CEAM023003

Operation & Maintenance Manual

HD1500-7

DUMP TRUCK

SERIAL NUMBERS **A30109 & UP**

With SDA12V160 Engine

KOMATSU®

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OPERATOR CAB AND CONTROLS

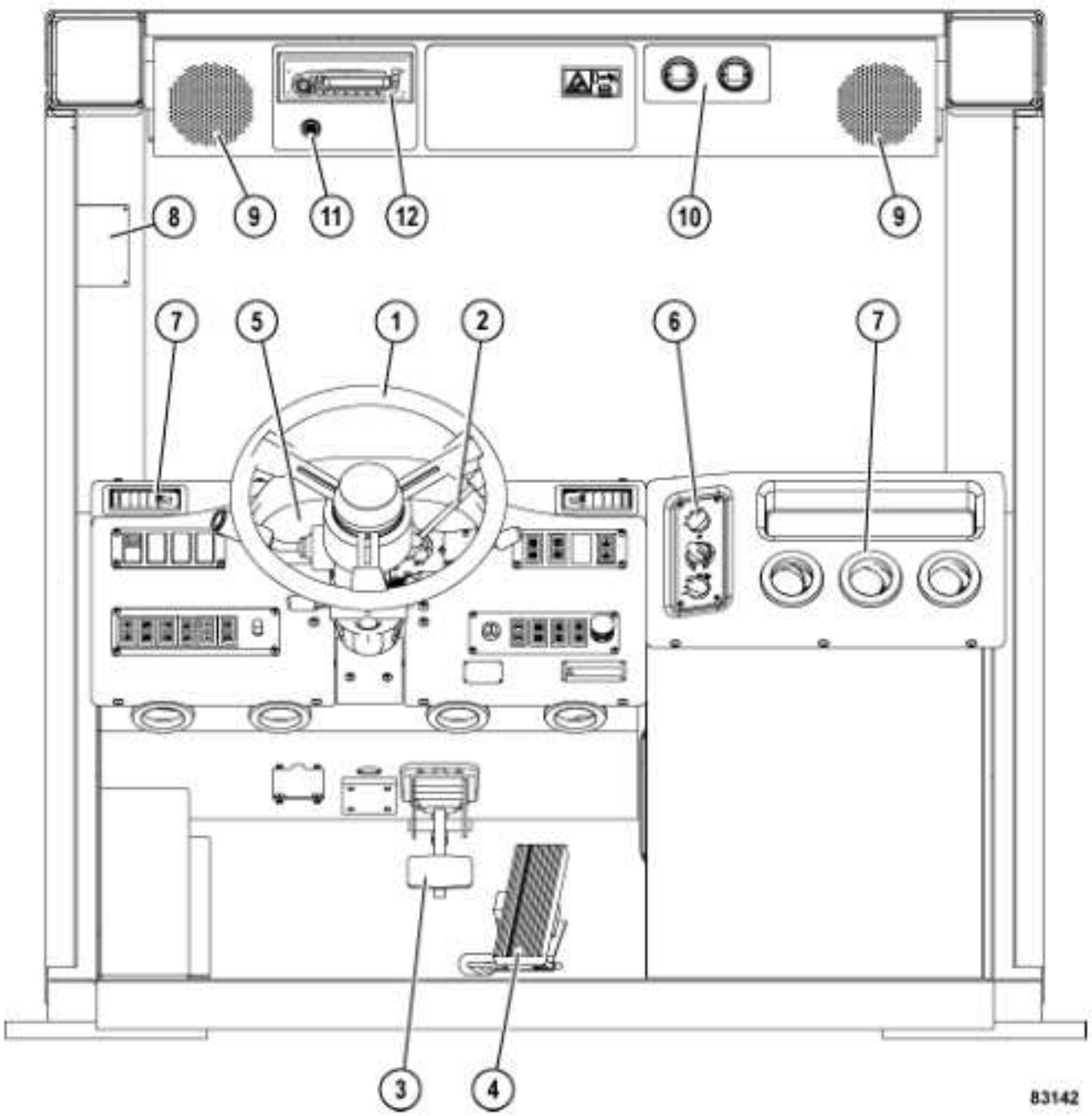


FIGURE 32-1. CAB INTERIOR - OPERATOR VIEW

1. Steering Wheel
2. Retarder Control Lever
3. Service Brake Pedal
4. Accelerator Pedal
5. Instrument Panel
6. Heater/Air Conditioner Controls
7. Heater/Air Conditioner Vents
8. Retarding Capacity Chart
9. Radio Speakers
10. Air Cleaner Vacuum Gauges
11. Warning Alarm Buzzer
12. Radio

