CEBM020206

# Shop Manual

# 930E-4

## DUMP TRUCK

SERIAL NUMBERS **A30601 - A30692**

KOMATSU®



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# TABLE OF CONTENTS


SUBJECT . . . . . SECTION

GENERAL INFORMATION . . . . . A

STRUCTURES . . . . . B

ENGINE . . . . . C

ELECTRICAL SYSTEM (24VDC NON-PROPULSION) . . . . . D

ELECTRIC PROPULSION SYSTEM . . . . . E

REAR AXLE, SPINDLES AND WHEELS . . . . . G

HYDRAIR® II SUSPENSIONS . . . . . H

BRAKE CIRCUIT . . . . . J

HYDRAULIC SYSTEM . . . . . L

OPTIONS AND SPECIAL TOOLS . . . . . M

OPERATOR CAB AND CONTROLS . . . . . N

LUBRICATION AND SERVICE . . . . . P

ALPHABETICAL INDEX . . . . . Q

SYSTEM SCHEMATICS . . . . . R





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# SECTION A
# GENERAL INFORMATION
# INDEX

MAJOR COMPONENTS & SPECIFICATIONS . . . . . A2

SAFETY AND OPERATING INSTRUCTIONS . . . . . A3

WARNINGS AND CAUTIONS. . . . . A4

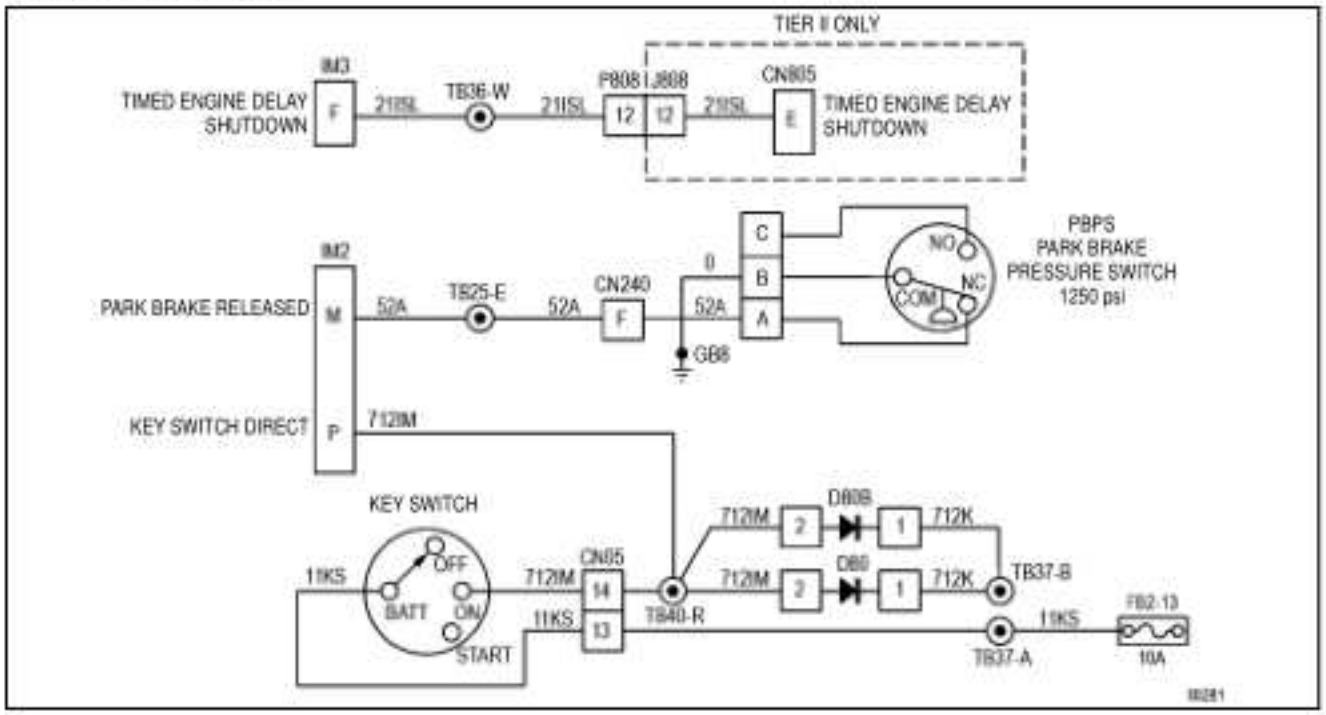
TORQUE TABLES AND CONVERSION CHARTS . . . . . A5

STORAGE AND IDLE MACHINE PREPARATION . . . . . A7



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**Related circuit diagram**






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## Fault Code A362: Overload on output 1U

| | |
|---|---|
| **Operator Action** | None |
| **Fault Code** | A362 |
| **Description** | Overload on output 1U |
| **Fault Conditions** | Sets if driver chip detects overcurrent or over temp on output 1U. Output is turned off when overload is detected.<br>Resets at power down. |
| **Operator Alerting System Response** | Amber "IM Maintenance" Lamp<br>No Buzzer<br>Right Lamp Module<br>Row 5, Column 3 |
| **Resulting Problem(s)** | Low fuel level lamp will not operate. |
| **Related Information** | A laptop running "IM Realtime Data Monitor" software may be required to resolve this fault. |

