CEBM023701

Shop Manual

HD1500-7

DUMP TRUCK

SERIAL NUMBERS **A30109 - A30110**
A40111 & UP

ENGINE **SSA16V159**

KOMATSU®

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SECTION A
GENERAL INFORMATION
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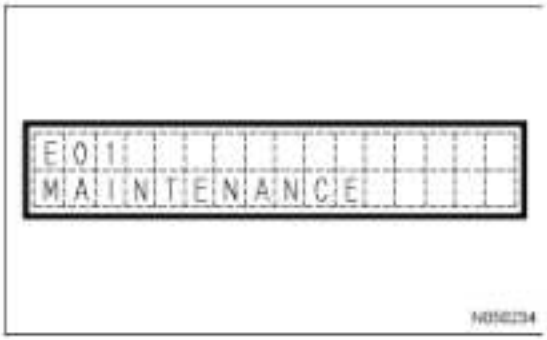
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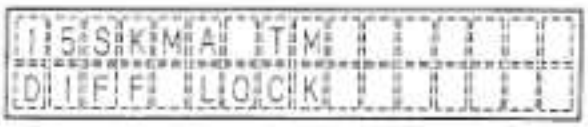
If MAINTENANCE is displayed, check the failure code and contact your Komatsu distributor for repairs.

CHECKING FAILURE CODES

If an action code is present on the character display, check the failure codes as follows:

1. Press (>) on mode select switch 2 to display the failure code. The failure code for that action code will be displayed on the character display.
2. Press (>) on mode select switch 2 again to see if any other codes are present. Check the failure code for each action code present and note. If no other codes are present, the character display will return to the service meter/ odometer.

The six digit code displayed on the top line of the character display is the failure code. The code displayed to the right of the failure code is the controller that detected the fault. The bottom line on the character display lists the system where the failure was generated.



D310105

The following failure code table is sorted in alphabetical and numerical order.

The Applicable Controller column in the fault code table indicates the controller that logged the failure. Below are the controllers:

MON: Machine monitor system

ENG: Engine controller

TM: Transmission controller (ATC)

BK: Retarder controller (RCM)

KOMTRAX Plus

PLM Payload Meter - The payload meter system is a function of the KOMTRAX Plus controller. However, PLM will be displayed on the machine monitor if a failure code is present.

NOTE: Failure codes in parentheses are not recorded in the failure history.

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FAILURE CODE [DB1RKR] RETARDER CONTROLLER: COMMUNICATION ERROR

Action code	Failure code	Description	Retarder controller: Communication error (Between retarder controller – transmission controller) (Transmission controller system)
E03	DB1RKR		
Contents of trouble	• Updating of received data from retarder controller has stopped.		
Controller response	• AISS is locked in LOW. (until starting switch is turned OFF.) • Keep the information at the time when abnormality occurred. • Turns on centralized warning lamp and sounds alarm buzzer.		
Problem that appears on machine	• The information and special functions which are retrieved from retarder controller do not work or display.		
Related information			

Refer to pages 10 of the electrical schematic.

