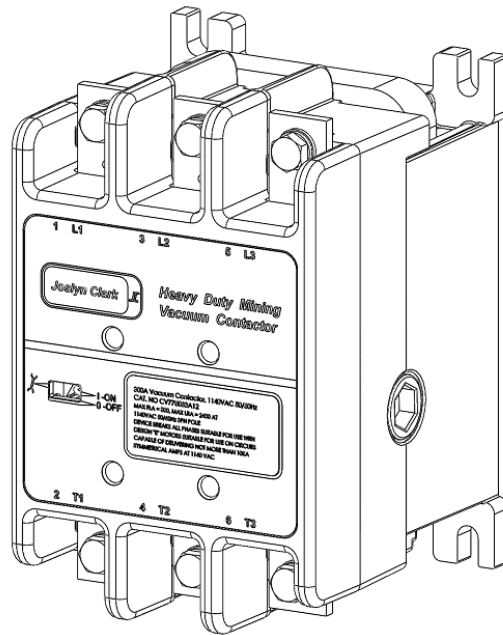




MAINTENANCE AND INSTALLATION MANUAL
BULLETIN 7707 TYPE CV-1140 VACUUM CONTACTOR
CURRENT RATING 300A
1140 V

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Joslyn Clark Controls

2100 West Broad Street, Elizabethtown, NC 28337
http://www.danaherspecialtyproducts.com/Joslyn_Clark/

NOTE: READ ALL INSTRUCTIONS BEFORE WORKING ON THIS EQUIPMENT

DANGER

WARNING. Risk of electrical shock.
AVERTISSEMENT. Risque de choc électrique.

Disconnect all electrical sources before working on this equipment.
Couper toutes les sources d'alimentation avant de travailler sur cet appareil.

HAZARD OF ELECTRICAL SHOCK OR BURN.

POWER MUST BE DISCONNECTED FROM THE CONTROLLER AND CONTACTOR PRIOR TO PERFORMING ANY INSTALLATION OR MAINTENANCE. THE EQUIPMENT HAS BEEN DESIGNED TO PERMIT MAINTENANCE AND/OR TESTING ON THOSE COMPONENTS THAT ARE DISCONNECTED FROM THE MAIN POWER. WHEN PERFORMING THIS WORK, EXTREME CAUTION MUST BE EXERCISED IN VIEW OF THE PRESENCE OF HAZARDOUS VOLTAGE.

The following precautions must be studied and followed during installation, operation, and servicing of this equipment.

1. Read this service bulletin prior to installation or operation of this equipment.
2. If motor controllers and/or contactor are to be stored prior to installation, they must be protected from the weather and be kept free of condensation and dust.
3. Use care when moving or positioning the contactors (even when boxed) as they contain devices and mechanisms, which may be damaged by rough handling.
4. Be sure all barriers and terminal covers are in place before operating the contactors.
5. Only authorized personnel should be permitted to operate or service the contactors and controllers.

INTRODUCTION

This instruction manual covers the description, inspection, installation, operation and maintenance of Joslyn Clark's USAVAC CV-1140 compact series of low voltage vacuum contactors.

CV77U033A12-22 - 1140V 300A, 220/240VAC Control Voltage, 2NO & 2NC Auxiliary Configuration
CV77U033A12-22-A22 - 1140V 300A, 220/240VAC Control Voltage, 4NO & 4NC Auxiliary Configuration
CV77U033A12-11 - 1140V 300A, 110/120VAC Control Voltage, 2NO & 2NC Auxiliary Configuration
CV77U033A12-11-A22 - 1140V 300A, 110/120VAC Control Voltage, 4NO & 4NC Auxiliary Configuration

These contactors are rated both by current and voltage as defined above, and must be applied at all times with coordinated short circuit protection devices in accordance with national or local electrical codes.

