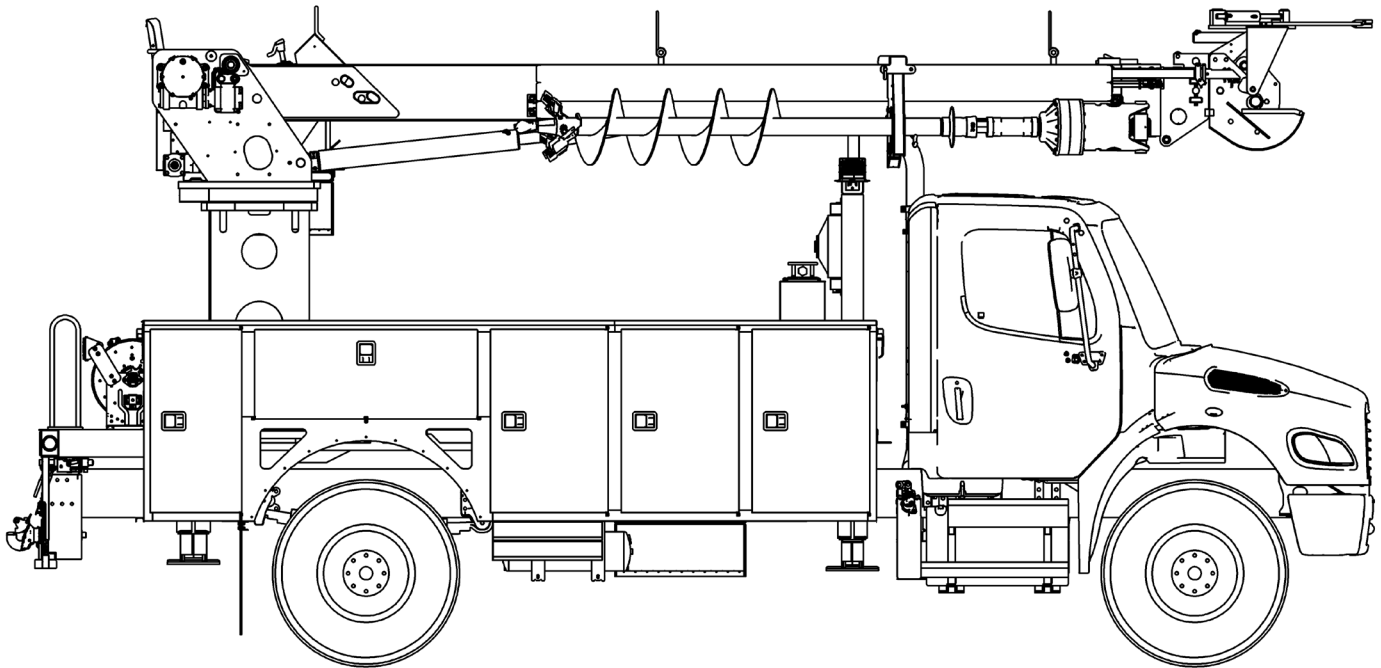




TECH TIPS

BLEEDING AND SETTING ROTATION HYDRAULIC OVERLOAD PROTECTION

NO. 12



SERVICE CALL:
BLEEDING AND SETTING
ROTATION HYDRAULIC OVERLOAD
PROTECTION (HOP)



MODEL(S):
C3000, C4000, C5000, L4000,
XL4000, TELECON, AND
COMMAND ALL




TOOLS NEEDED:
S-WRENCH SET
DYNAMOMETER
HYDRAULIC PRESSURE GAUGE
SIDE PULL SHEAVE
ALLEN WRENCH SET
SUITABLE ANCHOR

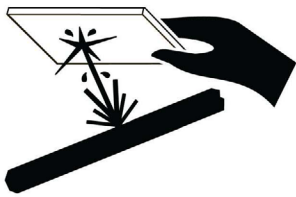
TEREX UTILITIES TECHNICAL SUPPORT TEAM

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! WARNING



Injection Hazard
Fluid escaping under pressure can penetrate skin and result in death or serious injury.



Relieve pressure before disconnecting hydraulic lines.
Stay clear of leaks and pin holes. Use a piece of cardboard or wood to search for leaks. Do not use hand.
Fluid injected into skin must be surgically removed within a few hours by a doctor familiar with this type of injury, or gangrene will result.



DANGER

Failure to obey the instructions and safety rules in the appropriate Operator's Manual and Service Manual for your machine will result in death or serious injury.