**Table**

1. This fault's logic contains more than 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) |
|---|---|
| Low Fuel Level Lamp (IM1 U) | Status - Open Load: Unexpected. Troubleshoot<br>Status - Normal: Expected<br>Status - Shorted to Ground: Unexpected. Troubleshoot<br>Status - Overload: Unexpected. Troubleshoot.<br>0: Lamp Off (IM output at B+)<br>1: Lamp On (IM output at ground) |
| IM Maintenance Lamp (IM1 X) | Status - Open Load: Unexpected. Troubleshoot<br>Status - Normal: Expected<br>Status - Shorted to Ground: Unexpected. Troubleshoot<br>Status - Overload: Unexpected. Troubleshoot.<br>0: Lamp Off (IM output at B+)<br>1: Lamp On (IM output at ground)<br>Fault(s): A363 |



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### Load Calculation

The final load calculation is different from the last swingload calculation. The accuracy of the swing load calculation depends on loading conditions and the position of the truck during loading. The last swingload calculation is not the value recorded in memory as the final load. The final load is determined by a series of calculations made while the truck is traveling to the dump site.

### Carry Back

Carry back is calculated as the difference between the current truck tare and the clean truck tare. The clean truck tare is calculated using the PC software. When the suspensions are serviced or changes are made that may affect the sprung weight of the truck, a new clean truck tare should be calculated.

### Measurement Accuracy

Payload measurements are typically repeatable within 1%. Accuracy for a particular scale test depends on specific combinations of pressure sensors and payload meters as well as the specifics of each scale test. Comparisons from different scale tests are often made without considering the differences introduced by the specific installation and operation of the scales for each test. In addition, each pressure sensor and payload meter introduces it's own non-linearity. Each truck becomes an individual combination of sensors and payload meter. Errors from these sources can introduce up to a ±7% bias in the payload meter calculations for a specific scale test, for an individual truck.

Because the PLMIII calculates a new empty tare for each payload, a detailed scale test must weigh the trucks empty and loaded for each haul cycle. Using a simple average of 2 or 3 empty truck weights as an empty tare for the entire scale test will introduce significant error when comparing scale weights to PLMIII weights.

## SOURCES FOR PAYLOAD ERROR

### Payload Error

The number one source of error in payload calculation is improperly serviced suspensions. The payload meter calculates payload by measuring differences in the sprung weight of the truck when it is empty and when it is loaded. The sprung weight is the weight of the truck supported by the suspensions. The only method for determining sprung weight is by measuring the pressure of the nitrogen gas in the suspensions. If the suspensions are not properly maintained, the payload meter cannot determine an accurate value for payload. The two critical factors are proper oil height and proper nitrogen charge.

If the suspensions are overcharged, the payload meter will not be able to determine the empty sprung weight of the truck. The suspension cylinder must be able to travel up and down as the truck drives empty. The pressure in an overcharged suspension can push the suspension rod to full extension. In this case, the pressure inside the cylinder does not accurately represent the force necessary to support that portion of the truck.

If the suspensions are undercharged, the payload meter will not be able to determine the loaded sprung weight of the truck. The suspension cylinder must be able to travel up and down as the truck drives loaded. If the pressure in an undercharged suspension cannot support the load, the suspension will collapse and make metal-to-metal contact. In this case, the pressure inside the cylinder does not accurately represent the force necessary to support that portion of the truck.

Low oil height can also introduce errors by not correctly supporting a loaded truck. This is why the correct oil height and nitrogen charge are the most critical factors in the measurement of payload. If the suspensions are not properly maintained, accurate payload measurement is not possible. In addition, suspension maintenance is very important to the life of the truck.



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### Failure of the Discharge System

If the capacitor charge lights remain illuminated, a failure of the normal (fast) capacitor discharge system (RP discharge path) has likely occurred. The slow discharge resistors that are hard wired across the DC link should then discharge the capacitors. The slow discharge resistors will discharge the DC link to less than 1 VDC in under 7.5 minutes. If after 7.5 minutes, the capacitor charge lights are still illuminated, it must be assumed that the automatic discharge system is not working and that high voltage is present in the high voltage area.

1. Open the high voltage area doors.
2. Use a suitable high voltage meter (rated for at least 2000 VDC) and suitable protective equipment that are included in 2000VDC meter kit (58B-06-00800) to measure the voltage across each of the DC link capacitors. Place one meter lead on the positive (+) capacitor terminal, and the other meter lead on the negative (-) capacitor terminal, and observe the voltage. See Figure 3-7 and Figure 3-8. If the voltage is less than 1.0 V the capacitor is sufficiently discharged. Repeat on all DC Link capacitors. If the voltage of any capacitor is above 1.0 V, manually discharge the capacitor as described in "Manual Discharge of Capacitors".