PACKAGE CONTENTS

1. CV Compact Vacuum Contactor
2. Service Bulletin

INSPECTION – UNPACKING

Before the contactor is placed in service, check carefully for shipping damage. Any damage should be reported to the carrier within (3) three days of receipt. For overseas deliveries, it is important to obtain a certificate of examination from the nearest insurance inspector and photographs of the damage. This and other evidence should accompany any communication to the insurance company or shippers. In the event equipment is to be returned to the factory, contact Joslyn Clark Customer Service Department or our local representation for return authorization. A returned material authorization (RMA) number will be issued which should appear on all correspondence on the returned container.

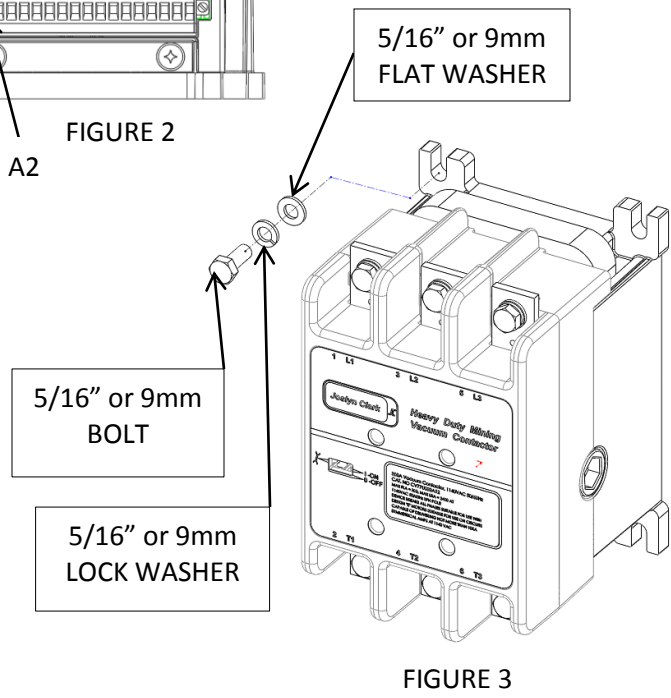
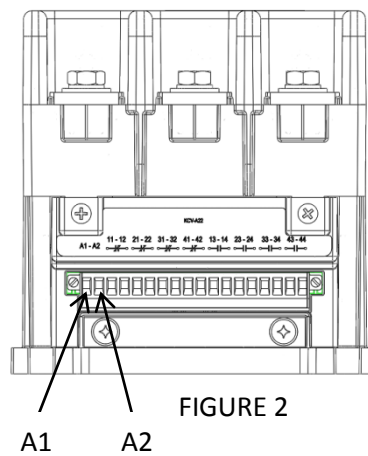
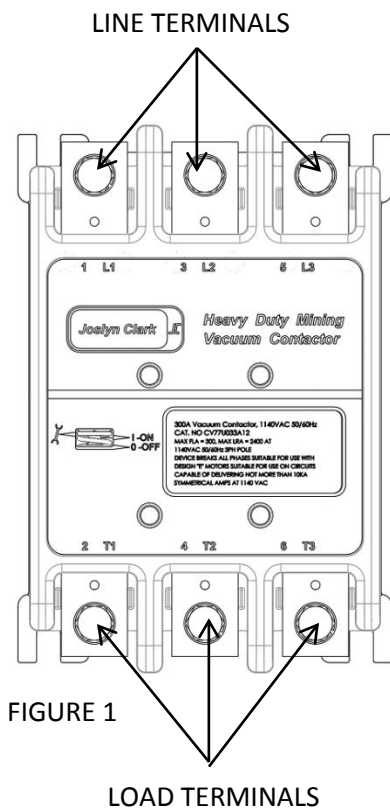
The USAVAC Vacuum Contactor is shipped in a shock resistant filled cardboard box. The following steps should be taken when unpacking the contactor:

1. Check the packing list against the order to make sure the shipment is complete and components are received.
2. Examine the shipping box before unpacking the contactor to make sure it has not been damaged in shipment. If the shipping box is damaged, pay particular attention when unpacking to see if the contents are also damaged. Notify the carrier if damage is found and notify your local Joslyn Clark order field sales office of damage.

