

 **Allen-Bradley**

# Electrically Held to Mechanically Latched Contactor

Bulletin 1502  
Series E or later

Retrofit Instructions

 **Rockwell  
Automation**

## Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary we use notes to make you aware of safety considerations.

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**WARNING**

Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

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**IMPORTANT**

Identifies information that is critical for successful application and understanding of the product.

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**ATTENTION**

Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequences.

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**SHOCK HAZARD**

Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.

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**BURN HAZARD**

Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be dangerous temperatures.

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# Electrically Held to Mechanical Latch Contactor Retrofit Instructions – Series E or later

## Compatibility

This procedure applies to kit 1502-4MLK, and it is for 400A OEM Vacuum Contactors listed at Series E or greater. The series letter can be verified from the contactor nameplate:



Figure 1 – Bulletin 1502 – 400A Contactor

In addition, ensure that the contactor molding has the three slotted holes and one round hole to the right of the magnetic coils that are required to mount latch mechanism and rubber stop.

This retrofit kit can only be applied to contactors using IntelliVAC Control circuits:



Figure 2 – IntelliVAC Control Assembly

# AB Spares

## Parts

Before beginning the retrofit, ensure that the Kit includes the parts listed below:

- 1 – 400 Amp Mechanical Latch Mechanism
- 1 – Auxiliary Contact and Plug Assembly
- 1 – Mechanical Latch Umbilical Cord

## Required Tools

- ½” Wrench
- Two 7/16” Wrenches
- Phillips Screwdriver
- 2” C-Clamp (or clamping fixture part no. 80154-149-51)
- Feeler gauges
- Side Cutting Pliers
- Wire Ties

## Duration

It typically takes less than 20 minutes to complete this procedure.

## Procedure

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**ATTENTION**

Before performing any maintenance on the contactor, refer to the User Manual of the starter configuration in which the contactor is installed for all service instructions and procedures. Failure to do so may result in injury to personnel or damage to the controller or contactor.

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It is assumed that this procedure will be performed on a workbench.

### Remove the Contactor Electrically Held Auxiliary Contact Assembly

1. Using a ½” wrench, remove the auxiliary contact actuator plate from the main shaft assembly.



Figure 3 – Removing the Auxiliary Contact Actuator Plate

2. Using two 7/16" wrenches, loosen the auxiliary contact assembly-retaining bolt and slide the electrically held auxiliary contact assembly out of the front of the contactor.
3. Disconnect the coil leads from the auxiliary contact assembly using a Phillips Screwdriver.



Figure 3 – Disconnecting Coil Leads from Auxiliary Contact Assembly

### Install the Latch Mechanism

1. Place the contactor on to its back to expose the underside of the contactor base.
2. Install the rubber stop as shown in the drawing below:

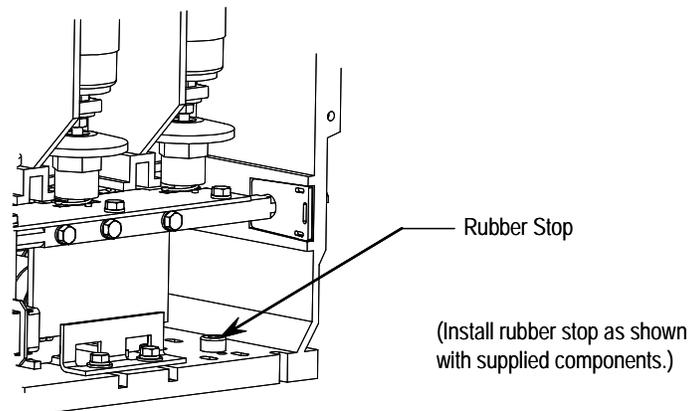


Figure 4 – Installing Latch Mechanism Rubber Stop

3. Separate the latch mechanism from the latch clamp plate by removing the 3 bolts which hold them together with a 1/2" wrench.
4. Slide the latch mechanism into the front of the contactor in the space right of the closing coils. Pull the trip coil leads out of the back of the contactor.



Figure 5 – Contactor (Front/bottom View)  
Showing Mounting Bolts for Latch Mechanism

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**ATTENTION**

The return springs exert a significant force on the armature plate. To avoid injury, do not place fingers between the armature plate and the stop bracket at any time.

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5. Position the clamp plate under the base of the contactor so that the three holes in the latch mechanism align with the slots in the contactor molding and the holes in the clamp plate. Hand tighten the three mounting bolts to hold the mechanism in position.

## Install the Mechanically Latched Auxiliary Contact Assembly

1. Wire the closing and trip coils to the Mechanically Latched auxiliary contact assembly as shown in the diagram below:

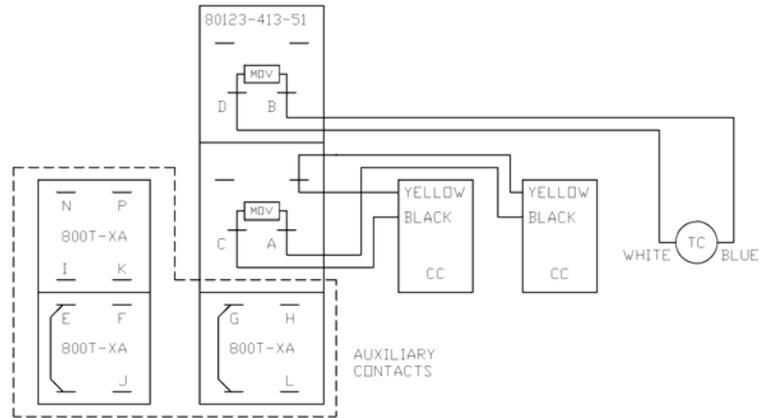


Figure 6 – Auxiliary Contact Assembly Layout

2. Slide the auxiliary contact assembly back into the contactor and hand tighten the retaining bolt so the assembly remains in position.
3. Re-Install the auxiliary actuator plate on the main shaft assembly.



