CEAM012803

Operation & Maintenance Manual

HD1500-5

DUMP TRUCK

SERIAL NUMBERS **A30070-A30071, A30077**

KOMATSU®

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Air Conditioner Control Switch



Air Conditioner control switch (5, Figure 32-3) is a three position switch that controls the air conditioner to cool the cab air. Moving the switch to the left activates the air conditioner. (The fan control must be switched ON for the air conditioner to function.) When the switch is in the center position, the air conditioner and the heater are both activated. When the switch is moved to the right side, only the heater is activated.

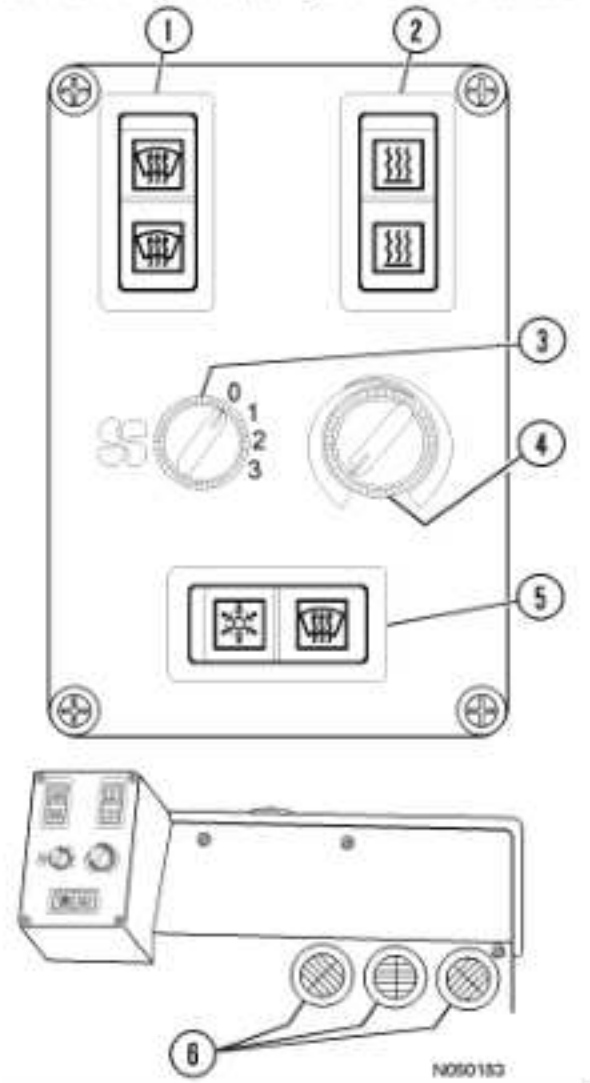


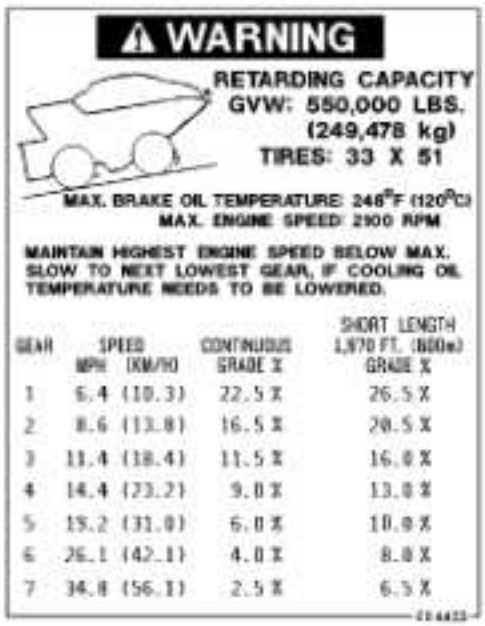
FIGURE 32-3. A/C & HEATER CONTROLS

Heater/Air Conditioner Vents

Heater/air conditioner vents (6, Figure 32-3) may be rotated 360°. There are three vents in the heater/air conditioner compartment (shown in Figure 32-3), four vents across the top of the panel, and one vent each in the RH and LH instrument panel pods. Air flow through the vents is controlled by manually opening, closing or turning the louvers.