INSTALLATION INSTRUCTIONS

The vacuum contactor may be used in any mounting plane. In any non-horizontal mounting plane, the top of the contactor should point up (so that the label appears right-side up). Care should be taken to insure that the mounting hardware does not warp the mechanism frame. If the surface of the contactor to which the contactor is mounted is twisted, shims should be used to correct the condition. Any appreciable degree of end to end twist will result in phase to phase discrepancies and timing of the main contact could cause increased pick-up in control voltage values.

1. FIGURE 1 illustrates the field terminals for line and load terminations. Mount the contactor with the hardware specified in FIGURE 3. Loosely install the (4) four mounting bolts into the intended mounting surface. Torque the mounting bolts to 50-75 inch-lbs.
2. Connect control wires to the vacuum contactor power terminals A1 and A2 located on the Control Pack using #12 to #26 gauge 75°C stranded copper or tin stranded copper wire tightening screw terminals to 7 inch-lbs torque.
3. Using 75°C wire copper cable, connect the line and load conductors to the main terminals (FIGURE 1) and proper phase rotation, tighten the main terminal bolts to 11 ft-lbs torque.
4. Check all connections for accuracy and mechanical connection before energizing.



AUXILIARY CIRCUITRY USAGE

DANGER

DE-ENERGIZE THE CONTACTOR AND ISOLATE FROM ALL CONTROL AND POWER SOURCES.

1. Remove the male terminal block(s) from the Control-Pack.
2. Connect control wire to the terminals (FIGURE 5) and tighten to 7 inch-lbs. Terminal connections are as shown (FIGURE 4).
3. Reconnect the male terminal block to the Control-Pack.

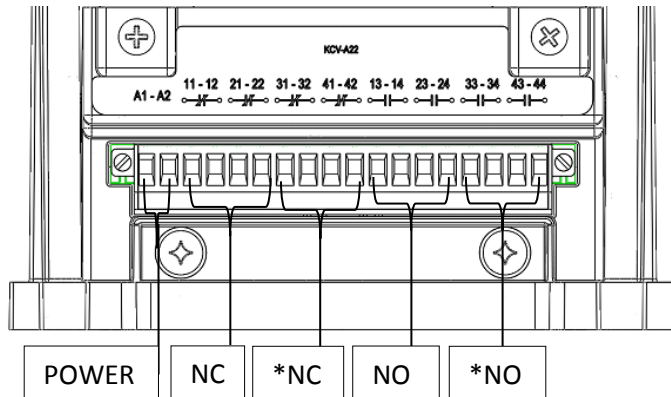


FIGURE 4

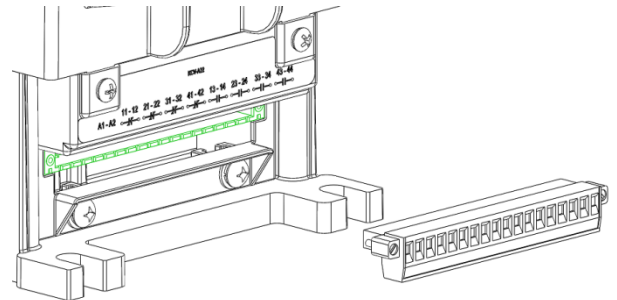


FIGURE 5

* Only available in the following configurations:

- CV77U033A12-22-A22
- CV77U033A12-11-A22

CONTROL PACK REPLACEMENT INSTRUCTIONS

DANGER

DE-ENERGIZE THE CONTACTOR AND ISOLATE FROM ALL CONTROL AND POWER SOURCES.

