CEBM031601

Shop Manual

KOMATSU®

980E-4

DUMP TRUCK

SERIAL NUMBERS **980E-4 A40052 and up**

ENGINE **18V170**

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11. Connect the nitrogen charging kit to the charging valve. Refer to "Installing the charging kit".
12. Charge the suspensions with nitrogen gas to a charging height of approximately 305 mm (12 in.). Close inlet valve (4, Figure 30-9).

⚠WARNING

Be aware that the truck may lower suddenly when releasing nitrogen gas from the suspensions.

13. Slowly release nitrogen gas until the charging heights of both rear suspensions match the charging height listed in Table 2.

    The charging pressure is provided only as a starting point for obtaining the correct charging height. The pressure may be adjusted as necessary to maintain the proper charging height listed in Table 2.

NOTE: There is no specific charging pressure that must be maintained. The required pressure for maintaining the charging height will depend upon the weight of the dump body.

Table 2: Rear Suspension Dimensions (Empty)

Oiling Height	Charging Height	Charging Pressure
47.2 mm (1.86 in.)	212.3 mm (8.36 in.)	*1 455 kPa (211 psi)

* Charging pressures are for reference only and may vary depending upon the weight of the dump body. The charging pressure is provided only as a starting point for obtaining the correct charging height, which is the critical measurement for a properly charged suspension. The pressure may be adjusted as necessary to maintain the proper charging height.

14. Close inlet valve (4). Leave outlet valves (3) open for five minutes to allow the pressures in the suspensions to equalize.
15. Ensure that both of the rear suspension cylinders are extended the same distance ± 10 mm (0.39 in.). If the difference in the extension from side to side exceeds this amount, check the front suspensions for equal extension. Adjust the front suspensions as necessary.

NOTE: A low left front suspension will cause the right rear suspension to be high. A low right front suspension will cause the left rear suspension to be high.

16. Close outlet valves (3). Remove the charging kit components. Refer to "Removing the charging kit".
17. If the charging valve is being reused, tighten swivel nut (2, Figure 30-14) to 6-11 N·m (5-8 ft lb). Install the valve cap finger-tight.

    If a new charging valve is being used, tighten swivel nut (2) to 15 N·m (11 ft lb), then loosen and tighten the swivel nut to 15 N·m (11 ft lb). Loosen the swivel nut again and tighten to 6-11 N·m (5-8 ft lb). Install the valve cap finger-tight.
18. Install the protective guard over the charging valve.
19. If the front suspensions were serviced, remove the charging support blocks from the front suspensions. Floor jacks or an overhead crane may be necessary to raise the truck if the blocks have become jammed in place.
20. Remove the oiling support blocks from the rear axle housing.

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Related Circuit Diagram	
Circuit Description	**Circuit Reference**
Keyswitch Direct connection at Keyswitch	Refer to 58B-06-02262, Sheet 5, zone E9 Refer to 58B-06-02231, Sheet 4, zone E1
Keyswitch Direct connection at IM	Refer to 58B-06-02262, Sheet 5, zone I7 Refer to 58B-06-02231, Sheet 4, zone E1
Park Brake Set Pressure Switch connection to IM	Refer to 58B-06-02262, Sheet 14, zone F9 to F16 Refer to 58B-06-02231, Sheet 3, zone C8
Park Brake Release Pressure Switch to IM	Refer to 58B-06-02262, Sheet 5, zone H8 to H21 Refer to 58B-06-02231, Sheet 3, zone C9

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Fault Code A352: Overload on output 1H

