

Service Bulletin: Replacement of Older ESMA Ultrasonic Driver Board with Improved Power Riser Style Board

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Overview

As of November 2020, ESMA Inc. will be converting to an improved 600 Watt ultrasonic driver board for all new systems and all field-installable replacement boards. The improved variant of the ESMA driver is easily differentiated from previous version by its two independent vertically mounted power output riser boards. To accommodate the improved board design, existing systems may require slight modification.

Physical Considerations

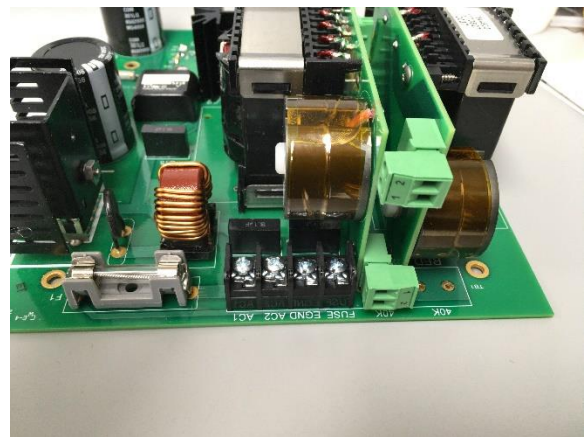
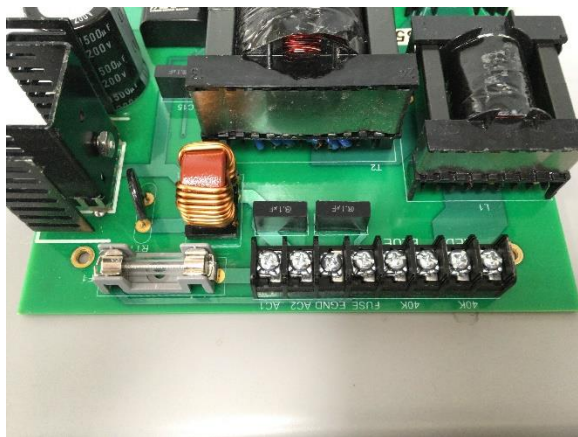
The improved power riser board has an overall greater maximum height dimension of approximately 3/8" over previous board models: we have found that in almost all cases this will not be a problem in replacement situations. In standard stacked-board configurations, sufficient clearance exists for direct substitution without modification of circuit board support hardware (See Figure 1). The terminal type and location for the ultrasonic output connections differ significantly on the improved power riser board as compared to previous versions (Figures 2, 3).

Electrical Considerations

In general, three of the standard seven connecting wires can be re-attached to the Improved Power Riser Board without modification. Of the remaining four, the crimp ends should be cut off, and the wire ends stripped back so that they can be attached to the removable terminal block connectors. See Figures 4 to 10 for illustration of this. The terminal numbers (1,2) are *not* critical as long as the proper pairing is maintained for each individual riser board connection; e.g. red and blue pair together on one connector, orange and gray together on the other (Table 1).



Figure 1: Improved Driver Board (bottom) in standard stacked configuration with older style driver board (top).



Figures 2, 3: Older driver board (left) compared with Improved Driver Board (right).

