



# McCANNA Actuation Systems

17710-B

## ***Ramcon Series 8/25 C/CR, 50/100 B/BR, 250/500 B/BR Electric Actuators***

### *Installation, Operation and Maintenance Instructions*

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## Storage

If the actuator is not to be installed as soon as received, heated indoor electrical instrument storage conditions must be provided. The actuator and any auxiliary equipment should be protected from corrosive materials and atmosphere, flooding, and dirty conditions. Conduit openings should be plugged and must not be subjected to rain, snow or water hosing. Storage must be in a place where other materials will not be placed or dropped on the actuator.

## Installation

*Installation of this actuator in applications where life-threatening conditions can be expected must include adequate monitoring/warning, interlock, and/or redundant control equipment.*

## Electrical

- A. The wiring and conduits must be installed in accordance with all local codes and consistent with good practice for electrical work.
- B. In hazardous areas the conduit seals required must be locally installed. No conduit seal is provided in the actuator.
- C. If the actuator case is used as a splice box, the cover must be kept in place except when actually wiring or making adjustments. When replacing the cover all wires must be clear of pinch and scrape points and, if gasketed, proper gasket positioning must be observed.
- D. Each actuator must have its own control switch. Do not operate in parallel with another actuator or other equipment.
- E. Required and optional electrical connections are shown on the wiring schematic(s) supplied with the actuator (located either on the motor O.D. close to terminal block or inside of the housing) and also shown on page 3.

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**CAUTION: The typical wiring schematics shown may not show all wiring for actuators with optional features and must not be used as the basis for final wiring.**

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Single-phase AC actuator: (Verify that the nameplate voltage is the same as the AC supply voltage.) Connect actuator leads to the AC line as shown on the wiring schematic.

DC actuator: (Verify that the supply voltage matches the nameplate voltage.) The actuator rotation depends upon polarity at the terminals and it is essential that the polarity of connections be as shown on the wiring schematic supplied with the actuator.

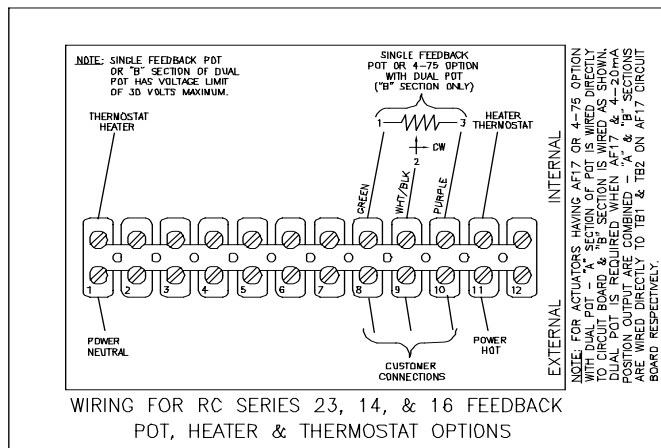
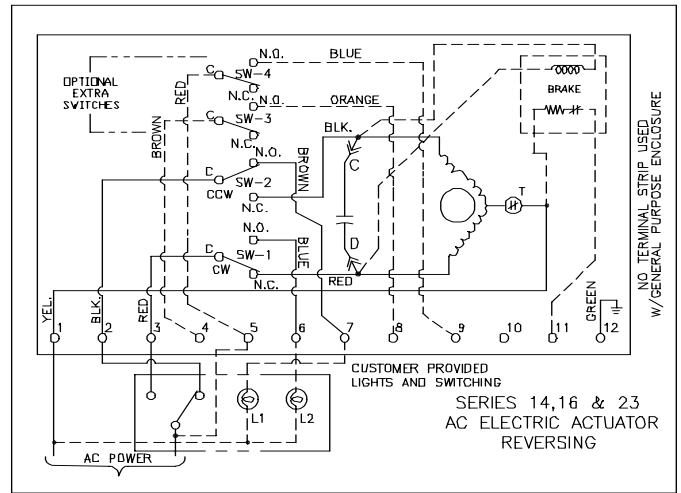
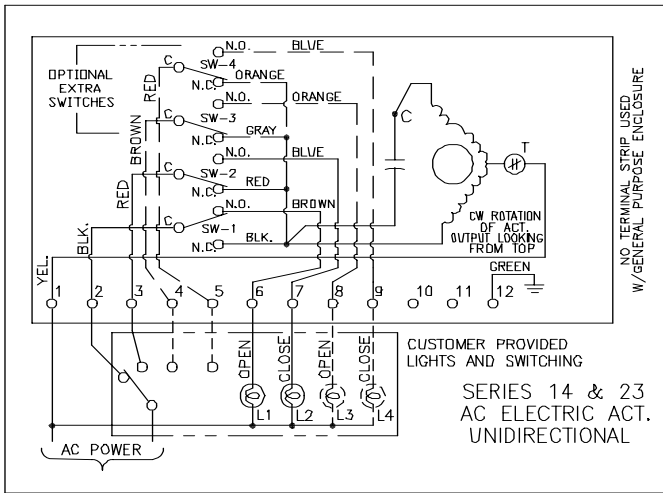
## Mechanical

