CEBM008601

Shop Manual

830E

DUMP TRUCK

SERIAL NUMBERS **A30650 - A30661**
A30663 - A30676

KOMATSU®

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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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SECTION A
GENERAL INFORMATION
INDEX

MAJOR COMPONENTS & SPECIFICATIONS A2

SAFETY AND OPERATION A3

WARNINGS AND CAUTIONS. A4

STANDARD TABLES. A5

STORAGE PROCEDURES. A7

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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 ohmeter 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.

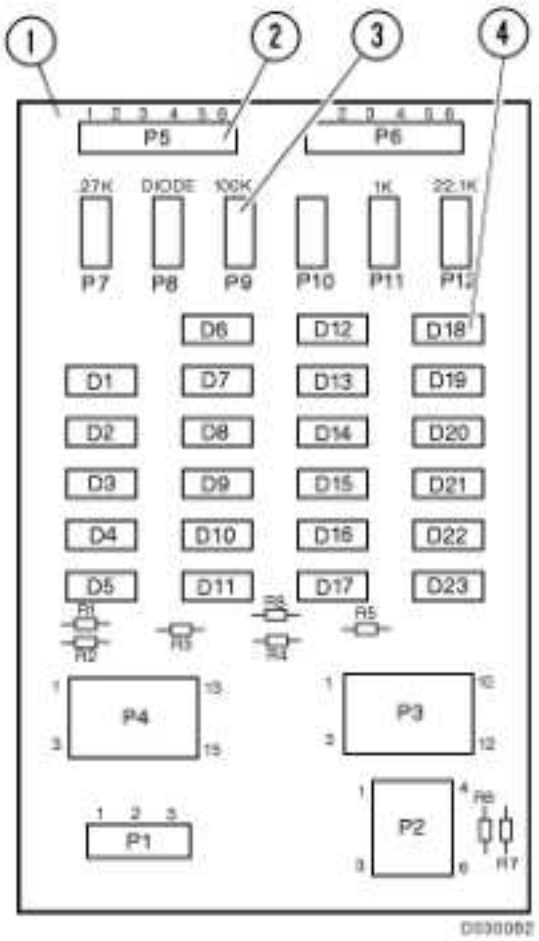


FIGURE 3-8. DIODE BOARD 1

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

CIRCUIT BREAKERS

The chart 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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"TURN-OF-THE-NUT" Tightening Procedure

a. Tighten all fourteen cap screws (1, 6, 8, Figure 2-3) to **400 ±40 ft .lbs. (542 ±5 N.m)** torque. Use a torque wrench of known calibration.

b. Maintain this torque on the top two corner cap screws and the bottom outer four cap screws (item 8, the 4 bottom cap screws with nuts).

c. Loosen the 8 remaining cap screws and then tighten again using "turn-of-the-nut" tightening procedure as follows:

d. For the four, 6.0 in. (15 cm) long cap screws (1, Figure 2-3) at the upper mount, tighten cap screws initially to **70 ft. lbs. (95 N.m)** torque; then advance cap screw head 60° using steps d-1.) through d-3.). Refer to Figure 2-5.

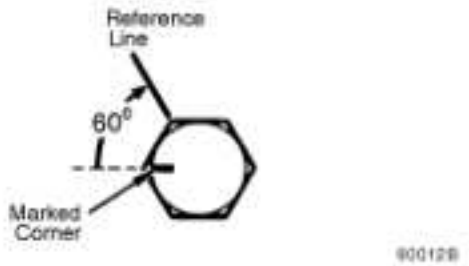


FIGURE 2-5. REFERENCE MARKS FOR 60° ADVANCE (6.0 in. Cap Screws)

For the four **inner,** 12.5 in. (32 cm) long cap screws (6, Figure 2-3), tighten cap screws initially to **150 ft. lbs. (203 N.m)** torque; then advance cap screw head 90° using steps d-1). through d-3). Refer to Figure 2-6.