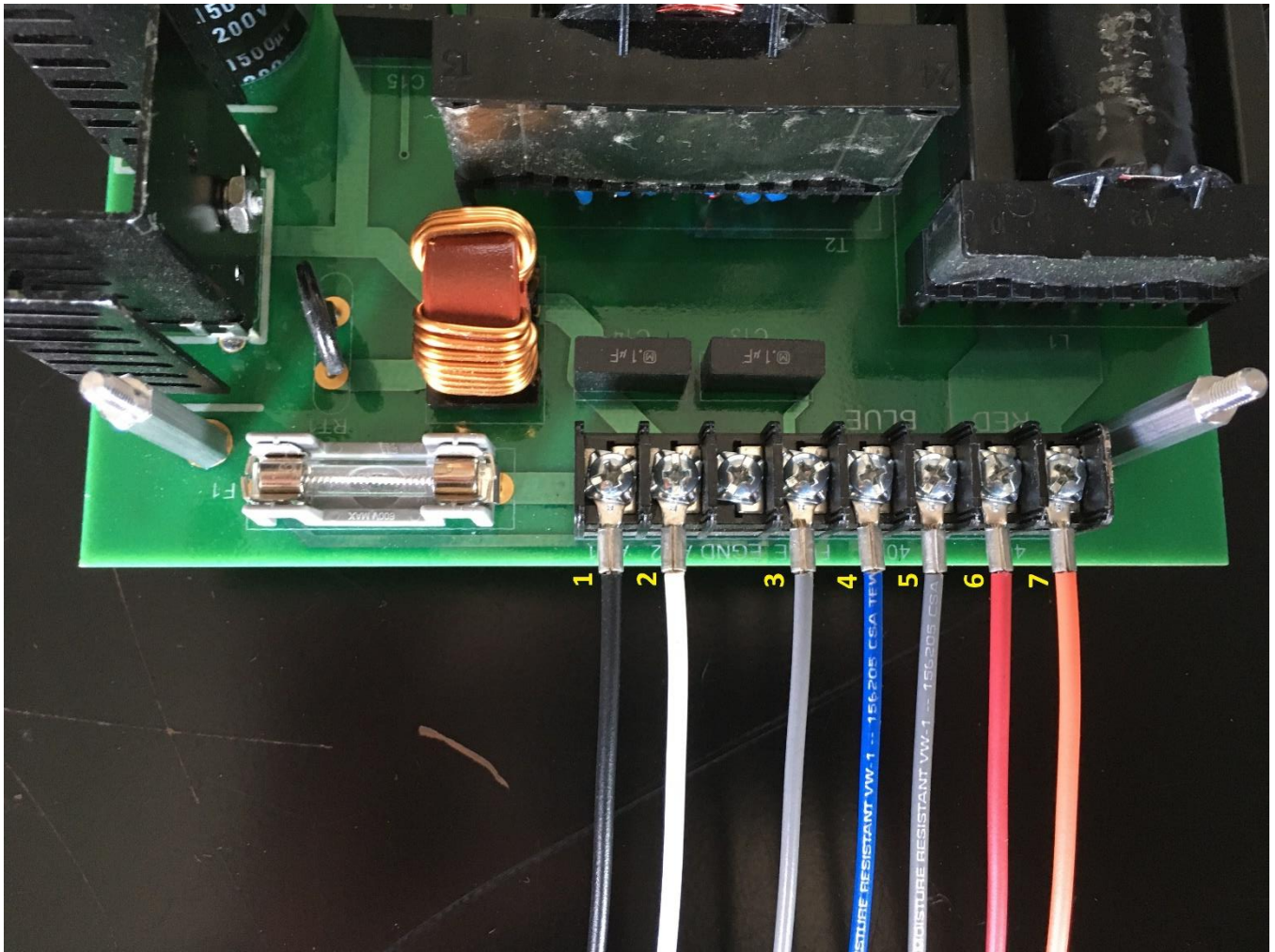


Figure 4: Typical existing wiring with numeric labels.

