CEBM015400

Shop Manual

KOMATSU®

GALEO

HM350-1L

ARTICULATED DUMP TRUCK

SERIAL NUMBERS **HM350-1L** **A10001** and UP

This material is proprietary to Komatsu America Corp. and is not to be reproduced, used, or disclosed except in accordance with written authorization from Komatsu America Corp.

It is our policy to improve our products whenever it is possible and practical to do so. We reserve the right to make changes or add improvements at any time without incurring any obligation to install such changes on products sold previously.

Due to this continuous program of research and development, periodic revisions may be made to this publication. It is recommended that customers contact their distributor for information on the latest revision.

December 2007
Printed in USA

Copyright 2007 Komatsu
DataKom Publishing Division

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Publication CEBM015400
Order the manual at mid-west-tech.com >

CONTENTS

01	GENERAL	01-1
10	STRUCTURE, FUNCTION AND MAINTENANCE STANDARD	10-1
20	TESTING, ADJUSTING AND TROUBLESHOOTING	20-1
30	DISASSEMBLY AND ASSEMBLY	30-1
90	OTHER	90-1

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public... Order the manual at mid-west-tech.com >

VALVE OUTLINE AND OPERATIONS 10-44
TORQUE CONVERTER RELIEF VALVE 10-44
MAIN RELIEF VALVE 10-44
OPERATION 10-44
DRIVE SHAFT 10-45
OUTLINE 10-45
DRIVE AXLES 10-46
FRONT 10-46
CENTER 10-47
REAR 10-48
LOCKING DIFFERENTIAL 10-49
FRONT 10-49
CENTER 10-51
REAR 10-53
OPERATION 10-55
TRAVELING IN A STRAIGHT LINE 10-55
TURNING 10-55
WHEN DIFFERENTIAL LOCK IS ACTUATED 10-55
FINAL DRIVE SYSTEM 10-56
FRONT 10-56
CENTER 10-58
REAR 10-60
FUNCTION 10-61
OPERATION 10-61
STEERING COLUMN 10-62
WHEEL BRAKING SYSTEM 10-63
PIPING LAY-OUT 10-63
BRAKE VALVE 10-64
VALVE OPERATION 10-65
ACCUMULATOR CHARGE VALVE 10-67
FUNCTION 10-67
VALVE OPERATION 10-69
ACCUMULATOR 10-71
FUNCTION 10-71
SPECIFICATIONS 10-71
SLACK ADJUSTER 10-72
FUNCTION 10-73
OPERATION 10-73
FRONT BRAKE 10-74
CENTER, REAR BRAKE 10-76
FUNCTION 10-78
OPERATIONS 10-78
PROPORTIONAL REDUCING VALVE 10-79
FUNCTION 10-79
BRAKE SYSTEM TANK 10-80
PARKING BRAKE 10-81
FUNCTION 10-81
PARKING BRAKE CALIPER 10-83
OUTLINE 10-83
SPRING CYLINDER 10-84
OUTLINE 10-84
PARKING BRAKE SOLENOID 10-85
FUNCTION 10-85
SUSPENSION SYSTEM 10-86
FRONT 10-86
REAR 10-88
OUTLINE 10-90

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public...
Order the manual at mid-west-tech.com >

