

INSTRUCTIONS FOR CONVERSION OF AC CONTROLLER
FROM JUSPEED TYPE TO MITSUBISHI TYPE
ON SHEET FED PRESSES

11 August 2004

Please read the following instructions completely. If you have any questions, please call Heath at 800-819-8961.

Enclosed in this kit:

Installation instructions

- (1) 1/4-20 x 1/2" button head capscrew (F1597)
 - (8) 10-32 x 1/2" socket head capscrew (F31)
 - (2) 10-32 x 3/8" socket head capscrew (F607)
 - (1) 1/4-20 x 1/2" flat head socket head screw (F3569)
 - (2) sets of adhesive labels, numbered 1-20
 - (6) Adhesive back cable clamps
 - (6) No. 10 screw 22-gauge red terminal rings
 - (1) 12 gauge wiring set, attached to terminal strip
 - (1) 22 gauge wiring set, attached to terminal strip
 - (1) Terminal strip mounting plate with 2 terminal strips attached
 - (4) Number 10 flat washers (F1293)
 - (4) Number 10 external lockwashers
 - (1) Mitsubishi parameter unit FR-PA02-02 (attached to motor controller) (F5869)
 - (1) Mitsubishi FR-E520 motor controller (F5868)
 - (6) Tie wraps (F799)
 - (1) set of motor controller mounting plates bundled together
- Schematic wiring for the new motor controller
Parameter setup instructions for FR-E500 inverter (A1101.03)
FR-E500 instruction book (inside the motor controller box)

Tools required for installation:

Set of Allen wrenches

Wire cutters

Wire strippers

Screwdrivers (Phillips and Straight)

5/32" Allen wrench "T" handles

Loctite 242

Please remove power to the press, either at a service disconnect, or the power service panel.

1. Turn the power off to the press.

2. Remove the front cover of the power box. This is the long blue box mounted to the operator side of the Mabeg feeder.
3. The old motor controller is in the bottom section of the power box.
4. The old motor controller is positioned with the terminal blocks at the top of the motor controller. There are two sets of terminal blocks. The lower set is the high voltage wiring, and the upper set is the control wiring.

The lower terminal block of the controller is the input and output high voltage wiring. These wires are labeled L-1 thru L-3, and T-1 thru T-3, plus a ground wire. They are 12-gauge wires. The upper control wiring is 22-gauge wiring.

5. At the top terminal block of the motor controller, where the five (5) 22-gauge wires are terminated, loosen the screws and remove the five (5) wires from the motor controller.
6. Enclosed are some white adhesive labels. Place these labels on the lower 12 gauge wires before removing them from the motor controller. **It is extremely important to get this correct, as you can damage the new motor controller if these wires are installed incorrectly.** The labels are to be placed as follows:

L-1 (black) - #1	T-1 (black) - #5
L-2 (blue) - #2	T-2 (blue) - #6
L-3 (brown) - #3	T-3 (brown) - #7
Ground (green) - #4	

7. Remove the 12 gauge wires that the labels were placed on from the motor controller.
8. Remove the motor controller mounting bolts. If the motor controller is mounted on aluminum plates, remove the plates as well. If there are plates, **please** return the plates to Heath Custom Press.
9. The new controller wiring goes to A 12-position terminal strip. There is a clear plastic cover over the screws. Please remove this cover by lifting it off the **terminal strip**. There are two (2) 10-32 x 1/2" bolts that mount the strip to the mounting plate. Remove the two screws that mount the terminal strip, and lift up the terminal strip from its mounting plate. This will allow you access to the flat head screw under the terminal strip.
10. Please look at the enclosed drawing Figure 1. This drawing shows where the new terminal block mounting plate is to be mounted. There are two (2) existing threaded holes in the upper left area where the terminal block is to be mounted.
11. Mount the plate with the counter-sunk hole and the enclosed flat head bolt in the right hand hole. Install the enclosed button head bolt in the left-hand hole. Tighten the bolts. Re-install the terminal strip on the mounting plate.

12. Mount the supplied motor controller adapter plates in the existing holes as shown in Figure 1. **Leave the bolts loose at this time.** Use the 10-32 x 1/2" socket head bolts with washers. Use Loctite 242 to secure the bolts. The bolts will be tightened after the next step.
13. Mount the new motor controller to the adapter plates with the enclosed 10-32 x 1/2" bolts, and lockwashers.
14. Tighten the adapter plate mounting bolts and the motor controller mounting bolts.
15. If the terminal strip has not been re-mounted, do so now.
16. Remove the screws 1-7 at the top section of the terminal strip. This is where the old 12-gauge wiring will be terminated.
17. Install the 12-gauge wires that were identified with labels in step six in their positions on the terminal strip. **It is imperative that the input power wires (L-1 thru L-3) be in positions 1-3. These leads must not be placed in the output positions 5-7.**
18. The five (5) wires that were removed in step No. 5 will now be terminated at the terminal strip. Match the wire colors of the five wires with the wires that are terminated in the terminal strip, orange to orange, etc.
19. Enclosed in the kit are 5 red ring terminals. The old terminal rings on the five (5) wires may not fit in the terminal block. You can replace the old terminal rings with these ring terminals if you want to. You can also simply cut off the old terminals, strip off about 1/4" of the insulation off each wire, and terminate them in the new terminal block.
20. Replace the plastic cover over the terminal strip.
21. Please refer to the enclosed FR-E500 instruction manual, page 7, item 1.3.3 (Removal and installation of wiring cover). Remove the top cover by squeezing the sides, and lifting off the cover. Remove the bottom cover as shown in the top photo on page 7.
22. Please look at the motor controller terminal strips. The terminals are labeled below the screws in the black plastic. Please notice the label to the right, indicating, **"Connect the motor here"**.
23. Route the 12-gauge wiring bundle down the left-hand side of the motor controller, as shown in Figure 1.
24. Below the terminal strips, on the body of the motor controller, are 2 green Phillips head screws. These screws are where the ground connection for the green/yellow wire (GND) will be terminated. Hook up the GND wire to one of these two screws.