FIGURE 3-7. DC METER ON CAPACITOR

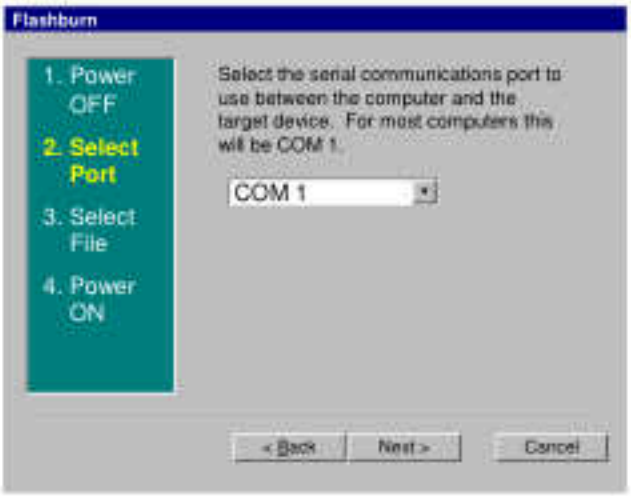



FIGURE 3-8. CAPACITOR TERMINAL POLARITY

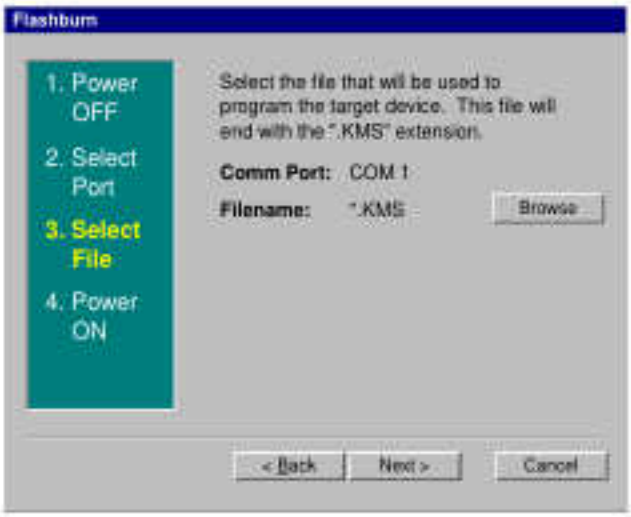


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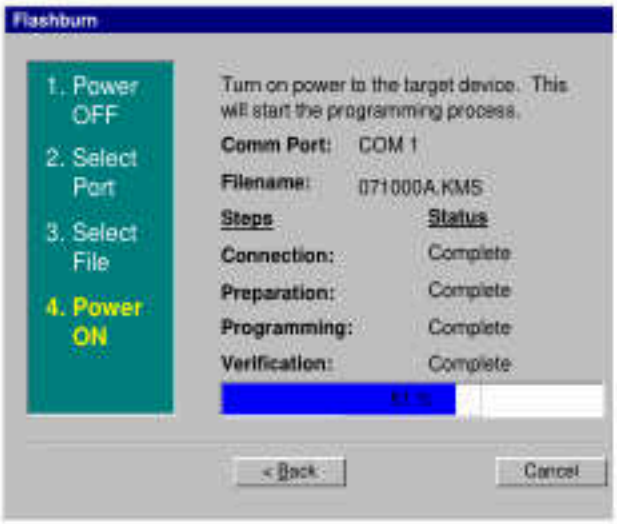
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".




5. Press "BROWSE" and select the ".kms" file to program into the payload meter. Press "NEXT".




6. When instructed, turn the key switch ON in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.




7. After successful programming, turn the key witch OFF.
8. Wait 20 seconds and turn the key switch ON.
9. The payload meter will need to be configured as instructed in the manual using the Payload Data Manager software on the laptop computer.



