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TECHNICAL BULLETIN

Replacement, installation and alignment of the Dual Current, Variable Speed Controller Board

This technical bulletin applies to RAMFAN blower model: EV400, PN: EB80500

Tools/Materials required: #2 Philip Screwdriver, Vishay / Spectrol #008T000 Adjustment Blade Driver, 0.082" X 0.015", or equivalent.

WARNING!

When plugged into a power source the control board becomes alive and presents lethal shock potential. Do not touch any circuit components. *Wear safety glasses* to protect you eyes against possible sparks and exploding circuitry.

Inspections: Make sure fan is UNPLUGGED before moving on.

Process Summary: This procedure should only be carried-out by trained service technicians. The procedure to follow covers the:

1. Opening of the controller box
2. Removal control board
3. Installation new control board
4. Board Configuration for 115VAC operation
5. Control adjustments
6. Closing controller box

Installation Instructions:

1.0 Open Controller Box

1.1 Remove the six (6) Philip head screws from the heat sink cover on the control box.
1.2 Save the screws for reuse later.
1.3 Flip heat sink cover with control board over, onto the fan shroud.

2.0 Remove Control Board

2.1 Disconnect the power wire, motor wire, and control wire connections to the control board.
2.2 Make a note of which screws locations are used for ground wire, (yellow / green wire), connections.
2.3 Make location notes of all wires removed from the control board.
2.4 Make a note of board position on heat sink before removing mounting screws.
2.5 Remove the four (4) Philip head screws retaining the control board to the heat sink.
2.6 Remove the control board and set it aside.

3.0 Install New Control Board

3.1 Position control board on heat sink.
3.2 Install all four mounting screws and the two ground wires.
3.3 Reattach all wires, previously removed.

AC Input:

Wire	From	To Control Board
Black	AC Power Cord	AC Line Fuse
White	AC Power Cord	L2 Terminal
Green/Yellow	AC Power Cord	Ground Screw

ON / OFF - Speed Control Wires:

Wire	From	To Control Board
Yellow	Speed Potentiometer	P3
Orange	Speed Potentiometer	P2
Blue	Speed Potentiometer	P1
Red & Black	Speed Potentiometer	EN

DC Motor Wires:

Wire	From	To Control Board
Brown	DC Motor	Armature Fuse
Blue	DC Motor	A-
Green/Yellow	DC Motor	Ground Screw

Note: Reversing the brown and blue DC motor wires causes the motor to spin in the opposite direction.

4.0 Board Configuration for 115VAC Operation

4.1 Move the **J1 jumper** to the 115 VAC position.
4.2 Move the **J2 jumper** to the 90VDC position.
4.3 Set the **DECEL** potentiometer to the 1 o'clock position.
4.4 Set the **ACCEL** potentiometer to the 5 o'clock position.
4.5 Set the **MAX** potentiometer to the 12 o'clock position.
4.6 Set the **MIN** potentiometer to the 12 o'clock position.
4.7 Turn the **IR** potentiometer fully CCW and back-off about 1/8 of a turn.
4.8 Turn the **CL** potentiometer to the 2 o'clock position.