- A. The valve or other load to be driven must be free of obstructions and must turn freely throughout its entire operating range.
- B. If mechanical stops are a part of the equipment, adjustment of these stops is necessary to avoid contact during normal operation. Limit switch must stop motor before mechanical stops are contacted.
- C. If the actuator is to be field-mounted be sure that it is positioned so that the operating range is compatible with the load; i.e., if load is at its extreme clockwise position the actuator output shaft must also be at the same clockwise limit.
- D. When positioning the actuator for a direct in-line connection to a valve, the two shaft centerlines must coincide to assure proper operation and to avoid excessive side loading of either shaft. A coupling with cross slots will provide some compensation for small misalignment. Position so that there is not axial loading of either shaft at any point of travel.
- E. If connection is other than direct coupling, the linkages used must operate freely and must be clear of all obstructions throughout the complete travel range.
- F. Unless specifically required to make other adjustments, the actuator shaft travel for standard units will be clockwise when viewed from the motor and cam side, or counter-clockwise when viewed from the mounting flange side of the actuator with the yellow and red circuit energized. The same is true for DC actuators with polarity connection as shown on the wiring schematic. Reversible actuators (standard configurations) will rotate counter-clockwise, motor and cam end, when the yellow and black leads are energized.
- G. If adjustments are required, cam settings can be changed. (See figures 1, 2, 3, and 4)

## Maintenance

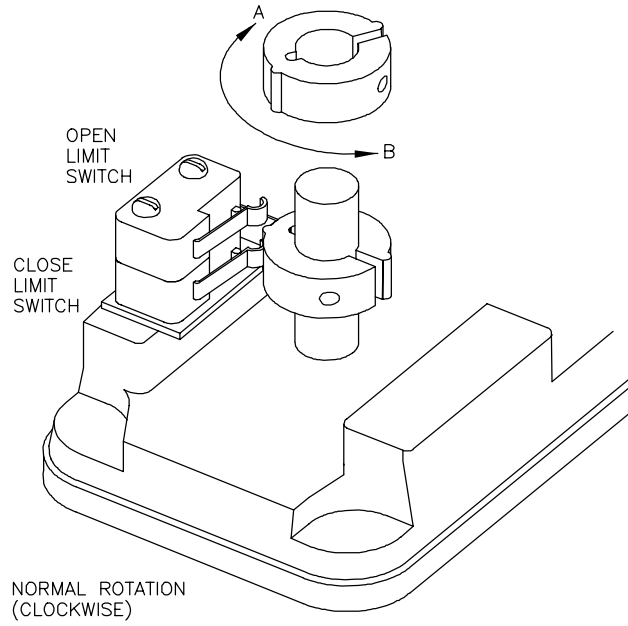
Maintenance recommendations given are for the typical or average installation conditions. In severe installation conditions including items such as corrosives, extremes of heat and cold, humidity, etc., and where the potential for dangerous or life-threatening conditions in case of malfunction exist, more frequent and thorough maintenance procedures will be required. Local conditions and procedures must be used to determine an appropriate inspection and/or maintenance program.

The McCANNA Ramcon electric actuator is completely enclosed by a rugged housing designed to resist the most frequently encountered installation atmospheres, and contains a closed, grease-filled gear train. All standard AC motors are brushless induction types with no commutators or brushes to wear or get dirty. For many installations no formal or only minimum maintenance procedures will be required.

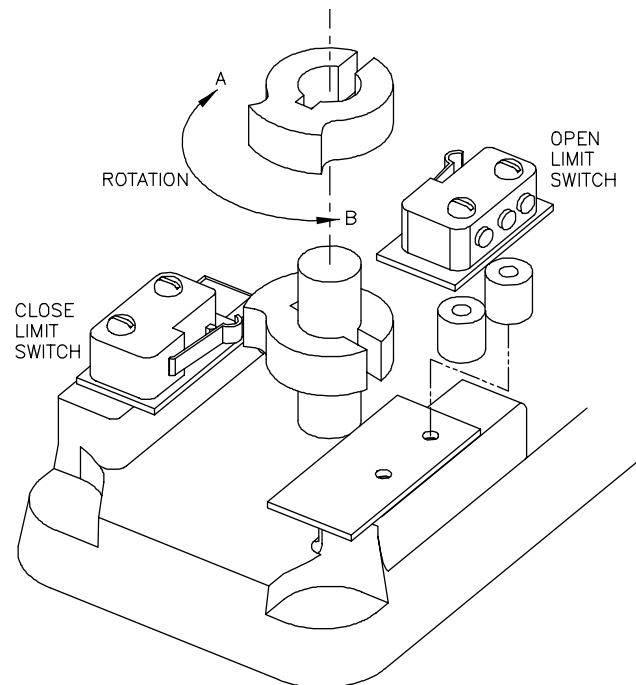


**NOTE:** Series 23 includes models 8C, 8CR, 25C and 25CR. Series 14 includes models 50B, 50BR, 100B and 100BR. Series 16 includes models 250BR and 500BR