Many of the hazards identified in the Operator's Manual are also safety hazards when maintenance and repair procedures are performed.

DO NOT PERFORM MAINTENANCE UNLESS:

- ✓ You are trained and qualified to perform maintenance on this machine.
- ✓ You read, understand and obey:
 - manufacturer's instructions and safety rules
 - employer's safety rules and worksite regulations
 - applicable governmental regulations
- ✓ You have the appropriate tools, lifting equipment and a suitable workshop.

The information contained in this Tech Tip is a supplement to the Service Manual. Consult the appropriate Service Manual of your machine for safety rules and hazards.



TECH TIP 12 | RELEASED 06.12.2026 | VERSION 1.2
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INTRODUCTION

The purpose of the rotation HOP is to help protect the rotation gear drive from being over-loaded when the unit is subjected to excess side pull. Pressure is measured on two pistons located in the rotation gear box. When the pressure in the sensing valves reaches a set point, the HOP system is activated and the hydraulic oil is dumped back to tank instead of to the functions (Digger-Dig, Winch-Up, 2nd and 3rd section extend, and Boom Down if equipped). **Figure 1**

STEP 1

Determine gauge installation location:

- Use test coupler G2 on combined HOP manifold for Rotation HOP **Figure 2**

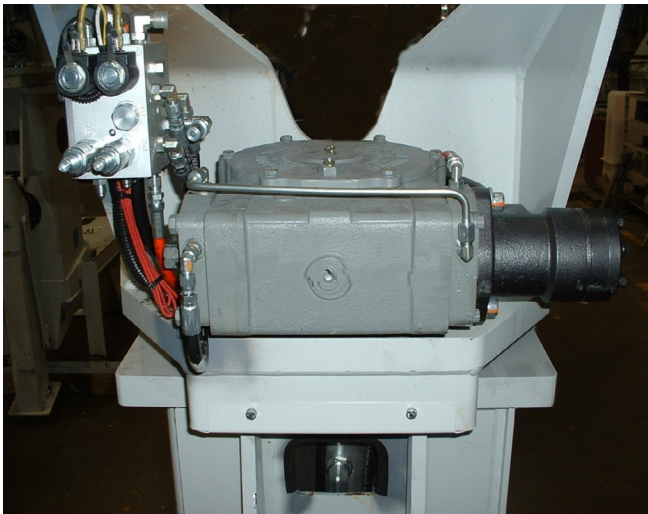


FIGURE 1

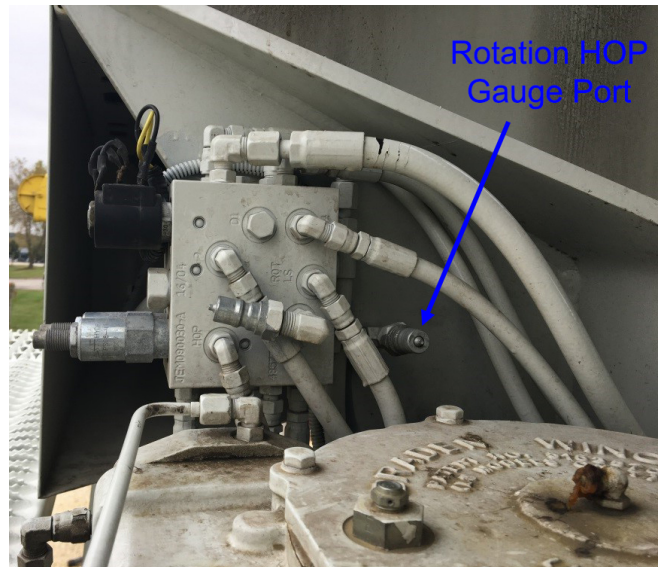


FIGURE 2

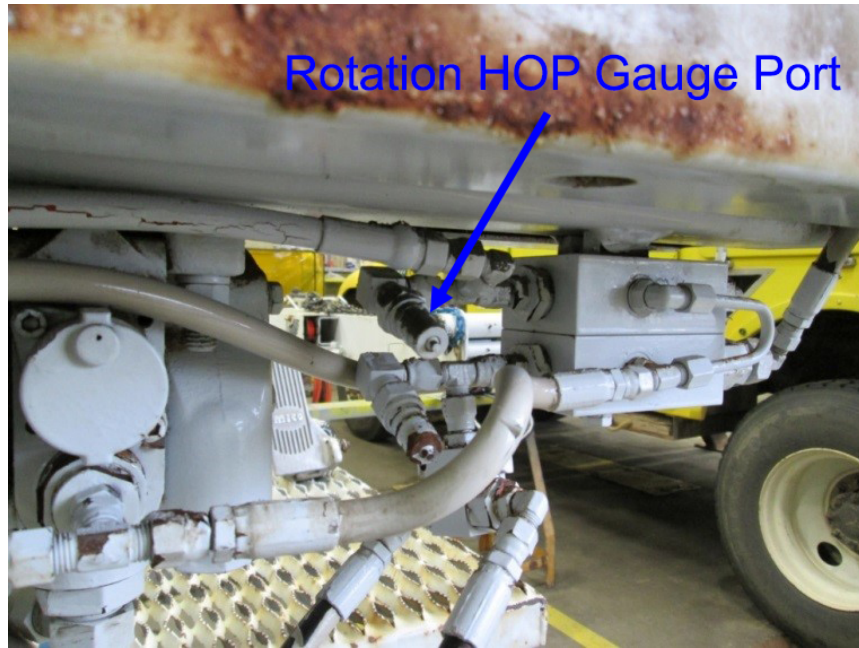


Escaping fluid under pressure can penetrate skin causing serious injury.

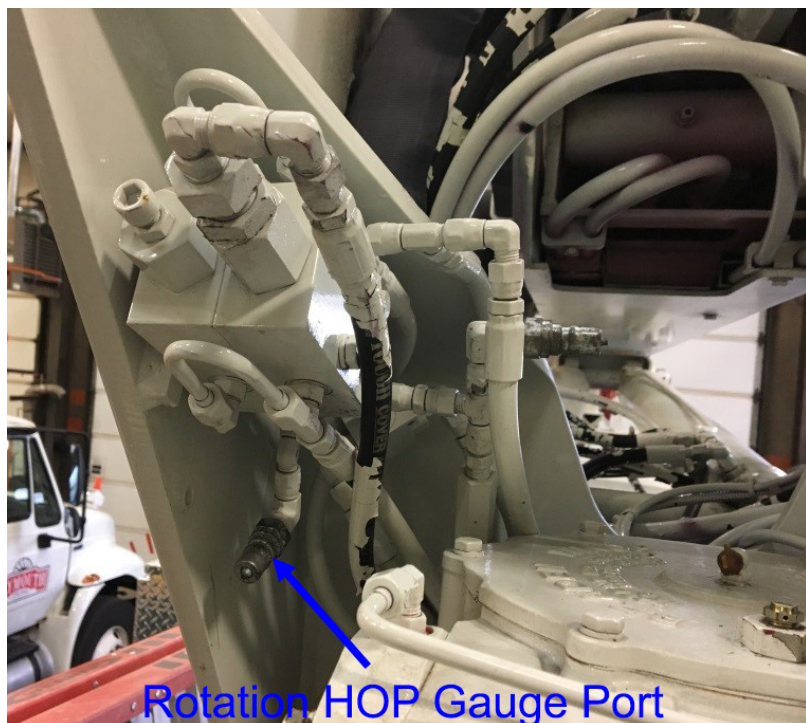
Relieve pressure before disconnecting hydraulic lines. Keep away from leaks and pin holes. Use a piece of cardboard or paper to search for leaks. **DO NOT** use your hand.

STEP 1 (Continued)

- Use the test coupler attached to the block with the allen head adjustment on the opposite end for separate HOP sensing valve.



421579 HOP Sensing Valves



STEP 2

Locate the proper gauge port and install a bleed hose to remove air out of the system. Rotate back and forth slowly several times to bleed any trapped air out of the gear box. Remove the bleed hose and install the gauge. Ensure the gauge shows 180 psi with the unit running, 300 psi if the unit is equipped with a Hydrasync digger or radio controls. Test at full throttle or with unit function dead headed.

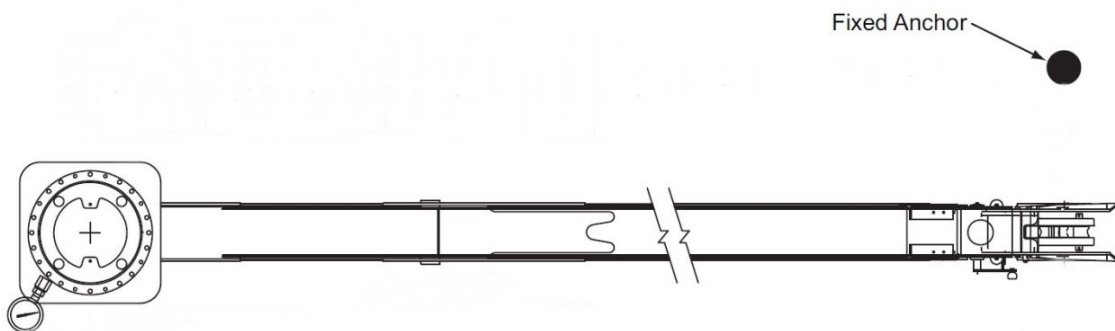


Escaping fluid under pressure can penetrate skin causing serious injury.