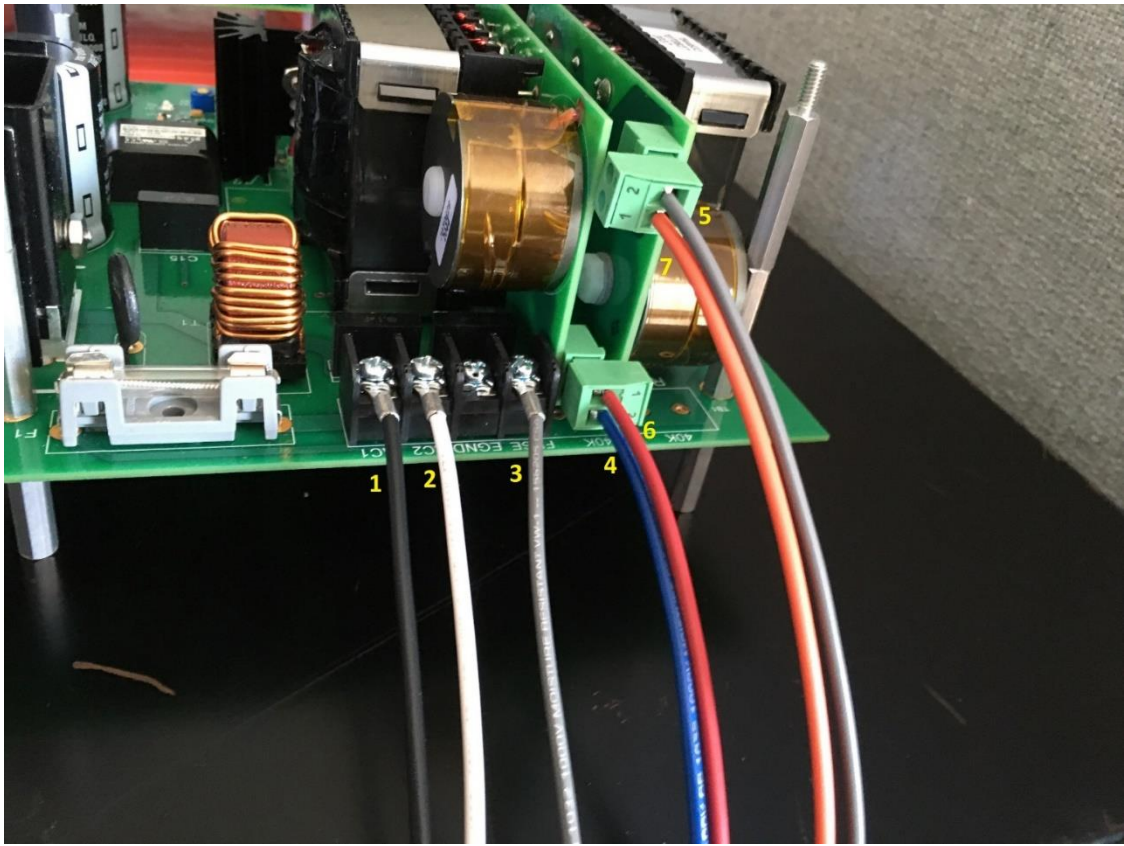
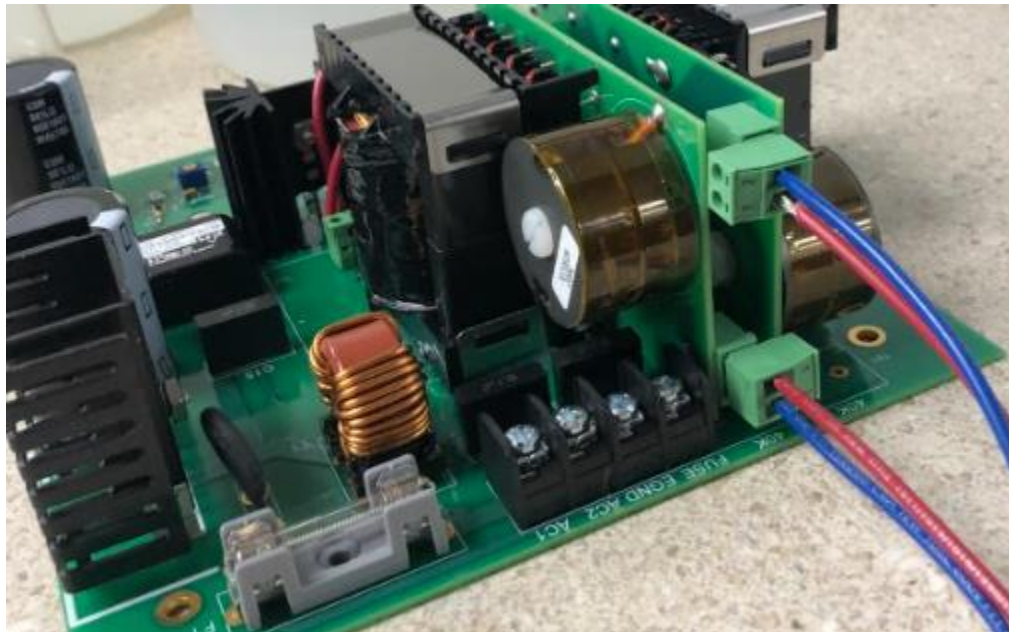


Figure 5: Typical wiring from Figure 4 transferred to Improved Riser Board.

Figure 6: Some installations will have 2 sets of blue and red wires – see below.





Figures 7, 8: Preparation of existing wiring.