Operator Action	None
Fault Code	A352
Description	Overload on output 1H.
Fault Conditions	Sets if driver chip detects over current or over temp on output 1H. Output is turned off when overload is detected. Resets at power down.
Operator Alerting System Response	Repair Lamp Display Fault Description: SHUTDOWN DELAY CKT Display Fault Code: A352
Resulting Problem(s)	Shutdown delay (5 minute idle latch or shutdown delay relay) circuit is disabled.
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)
Shutdown Delay Relay (IM1H)	Status - Open Load: Unexpected. Troubleshoot. Status - Normal: Expected. No problem. Status - Shorted to Ground: Unexpected. Troubleshoot. Status - Overload: Unexpected. Troubleshoot. 0: Turns off when conditions clear or engine speed drops to 0. 1: Turns on when Keyswitch, Direct is off, engine shutdown delay is on, parking brake is set, shift lever is in Park, but not J1939 not connected, not high battery charge voltage, not starter stuck on, not active engine red light, and engine speed above 300 rpm. Fault(s): A286, A292

Related Circuit Diagram

Circuit Description	Circuit Reference
Shutdown Delay Relay coil circuit	Refer to 58B-06-02262, Sheet 4, zone D10 Refer to 58B-06-02231, Sheet 4, zone E2

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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).

