

IMPORTANT: KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.

⚠ WARNING

The C810-F 12 Volt Electrical Fail Safe Release Actuator must be used for **ANHYDROUS AMMONIA APPLICATIONS ONLY**.
DO NOT USE IN LPG/PROPANE SERVICE.

USER SAFETY RESPONSIBILITY STATEMENT FOR SQUIBB TAYLOR PRODUCTS

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Squibb Taylor and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Squibb Taylor or authorized distributors.

To the extent that Squibb Taylor or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

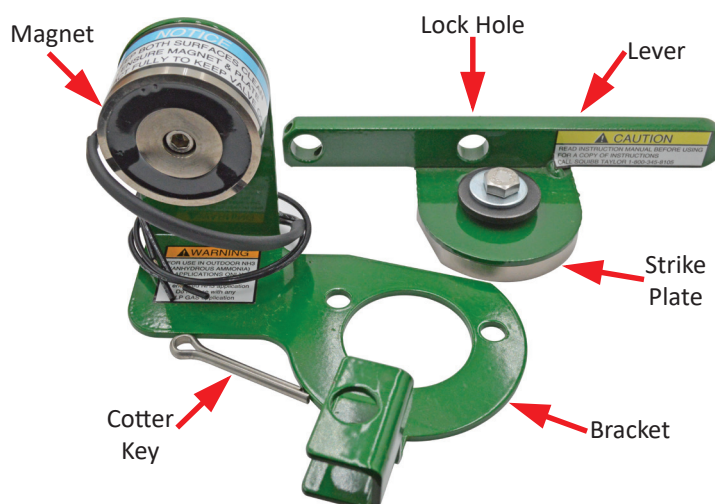
Failure to follow these instructions or to properly install and maintain this equipment could result in personal injury or death. Equipment must be installed, operated and maintained in accordance with federal, state and local codes. The installation must also comply with NFPA No. 70 and ANSI K61.1, (CGA G-2.1) standards and/or local authority having jurisdiction. Only personnel trained in the proper procedures, codes, standards and regulations of the Anhydrous Ammonia industry shall install and service this equipment.

Scope of the Manual

This instruction manual covers installation, operation, & maintenance for the C810-F electrical release for Fisher® 2" & 3" internal valves in outdoor Anhydrous Ammonia (NH₃) applications. These valves have two different hardware designs that secure the gland to the body.

Parts List

Part Description	Qty.
Green Bracket with Magnet	1 Pc.
Green Lever with Strike Plate	1 Pc.
Cotter Key for Lever	1 Pc.



NOTE: REFER TO THE INSTRUCTION MANUAL SUPPLIED WITH THE INTERNAL VALVE OR SQUIBB TAYLOR'S WEBSITE FOR ALL WARNINGS, CUSTOMER NOTIFICATIONS, SPECIFICATIONS, OPERATION, CAUTIONS, MAINTENANCE, & PARTS. CALL SQUIBB TAYLOR @ 800.345.8105 WITH ANY QUESTIONS BEFORE PROCEEDING.

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Determine what Type of Valve you will be installing the C810-F Actuator on. These valves have two different hardware designs that secure the gland to the body. The Current Valves have a Stud-Type Mounting System. The older Valves have a Screw-Type Mounting System. Proceed to the Installation Section for you application.



Stud-Type Valve



Screw-Type Valve

Installation For Stud-Type Valves

⚠ WARNING

When installing or removing Internal Valve from tank, make sure all Product & Pressure has been removed from Nurse Tank and any Downstream Piping.

1. Remove Stud Caps, Nuts, & Washers from Gland Assembly. Leave Studs & Gland Assembly in place. Retain Stud Caps, Nuts, & Washers.



NOTE:

Keep these parts for reassembly.

