CEBM031002

Shop Manual

KOMATSU®

980E-4

DUMP TRUCK

SERIAL NUMBERS **980E-4 A40003-A40051**

ENGINE **SSDA18V170**

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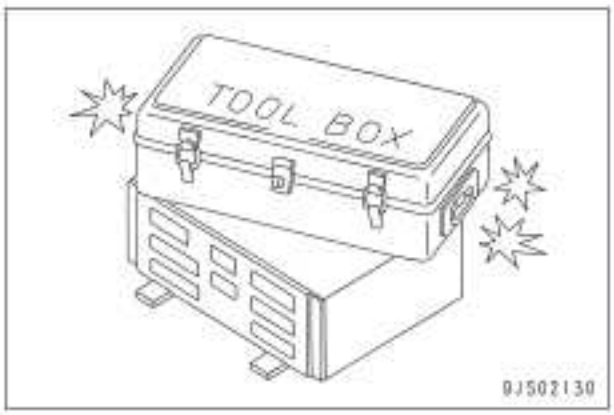
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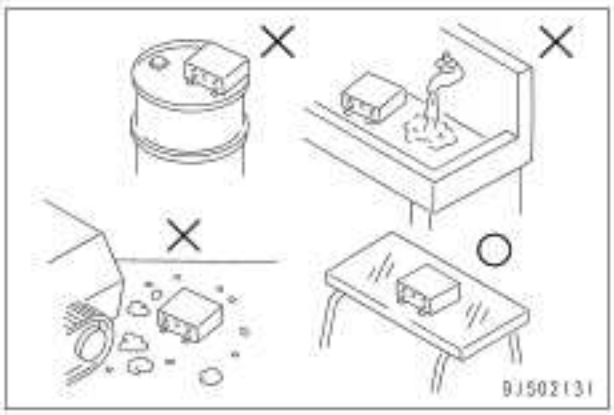
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4. Handling controllers

The controllers contain a microcomputer and electronic control circuits. These control all of the electronic circuits on the machine, so be extremely careful when handling the controllers.

- Do not place objects on top of the controllers.
- Cover the controller connectors with tape or a vinyl bag. Never touch the connector contacts with your hand.
- During rainy weather, do not leave a controller in a place where it is exposed to rain.
- Do not place a controller on oil, water, or soil, or in any hot place, even for a short time. Place it on a suitable dry stand.
- When carrying out arc welding on the body, disconnect all wiring harness connectors that are connected to the controllers. Fit an arc welding ground close to the welding point.





5. When troubleshooting electric circuits

1) Always turn the power OFF before disconnecting or connecting any connectors.
2) Before troubleshooting, ensure that all the related connectors are properly inserted. Disconnect and connect the related connectors several times to check.
3) Always connect any disconnected the connectors before proceeding to the next step. If the power is turned ON while the connectors are still disconnected, unnecessary fault codes will be generated.
4) When troubleshooting circuits (measuring the voltage, resistance, continuity, or current), move the related wiring and connectors several times and check that there is no change in the reading of the tester. If there is any change, there is probably defective contact in that circuit.

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Weight table

NOTE: This weight table is a guide for use when transporting or handling a component.