FUNCTION ... 10-90
SUSPENSION CYLINDER ... 10-91
STRUCTURE AND OPERATION ... 10-92
OSCILLATION HITCH JOINT ... 10-93
OUTLINE ... 10-95
STEERING, HOIST OIL PIPING DIAGRAM ... 10-96
DUMP BODY CONTROL ... 10-97
FUNCTION ... 10-97
HYDRAULIC TANK AND FILTER ... 10-98
FLOW AMPLIFIER VALVE ... 10-99
OUTLINE ... 10-99
OPERATION ... 10-100
STEERING VALVE ... 10-102
OUTLINE ... 10-103
STRUCTURE ... 10-103
HAND PUMP AND SLEEVE CONNECTION ... 10-104
FUNCTION OF CENTER SPRING ... 10-105
STEERING CYLINDER ... 10-106
HOIST VALVE ... 10-107
HOIST VALVE AT HOLD POSITION ... 10-109
HOIST VALVE AT RAISE POSITION ... 10-110
HOIST VALVE AT FLOAT POSITION ... 10-111
HOIST VALVE AT LOWER POSITION ... 10-112
EPC VALVE ... 10-113
FUNCTION ... 10-113
PILOT CHECK VALVE ... 10-114
HOIST CYLINDER ... 10-115
HYDRAULIC PUMP ... 10-116
STEERING, HOIST + PILOT PUMP ... 10-116
TRANSMISSION + DIFFERENTIAL LOCK PUMP ... 10-117
BRAKE COOLING + BRAKE PUMP ... 10-118
AUXILIARY STEERING PUMP ... 10-119
DIFFERENTIAL LOCK PUMP ... 10-120
TRANSMISSION PUMP ... 10-121
CAB TILT SYSTEM VIEW ... 10-122
AIR CONDITIONING SYSTEM VIEW ... 10-123
FUNCTION ... 10-123
AIR CONDITIONER UNIT ... 10-124
RECEIVER DRYER ... 10-125
CONDENSER ... 10-126
REFRIGERANT COMPRESSOR ... 10-127
MACHINE MONITOR SYSTEM ... 10-128
NETWORK DATA ... 10-128
OUTLINE ... 10-129
MACHINE MONITOR PANEL ... 10-131
OPTION SETTING CONNECTOR DIAGRAM ... 10-133
ADJUSTING MACHINE MONITOR ... 10-133
MACHINE MONITOR NORMAL DISPLAY FUNCTIONS ... 10-134
SELF-DIAGNOSTIC FUNCTION WHEN OPERATING IGNITION SWITCH ... 10-137
CHECK FUNCTION OF MONITOR LAMPS AND METERS ... 10-138
SERVICE METER DISPLAY ... 10-138
ODOMETER ... 10-138
SERVICE MODE ... 10-138
OUTLINE ... 10-138
OPERATION METHOD ... 10-140
AUTOMATIC SHIFT CONTROL SYSTEM ... 10-141
OUTLINE ... 10-142

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public...
Order the manual at mid-west-tech.com >

(ENG-22) FAILURE CODE [B@BCNS]

COOLANT HIGH TEMPERATURE SENSOR SHOWING OVERHEAT (NS)

Contents Of Trouble	• Trouble in coolant temperature sensor system. • ENG code 22 displayed. • Engine coolant temperature showing overheat condition.

Tools and Procedures	• Digital Volt Ohm Meter. T-adapter kit. • Do not mark on original page of service manual. Remove this page from the service manual and make a copy for recording information while performing these tests. • If you are unable to copy this page, record readings on a separate paper referring to the (**No.**) numbers listed on the right of the procedure. • Follow each step throughout this procedure, do not skip steps, jump ahead or stop when a fault is found unless otherwise instructed to in the procedure. It is important to complete all steps and record information for final analyzing.

Steps	Circuit Diagnostic Procedures For Error Code [B@BCNS]		Specifications	No.	Readings
1. Coolant Temperature Sensor Unit • With ignition switch in the "OFF" position. • Disconnect High (TWH) connector from temperature sensor. • Zero meter leads for proper Ω readings.					
A. Sensor test	Resistance Ω	At sensor TWH, between (1) and (2) at 10°C (50°F)	Approx. 90kΩ	**1**	
		At sensor TWH, between (1) and (2) at 100°C (212°F)	Approx. 3.5kΩ	**2**	
		At sensor TWH, between (1) or (2) and chassis ground.	(OL) open	**3**	
2. Wiring Harness Assembly Test • With ignition switch in the "OFF" position. • Disconnect High (TWH) connector from temperature sensor. • Disconnect (CN2) connector from engine controller and install T-adapter on (CN2) wiring harness connector only.					
A. Open or high resistance	Resistance Ω	Between connectors TWH, (1) and CN2, (10)	0.0 to 1.0Ω	**4**	
		Between connectors TWH, (2) and CN2, (4)	0.0 to 1.0Ω	**5**	
B. Short to chassis ground or within harness	Resistance Ω	At connector TWH, between (1) and chassis ground.	(OL) open	**6**	
		At connector TWH, between (2) and chassis ground.	(OL) open	**7**	
		At connector TWH, between (1) and (2).	(OL) open	**8**	
3. Engine Controller Unit • No testing procedure for the controller. ***Remark*** *If all test results fall within the specifications listed above in the testing procedures, the error may be in your Engine Controller Unit.* *Be sure all steps are completed correctly before faulting the controller unit.*					

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public... Order the manual at mid-west-tech.com >

(BK-19) FAILURE CODE [DB12KK]

VOLTAGE DROP IN CONTROLLER POWER SUPPLY (KK)

