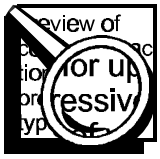
B-01

MAINTENANCE MECHANIC TRAINING

SKILL DEVELOPMENT GUIDE

Duty B: Lube Systems
B-01: Troubleshoot Trabon

Issued 06/01/98



Task Preview

Troubleshoot Trabon

Troubleshoot a Trabon system when a fault indicator is illuminated on the controller or when an operator notifies you that there is a problem with the machine. An Electrician may be needed to assist you while troubleshooting the system. You must know how to perform preventive maintenance on the Trabon system and have a basic understanding of lube systems to successfully troubleshoot a Trabon system.

The recommended approach to troubleshooting the Trabon system is a linear approach. You will begin by checking the power sources at the front end of the system. If the system has electrical and pneumatic power you will proceed with troubleshooting the system's components in the order that they are configured in the system.

Serious conditions could result from improper troubleshooting. Excessive way wear can result if the machine's lube system is not operating properly. The machine may have to be rebuilt and excessive costs may be incurred with downtime and replacement parts.

How your skills will be checked

The Skill Check will require you to troubleshoot a Trabon system. All tools, materials, and resources will be available. The Evaluator will verify that your demonstration meets the skill objective by observing or measuring each task standard. You must demonstrate safe work practices during the Skill Check. Contact your Evaluator when you are ready for the Skill Check.

Skill Objective

Given a Trabon lube system not operating to specifications, troubleshoot the Trabon system.

Task Standards

1. The system problems must be identified.

2. The appropriate corrective actions must be performed.

What You Will Need

This section contains the safety information, tools, and resources you will need before troubleshooting a Trabon system.

- ☐ Follow all Caterpillar facility safety standards when performing this task.

- ☐ flashlight
- ☐ snap ring pliers
- ☐ adjustable 8” wrench
- ☐ set of Allen wrenches

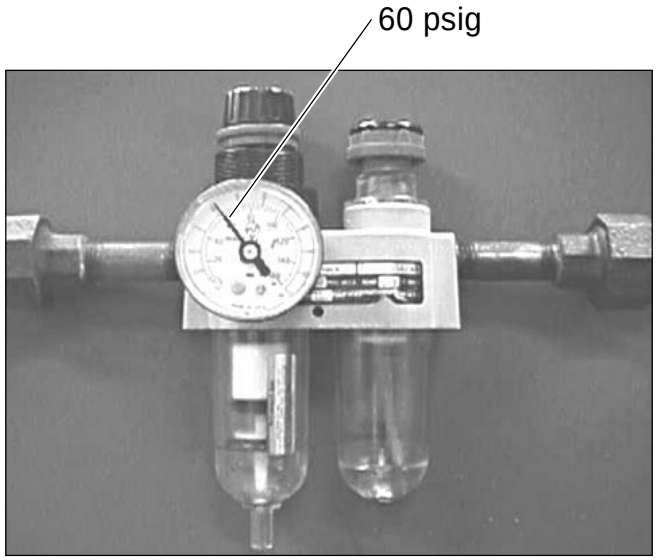
- ☐ Trabon Manual

Task Steps

Troubleshoot Trabon

1. Check to ensure the system has electrical and pneumatic power.

   - ☐ ELECTRICAL POWER: If no control panel indicators are illuminated, power has been removed from the system. Restore power as necessary.
   - ☐ AIR SUPPLY: Observe the gage on the air pressure regulator unit. An acceptable reading is 60 psig. If the gage does not display 60 psig, adjust the air supply for 60 psig. See the figure below.