RETARDING CAPACITY CHART

Retarding capacity chart (8, Figure 32-1 & shown below) provides the recommended *maximum* truck speeds for descending various grades with a fully loaded truck.



⚠ WARNING

RETARDING CAPACITY
GVW: 550,000 LBS.
(249,478 kg)
TIRES: 33 X 51

MAX. BRAKE OIL TEMPERATURE: 248°F (120°C)
MAX. ENGINE SPEED: 2100 RPM

MAINTAIN HIGHEST ENGINE SPEED BELOW MAX. SLOW TO NEXT LOWEST GEAR, IF COOLING OIL TEMPERATURE NEEDS TO BE LOWERED.

GEAR	SPEED MPH (KM/H)	CONTINUOUS GRADE %	SHORT LENGTH 1,970 FT. (600m) GRADE %
1	6.4 (10.3)	22.5 %	26.5 %
2	8.6 (13.8)	16.5 %	20.5 %
3	11.4 (18.4)	11.5 %	16.0 %
4	14.4 (23.2)	9.0 %	13.0 %
5	19.2 (31.0)	6.0 %	10.0 %
6	26.1 (42.1)	4.0 %	8.0 %
7	34.8 (56.1)	2.5 %	6.5 %

The operator should reference the retarding capacity chart before descending any grade with a loaded truck. Proper selection of road grade, truck speed, transmission gear range, and use of the retarder lever and/or brake pedal are required to maintain a safe speed.

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LUBRICATION AND SERVICE

Preventive maintenance contributes to the long life and dependability of the truck and its components. The use of proper lubricants and the performance of checks and adjustments at recommended intervals are crucial.

Lubrication requirements reference the lube key found in the lubrication chart. For detailed service requirements for specific components, refer to the shop manual.

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

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

HD1500-5 SERVICE CAPACITIES		
	Liters	**US Gallons**
Crankcase: (including lube oil filters)	193	51
Cooling System:	532	140.6
Hydraulic System: Refer to Hydraulic Tank Service in this chapter	900	238
Differential Case Final Drive Case (each wheel)	300 120	79 31.7
Fuel Tank (Diesel Fuel Only)	2120	560
Transmission Case: including torque converter	153	40.5

COOLANT SPECIFICATIONS

- For ambient temperatures of -25° F (-32° C) and above, use a standard 50/50 anti-freeze-to-water mixture.
- For arctic climates with ambient temperatures between -25° F (-32° C) and -65° F (-54° C), use a 60/40 anti-freeze-to-water mixture.

NOTE: Do not use propylene glycol coolant in arctic climates. Only use ethylene glycol coolants.

Unacceptable Practices

- Use of high-silicate anti-freeze.
- Under concentration or over concentration of Extended Service Additive (SCA).
- Use of anti-freezes/coolants that are not fully formulated for extended service intervals.
- Use of sealing additives (stop-leak) in the cooling system.
- Use of soluble oils in the cooling system.
- Use of poor-quality water. See the engine manufacturer's specifications for water quality requirements.
- Use of anti-freeze, Extended Service Additive (SCA) or coolant filter(s) that do not meet the engine manufacturer's specifications.
- Use of Treated Water coolant.
- Use of coolants with less than 40 percent antifreeze.

QUICK FILL SERVICE CENTER

The service center (Figure 40-1) is located on the left side of the truck below the hydraulic tank. The service center can be used to fill system fluids at a higher rate of speed than manually adding fluids and grease.

Connect a filling device to the appropriate fitting on the service center to add fluids/grease. Use caution when adding fluids to avoid overfilling.

