CutMaster™ 52, 82, 102, 152, A40, A60, A80, A120, 12mm, 20mm, 25mm, 35mm and 40mm Replacement Kit: 9-8587

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Installation Instructions

Scope

This kit is for use only with Victor Thermal Dynamics CutMaster™ Plasma Cutting Power Supplies listed above. Do not use this kit with any other equipment.

Supplied Parts

The kits include:

- Contactor
- Contactor, 2 piece enclosure
- Contactor, coil harness
- Contactor wires
- Installation instructions

Tools Required

T-20 Torx driver with minimum 4" (100mm)

Needle nosed pliers

Diagonal cutters.

Instructions

WARNINGS

Disconnect primary power at the source before performing any inspection or repairs.

Only a qualified technician should perform this procedure.

Follow the electrostatic discharge instructions included with the component to prevent damage to the component.

Main PCB Removal

NOTE:

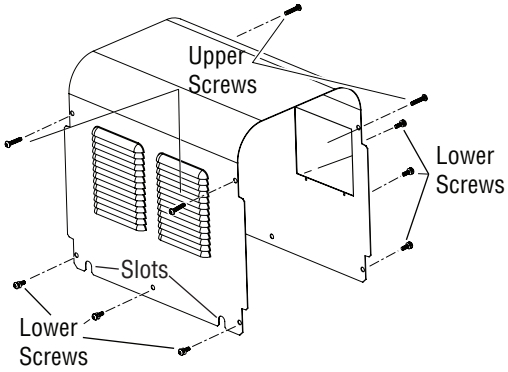
Keep all hardware for remounting and attaching components and wires.

Throughout the rest of this instruction guide the terms "Smaller" and "Larger" will be used referring to the power supply as follows:

Smaller - CM52, CM82, A40, A60, 12mm, 20mm and 25mm

Larger - CM102, CM152, A80, A120, 35mm and 40mm

1. Remove the power supply cover. 10 Torx screws. Do not lose any and note the difference in them and where they came from. See following two illustrations.



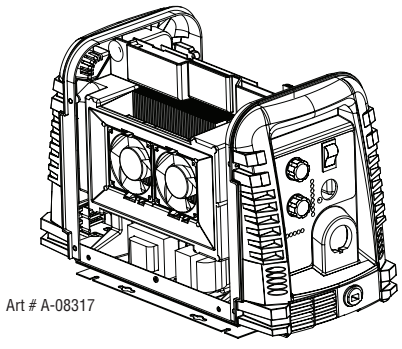


Figure 1

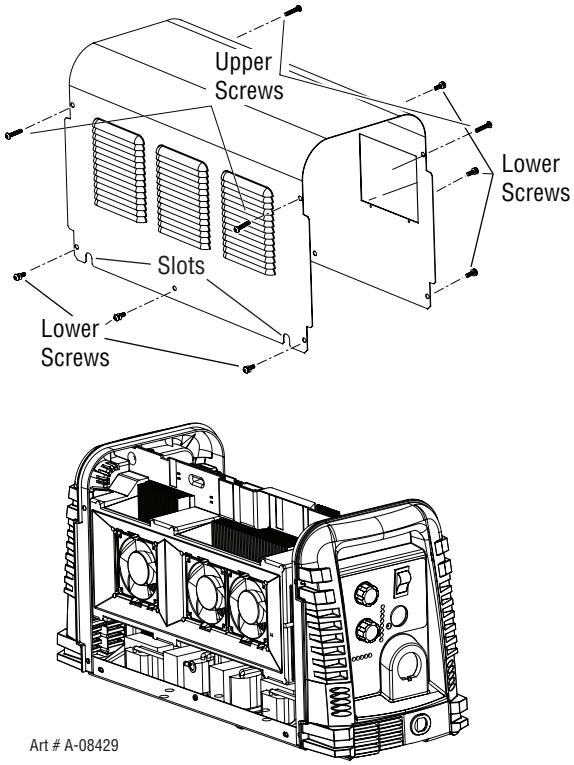


Figure 2

2. Remove the green air line that connects between the front and rear of the unit. To release the line from the connector, press the ring back against the fitting and hold while pulling the tube out.