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AUTOMATIC LUBRICATION SYSTEM

GENERAL DESCRIPTION

The automatic lubrication system is a pressurized lubricant delivery system which delivers a controlled amount of lubricant to designated lube points. The system is controlled by an electronic controller which signals a solenoid valve to operate a hydraulic motor powered grease pump. Hydraulic oil for pump operation is supplied by the truck steering circuit.

Grease output is proportional to the hydraulic motor input flow. A pump control manifold, mounted on top of the hydraulic motor, controls input flow and pressure. A 24VDC Solenoid mounted on the manifold turns the pump on and off.

The pump is driven by the rotary motion of the hydraulic motor, which is then converted to reciprocating motion through an eccentric crank mechanism. The reciprocating action causes the pump cylinder to move up and down. The pump is a positive displacement, double-acting type pump. Grease output occurs on both the up and the down stroke.

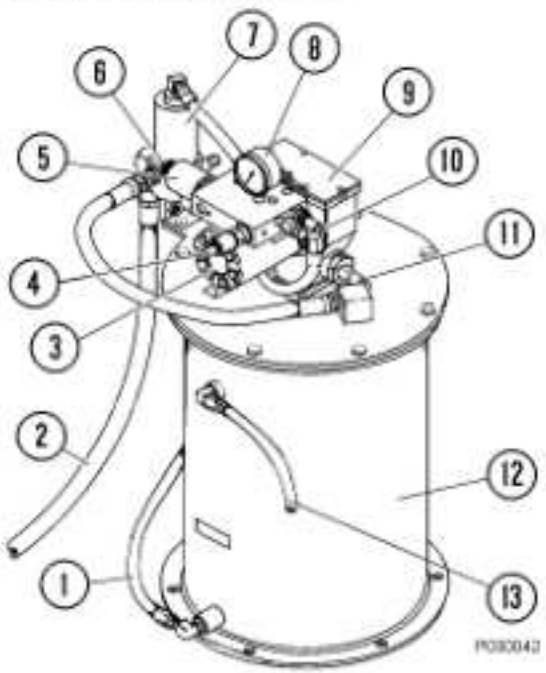


FIGURE 42-1. PUMP & RESERVOIR COMPONENTS

1. Hose From Filter
2. Outlet to Injectors
3. Hydraulic Motor
4. Pressure Reducing Valve
5. Solenoid Valve
6. Test Switch
7. Vent Valve
8. Pressure Gauge
9. Pump Assembly
10. Flow Control Valve
11. Pressure Switch (Optional)
12. Grease Reservoir
13. Vent Hose

During the down stroke, the pump cylinder is extended into the grease. Through the combination of shovel action and vacuum generated in the pump cylinder, the grease is forced into the pump cylinder. Simultaneously, grease is discharged through the outlet of the pump. The volume of grease during intake is twice the amount of grease output during one cycle. During the upstroke, the inlet check valve closes, and one half the grease taken in during the previous stroke is transferred through the outlet check and discharged to the outlet port.

⚠WARNING

Over-pressurizing of the system, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, may result in equipment damage and/or serious personal injury.

- ***DO NOT exceed maximum working pressure for any component in the system.***
- ***DO NOT alter or modify any part of this system unless factory authorization.***
- ***DO NOT attempt to repair or disassemble the equipment while the system is pressurized.***
- ***Ensure all fluid connections are securely tightened before using this equipment.***
- ***Always read and follow the fluid manufacturer's recommendations regarding fluid compatibility.***
- ***Check all equipment regularly and repair. Replace worn or damaged parts immediately.***

This equipment generates very high grease pressure. Use extreme caution when operating this equipment. Pressurized grease can pierce the skin causing serious bodily injury. Adequate protection such as safety goggles and protective clothing is recommended.

If fluid penetrates the skin, get medical care immediately! Do not treat as a simple cut. Tell the attending physician exactly what fluid was injected.

