PART NO. KM8TE-E-01

HITACHI

Service Manual

AH250-D
AH300-D

Articulated Dump Truck

Serial No.003362 and up

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The Park brake or service brake must be applied (Or Both) for more than 6 seconds If these parameters are active for more than 6 seconds the CCU Knows that the vehicle is in a stall condition and will allow the stall to continue up till a total of 15 seconds have past .

After 15seconds the CCU will command the ADM to 0% Torque or Low Idle for 50 Seconds. If **Neutral** is selected while in the 50 Second cool off period is active the CCU will command a speed restriction of 1250 rpm for the remainder of the 50 Seconds.

Stall Test Procedure

To bring oil temperature up to stall testing temperature:

- Before starting check that the oil on the dipstick is within the safe operating band.
- Place chocks in front and behind wheels.
- Ensure that no person is working on or under the machine.
- Start the engine and let it idle. MDU can be used by selecting **"Actual Values "** and pressing **"Select"** and then **"Next"**, taking you to **"Transmission values"** . Press **"select"** and this will bring you to **"Transmission Temp"**. The transmission sump temperature must be monitered at all times during stall test.
- Remove foot from accelerator pedal and select neutral.
- Push accelerator until engine is running at 1500RPM and hold for approximately 30 seconds. (This will allow the oil to circulate, preventing a large temperature difference within the pump, thus preventing any damage to the pump).
- Remove foot from accelerator pedal.
- Repeat steps 9 to 13 until the sump temperature stabilizes around 70 °C - 80 °C (160 °F- 175 °F).

Checking of stall RPM:

- Bring sump temperature as described above.
- Select first gear and apply foot brake pedal and keep it down.
- Push accelerator pedal all the way down.
- After 10 - 15 seconds the RPM will stabilize.(Do not exceed 20 seconds).
- This stabilised RPM will be the stall RPM. (Refer to table:1 in the next column.)
- Remove foot from accelerator pedal.
- Select neutral. Accelerate to 1500RPM for 2 minutes to cool the transmission.
- Let engine idle for at least 1 minute before switching off.

NOTE: 1. Never stall for longer than 20 seconds.
2. If you have a prolink available the optimum range to stall in is fourth range.
3. Always refer to latest service bulletin for stall speed specifications.

STALL SPEEDS

Model	Low idle	High idle	Stall speed
AH300-D	600 rpm	2800 rpm	2092 rpm
AH250-D	600 rpm	2800 rpm	1851rpm

TABLE 1

Analysing Stall Test Results

If stall test readings are 150 RPM higher or lower than specifications...

- The stall test readings are acceptable.
- Stall test readings may vary slightly above or below specifications, depending on ambient temperature, altitude, tachometer variations and other conditions.

If stall test readings are 200 RPM or more below specifications...

- The engine may be down on power.
- The engine may not be attaining full fuel.

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Code - Symptom	Problem	Solution
5025.5 - E Clutch Solenoid (Y3) Open Circuit. All range solenoids deactivated. Transmission shifts to neutral.	E clutch solenoid (Y3).	Check solenoid. **See Transmission Solenoids, Speed Sensors, Sump Temperature Sensor and Retarder Temperature Resistor Tests (this Chapter).**
	Wiring or connections.	Check transmission control harness (W12), transmission harness (W13), and transmission control module harness (W19). **See "Transmission Control Harness" on page 62 (W12), "Transmission Harness" on page 64 (W13) and "Transmission Control Module Harness" on page 72(W19).**
	TCU (A5).	Replace TCU. **(See "Remove and Install Transmission Control Unit" on page 289).**
5026.3 - F Clutch Solenoid (Y2) Short To Power. All range solenoids deactivated. Transmission shifts to neutral.	Wiring or connections.	Check transmission control harness (W12), transmission harness (W13), and transmission control module harness (W19). **See "Transmission Control Harness" on page 62 (W12), "Transmission Harness" on page 64 (W13) and "Transmission Control Module Harness" on page 72(W19).**
	TCU (A5).	Replace TCU. **(See "Remove and Install Transmission Control Unit" on page 289).**
5026.4 - F Clutch Solenoid (Y2) Short To Ground. All range solenoids deactivated. Transmission shifts to neutral.	F clutch solenoid (Y2).	Check solenoid. **See Transmission Solenoids, Speed Sensors, Sump Temperature Sensor and Retarder Temperature Resistor Tests (this Chapter).**
	Wiring or connections.	Check transmission control harness (W12), transmission harness (W13), and transmission control module harness (W19). **See "Transmission Control Harness" on page 62 (W12), "Transmission Harness" on page 64 (W13) and "Transmission Control Module Harness" on page 72(W19).**
	TCU (A5).	Replace TCU. **(See "Remove and Install Transmission Control Unit" on page 289).**