1. Disconnect all control wiring to the Control-Pack by removing the male terminal block(s) from the Control-Pack.
2. Remove the bottom (2) two #10 machine screws that secure the Control-Pack (FIGURE 6).
3. Remove the top (2) two plug connector screws and remove the locking insert.
4. Grab the sides of the Control-Pack and pull outwards to remove the control pack from the contactor (FIGURE 6).
5. Disconnect the four-pin coil connector from the Control-Pack.
6. Install the new Control-Pack (FIGURE 6). First, connect the four-pin connector to the Control-Pack. Then position the Control-Pack to slide into the contactor and push it inwards. Using the (2) two #10 screws mentioned in step 2, screw and secure the Control-Pak into the contactor.
7. Connect the male terminal block(s) to the control pack to reconnect all control wiring to the Control-Pack.

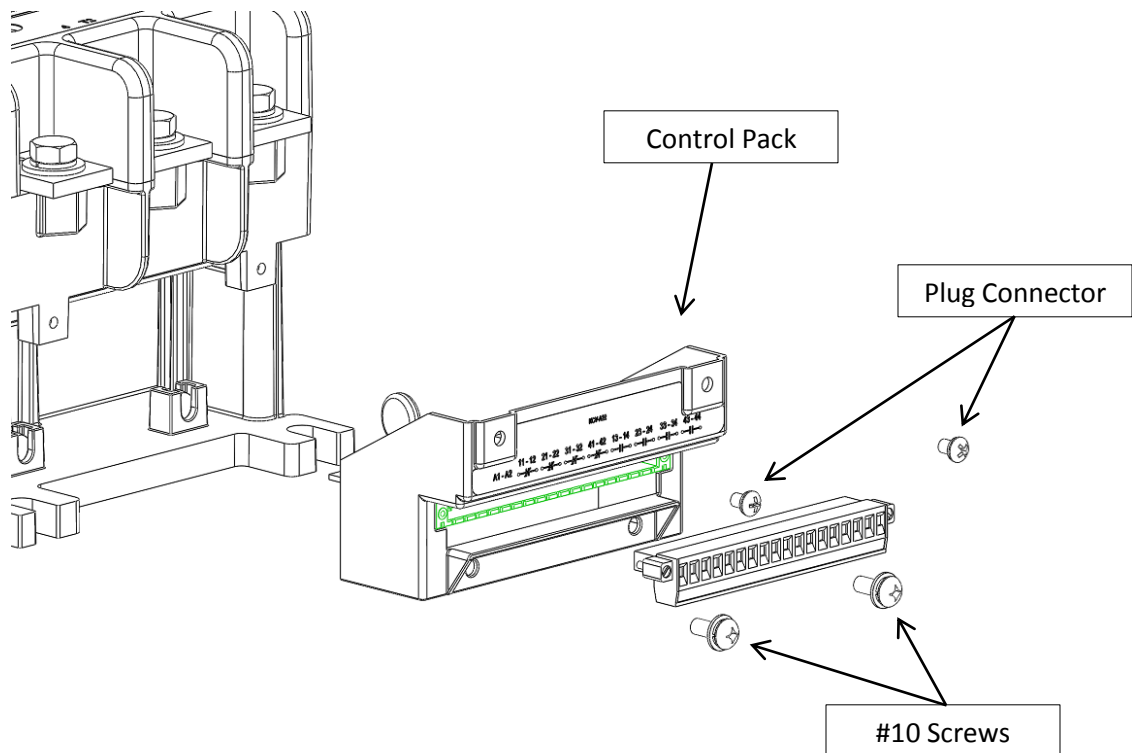


FIGURE 6

COIL REPLACEMENT INSTRUCTIONS

DANGER

DE-ENERGIZE THE CONTACTOR AND ISOLATE FROM ALL CONTROL AND POWER SOURCES.

1. Disconnect all power cables (or bus work) and all control wiring to the contactor.
2. Remove the contactor from its mounted location. The contactor is best serviced in the tabletop position.
3. Remove the (4) four cover attachment screws from the contactor and remove the cover (FIGURE 7).
4. Remove the (6) six screws that secure the Upper Housing to the Lower Housing by first removing the (4) four outer screws and then (2) center screws. **NOTE** – removing the center screws will release the Return Springs. Carefully remove the Upper Housing leaving the Return Springs in the Lower Housing (FIGURE 8).
5. Disconnect the 4-pin connector that attaches the coil to the Control-Pack, and remove and replace the coil. Ensure that the Shim Plate remains in the proper position between the magnet core and coil (FIGURE 9).