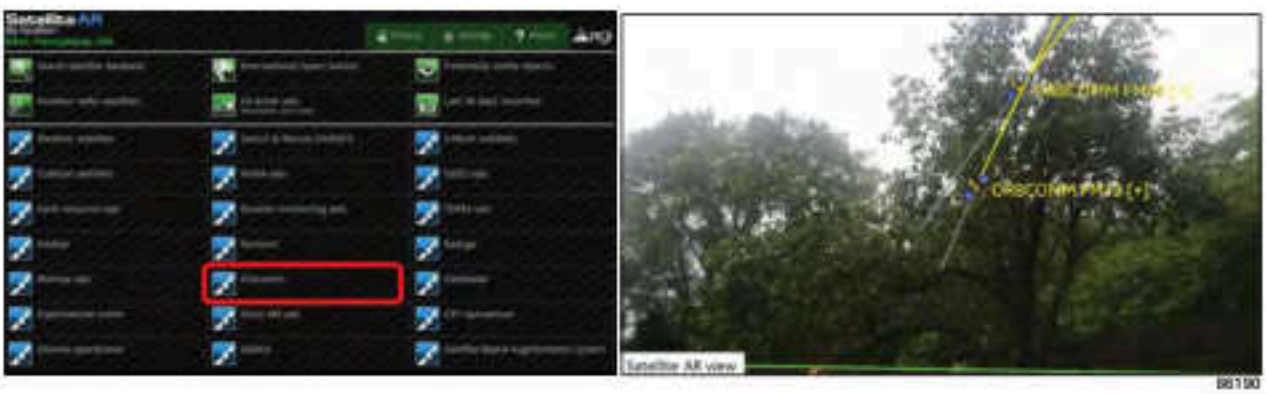


FIGURE 40-7. SATELLITE AR HOME SCREEN AND AUGMENTED CAMERA VIEW

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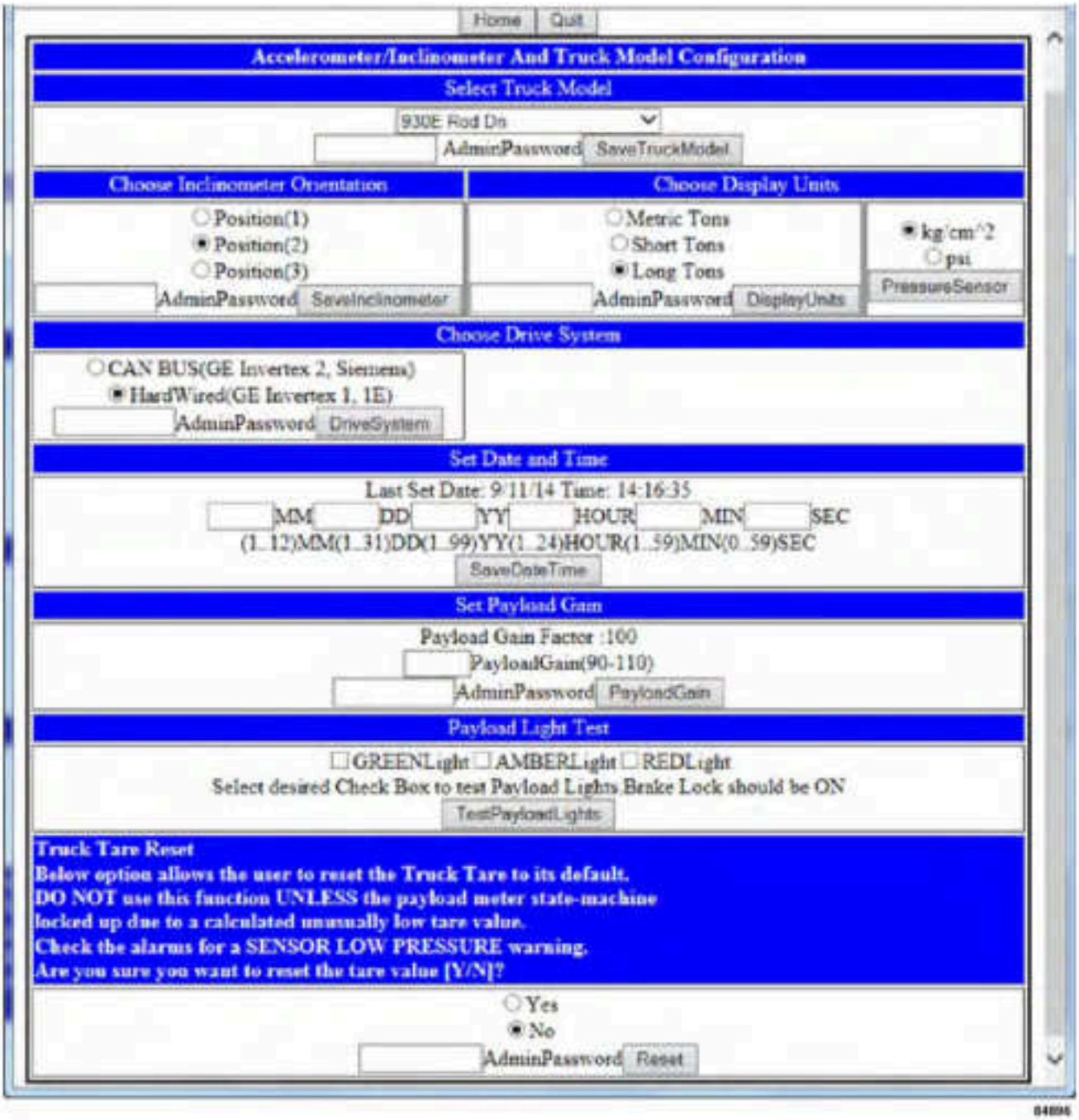


FIGURE 30-5. PLM IV SYSTEM CONFIGURATIONS PAGE

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CIRCUIT 11 (BATTERY DIRECT) FUSES & BREAKERS

