. Remove the injector assembly from the weld bars and finish welding the weld bars in place.
8. Prime the weld surface with Komatsu primer. When primer has dried, apply a few coats of matching Komatsu colored paint.
9. Install a -6JIC x 3/8 in. x -6JIC inlet elbow (d, FIG. 5) into the left side of the injector manifold assembly.
10. Loosely install a 3/8 npt injector plug (e, FIG. 5) into the right side of the injector manifold assembly.

**NOTE:** Plug (e, FIG. 5) is used to purge the system, when needed.

## Set Injector Output

1. Turn the adjustment nut (a) down until the head engages the cycle pin (b). (See FIG. 7.)
2. Turn the adjustment nut (a, FIG. 7) clockwise (down) to set the output volume. Refer to the Grease Point Fitting Table to determine the number of turns needed to obtain the desired output value.

**NOTE:** Be sure the pin locating hole (c, FIG. 7) faces outward for operator inspection.

3. Tighten the lock nut (d, FIG. 7) to retain the adjustment position.
4. Install the o-ring (e, FIG. 7) and cap (f) to protect the pin from contamination.

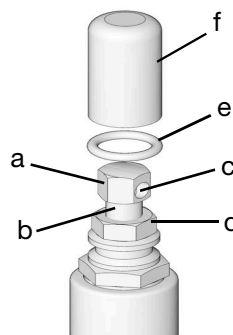


FIG. 7

## Injector Volume Output Adjustment Table

Location	Injector	Setting		
		cu in.	cc	Turns
Left Hand Manifold	Steering Cylinder Rod End	0.06	1	2
Left Hand Manifold	Drag Link LH Side	0.06	1	2
Left Hand Manifold	Upper Suspension Cyl Pin	0.06	1	2
Left Hand Manifold	Lower Suspension Cyl Pin	0.06	1	2
Left Hand Manifold	Rear A-Arm Pin	0.06	1	2
Left Hand Manifold	Front A-Arm Pin	0.06	1	2
Left Hand Manifold	LH Steering Cyl Pin	0.06	1	2
Left Hand Manifold	LH Tie Rod Pin	0.06	1	2
Left Hand Manifold	RH Tie Rod Pin	0.06	1	2
Right Hand Manifold	Front A-Arm Pin	0.06	1	2
Right Hand Manifold	RH Steering Cyl Pin	0.06	1	2
Right Hand Manifold	Center Arm Pin	0.06	1	2
Right Hand Manifold	Rear A-Arm Pin	0.06	1	2
Right Hand Manifold	Lower Suspension Cyl Pin	0.06	1	2
Right Hand Manifold	Upper Suspension Cyl Pin	0.06	1	2
Right Hand Manifold	Drag Link RH Side	0.06	1	2
Right Hand Manifold	Steering Cylinder Rod End	0.06	1	2
Rear Axle Manifold	Upper Differential Link Front	0.044	0.72	4
Rear Axle Manifold	LH Rear Upper Suspension Cyl	0.044	0.72	4
Rear Axle Manifold	Dump Body Pivot	0.08	1.31	0
Rear Axle Manifold	Upper Differential Link Rear	0.044	0.72	4
Rear Axle Manifold	Dump Body Cyl Rod End Upper	0.08	1.31	0
Rear Axle Manifold	Lower Differential Link Rear	0.044	0.72	4
Rear Axle Manifold	LH Rear Lower Suspension Cyl	0.044	0.72	4
Rear Axle Manifold	Lower Differential Link Front	0.044	0.72	4
Rear Axle Manifold	Dump Body Cyl Rod End Lower	0.08	1.31	0
Rear Axle Manifold	Dump Body Cyl Rod End Lower	0.08	1.31	0
Rear Axle Manifold	Lower Differential Link Front	0.044	0.72	4
Rear Axle Manifold	RH Rear Lower Suspension Cyl	0.044	0.72	4
Rear Axle Manifold	Lower Differential Link Rear	0.044	0.72	4
Rear Axle Manifold	Dump Body Cyl Rod End Upper	0.08	1.31	0
Rear Axle Manifold	Upper Differential Link Rear	0.044	0.72	4
Rear Axle Manifold	Dump Body Pivot	0.08	1.31	0
Rear Axle Manifold	RH Rear Upper Suspension Cyl	0.044	0.72	4
Rear Axle Manifold	Upper Differential Link Front	0.044	0.72	4

## P-Clamp Weld Studs

### Left and Right Lower A-arms

1. Mark the center point on the both of the lower A-arms that are located on the left and right side of the truck (FIG. 8 and FIG. 9).



FIG. 8

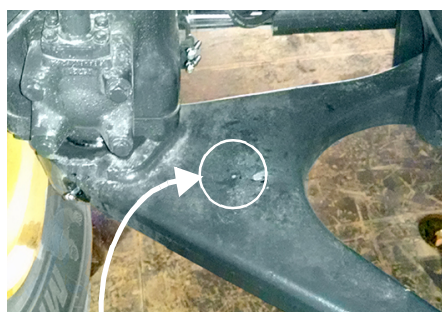


FIG. 9

2. Clean the painted surface with a flap disk to remove surface paint and primer (FIG. 10).



FIG. 10

7. Paint the surface with matching Komatsu approved paint.

3. Weld the p-clamp studs in place (FIG. 11).



FIG. 11

4. Clean any excess weld splatter. Clean and prepare the surface for paint.
5. Paint the surface with matching Komatsu approved paint.

### P-Clamp: Left /Right Dump Body Cylinder Pins

**NOTE:** Install six p-clamp studs to the dump body of the haul truck, three on each side.

- One p-clamp is located on the under side of the dump body on both the left and right side.
- Two p-clamps are located on the outside of the dump body on both the left and right sides.

### Under Side of Dump Body P-Clamps (FIG. 12 and FIG. 13)

1. Measure in 13 in. from the pivot pin and 2 in. up from the bottom of the dump body frame.
2. Mark the location of the weld studs.
3. Clean the painted surface with a flap disk to remove surface paint and primer.
4. Remeasure and mark the final location of the weld stud. Make any minor location adjustments before installing the weld studs.
5. Weld the p-clamp weld stud in place.
6. Clean any excess weld splatter. Clean and prepare the surface for paint.

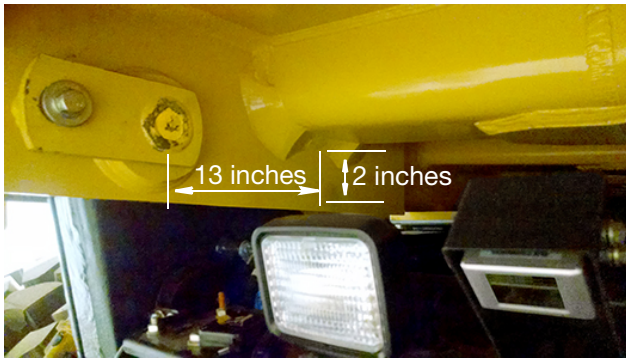


FIG. 12



FIG. 13

### Outside of Dump Body P-Clamps - Left / Right Sides (FIG. 14 and FIG. 15)

1. On both the left and right sides of the dump body, align the weld stud below the center of the dump body support gussets, 2 in. up from the bottom of the dump body frame (FIG. 15).
2. Mark the location of the weld studs.
3. Remove paint and prepare surface for welding.
4. Weld studs in position determined in Step 1.
5. Clean any excess weld splatter. Clean and prepare the surface for paint.
6. Paint the surface with matching Komatsu approved paint.



FIG. 14

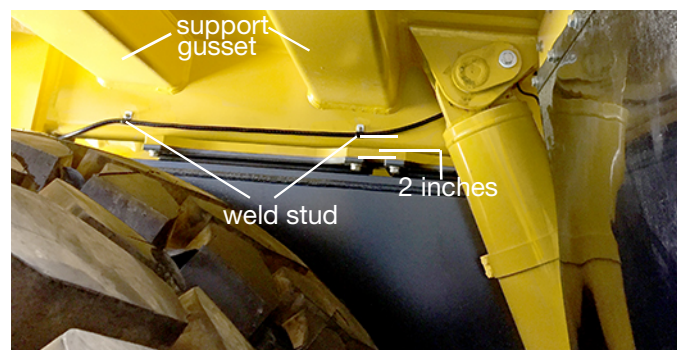
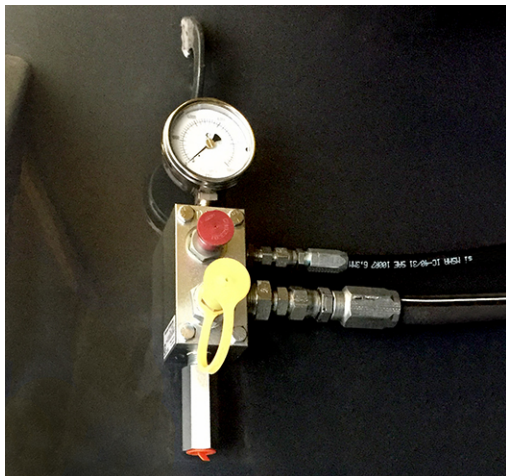


FIG. 15

## Remote Fill Manifold

### Assemble the Manifold (FIG. 16)

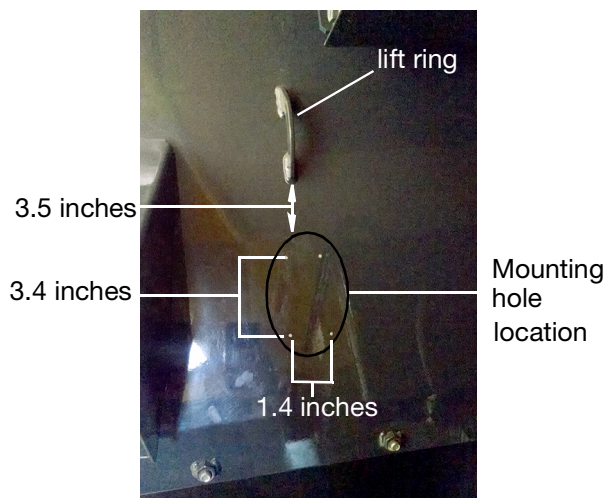


**FIG. 16**

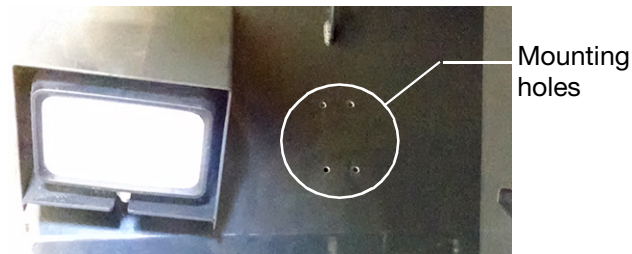
1. Install 3/4 x 3/8 npt reducer bushing into the lower fill outlet port.
2. Install the 3/8 in. x -6JIC fitting into the upper vent port.
3. Install the 3/8 in. x -6JIC fitting into the lower fill outlet port.

### Remote Fill Manifold Installation (FIG. 17)

1. Locate the lift ring behind the front left tire fender near the rear illumination lamp. The lift ring will be used for aligning the manifold for installation. Measure 3.5 in. down from the lift ring.
2. Mark the center between the two upper bolt holes.
3. Measure approximately 0.7 in. to either side of the center line and make a mark for the upper two bolt holes.
4. Keeping the measurement square with the original center line, mark and drill a hole pattern 1.4 in. wide by 3.4 in. high for 1/4 in. bolts. See hole layout shown in FIG. 17.



**FIG. 17**



**FIG. 18**

5. Use the supplied 1/4 -20 bolts, washers, and lock-nuts to mount the remote manifold to the fender (FIG. 19).



**FIG. 19**

# Electric Dyna-Star (EDS) Pump

## Pump Assembly

**NOTE:** For some installations, removing the Autofill Shut Off (AFSO) fill port tube (attached to the vent valve manifold) may allow for additional assembly clearance (FIG. 20).

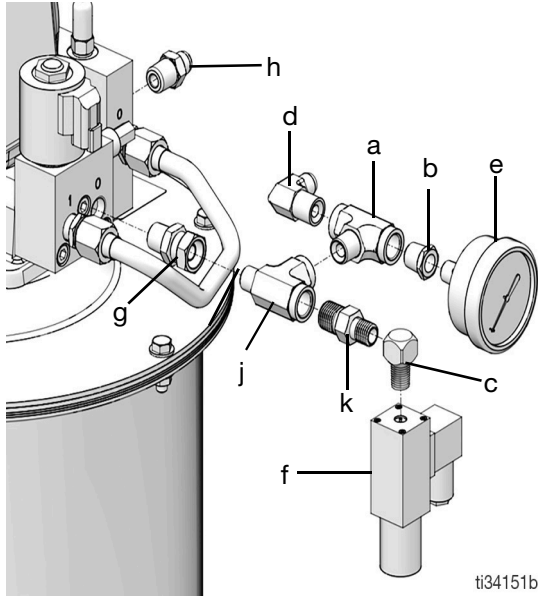


FIG. 20

### Fitting Table

Ref	Description	Qty
a	3/8 in. branch tee	1
b	3/8 in. x 1/4 in. reducer bushing	1
c	1/4 in., 90° street elbow	1
d	3/8 in. x -6JIC street elbow	1
e	Gauge	1
f	Pressure switch	1
g	3/8 npt straight swivel	1
h	3/8 npt to -6 adapter	1
j	3/8 in. run tee	1
k	3/8 in. to 1/4 in. reducer nipple	1

1. Assemble the 3/8 in. branch tee fitting (a), 1/4 in. reducer bushing (b), 3/8 in. 90° street elbow (c), 3/8 in. x -6JIC elbow (d), and 3/8 in. run tee (j). (See FIG. 20).
2. Install the 3/8 in. x 1/4 in. reducer nipple (k) into the 3/8 in. street elbow (c). (See FIG. 20.)