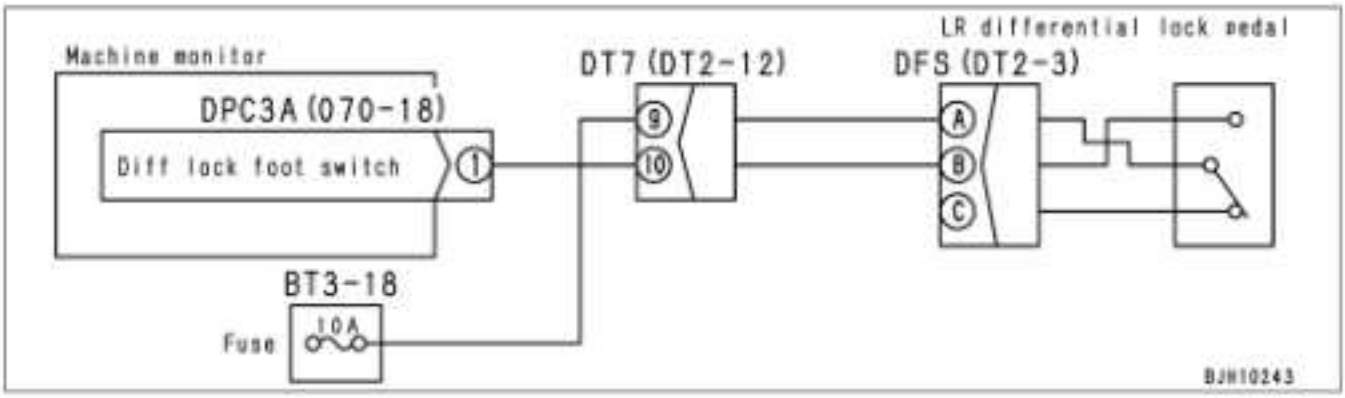
Contents Of Trouble	• Nature of failure: The voltage difference between the main power source voltage circuit and the direct power source voltage went below 5 V (main power source < direct power source) • Before starting troubleshooting, check that the circuit breaker is not OFF, and that fuse BT3-12 is normal (if the circuit breaker is OFF or the fuse is blown, there has probably been a surge of current caused by a short circuit, so check the related circuits).

Tools and Procedures	• Digital Volt Ohm Meter. T-adapter kit. • Do not mark on original page of service manual. Remove this page from the service manual and make a copy for recording information while performing these tests. • If you are unable to copy this page, record readings on a separate paper referring to the (**No.**) numbers listed on the right of the procedure. • Follow each step throughout this procedure, do not skip steps, jump ahead or stop when a fault is found unless otherwise instructed to in the procedure. It is important to complete all steps and record information for final analyzing.

Steps	Circuit Diagnostic Procedures For Failure Code [DB12KK]			Specifications	No.	Readings
Fuse Check		—	Check to see if fuse (BT3-12) is blown	—	**1**	Yes or No
1. Brake Cut Relay • With ignition switch in the "OFF" position. • Replace relay (R14) with known good relay. • Turn ignition switch to the "ON" position.						
	A. Relay check	—	Is failure code [D1C0KZ] gone?	—	**2**	Yes or No
2. Wiring Harness Assembly Test • With ignition switch in the "OFF" position. • Disconnect (R14) connector from relay. • Disconnect (BRC1 and BRC2) connector from the retarder controller and install T-adapter on (BRC1 and BRC2) wiring harness connector only. • ✱ Turn ignition switch to the "ON" position for this test.						
	A. Short to chassis ground or within harness	Resistance Ω	Between connection BRC1, (17), (9) and chassis ground, fuse removed.	(OL) open	**3**	
			Between connection R14, (3) and chassis ground.	(OL) open	**4**	
			At connection R14, (1) and chassis ground.	(OL) open	**5**	
	B. Open or high resistance	Voltage	✱ Between connection R14, (5) and chassis ground.	20 to 30V	**6**	
			✱ Between connection BRC1, (9) and chassis ground.	20 to 30V	**7**	
			✱ Between connection BRC1, (17) and chassis ground.	20 to 30V	**8**	
		Resistance Ω	Between connection R14, (3) and BRC2, (1) and (12)	0.0 to 1.0Ω	**9**	
			At connection R14, (2) and chassis ground.	0.0 to 1.0Ω	**10**	
			At connection BRC1, (8), (16) and chassis ground.	0.0 to 1.0Ω	**11**	
			Between connection R14, (1) and BRC1, (13)	0.0 to 1.0Ω	**12**	
3. Retarder Controller Unit • No testing procedure for the controller. ***Remark*** *If all test results fall within the specifications listed above in the testing procedures, the error may be in your Retarder Controller Unit. Be sure all steps are completed correctly before faulting the controller unit.*						

