CEBM008900

Shop Manual

830E

DUMP TRUCK

SERIAL NUMBERS **A30662, A30677 thru A30688**

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TABLE OF CONTENTS

SUBJECT	SECTION
GENERAL INFORMATION	A
STRUCTURES	B
ENGINE, FUEL, COOLING AND AIR CLEANER	C
ELECTRIC SYSTEM (24 VDC. NON-PROPULSION)	D
ELECTRIC PROPULSION AND CONTROL	E
DRIVE AXLE, SPINDLES AND WHEELS	G
HYDRAIR® II SUSPENSIONS	H
BRAKE CIRCUIT	J
HYDRAULIC SYSTEM	L
OPTIONS AND SPECIAL TOOLS	M
OPERATOR'S CAB	N
LUBRICATION AND SERVICE	P
ALPHABETICAL INDEX	Q
SYSTEM SCHEMATICS	R

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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.

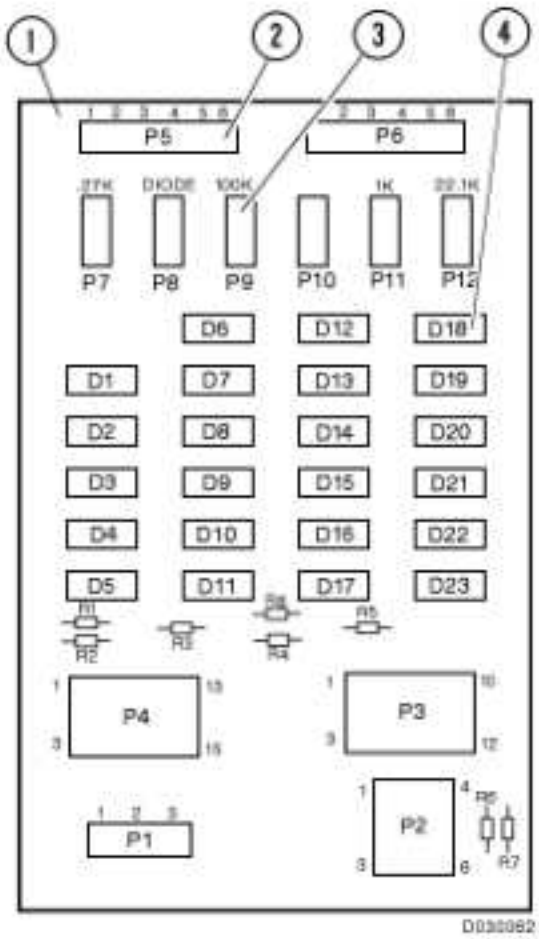


FIGURE 3-8. DIODE BOARD 1

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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HYDRAULIC BRAKE ACCUMULATORS

There are two hydraulic brake accumulators located on the brake manifold in the brake control cabinet behind the operator's cab. The larger accumulator [2.5 gal. (9.51 l) capacity] supplies the pressure necessary for actuation of the front service brakes. The small accumulator [1 gal. (3.79 l) capactiy] supplies pressure to activate the rear service brakes.

⚠DANGER

Accumulators maintain high pressure. DO NOT disconnect any hydraulic line from the accumulators or brake system until all hydraulic pressure has been manually drained from accumulators. Open manual drain valves located on the brake manifold in the brake cabinet to drain pressurized oil. The manual bleeddown valve for the rear accumulator is identified as "NVR". The manual bleeddown valve for the front accumulator is identified as "NVF".

Brake Accumulator Bleed Down Procedure

The brake accumulators can be bled down by rotating the manual bleeddown valves (NVR and NVF) counterclockwise. The valves are located on the brake manifold in the hydraulic brake cabinet.

1. Turn handles counterclockwise to open valves.
2. Confirm accumulators are bled down by applying the "Brake Lock" switch (key switch "On", engine shut down) and applying service brake pedal. The service brake light should not come on.
3. Close the bleeddown valves by rotating clockwise.