Air Pressure Regulator

2. Check the LOW LEVEL and FAULT indicators on the Trabon Controller. See the figure below.

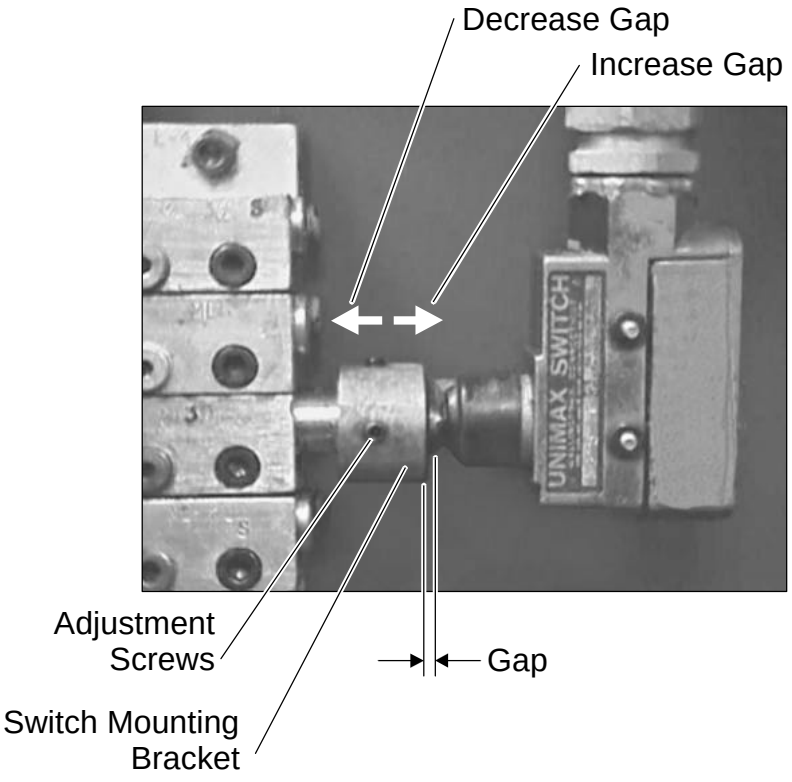
Trabon Controller Indicators

- ☐ LOW LEVEL INDICATOR: If the system is equipped with a LOW LEVEL indicator and the indicator is illuminated, the oil reservoir level is low. Check the Trabon Manual for the specified lubricant and reservoir level. Fill the reservoir as necessary.
- ☐ FAULT INDICATOR: Check to see if the red FAULT indicator is illuminated. An illuminated FAULT indicator indicates a problem with one or more of the system components.

3. Test the cycle indicator switch.

- ☐ Two problems may exist with the switch. The switch is either faulty or out of adjustment.
- ☐ Activate the switch. If the fault light turns off and then back on, the switch is functional but needs adjusting. If the fault light illuminates again, the switch is out of adjustment. The cycle indicator rod is not activating the switch.

- ☐ Loosen the screws in the switch mounting bracket and adjust the gap between the cycle indicator rod and the switch.
- ☐ Move the switch mounting bracket to the left to decrease the gap or to the right to increase the gap. See the figure below.



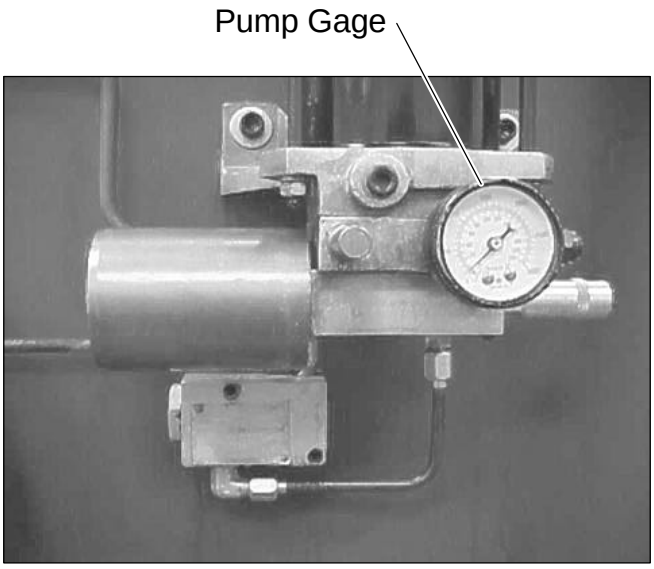
Cycle Switch Adjustment

4. Check the pneumatic solenoid valve, filter, and pump.

- ☐ Press MANUAL RUN to activate the lubrication system. If these components are operating properly, a puff of air is heard at the exhaust and the pump gage pressure should increase, dwell, then drop off. If these actions do not occur, there is a problem with the solenoid valve, filter, or pump.

5. Troubleshoot the pneumatic solenoid valve, filter, and pump.

- ☐ To troubleshoot these components, you will cycle the system while observing the pump gage display. Pump gage location is shown below.



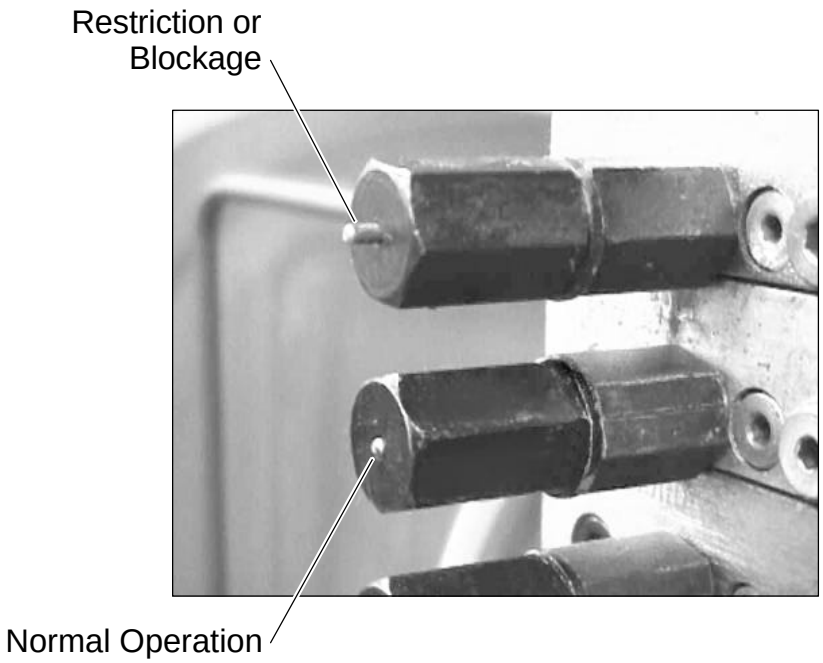
- ☐ One or more actions will occur when you cycle the system. Refer to the troubleshooting chart on the next page for observations and recommended actions associated with the pump, filter, and solenoid valve.