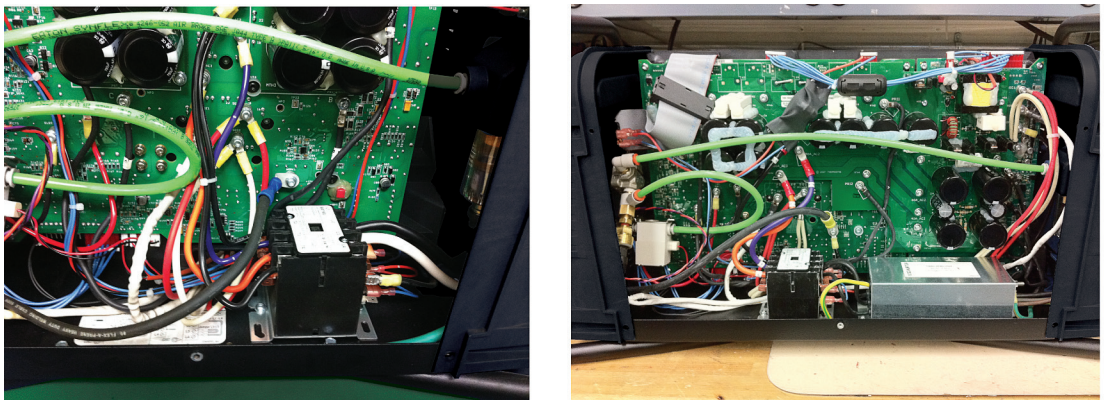


Figure 3: Contactor Location, Cutmaster True Std (left) and European Model w/CE Filter (right)

3. Remove the screws holding transformer wires 'A' and 'B' to the Main PCB and the 'WORK1' connection with the T-20 Torx Screwdriver. See Figure 4.

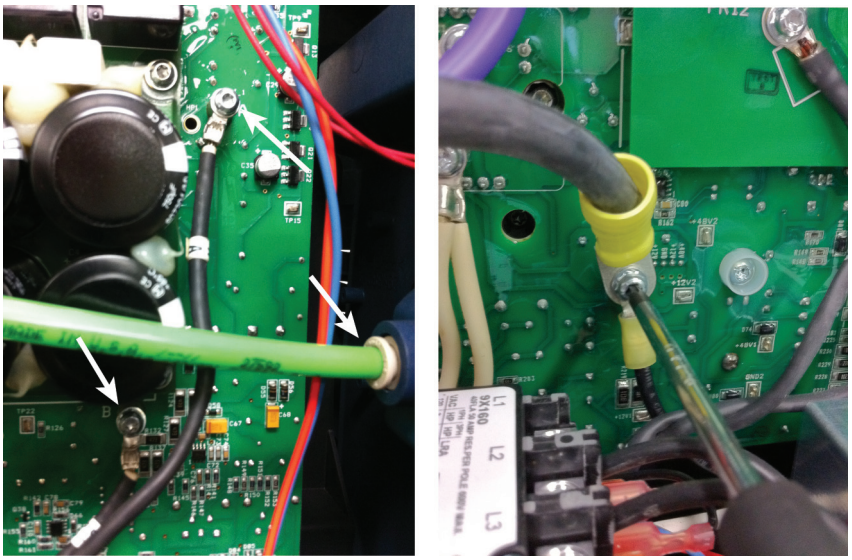


Figure 4: Air Hose, Transformer and Worklead Connections

4. Remove the T-20 Torx screws from the contactor base both front and rear.

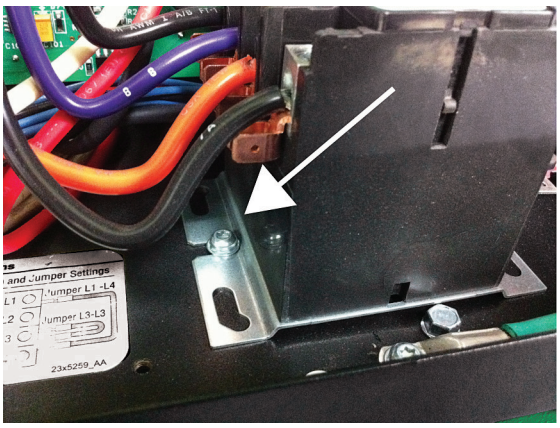


Figure 5: Front Contactor Mounting Screw

Figure 6: Rear Contactor Mounting Screw

5. (SKIP this step if unit contains an CE Filter)To assist with the contactor removal, it is recommended to loosen/remove the AC power cord grip from the rear of the Cutmaster. This will allow the cord to be pushed/pulled through the Cutmaster rear panel.

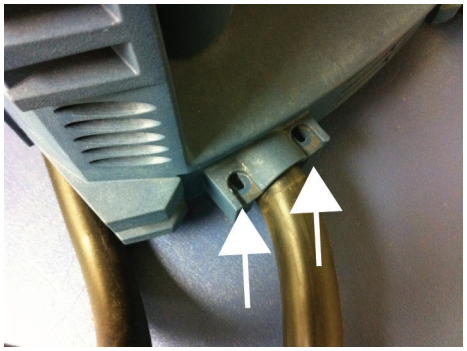


Figure 7: Cord Grip Removal

Contactor Replacement

6. Remove the contactor from the metal base of the Cutmaster.

CAUTION

NOTE ALL WIRE LOCATIONS. DO NOT MISWIRE UNIT AS NON-REPAIRABLE DAMAGE WILL OCCUR TO THE CONTACTOR AND PCB.