Relieve pressure before disconnecting hydraulic lines. Keep away from leaks and pin holes. Use a piece of cardboard or paper to search for leaks. **DO NOT** use your hand.

STEP 3

Position the truck to allow connecting to an anchor or fixed object. The anchor must be capable of holding up to 2,500 lbs. of force. The boom should be positioned so the anchor is perpendicular to the boom.



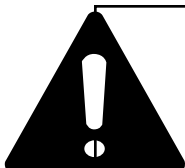
STEP 4

With the boom rotated off the back or side of the truck, lower the boom until the lift cylinders are fully retracted. Attach the side pull sheave and set the boom length by extending the 2nd section using the table below. Measurements are from the center of rotation to the center of the sheave on the side pull adapter with the sheave in the working position.

224"	300"
Telecon C3000 C4000 L4000 XL4000 Command All	C5000

STEP 5

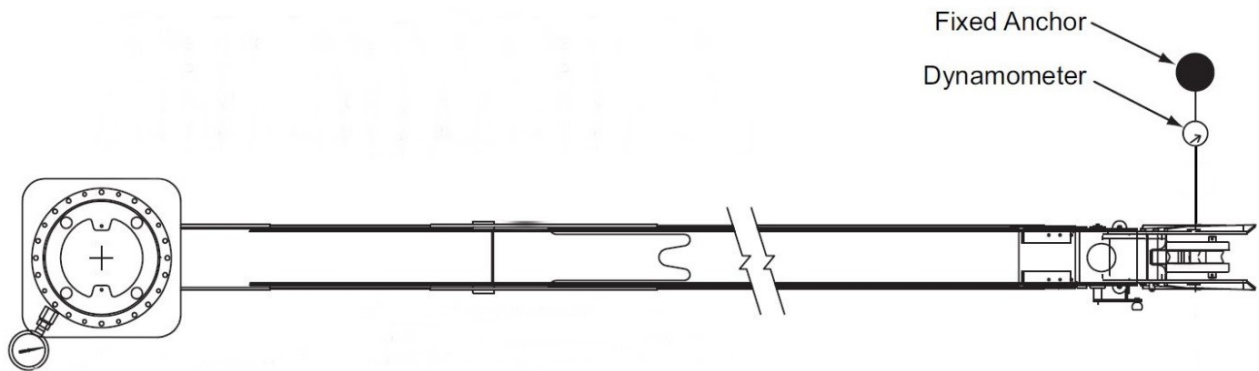
Extend 3rd section out to give winch rope clearance to the side pull sheave and run the rope thru the sheave as shown.



The side pull sheave is only used for testing. (P/N 445219) Side pull is not permitted during operation.

STEP 6

Attach a dynamometer between the winch line and the fixed anchor. Do not exceed 2300 lbs. of force when pulling with the winch.



STEP 7

Using the lower controls, winch up and apply 1000 PSI of pressure on the gauge. Make sure to have enough load line between the side-pull sheave and dynamometer to place the load line and boom at a 90-degree angle when HOP dumps.

STEP 8

Winch up slowly at idle until the winch stops moving and Rotation HOP dumps. Stop the test and proceed to Step 9 if the pressure exceeds 1700 psi or the dynamometer reads greater than 2300 lbs. Repeat Steps 7 and 8 to retest. Verify the force on the dynamometer does not exceed 2300 lbs. or 1700 psi on the gauge, then operate the control at full throttle and set the pressure for 1700 PSI \pm 50.