3. Install the back mount gauge (e) into the reducer nipple (b) and install the pressure switch onto the 3/8 in. x 1/4 in. reducer nipple (k). (See FIG. 20)
4. Install the 3/8 npt straight swivel fitting (g, FIG. 20) into the pump outlet port on the vent valve manifold.
5. Install the gauge (e) and pressure switch fitting assembly (Steps 1- 4) to the 3/8 in. swivel (g) in the pump outlet port. (See FIG. 20).
6. Install a 3/8 npt x -6JIC straight fitting (h, FIG. 20).
7. Remove the plug from the bottom fill port on the reservoir and install a 1/2 in. x 3/8 in. bushing and 3/8 npt to -6 adapter. (FIG. 21).

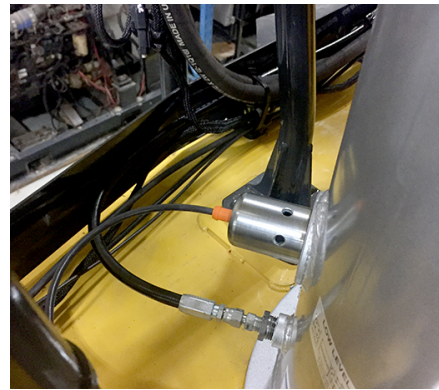


FIG. 21

8. If the AFSO fill port tube was removed (See NOTE and FIG. 22), reinstall the fill port tube.

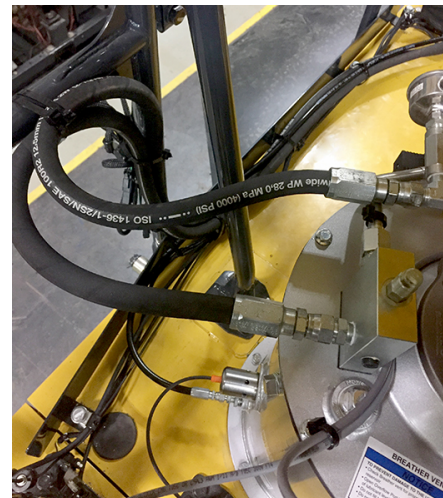



FIG. 22

## Pump Installation

				
<p><b>LIFTING HAZARD</b></p> <p>This equipment is heavy. Lifting or moving heavy equipment incorrectly can cause serious injury such as muscle strain or back injuries. To avoid injury:</p> <ul style="list-style-type: none"> <li>• Do not lift or move this equipment without assistance.</li> <li>• Always use a lifting device secured to the pump lift ring when moving or installing this equipment.</li> </ul>				

1. Use the lift ring on the EDS pump to hoist the reservoir onto the right side deck plate of the haul truck (FIG. 23).



FIG. 23

2. Position the reservoir between the Komtrax antenna tower and the right side rail support.
3. Rotate the pump to position the low level sensor and pump inlet and outlet ports between the antenna tower and the rail support (FIG. 24).



FIG. 24

4. Align the reservoir mounting hole closest to the rail on the right side. Measure 11.75 in. from the front edge of the deck plate (FIG. 25).

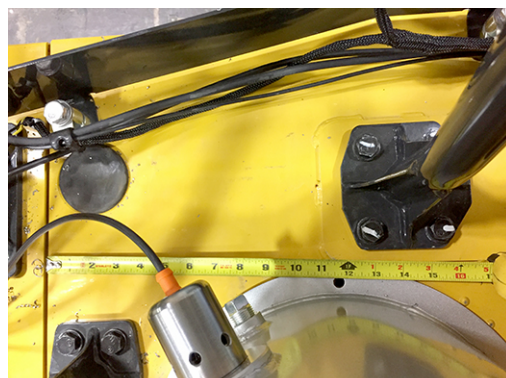


FIG. 25

5. Use the electrical retainer stand-off closest to the right side toe kick as a reference point and measure to the reservoir mounting hole 12.75 in. (FIG. 26).

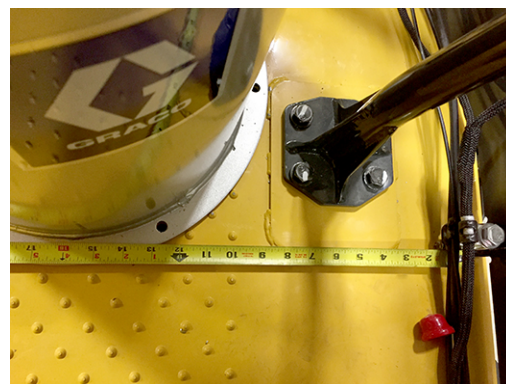


FIG. 26

6. Confirm alignment by measuring horizontally from the rail support plate 4.25 in. to the pump reservoir mounting hole (FIG. 27).



FIG. 27

7. Confirm fore/aft alignment by measuring from the rail support plate 6.75 in. to the pump reservoir mounting holes (FIG. 28).



FIG. 28

8. Mark the mounting holes and drill holes for 3/8 in. bolts.
9. Realign the pump reservoir (FIG. 29).

**NOTE:** The installation surface is not level due to the slip resistant contour of the deck plate. Additional washers are included in the kit to shim the pump reservoir level. (2 washers are recommended.)



FIG. 29

10. Install pump reservoir using the supplied 3/8 in. x 4 in. bolts, washers, and locknuts.

## Route the Power Cable

### Pump Power Cable (supplied EDS cable)

1. Securely fasten the female M23 connector to the pump male M23 connector. Use channel locks to ensure a tight fitting. Do not over-tighten.
2. Route the power cable down the Komtrax antenna support arm (FIG. 30) and into the electrical grommet on the deck plate (FIG. 31). Be sure to leave just enough slack in the power cable to allow for cable removal for service.

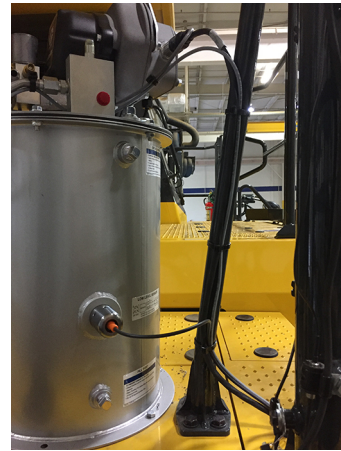


FIG. 30

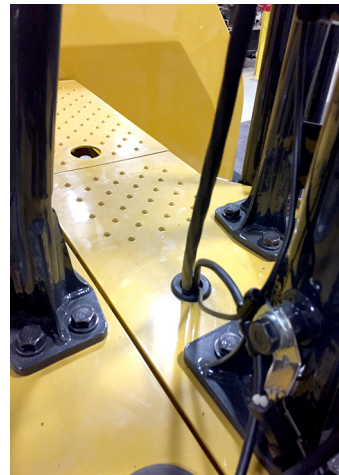
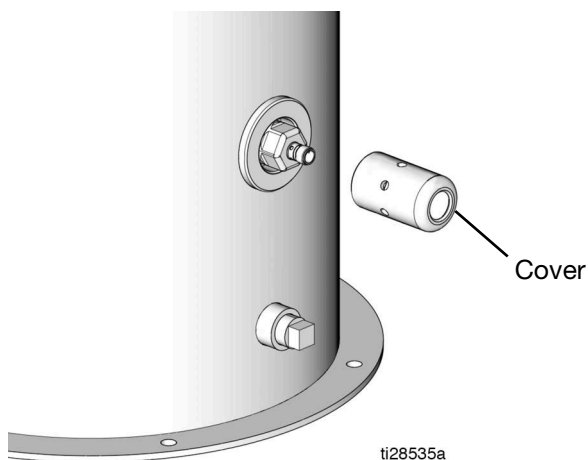


FIG. 31



## Low Level Cable

1. Remove the level sensor protective cover (FIG. 32).



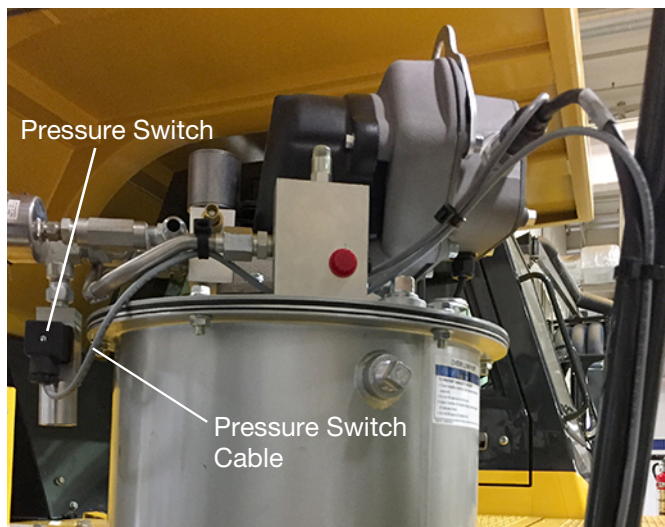
**FIG. 32**

2. Slide low level cable PN: 129072 through the access hole in the sensor housing and secure to the level sensor.
3. Reinstall the level sensor protective housing.
4. Route the level sensor cable down the Komtrax antenna support arm and into the electrical grommet on the deck plate. Be sure to leave just enough slack in the power cable to allow for cable removal for service (FIG. 33).



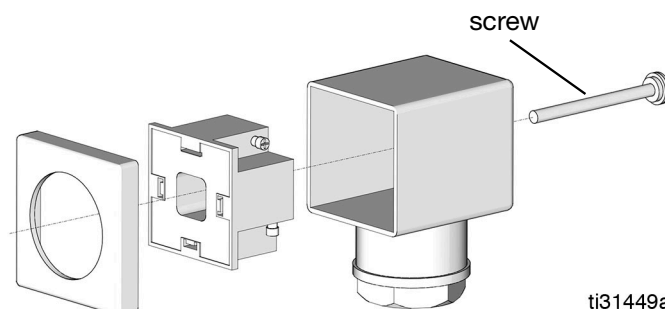
**FIG. 33**

## Pressure Switch Cable (FIG. 34)



**FIG. 34**

1. Remove the DIN connector on the side of the pressure switch.
2. Remove screw. Pry the DIN connector female socket from the housing and remove the cable gland from the other end.



**FIG. 35**

3. Cut the M12 connector from the supplied pressure switch cable PN: 124300.
4. Strip back 1 in. of wire cover from the cable being sure not to damage the internal wires.
5. Select the black and white wires and cut back the other two wires in the cable.
6. Strip back 0.25 in. of wire cover from the black and white wires in the cable.
7. Slide the wires through the cable gland and into the DIN connector housing.

8. Connect the black and white wires to pins 1 and 3 of the female DIN connector. Polarity is not important as this is only a contact switch.
9. Carefully slide the female DIN connector into the DIN housing. Make sure to rotate the connector so that the cable gland is facing down.
10. Reinstall the gasket and retaining screw through the DIN connector into the pressure switch.
11. Loop the pressure switch cable over the pump reservoir lid and to the pump power cord. Retain with zip ties (see FIG. 34).
12. Follow the routing of the pump power cord, down the Komtrax antenna support arm and into the electrical grommet on the deck plate. Be sure to leave just enough slack in the power cable to allow for cable removal and service.

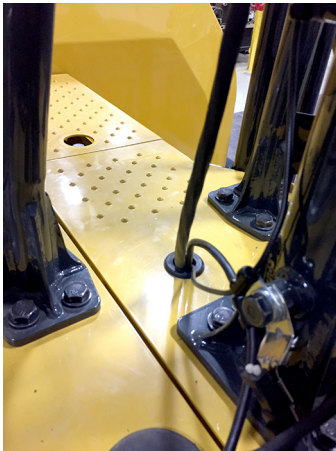


FIG. 36

### Cable Routing

1. After all the cables are installed and routed through the deck, fasten the cables together onto the Komtrax antenna support arm. Be sure to leave enough slack in the cables to allow for any service needed in the future (FIG. 34).
2. Open the battery box in the front of the haul truck and remove the right side access cover (FIG. 37 and FIG. 38).

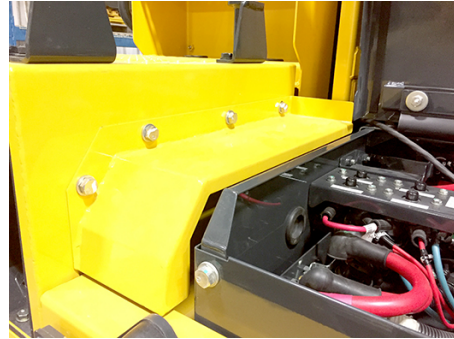


FIG. 37

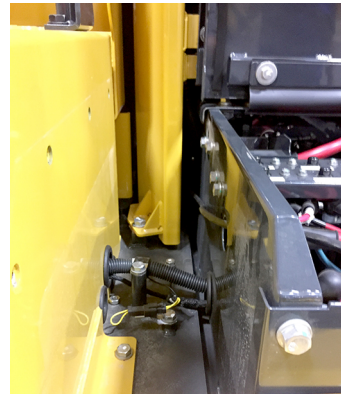


FIG. 38

3. Remove the deck cover at the top of the stairs by accessing the retaining bolts under the rubber grommets. Route the pump cables under the cover and into the engine by following the existing electrical wiring (FIG. 39 and FIG. 40).