	Cause		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective CAN terminal resistor (Internal defect)	Prepare with starting switch OFF, then perform troubleshooting without turning starting switch ON.		
			CAN01-2 (male)	Resistance	
			Between (A) – (B)	Approx. 120 ± 12 Ω	
	2	Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)	Prepare with starting switch OFF, then perform troubleshooting without turning starting switch ON.		
			Wiring harness between CAN06 (A) – CAN05-3 (A), CAN05-2 (A), CAN05-1 (A); Wiring harness between CAN07 (E) – CAN04-3 (A), CAN04-2 (A), CAN04-1 (A); Wiring harness between ATC2 (32) – CAN03-3 (A), CAN03-2 (A), CAN03-1 (A); Wiring harness between RCM2 (32) – CAN02-3 (A), CAN02-2 (A), CAN02-1 (A); Wiring harness between HM4A (04) – CAN08-3 (A), CAN08-2 (A), CAN08-1 (A); Wiring harness between CN062 (3) – CAN01-3 (A), CAN01-2 (A), CAN01-1 (A), CN4 (3)	Resistance	Max. 1 Ω
			Wiring harness between CAN06 (B) – CAN05-3 (B), CAN05-2 (B), CAN05-1 (B); Wiring harness between CAN07 (D) – CAN04-3 (B), CAN04-2 (B), CAN04-1 (B); Wiring harness between ATC2 (22) – CAN03-3 (B), CAN03-2 (B), CAN03-1 (B); Wiring harness between RCM2 (22) – CAN02-3 (B), CAN02-2 (B), CAN02-1 (B); Wiring harness between HM4A (12) – CAN08-3 (B), CAN08-2 (B), CAN08-1 (B); Wiring harness between CN062 (10) – CAN01-3 (B), CAN01-2 (B), CAN01-1 (B), CN4 (8)	Resistance	Max. 1 Ω

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TABLE 3. SEAL RING SPECIFICATIONS AND WEAR LIMITS

No.	Description		Specifications			Remedy
			Standard - New	Tolerance	Minimum - Used	
22	Transmission input shaft seal ring (34.5 mm dia. seal ring)	Width	2.56 mm (0.101 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.)	2.30 mm (0.091 in.)	Replace
		Thickness	1.70 mm (0.067 in.)	±0.1 mm (±0.004 in.)	1.55 mm (0.061 in.)	
23	Transmission input shaft seal ring (89 mm dia. seal ring)	Width	3.00 mm (0.118 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.)	2.70 mm (0.106 in.)	
		Thickness	3.70 mm (0.146 in.)	±0.12 mm (±0.0047 in.)	3.55 mm (0.140 in.)	
24	No. 3 carrier seal ring	Width	4.00 mm (0.157 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.)	3.60 mm (0.118 in.)	
		Thickness	4.50 mm (0.177 in.)	±0.12 mm (±0.0047 in.)	4.35 mm (0.171 in.)	
25	No. 4 carrier cover seal ring	Width	4.00 mm (0.157 in.)	-0.01 to -0.04 mm (-0.0004 to -0.0016 in.)	3.60 mm (0.118 in.)	
		Thickness	5.00 mm (0.248 in.)	±0.15 mm (±0.0059 in.)	4.85 mm (0.191 in.)	
26	Bearing cage seal ring (front)	Width	4.00 mm (0.157 in.)	-0.01 to -0.04 mm (-0.0004 to -0.0016 in.)	3.60 mm (0.118 in.)	
		Thickness	4.00 mm (0.157 in.)	±0.15 mm (±0.0059 in.)	3.85 mm (0.152 in.)	
27	Bearing cage seal ring (rear)	Width	4.50 mm (0.177 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.	4.05 mm (0.159 in.)	
		Thickness	5.20 mm (0.157 in.)	±0.12 mm (±0.0047 in.)	5.05 mm (0.199 in.)	
28	Input shaft & intermediate shaft seal ring	Width	3.00 mm (0.118 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.)	2.70 mm (0.106 in.)	
		Thickness	1.70 mm (0.067 in.)	±0.1 mm (±0.004 in.)	1.55 mm (0.061 in.)	
29	No 1 carrier collar (2 ea.), No. 7 clutch hub (2 ea.) & Output shaft collar (3 ea.)	Width	4.50 mm (0.177 in.)	-0.01 to -0.03 mm (-0.0004 to -0.0012 in.)	4.05 mm (0.159 in.)	
		Thickness	5.50 mm (0.217 in.)	±0.15 mm (±0.0059 in.)	5.35 mm (0.211 in.)	