Tool Used: 9/16" Open End Wrench

2. Install Bracket over studs as shown. The Bracket must be parallel to Gland Assembly to slide over studs.

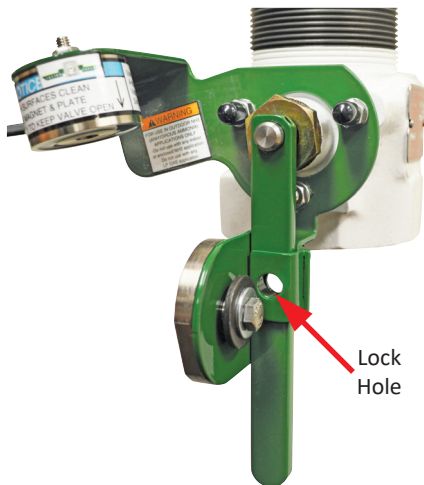


3. Secure the Bracket with Nuts & Washers from Step 1. Reinstall the Stud Caps.



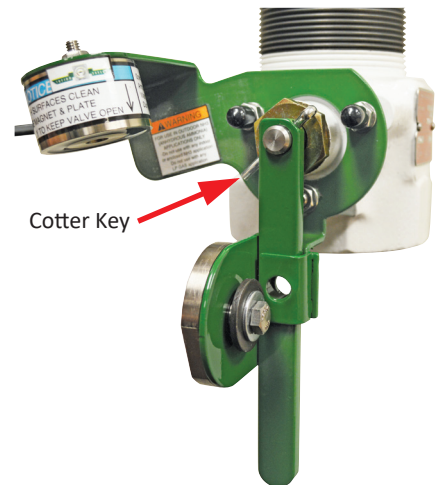
Tool Used:
9/16" Open End Wrench

4. Install the lever onto the Stub Shaft as shown. Hold the lever toward the 7 o'clock position and slide onto Stub Shaft. Then line lever up with the Lock Hole.



Lock Hole

5. Secure the Lever to Stub Shaft with the Cotter Key that is Provided. Push the lever to the left just a bit to get the holes to line up. Bend the ends of the Cotter Key so that it does not come out.



Cotter Key

Tools Used: Pliers

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Installation For Stud-Type Valves Continued

6. Connect electromagnet to the 12 V DC system and turn on voltage to the electromagnet.

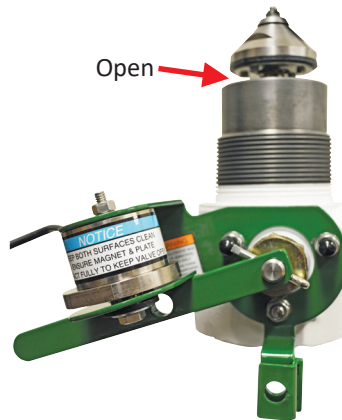
7. Raise up on the Lever to open valve. Strike Plate should latch against Surface of Electromagnet and stay attached to the Surface of Strike Plate while voltage is applied. Valve must stay open. **Upon de-energizing the Electromagnet, the Lever and Valve must quickly “snap” closed.** The Lever and Valve must quickly rotate and close either when (a) the power source is turned off or (b) the handle is pushed closed from the latched open position.

⚠ WARNING

**NEVER WIRE OPEN OR BYPASS
MAGNET TO HOLD VALVE OPEN.**

⚠ CAUTION

**DO NOT PAINT THE STRIKE PLATE OR THE MAGNET.
The Paint Will Impede Operation.**



Power On & Valve Open.



Power Off & Valve Closed.

Assembled Valve & Manual Release is now an Emergency Shutoff Valve for Anhydrous Ammonia (NH₃) Nurse Tank.

- Test For Proper Operation @ A Minimum Of Once A Month & Daily During Field Application Periods.
- Always Test Operation Before Sending To Field For Use.

Installation For Screw-Type Valves

⚠ WARNING

When installing or removing Internal Valve from tank, make sure all Product & Pressure has been removed from Nurse Tank and any Downstream Piping.