FIG. 39



FIG. 40

- Use zip ties to fasten the pump wires to the existing p-clamps and standoffs. Follow the existing wire looms inside the engine bay to route the pump wires down the electrical looms, and toward the front of the radiator housing (FIG. 41 - FIG. 42).

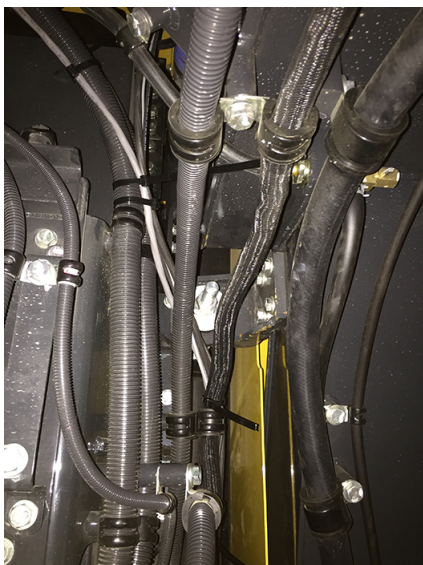


FIG. 41



FIG. 42

- Continue routing the pump wires by following the existing cables through the dust shield around the radiator housing (FIG. 43). Extract the cables next to the battery housing in the front of the haul truck.



FIG. 43

- Feed the pump cables through the lower grommet in the battery box and pull the flying leads out through the open cover (FIG. 44).



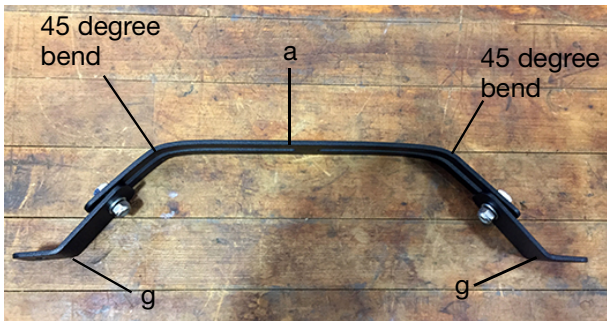
FIG. 44

- Secure the cables to the existing wire looms and p-clamps using the supplied zip ties. Be sure to leave enough slack to not cause stress on the cables and to eliminate any pinch or wear points.
- After GLC2200 wiring connections are made, complete all other required battery box wiring.

# GLC2200 Controller

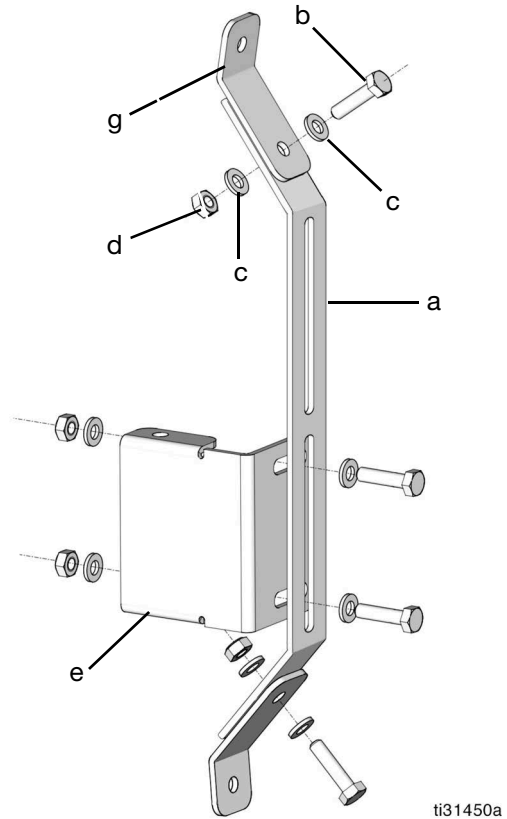
## Bracket Assembly

1. Unpack the GLC2200 bracket PN: 17G007 and lay the components on a clean flat surface.
2. Measure down 2" on both ends of bracket (a). Bend each end to 45 degree angle (FIG. 45).



**FIG. 45**

3. Install bracket fasteners (g) to mounting bracket (a) using bolts (b), washers (c) and nuts (d) as shown in FIG. 46. Fasten loosely to allow for final adjustment when installed to the Komatsu equipment.



**FIG. 46**

ti31450a

4. Install the GLC2200 mounting plate (f) to the mounting base plate (e) using bolts (b), washers (c) and nuts (d) as shown in FIG. 47. Be sure washer (h) is installed between the mounting plate (f) and mounting base plate (e) on the top and bottom. Tighten nuts securely.

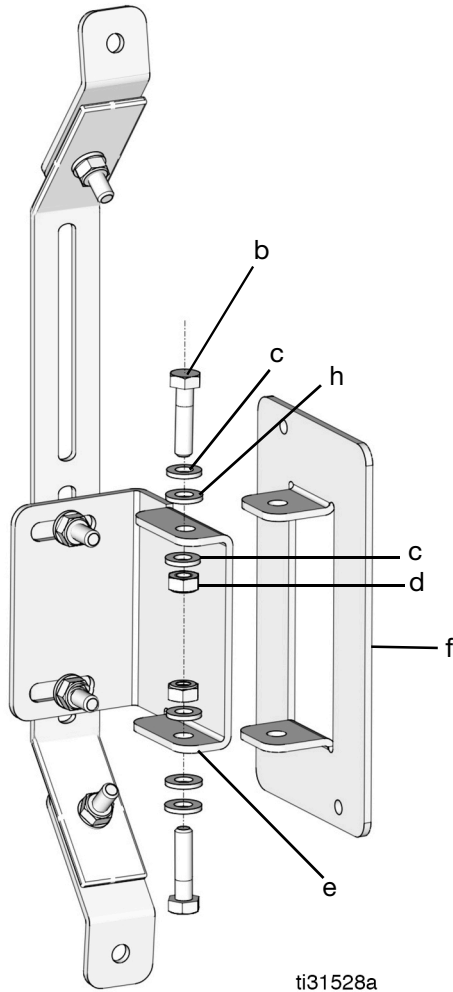


FIG. 47

5. Install the GLC2200 controller on the mounting plate (f) using screws (j), and nuts (k) as shown in FIG. 48. Tighten mounting bolts just enough to secure the controller in the bracket. Adjust the GLC2200 controller for the best viewing angle then tighten bolts securely.

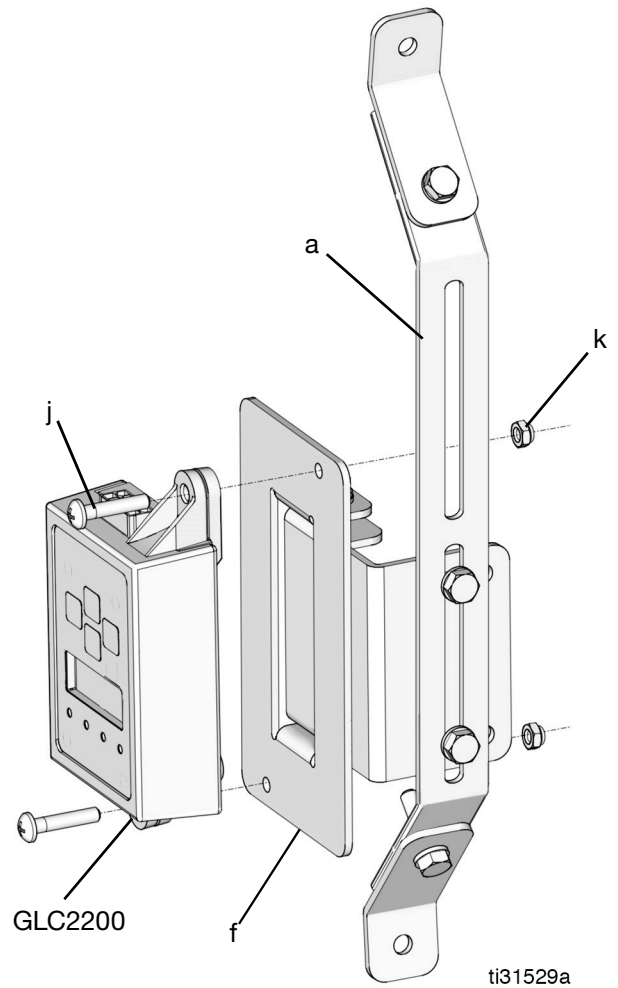
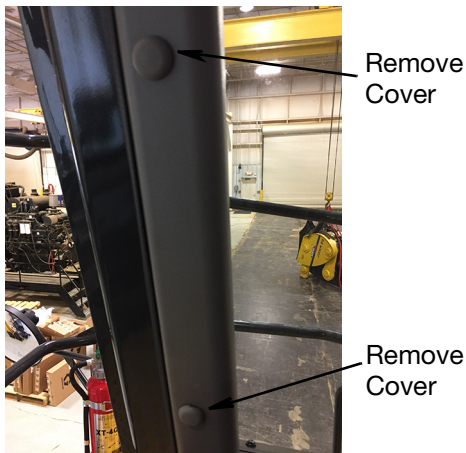


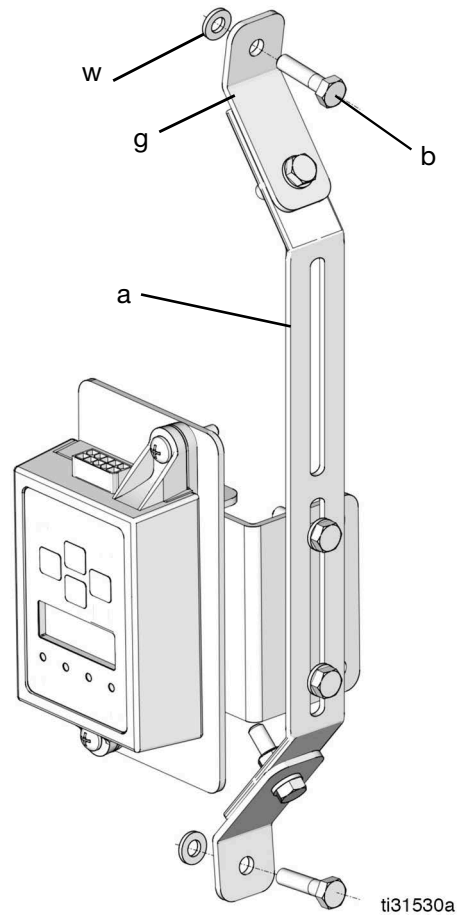
FIG. 48

- Remove the two cab cover bolts on the right side of the cab (FIG. 49).



**FIG. 49**

- After removing the two cab cover bolts, adjust bracket fasteners (g, FIG. 50) to align with bolt holes in Step 6.
- Tighten nuts (d) to secure bracket fasteners (g) to bracket (a). (See FIG. 50)
- Use bolts (b) and washer (w) to secure bracket fasteners (g) to Komatsu truck (See FIG. 50).



**FIG. 50**

- Using the supplied M6 hardware and the existing cab cover bolt washers, apply Loctite to the mounting bolts and secure the GLC2200 to the cab in place of the existing cab cover bolts (FIG. 51).



**FIG. 51**

## Route the GLC2200 Cable

1. Remove the right side, passenger seat by loosening the 4 retaining bolts in the floor, under the seat, to gain access to the electrical housing (FIG. 52).



**FIG. 52**

2. Connect the GLC2200 cable PN:24W981 to the GLC2200 controller.
3. Route the cable between the right side cab cover and the dash panel.



**FIG. 53**

4. Push the cable behind the dash panel and behind the glove compartment (FIG. 53).
5. Continue routing the controller cable behind the metal cab cover below the dash panel.
6. Pull the excess cable from behind the dash and cab cover panels. Leave enough slack to disconnect the control should service be needed (FIG. 54).



**FIG. 54**

7. Route the cable along the floor, under the door on the right side of the cab and through the access hole below the seat into the electrical housing (FIG. 55).



**FIG. 55**

8. Pull the excess cable into the electrical housing leaving enough slack to reduce wear points and stress areas.

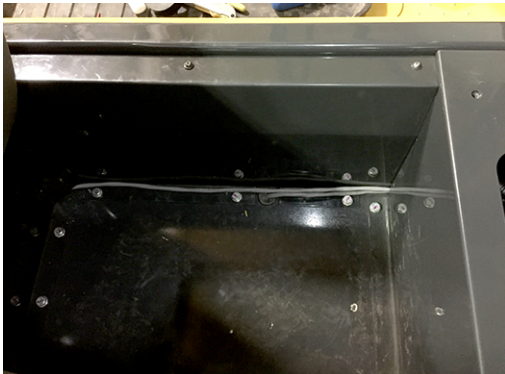
## Route Pump to GLC2200 Cable

1. Run a second cable to connect the GLC2200 to the EDS pump wires.
2. Remove the right side rubber floor mat. Then remove the rubber grommet on the floor (FIG. 56).



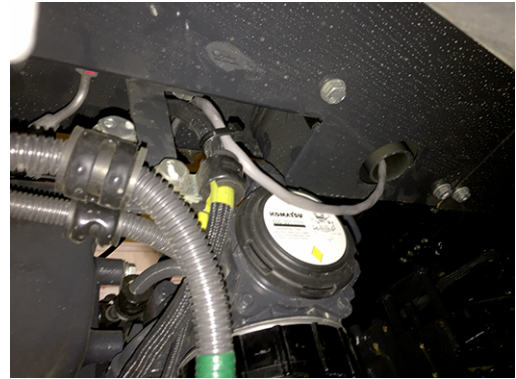
**FIG. 56**

3. Pull a couple feet of cable through the grommet in the floor (see FIG. 56). A small hole must be cut in the grommet to do this (FIG. 55).
4. Route the end of the cable through the electrical housing in the cab to mate it with the GLC2200 cable (FIG. 57).



