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Power Supply Replacement—All Microprocessor Controlled Machines Except the CBW[®]

Power Supply Replacement—All Microprocessor Controlled Machines Except the CBW®

This instruction applies to two power supply replacement kits which cover all Milnor microprocessor-controlled machines except the CBW®. The kits are as follows:

- 08PSS3401N—This is for **older** machines and **contains bracketry and wire harnesses** which are only needed if the bracketry and harnesses supplied with the original equipment are different from those in the kit.
- 08PSS3401X—This is for **newer** machines and **does not contain bracketry or wire harnesses. The new power supply physically matches the old.**

A metal oxide varistor (MOV) and a regulating resistor are supplied with both kits. The MOV must be installed across the new power supply's incoming power conductors, on any machine. The resistor is used **only** on certain machines. It must be installed across the new power supply's 5 volt DC output conductors, as shown in Figure 2, on any applicable machine.

Please verify that all components listed in the kit parts list were supplied. Contact the Milnor Parts Department if any items are missing.



WARNING [1]: Electrocutation and Electric Shock Hazards—You can be electrocuted or seriously injured if you come in contact with 240 VAC or 120 VAC (depending on model) power, which is present in the processor electric box.

- Lock off and tag out power to the machine while replacing the power supply.
- Use caution while testing and adjusting the new power supply with power on.
- Do not attempt these procedures unless qualified and authorized.



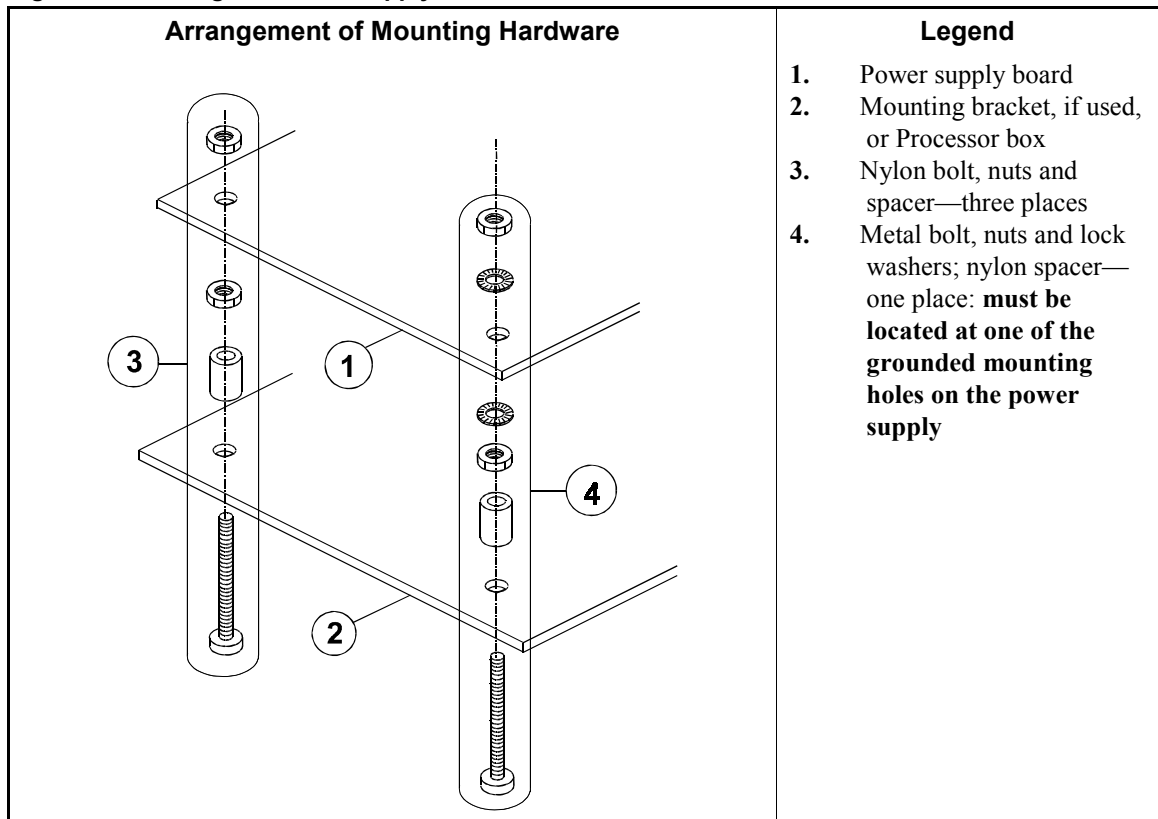
CAUTION [2]: Component Damage Hazard—Electronic components will fail if not properly connected. Warranties can be voided if failure to follow these procedures results in damaged components.

- The ground trace on the power supply must be connected to the chassis of the machine, as explained herein.
- The regulating resistor must be **installed** if the machine is a coin, single formula, System 7® or E-P Plus® washer-extractor type and **omitted** if any other machine type, as explained herein.
- Carefully read and understand this instruction before proceeding.

