DG734

Shop Manual

830E

DUMP TRUCK

SERIAL NUMBERS **A30544 - A30606**

KOMATSU®

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GENERAL INFORMATION
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BRAKE CIRCUIT

The 830E truck is equipped with hydraulic actuated disc brakes. The front brakes have three calipers applying braking effort to a single disc on each wheel. The rear brakes have two (armature-speed) discs with one caliper per disc. Each rear outboard disc also contains a parking brake caliper.

The fundamental function of the brake system is to provide an operator the control he needs to stop the truck in either a slow modulating fashion or in as short a distance as reasonably possible.

Outlined below are the functions that are necessary for safe truck operation:

1. Warn the operator as soon as practical of a serious or potentially serious loss of brake pressure so proper action can be taken to stop the truck before the secondary system is exhausted of power.
2. Provide secondary brake circuits such that any single failure leaves the truck with sufficient stopping power.
3. Automatically apply service brakes if low pressure warnings are ignored and pressures continue to decrease.
4. Wheel brake lock to relieve the operator from holding the brake pedal while at the dump or shovel.
5. Spring applied park brake for **holding, not stopping**, the truck during periods other than loading or dumping.
6. Brake system that is easy to diagnose and perform necessary service.

The following brake circuit description should be used in conjunction with the hydraulic brake system schematic, refer to Section "R".

The brake system consists of two major valve components; the dual circuit treadle valve (heart of the system) and brake manifold. The dual circuit treadle valve is the only component located in the operator's cab.

The remainder of the system, including the brake manifold, circuit accumulators, and electrical components, are located in a weatherproof cabinet behind the cab. This cabinet is accessible for diagnostic and service work.

The brake manifold contains dual circuit isolation check valves, accumulator bleed down valves, and valves for brake lock, park brake and automatic apply functions. All of these components are screw-in cartridge type valves.

In the 830E truck, there are two independent means of brake actuation, the service brake pedal and brake lock switch.

SERVICE BRAKE CIRCUIT OPERATION

This portion of the system provides the operator the precise control he needs to modulate (feather) brake pressure to slowly stop the truck or develop full brake effort to stop as quickly as possible. The heart of this circuit is the treadle operated dual circuit brake valve. This valve enables the operator to control the relatively high pressure energy within the brake accumulators directly to the brakes. The only element between the operators foot and the actual brake fluid is the dual circuit treadle valve.

As the pedal is depressed, each valve within the dual circuit treadle valve simultaneously delivers fluid from its respective accumulator to the wheel brakes at a pressure proportional to both pedal position and force. The further the pedal is depressed, the higher the brake force, giving a very positive feel of control.

Brake accumulators have two functions; storing energy for reserve braking in the event of a failure and, provide rapid oil flow for good brake response. Depression of the brake pedal actuates the stop light pressure switch, which in turn actuates stop and service brake indicator lights and propulsion interlock. The stop light switch (12, Figure 2-1) is located on the junction block (10) inside the brake cabinet.

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Symptom Table

PROBLEM	PROBABLE CAUSE
Payload meter is not recording haul cycles.	Broken or missing body-up signal. The body up signal triggers the PLM II™to start a new haul cycle. Check using the "Monitoring Input Signals" procedure.
Only one haul cycle in memory.	
Display shows payload all the time.	Broken or missing speed signal. Check using the "Monitoring Input Signals" procedure.
Display does not show time when the truck is traveling.	
No distance or speed information is recorded in the haul cycle data.	
Payload meter does not 'count up' while driving away from the shovel.	
Payload meter will not calibrate.	
F-18 fault	Missing alternator R-terminal signal. Troubleshoot signal or make modification to eliminate signal. Refer to the "F-18: R-Terminal, Oil Pressure Signals" on the following page.
F20 - F28 faults flashing	Shorted sensor power or ground. Troubleshoot wiring. Refer to the "Shorted 18v Sensor Power Supply" fault tree in this section.
Pressure sensor value drifts up or down erratically.	

Missing Body-Up Signal

The payload meter starts a new haul cycle after the body comes down from dumping the last haul cycle. Each new haul cycle starts at the dump. Without a body-up signal, the payload meter does not know that a new haul cycle has started. The payload meter will not record new haul cycles without the body-up signal. This is the most common sign that the signal is missing.

The body-up input signal is received from a magnetic switch located on the inside of the truck frame forward the pivot pin of the truck body. This is the same switch typically used for input to the drive system. When the body is down, the switch closes and completes the circuit to 71-Control Power. 24vdc indicates the body is down. Open circuit indicates that the body is up. This input can be checked using the "Monitoring Input Signals" procedure.

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LUBRICATION AND SERVICE

Recommended Preventive Maintenance will contribute to the long life and dependability of the Haulpak truck and its components. The use of proper lubricants and the performance of checks and adjustments at the recommended intervals is most important.

Lubrication requirements are referenced to the lube key found in the Truck Lubrication Specifications Chart (page P2-2).