Component	Approximate Weight
Power module (w/sub-frame and grille)	22 000 kg (48,500 lb)
Engine assembly	11 840 kg (26,100 lb)
Radiator and shroud assembly	1 520 kg (3,350 lb)
Main traction alternator	6 900 kg (15,212 lb)
Fuel tank assembly	2 050 kg (4,520 lb)
Hydraulic tank assembly	590 kg (1,300 lb)
Front suspension cylinder assembly	4 373 kg (9,640 lb)
Rear suspension cylinder assembly	1 028 kg (2,266 lb)
Hoist cylinder assembly	1 175 kg (2,590 lb)
Steering cylinder assembly	260 kg (573 lb)
Tie rod	383 kg (845 lb)
Bleed down manifold	170 kg (375 lb)
Pump/hoist valve module	765 kg (1,686 lb)
Hoist pump	136 kg (300 lb)
Steering/brake pump	62 kg (137 lb)
Hoist valve	189 kg (417 lb)
Overcenter valve manifold	114 kg (250 lb)
Spindle, hub and brake assembly	5 935 kg (13,085 lb)
Front spindle and hub	3 957 kg (8,724 lb)
Steering arm	352 kg (776 lb)
Front brake assembly	1 588 kg (3,500 lb)
Anti-sway bar	160 kg (353 lb)
Axle housing	7 382 kg (16,275 lb)
Wheel motor assembly	16 700 kg (36,817 lb)
Electric wheel motor	1 740 (3,835 lb)
Transmission/rear brake assembly	14 952 kg (32,964 lb)
Parking brake	173 kg (381 lb)
Final frame structure	29 760 kg (65,610 lb)
Battery box assembly	560 kg (1,235 lb)
Alternator blower air duct	205 kg (452 lb)
Wheel motor blower air duct	345 kg (760 lb)
Cab assembly	3 442 kg (7,590 lb)
Hydraulic brake cabinet	182 kg (400 lb)
Main electrical control cabinet	3 176 kg (7,000 lb)
Auxiliary control cabinet	532 kg (1173 lb)
Retarding grid	760 kg (1,675 lb)
Right deck	1 000 kg (2,205 lb)
Left deck	720 kg (1,587 lb)
Center deck	275 kg (606 lb)

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Fault Code A355: Overload on output 1L

Operator Action	None
Fault Code	A355
Description	Overload on output 1L.
Fault Conditions	Sets if driver chip detects over current or over temp on output 1L. Output is turned off when overload is detected. Resets at power down.
Operator Alerting System Response	Repair Lamp Display Fault Description: IM OUTPUT 1L FAULT Display Fault Code: A355
Resulting Problem(s)	Unused outputs with short circuits on them might damage the driver chip if not corrected.
Related Information	A laptop running "IM Realtime Data Monitor" software may be required to resolve this fault.

Table

1. This fault's logic contains just one parameter, which may have additional fault code(s). This fault may be resolved by resolving the parameter(s) active fault code(s). Refer to the Troubleshooting Instructions for the active parameter fault(s).
2. If there are no active parameter fault codes, then based on the truck's setup while this fault is active, determine which of the parameters in the Table is not shown in its expected state on the IM Realtime Data Monitor program. Refer to the schematic to identify which item(s) may be causing the parameter(s) to be in the unexpected state. Troubleshoot these items.
3. If this fault is not currently active or if no parameters are currently in the unexpected state and the malfunction is still unresolved, then check each of the parameters in the Table for proper functionality. Troubleshoot all item(s) related to the parameter(s) which are found to be malfunctioning.

Parameter	Expected State and/or Related Fault(s)
Brake Cooling RPM Advance 1: (IM1L)	Status - Open Load: Unexpected. Troubleshoot. Status - Normal: Expected. No problem. Status - Shorted to Ground: Unexpected. Troubleshoot. Status - Overload: Unexpected. Troubleshoot. 0: Off. 1: On. Fault(s): A145

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There are many tools that allow the tracking of a satellite's position and footprint size as it orbits the earth. Orbitron (http://www.stoff.pl/) is one free tool that allows tracking of satellites in real time down to the second. It can also run predictions for months in the future for any given location on Earth.



FIGURE 40-6. ORBCOMM SATELLITE FOOTPRINT (ORBITRON VIEW)

Satellite AR is another free tool that is available for Android™ smart phones and tablets that show satellite locations in real time using augmented reality from the device's camera (Figure 30-8).