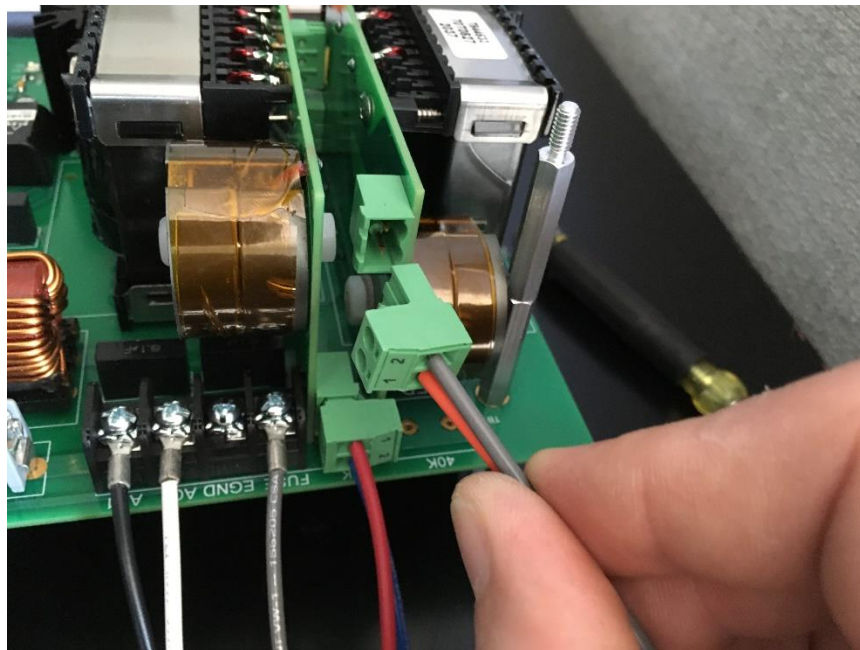


Figure 9: Termination on removable terminal block.

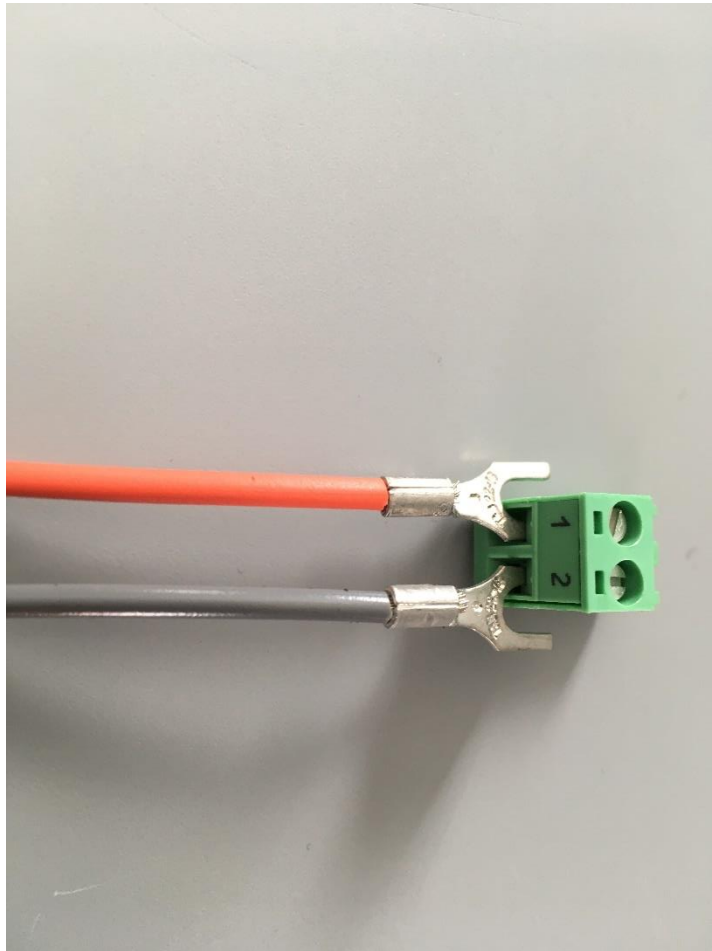


Figure 10: Field expedient installation of wiring with minimal tools (NOT RECOMMENDED).

Table 1: Standard ESMA Ultrasonic Pairing Color Code

<i>Name</i>	<i>Color</i>	<i>Typical Improved Power Riser Removable Terminal Number</i>
Bank 1 Supply	Red	1
Bank 1 Common	Blue	2
Bank 2 Supply	Orange	1
Bank 2 Common	Gray	2
Bank 3 Supply	Yellow	1
Bank 3 Common	Brown	2
Bank 4 Supply	Purple	1
Bank 4 Common	Black	2
Bank 5 Supply	Red with White Stripe	1
Bank 5 Common	White with Red Stripe	2
Bank 6 Supply	Orange with White Strip	1
Bank 6 Common	White with Orange Stripe	2