**FIG. 57**

5. Route the remaining cable through the hole in the floor that was used in Step 2, FIG. 56. Then install the grommet back into the floor.
6. Route the cable with the existing electrical harness inside the engine bay (FIG. 58).



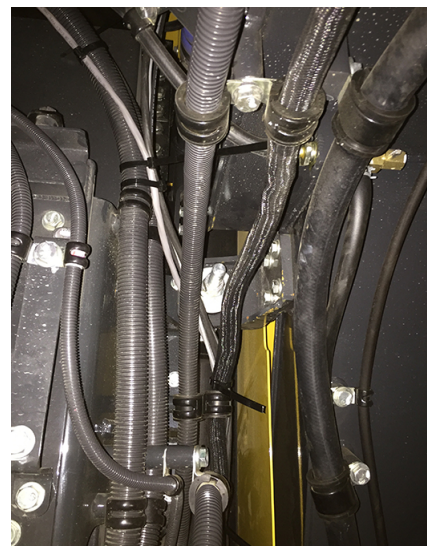
**FIG. 58**

7. Route the cable over the engine and next to the radiator housing (FIG. 59).



**FIG. 59**

8. Using the wire looms inside the engine bay, route the GLC2200 wires down the electrical looms and toward the front of the radiator housing (FIG. 60).



**FIG. 60**

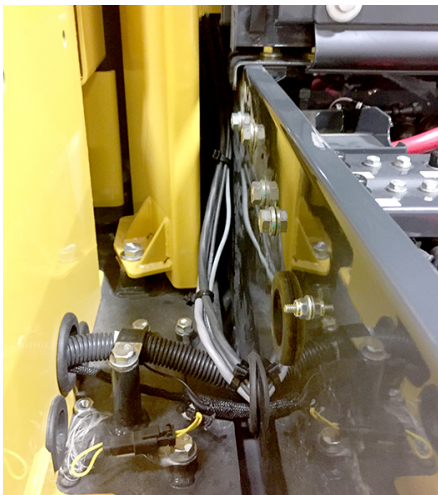


- Follow the existing cables through the dust shield, around the radiator housing and extract the cable into the battery housing located in the front of the haul truck (FIG. 61).



**FIG. 61**

- Push the controller cable through the lower grommet in the battery box and pull the flying leads out through the open cover (FIG. 62).
- Secure the cables to the existing wire looms and p-clamps using the supplier zip ties. Be sure to leave enough slack as to not cause stress on the cable and to eliminate any pinch or wear points (FIG. 62).



**FIG. 62**

## Wiring the GLC2200

### NOTICE

To avoid damaging the truck:

- Turn off and disconnect power at the battery before installing equipment.
- All electrical wiring must be done by a qualified professional or Komatsu certified technician.

- Remove the fuse panel cover behind the right seat (FIG. 63).



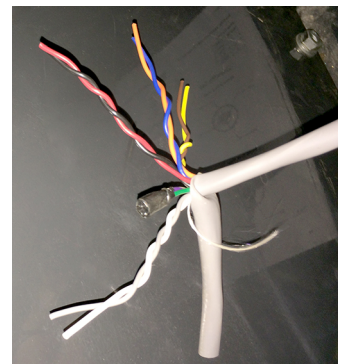
**FIG. 63**

- Remove approximately 3 in. of outer jacket from the end of the wiring harnesses located underneath the right side, passenger seat (removed in Step 1, page 23) (FIG. 64).



**FIG. 64**

- Cut back and tape any wires that will not be used in the lubrication system (FIG. 65).



**FIG. 65**

**Each wire connection should be assembled using the following Wire Splicing procedure:**

Refer to the following Wiring Table for wire connection between the GLC2200 controller, Electric Dyna-Star pump, pressure switch, low level switch and main power.

**NOTE:** Do not connect the red and black wires from the GLC2200 together. These wires need to be connected to switched power in the fuse panel.

### GLC2200 Wiring Table

Terminal Strip Cable			GLC2200 Cable	
Color	Description	+/-	Color	Description
Blue	Pump Signal Power	-	Blue	Pump Signal Power
Purple	Unused (CUT)	-	Purple	Unused (CUT)
Brown	Low Level Input	-	Brown	Low Level Input
White	Pressure Switch Input	-	White	Pressure Switch Input
Orange	Pump Signal Power	+	Orange	Pump Signal Power
Green	Unused (CUT)	+	Green	Unused (CUT)
Yellow	Low Level Input	+	Yellow	Low Level Input
Gray	Pressure Switch Input	+	Gray	Pressure Switch Input

### Wire Splicing

1. Remove 1 in. of insulation (FIG. 66).



FIG. 66

2. Slide 1.5 in. of shrink tubing over end of one piece of wire.
3. Connect the common colored wire ends together by twisting the stripped wire ends of wires together.

Do not include the Red and Black wires from the GLC2200 cable.



FIG. 67

4. Solder connection with a soldering iron (FIG. 68).



FIG. 68

5. Slide the shrink tubing over the soldered wires. Use a heat gun to contract the shrink tubing (FIG. 69).



FIG. 69

6. Repeat Steps 1 - 5 for all wires except the red and black wires from the GLC2200 controller.
7. Wrap wiring assembly with electrical tape or cable loom to protect connection.
8. Feed the loose RED and BLACK wires into the fuse panel by routing the wire behind the fuse panel cover (FIG. 70).

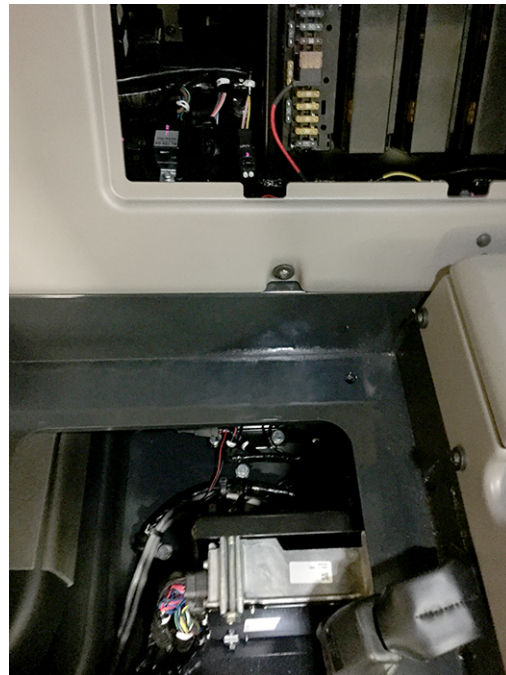


FIG. 70

9. Attach a ring connector to the ground wire.
10. Attach an add-a-fuse, fuse splice connector to the power wire of the controller. Install a 5 Amp fuse.

11. Remove a bolt from the relay rail closest to the fuse panel and connect the grounding ring to the bolt. Re-tighten bolt.
12. Connect an add-a-fuse to the power wire.
13. Remove fuse BTI/10 (Auto Lubrication (OPT) (FIG. 71).

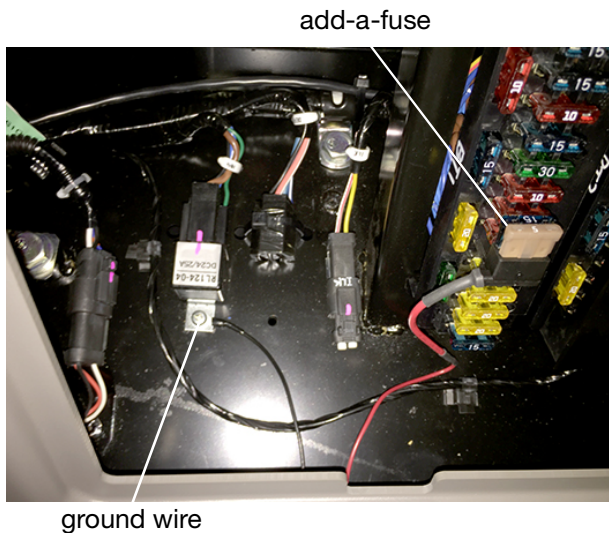


FIG. 71

FUSE TABLE		
BT1		
1	MAIN CLEARANCE LAMP	10A
2	HEAD LAMP (HI)	15A
3	HEAD LAMP (Lo)	15A
4	STOP LAMP	10A
5	BACK LAMP BUZZER	15A
6	HEAT MIRROR(OPT) POWER	30A
7	HEAT MIRROR(OPT) (RIGHT, UPPER)	10A
8	HEAT MIRROR(OPT) (LEFT)	10A
9	HEAT MIRROR(OPT) (RIGHT, LOWER)	10A
10	AUTO LUBICATION(OPT)	15A
11	DC CONVERTER	20A
12	AIR SUS. SEAT	20A
13	POWER WINDOW (RIGHT)	20A
14	POWER WINDOW (LEFT)	20A
15	FOG LAMP(OPT)	15A
1	ENGINE	
2	STAR	
3	A/C	
4	RTD	
5	T/M	
6	MONI	
7	REAR	
8	PUMF	
9	K COM	
10	ID KI	
11	KOM	
12	DOW	
13	ABS	
14	AUTO	
15	SPA	

FIG. 72

14. Install the BTI/10 fuse into the add-a-fuse and install the add-a-fuse into the #10 fuse slot. (FIG. 72).
15. Wrap the new cable connections with electrical tape for additional protection and attach to existing wire looms with zip ties.
16. Reinstall the fuse panel cover, seat and bolts, and place the floor mats back in their respective positions.

## Wire the Pump to the GLC2200

### Installation of the Terminal Strip

1. Open the battery box and locate the flat area on the right side of the battery box (FIG. 73).

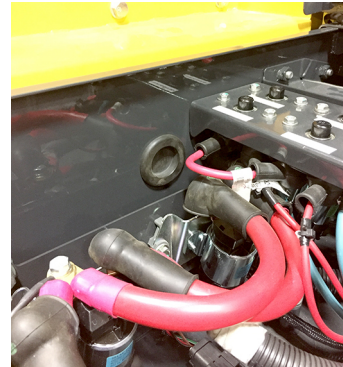


FIG. 73

2. Measure down 2.5 in. from the inside lip of the battery box (FIG. 74). Measure in 1.75 in. and 6.75 in. from the front of the battery box. Mark each location (FIG. 74 and FIG. 75).



FIG. 74



FIG. 75

3. Before drilling the holes, confirm the hole locations by dry fitting the terminal strip top mounting holes over the marks recently made. Drill the holes for #10 fasteners (FIG. 76).

- Using the supplied hardware, mount the terminal strip to the battery box (FIG. 76).



FIG. 76

### Pump Power Wire

- Approximate the required length of power cable needed to connect to the bottom of the terminal strip. Trim the excess cable. Save the excess power cable to make a ground cable for the EDS pump power (FIG. 77).
- Trim back approximately 2 in. of cover from the EDS power cable. Strip back approximately 1/4 in. of cover from each of the pump cable wires.
- Install a ring crimp connector and shrink tubing to each of the pump cable wires (FIG. 77).



FIG. 77

- From left to right, install the pump power cable wires into the first 4 bottom lugs of the terminal strip (see FIG. 82, page 30).

### Pump Wire Color Table

Color	Description
Black	Ground
Red	24V+
Blue	2200 Blue
Orange	2200 Orange

- Extract 1 foot of black ground wire from the excess power cable wiring trimmed in Step 1. Install a small and large ring connector onto the ground wire and apply shrink tubing (FIG. 78).



FIG. 78

- Install the ground wire to the adjacent ground wire on the terminal strip and attach the other ring connector to a bolt on the battery box frame (FIG. 79).

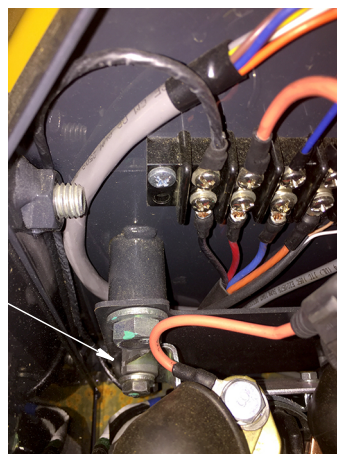
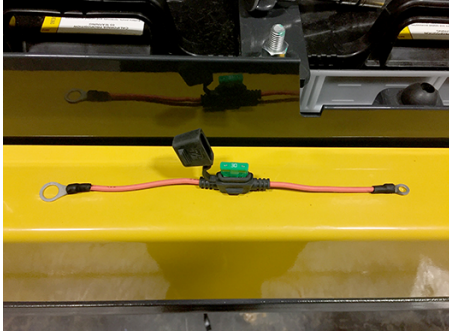


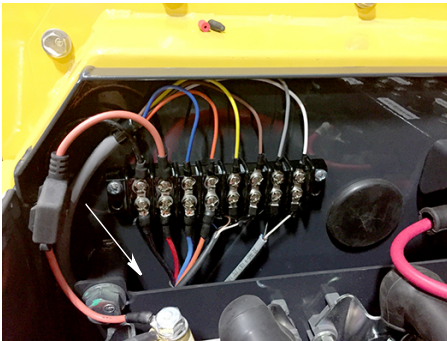
FIG. 79

7. Install a small and large ring connector onto the red in line fuse holder and apply shrink tubing. Install the 30 amp fuse which will be connected to the pump (FIG. 80).