Removal

1. Shut down engine and exhaust all hydraulic pressure from the system by opening accumulator manual drain valves.
2. Remove the valve guard and "Dyna-seal" from top of accumulators.
3. Depress valve core to release gas precharge pressure from accumulator bladder. (Refer to Figure 3-13).
4. Remove accumulator mounting bracket. Loosen and remove accumulator from the brake manifold. Plug opening on brake manifold to prevent contamination.
5. Transfer accumulator to work area.



82028

FIGURE 3-13. VALVE CORE REMOVAL

Installation

1. After service repairs or bench test has been completed, move the accumulators to the brake control cabinet. DO NOT precharge accumulators on the bench test.
2. Position the accumulators on the brake manifold. Tighten fittings securely. Install mounting brackets. Secure mounting brackets in place with capscrews and lockwashers. Tighten capscrews to standard torque.
3. Refer to "Charging Procedure" in this section.
4. Replace "Dyna-seal" and valve guard on top of accumulators.

Disassembly

1. Securely clamp accumulator (preferably in a chain vise). Make sure accumulator shell is suitably protected by strips of padding or soft metal on vise base.
2. Remove core from gas valve using valve core tool. (Refer to Figure 3-13).
3. Remove pipe plug from plug & poppet assembly.
4. Remove locknut from plug and poppet assembly using a spanner wrench and an adjustable wrench. One for torque and one for counter-torque. (Refer to Figure 3-14).
5. Remove spacer, Figure 3-15.
6. With palm of hand, push plug and poppet assembly into the shell.
7. Insert hand into shell and remove O-ring, washer and anti-extrusion ring from plug. Fold anti-extrusion ring to enable removal. (Refer to Figure 3-16).
8. Remove plug and poppet assembly from shell. (Refer to Figure 3-17.)

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TROUBLESHOOTING BY MANIFOLD GAUGE SET READINGS

PROBLEM: Insufficient Cooling

Indications:

Low side pressure - LOW.
High side pressure - LOW.
Discharge air is only slightly cool.

Possible Causes	Suggested Corrective Actions
- Low refrigerant charge, causing pressures to be slightly lower than normal.	Check for leaks by performing leak test. ***If No Leaks Are Found:*** Recover the refrigerant and use a scale to charge the proper amount into the system. Check system performance. ***If Leaks Are Found:*** After locating the source of the leak, recover the refrigerant, and repair the leak. Evacuate the system and recharge using a scale. Add oil as necessary. Check AC operation and perform-ance test the system.

PROBLEM: Little or No Cooling

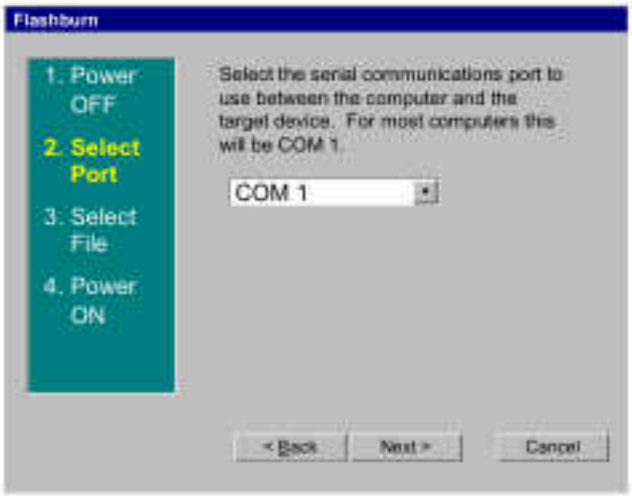
Indications:

Low side pressure - VERY LOW
High side pressure - VERY LOW
Discharge air is warm.
No bubbles observed in sight glass, may show oil streaks.