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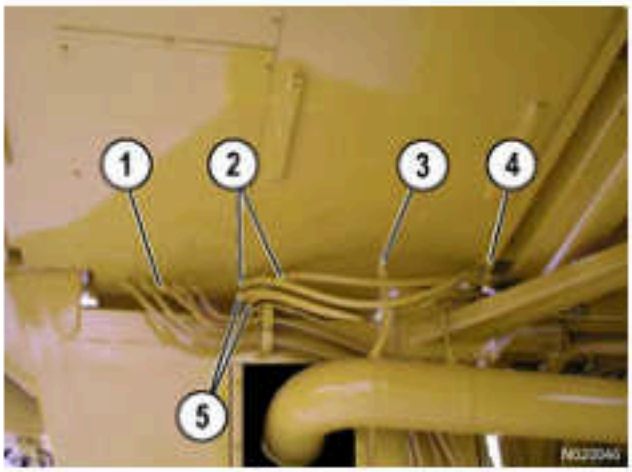


FIGURE 2-4. CAB HYDRAULIC AND HVAC

1. Hydraulic Hoses
2. Heater Hoses
3. HVAC Drain
4. Clamp
5. A/C Hoses

9. Disconnect two heater hoses (2, Figure 2-4) from the fittings underneath the cab. Remove clamp (4) securing the hoses to the bottom of the cab.
10. Disconnect five hydraulic hoses (1).
11. Disconnect two air conditioner hoses (5).
12. Cap all hoses and fittings to prevent contamination.

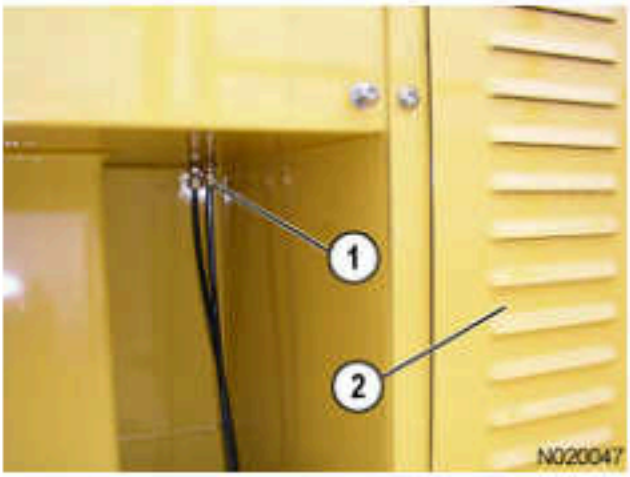


FIGURE 2-5. VACUUM HOSES

1. Vacuum Hoses
2. Filter Cover

13. Remove the access cover from the exterior of the RH side of the cab. Disconnect two vacuum hoses (1, Figure 2-5) from the front of the cab.

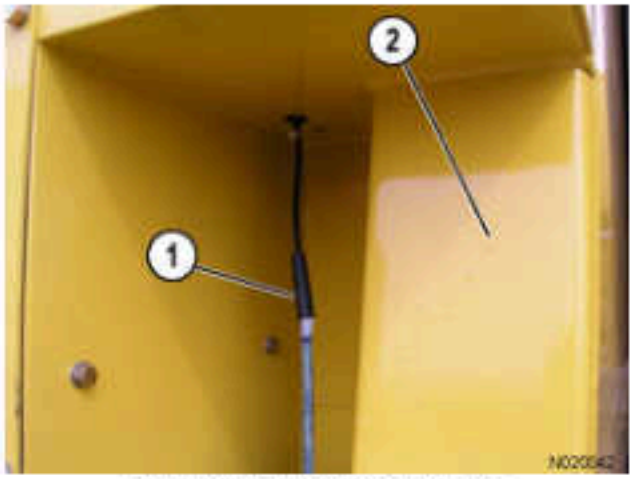


FIGURE 2-6. RADIO ANTENNA

1. Radio Antenna
2. LH Front ROPS Beam

14. Remove the access cover from the exterior of the LH side of the cab. Disconnect radio antenna (1, Figure 2-6).



FIGURE 2-7. CAB MOUNT

1. Cap Screw
2. Harness

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Measurements: A = 3 mm B = 7 mm

C = 20 mm D = 6 mm

Top view formula: (3 + 7) / 2 = 5 mm

The quotient of 5 mm in this example is 2 mm over the allowable maximum of 3 mm. Loosen the cap screws at the front transmission mounts and remove the locking plates. Use a hoist to move the transmission 2 to 5 mm towards the center of the truck. Moving the transmission 2 to 5 mm would result in a quotient of 3 mm or less, meeting the specification.