5.0 Control Adjustments

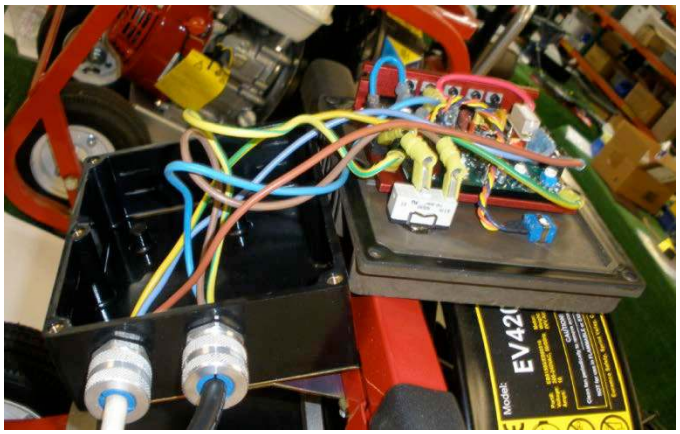
5.1 Attach an AC amp meter to either L1 or L2 wire on the AC input side of the control board.
5.2 Plug unit into an appropriate 115 VAC power source.
5.3 Lift the red switch protector and toggle the Dual Current switch to the 20 Amp position.
5.4 Rotate the ON / OFF switch / speed control knob to the ON minimum position.
5.5 Adjust the **MIN** potentiometer for 2 amps of AC line current.
5.6 Turn the variable speed control knob to the maximum position.
5.7 Adjust the **MAX** potentiometer for maximum AC input amps on meter.
Note: Do not exceed 18.5 amps.
5.8 Adjust the **CL** potentiometer CCW, slowly, just until the RED CL LED turns red.
5.9 Turn the **CL** potentiometer CW, slowly, just until the RED CL LED turns off.
5.10 Turn the variable speed control back down to minimum and ensure the AC input amps have returned to 2 amps. If not repeat adjustment steps 5.4 through 5.8 above.
5.11 Locate the small trim potentiometer glued to the side of the dual current switch.
5.12 Tap the red dual current switch cover to engage the 15-amp circuit feature.
5.13 Turn the ON / OFF – speed control knob fully clockwise.
5.14 Carefully adjust the small trim potentiometer until the amp probe reads 13 amps.
Note: AC input current will raise 1.5 to 2.0 amps as the motor warms-up.

6.0 Close Controller Box

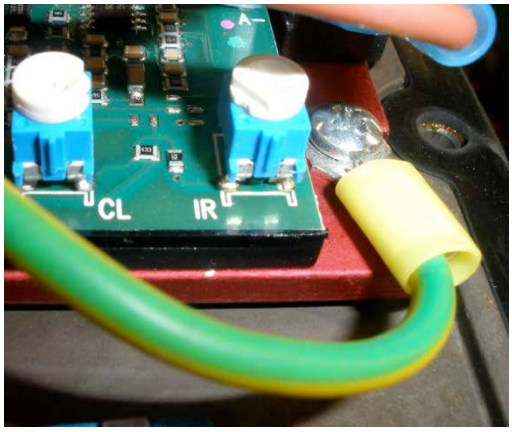
6.1 Ensure control board mounting screws are tight.
6.2 Place heat sink cover over box. Ensure gasket is in place and not damaged.
6.3 Secure the heat sink cover to box with the six (6) screws saved from above.
6.4 Ensure compression fittings are tight to power cords entering the box.

