Shop Manual

CEBM010900



730E

DUMP TRUCK

SERIAL NUMBER A30212 - A30218

KOMATSU®

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STEERING CIRCUIT FILTER

The brake and steering circuit filter (Figure 9-2) is mounted to the inboard side of the fuel tank. The filter provides secondary filtering protection for hydraulic oil flowing to the bleeddown manifold valve for the steering and brake systems.

An indicator switch (1) is designed to alert the operator of filter restriction before actual bypass occurs. The switch contacts close at 40 psi (275 kPa) to actuate a warning lamp on the overhead display panel. Actual filter bypass occurs at 50 psi (345 kPa).

NOTE: When the engine is initially started and the hydraulic oil is cold, the warning lamp may actuate. Allow the hydraulic system oil to reach operating temperature before using the warning lamp as an indicator to change the element.

Refer to Section P, *"Lubrication and Service"* for recommended normal filter element replacement interval. Earlier replacement may be required if the restriction indicator lamp turns on.

Premature filter restriction may indicate a system component failure and signal a service requirement before extensive secondary damage can occur.

NOTE: An early indication of the filter warning light at first installation may be due to restriction in the filter as it cleans the system. Unless the fluid appears contaminated or has a strong foul odor, do not change the oil; replace only the filter element.

FILTER ELEMENT REPLACEMENT

⚠WARNING

Relieve pressure before disconnecting hydraulic and other lines. Tighten all connections before applying pressure.

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin and cause serious injury and possibly death if proper medical treatment by a physician familiar with this injury is not received immediately.

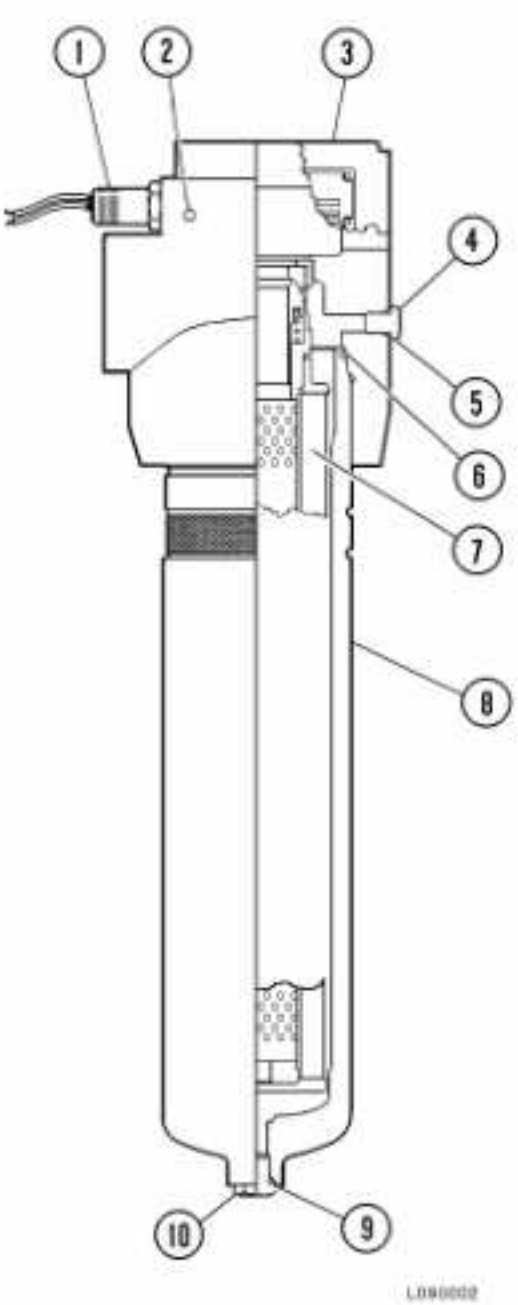


FIGURE 9-2. STEERING CIRCUIT FILTER

1. Indicator Switch
2. Setscrew
3. Head
4. Bleed Plug
5. O-Ring
6. O-Ring
7. Filter Element
8. Bowl
9. O-Ring
10. Drain Plug

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TRINARY™ SWITCH

This switch is mounted on the receiver-drier and has three functions, as implied by the name:

1. Disengage the compressor clutch when system pressure is too high.
2. Disengage the compressor clutch when system pressure is too low.
3. Engage and disengage the radiator fan drive clutch during normal variation of system pressure.