NOTE: Keep the shafts parallel when adjusting the position of the transmission.

Side view formula: (20 - 6) / 2 = 7 mm

The quotient of 7 mm in this example is 4 mm over the allowable maximum of 3 mm. Use a hoist to lift the transmission enough to install shims (2, Figure 5-8) below mounting pins (1). A general guideline to follow is to divide the difference by two. This is the number of shims to install. Since the difference in this example is 4 mm, install two shims at each front mount.

NOTE: DO NOT install additional shims at the rear mounts. Adjust the transmission height by shimming the front mounts, only.

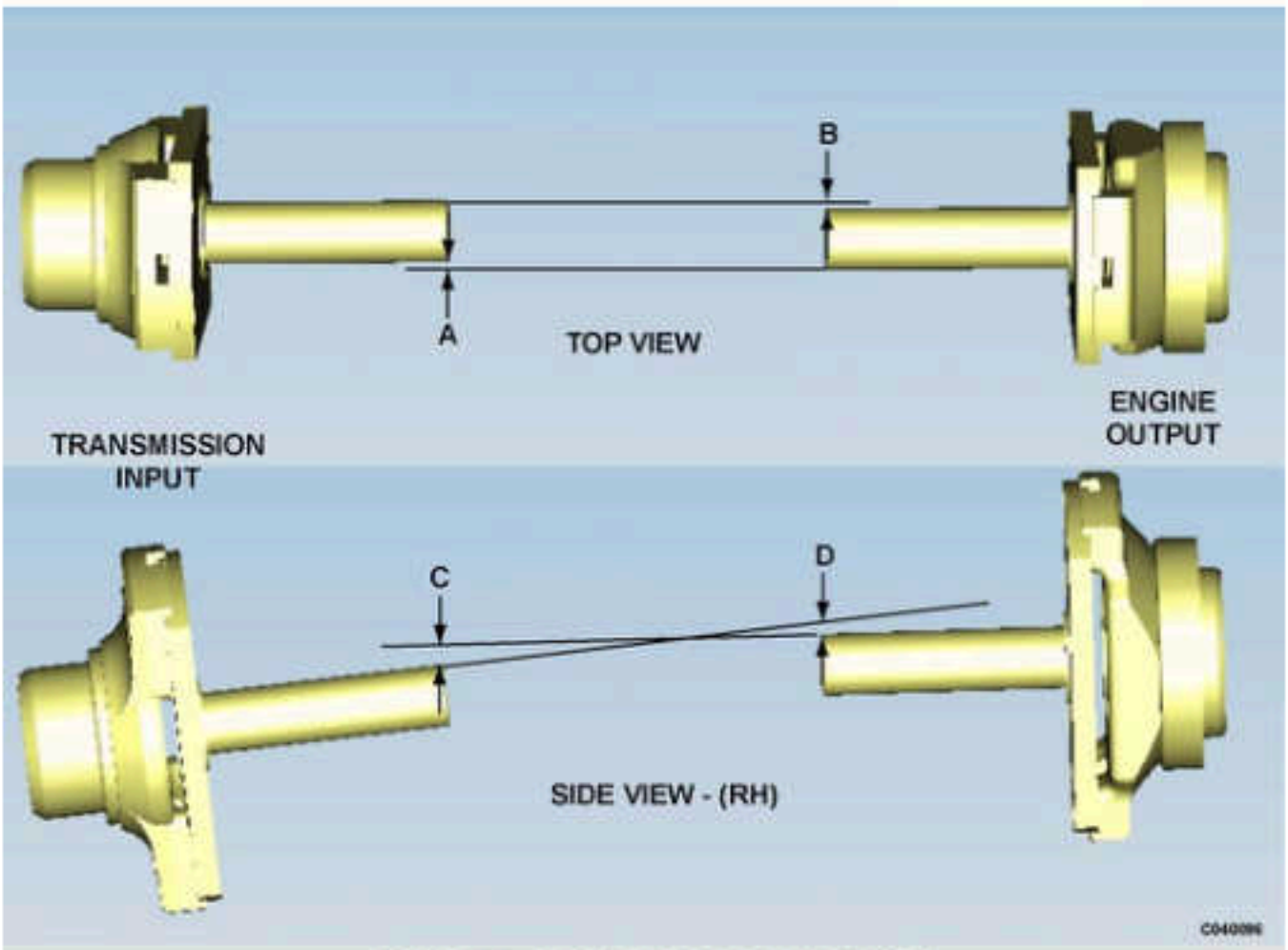


FIGURE 5-7. MEASURING DRIVE LINE ANGLES

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DESCRIPTION	COMP ID	SHT/ZONE
12 VOLT AUX POWER PORT #1	12VAP1	11-B3
12 VOLT AUX POWER PORT #2	12VAP2	11-B3
12 VOLT CIRCUIT BREAKER	12VCB	2-B3
12 VOLT CONTROL POWER RELAY	12VCPR	2-B3
1ST GEAR RANGE FILL SWITCH	FS(1)	6-D1
1ST GEAR RANGE SOL VALVE	SOL(1)	6-C1
24 VOLT CIRCUIT BREAKER	24VCB	2-B4
24 VOLT CONTROL POWER RELAY	24VCPR	2-B3
2ND GEAR RANGE FILL SWITCH	FS(2)	6-D1
2ND GEAR RANGE SOL VALVE	SOL(2)	6-A1
3RD GEAR RANGE FILL SWITCH	FS(3)	6-D1
3RD GEAR RANGE SOL VALVE	SOL(3)	6-A1
AC AUTO CIRCUIT BREAKER	ACCB	15-C1
AC COMPRESSOR SOLENOID	ACCS	15-C7
ACCELERATOR PEDAL	ACC	4-A5, 5-D1
AIR CONDITIONER & HTR CNTRLS	A/C	15-A1
AIR SEAT PUMP	SEAT	11-D2
ALT IDLE SELECT SW & LIGHT	AISS	3-A1
AM/FM RADIO	AM-FM	11-A3
AM/FM RADIO ANTENNA	ANT	11-A4
AM/FM RADIO SPEAKERS (LFT,RT,FRT,REAR)	----	11-A1
AMBIENT AIR TEMPERATURE SENSOR	AATS	9-C8
ARSC RESISTOR #1 (250 OHM)	ARR1	7-B3
ARSC RESISTOR #2 (1020 OHM)	ARR2	7-B3
ARSC SET SWITCH	ARSS	7-B1
ARSC SWITCH	ARSC	3-B7
ASR SWITCH	ASR	3-B6
BACK-UP ALARM RELAY	CNR03-R	14-A2
BACK-UP HORN	BUH	14-A5
BACKUP LIGHT #1 & #2, RT & LFT DECK	----	14-B4
BACK-UP LIGHT SWITCH	BULS	14-A2