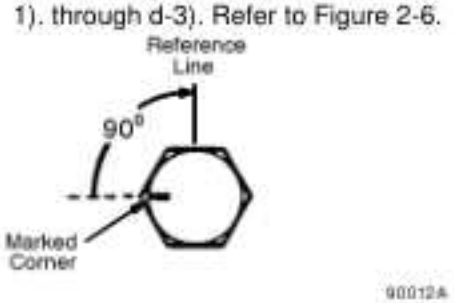


FIGURE 2-6. REFERENCE MARKS FOR 90° ADVANCE (12.5 in. Cap Screws)

1.) Mark a reference line on a corner of the hexagonal cap screw head or nut and the mounting surface opposite this corner as shown. Then mark the position located 60° or 90° clockwise relative to the first reference line on the mounting surface. Refer to Figures 2-5 and 2-6.

2.) To insure that the opposite end of the turning member, either the cap screw head or nut remains stationary, scribe a reference mark for this check.

3.) Each corner of a hexagon represents 60°. The turning members, either the cap screw head or nut, is turned until the marked corner is adjacent with the marked reference line. Check to make sure that the opposite end of the turning member has NOT turned during the tightening procedure. ***NOTE: Do not exceed 4 RPM tightening speed. Do not hammer or jerk wrench during the tightening procedure.***

e. Loosen the **top two** corner cap screws (1) and the bottom **outer four** cap screws (8, the 4 bottom cap screws with nuts).

1.) Tighten the top, two corner 6.0 in. (15 cm) cap screws to **70 ft. lbs. (95 N.m)** torque, then use "turn-of-the-nut" method to advance cap screw heads 60°.

2.) Tighten the bottom, outer four 12.5 in. (32 cm) cap screws to **150 ft. lbs. (203 N.m)** torque, then use "turn-of-the-nut" method to advance cap screw heads 90°.

NOTE: If for any reason, these fasteners need to be checked for tightness after completing the above procedure; loosen and inspect all 14 cap screws and repeat entire process, starting with cleaning and lubricating cap screws, washers, and nuts. In addition, the cap screw head will need to be appropriately marked to show an additional use.

