TEN00652-02

Operation & Maintenance Manual

DUMP TRUCK

HD1500-7

SERIAL NUMBERS 80233 and up

WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

NOTICE

Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

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RETARDER OPERATION

2 lists are provided on the retarding capacity decal. One list is for a continuous rating. The second list is for a short-length rating. Both lists are matched to the truck at maximum Gross Vehicle Weight (GVW).

The continuous numbers on the chart indicate the combination of speeds and grades the vehicle can safely negotiate for an unlimited time or distance.

The short-length numbers listed on the chart indicate the combination of speeds and grades the vehicle can safely negotiate for 3 minutes. These speeds are faster than the continuous values, reflecting the thermal capacity of various system components. System components can accept heating at a higher-than-continuous rate for a short period of time. Beyond this period, the system would become overheated.

The short-length rating, sometimes called the "3 minute" limit, will successfully accommodate most downhill hauls. It is necessary to divide the haul road grade segment length by allowable speed to determine actual time on the grade. If actual time on the grade exceeds the allowable amount, travel speed must be at continuous speed. Ambient temperature, as well as the temperature of the brake cooling oil can affect this number. (The brake cooling oil could already be above the normal range from recent operating conditions).

⚠WARNING

DO NOT exceed the recommended maximum speeds when descending grades with a loaded truck.

For efficient retarder operation, adhere to the following guidelines:

- Maintain engine speed between 2000 to 2100 rpm
- When descending a grade, apply the retarder and observe both the tachometer and the brake oil temperature gauge. Engine speed must be maintained at 2000 to 2100 rpm. Brake oil temperature must be maintained below 120°C (248°F).

If the maximum engine speed of 2100 rpm or the brake oil temperature of 120°C (248°F) is about to be exceeded, move the transmission shift lever to the next lower range. Adjust the retarder control to reduce speed and allow the transmission to downshift into the selected gear range.

Continue this procedure to maintain engine speed at 2000 to 2100 rpm and brake oil temperature below 120°C (248°F). When the proper gear range is attained, continue to use the retarder as needed to maintain a safe speed.

If brake oil temperature exceeds 120°C (248°F), the brake oil temperature warning will turn on. As quickly as safety will permit, stop the truck away from traffic. Move the transmission shift lever to NEUTRAL and apply the parking brake. Operate the engine at high idle.

Keep the engine at high idle until the brake oil temperature warning light turns off and brake oil temperature cools to below 120°C (248°F). If the temperature does not return to this range within a few minutes, immediately report the condition to maintenance personnel. Wait for further instructions before moving the truck.

PASSING

1. DO NOT pass another truck on a hill or at a blind curve!
2. Before passing, ensure the road ahead is clear. If a disabled truck is blocking your lane, slow down and pass with extreme caution.
3. Use only the areas designated for passing.