Figure 7 – Contactor (front angle view) after Auxiliary Actuator Plate is re-assembled

### Auxiliary Contact Assembly Set-Up

1. Clamp the contactor closed from the back of the unit, using a C-Clamp (or clamping fixture, part no. 80154-149-51).
2. Insert a 0.030" (0.76 mm) feeler gauge between the plastic auxiliary contact actuator and the steel actuator plate. (See Figure 8)

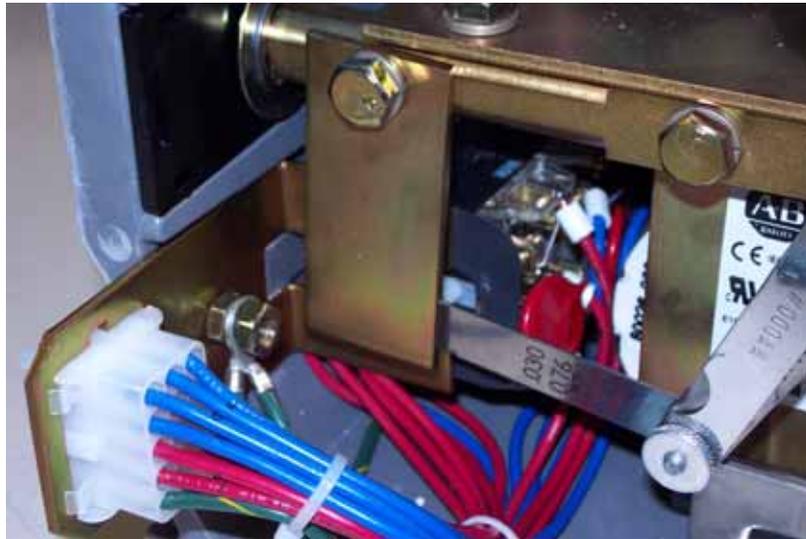


Figure 8 – Set-up of the Auxiliary Contact Assembly

3. Slide the assembly fully forward, until the contacts have fully engaged.
4. Secure the assembly in place by tightening the auxiliary assembly-retaining bolt.

## Mechanical Latch Mechanism Set-Up

1. Place the contactor on its side.
2. With the contactor still clamped closed, set the gap between the Latch Roller and the contactor armature plate to 0.01" using a feeler gauge. (See Figure 9)

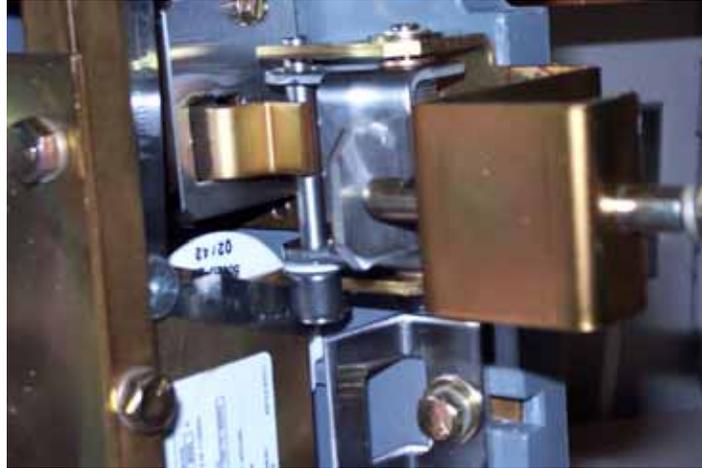


Figure 9 – Mechanical Latch Mechanism Adjustment  
(as viewed from the front with contactor  
resting on the left side)

3. Tighten the three mechanism retaining bolts from under the contactor.

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**ATTENTION**

The return springs exert a significant force on the armature plate. To avoid injury, do not place fingers between the armature plate and the stop bracket at any time.

4. Place the contactor upright and remove the C-Clamp. The contactor should remain latched. Discharge the contactor by unlatching it using the manual override.
5. Wire tie loose wires out of the way of moving components. (See Figure 10)

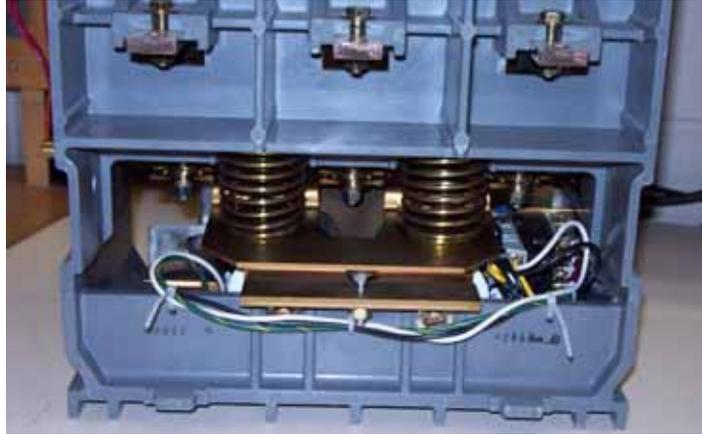


Figure 10 – Contactor (rear view) showing wires to be wire-tied

### Electrical Test

1. Connect the contactor to the control using the supplied umbilical cord.
2. Test the latch by electrically engaging the contactor using the control circuit.
3. If the contactor fails to latch, re-calibrate the gaps between the auxiliary contacts and contact actuator plate and the gap between the latch roller and contactor armature plate.



Figure 11 – Complete Contactor after Conversion



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