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MAJOR COMPONENTS AND SPECIFICATIONS

Engine

The Komatsu HD1500-7 dump truck is powered by a Komatsu SDA12V160 diesel engine. This engine is Tier 1 compliant.

Transmission

The torqflow transmission is a planetary gear, multiple disc clutch transmission. The transmission is hydraulically actuated and force-lubricated for optimum heat dissipation. A three-element, single-stage, two-phase torque converter is mounted to the front of the transmission.

The torqflow transmission is capable of seven forward speeds and one reverse speed. Automatic shifting is controlled by an electronic shift control system with automatic clutch modulation in all gears. A lockup system consisting of a wet, double-disc clutch, is activated in F1-F7 gears for increased fuel savings.

Final Drive

The final drive consists of a plug-in differential with planetary wheel drive.

Operator's Cab

The HD1500-7 operator's cab has been engineered for maximum operator comfort and to allow for efficient and safe operation of the truck.

The cab provides for wide visibility, with an integral four-post ROPS/FOPS. It includes the following: tinted safety-glass windshield, power-operated side windows, deluxe interior with a fully adjustable seat with lumbar support, fully adjustable tilt steering wheel, controls mounted within easy reach of the operator, and an electronic display/monitoring panel to keep the operator informed of the truck's operating circuits. Audible alarms and indicator lights warn the operator of system malfunctions.

Power Steering

The HD1500-7 truck is equipped with a full time power steering system. The system provides positive steering control with minimum effort by the operator. Nitrogen-charged accumulators automatically provide emergency power if steering pressure is reduced below an established minimum.

Brake System

Depressing the brake pedal, or operating the retarder, actuates the hydraulic front and rear service brakes. Both front and rear service brakes are oil-cooled, multiple-disc brakes. The brakes are automatically applied when engine speed exceeds the rated revolutions for the shift range. The system includes two nitrogen-charged accumulators for quick response. The accumulators provide secondary braking if a problem occurs in the primary braking circuit.

Retarder

The operator can manually apply both the front and rear oil-cooled, multiple-disc brakes by actuating the retarding system. The retarder control lever is mounted on the steering column.

The retarding system is also equipped with an Automatic Retard Speed Control (ARSC) system. The system automatically applies the retarder to maintain the set speed as initiated by the operator. Refer to Section 32, Operator Cab and Controls, for more information on the ARSC system.

Suspension

Hydro-pneumatic suspension cylinders are mounted at each wheel to reduce shock. The suspensions provide riding comfort for the operator and machine stability for safe travel.

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24. Ensure the ground level engine shut off switch is ON.
25. Climb the ladder to the main deck. Always use the hand rails and ladder when mounting or dismounting the truck. Clean the ladder and hand rails of any foreign material, such as ice, snow, oil or mud.

⚠WARNING

Face the truck when using the ladders. Never mount or dismount the truck while the truck is in motion.

26. Check the coolant in the radiator using the coolant level sight gauge.

⚠WARNING

If the engine is hot, allow the coolant to cool before removing the radiator fill cap. Serious burns may be acquired from contact with hot coolant. Depress the pressure relief before removing the cap.

27. Inspect the battery box cover for damage. Ensure the cover is secured, tightly.
28. Check the air cleaner indicators. If the indicator is in the red area, the air filter must be cleaned or replaced before operating the truck.
29. Clean the cab windows and mirrors. Clean the cab floor, as necessary. Ensure the steering wheel, controls and pedals are free of foreign substances such as oil.
30. Stow personal gear in the cab so that it does not interfere with operation of the truck. Clean dirt or trash buildup, specifically in the operator's cab. DO NOT store tools or supplies in the cab or on the deck.
31. Adjust the seat and steering wheel so that it is comfortable for use.
32. Read and understand the information detailed in Operator Controls and Instrument Panel. Become familiar with all control locations and functions before operating the truck.

Cold Weather Heating System

Some trucks operating in cold weather climates may be fitted with an optional cold weather heating system. The system includes heaters in the transmission, hydraulic tank, engine oil pan, battery box, cooling system, and fuel system. Trucks fitted with -40°C (-40°F) equipment (or colder) may also contain heaters in the rear axle.

The power receptacle (2, Figure 30-2) is mounted inside the RH upright near the bottom of the radiator.

