

Operation & Maintenance Manual

KOMATSU

HD320,325-3


DUMP TRUCK

SERIAL NUMBERS
HD320 -2501 and up
HD325 -1501

FOREWORD

Thank you for purchasing this Komatsu machine.

This manual describes procedures for operation, handling, lubrication, maintenance, checking, and adjustment. It will help the operator realize peak performance through effective, economical and safe machine operation.

- Please read this manual carefully BEFORE operating the machine.
- Please continue studying this manual until proper operation is completely reinforced into personal habit.
- ★ Operation, inspection, and maintenance should be carefully carried out, and the safety must be given the first priority. Safety precautions are indicated with  marks in this manual.


BREAKING IN YOUR NEW MACHINE

Operate your dump truck gently for the first* 100 hours (refer to service meter) or so to break in all moving parts. The machine has been fully inspected and adjusted before shipment.

If you operate it up to the limit of its capacity during the break-in period, its potential of performance will be prematurely reduced. Use special care for the following points.

- After starting, idle the engine, until the water temperature and oil pressure gauges indicate to the green range. An engine which is not fully broken in will have its operating life reduced if it is operated under load while the oil temperature is low. Warm-up is also important after the break-in period.
 - Avoid heavy-duty works and high-speed travelling.
 - Avoid sudden starts and stops, abrupt acceleration and turning.
 - During the first *250 hours, the services noted below are required together with periodical maintenance.
 - i) Replace all oil and the hydraulic oil filter element.
 - ii) Check the valve clearance.
 - iii) Check the torque of injector adjustment screws and retighten the injector mounting bolts.
(Refer to EVERY 1,000 HOURS SERVICE and EVERY 2,000 HOURS SERVICE.)
- * Hours of operation are indicated by the service meter.

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SAFETY HINTS · · ·

GENERAL

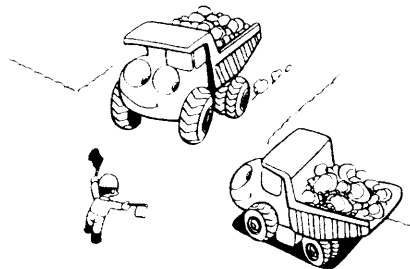
- Wear well-fitting hard hat, safety shoes and working clothes. Never wear loose or unbuttoned clothes as they may catch on protruding parts of machine. Never wear clothes covered in oil.
If the nature of the work so requires, wear protective goggles or mask, ear plugs or other protection.
- Accidents or injuries are liable to occur when the operator is careless or inattentive. It is most important to bear safe operation in mind at all times.
- Do not overwork or drive after drinking. Take care of your health. Driving while unfit can lead to mistakes in judgement in emergencies.
- Never allow more than the permitted number of persons to ride on the machine.
- Learn the prohibitions, precautions and rules about work procedures in the job site. Make every effort to prevent accidents by always following these and always bearing safety in mind.
- If there should be an accident or fire or any other such unexpected mishap, deal with it quickly, using the nearest apparatus. In addition, it is necessary to prevent any secondary mishaps. It is also important to know the emergency contact system.
- Learn beforehand the locations and method of use of emergency equipment such as first aid boxes, fire extinguishers or other fire-fighting equipment.
- Learn how to use the control devices, gauges and warning devices. Be sure you understand the meaning of the caution plates and other signs. Remember the check points and checking method for engine oil, fuel, cooling water and hydraulic oil levels. Always know the dimensions and capacity of your machine.
- Fuel, oil and anti-freeze are dangerous. Never smoke or light matches when handling fuel, oil, grease or anti-freeze. Do not handle these substances near any fire or flame. When selecting a place for storing them, take care to choose a place away from where fire is used.
- Exhaust gas is dangerous. When running the engine for long periods in a poorly ventilated area, there is a danger of gas poisoning, so open the windows or doors to ensure a good supply of fresh air.
- When operating inside a building always be sure of the clearances of the ceiling, entrances, aisles, etc. and the load limit of the floor.

BEFORE STARTING OPERATION

- Examine the lay of the land and the kind of soil at the site to determine the dangerous points and the best method of operation. Proceed with the work only after making safety arrangements about the dangerous points. Avoid operating near cliffs or deep gullies. Be particularly careful of the edge of cliffs, falling rocks or landslides.
- Always carry out inspection and maintenance correctly. Check for leakage of fuel, lubricant or hydraulic oil, and for loose, broken or missing parts.
If there are any such problems always correct them. Never use the machine without correcting all problems.
Use repaired machines only after receiving permission from the serviceman in charge of the repair.
- Adjust the operator's seat until it is in the most comfortable position for operating.