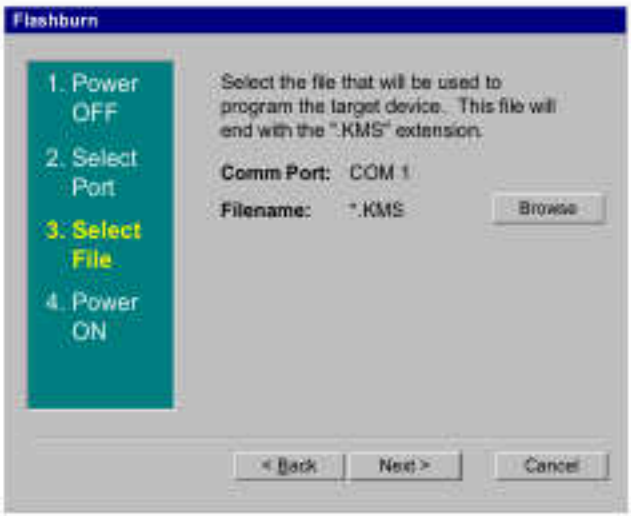
Possible Causes	Suggested Corrective Actions
- Pressure sensing switch may have compressor clutch disengaged. - Refrigerant excessively low; leak in system.	Add refrigerant (make sure system has at least 50% of its normal amount) and leak test system. It may be necessary to use a jumper wire to enable the compressor to operate, if the com-pressor has shut down due to faulty pressure sensing switch. Repair any leaks and evacuate the system if necessary. Replace the receiver-drier if the system was opened. Recharge the system using a scale and add oil as necessary. Check AC operation and do system performance test.

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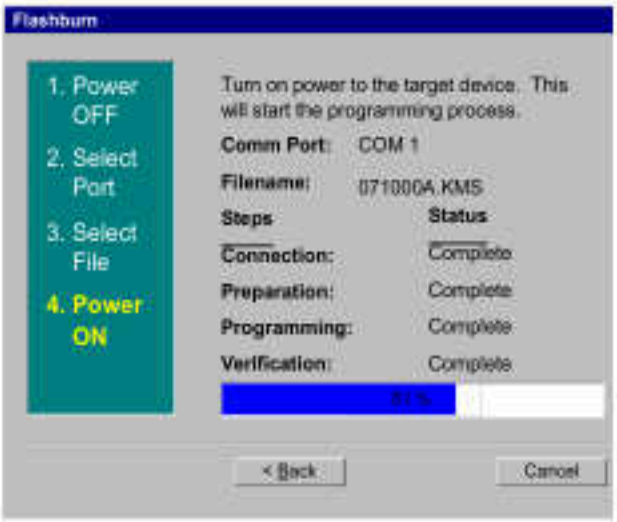
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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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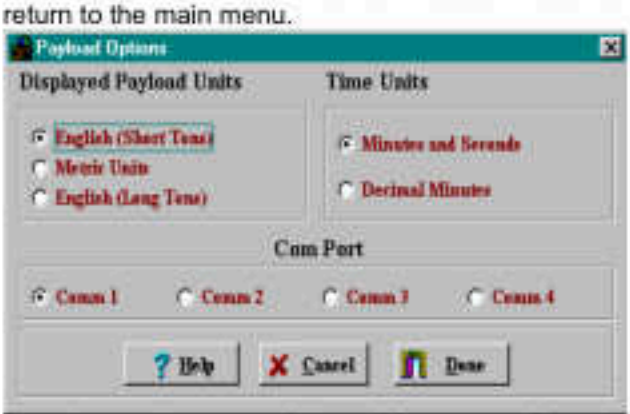
PLMIII System Configuration