BATTERY CHARGING ALTERNATOR	ALT	2-C7
BATTERY DISCONNECT SWITCH	DISC	2-A1
BATTERY EQUALIZER	BATEQ	2-A2
BATTERY(S)	BAT1-4	2-A1
BODY STATUS PROXIMITY SWITCH	B/UP	5-A7
BRAKE ACCUM PRESSURE SWITCH	LAP2	7-C6
BRAKE LIGHT CONTROL RELAY	CNR02-S	12-B3
BRAKE LOCK SOL	BLSV	8-A1
BRAKE LOCK SWITCH	BLS	8-A3
BRAKE PEDAL PROXIMITY SWITCH	BPPS	7-D1
CAB ROOF RETARD LIGHT	CRRL	12-C5
CAN TERMINATING RESISTOR	CAN01-2	10-D1
CENTER REAR BRAKE LIGHT	BRKL	12-B5
CLEARANCE LIGHTS RELAY	CNR02-P	12-D5
CLEARANCE LIGHTS (RT,LFT,FRT,REAR)	----	12-B5,B8
COMBINATION SWITCH	COMBO	11-B5, 12-C3, 13-A3
COOLANT LEVEL SENSOR	CLVL	4-B2
DIODE #01 MAGNETIC SWITCHES	DO1	2-B6
DIODE #02 ALTERNATOR "R" CKT	DO2	2-C5
DIODE #03 WINDSHIELD WASHER PUMP	D03	11-B7
DIODE #04 KEY SWITCH "ON" SIGNAL	D04	2-B3
DIODE #05 FRT BRAKE COOL VLV SOL	DO5	8-B7
DIODE #06 REAR BRKE COOL VLV SOL	DO6	8-C7
DIODE #08 ATC WHITE LAMP STATUS	D08	4-A7
DIODE #09 BODY FLOAT SIGNAL	D09	5-A6
DIODE #11 RIGHT RETARD LIGHT SIGNAL	D11	12-A3
DIODE #13 RIGHT RETARD LIGHT RELAY	D13	12-A3
DIODE #14 PARK BRAKE SOLENOID	D14	8-B2
DIODE #15 EMERGENCY BRAKE SOL	D15	8-C1
DIODE #16 BRAKE LOCK SOL	D16	8-A1
DIODE #17 HAZARD CIRCUIT, LEFT	D17	12-D3
DIODE #18 HAZARD CIRCUIT, RIGHT	D18	12-C3
DIODE #19 ACCUM BLEED DOWN SOL	D19	14-B5
DIODE #20 LEFT RETARD LIGHT RELAY	D20	12-B3
DIODE #21 LEFT RETARD LIGHT SIGNAL	D21	12-B3
DIODE #22 ETHER START SOL	D22	2-A7
DIODE #23 BRAKE LIGHT SWITCH RELAY	D23	12-B3
DIODE #24 HOIST LIMIT SOL #1	D24	14-C5
DIODE #26 BRAKE LIGHT SIGNAL	D26	12-C3
DIODE #28 PPC VALVE SHUTOFF SOL	D28	8-C8
DIODE #29 HOIST LIMIT SOL #2	D29	14-C5
DIODE #30 STEERING BLEEDDOWN TIMER	D30	14-B3
DIODE #31 WASHER FEEDBACK BLOCKING	D31	11-C6
DIODE #98 PRE-LUBE DIODE	D98	2-B5
DIODE #99 THROTTLE IDLE DIODE	D99	4-A7
DISPLAY LIGHT RHEOSTAT	DSPLY	3-A3
DOME LIGHT #1 THROUGH #3	DML1-5	14-C5
ELECTRONIC DISPLAY PANEL	EDP	3-A4, 10-D3, 12-D2, 13-D5