The Trinary™ switch performs three distinct functions to monitor and control refrigerant pressure in the system. This switch is installed on the receiver-drier. The switch functions are:

Terminals 1 & 2 are connected internally through two, normally closed pressure switches in series, the low pressure switch and the high pressure switch.



Terminals 3 & 4 are connected internally through a normally open switch that is used to control the clutch that drives the radiator fan. This switch closes and causes the cooling fan clutch to engage when system pressure rises to 200 - 230 psi. When pressure falls to 140 - 195 psi, the switch contacts open, and the cooling fan clutch disengages

- Low Pressure - This switch opens and disengages the compressor clutch if system pressure drops into the 15 -30 psi range. When pressure rises above 40 psi, the switch contacts close, and the clutch engages the compressor. Since temperature has a direct effect on pressure, if the ambient temperature is too cold, system pressure will drop below the low range, and the pressure switch will disengage the clutch.
- Fan Clutch - The mid-range function actuates the engine fan clutch, if installed.
- High Pressure - This switch opens and disengages the compressor clutch if system pressure rises above the 300 - 350 psi range. After system pressure drops to 210 - 250 psi, the switch contacts will close and the clutch will engage.

The switch functions will automatically reset when system pressure returns to normal.

	OPENS	CLOSES
Low Pressure	15-30 psi - descending pressure	40 psi - rising pressure
High Pressure	300-350 psi	210-250 psi
Fan Clutch	35-60 psi - below closing pressure	200-230 psi - rising pressure

⚠ IMPORTANT ⚠

The pressures listed above are typical of pressures at the receiver-drier. Due to normal system flow losses and the distance between the service port and the receiver-drier, it is expected that actual system pressure displayed on the gauge will normally be approximately 20 psi higher. This factor should be observed when checking for proper operation of the switch.

NOTE: One other pressure controlling device is installed within the compressor. A mechanical relief valve is located on the back of the compressor. The relief valve will open at 500 - 550 psi. The purpose of this valve is to protect the compressor in the event that pressure should be allowed to rise to that level. Damage to the compressor will occur if pressure exceeds 550 psi.

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C2. Circuit Breaker Tripped

This lamp will illuminate if any of the circuit breakers on the relay circuit boards are tripped.

Refer to Section D for relay board troubleshooting and repair procedures and Section R for electrical schematics.

D2. Hydraulic Oil Filter Monitor

The filter monitor warning light will illuminate if the hoist system or steering system hydraulic filter restriction reaches 40 psi (276 kPa), indicating filter replacement is required. Actual filter bypass will occur at 50 psi (345 kPa). Refer to Section M for filter element replacement.

NOTE: The filter monitor warning light may also illuminate after the engine is initially started if the oil is cold. If the light turns off after the oil is warmed, filter maintenance is not required.

E2. Low Fuel (optional)

The AMBER low fuel indicator will illuminate when the usable fuel remaining in the tank is approximately 25 gallons (95 liters). A warning buzzer will also sound.

A3. Parking Brake

The AMBER parking brake indicator will illuminate when the parking brake is applied. Do not attempt to drive the truck with the parking brake applied.

B3. Service Brake

The AMBER service brake indicator light will illuminate when the service brake pedal is applied or when the wheel brake lock or emergency brake is applied. Do not attempt to drive truck from stopped position with service brakes applied.

C3. Body Up

The AMBER body up indicator, when illuminated, shows that the body is not completely down on the frame. The truck should not be driven until body is down and the light is off.

D3. Dynamic Retarding

The AMBER dynamic retarding indicator light illuminates when the retarder pedal is operated, RSC (Retard Speed Control) is activated, or the automatic overspeed retarding circuit is energized, indicating the dynamic retarding function of the truck is operating.

E3. Stop Engine

The RED engine monitor warning light will illuminate if a serious engine malfunction is detected in the electronic engine control system. Electric propulsion to the wheel motors will be discontinued and maximum engine speed will be reduced to 1250 RPM.

Dynamic retarding will still be available to slow the truck.

⚠WARNING

If this lamp illuminates, the operator should stop the truck as quickly as possible in a safe area, apply the parking brake, and SHUT DOWN THE ENGINE IMMEDIATELY. Additional engine damage is likely to occur if operation is continued.