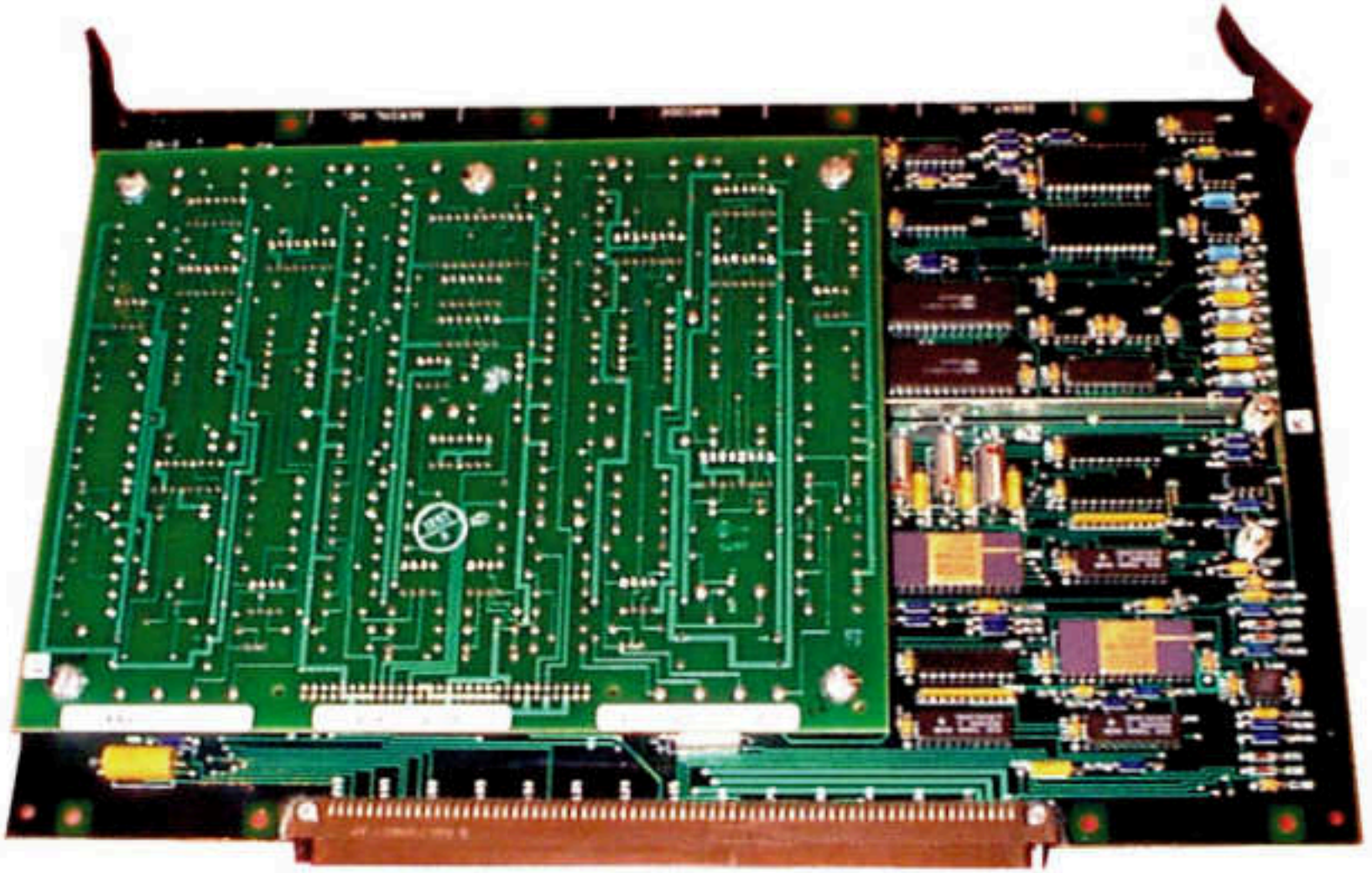
7. Charge suspension with dry nitrogen to fully extend suspension piston before installing front wheel hub and spindle.
8. Install wheel, spindle, and tire according to instructions in Section "G".
9. Service the suspension. For instructions refer to HYDRAIR®II *"Oiling and Charging Procedure"*.
10. Install suspension boot and secure with clamp.

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TROUBLESHOOTING CHART
(Steering Circuit)

Trouble	Possible Cause	Suggested Corrective Action
Slow steering, hard steering or loss of power assist	Overloaded steering axle.	Reduce axle loading.
	Malfunctioning relief valve. System pressure lower than specified.	Replace relief valve.
	Worn or malfunctioning pump.	Replace pump. See steering pump trouble-shooting chart.
Drift - Truck veers slowly in one direction	Rod end of cylinder slowly extends without turning the steering wheel.	A small rate of extension may be normal on a closed center system.
	Worn or damaged steering linkage.	Replace linkage and check alignment or toe-in of the front wheels.
Wander - Truck will not stay in straight line	Air in system due to low oil level, pump cavitation, leaking fittings, pinched hoses, etc.	Correct oil supply problem and/or oil leak-age.
	Loose cylinder piston.	Repair or replace defective components.
	Broken neutral position springs in steering control unit.	Replace neutral position springs.
	Improper toe-in setting.	Adjust.
	Bent linkage or cylinder rod.	Repair or replace defective components.
	Severe wear in steering control valve.	Repair steering control valve.
Slip - A Slow move-ment of steering wheel fails to cause any movement of the steered wheels	Leakage of cylinder piston seals.	Replace seals.
	Worn steering control valve.	Replace steering control valve.
Spongy or soft steering	Low oil level.	Service hydraulic tank and check for leak-age.
	Air in hydraulic system. Most likely air trapped in cylinders or lines.	Bleed air from system. Positioning ports on top of cylinder will help avoid trapping air.
Erratic steering	Air in system due to low oil level, cavitating pump, leaky fittings, pinched hose, etc.	Correct condition and add oil as necessary.
	Loose cylinder piston.	Repair or replace cylinder.
Free Wheeling - Steer-ing wheel turns freely with no back pressure or no action of the front wheels	Lower splines of column may be disengaged or damaged.	Repair or replace steering column.
	No flow to steering valve can be caused by: 1. Low oil level 2. Ruptured hose 3. Broken cardan shaft pin (steering unit)	 1. Add oil and check for leakage 2. Replace hose 3. Replace pin

