CEBM011002

Shop Manual

730E

DUMP TRUCK

SERIAL NUMBERS **A30219 - A30259**

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DIODE BOARD 1

The truck is equipped with a diode board (1, Figure 3-8) containing replaceable diodes (4). Some of the diodes are used in the coil circuit of various relays to suppress the resultant coil voltage spike when power is removed from the circuit, preventing damage to other circuit components (lamp filaments etc.). Other diodes are used to control the flow of current in a circuit as required. Resistors may also be installed in sockets P7 through P12 (3).

Diode Testing

Refer to the electrical schematic in Section R of this manual for the specific circuit and diode to be tested.

If a diode failure is suspected, remove and check the diode as follows:

1. Grasp the diode connector, compressing the locking "ears" while pulling the connector off the board. Note the connector "key" used to ensure correct polarity.

NOTE: Some digital multimeters are designed to test diodes. If this type is used, follow the manufacturer's instructions for proper test.

2. An analog ohmmeter can be used to test the diode as follows:
   a. Place the meter on the "X100" scale.
   b. With the red meter lead (+) on the banded end of the diode and the black lead (-) on the other diode lead, the meter should read between 1000 and 2000 ohms.
   c. Reverse the meter leads and read infinite resistance.
3. If no resistance is read on the meter, the diode is open and must be replaced.
4. If the meter reads zero ohms, the diode is shorted and must be replaced.
5. Orient the diode assembly for proper polarity ("key" noted in step 1.) and insert connector until locked in position on mating receptacle.

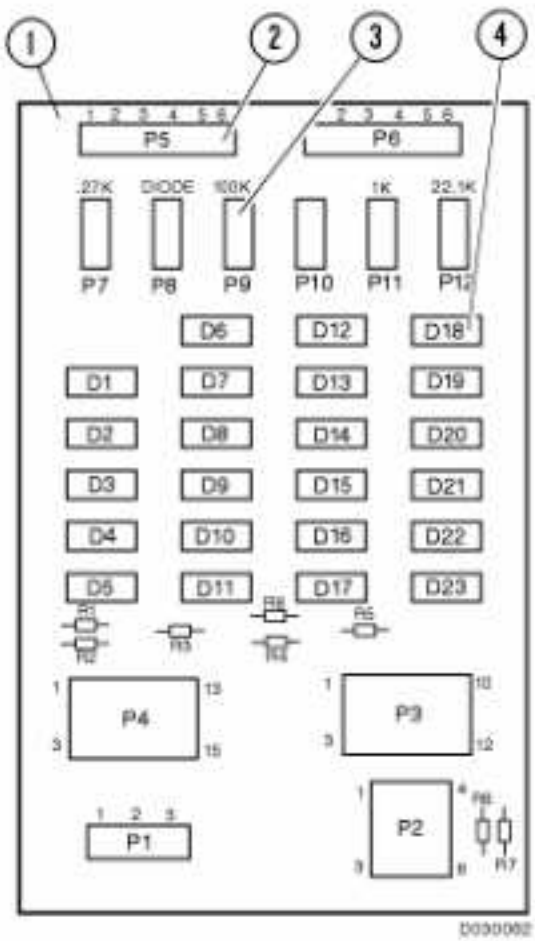


FIGURE 3-7. DIODE BOARD 1

1. Diode Board (DB1)
2. Connectors (P1 - P6)
3. Sockets (P7 - P12)
4. Diodes (D1 - D23)

CIRCUIT BREAKERS

Table I on the following page lists the circuit breakers on the truck, their function and location.

Additional circuit information can be found in Section "R", Electrical Schematics.

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Caliper, Disc, And Parking Brake Installation

1. If removed, install adapter (2, Figure 6-3A) and secure in place with capscrews and flatwashers (3). Tighten capscrews to standard torque.
2. Install two 7/8 9 UNC - 14 in. studs in two center caliper mounting capscrew holes (in place of capscrews 13). Install spacer (15) and secure in place with two 0.875 - 9 UNC - 2.5 in. capscrews and two flat washers. Tighten capscrews securely, but not to final torque.
3. Install inboard disc (12) with four equally spaced capscrews with flatwashers. Tighten capscrews, but do not tighten to final torque at this time.
4. Measure and record distance from inner caliper mount surface (on spacer 15) to inside face of inner brake disc (12), Dimension "A", Figure 6-3A.