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| COMPONENT | SHEET |
|---|---|
| AID MODULE | 11,12,13 |
| ALTERNATOR, BATTERY CHARGING | 26 |
| ALTERNATOR, PROPULSION | 16 |
| BATTERY, ENGINE CRANKING | 9 |
| BATTERIES, START | 26,33 |
| CB 13 - CLEARANCE LIGHTS (RB1) | 10,22 |
| CB 14 - TURN SIGNAL FLASHER | 10,22 |
| CB 15 - TAIL LIGHTS (RB1) | 10,22 |
| CB 16 - RETARD LIGHTS (RB3) | 10,19 |
| CB 17 - MANUAL BACK-UP LTS (RB3) | 10,19 |
| CB 18 - STOP LIGHTS (RB3) | 10,12 |
| CB 19 - BACKUP LTS & HORN (RB3) | 10,19 |
| CB 20 - PARK BRAKE FAILURE (RB4) | 10,27 |
| CB 21 - SERV. LTS, HORN BTN. (RB4) | 10,18 |
| CB 22 - ENGINE CONTROL POWER (RB4) | 10,27 |
| CB 23 - HDLIGHTS LFT LO BEAM (RB5) | 10,23 |
| CB 24 - HDLIGHTS RT LO BEAM (RB5) | 10,23 |
| CB 25 - HDLIGHTS LFT HI BEAM (RB5) | 10,23 |
| CB 26 - HDLIGHTS RT HI BEAM (RB5) | 10,23 |
| CB 27 - HDLIGHTS & DASH LTS (RB5) | 10,23 |
| CB 60 - 12V POWER | 26,33 |
| CB 61 - | 33 |
| CB 62 - | 33 |
| CONVERTER, 24VDC TO 12VDC | 10,21,26 |
| DIODE BOARD 1 (DB1) | 7,11,12, 15,20,27 |
| DIODES, STARTER ISOLATOR (SID-1) | 26,33 |
| D.I.D. PANEL | 9,29 |
| ENGINE ECU - FAN CLUTCH SIGNAL | 17 |
| ENGINE ECU - CUMMINS | 7 |
| ENGINE INTERFACE MODULE | 7 |
| FUEL TANK | 32 |
| FUSE 300A, PRE LUBE PUMP | 26 |
| FUSE-FB1-1 15A, A/C HTR BLOW MOTOR | 10 |
| FUSE-FB1-2 10A, WINDSHLD WASH/WIPE | 10 |
| FUSE-FB1-3 5A, FUEL, TEMP SA. VOLTM | 10 |
| FUSE-FB1-4 10A, CAB KEY POWER | 10 |
| FUSE-FB1-5 10A, HOIST SOLENOID | 10 |
| FUSE-FB1-6 15A, TURN/CLEAR LIGHTS | 10 |
| FUSE-FB1-7 10A, ENGINE OPTIONS | 10 |
| FUSE-FB1-8 10A, AID & INDIC. LTS | 10 |
| FUSE-FB1-9 10A, ENG START FAIL. | 10 |
| FUSE-FB1-10 10A, ENG. SHUTTERS | 10 |
| FUSE-FB1-11 10A, DOME LIGHT SW. | 10 |
| FUSE-FB1-13 10A, RADIO RELAY | 10,21,26 |
| FUSE-FB1-17 15A, GROUND LEVEL PWR | 10,25 |
| FUSE-FB1-18 5A, PLM III POWER | 10,28 |
| FUSE-FB1-19 5A, PLM III POWER | 10,28 |
| FUSE-FB2-1 15A, SERVICE LIGHTS | 10 |
| FUSE-FB2-2 15A, DOME,FOG,LADDER LTS | 10 |
| FUSE-FB2-3 15A, HAZARD LIGHTS | 10 |
| FUSE-FB2-4 10A, INTERFACE MODULE | 10,32 |
| FUSE-FB2-5 10A, ORBCOM/VHMS POWER | 10 |
| FUSE-FB2-6 20A, M M HUB POWER | 10,29 |
| FUSE-FB2-7 10A, DISPLAY MODULE | 10 |
| FUSE-FB2-8 15A, HID HEADLIGHTS | 10,16 |
| FUSE-FB2-9 15A, OIL RESERVE PUMP | 10 |
| FUSE-FB2-10 15A, RESERVE CTRL MODULE | 10 |
| FUSE-FB2-11 20A, BLEEDDOWN PWR SUPPLY | 10 |
| FUSE-FB2-12 10A, ENG LOAD CNTRL PWR | 10 |
| FUSE-FB2-13 10A, KEYSWITCH POWER | 8,10,25 |
| FUSE-FB2-17 20A, ENGINE ECM POWER | 10 |
| FUSE-FB2-18 20A, ENGINE ECM POWER | 10 |
| FUSE-FB2-19 20A, ENGINE ECM POWER | 10 |
| FUSE-FB2-20 20A, ENGINE ECM POWER | 10 |
| FUSE-FB3-1 15A, CAB DRIVE SYS. PWR | 10 |
| FUSE-FB3-2 10A, AUTO LUBE TIMER | 10,15 |
| FUSE-FB3-3 15A, GE PWR INTERFACE MOD | 10,32 |
| FUSE-FB3-4 20A, OP-CAB SEAT POWER | 10 |
| FUSE-FB3-13 10A, L. FRT WHEEL SPS | 9,10 |
| FUSE-FB3-14 10A, R. FRT WHEEL SPS | 9,10 |
| FUSE-FB3-17 10A, 12V POWER PLUGS | 10,21 |
| FUSE-FB3-18 20A, R.H. WINDOW | 10,21 |
| FUSE-FB3-19 20A, L.H. WINDOW | 10,21 |
| FUSE-FB4-1 10A, BRAKE CIRCUITS | 10,32 |
| FUSE-FB4-2 5A, PLM III | 10 |
| FUSE-FB4-3 5A, INTERFACE MODULE | 10,32 |
| FUSE-FB4-4 10A, VHMS MODULE | 10 |
| FUSE-FB4-5 5A, M M HUB POWER | 10,29 |
| FUSE-FB4-6 5A, DISP MODULE | 10 |
| FUSE-FB4-7 15A, BLEEDDOWN POWER | 10 |
| FUSE-FB4-8 10A, LIGHTED SW POWER | 10 |
| FUSE-FB4-9 10A, DIRECT SEL. SW. | 10,32 |
| FUSE-FB4-17 5A, GAUGE VOLTAGE | 10 |
| FUSE-FB4-18 5A, PEDAL VOLTAGE | 10 |
| FUSE-FB4-19 5A, ENGINE INTERFACE | 10 |