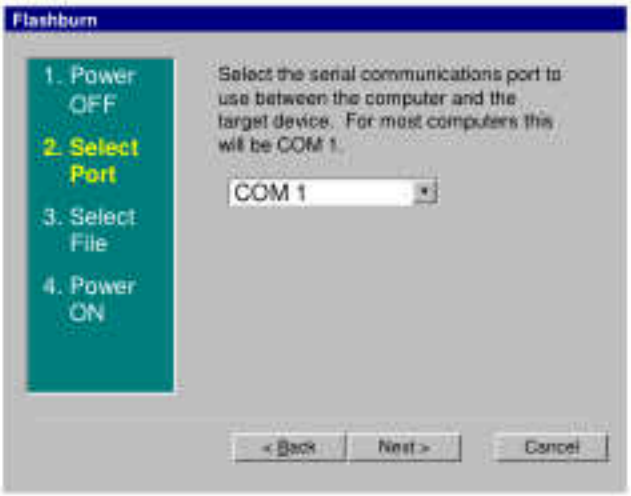
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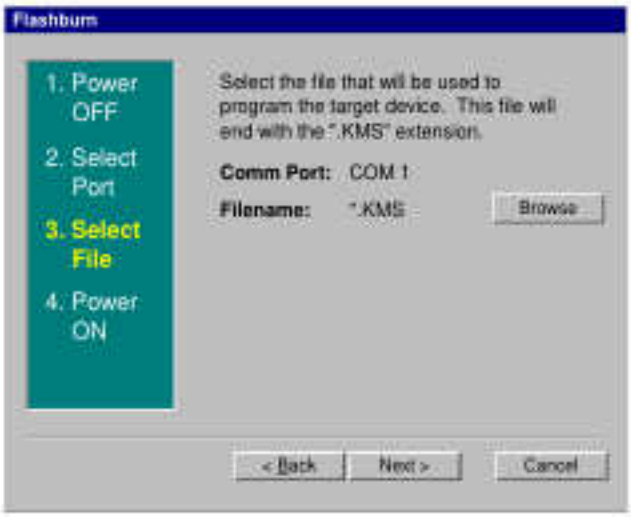
FB140/149 Analog I/O Card

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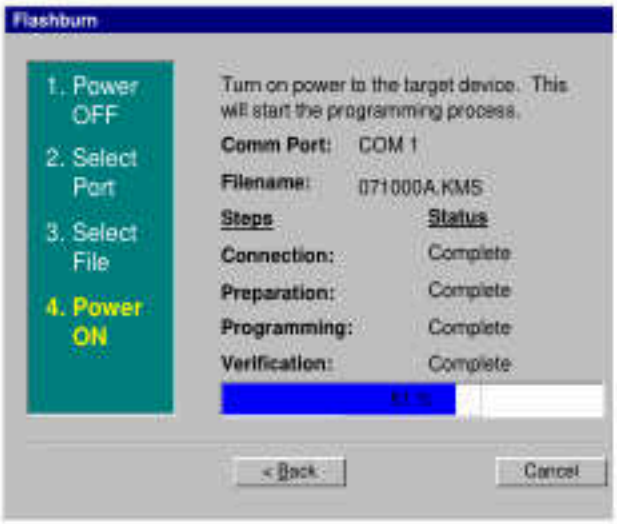
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