1. Mounting the New Power Supply

Depending on the original equipment, new bracketry may be needed to accommodate the new power supply. Whether or not this is the case, the new power supply board must be mounted as shown in Figure 1.

Figure 1: Mounting the Power Supply Board



- 1.1. **Kit 08PSS3401X (for Newer Machines)**—Merely swap out the old with the new power supply. Make certain that a good connection is established between the ground trace on the power supply board and the machine chassis, as shown in Figure 1. If the new power supply is not a direct match for the old, contact the Milnor factory.
- 1.2. **Kit 08PSS3401N (for Older Machines)**—Various mounting brackets are supplied with this kit. If your original equipment does not accommodate the new power supply, select the mounting configuration that permits you to mount the new power supply in approximately the same position as the old one.

The mounting hardware supplied with the kit attaches the power supply to its mounting bracket. Hardware to attach the mounting bracket to the machine is not supplied with the kit. Use any appropriately sized bolts, nuts and lock washers or self-tapping screws.

Recommended hardware installation is as follows:

1. If a mounting bracket will be used, determine how it will be attached. Carefully prepare the Processor box as required to accept it, but do not install it until step 3.
2. Attach the power supply to the mounting bracket or directly to the Processor box, as shown in Figure 1. One of the four bolts supplied with the kit is metallic. This bolt must be placed in one of the two grounded mounting holes on the power supply (hole through a metallic trace on the power supply's printed circuit). Ensure that the power supply is grounded to the mounting bracket or Processor box by scraping the paint from around the hole on the bracket or box with the metallic bolt. Be sure the metal nut and lock washer do not touch any other component.

3. If a mounting bracket was used, install this assembly in the Processor box. Ensure that the mounting bracket is grounded to the Processor box by scraping the paint from around one pair of adjoining mounting holes on the bracket and the Processor box.