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



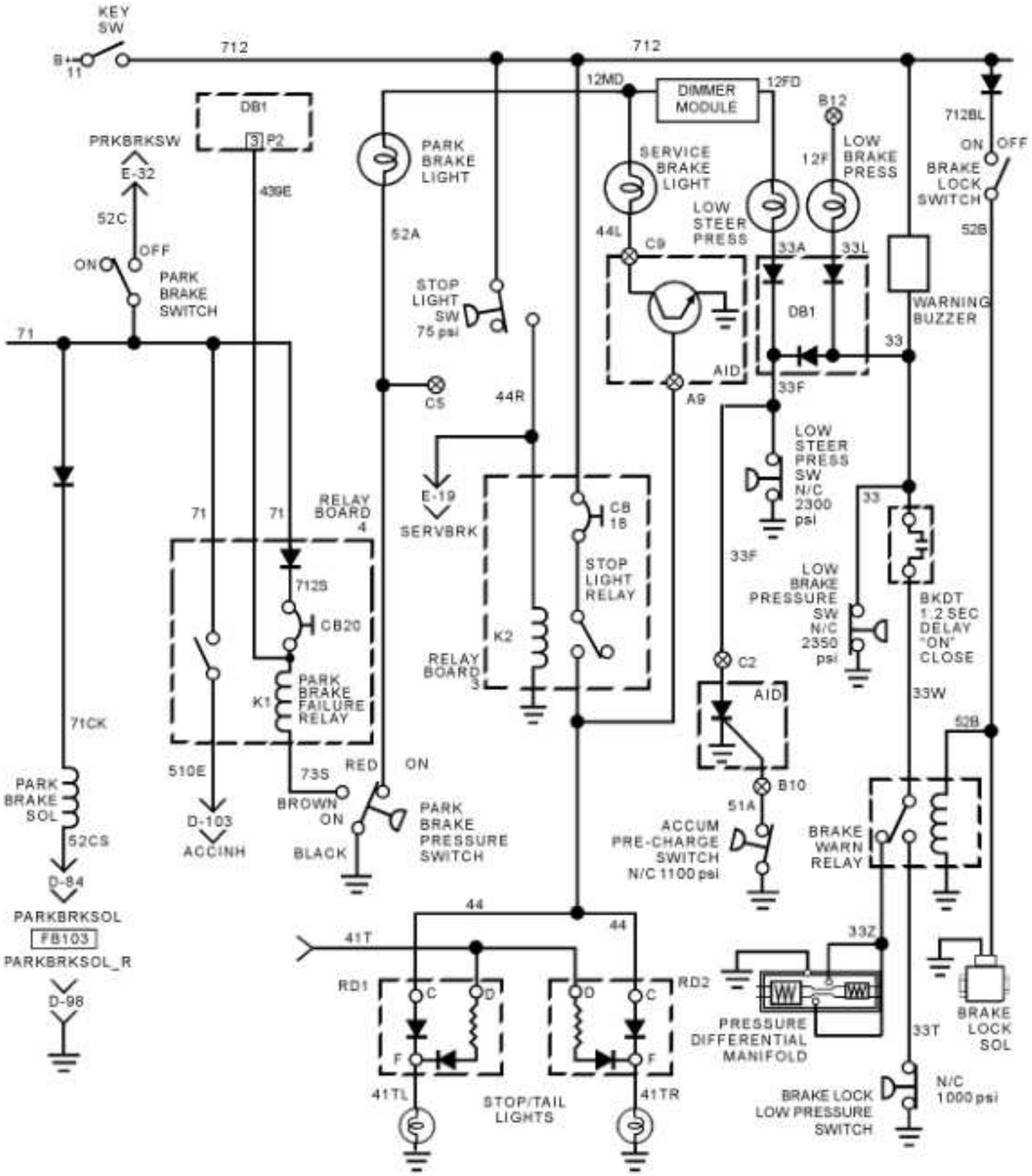
The connection screen displays basic system information to the user.

- 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.