| COMPONENT | SHEET |
|---|---|
| GAUGE, BRAKE HYD. TEMPERATURE | 32 |
| GAUGE, FUEL | 16,32 |
| GAUGE, HOURMETER | 16 |
| GAUGE, OIL PRESSURE | 16 |
| GAUGE, WATER TEMPERATURE | 16 |
| GOIC- OPERATOR DISPLAY | 29 |
| HEATER A/C SYSTEM | 17 |
| HORN BUTTON | 18 |
| HORN, FORWARD #1 | 18 |
| HORN, LEFT REAR BACKUP | 19 |
| HORN, RIGHT REAR BACKUP | 19 |
| INCLINOMETER | 28 |
| INDICATOR, BATT. CHG. SYS. FAILURE | 32 |
| INDICATOR, BODY UP | 12 |
| INDICATOR, BRAKE HYD. TEMP. HIGH | 32 |
| INDICATOR, CHECK ENGINE | 12 |
| INDICATOR, CIRCUIT BREAKER TRIPPED | 11 |
| INDICATOR, DYNAMIC RETARD | 12 |
| INDICATOR, ELECTRIC SYS FAULT | 11 |
| INDICATOR, ENGINE STOP | 12 |
| INDICATOR, HYDRAULIC OIL FILTER | 32 |
| INDICATOR, IM WARNING | 32 |
| INDICATOR, LINCOLN LUBE LOW PRESSURE | 15 |
| INDICATOR, LOW ACCUM PRECHARGE | 11 |
| INDICATOR, LOW BRAKE PRESSURE | 11 |
| INDICATOR, LOW FUEL | 16,32 |
| INDICATOR, LOW HYDRAULIC TK LEVEL | 11 |
| INDICATOR, LOW STEERING PRESSURE | 11 |
| INDICATOR, MANUAL BACK UP LIGHTS | 13 |
| INDICATOR, PARK BRAKE | 32 |
| INDICATOR, PROPUL. SYS AT REST | 14 |
| INDICATOR, PROPUL. SYS CAUTION | 13 |
| INDICATOR, PROPUL. SYS NO PROPEL | 13 |
| INDICATOR, PROPUL. SYS NO PROP/RET | 13 |
| INDICATOR, PROPUL. SYS NOT READY | 14 |
| INDICATOR, PROPUL. SYS REDUCED LVL | 14 |
| INDICATOR, PROPUL. SYS TEMP CAUTION | 13 |
| INDICATOR, RETARD AT REDUCED LEVEL | 14 |
| INDICATOR, RETARD SPEED CONTROL | 13 |
| INDICATOR, SERVICE BRAKE | 12 |
| INDICATOR, STARTER FAILURE | 32 |
| INDICATOR, TIMED ENGINE SHUTDOWN | 25 |
| INTERFACE MODULE | 25,29,32 |
| LIGHT, AIR RESTRICTION GAUGE | 24 |
| LIGHT, BRAKE HYD. TEMP. GAUGE | 24 |
| LIGHT, CAB DOME | 23 |
| LIGHT, DIGITAL TACHOMETER | 24 |
| LIGHT, DOME 1-5 | 10,15 |
| LIGHT, DYNAMIC RETARD (OPT) | 19 |
| LIGHT, ENGINE MAINTENANCE | 24 |
| LIGHT, FUEL GAUGE | 24 |
| LIGHT, HIGH BEAM INDICATING | 23 |
| LIGHT, INTERFACE MODULE DOWNLOADING | 24 |
| LIGHT, LEFT DECK | 19 |
| LIGHT, LEFT DECK BACK UP | 19 |
| LIGHT, LEFT DIAGONAL LADDER | 19 |
| LIGHT, LEFT ENGINE SERVICE #1 | 18 |
| LIGHT, LEFT ENGINE SERVICE #2 | 18 |
| LIGHT, LEFT FRONT FOG | 23 |
| LIGHT, LEFT FRONT TURN/CLEARANCE | 22 |
| LIGHT, LEFT HIGH BEAM | 23 |
| LIGHT, LEFT HI-MTD HIGH BEAM | 23 |
| LIGHT, LEFT HI-MTD LOW BEAM | 23 |
| LIGHT, LEFT HYDRAULIC CABINET | 18 |
| LIGHT, LEFT LOW BEAM | 23 |
| LIGHT, LEFT REAR BACK UP | 19 |
| LIGHT, LEFT REAR FOG | 23 |
| LIGHT, LEFT REAR RETARD | 19 |
| LIGHT, LEFT REAR TURN/CLEARANCE | 22 |
| LIGHT, LEFT TAIL/STOP | 12 |
| LIGHT, LEFT TURN INDICATING | 22 |
| LIGHT, LINK ENERGIZED | 24 |
| LIGHT, OIL PRESSURE GAUGE | 24 |
| LIGHT, RIGHT DECK (OPT) | 19 |
| LIGHT, RIGHT DECK BACK UP | 19 |
| LIGHT, RIGHT DIAGONAL LADDER (OPT) | 19 |
| LIGHT, RIGHT ENGINE SERVICE #1 | 18 |
| LIGHT, RIGHT ENGINE SERVICE #2 | 18 |
| LIGHT, RIGHT FRONT FOG | 23 |
| LIGHT, RIGHT FRONT TURN/CLEAR | 22 |
| LIGHT, RIGHT HIGH BEAM | 23 |
| LIGHT, RIGHT HI-MTD HIGH BEAM | 23 |
| LIGHT, RIGHT HI-MTD LOW BEAM | 23 |
| LIGHT, RIGHT HYDRAULIC CABINET | 18 |
| LIGHT, RIGHT LOW BEAM | 23 |
| LIGHT, RIGHT REAR BACK UP | 19 |