**FIG. 80**

8. Install the in-line fused power wire to the adjacent pump power wire on the terminal strip and attach the other ring of the in-line fuse connector to the switched power lug on the starter relay closest to the front of the battery box (FIG. 81).



**FIG. 81**

### Level Sensor Wire

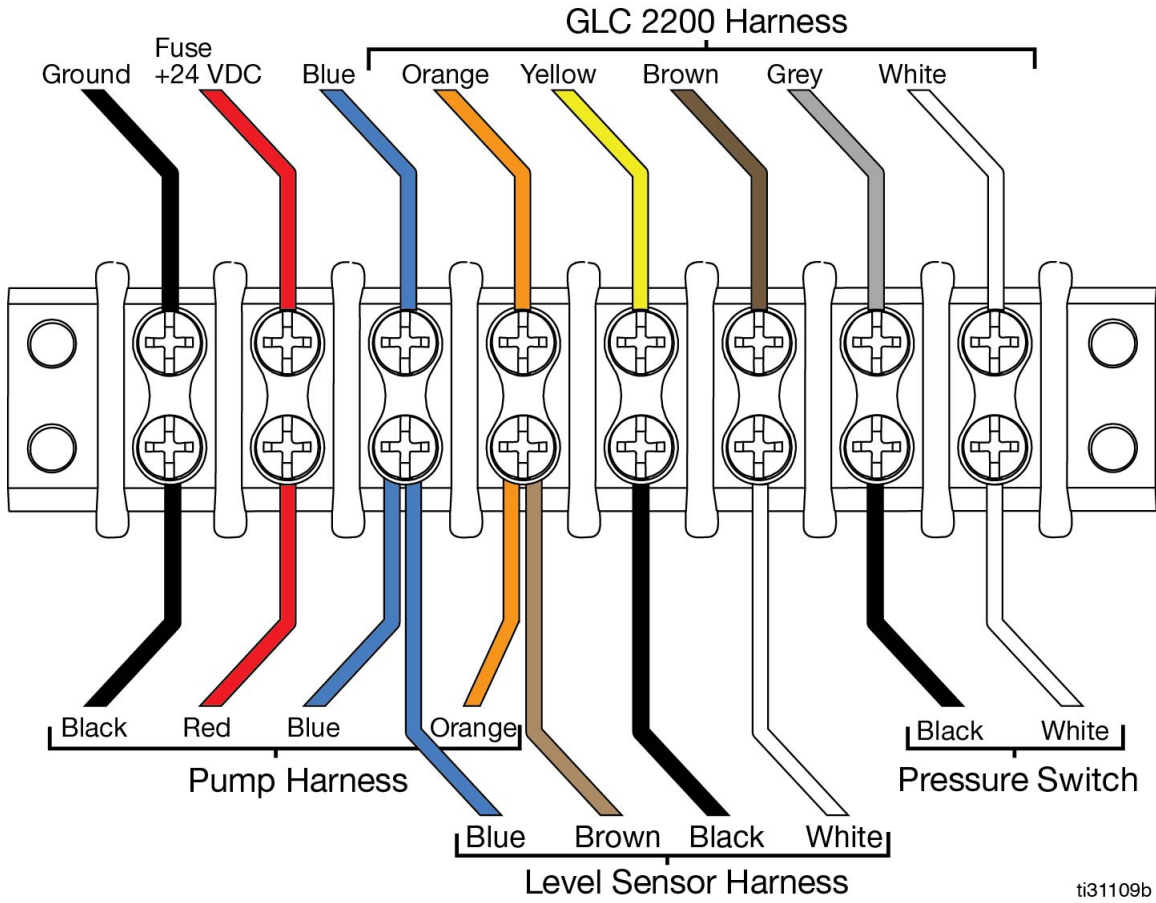
1. Strip back 2 in. of cover from the level sensor cable. Strip back 1/8 in. of wire from each of the 4 wires inside the level sensor cable. Install ring connectors and apply shrink tubing.
2. The blue and brown wires from the level sensor cable share wiring lugs with the blue and orange pump power wires.
3. The black and white wires from the level sensor cable will attach to the next wiring lugs on the bottom half of the terminal strip.

### Pressure Switch Wire

1. Strip back 1 in. of cover from the pressure switch cable. Cut back the blue and brown wires as they will not be used.
2. Strip back 1/8 in. of wire from the black and white wires inside the pressure switch cable (see FIG. 82, page 30). Install ring connectors and apply shrink tubing.
3. The black and white wires from the pressure switch cable will attach to the last two wiring lugs on the bottom half of the terminal strip.

### GLC2200 Cable

1. Approximate the required length needed to connect to the top side of the terminal strip and trim the excess cable back.
2. Strip back approximately 6 in. of cover from the GLC2200 cable. Cut back the purple and green wires unless they will be used to connect to a remote signal light. Cut back the red and black power wires. They are not connected to the GLC2200 and will not be used.
3. Strip back 1/8 in. of wire from each of the remaining wires. Install ring connectors, and apply shrink tubing.
4. Install the GLC2200 controller wires in accordance with the wiring table provided FIG. 82, page 30.
5. Confirm all connections are tight, all cables are properly tied back with zip ties, and there are no excess wires with flying leads or loose wires. Review the terminal diagram (FIG. 82, page 30) to confirm wiring connections.
6. Engage the battery disconnect to restore power to the haul truck. Key-on power to the ACC position inside the cab and confirm power is available for the controller.
7. If the controller powers up, press the manual run button to ensure the EDS pump engages and initiates a lube cycle. If everything powers up correctly, key-off power, disengage the battery disconnect, and close the battery box as wiring is completed.
8. If the controller does not power up or the pump does not engage, refer to the Troubleshooting section, page 52.



ti31109b

FIG. 82

## Component Identification

Keypad, Display, and Icons

### NOTICE

To prevent damage to soft key buttons, do not press the buttons with sharp objects such as pens, plastic cards, or fingernails.

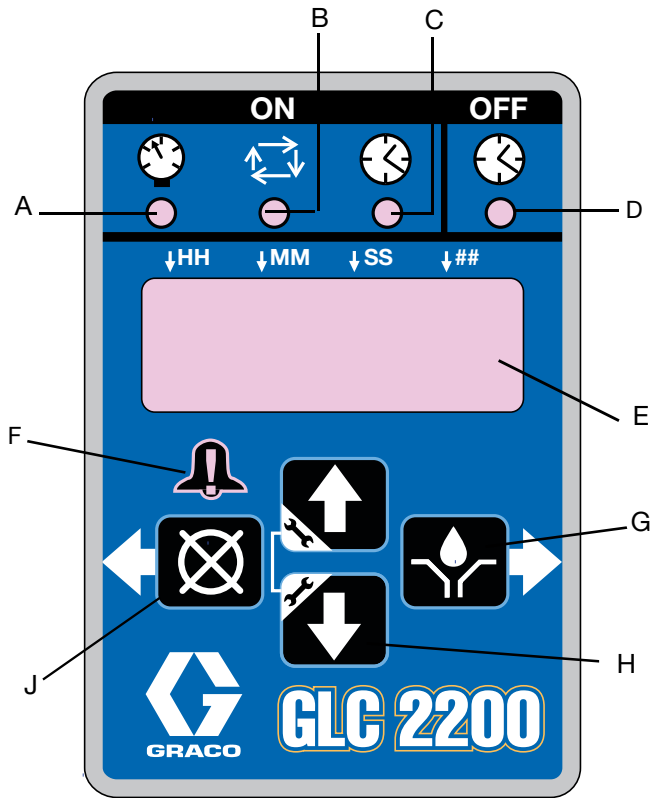


FIG. 83

### Pump ON LEDs (A, B, C)

- A Pressure Control LED: In RUN MODE illuminates indicating function mode that is currently running.
- B Cycle Control LED: In RUN MODE illuminates indicating function mode that is currently running.
- C Time Control LED: In RUN MODE illuminates indicating function mode that is currently running.

### Pump OFF LED (D)

- In RUN MODE this LED illuminates when in the OFF or RESET portion of the RUN CYCLE.

### Display (E)

- A blinking field on the display indicates the controller is in SETUP MODE.
- In RUN MODE field of numbers on the display will not blink.

### Alarm LED (F)

Illuminates when any alarm is detected. When an alarm is active an error code displays and an audible alarm also sounds.

### RIGHT Direction Arrow / MANUAL RUN / ENTER (G)

- In SETUP MODE, saves entry, moves cursor in display one field to the right or to the next setup step.
- In RUN MODE activates the pump for one complete ON cycle if actuated during the OFF portion of the RUN cycle.

### UP and DOWN Direction Arrows (H)

- Press and hold both the UP and DOWN Arrow keys together for 3 seconds to enter SETUP MODE.
- In SETUP MODE increase or decrease number values associated with the various RUN MODES.

### LEFT Direction Arrow / RESET (J)

- In SETUP MODE moves cursor in display one field to the left.
- In RUN MODE, Pressing RESET starts a PUMP OFF cycle.
- In ALARM MODE, Press once to clear buzzer; Press and hold for 3 seconds to clear warning and switch controller to OFF MODE.

**NOTE:** See the GLC2200 Controller Instruction manual for detailed descriptions of the display features.

## Program the GLC2200 Controller

Before programming the GLC2200 controller:

- Restore power to the equipment by engaging the main power switch.
- Key on the machine to the “Acc” position.

1. Press both the UP and DOWN ARROW buttons together for three seconds.



2. Use the UP ARROW until **on:Pr** displays.

on:Pr



3. Press the ENTER button.

The cursor automatically moves to set up the ON TIME Mode.



The LED below the clock in the ON field lights, indicating the ON TIME is being programmed. ON TIME is the amount of time the pump runs to complete all cycles.



**NOTE:** The ON TIME entry is a 4-digit number setting MM (minutes) and SS (seconds). For this installation the time is 10 minutes for all Models.

4. Program the first minute field by pressing the UP or DOWN ARROW button until “1” appears in the first MM (minutes) field.



10:00

5. Press the ENTER button. The next MM number field to the right flashes indicating it is ready for programming.



6. Repeat steps 4 - 5 to set each of the remaining next MM and the SS (seconds) fields.

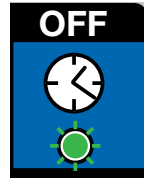


7. After pressing the ENTER button to set the last SS field, all the programmed Backup Time information is saved.



The controller automatically switches to the OFF Time SETUP MODE.

The LED below the OFF TIME Symbol Illuminates.



**NOTE:** The OFF TIME entry is a 4-digit number setting HH (hours) and MM (minutes). For this installation the time is 1 hour so a leading zero (0) must be entered in the first HH field.

To set the OFF TIME:

8. Program the first hour field by pressing the UP or DOWN ARROW button until 0 appears in the first HH (hour) field.



0 1:00

9. Press the ENTER button. The next HH number field to the right flashes indicating it is ready for programming.



10. Repeat steps 8 - 9 to set each of the remaining next HH and the MM (minutes) fields. Press the ENTER button.

The controller automatically switches to the LOW LEVEL SETUP MODE.

LOW LEVEL SETUP programs how the low level is



detected by the controller. For this installation the LOW LEVEL SETUP is programmed to LL:03.

1. Use the UP or DOWN ARROW until LL:03 displays.

LL:03



2. Press the ENTER button.

Setup is complete. Listen for an audible “beep” signaling the controller is now programmed and has exited the SETUP MODE.



**NOTE:** See the GLC2200 Controller Instruction manual for detailed programming instructions.

# Hose Assemblies

## Installation of the Main Feed Line Junction

1. Locate the fuel tank breather hose support located on the right side of the frame next to the fuel tank.
2. Drill a hole 3 in. down from the top of the support for 1/4-20 fastener.
3. Assemble the cross, JIC straight, and JIC elbow fittings as shown in FIG. 84.

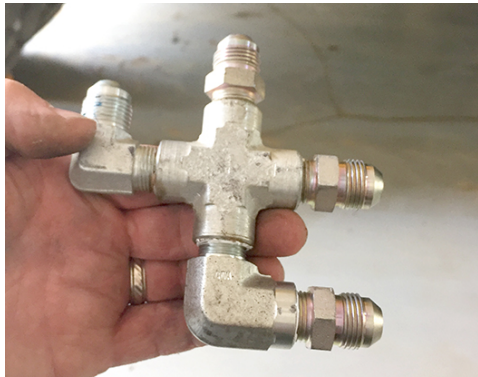


FIG. 84

4. Using the supplied p-clamp and 1/4-20 hardware attach the cross assembly to the support bracket as shown in FIG. 85.



FIG. 85

## Hose Assembly

The hose in the kit is provided in bulk and the fittings are field installable; a crimper is not required.

A list of the hose assemblies needed and the assembly requirements for both 3/8 in. and 1/8 in. hoses are provided in the Hose Length Table page 36.

**NOTE:** In the Hose Length Table:

- Assembled hose lengths with fittings are shown as Overall Length.
- Use the Cut Length measurement when cutting the hose from the roll.
- The hose lengths provided in the Hose Length Table (page 36) are for a standard haul truck. Measurements should be made at the time of installation.

## Hose Assembly Instructions

1. 1/8 in. hoses only - Wrap or slide spiral wrap (sw) over the end of the cut-to-length hose (h) until the entire length of the hose is encased in the spiral wrap.
2. Trim the spiral wrap (sw), leaving approximately 1 in. of the hose end unwrapped (FIG. 86).