DESCRIPTION	COMP ID	SHT/ZONE
EMERGENCY BRAKE PRESSURE SW	PS12	7-C6
EMERGENCY BRAKE SOL VALVE	SOL16	8-C1
EMERGENCY BRAKE SWITCH	EB	8-C3
ENGINE CONTROLLER	QSK	2-A5, 4-A4, 10-A6, 15-B8
ENGINE OIL PRESSURE SWITCH	EOP	2-B8
ENGINE SERVICE LIGHT SWITCH,LFT & RT	----	14-C7
ENGINE SERVICE LIGHTS, LEFT & RIGHT	----	14-C8
ENGINE SPEED SENSOR	SPD4	5-C7
ENGINE WARNING LIGHT (BLUE)	BEWL	4-B7
ETHER START RELAY	CNR03-5	2-A6
ETHER START SOLENOID	EESS	2-A7
ETHER START SWITCH	ESS	2-A6
F1 START SELECT SWITCH	F1	5-A2
FLASHER	FL	12-C2
FOG LIGHT #1 THROUGH #4	FLT1-4	13-C7
FOG LIGHT RELAY	CNR01-T	13-C6
FOG LIGHT SWITCH	FLS	13-C5
FORWARD HORN #1 & #2	----	11-C3
FORWARD HORN RELAY #1	CNR02-X	11-C2
FRONT BRAKE REQUEST SWITCH	FBSS	7-A7
FRONT BRAKE COOLING VALVE RELAY	CNR02-T	8-B8
FRONT BRAKE PPC SOLENOID	FBPS	8-B8
FRONT BRAKE APPLY SWITCH	FPSS	7-C6
FRT BRAKE COOL OIL TEMP SENSR	TO7	7-A2
FRT BRAKE COOLING VALVE SOL	SOL09	8-B7
FRT BRK COOLING FLTR RESTRICT PRESS SW	PS09	7-A6
FUEL LEVEL SENSOR	FUEL	5-D3
FUSE 1-01, VHMS KEY SWITCH POWER (39G)	CNF01-01	9-B3
FUSE 1-02, PLM LIGHTS & RELAYS (39J)	CNF01-02	9-B1
FUSE 1-03, STEERING BLEEDDOWN (51R)	CNF01-03	14-B1
FUSE 1-04, LINCOLN LUBE (68A)	CNF01-04	11-A5
FUSE 1-05, HOIST LIMIT PROX. SW (12H)	CNF01-05	14-C2
FUSE 1-06, BRAKE LIGHTS (44B1)	CNF01-06	12-B2
FUSE 1-07, RCM KEY SWITCH POWER (52P)	CNF01-07	8-A7
FUSE 1-08, RETARDING LAMPS (44A1)	CNF01-08	12-A2
FUSE 1-09, KOM PROG PORT(KEY SW)(12KPP)	CNF01-09	10-B3
FUSE 1-13, QSK BATTERY POWER (27B)	CNF01-13	4-B2
FUSE 1-14, VHMS/ORBCOMM BATT PWR (39V)	CNF01-14	9-A3
FUSE 1-15, KOM PROG PORT (BATT) (1KPP)	CNF01-15	10-B3
FUSE 1-16, LUBE FILL LIGHT (68FL)	CNF01-16	11-A6
FUSE 1-17, LO BEAM HD LT OUT POS (11LA)	CNF01-17	13-A7&B7
FUSE 1-18, HI BEAM HD LT OUT POS (11HA)	CNF01-18	13-B7
FUSE 1-19, HI BEAM HD LT IN POS (11HB)	CNF01-19	13-C7