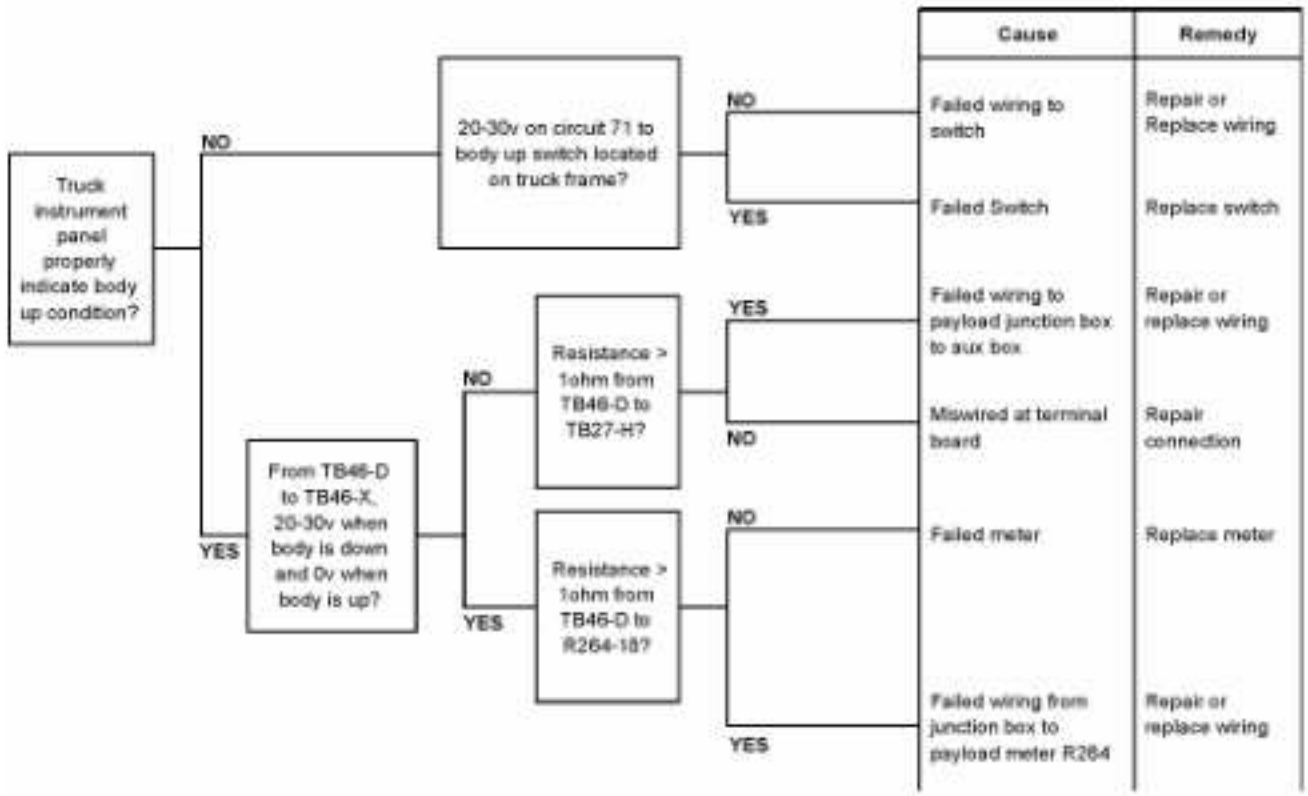
NOTE: All measurements in the following references are inches, unless otherwise stated.