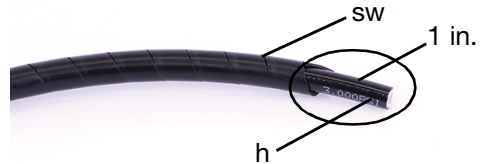


FIG. 86

3. Remove two hose fittings from their package and disassemble the two pieces (FIG. 87).



FIG. 87

4. Connect the socket to the end of the hose. Rotate the fitting counter-clockwise to thread the hose fitting onto the hose (FIG. 88).

**NOTE:** A wrench and pliers may be needed to assist with this assembly. If socket is difficult to install, apply lubricant that is compatible with the hose material.



FIG. 88

5. Back nut off 1/4 turn. This will allow enough space for the second half of the fitting to be connected (FIG. 89).
6. Lubricate socket, threads and hose inside diameter.

**FIG. 89**

7. Thread the stud of the nipple clockwise into the socket installed in the hose until the nipple nearly bottoms out against the socket shoulder (FIG. 90).

**FIG. 90****NOTICE**

Do not over tighten the fittings during final assembly. After the two fittings are securely connected, stop tightening the fittings. Over-tightening can damage the fittings and a new hose assembly will need to be made.

The nipple should be firm when tightening but not difficult to install. If the nipple is difficult to install, check the hose for proper lubrication. Reapply lubricant as needed. Installation without proper lubrication can cause damage to the core tube.

8. Repeat Steps 1-7 for all hose assemblies.

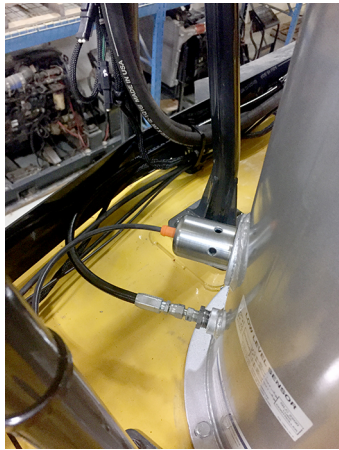
## Hose Length Table

Group	Lube Point Description	Size	Cut Length: Ft/In.	Cut Length - metric
Remote Fill	Primary Remote Fill	3/8 in.	25 feet	7.62 meters
Remote Fill	Vent to Reservoir	3/8 in.	23 feet, 6 in.	7.16 meters
Primary Feed	Pump to Cross Fitting	3/8 in.	17 feet, 2 in.	5.15 meters
Primary Feed	Cross to Left Manifold	3/8 in.	97 in.	2.46 meters
Primary Feed	Cross to Right Manifold	3/8 in.	16 in.	40.6 cm
Primary Feed	Cross to Rear Axle Manifold	3/8 in.	150 in.	3.8 meters
Left Manifold	Steering Cylinder Rod End	1/8 in.	155 in.	3.9 meters
Left Manifold	Drag Link Left Side	1/8 in.	155 in.	3.9 meters
Left Manifold	Upper Suspension Cylinder Pin	1/8 in.	107 in.	2.72 meters
Left Manifold	Lower Suspension Cylinder Pin	1/8 in.	120 in.	3.04 meters
Left Manifold	Rear A-Arm Pin	1/8 in.	96 in.	2.43 meters
Left Manifold	Front A-Arm Pin	1/8 in.	119 in.	3.02 meters
Left Manifold	Left Steering Cylinder Pin	1/8 in.	122 in.	3.1 meters
Left Manifold	Left Tie Rod Pin	1/8 in.	122 in.	3.1 meters
Left Manifold	Right Tie Rod Pin	1/8 in.	121 in.	3.07 meters
Right Manifold	Front A-Arm Pin	1/8 in.	157 in.	3.98 meters
Right Manifold	Right Steering Cylinder Pin	1/8 in.	128 in.	3.25 meters
Right Manifold	Center Arm Pin	1/8 in.	128 in.	3.25 meters
Right Manifold	Rear A-Arm Pin	1/8 in.	140 in.	3.56 meters
Right Manifold	Lower Suspension Cylinder Pin	1/8 in.	173 in.	4.39 meters
Right Manifold	Upper Suspension Cylinder Pin	1/8 in.	152 in.	3.86 meters
Right Manifold	Drag Link Right Side	1/8 in.	208 in.	5.28 meters
Right Manifold	Steering Cylinder Rod End	1/8 in.	208 in.	5.28 meters
Rear Axle Manifold	Upper Differential Link Front	1/8 in.	12 in.	30.48 cm
Rear Axle Manifold	Light Rear Upper Suspension Cylinder	1/8 in.	20 in.	50.80 cm
Rear Axle Manifold	Dump Body Pivot	1/8 in.	29 in.	73.66 cm
Rear Axle Manifold	Upper Differential Link Rear	1/8 in.	22 in.	55.88 cm
Rear Axle Manifold	Dump Body Cylinder Rod End Upper	1/8 in.	153 in.	3.88 meters
Rear Axle Manifold	Lower Differential Link Rear	1/8 in.	72 in.	182.9 cm
Rear Axle Manifold	Left Rear Lower Suspension Cylinder	1/8 in.	80 in.	203.2 cm
Rear Axle Manifold	Lower Differential Link Front	1/8 in.	138 in.	3.5 meters
Rear Axle Manifold	Dump Body Cylinder Rod End Lower	1/8 in.	146 in.	3.7 meters
Rear Axle Manifold	Dump Body Cylinder Rod End Lower	1/8 in.	181 in.	4.6 meters
Rear Axle Manifold	Lower Differential Link Front	1/8 in.	171 in.	4.34 meters
Rear Axle Manifold	Right Rear Lower Suspension Cylinder	1/8 in.	80 in.	203.2 cm
Rear Axle Manifold	Lower Differential Link Rear	1/8 in.	72 in.	182.9 cm
Rear Axle Manifold	Dump Body Cylinder Rod End Upper	1/8 in.	153 in.	3.88 meters
Rear Axle Manifold	Upper Differential Link Rear	1/8 in.	22 in.	55.88 cm
Rear Axle Manifold	Dump Body Pivot	1/8 in.	29 in.	73.66 cm
Rear Axle Manifold	Right Rear Upper Suspension Cylinder	1/8 in.	20 in.	50.80 cm
Rear Axle Manifold	Upper Differential Link Front	1/8 in.	12 in.	30.48 cm

## Route the Hose

### Remote Fill and Main Fill Line

1. Starting from the pump, connect the remote fill vent hose to the bottom of the reservoir port and the remote fill primary hose to the AFSSO inlet port (FIG. 91).



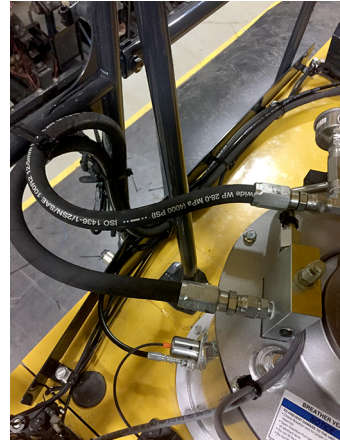
**FIG. 91**

2. Connect the main feed line to the pump outlet port (FIG. 92).



**FIG. 92**

3. Leave enough slack in the hoses to attach it to the rail after all pump hoses are installed.
4. Route the hoses next to the electrical standoffs on the right side of the deck (FIG. 93).



**FIG. 93**

5. Continue to feed the hoses under the toe kick at the rear of the deck and between the deck and the frame of the haul truck (FIG. 94 - FIG. 96).



**FIG. 94**



**FIG. 95**

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**FIG. 96**

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6. Route the hoses behind the engine and parallel to the cross fitting previously installed (FIG. 97 - FIG. 98).



**FIG. 97**

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**FIG. 98**

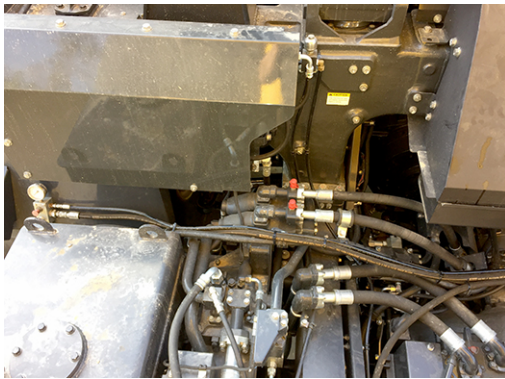
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7. Pass the remote fill hoses across the transmission and run them parallel with the hydraulic hoses passing from the right side of the frame to the left side (FIG. 99).



**FIG. 99**

8. Route the hoses next to the hydraulic tank and to the AFSSO remote fill valve (FIG. 100).



**FIG. 100**

9. Securely tighten the fittings to the AFSSO and ensure they are secured using zip ties.
10. Attach the main feed hose to the cross fitting using the -6JIC port closest to the front of the haul truck (FIG. 101).



**FIG. 101**

11. Securely tighten the fitting and ensure the hoses are secure using zip ties.

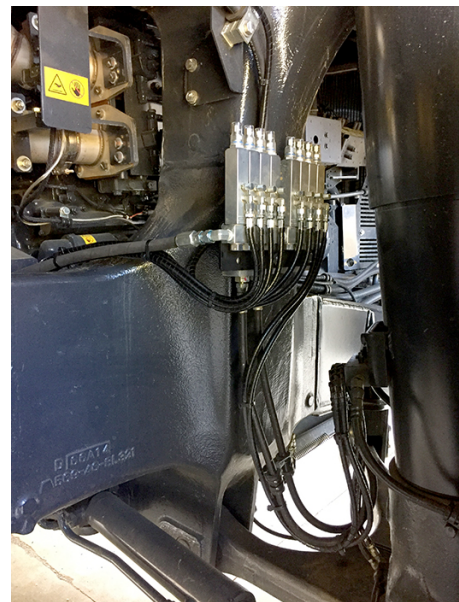
## Right Side Injector Manifold and Main Feed Line

1. Attach the hose for the right side injector assembly to the -6JIC elbow port which is facing the front of the haul truck and parallel to the pump main feed line (FIG. 102).



**FIG. 102**

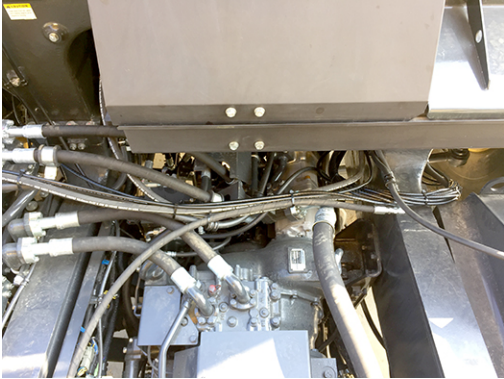
2. Attach the hose to the -6JIC elbow inlet fitting on the injector assembly and securely fasten (FIG. 103).



**FIG. 103**

## Left Side Injector Manifold

1. Attach the hose that is feeding the left side injector manifold to the center -6JIC port on the cross fitting (see FIG. 102).
2. Route the hose behind the engine, and across the transmission mount (FIG. 104).



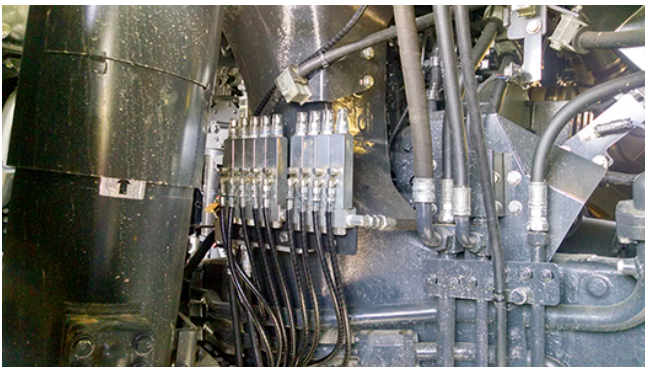
**FIG. 104**

3. Wrap the hose around the upper frame on the left side of the haul truck and pass the hose over the frame toward the right side injector manifold (FIG. 105).



**FIG. 105**

4. Connect the hose to the -6JIC elbow fitting, tighten, and secure the hose with zip ties (FIG. 106).



**FIG. 106**

## Rear Injector Manifold

1. Attach the hose that is feeding the rear injector manifold to the 90° elbow facing the rear of the haul truck (FIG. 107).



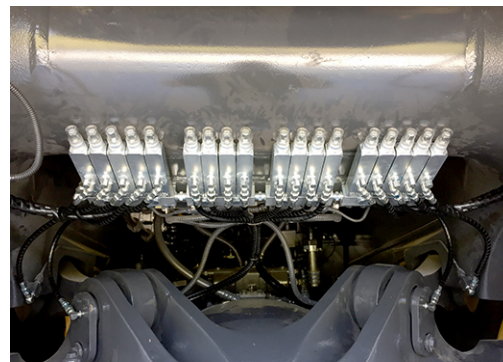
**FIG. 107**

2. Route the hose behind the engine, and across the transmission mount (FIG. 104).
3. Route the hose along the existing hydraulic plumbing on the inner left side of the frame. Route the hose all the way to the back of the haul truck and under the rear dump body (FIG. 108).



