CEAM006004

Operation & Maintenance Manual

KOMATSU®

HD785-5LC

DUMP TRUCK

SERIAL NUMBERS HD785-5LC A10144
HD785-5LC A10224-A10315

ENGINE 12V140ZE-2

May 2016

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

SUBJECT .....SECTION / PAGE

INTRODUCTION .....SECTION 1
Foreword 1-1
ALERTS - a description of DANGER, WARNING, and CAUTION symbols used in this manual.....1-2
TABLE OF CONTENTS 1-3
Truck Model Illustration 1-6
About This Manual 1-7
STANDARD CHARTS and TABLES 1-9

SAFETY .....SECTION 2

Safety records of most organizations will show that the greatest percentage of accidents are caused by unsafe acts of persons. The remainder are caused by unsafe mechanical or physical conditions. Report all unsafe conditions to the proper authority. These safety rules are provided as a guide for the Komatsu Truck operator. However, local conditions and regulations may add many more to this list.
GENERAL SAFETY 2-1
PRECAUTIONS DURING OPERATION 2-5
Operating Machine 2-6
Towing 2-9
Battery 2-10
PRECAUTIONS FOR MAINTENANCE 2-11
Before Carrying Out Maintenance 2-11
During Maintenance 2-12
Tires 2-15
WARNING, CAUTION, and Instruction Plates / Decals 2-17

OPERATION .....SECTION 3

This portion of the manual covers Identification, location, and operation of the controls, switches, and indicators in the Operator's Cab and use / function of these controls, switches, and indicators.
OPERATING INSTRUCTIONS
Preparing For Operation 3-1
Safety Is Thinking Ahead 3-1
At The Truck - Ground Level Walk-Around Inspection 3-1
ENGINE START-UP SAFETY PRACTICES 3-5
AFTER ENGINE HAS STARTED 3-7
MACHINE OPERATION SAFETY PRECAUTIONS 3-8
LOADING 3-8
HAULING 3-9
PASSING 3-11
DUMPING 3-11
SAFE PARKING PROCEDURES 3-12
SHUTDOWN PROCEDURE 3-12
TOWING 3-13
BRAKE RELEASE 3-14
RELEASE OF PARKING BRAKE 3-14
RELEASE OF EMERGENCY BRAKE 3-14

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS (Continued)

SUBJECT . . . . . SECTION / PAGE

OPERATION (Continued) . . . . . SECTION 3
OPERATOR CAB and CONTROLS 3-15
STEERING WHEEL AND CONTROLS (Figure 3-1) 3-15
RETARDER CONTROL LEVER 3-16
SERVICE BRAKE PEDAL 3-16
THROTTLE PEDAL 3-16
CENTER CONSOLE AND CONTROLS (Figure 3-2) 3-16
ENGINE ELECTRICAL CONTROL SYSTEM 3-20
ABS/ASR SYSTEM 3-22
DIFFERENTIAL LOCK PEDAL 3-24
HOIST CONTROL VALVE 3-24
Safety Lock 3-24
ARSC SYSTEM 3-25
Troubleshooting 3-28
OPERATOR SEAT (Figure 3-5) 3-30
INSTRUMENT PANEL AND INDICATOR LIGHTS 3-31
WARNING & CAUTION LAMPS 3-32
GAUGE AND MONITOR PANEL (Figure 3-7) 3-33
INDICATORS AND CONTROLS PANEL (Figures 3-8) 3-36
INDICATORS AND CONTROLS PANEL (Figures 3-9) 3-36
INSTRUMENT PANEL, RIGHT SIDE (Figure 3-10) 3-41

MAINTENANCE . . . . . SECTION 4

This portion of the manual pertains mainly to the periodic Lubrication and Service required to keep the truck operating at its design potential. Routine lubrication and maintenance procedures are provided in this section. For major repairs, refer to the appropriate section in the Truck Shop Manual. Refer to the engine shop manual when servicing the engine.

LUBRICATION AND SERVICE 4-1
Lubrication Chart 4-2
10 HOUR (SHIFT) Lubrication And Maintenance Checks 4-3
250 HOUR Lubrication And Maintenance Checks 4-9
500 HOUR Lubrication And Maintenance Checks 4-11
1000 HOUR Lubrication And Maintenance Checks 4-12
2000 HOUR Lubrication And Maintenance Checks 4-13
5000 HOUR Lubrication And Maintenance Checks 4-14
HYDRAULIC TANK SERVICE 4-15
HIGH PRESSURE HYDRAULIC FILTER SERVICE 4-17
TRANSMISSION FILTER SERVICE 4-19
PERODIC REPLACEMENT OF COMPONENT PARTS FOR SAFETY DEVICES 4-20

BRAKE CIRCUIT CHECKOUT AND ADJUSTMENT 4-21
CHECKING FRONT BRAKE PAD WEAR 4-21
CHECKING REAR BRAKE DISC WEAR 4-22
BRAKE SYSTEM BLEEDING 4-23
PARKING BRAKE INSPECTION AND ADJUSTMENT 4-24

CONTINUED

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS (Continued)

SUBJECT . . . . . .SECTION / PAGE

MAINTENANCE . . . . . .SECTION 4

Lincoln Automatic Lubrication System (Optional) 4-27
System Operation. 4-27
System Components 4-27
General Information 4-30
Lubricant Required. 4-30
System Priming 4-30
System Checkout 4-31
24 VDC Solid State Timer Checkout & Adjustment 4-31
Injectors & Adjustment 4-32
Troubleshooting Chart. 4-34

SPECIFICATIONS . . . . . .SECTION 5

This portion of the manual covers major component descriptions and truck specifications.
Major Component Descriptions. 5-1
Specifications 5-3

OPTIONAL EQUIPMENT . . . . . .SECTION 6

This portion of the manual covers operation/maintenance of OPTIONAL EQUIPMENT.