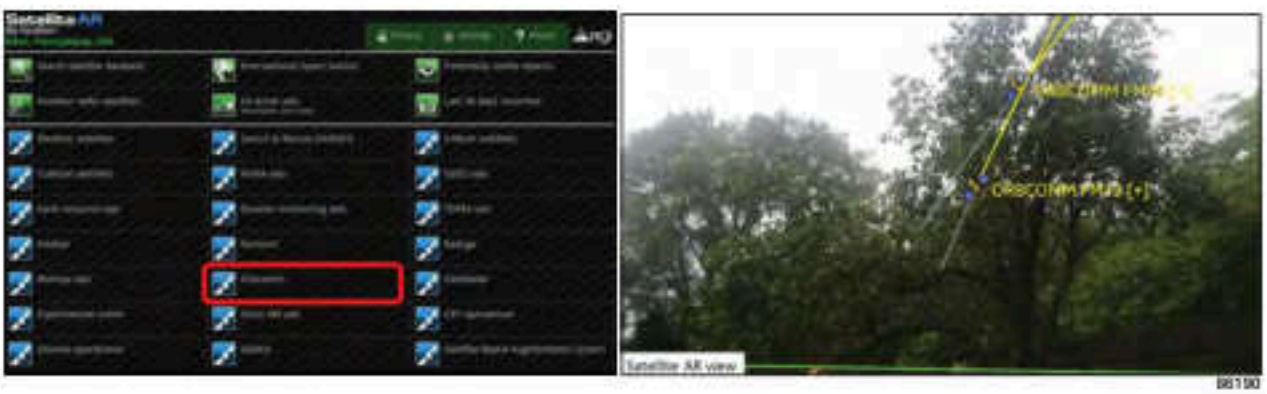


FIGURE 40-7. SATELLITE AR HOME SCREEN AND AUGMENTED CAMERA VIEW

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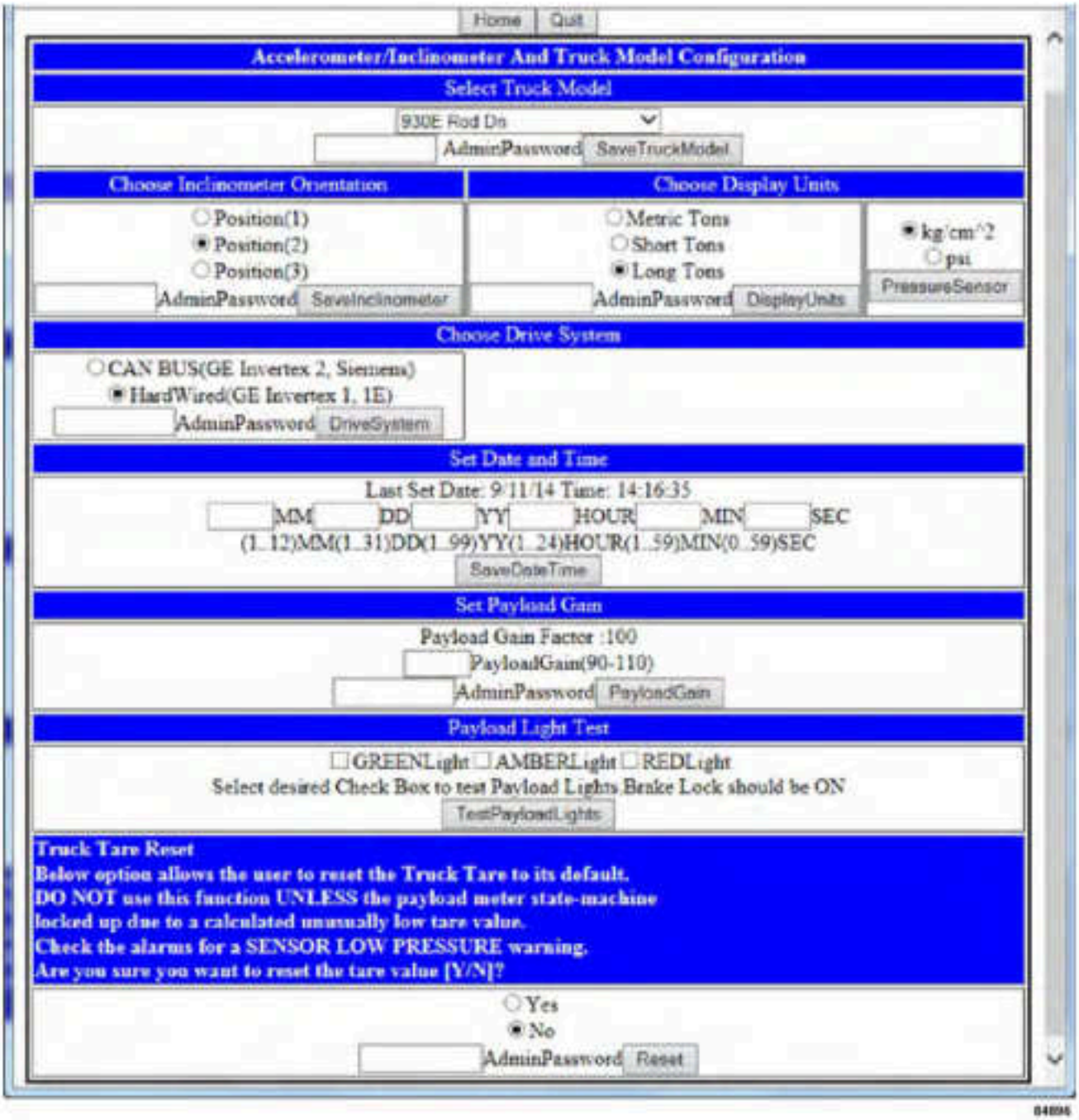


