

## Technical Pages

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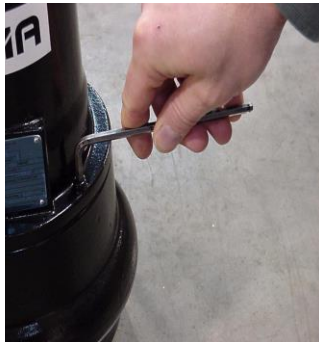
### ABSTRACT

This procedure will provide you with step by step instructions to convert 208/230 V operating voltage to 460V in dual voltage motors.

### PROCEDURE



1. Remove pump from service. Disconnect power supply. Clean and decontaminate pump prior to working on it. See the pump Installation, Operation, and Maintenance Manual for detailed instructions.



2. With pump in stable, upright position, remove the 5mm cap screws as indicated.

### You Will Need

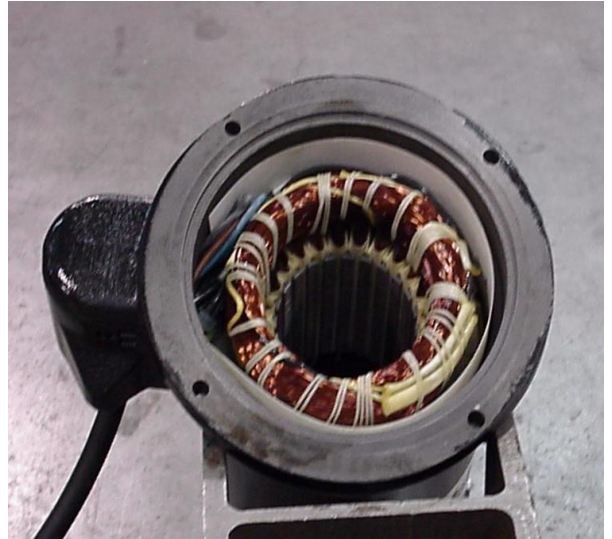
- 5mm Allen Wrench
- Wire Cutters
- Wire Strippers
- Terminal Crimp Tool
- Qty. 6-Crimpable Wire Nut
- Hoist or Qty. 2-2x4s



3. Carefully lift stator housing 3 inches with hoist, if available, and check under stator housing for internal seal probe. **CAREFUL: lifting housing more than 3 inches may damage seal probe.** If no hoist is available, lift by hand and slide the 2x4s under the housing to hold it up. Disconnect probe if installed. Carefully lift stator housing off the pump.



4. Sometimes the housing will be difficult to remove. Twist the housing  $\frac{1}{4}$  turn (90 degrees), exposing the bottom of the cable entry horn. Using a soft faced hammer, gently tap the cable entry horn to free the stator housing.



5. With motor disassembled, turn stator housing upside down, and support it so it is free standing. Stator windings and cable leads must be visible and easy to reach. Your unit should now look like this. **Gently** remove all wires from around the stator windings. Take care not to damage the winding insulation. **Do not use sharp tools!!**



6. With stator housing removed, determine if a wavy washer is present by checking the top of the bearing, the top of the stator housing, and the stator windings. Place it aside until reassembly.



Note: Refer to markers on the end of the cable to identify L1, L2, and L3. If markers are missing, consult HOMA document number 88WA3005A-“Missing Wire Numbers ID” available online.

Note: Wiring may be color coded or numbered. See below for wire Identification.

- Separate the wire bundles as indicated, and record the wire numbers in each bundle.

The pump will have 4 wire bundles

Bundle 1 \_\_\_                    \_\_\_                    \_\_\_

Bundle 2 \_\_\_                    \_\_\_                    \_\_\_

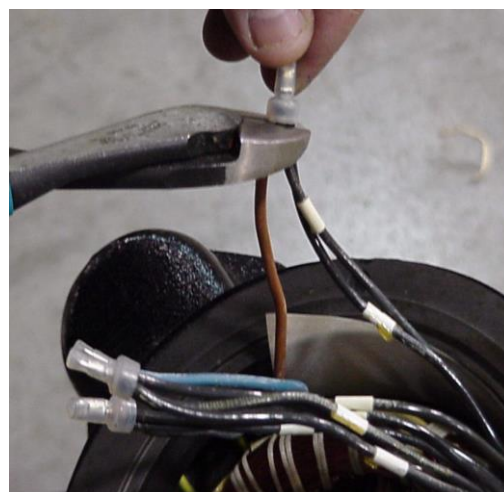
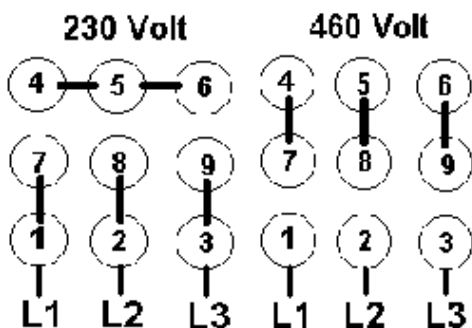
Bundle 3 \_\_\_                    \_\_\_                    \_\_\_

Bundle 4 \_\_\_                    \_\_\_                    \_\_\_

Wire Number	Wire Color
1	Black
2	Yellow
3	Blue
4	Red
5	Green
6	Brown
7	White
8	Violet
9	Grey

Note: The wire numbers for 6 and 9 appear as 6 and 9

- To convert from 230V to 460V operation, you will need to separate the wire bundles, one at a time, and reconnect as indicated below.