- When getting on or off the machine, use the handrail and step provided. Do not jump up or down from the machine.
- Learn about the safety devices on your own machine and about how to use them. Confirm that they are correctly attached in the prescribed position.
- Before starting the engine, confirm that all control levers are in "NEUTRAL" or "HOLD".
- To ensure the safety of workers near the machine, always signal or sound the horn to warn them before starting the engine, moving the machine or turning.
Be particularly careful to check that the rear is clear before backing the machine.
- Do not leave parts or tools lying around in the vicinity of or on the floor of the operator's compartment. Keep everything in its proper place, to avoid any hindrance while driving.

- Wipe off thoroughly any grease, oil or mud on the step, handrail, floor or control levers. Failure to do this may cause you to slip.
- Check the level of the fuel, lubricants and cooling water. Do not smoke or use naked flames when checking. Extinguish cigarettes before checking or refilling. Check that the radiator cap and all oil filler caps or plugs are firmly tightened.
- When there is a leader, fix standard signals and always follow these signals when operating. Learn the signs and rules used in the job site and always follow them.

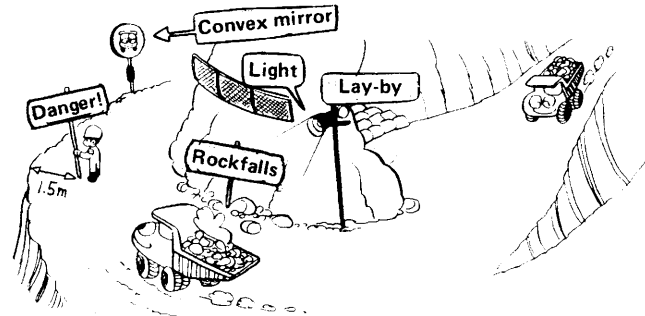
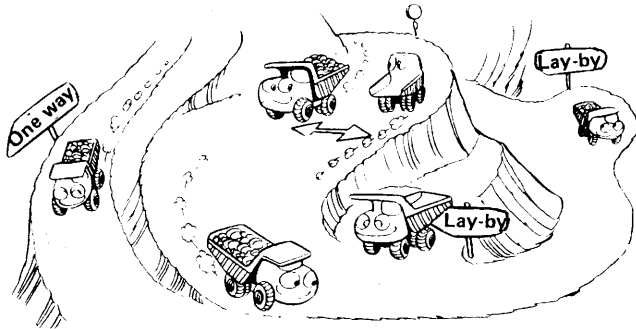


ARRANGEMENTS BEFORE STARTING OPERATIONS PLANNING AND CONSTRUCTION OF HAUL ROADS

Maintenance of haul roads in the job site is of utmost importance, not only for safety but also for reduction of cycle time.

- As far as possible, roads should be for one-way traffic.
- Where it is impossible to make one-way roads, the road should have ample width to allow trucks to pass each other easily.
- Where it is impossible to make the road wide enough, lay-bys should be constructed at frequent intervals.
- Roads must always be constructed to allow loaded trucks to pass on the inside (away from the edge).

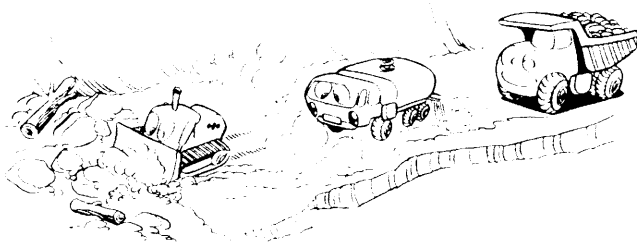
- Place convex mirrors at blind curves or places with poor visibility.
- Place warning signs at least 1.5 meters in from soft road shoulders or from places where there is danger of subsidence.
- To allow night driving, it is important to install lighting or reflectors.
- Gradients should be kept to within about 10%. In case of brake failure, down-hill slopes should be provided with lay-bys.



MAKE THE HAUL ROAD LEVEL

When hauling, always drive at a speed suited to the road conditions. For this reason, maintenance of the haul road is essential for both safety and improvement of efficiency. Especially after heavy rain, remember that conditions may have changed from those before the rain.