NOTE

Notations in following illustration designate permanent wire connections to the 9X160 contactor. Additional connections are noted for single and three phase on the labels internal to the True Series CutMaster and next to the contactor (if applicable).

7. Reconnect AC power cord as previous. USE T-20 Torx Screwdriver on contactor connection lugs, use needle nosed pliers on spade connections. CM 12, 20, 25 & 40 UNITS WITH CE FILTERS: Remove wires #5 & #6 from the contactor and replace with the harness included with the enclosure kit. This will involve clipping wire ties as in Figure 16. Remove J6 from the Main PCB and replace with the harness connection.

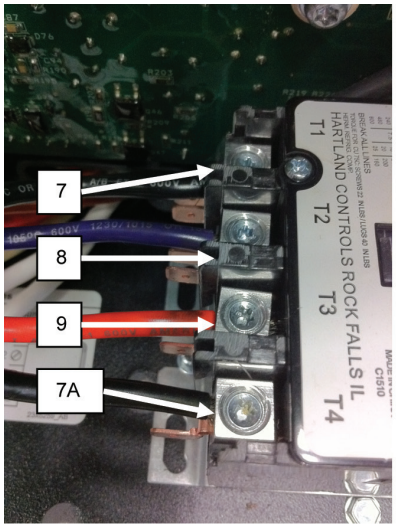


Figure 8: Load Side Connections

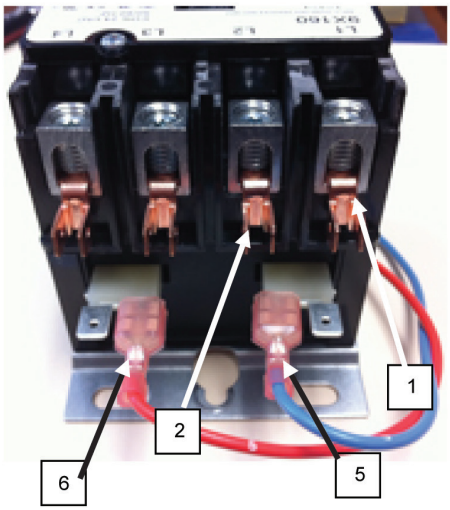


Figure 9: Line Side Connections

NOTE

An additional #10AWG black wire jumper may be connecting L1 to L4, re-install this, if present and bend wire to fit the enclosure. See Figure 20.

8. CM 12, 20, 25 & 40 UNITS WITH CE FILTERS: Remove wires #5 & #6 from the contactor and replace with the harness included with the kit. This will involve clipping wires ties as in Figure 16. Remove J6 from the Main PCB and replace with the harness connection. In addition the CM25 and CM40 units require wires #7 and #8 to be replaced with contents of the modification kit, location 'T1' & 'T2'. Use care to ensure that the wires are installed in the same locations.