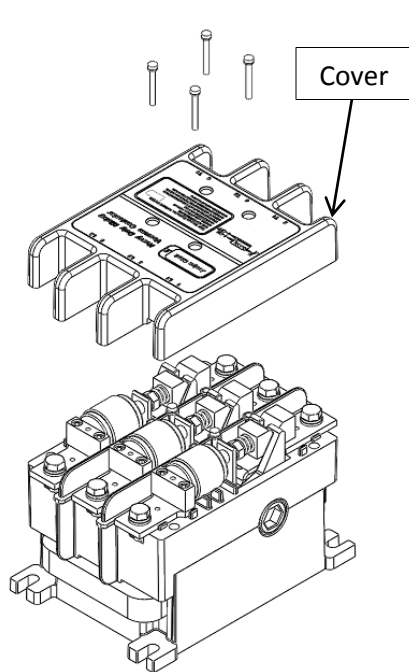


FIGURE 7

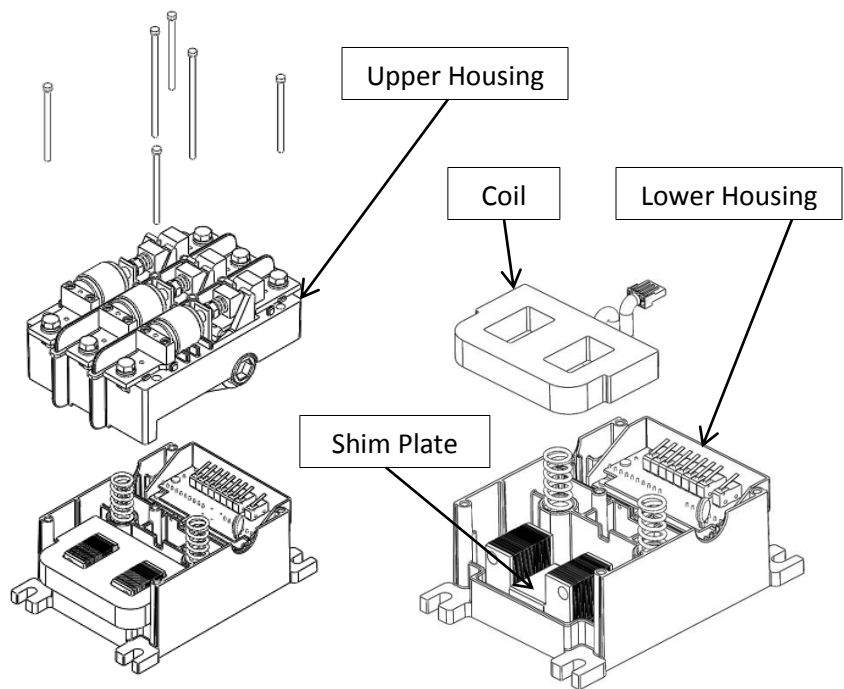


FIGURE 8

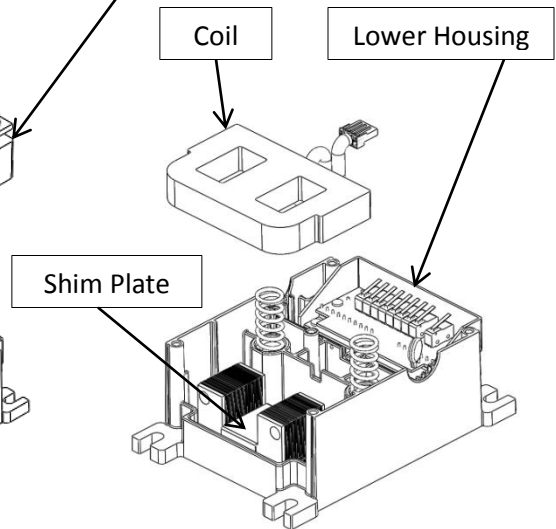
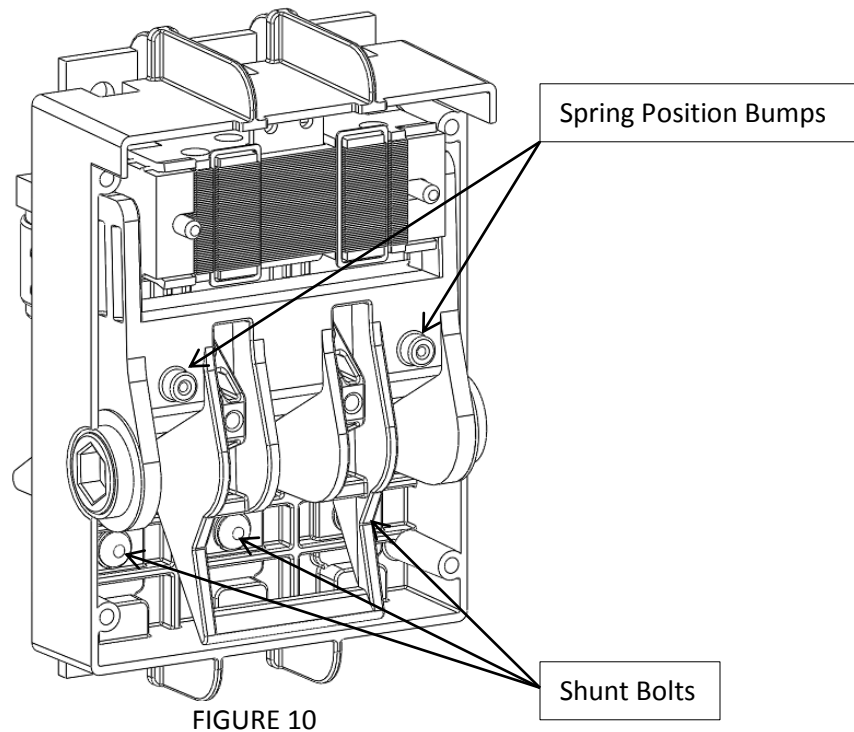


FIGURE 9

6. Once the coil is in its proper place, attach the 4-pin connector to the Control-Pack.
7. Carefully replace the Upper Housing, ensuring that it is orientated correctly and that the Return Springs are seated on the outer two bumps on the bottom of the Contact Operator (FIGURE 10). Replace the (6) screws that secure the Upper Housing. Tighten the screws equally in a diagonal pattern approximately two turns at a time until tightened to 15-20 inch-lbs in the same diagonal pattern (FIGURE 8).
8. Reinstall the cover and secure it with the original mounting hardware. Tighten the (4) four screws to 12 inch-lbs (FIGURE 7).
9. Reinstall the device and reconnect any auxiliary control wires. Reconnect the line and load conductors and tighten the main terminal hardware and bolts to 11ft-lbs.



CONTACT LIFE OVER TRAVEL MEASUREMENT

The purpose of this measurement is to determine how much electrical life remains on the contact and is performed using a standard wire gauge in a “go, no go” check.

1. De-energize the contactor and isolate from all power sources. The control source can be maintained if coming from a separate supply or if taken from a line to line connection by application then an additional control source needs to be connected to terminals A1 and A2. Re-energize the contactor insuring that the main power circuits are open and isolated.
2. View the location of the Indicating Cam in the Indicating Window (FIGURE 13). If the edge of the Indicating Cam is passed the ON indication range and within the edit image indication range, then the over travel has been exhausted and the contact life used up. The contactor should be replaced. (**NOTE** - It may be helpful to use a flashlight while viewing the Indicating Cam through the Indicating Window.)