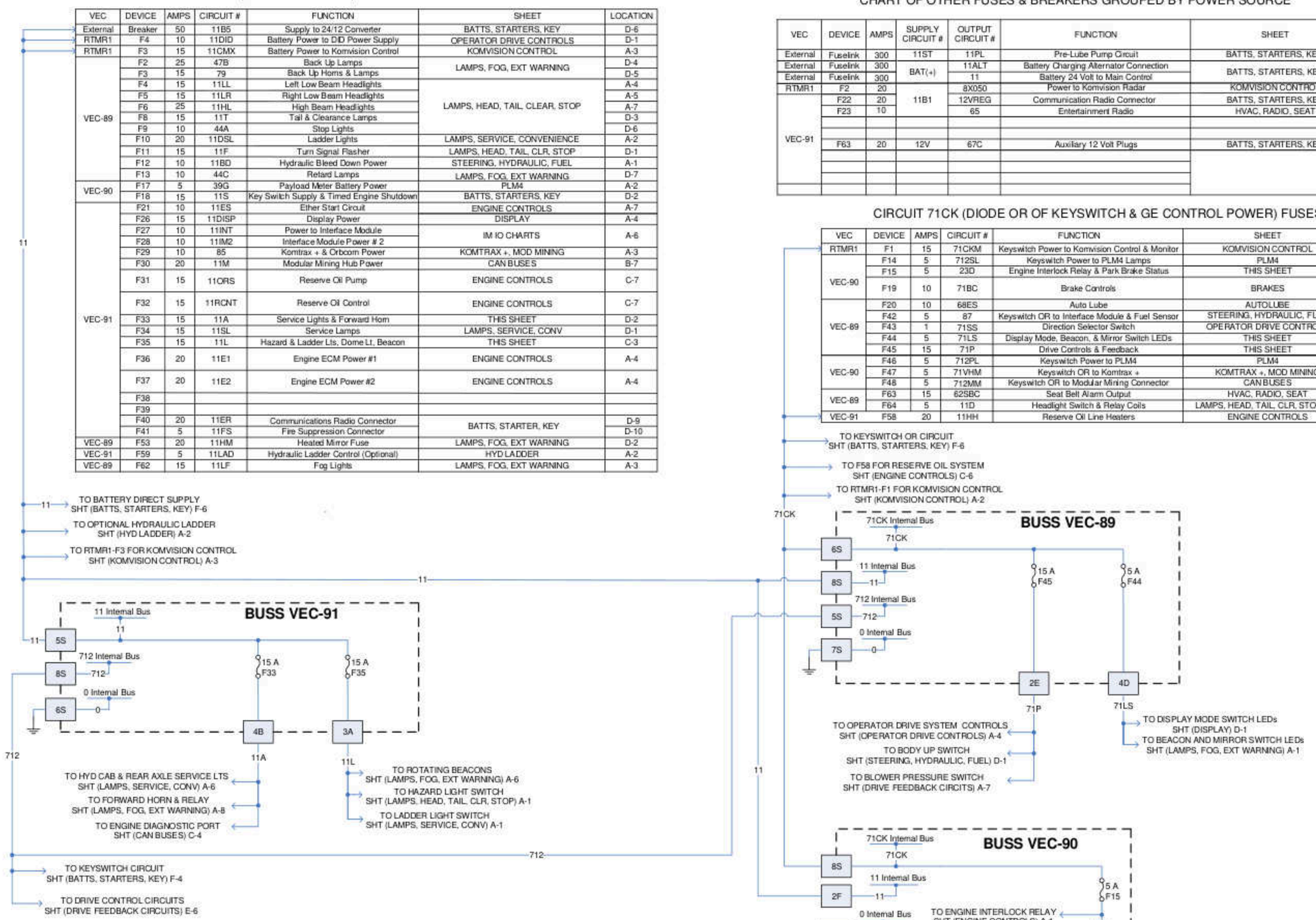
VEC	DEVICE	AMPS	CIRCUIT #	FUNCTION	SHEET	LOCATION
External	Breaker	50	11B5	Supply to 24/12 Converter	BATTS, STARTERS, KEY	D-6
RTMR1	F4	10	11DID	Battery Power to DID Power Supply	OPERATOR DRIVE CONTROLS	D-1
RTMR1	F3	15	11CMX	Battery Power to Komvision Control	KOMVISION CONTROL	A-3
VEC-89	F2	25	47B	Back 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	11E2	Engine ECM Power #2	ENGINE CONTROLS	A-4
	F38					
	F39					
	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

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
External	Fuselink	300	BAT(+)	11ALT	Battery Charging Alternator Connection	BATTS, STARTERS, KEY	A-4
External	Fuselink	300		11	Battery 24 Volt to Main Control		C-1
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



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

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ELECTRICAL SUB-SYSTEM SCHEMATIC

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