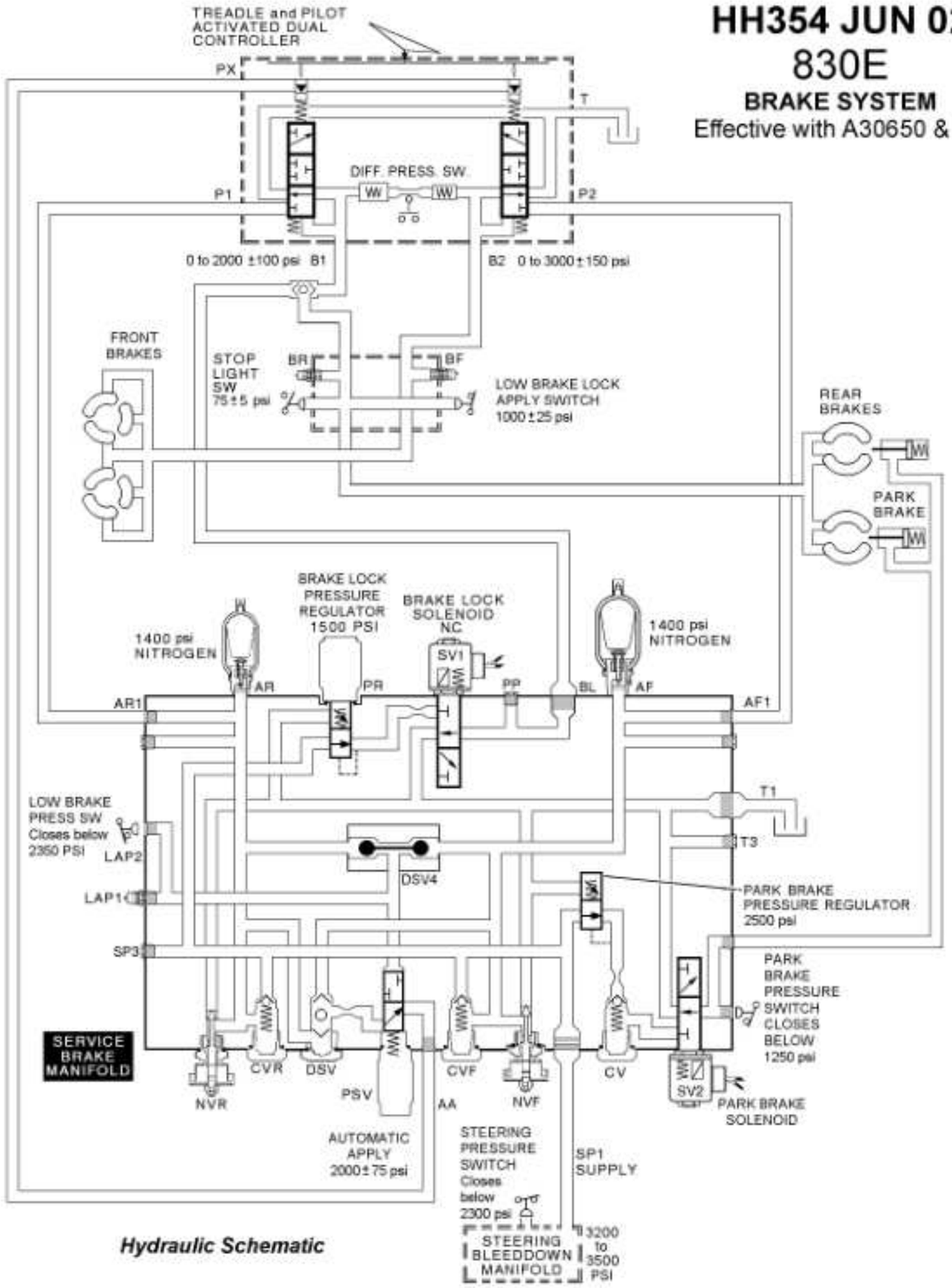
The information on the connection menu comes from the configuration of the payload meter system on the truck.

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BRAKE SYSTEM
Effective with A30650 & Up



Electrical Schematic



Hydraulic Schematic

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