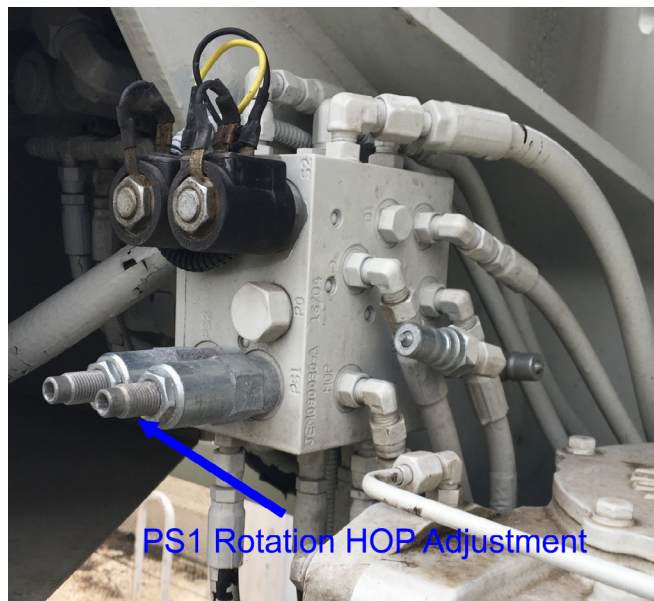
To increase or decrease pressures go to Step 9. Repeat steps 7 and 8 to retest.



Do not exceed 2300 lbs. on Dynamometer when pulling winch.

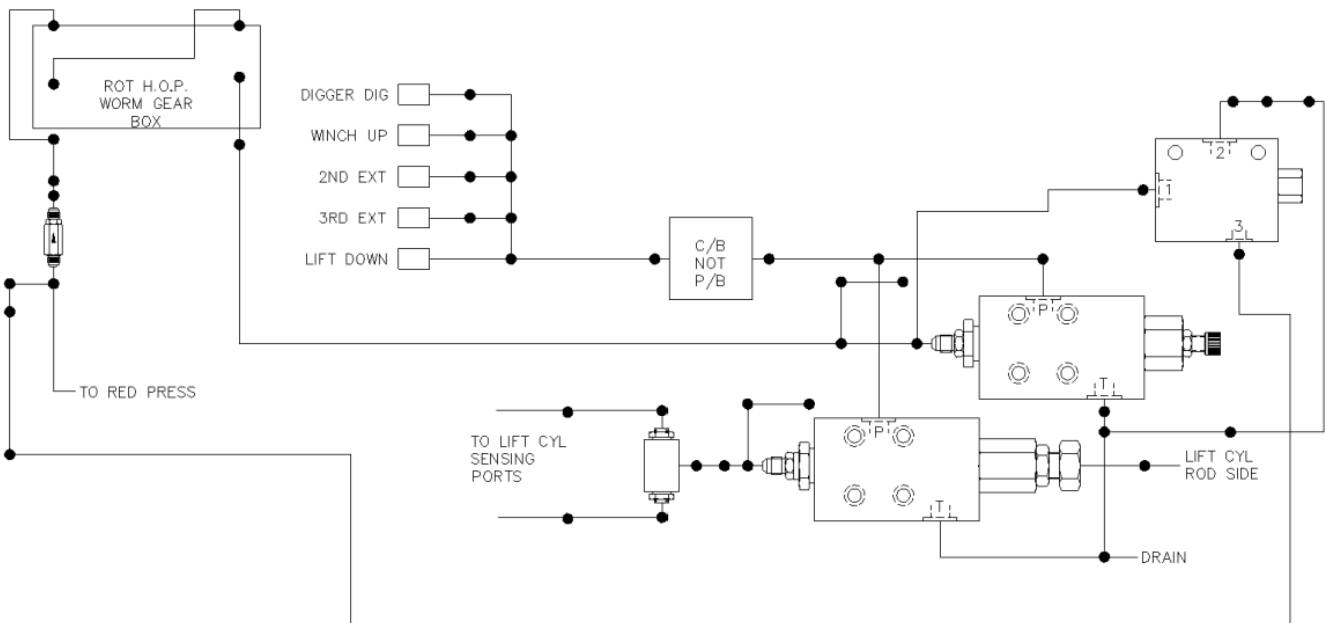
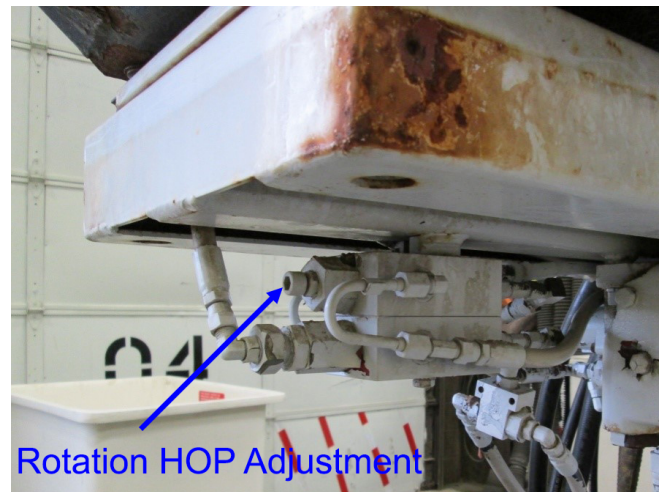
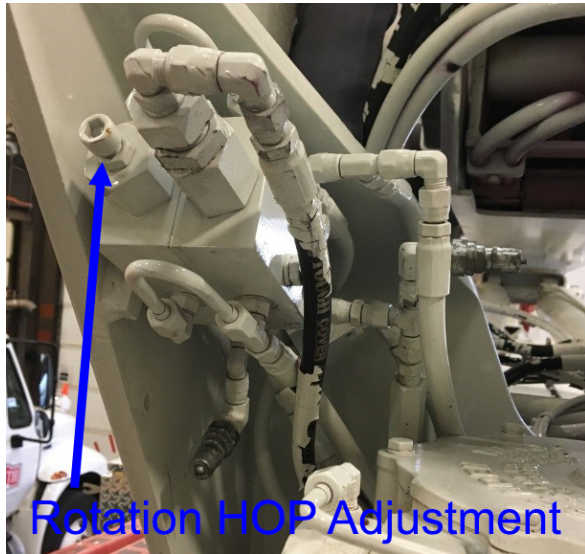
STEP 9