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Electrical		
Symptom	**Possible Cause**	**Remedy**
Left turn indicator does not work.	Bulb defective. Loose or broken connection.	Change the bulb. Tighten or repair the connections.
Windscreen wiper does not work.	Circuit breaker tripped. Wiper switch defective. Loose or broken connections.	Reset the circuit breaker. Change the switch. Tighten or repair the connections.

Rear Frame and Cab Trouble Shooting		
Symptom	**Possible Cause**	**Remedy**
Excessive cab movement while machine is operating.	Loose or missing mounting bolt(s) or rubbers.	Tighten or replace the mounting bolts and/or rubbers.
A smear remains on the windscreen when the windscreen wiper is in operation.	Wiper blade damaged. Oil or grease on the windscreen.	Replace the wiper blade. Clean the windscreen.
Seat is difficult to adjust.	Obstruction in the seat runner. Lack of lubricant.	Remove the obstruction. Lubricate the seat runners.
Excessive movement of the wing mirrors while machine is operating.	Loose or missing retaining bolts.	Tighten or replace the retaining bolts.
Wing mirror difficult to view.	Damaged wing mirror arm. Incorrect adjustment. Wing mirror damaged.	Replace wing mirror arm. Adjust as necessary. Replace the wing mirror.

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TRANSMISSION CROSS SECTIONAL DIAGRAM

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OEU PIN LAYOUT OEU - Output Extension Unit J1 - BROWN (32 PIN) J2 - BROWN (48 PIN) J3 - BLUE (32 PIN)						
PIN NUMBER	**TYPE OF INPUT/OUTPUT**	**CONROLLER FUNCTION**	**VEHICLE FUNCTION**	**RANGE**	**COMMENTS**	**MICRO PIN**
J2 - L1	Battery Power	28 V Battery (KL30)	28 V Battery (KL30)	FUSE 3		Vcc / Vss
J2 - M1	Ignition Power	28V Ignition (KL15)	28V Ignition (KL15)	FUSE 22		-
J2 - L2	Power Ground	Ground (KL31)	Ground(KL31)	GROUND		-
J2 - M2	Power Ground	Ground (KL31)	Ground (KL31)	GROUND		-
J2 - A1	CANH	CAN High	CAN High	250KB		-
J2 - B1	CANL	CAN Low	CAN Low	250KB		-
J3 - H3	VP1 - Valve pwr & digital (sw 8)			FUSE 24		-
J3 - H4	VP1 - Valve pwr & digital (sw 8)			FUSE 24		-
J3 - H1	VP1 Ground			GROUND		-
J3 - H2	VP1 Ground			GROUND		-
J3 - G1	VP2 - Valve pwr & digital (sw 9)			FUSE 23		-
J3 - G2	VP2 - Valve pwr & digital (sw 9)			FUSE 23		-
J1 - G3	VP3 - Valve pwr & digital (sw 10)			FUSE 18		-
J1 - G4	VP3 - Valve pwr & digital (sw 10)			FUSE 18		-
J2 - L3	VP4 - Valve pwr & digital (sw 11)			FUSE 20		-
J2 - M3	VP4 - Valve pwr & digital (sw 11)			FUSE 20		-
J2 - L4	VP5 - Valve pwr & digital (sw 12)			FUSE 21		-
J2 - M4	VP5 - Valve pwr & digital (sw 12)			FUSE 21		-