FIGURE 30-5. PLM IV SYSTEM CONFIGURATIONS PAGE

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CIRCUIT 11 (BATTERY DIRECT) FUSES & BREAKERS

VEC	DEVICE	AMPS	CIRCUIT #	FUNCTION	SHEET	LOCATION
External	Breaker	50	11B5	Supply to 24/12 Converter	BATTS, STARTERS, KEY	D-6
RTMR1	F4	10	11DID	Battery Power to DID Power Supply	OPERATOR DRIVE CONTROLS	D-1
RTMR1	F3	15	11CMX	Battery Power to Komvision Control	KOMVISION CONTROL	A-3
VEC-89	F2	25	47B	Back Up Lamps	LAMPS, FOG, EXT WARNING	D-4
	F3	15	79	Back Up Horns & Lamps		D-5
	F4	15	11LL	Left Low Beam Headlights	LAMPS, HEAD, TAIL, CLEAR, STOP	A-4
	F5	15	11LR	Right Low Beam Headlights		A-5
	F6	25	11HL	High Beam Headlights		A-7
	F8	15	11T	Tail & Clearance Lamps		D-3
	F9	10	44A	Stop Lights		D-6
	F10	20	11DSL	Ladder Lights	LAMPS, SERVICE, CONVENIENCE	A-2
	F11	15	11F	Turn Signal Flasher	LAMPS, HEAD, TAIL, CLR, STOP	D-1
	F12	10	11BD	Hydraulic Bleed Down Power	STEERING, HYDRAULIC, FUEL	A-1
	F13	10	44C	Retard Lamps	LAMPS, FOG, EXT WARNING	D-7
VEC-90	F17	5	39G	Payload Meter Battery Power	PLM4	A-2
	F18	15	11S	Key Switch Supply & Timed Engine Shutdown	BATTS, STARTERS, KEY	D-2
VEC-91	F21	10	11ES	Ether Start Circuit	ENGINE CONTROLS	A-7
	F26	15	11DISP	Display Power	DISPLAY	A-4
	F27	10	11INT	Power to Interface Module	IM IO CHARTS	A-6
	F28	10	11IM2	Interface Module Power # 2		
	F29	10	85	Komtrax + & Orbcom Power	KOMTRAX +, MOD MINING	A-3
	F30	20	11M	Modular Mining Hub Power	CAN BUSES	B-7
	F31	15	11ORS	Reserve Oil Pump	ENGINE CONTROLS	C-7
	F32	15	11RCNT	Reserve Oil Control	ENGINE CONTROLS	C-7
	F33	15	11A	Service Lights & Forward Horn	THIS SHEET	D-2
	F34	15	11SL	Service Lamps	LAMPS, SERVICE, CONV	D-1
	F35	15	11L	Hazard & Ladder Lts, Dome Lt, Beacon	THIS SHEET	C-3
	F36	20	11E1	Engine ECM Power #1	ENGINE CONTROLS	A-4
	F37	20	11E4	Engine ECM Power #4	ENGINE CONTROLS	A-3
	F38	20	11E3	Engine ECM Power #3	ENGINE CONTROLS	A-3
	F39	20	11E2	Engine ECM Power #2	ENGINE CONTROLS	A-4
	F40	20	11ER	Communications Radio Connector	BATTS, STARTER, KEY	D-9
	F41	5	11FS	Fire Suppression Connector		D-10
VEC-89	F53	20	11HM	Heated Mirror Fuse	LAMPS, FOG, EXT WARNING	D-2
VEC-91	F59	5	11LAD	Hydraulic Ladder Control (Optional)	HYD LADDER	A-2
VEC-89	F62	15	11LF	Fog Lights	LAMPS, FOG, EXT WARNING	A-3