For detailed service requirements for specific components, refer to the shop manual section for that component (i.e. Section "H" for Suspensions, Section "L" for Hydraulic System, etc.).

Refer to manufacturer's service manual when servicing any components of the General Electric System.

830E SERVICE CAPACITIES		
Crankcase: (including lube oil filters).	**Liters**	**U.S. Gallons**
DDC/MTU 4000 Series Engine	250.0	66.0
Cooling System:	568	150
Hydraulic System: Hydraulic Tank Refer to "Hydraulic Tank Service".	947 901	250 238
Fuel Tank	4543	1200
Wheel Motor Gear Box (each side)	39.7	10.5

COOLING SYSTEM ANTI - FREEZE RECOMMENDATIONS (Ethlyene Glycol Permanent Type Anti-Freeze)		
Percentage of Anti-Freeze	**Protection To**	
10	+ 23°F	− 5°C
20	+ 16°F	− 9°C
25	+ 11°F	−11°C
30	+ 4°F	−16°C
35	− 3°F	−19°C
40	−12°F	−24°C
45	−23°F	−30°C
50	−34°F	−36°C
55	−48°F	−44°C
60	−62°F	−52°C
Use only anti-freeze that is compatible with engine as specified by engine manufacturer.		

Refer to engine manufacturer's service manual when servicing the engine or any of its components.

The service intervals presented here are in hours of operation. **These intervals are recommended in lieu of an oil analysis program which may determine different intervals**. However, if the truck is being operated under extreme conditions, some or all, of the intervals may need to be shortened and the service performed more frequently.

Many Haulpak Trucks are equipped with an Automatic Lubrication System. The initial setup for this system provides for nominal amounts of lubricant to be delivered to each serviced point. The lubrication injectors can be adjusted to vary the amount of lubricant delivered. In addition, the timer for lubrication intervals is normally adjustable. For adjustments to these devices, consult the "Automatic Lubrication System" later in this section of the manual.

HYDRAULIC TANK SERVICE

There are two sight gauges on the side of the hydraulic tank. With engine stopped, keyswitch "off", hydraulic system bled down and body down, oil should be visible in either top or lower sight gauge. If hydraulic oil is not visible in the lower sight gauge, follow "Adding Oil" instructions below.