1. Remove Screws & Washers from Gland Assembly. Retain Screws & Washers.



NOTE:

**Keep these parts
for reassembly.**

Tool Used: 9/16" Open End Wrench

2. Slide Bracket over Gland Assembly as shown.



3. Secure the Bracket with Screws & Washers from Step 1.



Tool Used:
9/16" Open End Wrench

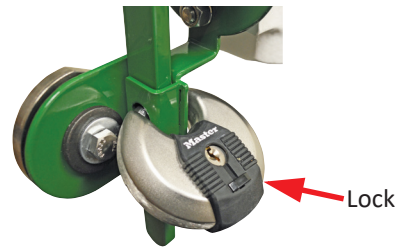
Refer to Steps 4 - 8 of Installation For Stud-Type Valves to finish install.

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Locking Option

Valve Can Be Locked
As Shown In Photo.

Padlock Not Included.



Maintenance

⚠ WARNING

ONLY PERSONNEL TRAINED IN THE PROPER PROCEDURES, CODES, STANDARDS & REGULATIONS OF THE ANHYDROUS AMMONIA INDUSTRY SHALL PERFORM MAINTENANCE ON THIS EQUIPMENT. Before starting any type of maintenance, close off the C810-F valve(s) & remove all Anhydrous Ammonia (NH₃) pressure from the Outlet of the Internal Shutoff Valve. If maintenance or repairs are to be made on the internal valve(s), refer to the Instruction Manual for the particular valve model. An C810-F electric actuator that has been disassembled must be tested for proper operation before being returned to service.

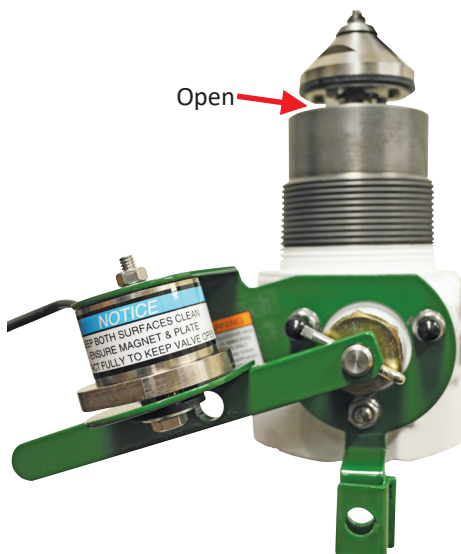
CHECK ACTUATOR PERIODICALLY FOR THE FOLLOWING:

1. See that the electrical release is properly connected, works freely and is not worn. Make sure that the handle and strike plate are working smoothly.
2. Make sure there are no obstructions or debris to block the valve and handle from closing when the electromagnet is de-energized.
3. When opening the valve make sure there are no impurities or debris on the contact surface between the electromagnet and strike plate.
4. Turn on the voltage to the C810-F electrical release, rotate the handle counterclockwise to open the valve. Verify that the strike plate remains latched against the surface of the electromagnet and stays attached to the surface of the electromagnet while voltage is applied. Then interrupt the power to the electromagnet. Turn off the voltage supplied to the electromagnet and verify that the handle and valve snaps closed and the Latch Locks the Handle.

Operation

To Open Closed Valve

1. Close a shutoff valve downstream of the internal valve.
2. Turn the electrical power on.
3. Rotate the lever on the C810-F clockwise. There is a rapid bleed opening as tank pressure helps hold the main valve disk closed against the seat until pressure equalizes on both sides of the main valve disk. The internal valve can be opened without further pressure by continuing to rotate the lever to the open position.
4. When the lever is fully open, the electromagnetic force of the magnet latches against the strike plate and holds the valve open.



Power On & Valve Open.

⚠ CAUTION

DO NOT Force open handle against NH₃ Nurse Tank flow before pressure is equalized on each side of the main valve disk. Keep Hands & fingers away from the handle as it closes when electrical power is turned off.