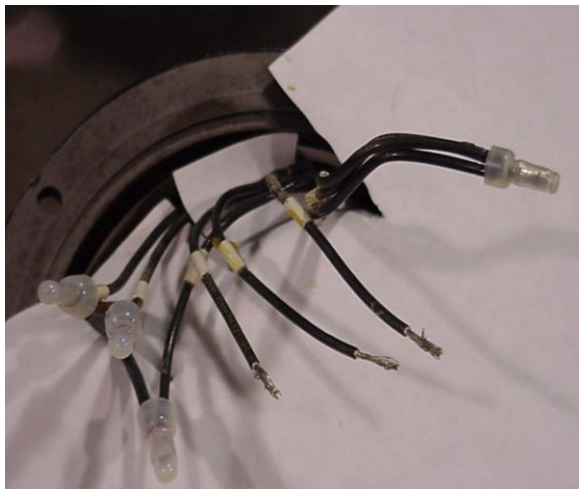
- To perform the reconnection, locate the wire bundle with wires 1, 7, and the power lead. Cut wire connector from the bundle, freeing individual wires. Strip wire sheathing back 1/4" in preparation for reconnection.

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11. Select wire number 1 and the power lead. Reconnect these 2 wires with the crimpable wire nut (close end connector). Leave wire number 7 loose for now.

12. Repeat procedure for wire bundle 2, 8, and power. After separating wires, reconnect wire number 2 and power lead with crimpable wire nut. Leave wire number 8 loose for now.

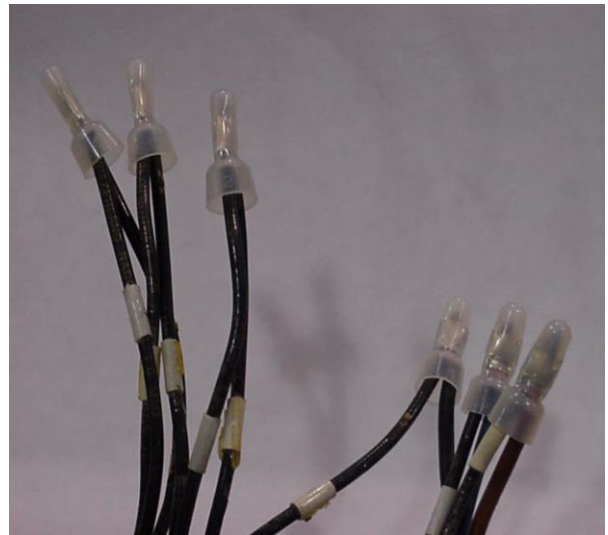
13. Repeat procedure for wire bundle 3, 9, and power. After separating wires reconnect wire number 3 and power lead with crimpable wire nut. Leave wire number 9 loose for now.



Now you should have three new bundles  
2 and power  
3 and power  
1 and power  
along with 3 separate wires (#7,#8,#9), and  
one bundle of 3 wires (#4,#5,#6).

10. Now, you will need to separate the wire bundle with numbers 4, 5, 6, and pair each wire with the loose wires numbers 7, 8, and 9 as indicated. Using the last three wire connectors:

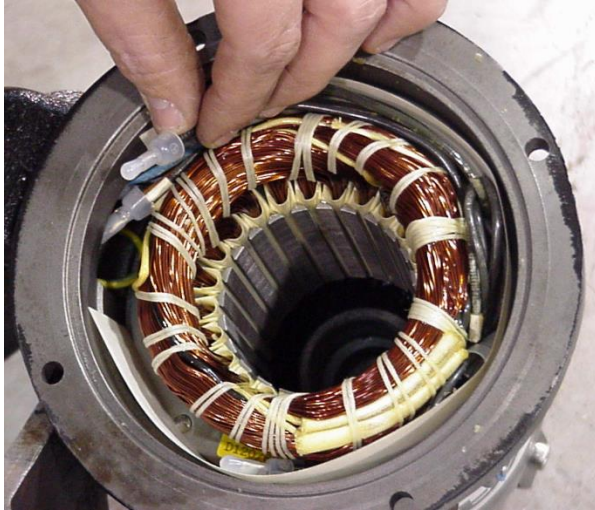
Join wire #4 to wire #7  
Join wire #5 to wire #8  
Join wire #6 to wire #9



14. At this point, you should have 6 separate wire bundles, each with 2 wires. Wires should be paired as follows: 4 to 7, 5 to 8, 6 to 9, #1 to power, #2 to power and #3 to power.

*Before proceeding, you should check the resistance between all three cable leads is the same. Resistance value is different for the various size motors, so please consult wiring handbook for specific resistance values, if required.*





15. Starting with bundles 4-7, 5-8, 6-9, gently tuck these 3 wire bundles behind the windings on one side of stator. Then tuck the remaining 3 bundles behind the windings on the other side. Take care that all wires are tucked between stator winding and housing. Also check that white phase paper is in proper position, and not extending below the stator housing.



The pump is now ready for reassembly

16. Place the wavy washer on top of upper bearing if present. Use a little bit of grease to hold in position if necessary. Verify that the large o ring is still in its proper position on the pump housing.

17. Reinstall the internal seal probe if necessary while gently placing motor housing back onto pump. Take care not to disturb washer when reinstalling.



18. With motor housing back in position, rotate motor housing until cable entry horn is in line with pump discharge as indicated in photo. Then align bolt holes and replace capscrews. Tighten capscrews to 12 ft/lbs.

19. Pump should now be ready for installation and operation at 460V. Be sure to record that voltage has been changed in pump service manual.