FUSE 1-20, FOG AND LADDER LTS (42)	CNF01-20	13-C4
FUSE 1-21, FOG LIGHTS (48FP)	CNF01-21	13-D4
FUSE 1-22, STEERING BLEEDDOWN (51C)	CNF01-22	14-C1
FUSE 2-01, LEFT TURN SIGNAL (11CLL)	CNF02-01	12-D5
FUSE 2-02, RIGHT TURN SIGNAL (11CLR)	CNF02-02	12-C5
FUSE 2-03, HEAD LIGHT SWITCH (11D)	CNF02-03	13-C1
FUSE 2-04, LO BEAM HD LT IN POS (11LB)	CNF02-04	13-A4
FUSE 2-05, CLEARANCE LIGHTS (11T)	CNF02-05	12-D5
FUSE 2-06, ATC BATTERY POWER (25)	CNF02-06	6-A6
FUSE 2-07, EDP BATTERY POWER (32)	CNF02-07	3-A8
FUSE 2-08, FRONT HORN & DOME LTS (43)	CNF02-08	11-C1
FUSE 2-09, HAZARD LIGHT (46)	CNF02-09	12-D1
FUSE 2-10, RCM BATTERY POWER (B2)	CNF02-10	8-A6
FUSE 2-13, STARTING CIRCUIT (21S)	CNF02-13	2-C2
FUSE 2-21, QSK50 ECM BATT SUPP (11E1)	CNF02-21	13-A1
FUSE 2-22, QSK50 ECM BATT SUPP (11E2)	CNF02-22	13-A1
FUSE 2-23, QSK50 ECM BATT SUPP (11E3)	CNF02-23	13-A1
FUSE 2-24, QSK50 ECM BATT SUPP (11E4)	CNF02-24	13-A1
FUSE 3-01, A/C AND HEATER (12AC)	CNF03-01	15-D1
FUSE 3-02, ATC KEY SWITCH POWER (25C1)	CNF03-02	6-A6
FUSE 3-03, SHIFTER POWER (25SP)	CNF03-03	5-A1
FUSE 3-04, EDP SWITCHES (25T)	CNF03-04	3-D2
FUSE 3-06, TURN SIGNAL RELAYS (46A1)	CNF03-06	12-C1
FUSE 3-07, BACKUP LIGHTS & HORN (47A)	CNF03-07	14-A1
FUSE 3-08, DECK MTD BACKUP LTS (47B)	CNF03-8	14-B1
FUSE 3-09, WIPER MOTOR AND WASHER (63)	CNF03-09	11-C5
FUSE 3-10, OPERATOR AIR SEAT (67AS)	CNF03-10	11-D1
FUSE 3-11, ETHER START (68B)	CNF03-11	2-B5
FUSE 3-13, ATC ACC POWER (13A)	CNF03-13	6-B6
FUSE 3-14, QSK KEY SWITCH POWER (27A)	CNF03-14	4-C7
FUSE 3-15, EDP ACC POWER (31)	CNF03-15	3-A7
FUSE 3-16, SWITCH LED INDICATORS (49B)	CNF03-16	3-C2
FUSE 3-17, RADIO (AM-FM) (65)	CNF03-17	11-A1
FUSE 3-18, 12V AUX PORT #1 (67C1)	CNF03-18	11-B1
FUSE 3-20, 12V AUX PORT #2 (67C2)	CNF03-20	11-B1
FUSE 3-21, LEFT WINDOW MOTOR (67P)	CNF03-21	11-B2
FUSE 3-22, RIGHT WINDOW MOTOR (67R)	CNF03-22	11-B2