| COMPONENT | SHEET |
|---|---|
| LIGHT, RIGHT FOG REAR (OPT) | 23 |
| LIGHT, RIGHT REAR RETARD | 19 |
| LIGHT, RIGHT REAR TURN/CLEARANCE | 22 |
| LIGHT, RIGHT TAIL/STOP | 12 |
| LIGHT, RIGHT TURN INDICATING | 22 |
| LIGHT, ROTATING BEACON (OPT) | 16 |
| LIGHT, SERVICE BRAKE (CAB ROOF) | 12 |
| LIGHT, WATER TEMPERATURE GAUGE | 24 |
| LIGHTS, LEFT DECK PAYLOAD | 28 |
| LIGHTS, RIGHT DECK PAYLOAD | 28 |
| MIRROR, HEATED LEFT FLAT (OPT) | 16 |
| MIRROR, HEATED RIGHT CONCAVE (OPT) | 16 |
| MODULAR MINING COMMUNICATION PORT | 9,28,29 |
| MODULAR MINING HUB | 29 |
| MOTOR, LEFT WINDOW | 21 |
| MOTOR, RIGHT WINDOW | 21 |
| MOTOR, STARTER #1 | 26 |
| MOTOR, STARTER #2 | 26 |
| MOTOR, WINDSHIELD WIPER | 31 |
| ORBCOM MODULE | 29 |
| PAYLOAD METER 3 CONTROL MODULE | 10,28,29 |
| PEDAL, ACCELERATOR | 20 |
| PEDAL, RETARD | 20 |
| POTENTIOMETER, RETARD SPEED | 20 |
| POWER PLUGS, 12V | 21 |
| PROBE, ALTERNATOR AMB. TEMP. | 9,20 |
| PUMP, RESERVE OIL CIRCULATING (OPT) | 30 |
| PUMP, PRE-LUBE HI FLOW | 26 |
| PUMP, WINDSHIELD WASHER | 31 |
| RADIO | 21 |
| RB1 K1 RELAY (LEFT TURN SIGNAL) | 22 |
| RB1 K2 RELAY (RIGHT TURN SIGNAL) | 22 |
| RB1 K3 RELAY (CLEARANCE LIGHT) | 22 |
| RB1 K4 RELAY (FLASHER) | 22 |
| RB3 K1 RELAY (MANUAL BACKUP LTS) | 19 |
| RB3 K2 RELAY (STOP LIGHT) | 12 |
| RB3 K3 RELAY (RETARD LIGHT) | 19 |
| RB4 K1 RELAY (PARK BRAKE STATUS) | 27 |
| RB4 K2 RELAY (CRANK INTERLOCK) | 26 |
| RB4 K3 RELAY (HORN) | 18 |
| RB4 K4 RELAY (BODY UP INVERT) | 12,28 |
| RB5 K1 RELAY (LEFT LOW BEAM HDLT) | 23 |
| RB5 K2 RELAY (RIGHT LOW BEAM HDLT) | 23 |
| RB5 K3 RELAY (LFT HI BEAM HDLT) | 23 |
| RB5 K4 RELAY (RIGHT HI BEAM HDLT) | 23 |
| RB6 K1 RELAY (BACK UP HORN) | 19 |
| RB6 K2 RELAY (ENGINE INTERLOCK) | 27 |
| RB6 K3 RELAY (LINCOLN LUBE SOLENOID) | 15 |
| RB6 K4 RELAY (BLEEDDOWN POWER SUPPLY) | 18 |
| RB6 K5 RELAY (ETHER START) | 7 |
| RB6 K7 RELAY (HID HEADLIGHT) | 16 |
| RB6 K8 RELAY (LINCLON LUBE TIMER) | 15 |
| RB7 K1 RELAY (BRAKE LOCK LIMITATION) | 18 |
| RB7 K2 RELAY (BRAKE LOCK LIMITATION) | 18 |
| RB7 K3 RELAY (BRAKE LOCK LIMITATION) | 18 |
| RB7 K4 RELAY (BRAKE LOCK LIMITATION) | 18 |
| RB7 K5 RELAY (IM WARNING) | 32 |
| RB7 K6 RELAY (TIMED ENGINE SHUTDOWN LT) | 25 |
| RB7 K7 RELAY (BRAKE LOCK LIMITATION) | 18 |
| RB7 K8 RELAY (TIMED ENGINE SHUTDOWN) | 10,25 |
| RB8 K1 RELAY (TCI-70%) | 28 |
| RB8 K2 RELAY (TCI-100%) | 28 |
| RB8 K3 RELAY (A/C SHUTTER CONTROL) | 7 |
| RB8 K4 RELAY (PLM3 LIGHTS) | 28 |
| RB8 K5 RELAY (SCHUTTER CONTROL) | 7 |
| RB8 K6 RELAY (PLM3 RED LIGHTS) | 28 |
| RB8 K7 RELAY (PLM3 AMBER LIGHTS) | 28 |
| RB8 K8 RELAY (PLM3 GREEN LIGHTS) | 28 |
| RB9 K1 RELAY (START CIRCUIT) | 10,26 |
| RB9 K2 RELAY (AUTO BRAKE APPLY POWER) | 32 |
| RB9 K3 RELAY (LOW STEERING PRESS. PWR) | 11 |
| RB9 K4 RELAY (PARK BRAKE OFF) | 32 |
| RB9 K5 RELAY (KEYSW START ACTIVATION) | 8 |
| RB9 K6 RELAY (LOW STEERING PRESS. GND) | 11 |
| RELAY, BRAKE WARNING | 11 |
| RELAY, CONTROL POWER (CPR) | 10 |
| RELAY, ENGINE START | 26,33 |
| RELAY, GENERATOR FIELD (GFR) | 10 |
| RELAY, GROUND LEVEL POWER | 8,10,25,28 |
| RELAY, KEYSWITCH POWER | 8,10,25 |
| RELAY, KONTROL POWER (KPR) | 2,8,10 |
| RELAY, MAINTAIN PRE-LUBE RUN (MPRR) | 26 |
| RELAY, RADIO | 21 |
| RELAY, WIPER (HI) | 31 |
| RELAY, WIPER (LO) | 31 |
| RELAY, 12V POWER (AUX-BOX) | 10,21 |