5. Subtract dimension "A" from 4.375 in. The difference is shim pack thickness to be placed between inner disc (12) and one-piece disc adapter (16).
6. Refer to *"Shim Pack Chart"* and select shim pack as follows:
   Example: If result found in Step 5 is 0.051", then 0.051 is between 0.045 - 0.055 in Shim Pack Chart. This range indicates one 0.010 in. shim and one 0.040 in. shim is required to provide correct shim pack thickness.
7. Remove disc mounting capscrews (11) and inner disc (12).
8. Remove the two 0.875 - 9 UNC - 2.5 in. capscrews securing spacer (15).
9. Install inner brake caliper half (14) over the two studs and spacer (15).
10. Install shim pack (7), determined in Step 5, on inner one-piece disc adapter (16) and install inner disc (12) with bushing (8).
11. Install all capscrews and flatwashers (11) to inner disc. Tighten capscrews (11) to standard torque.
12. Install outer brake caliper half (14) and two capscrews and flatwashers (13).
13. Remove the two studs in the center and install two capscrews (13) and hardened flatwashers. Tighten all capscrews (13) to standard torque.
14. Install outer disc adapter (10). Install capscrews and flat washers (9). Tighten 12 point head capscrews (9) to standard torque.
15. Install two 7/8 UNC-14 in. studs in the two center caliper mounting capscrew holes for the upper brake caliper (5).
16. Install park brake bracket (4) over the two studs and secure in place with two 0.875 - 9 UNC - 2.5 in. capscrews and two flat washers. Tighten capscrews securely, but not to standard torque.
17. Install outboard disc (12) with four equally spaced mounting capscrews (11). Tighten, but do not tighten to final torque at this time.
18. Measure distance from outer face of park brake bracket (4) [caliper mounting surface] to inner face of outboard disc (Dimension "B", Figure 6-3A).
19. Subtract distance determined in Step 18 from 4.375 in (11.113 cm). This difference is the shim pack thickness to be placed between adapter (10) and outer brake disc (12).
20. Make up shim pack from Shim Pack Chart.
21. Remove capscrews (11) and outer disc (12).
22. Install the shim pack (7) determined in Step 19 between outboard disc (12) and adapter (10).
23. Install outboard disc (12) with bushing (8). Install capscrews and flatwashers (11). Tighten capscrews (11) to standard torque.
24. Install outboard caliper half (5) and secure in place with the outer capscrews and flatwashers (6). Remove the two studs in the center holes and install the remaining two capscrews (6) with washers. Tighten capscrews (6) to standard torque.
25. Install linings (Refer to "Lining Replacement").
26. Install bleeders in both calipers. Install crossover tubes and brake lines.
27. Install park brake caliper, refer to "Park Brake Caliper Installation".
28. Brakes must be bled and burnished before truck is returned to production. Refer to "Bleeding" and "Service Brake Conditioning" procedure.

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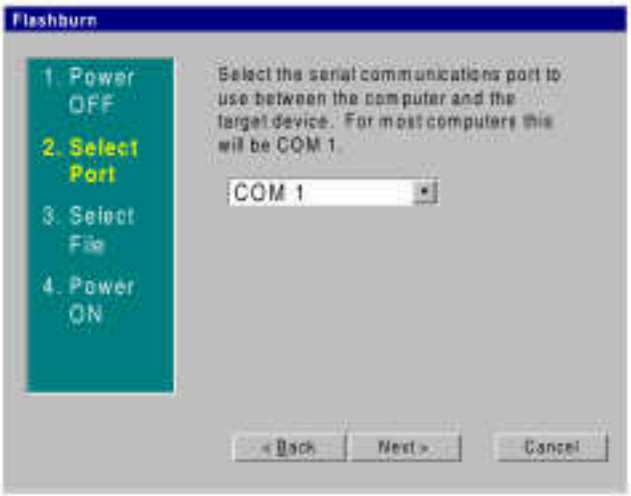
Alarm 13 - Body Up Input Failure

The payload meter senses when the load is dumped without receiving a body-up signal. When the load quickly drops below 50% without the body up signal, Alarm 13 is set. The alarm will be cleared when a normal dump cycle is detected. A normal dump cycle will be detected when the body up signal is received, the load drops quickly and the body down signal is received.