To Close Opened Valve

From a remote location, turn the electrical power off. The electromagnet de-energizes causing the magnet to lose its magnetic field. Due to loss of magnetic field, the magnet unlatches from the strike plate. The closing spring causes the valve to close. For any other reason, if 12 Volts is lost the valve closes automatically. This is why the C810-F Actuator is known as **FAIL SAFE**. Manually forcing the handle counterclockwise can also close the valve.



Power Off & Valve Closed.

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Electrical Specifications

The Electrical Specifications section lists specification for the C810-F Electrical Release Actuator that is designed for Anhydrous Ammonia (NH₃) service at ambient temperatures. For a copy of instructions or additional inquiries, please call Squibb-Taylor @ 1.800.345.8105.

Electrical Specifications

Rated Voltage: 12 VDC

Operating Voltage Range: 11 to 13.2 VDC

Resistance: 20.5 ohms \pm 10% at 68°F / 20°C

Ampere at Rated Volts: 0.58 A at 68°F / 20°C

Watts at Rated Volts: 7.0 W at 68°F / 20°C

Holding Force: 140 lbf at 68°F / 20°C

Duty Cycle: Continuous

Electromagnet Wire Lead Specifications

Complies with: UL 1015

Cable Type: Stranded Conductor

Cable Specifications: AWG 18

Maximum Amperage: 3.7 A

Maximum Resistance at 71°F: 6.64 Ω /1000 ft

Customer Wiring Requirements⁽¹⁾

See Recommended Wire Size (AWG) gauge in Table 1 or per local electrical codes and authority having jurisdiction.

Connection of Electromagnet Wire Lead to Customer Wiring Requirement⁽¹⁾

Connections shall be per ANSI/NFPA 70, National Electrical Code or local electrical codes and authority having jurisdiction.

Operating Temperature⁽²⁾

-40 to 140°F / -40 to 60°C

1. Electrical equipment and wiring for use in ammonia installations shall be general purpose or weather resistant as appropriate.

2. The temperature limits in this Instruction Manual and any applicable standard limitation should not be exceeded.

Table 1. Recommended Wire Size (AWG) Per Number of Units Installed at Distance

RECOMMENDED MINIMUM WIRE SIZE ⁽²⁾⁽³⁾ [AWG]																	
		One-Way Length of Wire ⁽¹⁾ (ft.)															
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	
NUMBER OF UNITS	1	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	0.58
	2	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1.16
	3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1.74
	4	12	12	12	12	12	12	12	12	12	12	12	12	12	10	10	2.32
	5	12	12	12	12	12	12	12	12	12	12	10	10	10	10	10	2.90
	6	12	12	12	12	12	12	12	12	12	10	10	10	10	10	8	3.48
	7	12	12	12	12	12	12	12	10	10	10	10	10	8	8	8	4.06
	8	12	12	12	12	12	12	10	10	10	10	8	8	8	8	8	4.64
	9	12	12	12	12	12	12	10	10	10	8	8	8	8	8	8	5.22
	10	12	12	12	12	12	10	10	10	8	8	8	8	8	6	6	5.80
	11	12	12	12	12	10	10	10	8	8	8	8	8	6	6	6	6.38
	12	12	12	12	12	10	10	10	8	8	8	8	6	6	6	6	6.96
	13	12	12	12	12	10	10	8	8	8	8	6	6	6	6	6	7.54
	14	12	12	12	10	10	10	8	8	8	6	6	6	6	6	6	8.12
	15	12	12	12	10	10	8	8	8	8	6	6	6	6	6	4	8.70

Gray areas indicate that the AWG values are limited by NFPA 70 recommended minimum wire size, check local code for requirements.

1. Wire length is measured from the electromagnet(s) to the power source, in-and-out nature of circuits is accounted for.

2. Wire resistivity based on solid copper wire at 68°F / 20°C.

3. Wire size based on 1 VDC allowable voltage drop with 12 VDC nominal supply.

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Replacement Part

Item Number	Part Number	Part Description
750892	12V EM	12V Electromagnet

WARNING - For Anhydrous Ammonia (NH₃) Service Only

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