IF...	AND...	THEN...
The pump gage displays pressure	Immediately loses pressure	The pump is defective or lines are broken. Replace the pump, as necessary. Inspect for broken lines. Replace or reconnect lines, as necessary.
There is little or no pressure on the pump gage	Exhaust is heard and oil is released at the blowout disc (atmospheric)	The blowout disc is defective. Replace the disc.
	Oil cycles back into the reservoir	Disconnect the line to the reservoir and check the disc. If the disc is blown, replace the disc.
The pump gage displays pressure	The disc blows after replacement	There may be a clogged filter, a stuck spool, or a crushed or blocked line. Replace the filter, as necessary. Clear or replace the line, as necessary.
There is air flow Valve is operating; disc is not defective	There is no pressure on the pump gage No exhaust is heard when the solenoid is energized	Check the pump for broken springs and defective O-rings. Rebuild the pump as necessary.

Troubleshooting Chart

6. Visually inspect the pin indicator metering blocks (if present).

- ☐ Go to step 7c, if the system is not equipped with indicator pins.
- ☐ Check the position of the pins on the pin indicator blocks to identify the circuit with the problem.
- ☐ The pins are normally flush with the end of the pressure indicator, as shown below. The flow in the circuit is restricted or blocked if the pin is pushed out. See the figure below.



Pin Indicator Metering Blocks

7. Troubleshoot the circuit.

a. Push the pin back in.

b. Remove the line at the pin indicator.

c. Locate the blockage. Starting at the primary block, remove the lines to check for flow through the block.

d. Manually cycle the system to see if there is flow through the block. If no oil flows from the block, the problem is with the block. Replace or repair the block. If oil flows through the block, the block is not causing the fault. Reconnect the line.

e. Disconnect the circuit at the next metering block. Manually cycle the system. If no oil flows from the block, the block is defective. Replace the block. If oil flows through the block, the problem is the feed line.

f. Check the condition of the feed line. Also check the connections. Reconnect or replace line as necessary.

8. Clean up the work area.

9. Document the work history.

Concept Check

Troubleshoot Trabon

Answer the following questions to check your understanding of troubleshooting a Trabon system. Circle the correct answer in each question. Then compare your responses with the answers at the bottom of this page. Some of the questions may have more than one correct answer. If you have difficulty answering a question, review the Skill Development Guide or ask your Trainer for assistance.

1. Troubleshoot a Trabon system when:

    a. a red light is illuminated

    b. a fault indicator is illuminated on the controller.

    c. oil is released from the blowout disc orifice.

    d. an Operator notifies you that there is a problem with the machine.

2. To successfully troubleshoot a Trabon system, you must:

    a. know how to perform preventive maintenance on the Trabon system.

    b. be able to install and operate a Trabon system.

    c. have a basic understanding of Thermodynamics.

    d. have a basic understanding of lube systems.

3. Serious conditions could result from improperly troubleshooting Trabon, including:

    a. the wrong lubricant could be used.

    b. the machine may have to be rebuilt.

    c. excessive way wear.

    d. excessive costs may be incurred with downtime and replacement parts.

Answers: (1. a, b, d 2. a, d 3. b, c, d)

Next Step

If you are ready to demonstrate the task now, ask your Evaluator or Trainer to schedule the Skill Check. However, if you need to practice some of the steps first, continue to the next section.

Practice

The following practice will help prepare you for the Skill Check. Ask your Trainer to set up the practice for you. After you complete a practice, ask your Trainer to check your work.

Practice

Your Trainer will designate a Trabon system for the troubleshooting activity. Troubleshoot for one or more of the following conditions:

- ☐ a defective blowout disc
- ☐ a defective or misadjusted indicator switch
- ☐ a plugged circuit
- ☐ a defective indicator block
- ☐ a defective pump

Practice Objective

The system fault must be identified and a corrective action must be recommended and/or performed.

Next Step

Continue to practice until you are ready for the Skill Check. When you are ready to demonstrate the task, ask your Evaluator or Trainer to schedule the Skill Check.