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LOWER RH SWITCH PANEL

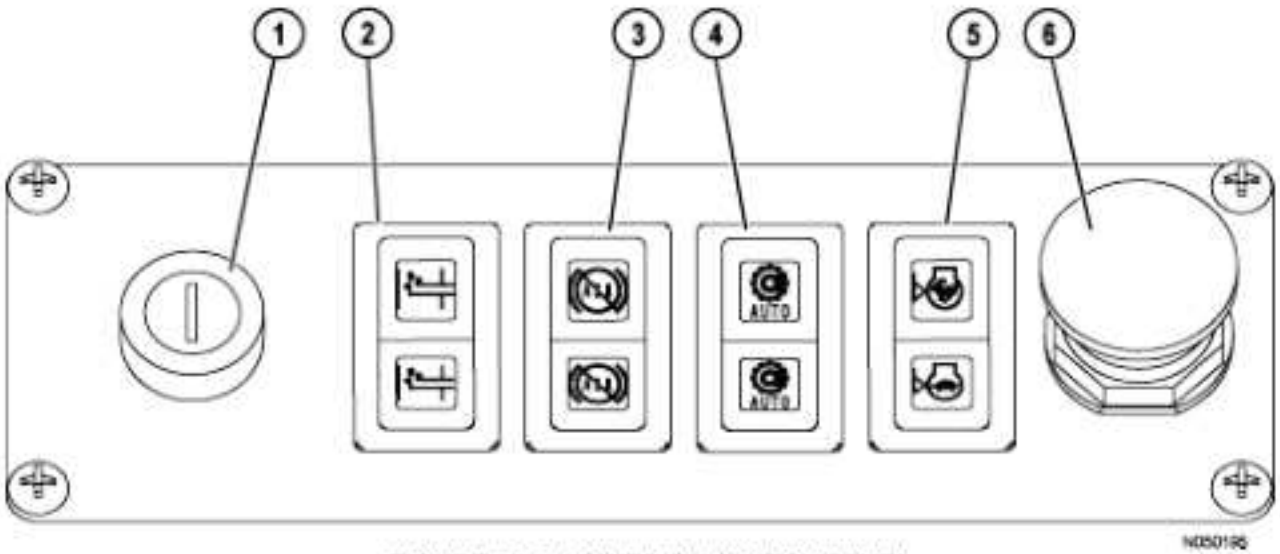


FIGURE 32-9. LOWER RH SWITCH PANEL

1. Key Switch
2. Ether Starting Aid Switch (Optional)
3. ASR Cut Switch
4. ARSC Switch
5. AISS Switch
6. Auxiliary Brake Switch

The lower RH switch panel, located to the right of the steering wheel, contains the following:

Key Switch

Key switch (1, Figure 32-8) is a three position (OFF, RUN, START) switch.

OFF - Key insertion/withdrawal position

When the key slot is in the vertical position, the electrical system is off and no electrical devices are energized.



Key Off

Use this key position to stop the engine when it is operating.

RUN - When the switch is rotated one position clockwise, it is in the RUN position and all electrical circuits (except START) are energized.

START - With the transmission selector lever in NEUTRAL position, rotate the key switch fully clockwise to the START position, and hold this position until the engine starts (see NOTE below). The START position is spring loaded to return to RUN when the key is released.



Start Engine

NOTE: The engine start circuit is equipped with a engine prelube system. A noticeable time delay will occur (while engine lube oil passages are being filled) before starter engagement and engine cranking will begin. The colder the engine oil temperature, the longer the time delay will be. In addition, if the truck is also equipped with an engine starting aid for cold weather starting, the engine prelube system should be engaged first for 5 to 10 seconds, or until the starter is engaged, before activating the engine starting aid.

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PREVENTATIVE MAINTENANCE

Use the following maintenance procedures to ensure proper system operation.

Daily Lubrication System Inspection

1. Check grease reservoir level.
   Inspect grease level height after each shift of operation. Grease usage should be consistent from day-to-day operations.
   - Lack of lubricant usage would indicate an inoperative system. Excessive usage would indicate a broken supply line.
2. Check filter bypass indicator when filling reservoir. Replace element if bypassing.
3. Check all grease feed line hoses from the SL-1 injectors to the lubrication points.
   a. Repair or replace all damaged hoses.
   b. Ensure all air is purged and all new hoses are filled with grease before truck operation.
4. Inspect key lubrication points for a bead of lubricant around the seals. If a lubrication point appears dry, troubleshoot and repair the problem.

NOTE: It is good practice to manually lube each bearing point at the grease fitting provided on each Injector. This will indicate if there are any frozen or plugged bearings, and will help flush the bearings of contaminants.