7.0 Photographs

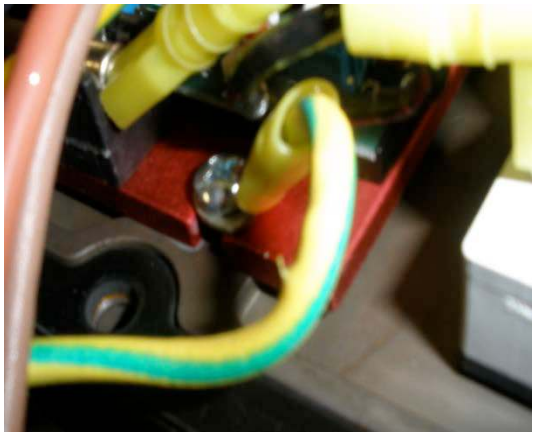
Removing Screws from Heat Sink Cover



Flip Heat Sink Cover with Control Board Over onto Fan Shroud

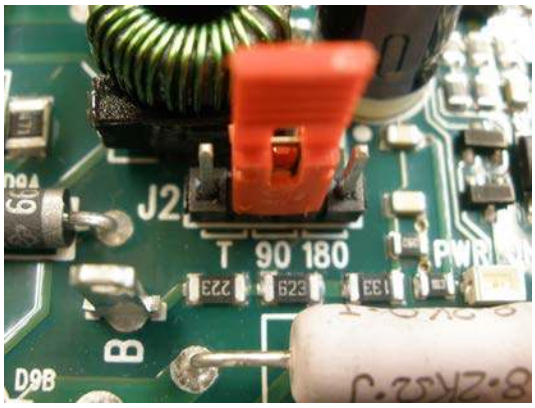


Ground Wire Location

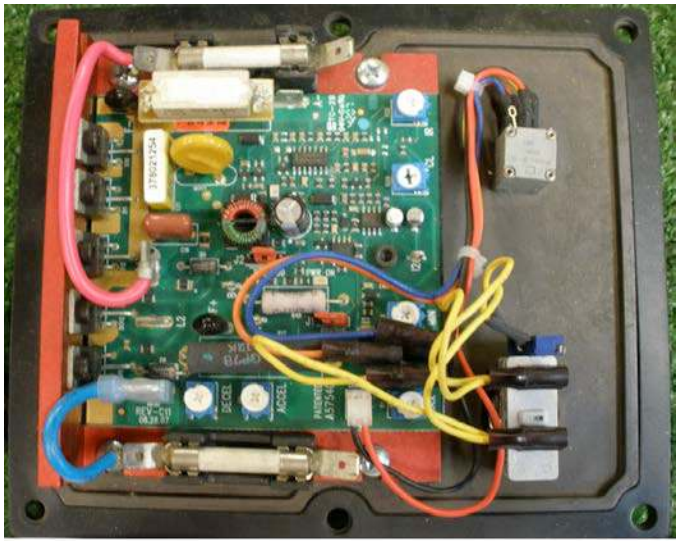


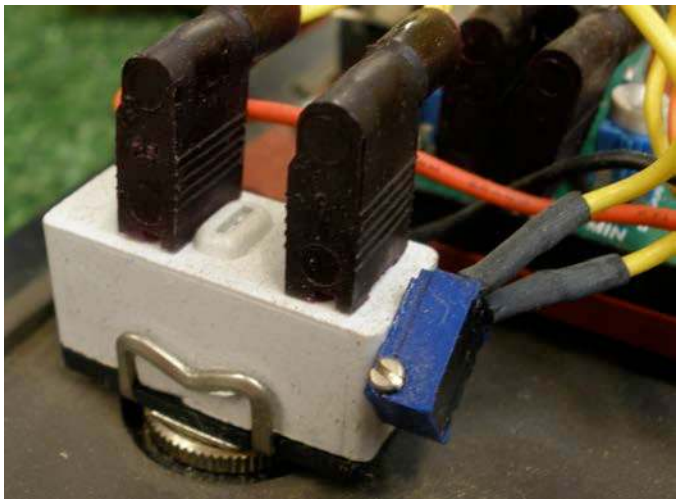
Ground Wire Location

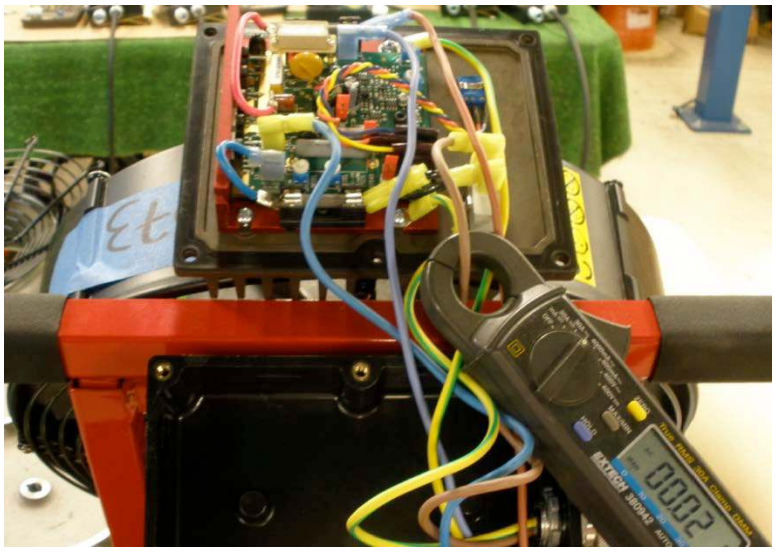
J1 Jumper Location & 115 VAC Set Position



J2 Jumper Location & 90 DC Set Position


EV400 Control Board Layout


Location of blue trim potentiometer



Clamp-on Amp Meter