PAYLOAD METER II INDEX. 6-1
PAYLOAD METER II 6-3

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

Retarder Control Lever (6, Figure 3-4)

The retarder control lever (6) allows the operator to apply only the REAR oil-cooled brakes. During normal operation, this lever should be used to control the speed of the truck and to stop the truck instead of using the foot-operated service brake pedal. Use of this lever extends front brake life while maintaining maximum control of the truck.

Accelerator Pedal (7, Figure 3-4)

The Throttle Pedal (7) is a foot operated treadle pedal which allows the operator to control fuel to the engine to provide engine acceleration.

Brake Pedal (8, Figure 3-4)

The Brake Pedal (8) is a foot-operated pedal which activates air-over-hydraulic pressure converters which apply front caliper dry disc brakes and rear oil-cooled wet disc brakes. This pedal should be used when maneuvering in tight places, at the shovel and dump, and when quick stops or severe braking is required.

Ready Light (9, Figure 3-4)

When this light is ON, it shows that the travel speed is set and that operation of the ARSC is possible. When it is OFF, the ARSC is not actuated.

It lights up for 3 seconds when the key switch is turned ON to check the bulb.

Exhaust Brake Switch (10, Figure 3-4)

This selects the actuating mode of the exhaust brake.

Position (ON): When the torque converter is in the lock-up range, the exhaust brake is actuated when the operator releases the accelerator pedal

Position (OFF): The exhaust brake is not actuated when the ARSC is being operated.

When the ARSC is being operated, depress the foot brake or operate the retarder control lever. When the torque converter is in the lock-up range, the exhaust brake is actuated.

Lock-Up Pilot Lamp (11, Figure 3-4)

This lights up when the torque converter is in the lock-up range and the transmission is in direct drive.

ARSC SYSTEM ACTUATION

The ARSC system is actuated when the system switch is ON.

If the set switch on the ARSC set lever is pressed, the travel speed at that moment is set as the downhill travel speed. If the travel speed exceeds the set downhill speed, the retarder is automatically actuated.

The set travel speed is displayed on the set travel speed display and is stored in memory.

If the accelerator pedal is depressed when the ARSC is being operated, the ARSC is canceled and the speed increases.

If the foot brake or retarder control lever are operated when the ARSC is being used, it is possible to reduce the speed or stop the machine.

To Set Speed

The set range for the travel speed depends on the selection of the shift lever as shown below.

- When the shift lever is at positions d, 5, 4, 3, L, the set speed range is 10 - 55 km/h (6.2 - 34.2 MPH)
- The travel speed cannot be set when the shift lever is at N or R.
- If the actual travel speed is less that 10 km/h (6.2 MPH) when the setting operation is carried out, 10 km/h is set.

At all other times, the actual travel speed is set.

Making Fine Adjustments Of Set Travel Speed

To raise the set travel speed 1 km/h (0.6 MPH), push the ARSC set lever forward once.

To reduce the set travel speed 1 km/h (0.6 MPH), pull the ARSC set lever back once.

- Release the ARSC set lever after changing the set travel speed.
- If the set switch and cancel are operated at the same time, the cancel operation is given priority.
- If the set switch and tap up are operated at the same time, the tap up operation is given priority.
- If the set switch and tap down are operated at the same time, the tap down operation is given priority.

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

1000 HOUR SERVICE

In addition to the 250 and 500 hour lubrication and inspection schedules, perform the following:

1. LUBRICATE

- Transmission mount - 1 point - Lube key "D".
- Parking brake linkage - 6 points - Lube key "D".

2. TRANSMISSION CASE

Drain oil, remove and replace element. Remove clean, and reinstall strainers. Refill tank with oil approximately 28 gal (106 l). *Refer to "Lubrication Chart" for fuel, coolant and lubricants and type of oil to use. Lube key "F".*

3. STEERING, HOIST OIL TANK and REAR BRAKE COOLING OIL TANK.

⚠WARNING

When removing tank caps, turn cap slowly at first to relieve inner pressure. Remove cap only after pressure has been completely relieved. Any operating fluid, such as hydraulic oil or brake fluid escaping under pressure, can have sufficient force to enter a person's body by penetrating the skin. Serious injury and possibly death may result if proper medical treatment by a physician familiar with this injury is not received immediately.

Remove (3) filter elements from tank. Clean all removed parts and the inside of element case. Install new filter elements. *Refer to "Hydraulic Tank Service", page 4-15.*

4. REAR BRAKE WEAR

Refer to, "Brake Circuit Checkout and Adjustment", page 4-21 for specifications and proper inspection procedure.

⚠WARNING

Carry out inspection when the oil temperature is below 60°C (140°F). Hot oil may cause serious personal injury.

5. AIR DRYERS

Replace air dryer desiccant cartridges. *Refer to Section "K" for replacement instructions.*

Truck Serial Number _____

Site Unit Number _____

Date: _____ Hour Meter _____

Name of Service Person _____

COMMENTS	CHECKED	INITIALS

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >

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 and 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 6-4. This data was taken in the laboratory and is used in Figure 6-5 to calculate the final load. Note that the front suspension pressures were converted into the front sprung weight using the formulas above Figure 6-5. 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 3-4.

MidWestTech | Komatsu HD785-5LC Dump Truck Operation & Maintenance Manual | Publi... Order the manual at mid-west-tech.com >