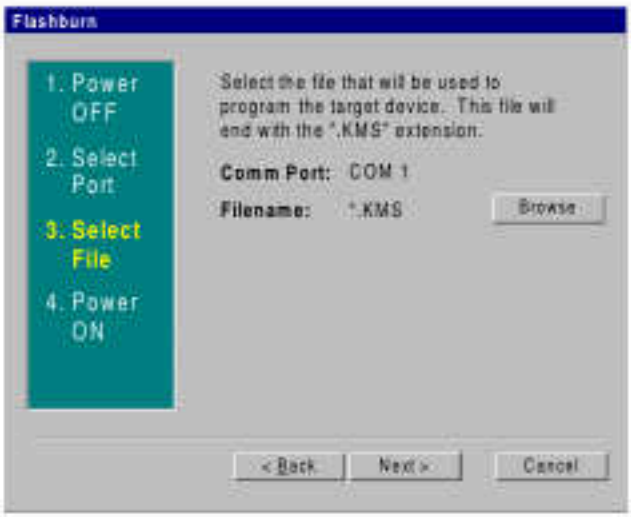


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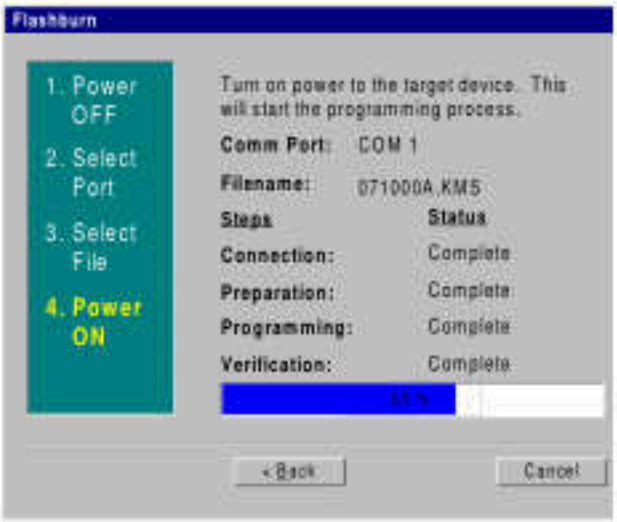
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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



6. When instructed, turn the keyswitch "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 keyswitch "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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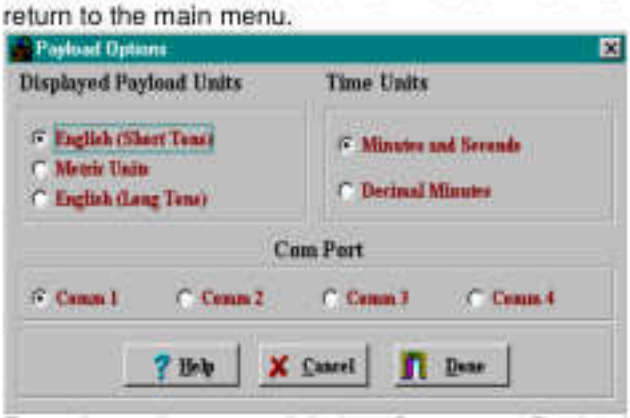
PLMIII System Configuration

Starting Communications

The PDM software allows users to download and configure the system.



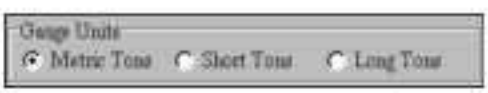
Before connecting to the payload meter, select "Change Program Options" and confirm that the program has selected the correct laptop serial port. Most laptops use Comm 1 for serial communications. The units displayed for reports and graphs by the PC software can be set on this form. Click "Done" to return to the main menu.



From the main menu, click the "Connect to Payload Meter" button. The PC will try to connect to the payload meter and request basic information from the system. In the event of communications trouble, the PC will try 3 times to connect before "timing-out". This may take several seconds.

Displayed Payload Units

Three options are available for the display of units in the PC software, reports, and graphs:



Short Tons: Payload is displayed in short tons, distances and speeds will be displayed in Miles

Metric Tons: Payload is displayed in metric tons, distances and speeds are displayed in Kilometers

Long Tons: Payload is displayed in long tons, distances and speeds are displayed in Miles

Time Units

Minutes and Seconds Example:
Five minutes and thirty-two seconds = 5:32
Decimal Minutes Example:
Five minutes and thirty-two seconds = 5.53