A4. Blank (Reserved for future use)

B4. Manual Backup Lights

The AMBER indicator will illuminate when the manual backup switch is turned on.

C4. Engine Shutdown Timer - 5 Minute Idle

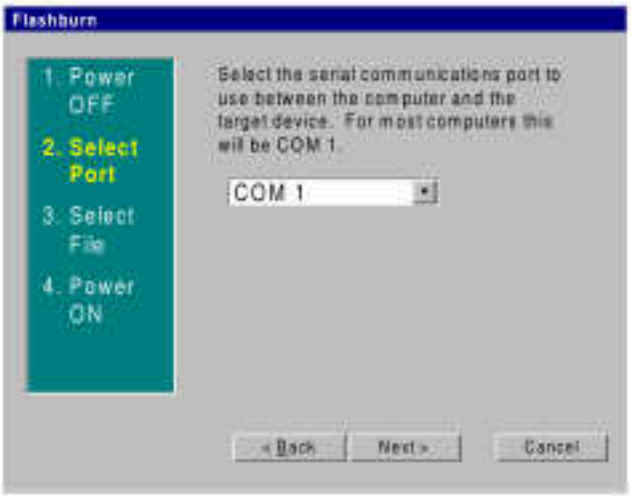
When the engine shutdown timer switch has been activated, the indicator light will illuminate to indicate the shutdown timing sequence has started.

D4. Retard Speed Control Indicator

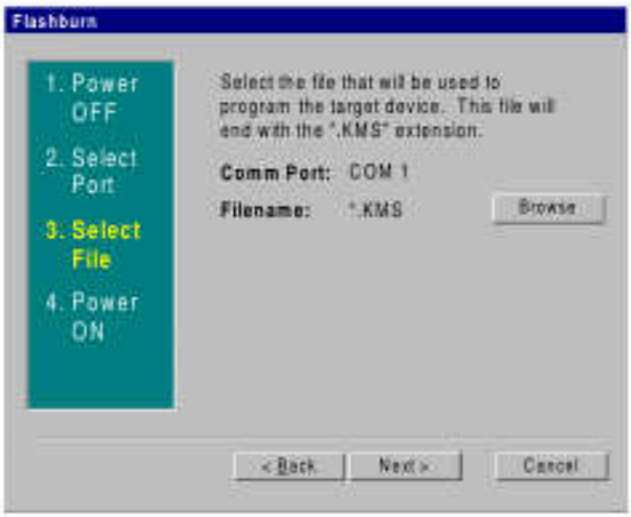
The AMBER light is illuminated when the RSC switch mounted on the console is pulled out to the "On" position.

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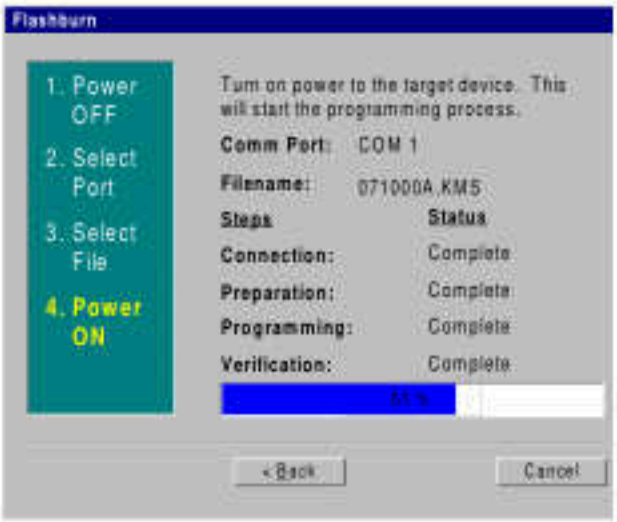
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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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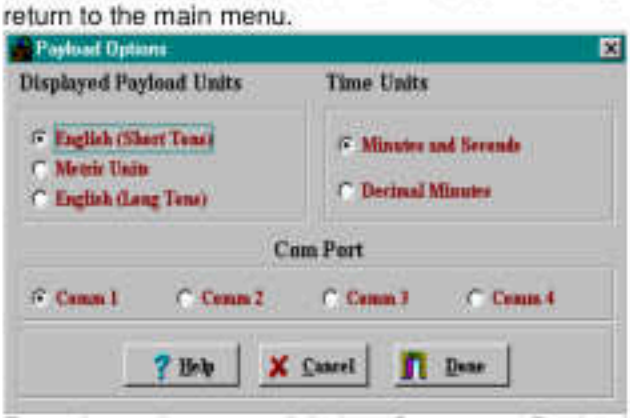
PLMIII System Configuration

