

OPTOFORM[®] 40 - Power Supply Diagnosis

The Optoform[®] 40 has four power supplies (PWS1-PWS4). They are all panel mounted in the electrical cabinet. The Master Disconnect Switch controls PWS1. The Control Key Switch and relay CR1 control PWS2-PWS4.

PWS1 provides control power for the Relay Logic, Jog and System Control Boards, Optoisolator Board, and Solenoid Valves. It is a 12-volt, 65 watt, switching supply with a FNA 2 amp input fuse designated 3FU. When PWS1 is ON, relay 0CR is energized.

PWS2 supplies isolated analog power to the Limit Switches and Homeflag on each axis as well as the D/A converters that reside on the Servo Control Board. It is a ± 15 volt, 0.8 amp; linear supply with a FNA 5 amp input fuse designated 5FU.

PWS3 provides both analog and digital power to the Card Cage, Computer Boards, Touch Panel, Display, and Encoder Detector Boards. It also supplies digital power (+5v) to the Floppy Drive and Optoisolator Board. It is a ± 12 and +5 volt, 80-watt; switching supply that shares the FNA 5 amp input fuse (5FU) with PWS2.

PWS4 provides unregulated 90vdc to the Z and X axis motor drive amplifiers located in the Electrical Cabinet. PWS4 is protected by an FNA 8 amp input fuse designated 4FU.

Power Supply Removal/Replacement

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| Tools Required | (*if soldering is required) |
| - One 1/8" hex key (provided) | |
| - One screwdriver (flat blade) | |
| - One Exacto knife* | |
| - One set of needle-nose pliers* | |
| - One soldering iron and small roll of solder* | |
| - One wire stripper* | |
| - One 75mm (3") length of 5mm (3/16") shrink tubing* | |
| - One heat gun* | |

Procedure

First identify which power supply may have failed by checking the presence of AC voltage on each side of the input fuse. Then test for the correct output voltage.

Before replacing a suspect supply, verify that the problem is truly internal and not external. An external overload (short-circuit) will often crowbar or shutdown the output of the supply without blowing the input fuse. With Main Power OFF, disconnect the output lead at the terminal block, then repower and measure the

output voltage. If the voltage reading is correct, then the problem is external and the power supply is probably OK. Turn the Master Disconnect Switch OFF and reconnect the output lead to the terminal block before proceeding.

To replace a failed power supply:

1. Confirm that the Main Disconnect Switch is OFF.
WARNING - Follow your employer's LOCK OUT-TAG OUT procedures.
2. If the power supply has connectors, skip steps 3 through 9. Disconnect the AC and DC plugs from the board, and remove the old power supply. Remount the new supply and reconnect the plugs.
3. If the Machine-wiring diagram is missing, make a quick sketch of the connections showing terminal strip locations, wire numbers, and solder lug designations.
4. If the replacement power supply already has AC and DC leads with wire number tags, skip steps 4 through 8. Remove the old power supply, disconnecting its wires at the terminal strip. Remount the new supply and reconnect wire numbered leads to their respective terminals. Route the new leads neatly through the wireway and replace covers.
5. If the replacement power supply has bare solder lugs, reuse the original wiring. Cut away the shrink tubing and desolder all wire leads on the old power supply.
6. Loosen the fasteners and remove the power supply from the electrical cabinet.
7. Remount the new supply using original fasteners.
8. Slip 1/2" lengths of shrink tubing over each lead.
9. Resolder leads to their proper lugs and insulate with shrink tubing.
10. Turn the Master Disconnect Switch to ON. Verify that the output voltage is correct and that the Machine is performing properly.