**FIG. 108**

4. Attach the hose to the 90° elbow on the left side of the injector manifold (FIG. 109).



**FIG. 109**

5. Tighten the hose fitting and secure the hose run to the hydraulic lines using the supplied zip ties.



## Secondary Feed Lines

### Left Side Injector Assembly (FIG. 110 - FIG. 116)

**NOTE:** Use existing hydraulic hoses, plumbing and standoffs to attach hoses. Use provided zip ties to secure hoses.

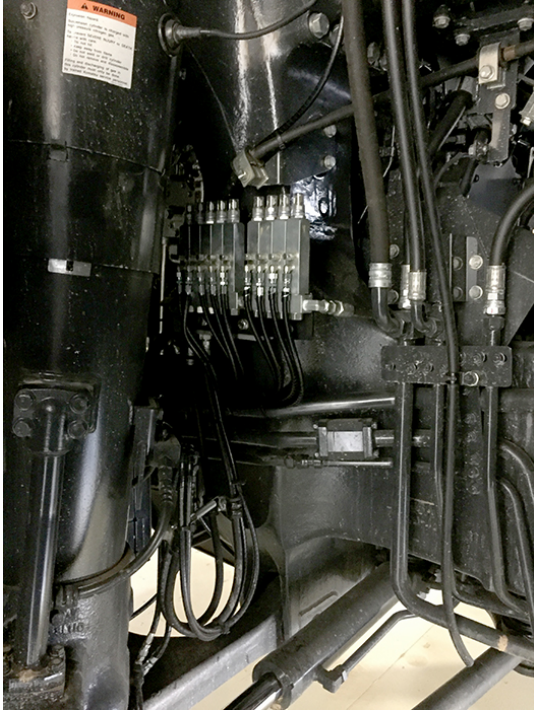


FIG. 110

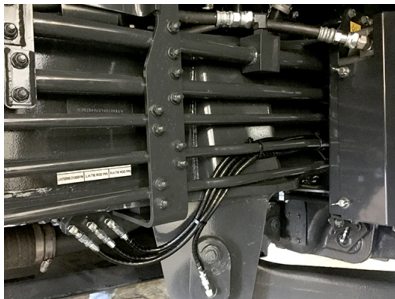


FIG. 111



FIG. 112



FIG. 113



FIG. 114



FIG. 115



FIG. 116

### Right Side Injector Assembly (FIG. 117 - FIG. 123)

**NOTE:** Use existing hydraulic hoses, plumbing and standoffs to attach hoses. Use provided zip ties to secure hoses.

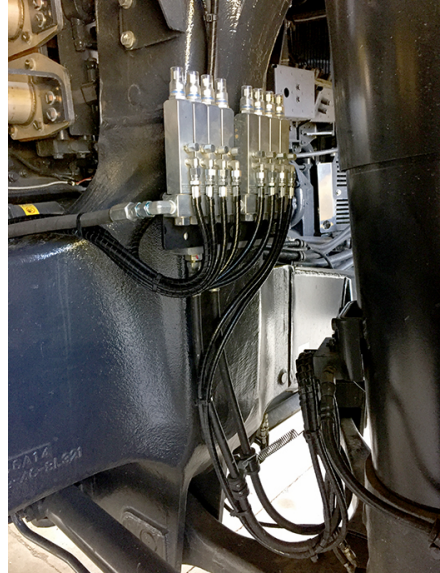


FIG. 117

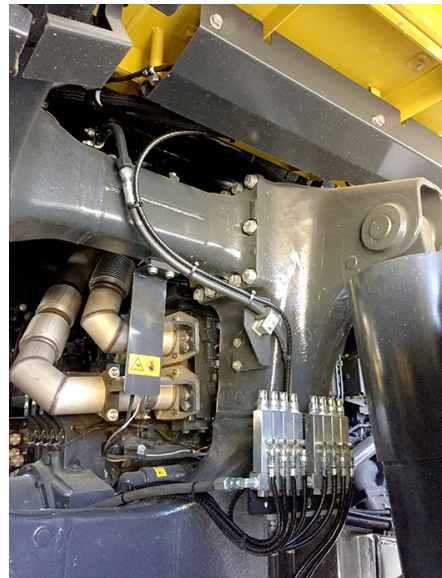
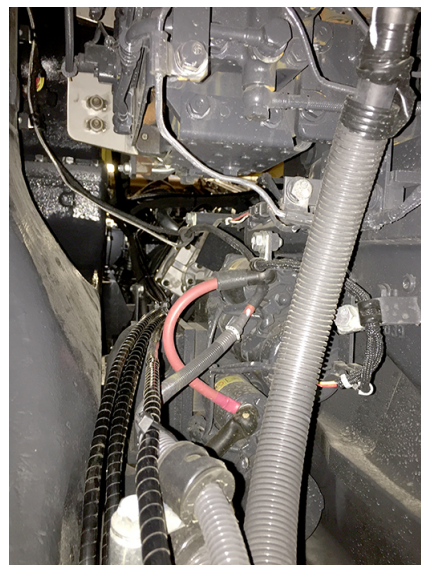


FIG. 118



**FIG. 119**

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**FIG. 122**

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**FIG. 120**

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**FIG. 121**

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**FIG. 123**

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Rear Injector Assembly (FIG. 124 - FIG. 137).

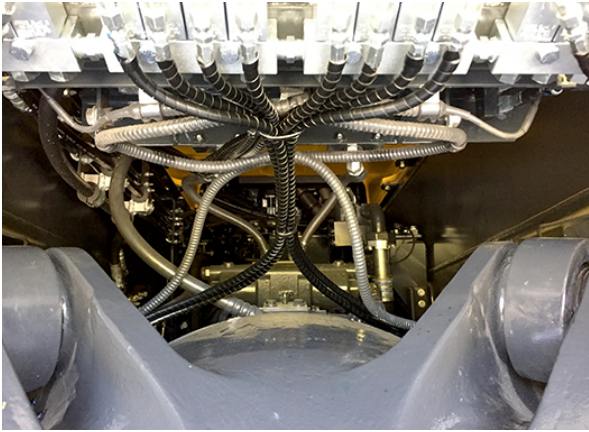


FIG. 124



FIG. 127



FIG. 125



FIG. 128



FIG. 126

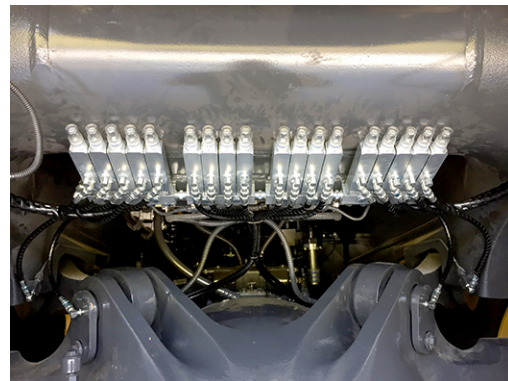


FIG. 129

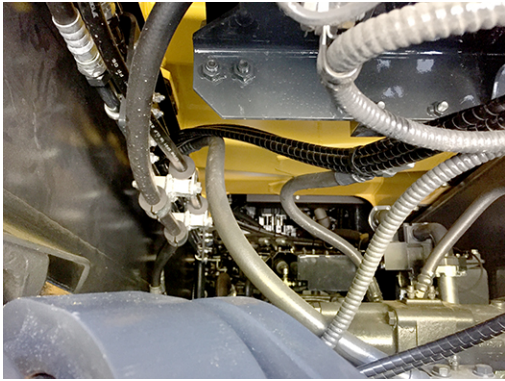


FIG. 130



FIG. 133



FIG. 131

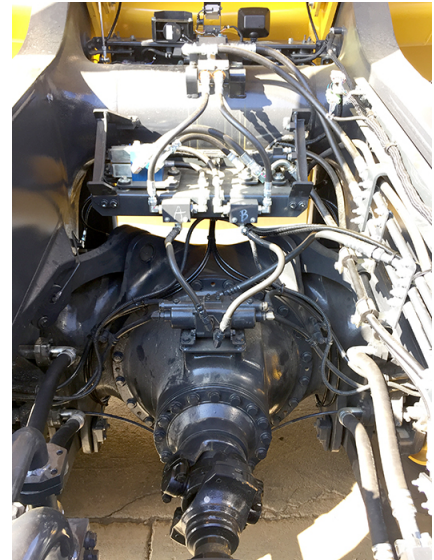


FIG. 134



FIG. 132

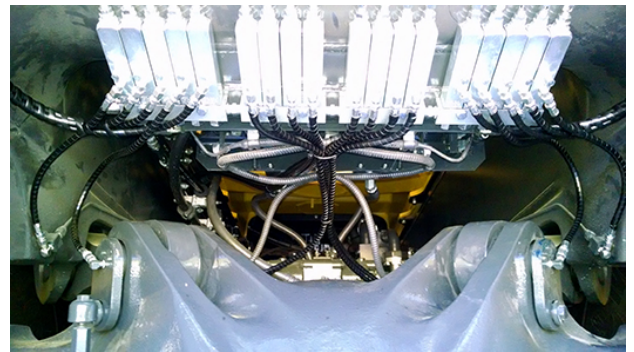
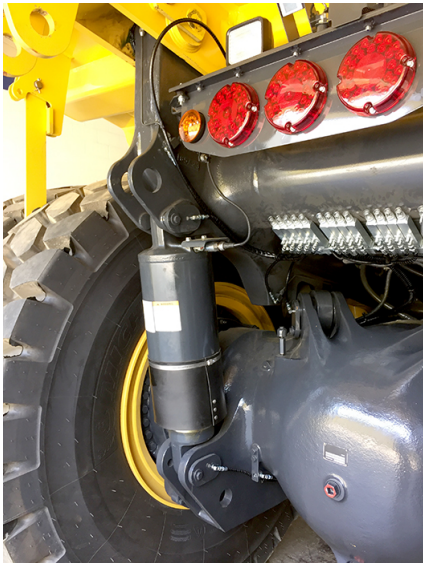


FIG. 135



**FIG. 136**

6. Route the 5 upper hoses off to each side and through p-clamps. Tie off to existing hoses or equipment (FIG. 137).



**FIG. 137**

## P-Clamp Installation

1. There are several p-clamps included in the kit for retaining hoses and securing to the frame.
2. The large p-clamp is to secure the cross fitting inside the frame of the haul truck (FIG. 138).



**FIG. 138**

3. There is one p-clamp for each lower A-arm on the left and right side front tires (FIG. 139 - FIG. 140).



**FIG. 139**



**FIG. 140**

4. There are 3 p-clamps for each rear dump body cylinder in which one is on the inner side of the dump body frame and the other two on the outside (FIG. 141 - FIG. 142).



**FIG. 141**

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**FIG. 142**

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5. Secure all p-clamps with the supplied 1/4-20 lock nuts.

# Fill, Purge, and Pump Settings

## Fill the Pump Reservoir

1. An automatic lubrication system must be free of air in order to generate enough pressure to discharge grease from the injectors.
2. Take care to ensure dirt and/or debris do not get on the grease fittings or introduced into the system.
3. Connect a pneumatically powered grease pump to the grease fill fitting on the remote fill valve using the supplied female QD fitting.
4. Fill the reservoir until the filling pump deadheads. The AFSSO will stop the fill pump from overfilling the EDS reservoir.

**NOTE:** The gauge will show pressure in the filling hose.

5. Before the filling pump can be disconnected the pressure must be relieved from the QD fitting.
6. Ensure the filling pump air supply in disengage.
7. Pull the red pressure release valve on the AFSSO to relieve the pressure.
8. The QD can now be disconnected and filling of the reservoir is complete.