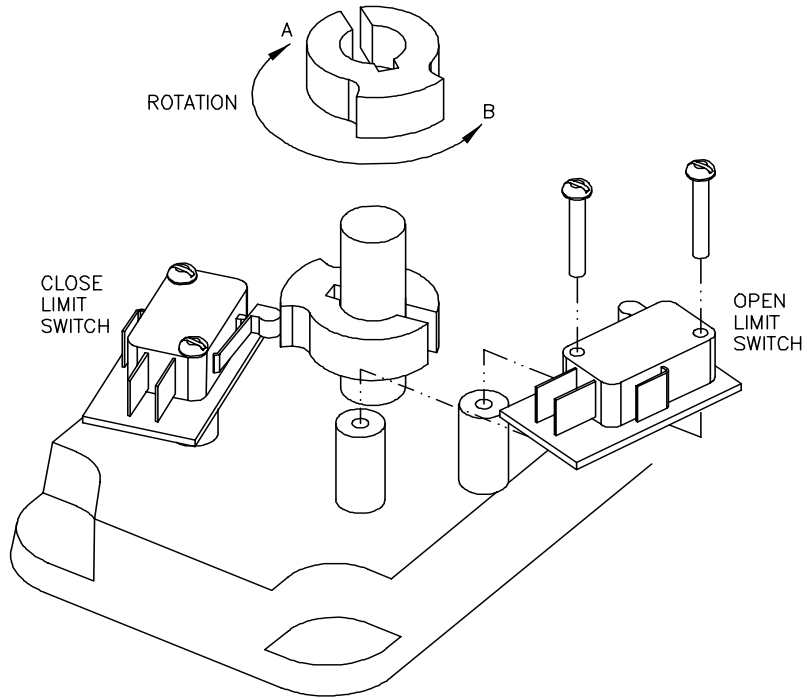
**Figure 1: 8C-25C Unidirectional**



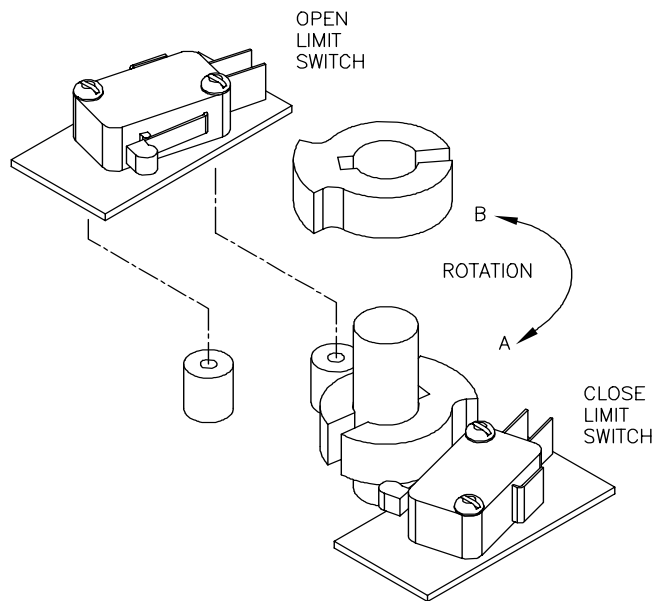
**Figure 2: 8C-25CR Reversible**



**Figure 3: 50BR-100BR Reversible**



**Figure 4: 250BR-500BR Reversible**



**A. Inspection**

Inspect the actuator regularly to check:

- Any evidence of corrosion
- To make sure alignment is maintained relative to the load.
- That the actuator case has not been physically damaged.
- For excessive dirt and water entering actuator cases. (Clean and correct as necessary).
- For evidence of loosening or shifting of parts due to vibration, shock, wear or other conditions.
- Free action of brake and proper electrical release and holding with no power.
- Any evidence of overheating.
- Any cracking or damage to wire joint and/or insulation.
- Any evidence of arcing or electrical shorts.

Under normal conditions, this inspection may be at intervals of six months to a year. Where conditions are more severe, the inspection should be at more frequent intervals as dictated by the actual conditions. In all cases the consequences of a failure should be a factor determining frequency of inspection or servicing.