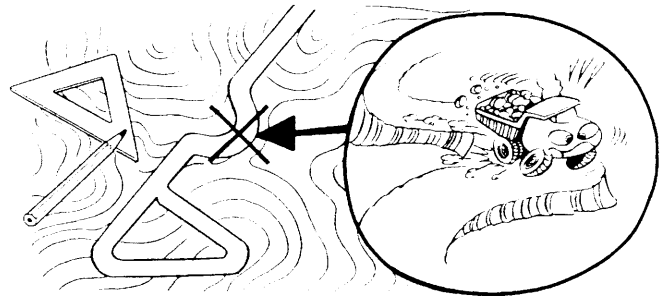
- Fill in holes, remove bumps, and correct any tilting of the road to one side. Strengthen the road and correct sagging shoulders. Remove rocks, trees or other obstacles.
- The best method is to use bulldozers or motor graders occasionally to maintain the haul road surface.
- Dust can reduce visibility, so it is important to use a sprinkler periodically to keep the dust down.



MAKE THE HAUL ROAD AS STRAIGHT AS POSSIBLE

For both safety and efficiency it is important to make as many straight stretches as possible. Especially in the central area where the truck is traveling at high speed, the radius of curves should be made as large as possible. Avoid tight S-bends as they are particularly dangerous. The radius of the curve should be at least 12 to 15 meters. When maintaining a winding haul road, pay attention to the following points:

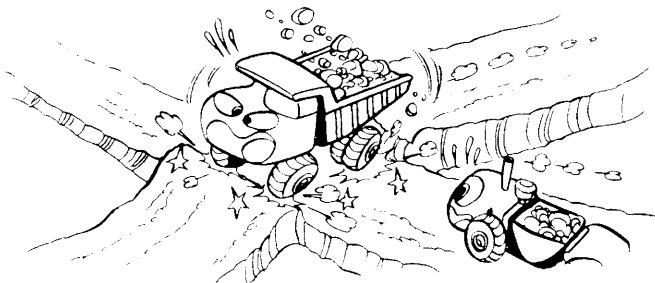
- Turning radius – large enough to have room to spare
- Road width – larger than for straight roads
- Outer edge – slightly higher than inside
- Outer shoulder – much stronger than for other roads.



CROSSROADS OR SLOPING ROADS ARE DANGEROUS

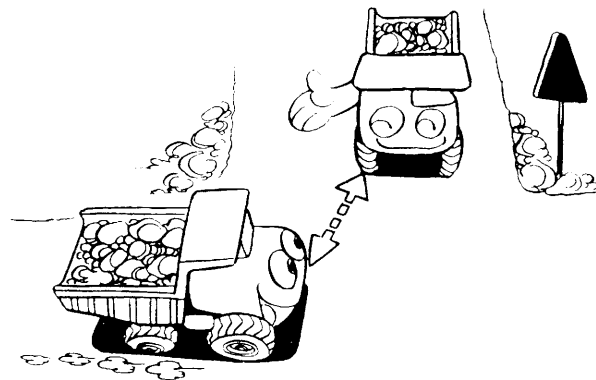
As far as possible, avoid having the haul road intersect another road. Particularly on slopes, if the roads intersect at an angle, a ramp is formed, and at high speed, this causes heavy rolling which is dangerous.

Also, when a truck is driven across an unlevelled slope, there is danger of the truck tilting and overturning. Therefore cut out a level haul road across the slope.



OPERATION DURING OPERATION

- Proceed with the operation steadily step by step. Always aim at unhurried and harmonious safe operation. Dazzling high speed operation may look efficient, but it does not continue for long. It causes breakdowns, in addition to being dangerous, and in the long run is not effective.
- When stopping at crossing, to avoid collisions with other vehicles, keep your distance and confirm who has priority.



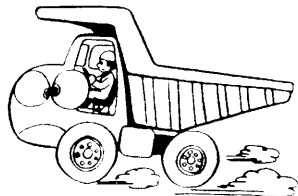
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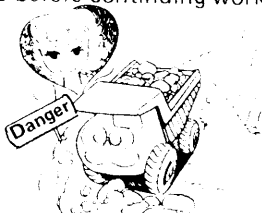
- If there is no one giving instructions during operations, there is danger of being hit by dump trucks. In such places, all persons not concerned with the operation should be kept out of the operating area.



- When driving, sit in the operator's seat correctly so that the truck can be operated properly. During while not sitting in the operator's seat, or driving while standing are dangerous.



- Always concentrate. It is extremely dangerous to allow yourself to be distracted or to think of other things when operating a machine. Always pay attention to your driving, and to your surroundings. In dangerous places, or where there is restricted visibility, it is important to get down from the machine and confirm whether it is safe before continuing work.



- Never drive off the road, or in places which you consider dangerous or outside the range of your skill.



- The machine should always be operated at a speed where it can be correctly controlled. The following are dangerous:

- ★ **Speeding**
- ★ **Snaking**
- ★ **Coasting**



- As far as possible sudden stopping or sudden starting should be avoided except in emergencies. Be careful to avoid repeated stamping on the brakes.