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

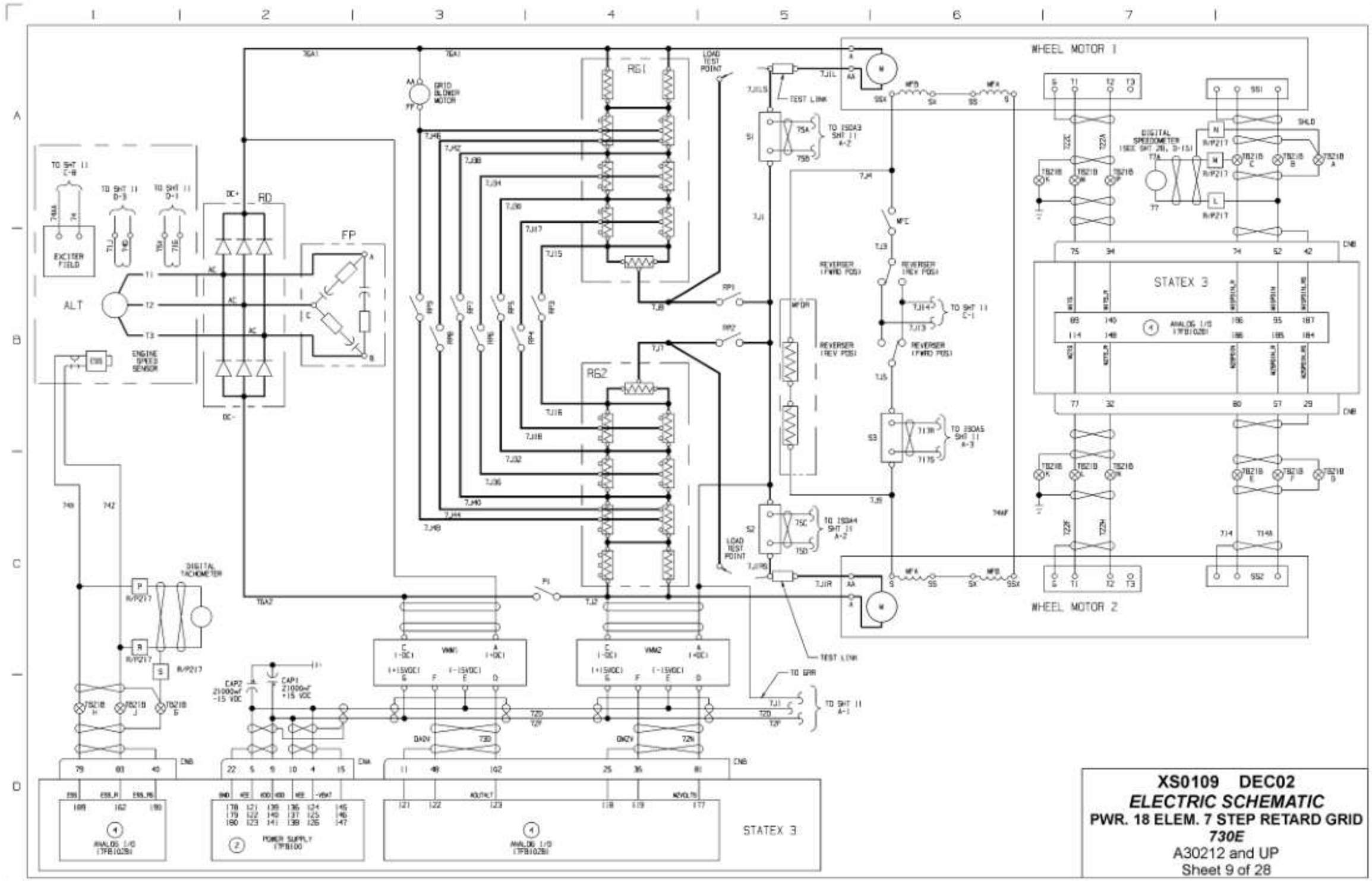


The connection screen displays basic system information to the user.

- 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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