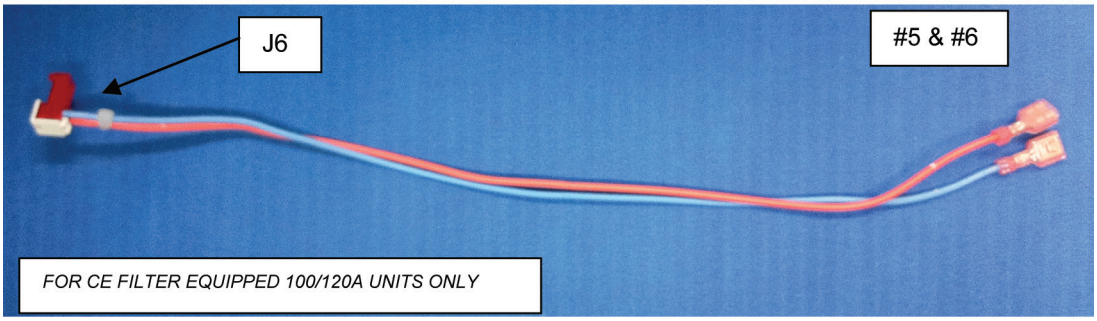


Figure 10: CONTACTOR COIL HARNESS

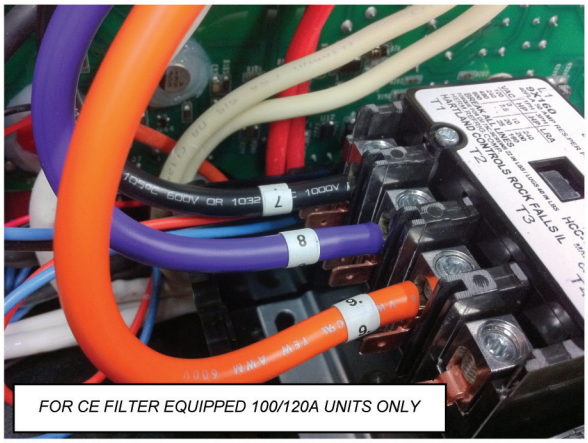


Figure 11: LOAD CONTACTOR WIRES 7, 8 & 9

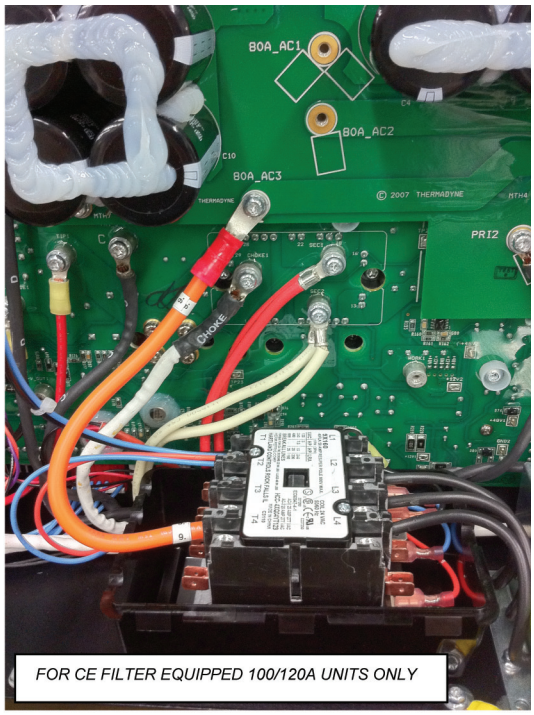


Figure 12: LOAD WIRES 7 & 8 REMOVED

Figure 13: CE Filter Units ONLY. Remove and replace 'J6' Connection

9. Pull the contactor away from the PCB and expose the harness wires attached to the LINE side of the contactor in the previous step. Move the previously detached 'A' and 'B' black sleeved wires from in front of, to behind the contactor wires #1, #2, #5 & #6. Re-attach the 'A' and 'B' wires to the Main PCB. Keep wires twisted as original and run over the top of the enclosure. Figure 15. Cut the wire tie on the contactor harness, Figure 16. Rotation of the CE Filter ground wire may be necessary for fit of the contactor box. Figure 17.

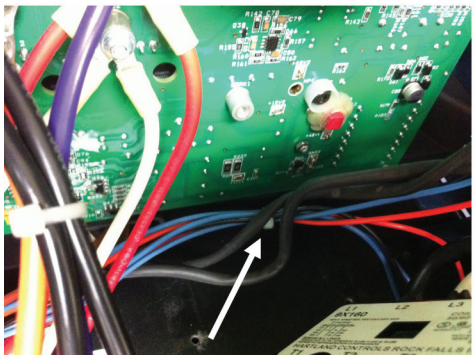


Figure 14: Transformer Wires Before Relocation

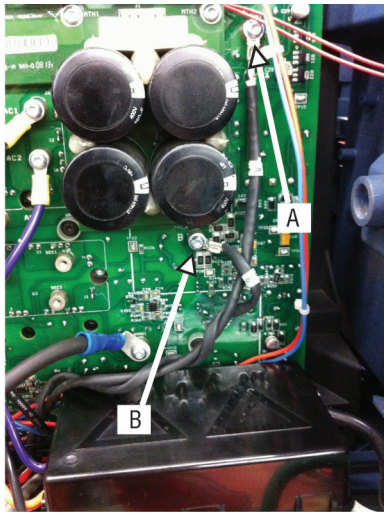


Figure 15: Transformer Wires After Relocation

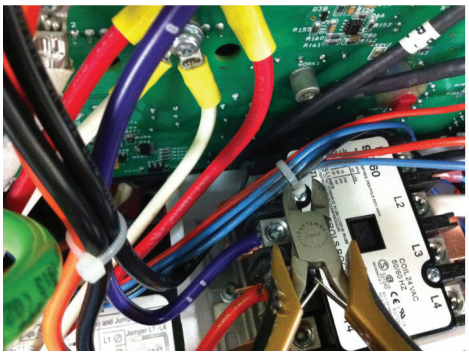


Figure 16: Cut Wire Tie

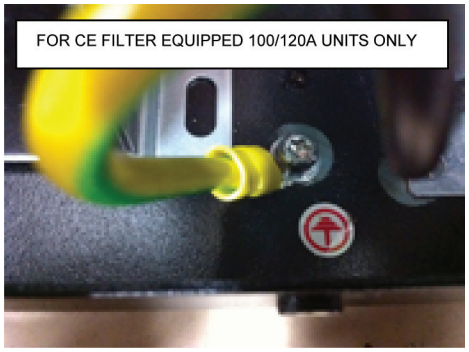


Figure 17: Rotate CE Filter Wire

Enclosure Installation

10. Installation: Lift up the contactor and place the bottom enclosure underneath. The end with the Oblong slot in the bottom and the four detents goes toward the front of the Cutmaster. Slide the Contactor completely forward and attach the parts to the original contactor mounting points. Tighten all electrical connections to 17 +/-1 In/lbs. Lifting the Cutmaster and shining a light below the base panel will illuminate the mounting holes to assist with alignment. Orient contactor wires so that they are above the detents in the bottom enclosure LOAD (T1-4) side, as shown. The wire #7 detent will also have contactor control wires #1, #2, #5 and #6 laid underneath, as shown. Push wires #1, #2, #5 and #6 between contactor and the box wall. Input AC power cord wires will separate between the two detents on the LINE (L1-4) side of the box bottom. If a 3 phase AC power cord is used, populate L1 and L2 into the furthest back (inner)detent and L3 to the front (outer) detent.