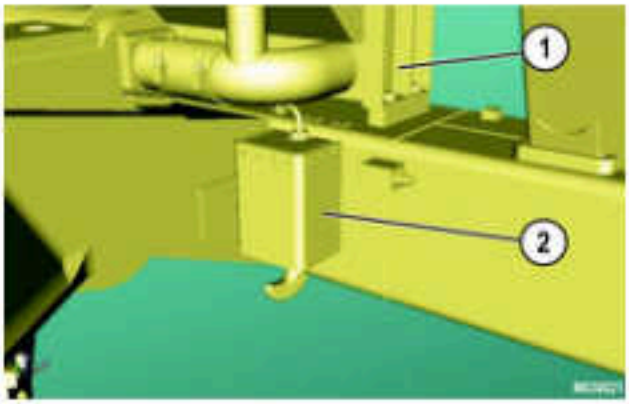


FIGURE 30-2. HEATING SYSTEM POWER RECEPTACLE

1. Radiator
2. Power Receptacle

The system operates on 220V and is controlled by various thermostats in the system. The thermostats operate the heaters within a certain temperature range.

⚠CAUTION

Do not operate the engine while the heater system is operating. Lack of coolant circulation in the heaters will burn out the heating elements.

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Raising the Body

5. Move the hoist control lever on the disabled truck to the HOLD position. Leave the lever in this position during the entire procedure.
6. Adjust the power down relief setting on the good truck to the maximum setting. The power down relief valve (1, Figure 30-7) is located on pilot valve (2) inside of the brake cabinet. Gently, turn the adjustment screw clockwise until it bottoms out. Count the exact number of turns that the adjustment screw is turned, and note for later adjustment.
7. Start the engine on the good truck, and adjust the engine speed to 1000 rpm.
8. Place the hoist control in the POWER DOWN position. Continue to hold in this position until the hoist cylinders reach full extension. Increase engine speed as necessary.

⚠ IMPORTANT ⚠

DO NOT move the hoist control from the POWER DOWN position until full extension is reached. DO NOT attempt to move the lever to the HOLD position during this procedure.

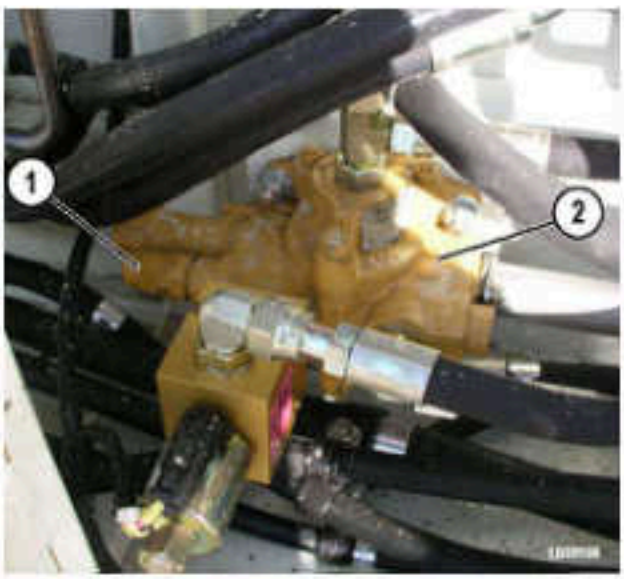


FIGURE 30-7. POWER DOWN RELIEF VALVE

1. Power Down Relief 2. Hoist Pilot Valve

Lowering the Body

9. After the load has been emptied from the body, release the hoist control lever. The body of the disabled truck should immediately begin floating downward.

   If any residual material left in the body prevents lowering, perform the following:

   a. Place the good truck hoist lever in the POWER UP position, and monitor the body of the disabled truck for downward movement. The body of the good truck may rise a small amount during this step.

   b. Once the body of the disabled truck begins downward, move the hoist control all the way forward. Then, release the lever to the FLOAT position.

10. Turn off the engine. Depressurize the brake accumulators, steering accumulators, and the hydraulic tanks on each truck.
11. Disconnect the hoses from each truck.
12. Readjust the relief valve setting on the good truck. Turn the screw counter-clockwise the same number of turns as was noted earlier in this procedure. The power down relief valve setting is 10 342 kPa (1500 psi).

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