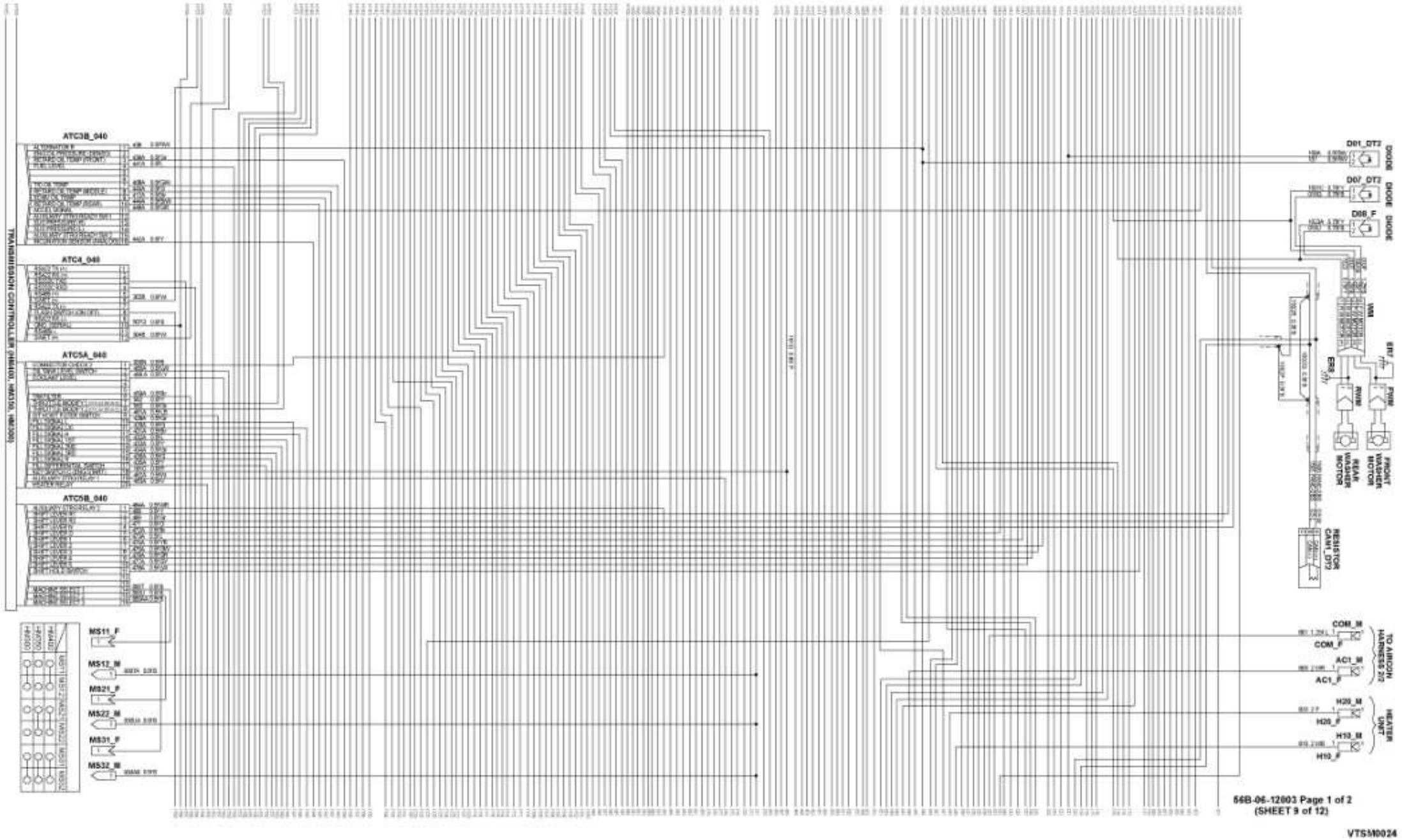
MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public... Order the manual at mid-west-tech.com >

Related circuit diagram



MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Public... Order the manual at mid-west-tech.com >

TRANSMISSION CONTROLLER



56B-06-12003 Page 1 of 2
(SHEET 9 of 12)

VTSM0024

MidWestTech | Komatsu Galeo HM350-1L Articulated Dump Truck Service Manual | Publication CEBM015400 Order the manual at mid-west-tech.com >