11 TO BATTERY DIRECT SUPPLY SHT (BATTS, STARTERS, KEY) F-6

TO OPTIONAL HYDRAULIC LADDER SHT (HYD LADDER) A-2

TO RTMR1-F3 FOR KOMVISION CONTROL SHT (KOMVISION CONTROL) A-3

11

BUSS VEC-91

11 Internal Bus → 11

11 → 5S

712 Internal Bus → 712 → 8S

0 Internal Bus → 0 → 6S

15 A F33 → 4B → 11A

15 A F35 → 3A → 11L

712

TO HYD CAB & REAR AXLE SERVICE LTS SHT (LAMPS, SERVICE, CONV) A-6

TO FORWARD HORN & RELAY SHT (LAMPS, FOG, EXT WARNING) A-8

TO ENGINE DIAGNOSTIC PORT SHT (CAN BUSES) D-4

TO ROTATING BEACONS SHT (LAMPS, FOG, EXT WARNING) A-6

TO HAZARD LIGHT SWITCH SHT (LAMPS, HEAD, TAIL, CLR, STOP) A-1

TO LADDER LIGHT SWITCH & CAB DOME LIGHT SHT (LAMPS, SERVICE, CONV) A-4

712 TO KEYSWITCH CIRCUIT SHT (BATTS, STARTERS, KEY) F-4

712 TO DRIVE CONTROL CIRCUITS SHT (DRIVE FEEDBACK CIRCUITS) E-6

TO 12 VOLT POWER RELAY SHT (WINDOW WIPE, WASH, PWR) A-5

CIRCUIT 712 (KEYSWITCH) FUSES

VEC	DEVICE	AMPS	CIRCUIT #	FUNCTION	SHEET	LOCATION
VEC-91	F25	10	712R	Radiator Shutter Control	ENGINE CONTROLS	B-10
	F49	15	12H	Heater Blower Motor	HVAC, RADIO, SEAT	A-6
	F50	10	63	Windshield Wiper & Washer	WINDOW WIPE, WASH, PWR	A-1
	F51	10	712H	Hoist Limit Switch Circuit	STEERING, HYDRAULIC, FUEL	D-4
	F52	5	712T1	Turn Signal Switch	LAMPS, HEAD, TAIL, CLR, STOP	B-1
	F54	5	712G	Switched Input to Display & Sonalert	DISPLAY	A-3
	F55	5	712A	Aux Cabinet Service Lamps	LAMPS, SERVICE, CONVENIENCE	A-9
	F56	20	67P	Left Window Motor	WINDOW WIPE, WASH, PWR	B-5
	F62	20	67R	Right Window Motor		B-7
VEC-89	F56	10	712DS	Power to Operator's Seat	HVAC, RADIO, SEAT	A-1
	F57	10	712P	Pre-Shift Brake Test Circuit	BRAKES	A-8