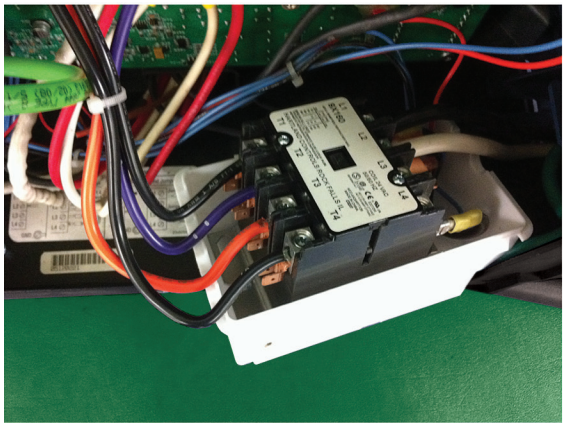


Figure 18: Contactor Bottom

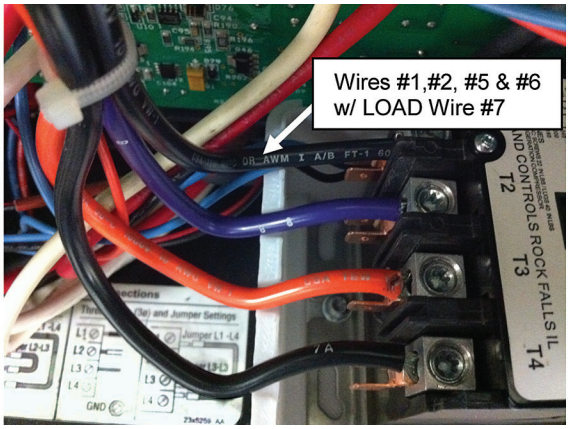
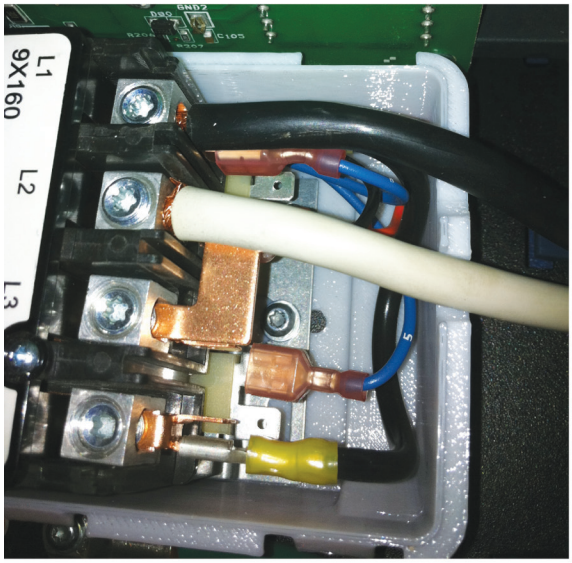


Figure 19: Contactor Wire Routing Load Side



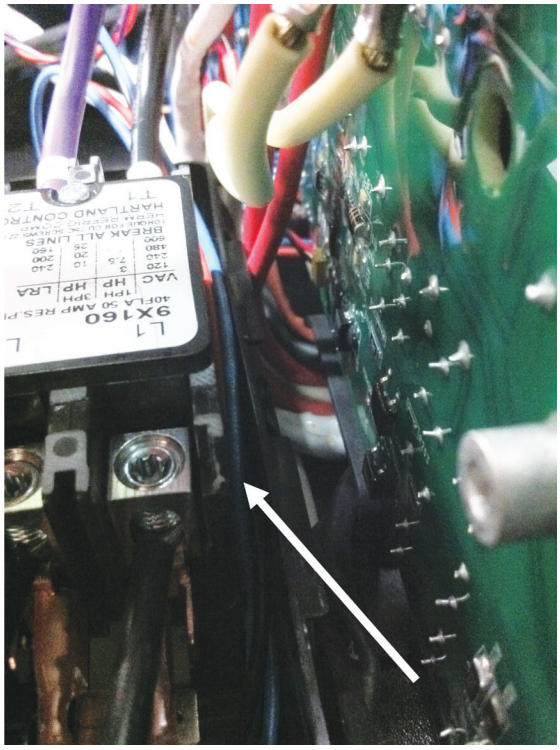


Figure 20: Contactor Wire Routing Line Side

11. Verify all electrical connections are tightened properly to the contactor and "A and "B" transformer wires. Snap the enclosure top onto the bottom placing the rear edge of the box down first then pressing the front and latching to the base in the front. Attempt to pull the top up from the bottom, this should not occur without releasing the latches. There should be no gap around the box lip.