On the 485770 HOP Manifold increase the pressure by loosening jam nut and adjusting PS1 clockwise. Decrease the pressure by adjusting PS1 counterclockwise. Tighten jam nut when adjustment is complete.

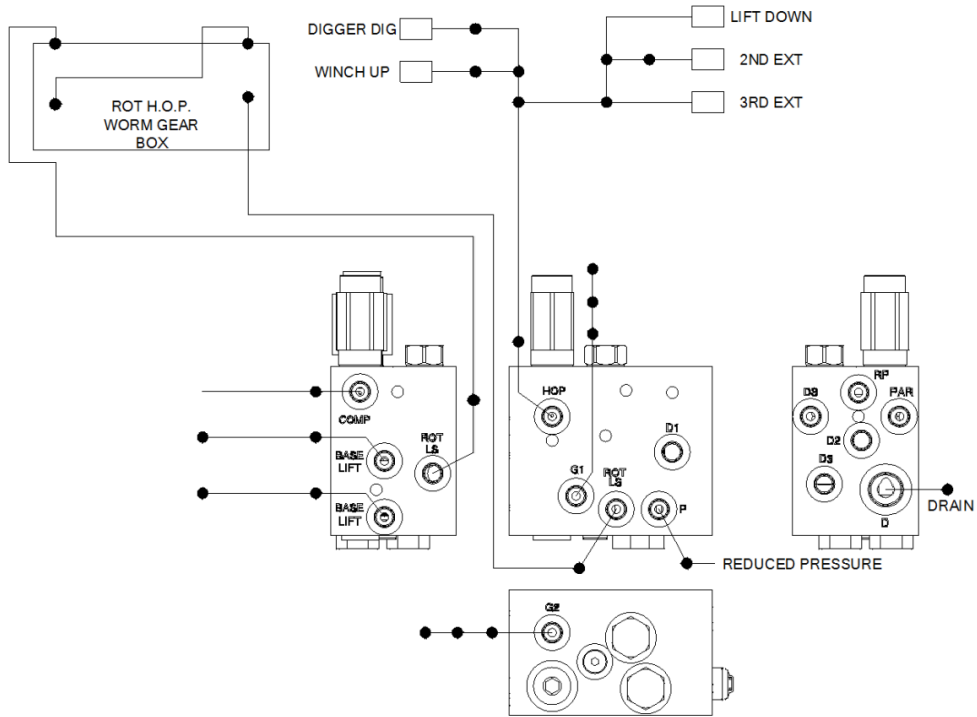


STEP 9 (Continued)

On the 421579 HOP sensing valve, increase the pressure by loosening jam nut and adjusting the Allen screw clockwise, and decrease the pressure by adjusting the Allen screw counterclockwise. Tighten jam nut when adjustment is complete.



HOP Hydraulic Schematics



HOP Hydraulic Schematics



FOR FURTHER ASSISTANCE,
CONTACT THE TEREX UTILITIES TECHNICAL SUPPORT TEAM
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