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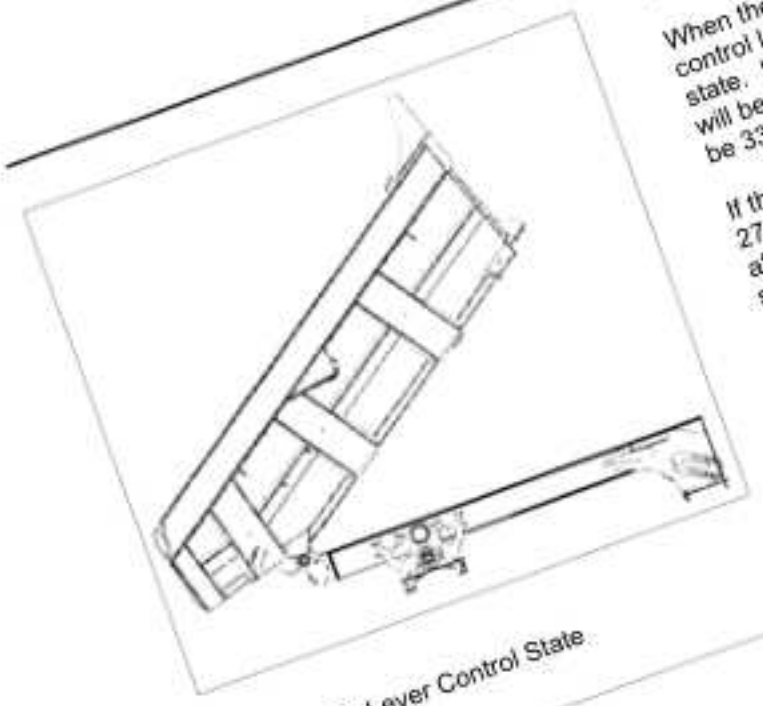


Figure - Bin Lever Control State

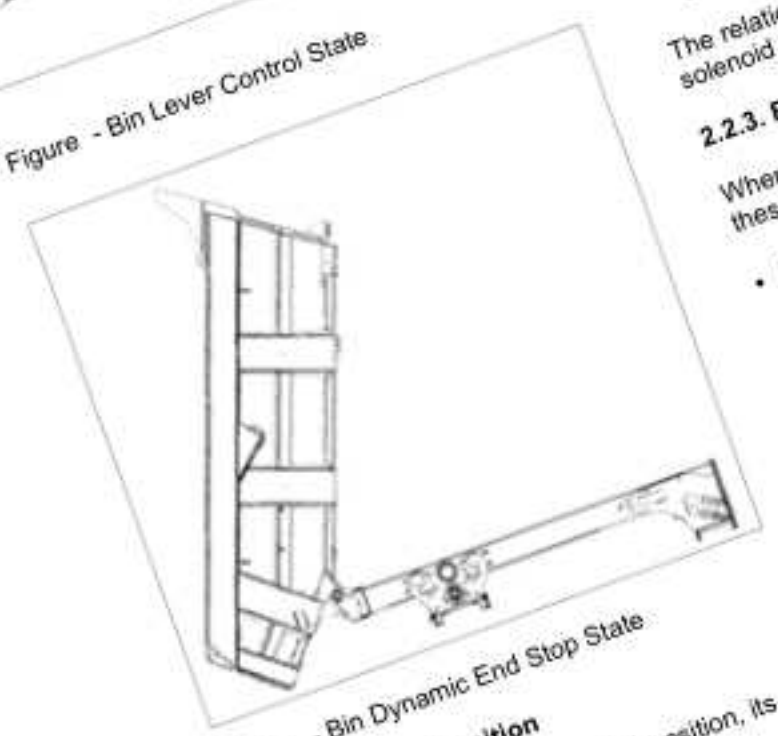


Figure - Bin Dynamic End Stop State

2.2.1. Bin Lever Position

- When the bin lever is in neutral position, its position is 50%
- When the bin lever is fully forward, its position is 0%
- When the bin lever is fully back, its position is 100%

2.2.2. Bin Float State

When the bin angle is less than 5%, the bin control logic will automatically go into bin float state. In this state, the bin up solenoid current will be zero and the bin down solenoid current will be 330mA.

If the transmission output shaft speed is less than 275 RPM, the bin down solenoid will switch off after 10 seconds, and both up and down solenoids will have 0mA current.

Under any circumstance, if the bin lever position changes outside the neutral position, the solenoids will react in the following manner:

- If lifting the bin, the current in the bin up solenoid will increase.
- If lowering the bin, and the bin position is less than 1%, then the current in the bin down solenoid will increase.

The relationship between bin lever position and solenoid current is dealt with in the next section.

2.2.3. Bin Lever Control State

When not in float state, the bin solenoids follow these simple current rules:

- Bin lever forward => current through bin down solenoid = ((50 – Bin Lever Position Percentage) * 700) / 50 (mA)

From this, one can see that at a position of 0%, the requested bin down current is 700mA. At a position of 25%, the requested bin down current is 350mA.

- Bin lever back => current through bin up solenoid = ((Bin Lever Position Percentage - 50) * 700) / 50 (mA)

From this, one can see that at a position of 100%, the requested bin up current is 700mA. At a position of 75%, the requested bin up current is 350mA.

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