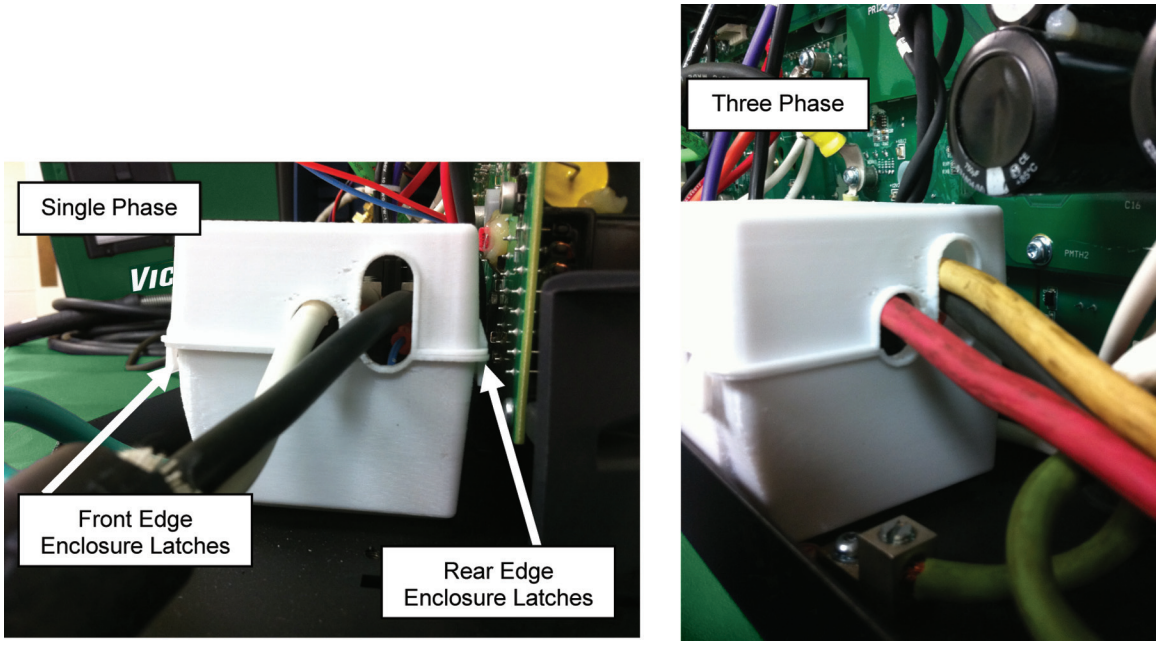


Figure 21: Latches engaged on the Enclosure. (REAR PANEL REMOVED FOR CLARITY)

NOTE:

Single/Three Phase wire guide use

12. Alignment: (CutMasters >80A Only w/o AC Filter). The round hole on the outer side of the box is clearance for the lower case screw. Ensure that the screw will pass through the hole before installing the CutMaster cover.

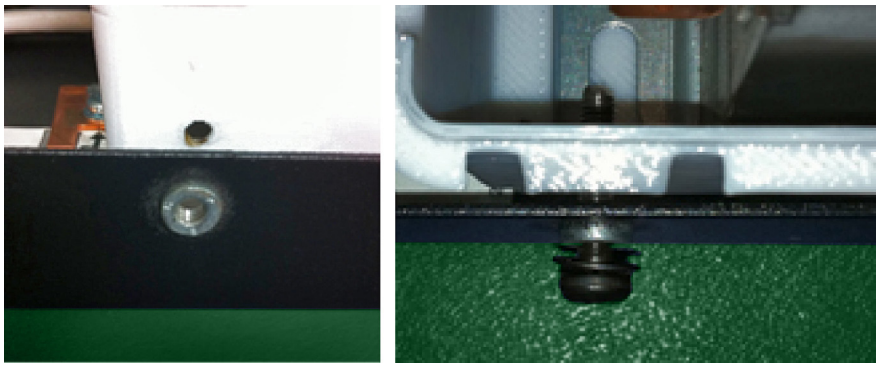


Figure 22: Hole Alignment

Re-Assembly

13. Re-attach the worklead 'Work1' connection and torque to 17 +/-1 in/lbs. Connect the internal gas filter hose previously removed. Orient transformer and Contactor wires so that they are not pinched or pressed up against the PCB and the installed enclosure top. Also see Figure 15.