| COMPONENT | SHEET |
|---|---|
| RELAY, 12V POWER (BATTERY BOX) | 26,33 |
| RELAY BOARD 1 | 10,11,22 |
| RELAY BOARD 3 | 10,11,12,19 |
| RELAY BOARD 4 | 10,11,12,18 |
| | 25,27,28 |
| RELAY BOARD 5 | 10,11,23 |
| RELAY BOARD 8 | 28 |
| RETARD LEVER | 20 |
| RHEOSTAT, PANEL DIMMER | 14 |
| RHEOSTAT, DASH LIGHT | 24 |
| SCOREBOARD, LEFT PLM3 | 28 |
| SCOREBOARD, RIGHT PLM3 | 28 |
| SENDER, ENGINE TEMPERATURE | 16 |
| SENDER, FUEL LEVEL | 16 |
| SENDER, OIL PRESSURE | 16 |
| SENSOR, AMBIENT AIR TEMP | 32 |
| SENSOR, BAROMETRIC PRESSURE | 9 |
| SENSOR, HOIST PUMP #1 PRESSURE | 32 |
| SENSOR, HOIST PUMP #2 PRESSURE | 32 |
| SENSOR, HYD. LEVEL | 11 |
| SENSOR, LEFT FRONT HYD. BRAKE TEMP | 32 |
| SENSOR, LEFT FRONT SUSPENSION PRESS. | 28 |
| SENSOR, LEFT FRONT WHEEL SPEED | 9 |
| SENSOR, LEFT REAR HYD. BRAKE TEMP | 32 |
| SENSOR, LEFT REAR SUSPENSION PRESS. | 28 |
| SENSOR, RESERVE OIL LEVEL (OPT) | 30 |
| SENSOR, RIGHT FRONT HYD. BRAKE TEMP | 32 |
| SENSOR, RIGHT FRONT SUSPENSION PRESS. | 28 |
| SENSOR, RIGHT FRONT WHEEL SPEED | 9 |
| SNESOR, RIGHT REAR HYD. BRAKE TEMP | 32 |
| SENSOR, RIGHT REAR SUSPENSION PRESS. | 28 |
| SENSOR, SERVICE BRAKE PRESSURE | 32 |
| SENSOR, STEERING PRESSURE | 32 |
| SOLENOID, A/C COMPRESSOR | 17 |
| SOLENOID, AUTO BRAKE APPLY (OPT) | 32 |
| SOLENOID, BRAKE LOCK | 18 |
| SOLENOID, ETHER START | 7 |
| SOLENOID, HOIST LIMIT | 15 |
| SOLENOID, LUBE PUMP | 15 |
| SOLENOID, PARK BRAKE | 32 |
| SOLENOID, SHUTTER CONTROL | 7 |
| SOLENOID, STEERING ACCUM. BLEEDDOWN | 18 |
| SONALERT, #1 (CAB OVERHEAD) | 11 |
| SONALERT, #2 (IM FAULTS) | 32 |
| SPEAKER, RADIO LEFT FRONT | 21 |
| SPEAKER, RADIO LEFT REAR | 21 |
| SPEAKER, RADIO RIGHT FRONT | 21 |
| SPEAKER, RADIO RIGHT REAR | 21 |
| SPEEDOMETER | 16,28 |
| STEERING BLEED DOWN IC CHIP | 18 |
| SWITCH, A/C RECEIVER/DRIER PRESSURE | 17 |
| SWITCH, AIR PRESSURE DIFFERENTIAL | 14 |
| SWITCH, BODY UP | 12,28 |
| SWITCH, BODY UP OVERRRIDE | 20 |
| SWITCH, BRAKE LOCK | 18,28 |
| SWITCH, COOLANT LEVEL | 27 |
| SWITCH, DATA STORE | 20,29 |
| SWITCH, DIMMER COMBO | 31 |
| SWITCH, DIRECT SELECTOR | 20,32 |
| SWITCH, DOME LIGHT (AUX-BOX) | 10,15 |
| SWITCH, ENGINE LEFT SERVICE LIGHT | 18 |
| SWITCH, ENGINE OIL PRESSURE | 26 |
| SWITCH, ENGINE RIGHT SERVICE LIGHT | 18 |
| SWITCH, ENGINE RUN OIL PRESSURE | 16 |
| SWITCH, FOG LIGHT | 23 |
| SWITCH, GROUND LEVEL SHUTDOWN | 2,8,10 25,28 |
| SWITCH, HAZARD LIGHT | 22 |
| SWITCH, HEADLIGHT | 10,23 |
| SWITCH, HEATED MIRROR | 16 |