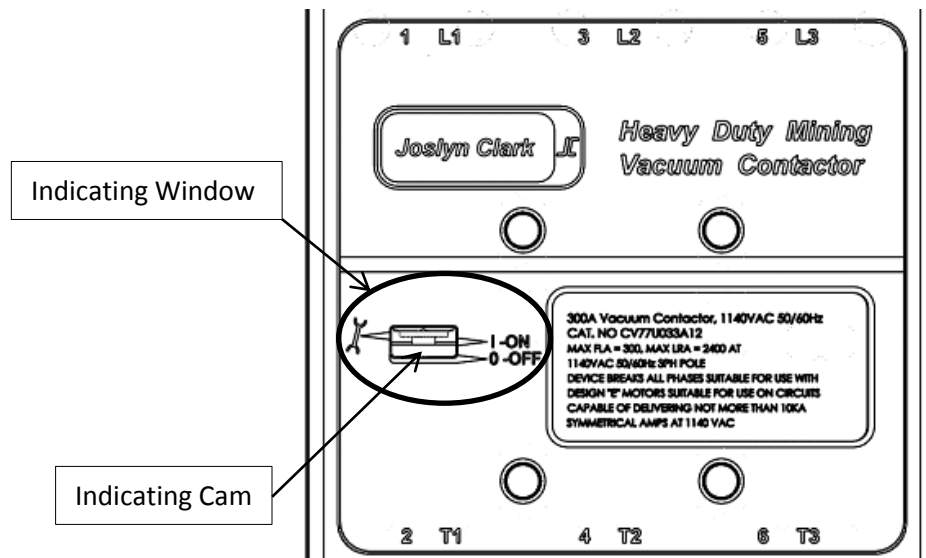


FIGURE 13

CLEANING AND MAINTENANCE

1. The vacuum contactor requires no adjustment. Preventative maintenance is recommended on a routine basis, once every twelve months, dependent upon the environment that the contactor is exposed to. In general, maintenance consists of keeping the device free of dirt and dust and ensuring the power and control terminals are tight.
2. Maintenance should verify the mechanical operation of the device for freedom of movement. Clean dirt from the surfaces. Pay particular attention to molded parts and tracking surfaces. Foreign materials on these surfaces should be removed by vacuum or wiping (DO NOT USE COMPRESSED AIR).

VACUUM INTERRUPTER INTEGRITY TEST

DANGER

The following test should be performed using a 50/60 Hz test set, where the voltage is continuously variable up to at least 6 kV. X-radiation at this level is negligible. However, personnel should not be closer than ten feet to the interrupter and the test cables to avoid high voltage shock hazards. The contactor should be free of dust and other contaminants before conducting this test.

1. Disconnect the line and load conductors from the contactor.
2. Connect the leads of the test set across the interrupter terminals with the contactor in the open position.
3. Slowly raise the voltage to 6 kV and hold for 60 seconds.
4. The leakage current should not exceed 5mA during the test and any tripping of the test set circuit protector during the test should be repeated two to three times. If it becomes impossible to reach the 6 kV level, this indicates that the interrupter has failed.

REPLACEMENT PARTS

CONTROL PACK

CATALOG SUFFIX	JOSLYN CLARK CATALOG #	DESCRIPTION
STANDARD FOR ALL	467650-0001	2NO/2NC AUXILIARY STANDARD
-A22	467650-0002	4NO/4NC AUXILIARY OPTION

COIL

CATALOG SUFFIX	JOSLYN CLARK CATALOG #	DESCRIPTION
-11	467651-0001	110/120 VAC 50-60 HZ
-22	467651-0002	220/240 VAC 50-60 HZ