DESCRIPTION	COMP ID	SHT/ZONE
GROUND BLOCK #1	GB01	2-A4,2-D2, 11-B8,14-B4, 16-A3,17-A8, 18-A3,19-D7
GROUND BLOCK #10	GB10	2-C2,6-C2, 18-A7
GROUND BLOCK #11	GB11	19-B3,19-B6
GROUND BLOCK #12	GB12	19-B6
GROUND BLOCK #13	GB13	19-C6
GROUND BLOCK #14	GB14	19-C6
GROUND BLOCK #2	GB02	2-D2,18-A3
GROUND BLOCK #3	GB03	2-A8,14-B4, 19-A6
GROUND BLOCK #4	GB04	7-A7,19-C6
GROUND BLOCK #5	GB05	11-C8,13-A6, 18-D5
GROUND BLOCK #5A	GB05A	19-C7
GROUND BLOCK #5B	GB05B	19-C3
GROUND BLOCK #6	GB06	7-A7,18-B4, 19-A2,10-B4
GROUND BLOCK #7	GB07	5-A8,14-B5, 18-C4
GROUND BLOCK #8	GB08	8-A1
GROUND BLOCK #9	GB09	2-C3,18-A4
GROUND LEVEL SHUTDOWN SWITCH	GLSS	2-B2
HAZARD LIGHT RELAY	CNR03-N	12-C2
HAZARD LIGHT SWITCH	HZRD	12-D2
HEADLIGHT AND CLEARANCE LT SW	HDL	13-B2
HEADLIGHT, HI & LOW, LEFT & RIGHT	----	13-B7
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