| COMPONENT | SHEET |
|---|---|
| SWITCH, HID LIGHT (OPT) | 16 |
| SWITCH, HOIST LIMIT | 15 |
| SWITCH, HOIST FILTER PRESSURE #1 | 11 |
| SWITCH, HOIST FILTER PRESSURE #2 | 11 |
| SWITCH, KEY | 8,10,25 |
| SWITCH, LADDER LIGHTS GROUND LEVEL | 19 |
| SWITCH, LADDER LIGHTS OP-CAB | 19 |
| SWITCH, LAMP TEST | 11 |
| SWITCH, LEFT WINDOW | 21 |
| SWITCH, LINC. LUBE LOW LEVEL (OPT) | 15 |
| SWITCH, LINCOLN LUBE PRESSURE | 15 |
| SWITCH, LOW BRAKE PRESSURE | 11 |
| SWITCH, LOW ACCUM. PRE-CHARGE #1 | 11 |
| SWITCH, LOW ACCUM. PRE-CHARGE #2 | 11 |
| SWITCH, LOW STEERING PRESSURE | 11 |
| SWITCH, MANUAL BACK UP LIGHT | 19 |
| SWITCH, PARK BRAKE PRESSURE | 32 |
| SWITCH, PLM CONTROL | 28 |
| SWITCH, PRE-LUBE PRESSURE | 26 |
| SWITCH, PRESSURE (2500 psi) | 15 |
| SWITCH, RESERVE OIL PRESSURE | 30 |
| SWITCH, RESET REQUEST | 14 |
| SWITCH, RETARD SPEED CONTROL | 20 |
| SWITCH, RIGHT WINDOW | 21 |
| SWITCH, ROTATING BEACON (OPT) | 16 |
| SWITCH, SECONDARY ENGINE SHUTDOWN | 27 |
| SWITCH, SERVICE BRAKE DEGRADE PRESS. | 11 |
| SWITCH, SERVICE BRAKE PRESS. | 12 |
| SWITCH, START BATTERY DISCONNECT | 26,33 |
| SWITCH, STEERING FILTER PRESS. | 11 |
| SWITCH, STEERING ACCUM. PRESS. | 18 |
| SWITCH, SYSTEM BATTERY DISCONNECT | 26,28,33 |
| SWITCH, TURN SIGNAL COMBO | 31 |
| SWITCH, WINDSHLD WASH/WIPE COMBO | 31 |
| TACHOMETER | 16 |
| TIMER, LINCOLN LUBE | 15 |
| TIMER, PRE-LUBE | 26 |
| TIMER, STEERING BLEED DOWN | 18 |
| TIMER, TURN SIGNAL FLASHER | 22 |
| TIMER, WINDSHLD WASH/WIPE | 31 |
| TIMER, WINDSHLD WIPER DELAY MODULE | 31 |
| VHMS MODULE | 29 |

**XS4835-1 AUG 08**
***ELECTRICAL SCHEMATIC***
**COMPONENT LOCATOR SHEET**
***930E-4***
A30601 - A30749
Sheet 35 of 36


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