CHART OF OTHER FUSES & BREAKERS GROUPED BY POWER SOURCE

VEC	DEVICE	AMPS	SUPPLY CIRCUIT #	OUTPUT CIRCUIT #	FUNCTION	SHEET	LOCATION
External	Fuselink	300	11ST	11PL	Pre-Lube Pump Circuit	BATTS, STARTERS, KEY	A-10
RTMR1	F2	20	11B1	8X050	Power to Komvision Radar	KOMVISION CONTROL	A-1
VEC-91	F22	20		12VREG	Communication Radio Connector	BATTS, STARTERS, KEY	D-9
	F23	10		65	Entertainment Radio	HVAC, RADIO, SEAT	C-1
	F63	20	12V	67C	Auxiliary 12 Volt Plugs	BATTS, STARTERS, KEY	D-8

CIRCUIT 71CK (DIODE OR OF KEYSWITCH & GE CONTROL POWER) FUSES

VEC	DEVICE	AMPS	CIRCUIT #	FUNCTION	SHEET	LOCATION
RTMR1	F1	15	71CKM	Keyswitch Power to Komvision Control & Monitor	KOMVISION CONTROL	A-2
VEC-90	F14	5	712SL	Keyswitch Power to PLM4 Lamps	PLM4	A-1
	F15	5	23D	Engine Interlock Relay & Park Brake Status	THIS SHEET	E-8
	F19	10	71BC	Brake Controls	BRAKES	A-2
VEC-89	F20	10	68ES	Auto Lube	AUTOLUBE	A-3
	F42	5	87	Keyswitch OR to Interface Module & Fuel Sensor	STEERING, HYDRAULIC, FUEL	A-10
	F43	1	71SS	Direction Selector Switch	OPERATOR DRIVE CONTROLS	A-1
	F44	5	71LS	Display Mode, Beacon, & Mirror Switch LEDs	THIS SHEET	D-8
	F45	15	71P	Drive Controls & Feedback	THIS SHEET	D-8
VEC-90	F46	5	712PL	Keyswitch Power to PLM4	PLM4	A-1
	F47	5	71VHM	Keyswitch OR to Komtrax +	KOMTRAX +, MOD MINING	A-2
	F48	5	712MM	Keyswitch OR to Modular Mining Connector	CAN BUSES	B-6
VEC-89	F63	15	62SBC	Seat Belt Alarm Output	HVAC, RADIO, SEAT	A-3
	F64	5	11D	Headlight Switch & Relay Coils	LAMPS, HEAD, TAIL, CLR, STOP	A-2
VEC-91	F58	20	11HH	Reserve Oil Line Heaters	ENGINE CONTROLS	C-6

TO KEYSWITCH OR CIRCUIT SHT (BATTS, STARTERS, KEY) F-6

TO F58 FOR RESERVE OIL SYSTEM SHT (ENGINE CONTROLS) C-6

TO RTMR1-F1 FOR KOMVISION CONTROL SHT (KOMVISION CONTROL) A-2

71CK

BUSS VEC-89

71CK Internal Bus → 71CK → 6S

11 Internal Bus → 11 → 8S

712 Internal Bus → 712 → 5S

0 Internal Bus → 0 → 7S

15 A F45

5 A F44

2E → 71P

4D → 71LS

TO OPERATOR DRIVE SYSTEM CONTROLS SHT (OPERATOR DRIVE CONTROLS) A-4

TO BODY UP SWITCH SHT (STEERING, HYDRAULIC, FUEL) D-1

TO BLOWER PRESSURE SWITCH SHT (DRIVE FEEDBACK CIRCITS) A-7

TO DISPLAY MODE SWITCH LEDs SHT (DISPLAY) D-1

TO BEACON AND MIRROR SWITCH LEDs SHT (LAMPS, FOG, EXT WARNING) A-1

11

BUSS VEC-90

71CK Internal Bus → 71CK → 8S

11 Internal Bus → 11 → 2F

0 Internal Bus → 0 → 7S

5 A F15 → 23D

TO ENGINE INTERLOCK RELAY SHT (ENGINE CONTROLS) A-1

TO PARK BRAKE STATUS CIRCUIT SHT (BRAKES) A-9

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ELECTRICAL SUB-SYSTEM SCHEMATIC

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