250 Hour Inspection

1. Check all grease hoses from the SL-1 injectors to the lubrication points. See Figure 42-2.
   a. Repair or replace all worn or broken hoses.
   b. Ensure all air is purged and all new hoses are filled with grease before truck operation.
2. Check all grease hoses from the pump to the SL-1 injectors.
   a. Repair or replace all worn or broken hoses.
   b. Ensure all air is purged and all new hoses are filled with grease before truck operation.
3. Check the grease reservoir level.
   a. Fill the reservoir as needed. Check the filter bypass indicator when filling the reservoir. Replace the element if grease is bypassing.
   b. Check the reservoir for contaminants. Clean, if necessary.
   c. Ensure all filler plugs, covers and breather vents on the reservoir are intact and free of contaminants.
4. Inspect all bearing points for a bead of lubricant around the bearing seal.
5. System Checkout
   a. Remove all SL-1 injector cover caps to allow visual inspection of the injector cycle indicator pins during system operation.
   b. Start the engine.
   c. Actuate manual test switch (17, Figure 42-2). The hydraulic motor and grease pump should operate.
   d. With the grease pressurized, check each SL-1 injector assembly.
      The cycle indicator pin should be retracted inside the injector body.
   e. When the system reaches 17,237 kPa (2,500 psi), the pump should shut off. The pressure in the system should drop to zero, venting back to the grease reservoir.
   f. With the system vented, check all of the SL-1 injector indicator pins; all of the pins should be visible. Replace or repair injectors, if defective.
   g. Reinstall all injector cover caps.
   h. Check controller operation.

NOTE: With the engine on, the lube system should activate within 5 minutes. The system should build 13,790 to 17,237 kPa (2,000 to 2,500 psi) within 25 to 40 seconds.

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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 by 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 30-1) is mounted inside the RH upright near the bottom of the radiator.

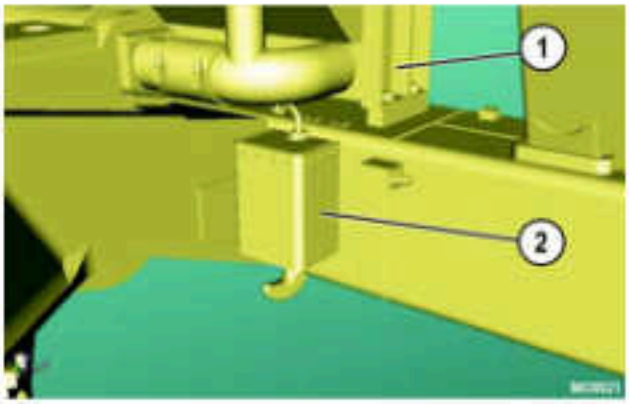


FIGURE 30-1. HEATING SYSTEM POWER RECEPTACLE

1. Radiator
2. Power Receptacle

The system operates on 220 V 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 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. On HD1500 trucks, the power down relief valve (1, Figure 30- 6) 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 HOLD position during this procedure.

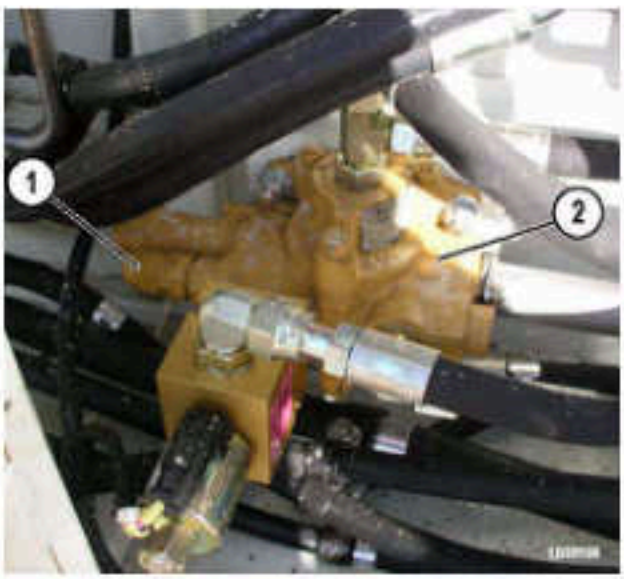


FIGURE 30-6. POWER DOWN RELIEF VALVE

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 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 on an HD1500 is 10,342 kPa (1,500 psi).

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