## Fill the Primary Feed Hose

1. Remove bolts to remove the back cover from the EDS which houses the pump controls (FIG. 143).

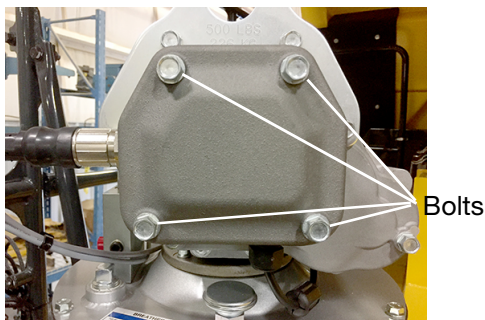


FIG. 143

2. Locate the operations switch and confirm the pump control switch is set to SIG (FIG. 144).

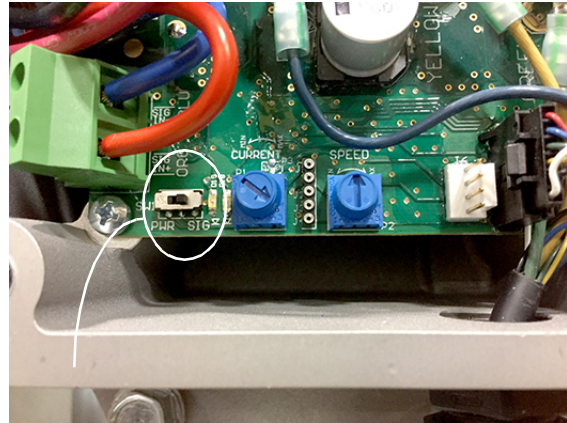


FIG. 144

3. Ensure power has been restored to the machine by engaging the primary battery disconnect switch.

4. Engage a lube event by pressing the manual run button on the GLC2200.

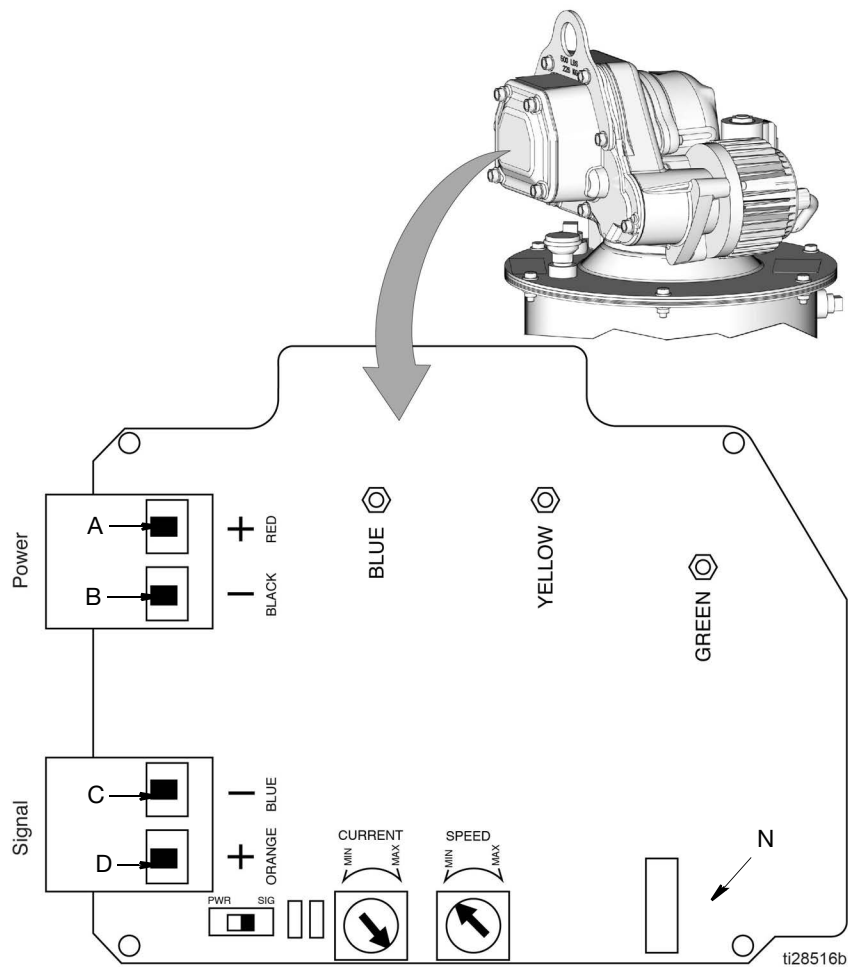


This process may need to be repeated more than once to ensure enough grease has been pumped through the system and all air has been purged from the hoses and injector manifolds.

5. Loosen the plugs on the end of the injector manifold assemblies to allow air to purge from the system while the pump is priming the primary line. Grease will usually purge from the right side injector manifold first, followed by the left side manifold, and finally the rear. We suggest two people purge the system to ensure zero loss of grease and to eliminate contamination. Capture excess grease in a waste container.
6. Once air is purged and grease starts to seep from the manifold plug, ensure the plug seal is tight to eliminate any additional seepage and move to the next manifold to repeat the process. Continue until all manifolds are purged and the primary line is primed.



## Motor Control Board



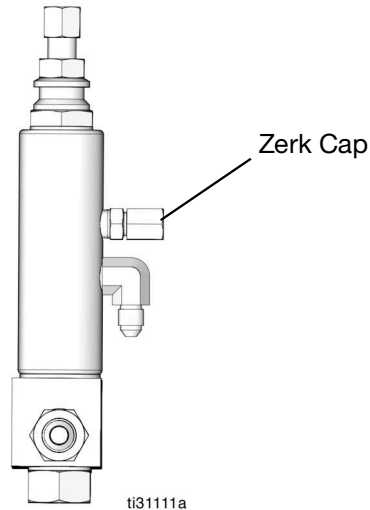
**FIG. 145**

1. Ensure the control switch is in the SIG position to receive signals from the GLC2200 controller.
2. Set the Current potentiometer to approximately 4 o'clock which is 30 amps of current capability
3. Set the Speed potentiometer to 11 o'clock which would run the pump at about 40% speed.
4. Reinstall the cover plate and torque bolts to 17 ft lbs (23.05 N•m).
5. Remove power from the machine by disengaging the battery disconnect switch.

**NOTE:** Photographs may include optional equipment.

## Fill the Injector Feed Hoses

1. Remove the zerk cap from the alternate injector outlet port (FIG. 146).

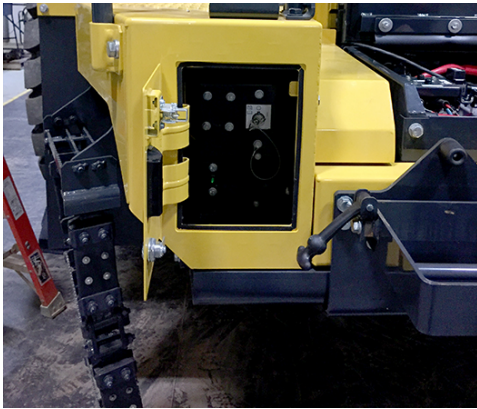


**FIG. 146**

2. Using a pneumatically powered grease gun, attach the nozzle to the injector zerk and pump grease through the feed hose. We suggest two people purge the hoses to ensure zero loss of grease and to eliminate contamination. Capture excess grease in a waste container.
3. Once the hose is purged of air and full of grease, secure the hose to the corresponding lubrication point and tighten the hose fittings.
4. Reinstall the injector zerk cap.
5. Repeat this process until all hoses are purged and then reinstall the zerk caps onto the injectors.

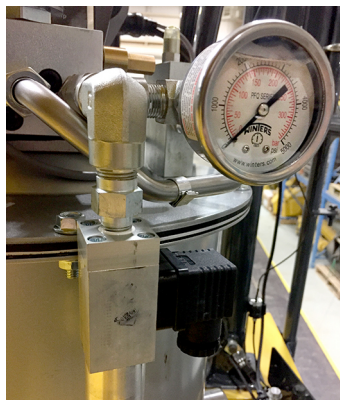
## Test the System

- Be sure the EDS pump reservoir is filled.
- All supply lines are connected securely (double check all primary hose connections).
- Verify all grease point fittings and feed hoses are connected and tight.
- Injectors and feed lines are all filled with grease and purged of air.
- Turn on the battery disconnect to the machine to restore power (FIG. 147).



**FIG. 147**

- Verify the GLC2200 controller has power by keying on the truck to the ACC position.
- Ensure programming has taken place and that the GLC2200 is ready to engage a lube cycle.
- Press the manual run button to engage a lube event.
- Inspect the pressure gauge and ensure the pump reaches 3500 psi before the pressure switch engages (FIG. 148).



**FIG. 148**

- a. If the pump stops before reaching 3500 psi or it stops after 3500 psi, use an Allen Wrench and adjust the setting of the pressure switch. Tightening the spring will increase the pressure, Loosening the spring will reduce the pressure.
  - b. Run several more lube events and walk around the machine to inspect the pump, injectors, hoses and fittings to ensure there are no leaks.
  - c. Tighten or adjust any hoses or fittings that are leaking and continue to run additional lube events.
- Move the haul truck into an open location where dump body operation is safe and clear.
  - Turn the tires left and right to ensure proper clearances and to confirm there are no snags or tight areas on the hoses and injectors.
  - Cycle the dump body up and down slowly to ensure there are no snags from hoses and that there are no pinch points on the hoses for the dump body cylinders nor the dump body pivot pins (FIG. 149).



**FIG. 149**

- After the inspection is completed, position the haul truck in a clear and safe location approved by the owner/operator, disengage the battery disconnect, and perform any final housekeeping activities.

# Troubleshooting

**NOTE:** If the problem is not attributed to the Graco Lubrication System, consult the Komatsu Operations and Maintenance manual or your Komatsu dealer.

Problem	Cause	Solution
Alarm bell is sounding and ER:LL is displayed on the controller	Reservoir is empty	<ol style="list-style-type: none"> <li>1. Refill reservoir by using the AFSSO fill port on the left hand side of the haul truck.</li> <li>2. Hold in the button for 3-5 seconds to clean the fault.</li> <li>3. Run a manual lube event. If the low level alarm engages again, clear the fault and run another manual cycle.</li> </ol> <p><b>NOTE:</b> Several attempts may be required depending on the viscosity and temperature of the grease used.</p>
	Low level sensor is disconnected	Inspect the M12 cable connected to the low level sensor and verify it is connected properly. Clear the fault and run a manual lube cycle.
	Incorrect programming	The low level sensor on the Electric Dyna-Star pump is designed to operate like a sensor similar to a fuel gauge. It will warn when the level is low, but will not stop the pump from operation. The correct setting for the level gauge to operate correctly is LL:03. See Programming the GLC2200 Controller beginning on page 31 for programming instructions.
Nothing is displayed on the controller and it is unresponsive	Blown fuse	<p>Check the fuse in the fuse panel. If the pump received an excessive current draw due to jammed components, using non-recommended lubricants, or system damage, the fuse may have blown and needs to be replaced.</p> <p>Replace the fuse and check the power and ground connections.</p> <p>Run a manual lube event.</p>
	Controller is incorrectly wired	Review the GLC2200 Wiring Table provided on page 26.
Alarm bell is sounding and ER:Cr is displayed on the controller	GLC2200 Controller is programmed incorrectly	See Programming the GLC2200 Controller beginning on page 31 for instructions for programming the GLC2200 Controller to operate in pressure mode.

Problem	Cause	Solution
Alarm bell is sounding and ER:Ti is displayed on the controller	GLC2200 Controller is programmed incorrectly	See Programming the GLC2200 Controller beginning on page 31 for instructions for programming the GLC2200 Controller to operate in pressure mode.
The GLC2200 Controller will not allow programmed time	The hours, minutes, or seconds field is programmed incorrectly	See Programming the GLC2200 Controller beginning on page 31 for instructions for programming the GLC2200 Controller to operate in pressure mode.
Bearings are not receiving enough grease	GLC2200 Off-Time is set too long	<p>Reset the GLC2200 controller Off-Time to a shorter amount of down time between lube events. This will create a lube event more frequently, increasing the amount of grease going to each lubrication point during the day.</p> <p>Alternate Off-Time Settings:            30% more grease: 45 minutes            50% more grease: 40 minutes            100% more grease: 30 minutes</p> <p>See Off-Time setup, page 32.</p>
Broken hose	Hose is old and brittle, was snagged on something, or damaged due to impact	<p>Inspect the broken hose. Verify:</p> <ul style="list-style-type: none"> <li>• there are no sharp objects or potential abrasion points.</li> <li>• the hose was overstretched due to inadequate length. Consider a different routing path that would prevent future occurrences.</li> </ul> <p>The kit comes with extra hoses and fittings. If a replacement hose is needed, use these extra parts to make a replacement or contact your local Graco distributor to order a replacement part. See Hose Assembly instruction on page 34 to assemble a replacement hose.</p> <p><b>NOTE:</b> Be sure to pre-fill the hose with grease before installation.</p>

Problem	Cause	Solution
Pump is always running	Input source switch is set to wrong position	Remove the back cover panel on the Electric Dyna-Star pump. Verify the SIG-PWR switch is in the SIG position. Reinstall cover.
Pump is unresponsive	Pump or motor control board fault	<p>Remove pump motor control cover and inspect the motor control board. There are two LEDs on the board (green and red).</p> <ul style="list-style-type: none"> <li>• If the green LED is lit there are no faults.</li> <li>• If there is a blinking red LED count the number of flashes and review the corresponding table on the inside of the control cover.</li> </ul> <p>See the Electric Dyna-Star pump manual for additional Troubleshooting instructions. If a solution is not provided additional service may be required. Consult your local Graco distributor or your Komatsu Dealer.</p>

# Parts

Part No.	Description	Part No.	Description
77X202	EDS 24VDC 60 lb LL/AFSO	127512	P-clamp weld studs
77X000	EDS pump	127515	Extra large p-clamps
24T860	EDS pump lower rebuild kit	128006	Bearing line p-clamps
16N703	EDS pump motor	127009	Zip-ties
77X540	EDS pump vent valve	17D688	Add-a-fuse
17L372	Dyna-Star level sensor	557264	5 Amp ATM fuse
77X546	EDS power cable	17P339	In-line fuse holder
77X542	AFSO fill valve	17P340	30 Amp blade fuse
24N468	GLC2200	17P341	8 Terminal dual pole wiring strip
24W981	GLC2200 cable		
17G007	GLC2200 mounting kit		
126005	Gauge 5000 psi		
128568	Gauge fitting		
556404	Gauge adapter fitting		
24N181	Pressure switch		
128568	Pressure switch fitting		
165198	Pressure switch adapter fitting		
124300	Pressure switch cable		
129072	Low level cable		
24X804	GL1X-4 injectors		
17L754	GL1X-5 injectors		
100040	Injector line plug		
156849	Injector adapter fittings 3/8 in.		
17P336	3/8 in. HP hydraulic hose 5000 psi		
17P337	3/8 in. x -6JIC hose end		
117832	-6JIC x 3/6 npt straight		
120064	-6JIC x 3/8 npt elbow		
128567	3/8 in. Branch tee		
162024	3/8 in. Hex coupling		
128570	1/8 in. Hose - 200 ft		
128579	1/8 in. Spiral wrap - 160 ft		
128561	-4JIC hose fitting		
128581	1/4 in. Hose wrap - 80 ft		
555749	Bearing fittings straight		
556763	Injector outlet fitting elbow		
17K062	Long extension bspt		
17G422	Short extension bspt		
17K061	1/8 in. Street elbow bspt		
17S394	4 Bank injector weld bar		
17S395	5 Bank injector weld bar		

**NOTE:** Photographs may include optional equipment.

# Graco Information

*For additional information about these Graco products; including Warnings, Troubleshooting, and Technical Data refer to the Graco instruction manuals included with the equipment or visit the Graco website at [www.graco.com](http://www.graco.com) to download the latest versions of Graco instruction manuals.*