Connection Menu

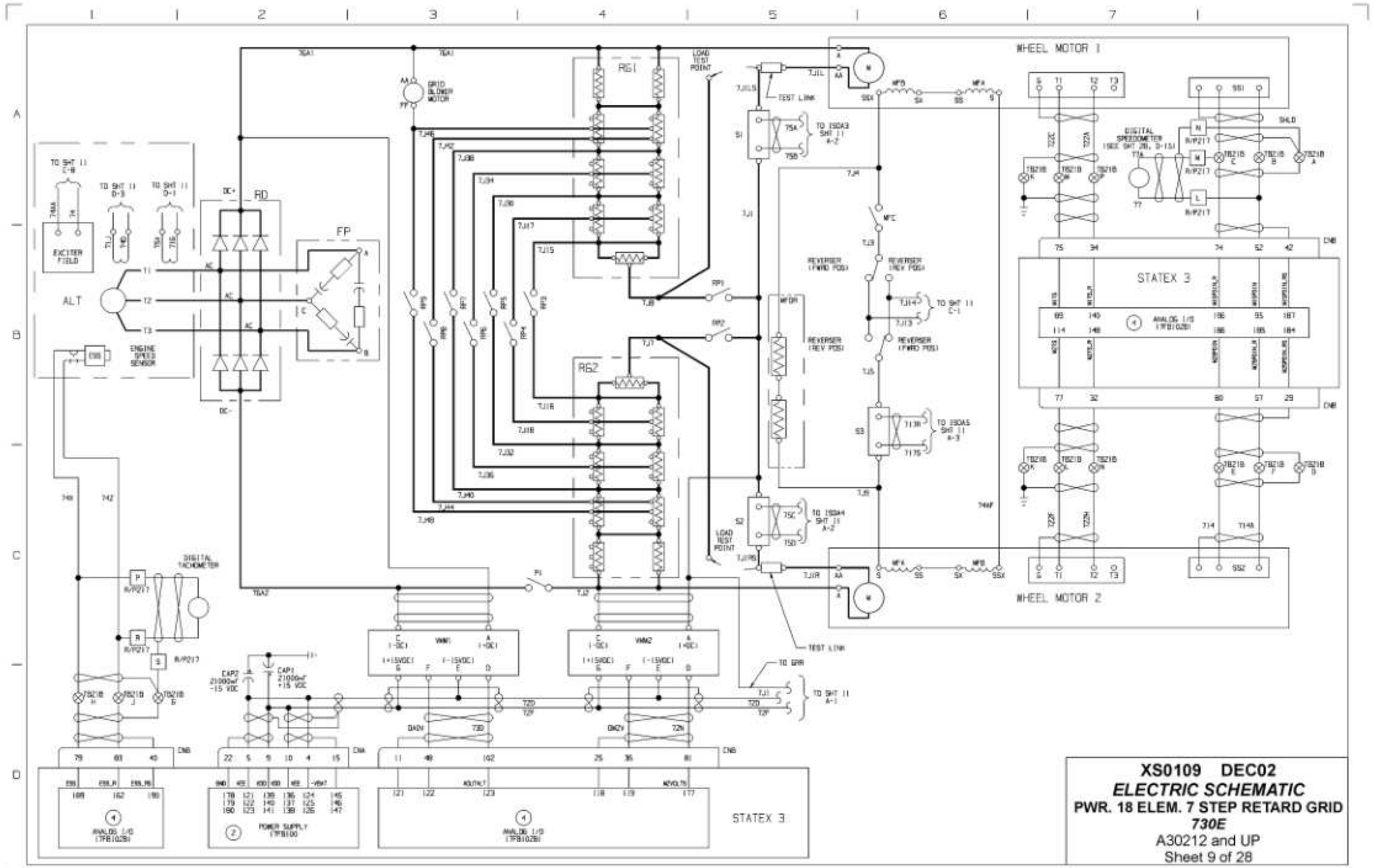


The connection screen displays basic system information to the user.

- Frame S/N should agree with the truck serial number from the serial plate located on the truck frame.
- Truck Number is an ID number assigned to the truck by the mine.
- The Payload Meter Date / Time values come from the payload meter at the moment of connection.
- Number of Haul Cycle Records is the number of haul cycles records stored in memory and available for download.
- Number of Active Alarms shows how many alarms are currently active in the system at the time of connection. If there are active alarms, the "Display Active Alarms" button is available.
- Number of Inactive Alarms shows how many alarms have been recorded in memory and are available for download.
- PLM Software Version displays the current version of software in the payload meter.

The information on the connection menu comes from the configuration of the payload meter system on the truck.

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