25. Please look at the lower cover that was removed in step 21, and the Figure 2 drawing on page 5. There is a long rectangular opening in the **center** of the cover. Route all of the remaining 12 gauge wires through this opening. Do not replace the cover as yet. The wires will be terminated at the screws of the Mitsubishi motor controller terminal strip. There are letters in the black plastic, below each screw identifying each screw position. Please hook up the 12-gauge wiring as follows:

3rd from the left screw is L-1 (Black wire labeled L-1)
4th from the left screw is L-2 (Blue wire labeled L-2)
5th from the left screw is L-3 (Brown wire labeled L-3)

Remove the label (Connect the motor here) over terminals U, V, W.

6th from the left screw is U (Black wire labeled U)
7th from the left screw is V (Blue wire labeled V)
8th from the left screw is W (Brown wire labeled W)

Note:

When tightening down the W wire (brown wire), position the yellow wire lug to the left, and then tighten the screw. This will eliminate interference to the cover when it is replaced.

26. Replace the lower cover on the motor controller. It is retained in position by clips on the side of the cover.
27. Route the 22-gauge wires down the right hand side of the motor controller, and up through the top opening of the lower cover that was replaced in the previous step.
27. The wiring for the new motor controller signal input wires is as follows:
(They are already pre-wired to the terminal block.)

Yellow to STF, motor controller
Green to SD, motor controller
Brown to 5, motor controller
Blue to 2, motor controller
Orange to 10, motor controller

28. Replace the cover over the 22-gauge wiring.
29. Use the enclosed adhesive-backed cable clamps to secure the wiring to the bottom of the power box.

30. Enclosed are the setup instructions for the Mitsubishi motor controller, Document No. A1101.03. Please follow these instructions, step by step. Please read the next paragraph completely, before setting the maximum press speed.
31. Please look at the existing motor controller board mounted in the top right of the power box, as shown in Figure 1. If this board does **not** have two blue (2) small speed pots mounted on it (one for **jog**, one for **maximum speed**), look for an additional speed pot mounted on the blue divider panel where the existing power supply is mounted. This pot would be wired in series with the operator controlled press speed control. **Do not adjust the pot in the existing 12 VDC power supply. You can damage the power supply if you try to adjust the pot in the power supply.** If there is an additional pot mounted on the divider panel, **then this is your maximum speed adjustment pot.**

If there is no additional pot mounted on the divider panel, and there is only one (1) blue pot mounted on the existing motor control board, (for jog setting) then the maximum speed of the press must be set by setting the parameter number one (1) setting (maximum frequency) of the motor controller to the maximum speed that you want the press to run at. For instance, a setting of 53.53 will run the press at the maximum speed of 7200 on the Mabeg tachometer. If you were to attempt to run the press at a maximum speed of 75.0, the press would be running greater than its designed speed. You can experiment with higher or lower settings to obtain the maximum speed that you desire.
32. If you want to install an **internal maximum speed pot**, contact Heath Custom Press, and we will supply you with the necessary wiring instructions to do this installation. You would be required to purchase and mount a 5000 ohm pot to place in series with the existing speed control.
33. Do a complete functional check of the press. If everything is correct, replace the front cover of the power box. The installation is complete.

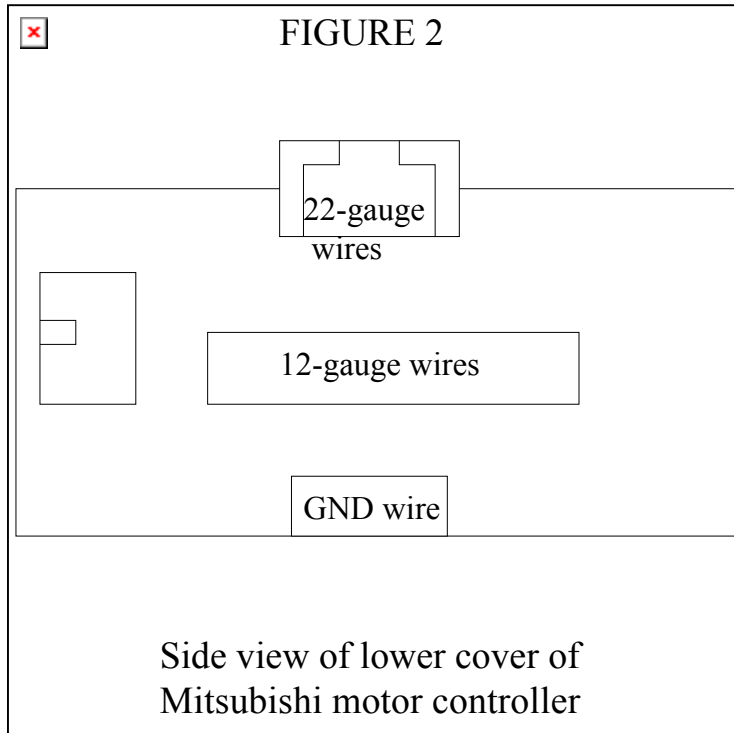




FIGURE 1

VIEW OF THE LOWER SECTION
OF THE POWER BOX, SHOWING
MOUNTING LOCATIONS OF NEW
COMPONENTS.