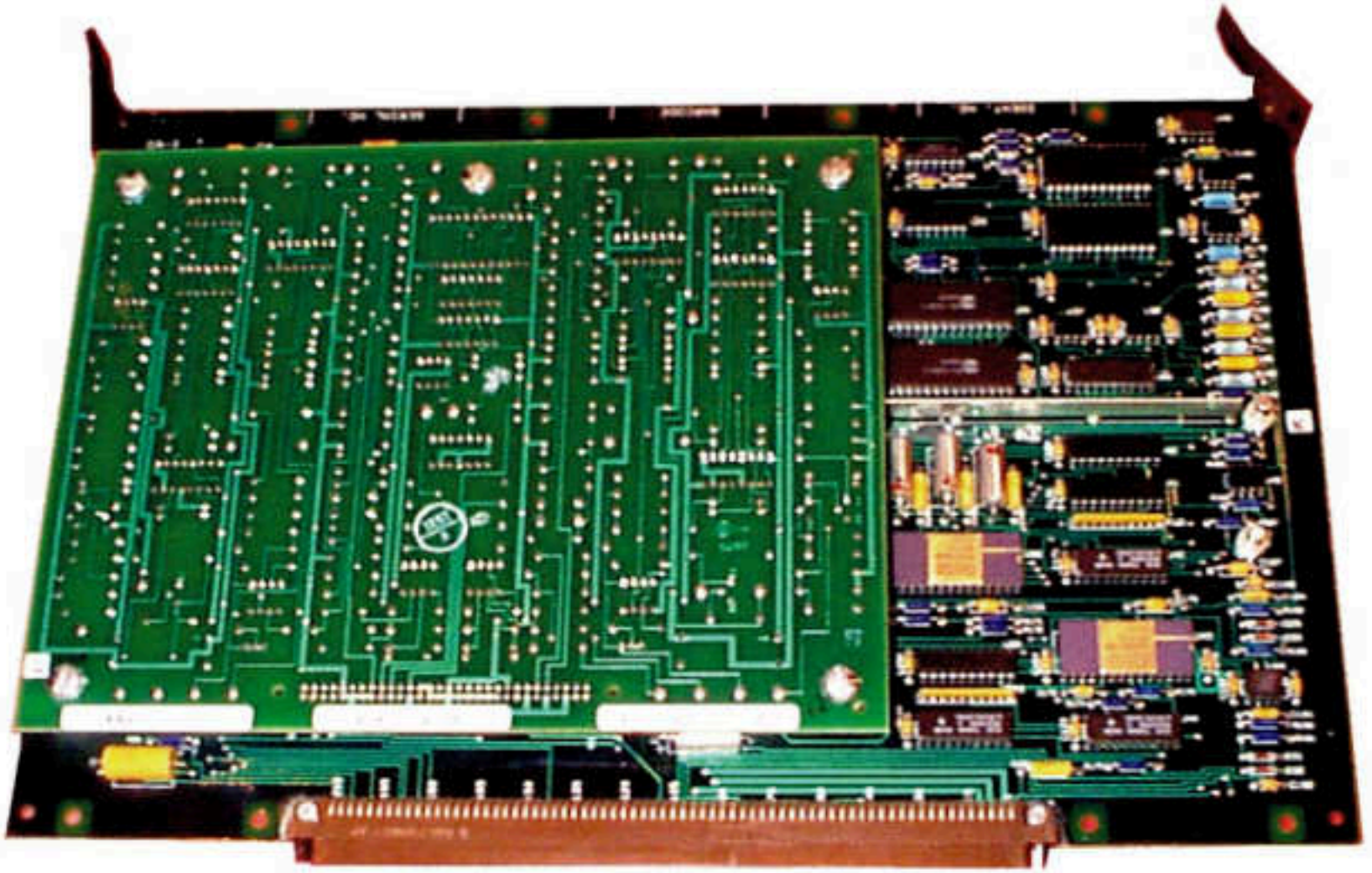
Adding Oil

Keep the system open to the atmosphere only as long as absolutely necessary to lessen chances of system contamination.

Service the tank with clean Type C-4 hydraulic oil only. All oil being put into the hydraulic tank should be filtered through 3 micron filters.

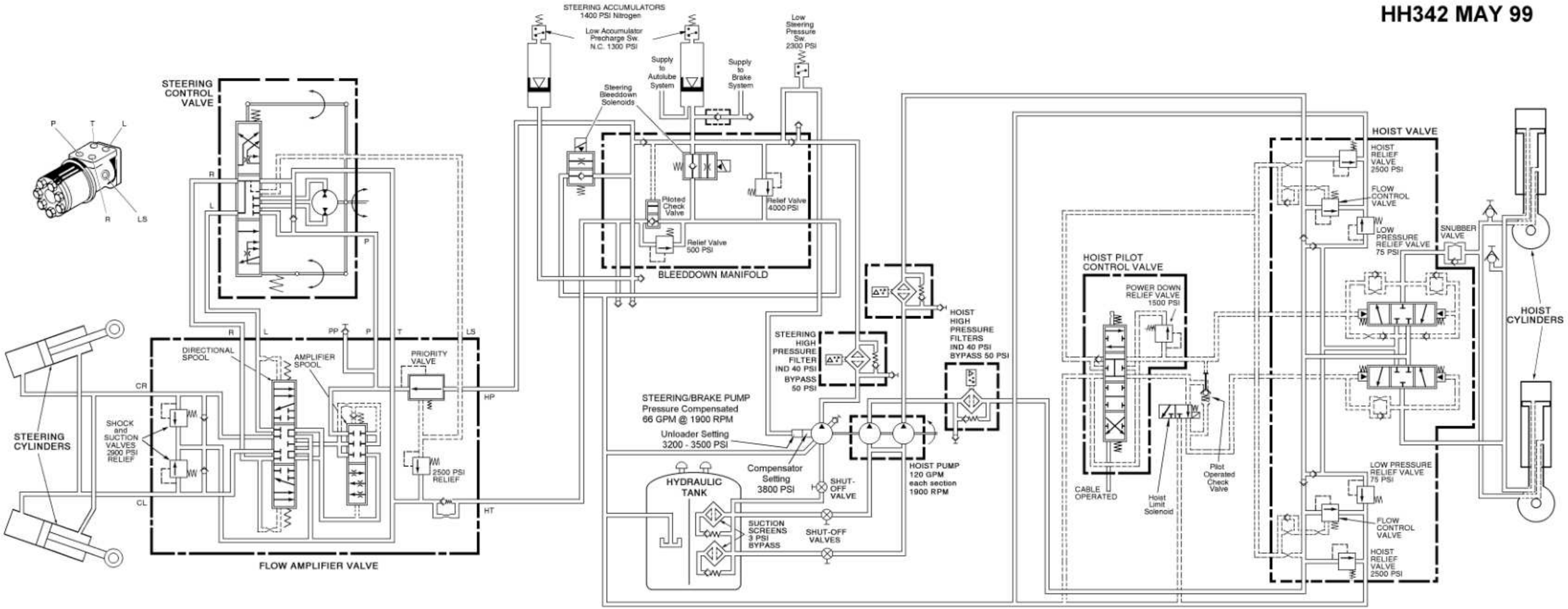
1. With engine stopped, keyswitch "off", hydraulic system bled down and body down, check to see that hydraulic oil is visible in the top or lower sight gauge.
2. If hydraulic oil is not visible in the lower sight gauge, remove the tank fill cap and add clean, filtered C-4 hydraulic oil (Lubrication Chart, Lube Key "D") until oil is visible in the top sight gauge.
3. Replace fill cap.
4. Start engine. Raise and lower the dump body three times.
5. Repeat steps 1 through 4 until oil is maintained in the top sight gauge.

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