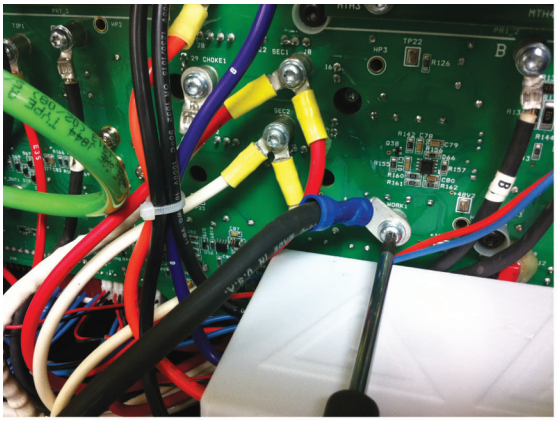


Figure 23: Worklead Connection re-installed

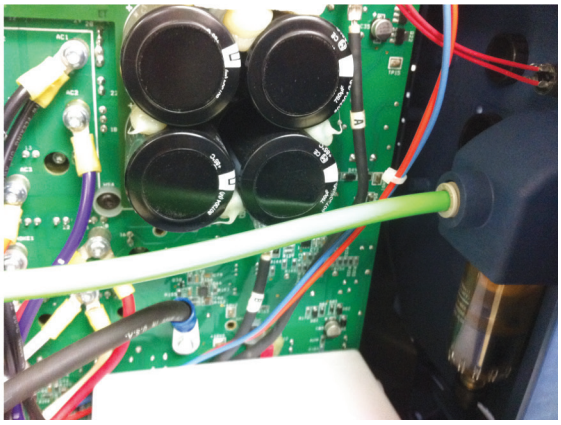


Figure 24: Hose re-installed

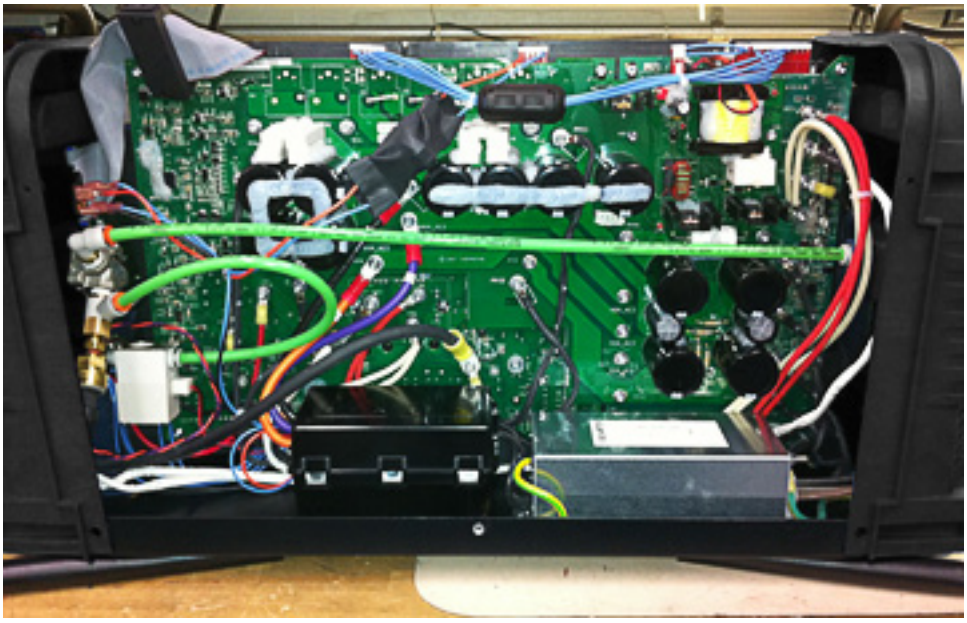


Figure 25: Installation for Cutmaster 40mm

14. Re-install the Metal Cover and secure with the previously removed screws. Install to 17+/-1 in/lbs. Re-tighten cord grip on AC power cord to 34+/-1 in/lbs. Cord should not pull from the unit.

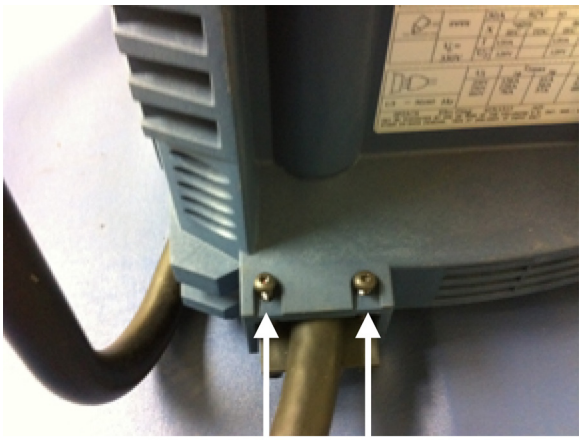


Figure 26: Cord Grip Screws

End of Procedure

15. It is advisable to test the CE power circuit to the Cutmaster True Power Supply after this procedure is completed. Refer to the owners manual for the specific version for instruction.