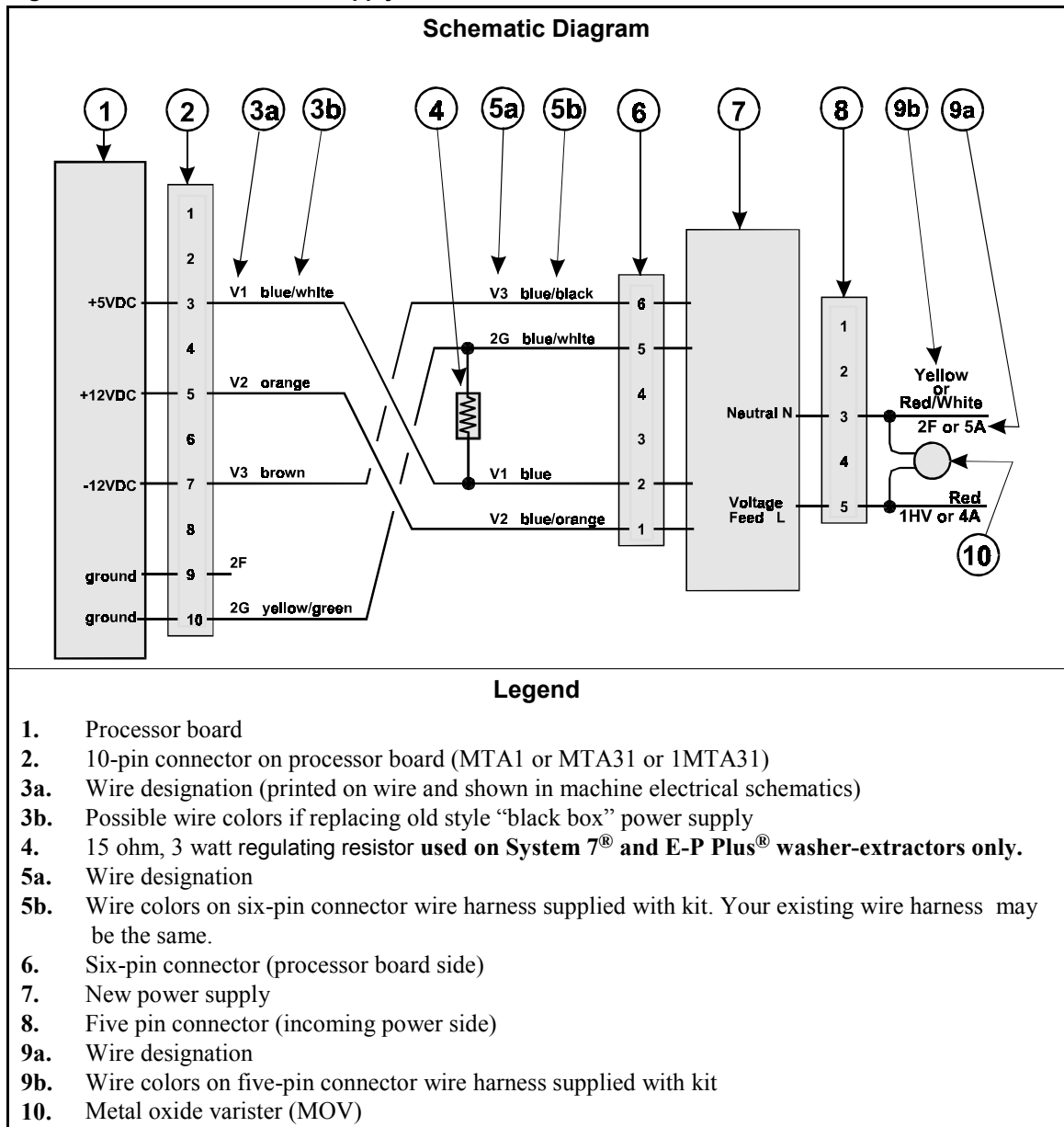
2. Electrical Connections

The procedure for making electrical connections will vary somewhat with the kit supplied, type of machine, and the type of power supply being replaced. However, the schematic shown in Figure 2 applies to all situations. (Older machines may use different wire color codes, but the pin numbers will be the same as shown in this figure.) Consult the original schematic manual for wire colors on an older machine or contact the Milnor factory.

Notice **3**: The wire carrying -12VDC from the power supply is not used on washer-extractors with the Milnor System 7 control, or those with model numbers ending in C4A or M4A.

- When this wire is not used, terminate it with a wire nut to prevent shorting.
- Wire V3 is required if the machine is equipped with an analog-to-digital board, as for sensing temperature or water level.
- Wire V3 is required if the machine is equipped with a digital-to-analog board, usually used to control the motor inverter on some variable-speed machines, and modulating steam and gas valves on dryers and textile machines.

Figure 2: Processor-to-Power Supply-to-Power Source Electrical Connections



Observing caution statement **2** and referring to Figure 2, make the electrical connections appropriate for your machine, as follows.

- 2.1. **Kit 08PSS3401X (for Newer Machines)**—Once the power supply has been swapped out and the electrical connectors plugged into the new power supply, all that remains is to install the MOV, and if applicable, the resistor.
 1. Install the MOV across the power supply's incoming power conductors, as shown in Figure 2. Splice the leads of the MOV as close as possible to the connector on the power supply side. The MOV is not polarity-sensitive.
 2. **Only** if the machine is a coin, single formula, System 7®, or E-P Plus® washer-extractor, install the regulating resistor, as shown in Figure 2. Again, splice the leads of the resistor as close as possible to the connector on the power supply side. The resistor is not polarity-sensitive.

2.2. Kit 08PSS3401N (for Older Machines)

- 2.2.1. Power Supply-to-Power Source Connections—All Machines—Even if the old connector (the one that was attached to the old power supply) matches the one supplied with the kit, cut it off to facilitate installing the MOV. The MOV must be installed across the power supply's incoming power conductors as shown in Figure 2. Splice the new harness and the leads of the MOV to the wires from the power source using two of the white caps provided with the kit. Match the wires as shown in Figure 2. The incoming power conductors are polarity-sensitive but the MOV is not.
- 2.2.2. Processor-to-Power Supply Connections—Coin, Single Formula, System 7[®] and E-P Plus[®] Type Washer-Extractors—The regulating resistor shown in Figure 2 must be included when installing a new power supply on these machines. Attach this resistor across wires 2G (blue/white, ground) and V1 (blue, +5VDC) on the six-pin wire harness supplied with the kit, using two of the white caps provided. Cut off the old connector (the one that was attached to the old power supply) and splice the new harness to the wires from the connector on the processor board, matching the wires as shown in Figure 2.
- 2.2.3. Processor-to-Power Supply Connections—Other Machines—If your original processor-to-power supply wire harness has the same six-pin connector and same color wires as the one supplied with the kit, you may simply attach the existing connector to the new power supply. If not, cut off the old connector (the one that was attached to the old power supply) and splice the new harness to the wires from the connector on the processor board using two of the white caps provided, matching the wires as shown in Figure 2.

3. Testing and Adjusting the New Power Supply

The new power supply will need to be tested and adjusted when first installed. It may also need to be tested and adjusted in the future, if problems with the microprocessor controller are encountered. Adjustment instructions are provided on tag B2TAG92078, supplied with the kit. Please install this tag inside the Processor box, for reference, and observing the precautions given in warning statement **1** and caution statement **4**, perform the procedures explained on this tag.



CAUTION **4: Machine Malfunction Hazard**—The power supply was adjusted at the factory for 120VAC input and will not function properly with 240VAC input until re-adjusted.

- Test and adjust as explained on the tag supplied.

— End of BICUUR01 —