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

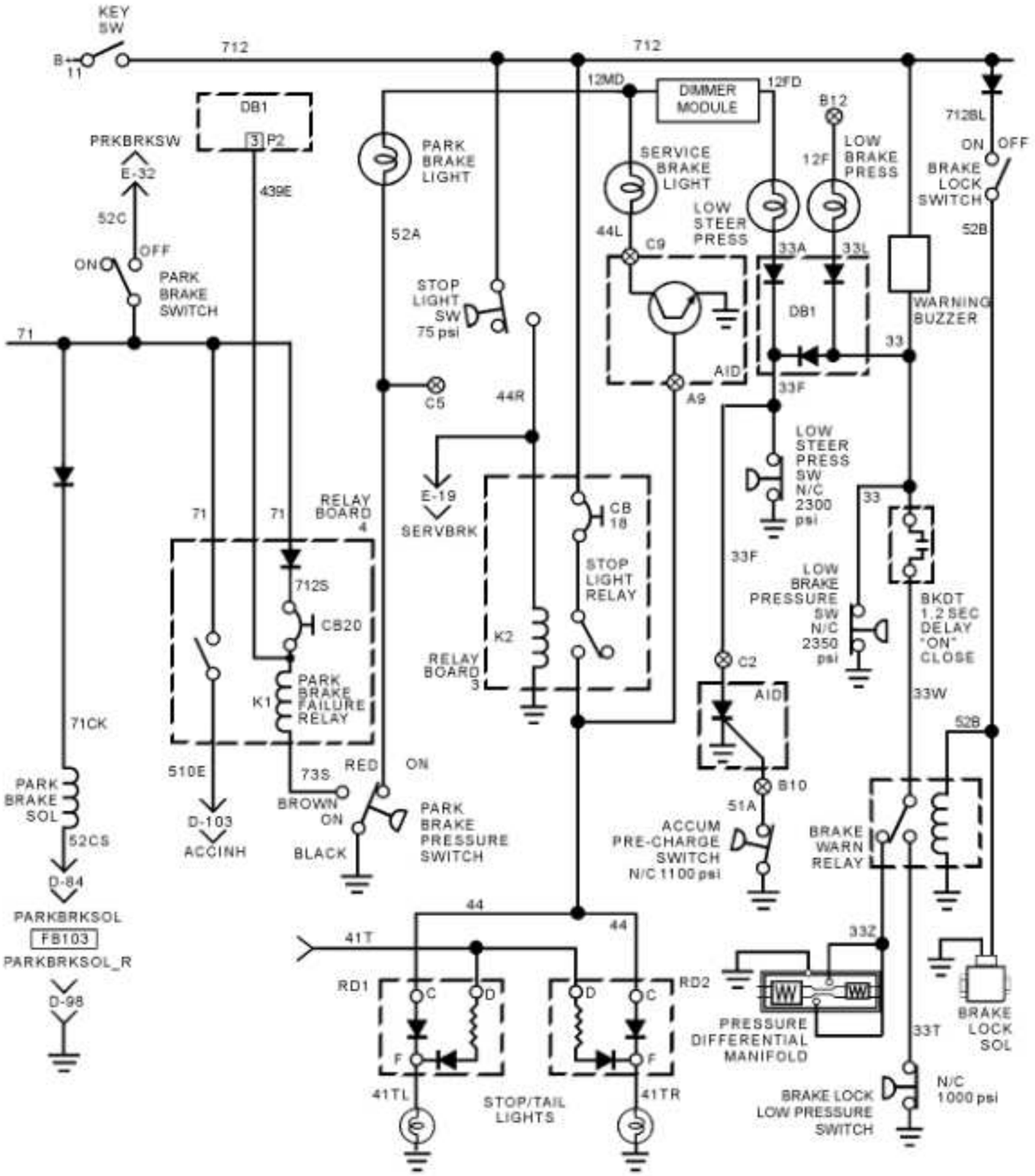


6. When instructed, turn the key switch ON in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.

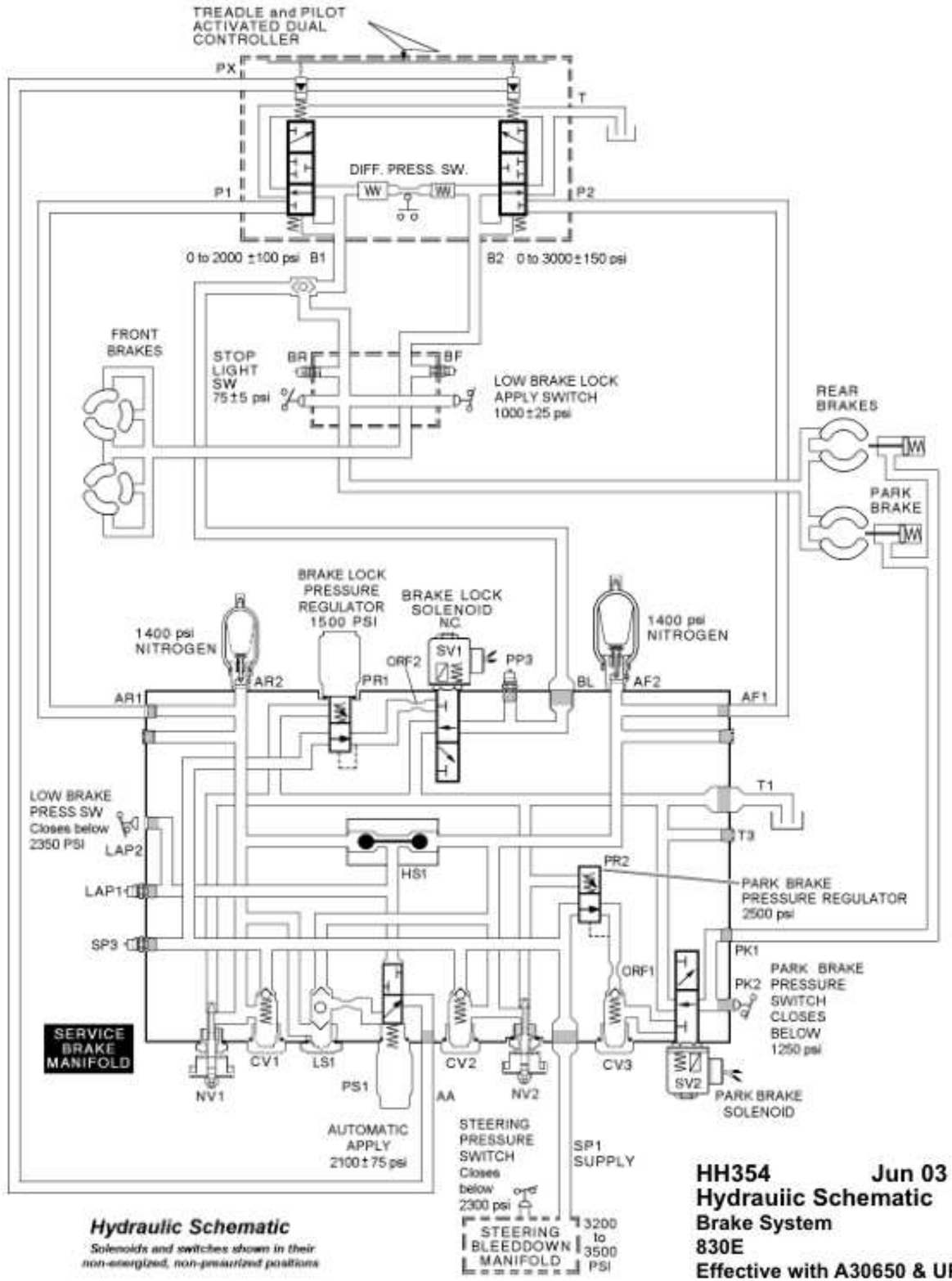


7. After successful programming, turn the key witch OFF.
8. Wait 20 seconds and turn the key switch ON.
9. The payload meter will need to be configured as instructed in the manual using the Payload Data Manager software on the laptop computer.

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Electrical Schematic



Hydraulic Schematic

Solenoids and switches shown in their non-energized, non-pressurized positions

HH354 Jun 03
Hydrauiic Schematic
Brake System
830E
Effective with A30650 & UP

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