Always promptly check actuator in any case of malfunction or erratic operation, and correct the cause.

**B. Spare Parts**

There has been no history of failure or weakness in any category of parts which would dictate stocking of spares. Some users have stocked items such as motors, capacitors, switches, gear trains, complete actuators, or their combinations of parts and assemblies depending upon their local conditions and requirements of uninterrupted service.

When spare parts are required, include actuator model, and description of part(s).

**C. Repairs – Warranty Terms and Conditions**

Before attempting repairs, modifications or addition of equipment to the actuator by non-authorized personnel, the following warranty terms and conditions should be reviewed.

Flowserve warrants its products against defects in materials and workmanship for a period of one year from date of shipment from its factory provided the equipment is properly installed and operated. Liability is limited to repair, return of purchase price, or replacement of any parts shown to be defective, and does not extend to damage caused by accident, misuse, abuse, neglect, tampering, or deterioration by corrosion. Products or parts not manufactured by Flowserve are warranted only for the extent of the original manufacturer's warranty. There are no implied warranties of fitness for a particular purpose. In no event shall

Flowserve be liable for loss of profits, loss by plant shutdown, increased expense of operation, or other special or consequential damages.

Should repair be necessary due to damage, wear, or malfunction, identify any parts which may be required and contact your McCANNA Ramcon Distributor or the factory. If it is necessary to disassemble the actuator, observe proper orientation of all parts and proper routing of all wires. Contact the factory for major repair and RMA (Return Material Authorization) number.

**Adjustments**

*NOTE: See Figures 1-4.*

**Unidirectional**

TO ADJUST OPEN

1. Loosen set screw on second level cam
2. Rotate cam in direction "A" to reduce overtravel, "B" to reduce undertravel
3. Tighten set screw
4. Run actuator to verify proper settings

TO ADJUST CLOSE

1. Loosen set screw on bottom cam
2. Rotate cam in direction "A" to reduce overtravel, "B" to reduce undertravel
3. Tighten set screw.
4. Run actuator to verify proper settings

**Reversible**

TO ADJUST OPEN

1. Loosen set screw on second level cam
2. Rotate cam in direction "A" to reduce undertravel, "B" to reduce overtravel
3. Tighten set screw
4. Run actuator to verify proper settings

TO ADJUST CLOSE

1. Loosen set screw on bottom cam
2. Rotate cam in direction "A" to reduce overtravel, "B" to reduce undertravel
3. Tighten set screw.
4. Run actuator to verify proper settings

## Troubleshooting

Problem	Check for ...	Problem	Check for ...
<b>Stops operating</b>	Power interruption due to power failure or from loose or broken wires, tripped circuit breakers, etc. High voltage causing burnout. Shorted switches or other electric components due to foreign material or wiring not properly routed. Correct position of declutch lever (250BR, 500BR). Damaged or corroded switch contacts.	<b>Actuator runs slower than rating</b>	Brake not releasing. Excessive torque in valve. Both limit switches being powered (control circuit or wiring). Both motor windings being powered (within actuator).
<b>Reduced torque output</b>	Low Voltage. Capacitor function. Gear Train free. Motor alignment. Brake not releasing.	<b>Motor turning but output shaft stationary</b>	Gear train may be worn, broken, or incorrectly assembled in the field. Correct position of declutch lever (250BR, 500BR)
<b>Overheating</b>	Hot areas, either line or ambient. Excessive duty cycle. Stalling due to incorrect cam setting. (See Paragraph B under Mechanical on page 2). Obstruction preventing cam travel to switching point. Forward and reverse windings powered at the same time.	<b>Continuous turning in one direction on reversible actuator</b>	Cam may be loose on the shaft. Cam may be worn and miss the limit switch. Switch mounting may be loose. Switch may be stuck on its closed position.
<b>Actuator will not run</b>	Power not getting to the motor. Limit switch open. Switch contact resistance. Capacitor function on AC actuators. Brush/commutator continuity on DC actuators. Optional brake not being released (not wired, coil problems or relay problems).	<b>Continuous turning during one of the travel segments on unidirectional actuator</b>	Cam shaft may be bent away from the switch.

## NOTICE

McCANNA actuators are designed and manufactured using good workmanship and materials, and they meet all applicable industry standards.

Flowserve is anxious to avoid injuries and property damage which would result from misapplication of the product. Proper selection is imperative. Examples of misapplication or misuse include use in a service in which the pressure/temperature rating is exceeded or in a chemical service incompatible with the materials of construction; use of undersized actuators; use of extremely fast actuation and/or continuous cycling on standard product; making modifications of the product of any kind; failure to use caution on operating in high-temperature, high-pressure, or highly hazardous services; failure to maintain product as recommended.

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

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