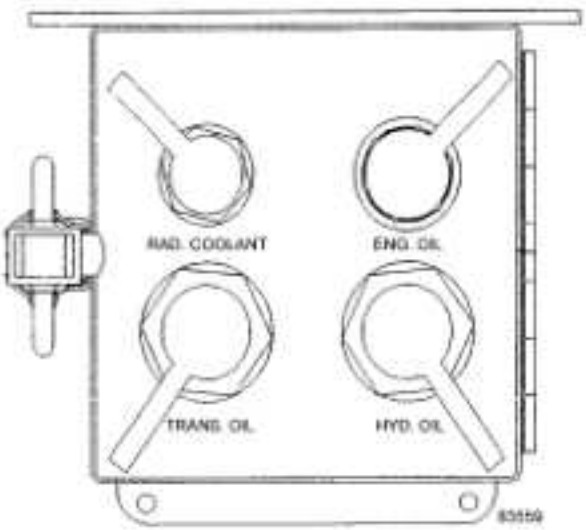


FIGURE 40-1. SERVICE CENTER

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Gain Factor

Gain factor is part of the formula the payload meter uses to calculate the payload. The gain factor is a tool that compensates for variations between actual weight of the payload and the calculated weight from the payload meter. The gain factor should only be adjusted after several payloads have been weighed on a scale. The gain should never be adjusted based only on one payload. It takes at least 10 scale weighins to determine an average variation. A worksheet is located at the end of this chapter to assist in calculating the necessary gain adjustment.

There are two types of gain adjustments, G_t gain and UP factor. It is recommended that only the G_t gain be adjusted. This adjustment is made using the potentiometer on the side of the payload meter. Refer to "Adjusting the Gain".

Brake Lock

The Brake Lock only applies the rear brakes. This allows the front wheels to rotate slightly as the truck is being loaded. This is important because the payload meter assumes that the front wheels can rotate freely. As the truck is being loaded, it will begin to squat down on the suspensions. This will change the wheel base dimension of the truck. This freedom of movement prevents additional binding and friction in the front suspensions.

The incline of the grade on which the truck is loading is measured by the inclinometer. This helps determine the incline factors that are applied to the front and rear sprung weights. The tire forces on the road surface that hold the truck on grade affect the suspension pressures. If the front and rear brakes are locked, the effect on the suspension pressures cannot be determined. If only the rear brakes are applied the effect is predictable and the incline factors accurately account for the forces on the tires.

If the service brake or park brake is used and depending on the incline and other factors, the payload meter can overestimate or underestimate the load. **It is important that only the brake lock be used while loading the truck. (Parking brake on 330M/HD785).**

Sources of Error

Poorly charged suspensions can lead to systematic error in the calculation of payload. The error is most obvious when the oil level is low. When there is too little oil in the suspensions, the cylinder may compress completely under a load. The weight of the truck will be carried by the metal to metal contact within the suspension. Not only will the ride of the truck, the life of the tires, and other components be affected, but the pressure in the cylinder will not truly represent the load on the truck. Under-charged suspensions typically cause the payload calculations from the payload meter to be lower than the actual payload.

Typical Data From Service Check Mode

A sample data set is shown in Figure 60-4. This data was taken in the laboratory and is used in Figure 60-5 to calculate the final load. Note the front suspension pressures were converted into the front sprung weight using the formulas above Figure 60-5. The front sprung weight is then multiplied by the front incline factor and the front linkage factor. The same is done with the rear sprung weight. The front and rear sprung weights are then summed. This number is multiplied by the G_t gain potentiometer value. The calibration load is subtracted from the total to produce the final load. The load displayed on the meter is this final load (item #15) multiplied by the UP gain factor.

Number	Data	Description
1	13:09	Current Time
2	749.4	Front Left Pressure (psi)
3	848.9	Front Right Pressure (psi)
4	863.2	Rear Left Pressure (psi)
5	1049.0	Rear Right Pressure (psi)
6	106.0	Front Weight (Tons)
7	75.1	Rear Weight (Tons)
8	-1.85	Inclinometer (Degrees)
9	0.95	Incline Factor - Front Wheels
10	0.984	Incline Factor - Rear Wheels
11	1	Link Factor - Front Wheels
12	1.539	Link Factor - Rear Wheels
13	70.6	Calibration Sprung Weight (Tons)
14	1.000	Gain Adjustment
15	143.8	Current Load (Tons)
16	3.9	Battery Backup Voltage (Volts)

FIGURE 60-4.

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