Removal for Voltage Changeover

WARNING

Disconnect the Mains Power to the power supply before attempting to remove the contactor enclosure cover!

16. Removal of the contactor box cover is done by unlatching the outboard side three latches and pressing against the inboard side with a screwdriver. Completely loosen one latched side before moving to the other.

Figure 27: Contactor Enclosure removal

NOTE

Every effort has been made to provide complete and accurate information in this manual. However, the publisher does not assume and hereby disclaims any liability to any party for any loss or damage caused by errors or omissions in this Manual, whether such errors result from negligence, accident, or any other cause.

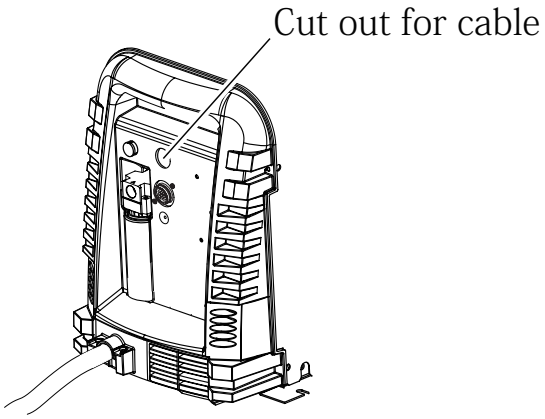
APPENDIX: RAW ARC VOLTAGE

If raw arc voltage is necessary for the torch height control, the customer must supply an 18 AWG (1.0 mm^2), single pair, unshielded cable rated for 300V or greater. All work must be performed following applicable local and national codes.

1. Disconnect the power from the power supply.

2. Remove the screws that attach the power supply cover to the chassis. Remove the cover.

3. Route the cable through the customer supplied strain relief at the rear of the power supply.

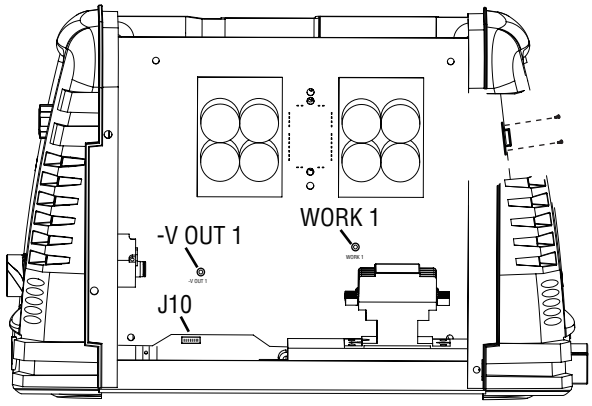


Art # A-10286

4. On the main board use insulated type 1/4-inch ring lug terminal ends to connect to –Vout1 (- polarity) and WORK 1 (+ polarity).

WARNING

The raw arc voltage can exceed 350VDC !!!!



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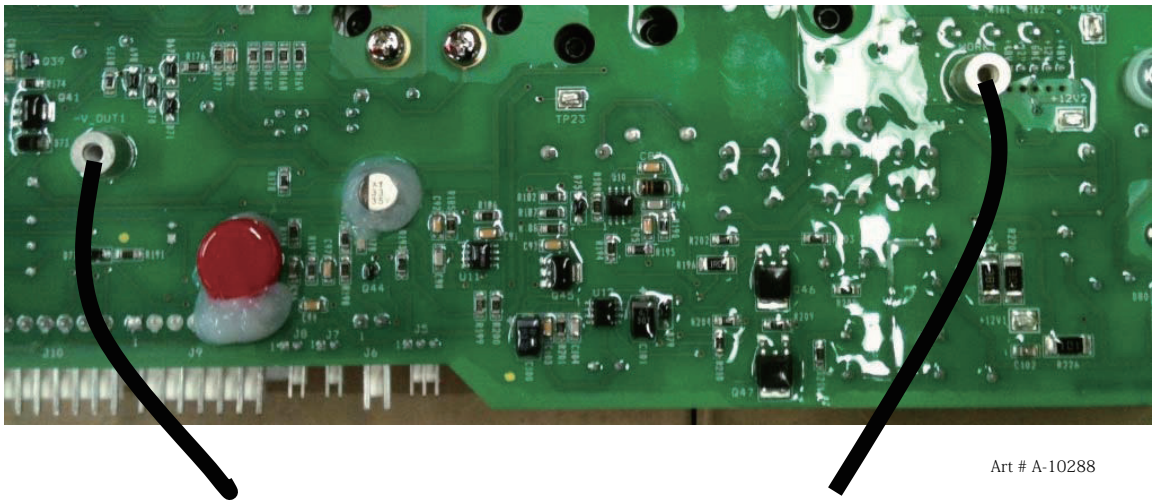

5. Tighten the strain relief.

6. Replace the cover.

7. Connect the cable to negative and positive of Torch Height Control.