DIMENSIONS

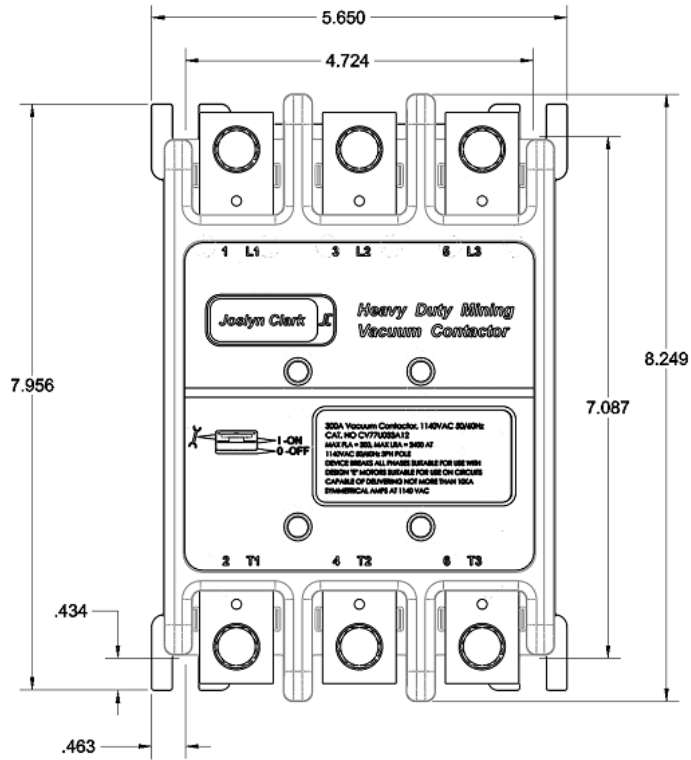


FIGURE 14

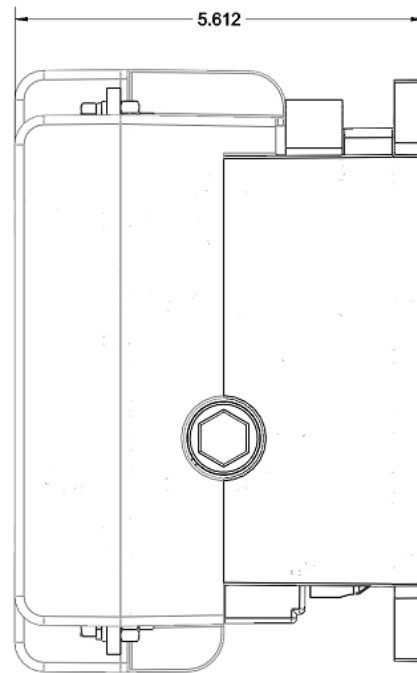


FIGURE 15

WIRING

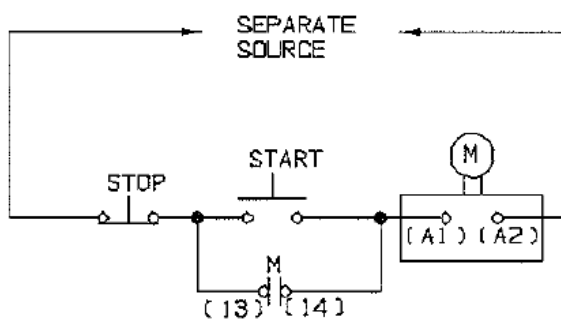


FIGURE 16

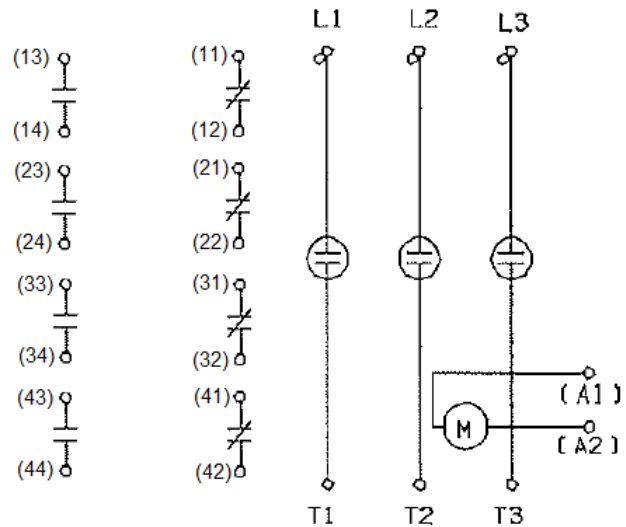


FIGURE 17