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Instruction & Operation Manual

Universal Actuator Control Board

PN: 9643-03 ASSY. Rev-C-D

Revision-1.3

Aug 2014

Form: F-4200

- Revision History -

Rev 1.0 - Nov. 1997

Covers actuator control board revisions C & D. Originally used a Bussman 1/2 Amp fast acting fuse.

Rev 1.1 - Aug. 1998

Modified fuse specification to Bussman MDL-1/2 (1/2 Amp time delay).
Updated telephone area code from 714 to 949. Updated troubleshooting section

Rev 1.2 - May 2013

Keiser Mfg. acquired the RSV product line.

Rev 1.3 - Aug 2014

Revised form number from F-4061 to F-4200

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1.0 PRODUCT SPECIFICATIONS

The 9643-03 card is a hardware product designed to control the RSV-series valve actuators by a command position mode or a read-back position mode. This is an ideal control solution for a valve retrofit where all of the PLC equipment and wires are in place.

1.1 General Specifications

Power	115 VAC single phase (1/20 Hp)
Maximum current	0.5 AMP (Time delay fuse: use Bussman MDL-1/2)
Motor rotation	CCW
Motor speed	16.7 RPM
Mechanism speed	8 RPM (approx.)

1.2 Read-Back Position Mode

- Allows host PLC to monitor valve positions using an 8-input discrete card.
- PLC causes motor to rotate using 24 VDC or 120 VAC. (board configurable)

1.3 Command Position Mode

- Allows host PLC to control valve positions using an 8-output discrete card.
- Valve rotates to requested position and stops on its own. (No feedback involved)

1.4 Safety Feature

- ½ AMP fuse prevents motor damage and overheating in case nozzle becomes locked.

2.0 CONNECTIONS / HARDWARE SETUP

2.1 MAIN POWER:

Connect main power to terminal block. (See Fig.3) H-HOT, N-NEU, G-GND are stamped next to the terminal block.

2.2 Read-Back Position Mode

Field wiring & cables supplied by customer.

In the read-back position mode, the PLC controls the ON/OFF state of the motor with either 120-VAC or 24-VDC. The PLC also supplies a continuous common signal to the actuator control board, which is routed back through one of eight position wires to the PLC's input card. The common signal can be a voltage in the range of 0-125 VAC @ 0.5 AMP or 0-24 VDC @ 1 AMP.

2.2.1 Jumper Settings (Refer to Fig.1 & 2)

1. Locate jumper JP9 and connect pin 1 and 2 with Mfg. supplied jumper.
2. Locate jumpers JP1 through JP8 and connect the center pin to RP.
3. Connect common signal to RPCMD located on J2.
4. Connect motor signal to MOTOR located on J2. This signal rotates the motor. Set JP10 for 24V or 115V to select the desired voltage to control the motor. ***WARNING, make sure that JP10 is set properly. If JP10 is set to 24V and 115 VAC is applied to the MOTOR, the on-board 24VDC relay will be damaged!***

Note: JP10 is on board revision-D only (see Fig.2). Board revision-C allows the motor to be controlled with 115 VAC only and is labeled 115 VAC on J2 (see Fig.1)

When the valve rotates past each position, the RPCMD signal is routed through one of eight relays. The position is represented as an output position on J2. (See H through P7) When the PLC program detects the correct position it is responsible for turning the motor off.

2.3 Command Position Mode

Field wiring & cables supplied by customer.

In the command position mode, the PLC's output card controls the direct position of the actuator with either 120-VAC or 24-VDC. When one of eight positions (H through P7) is hot, the actuator control board rotates the motor and stops when the valve position matches the corresponding hot wire. In this mode, there is no direct feedback to the PLC to indicate that the valve ever reaches its destination. One way to get feedback to the PLC is to monitor the ON/OFF state of the motor. Depending on the voltage used to control the motor, 24 VDC or 115VAC is present on the J2-MOTOR terminal whenever the motor is rotating. An additional input can be used in conjunction with a programmed time-out to monitor the motor status. The actuator should take no more than 120 seconds to get to any requested position.

2.3.1 Jumper Settings (Refer to Fig.1 & 2)

1. Locate jumper JP9 and connect pin 2 and 3 with Mfg. supplied jumper.
2. Locate jumpers JP1 through JP8 and connect the center pin to CP.
3. Locate jumper JP10 and connect pins for 24V or 115V motor control.
4. Depending on the JP10 setting, apply 24 VDC or 120 VAC to any one-pin (H-P7) on J2. The actuator should rotate and stop at the desired location.

2.4 Jumper Block Table

	Control Mode		Motor Control	
	JP1-JP8	JP9	No Jumper (Rev-C)	JP10 (Rev-D)
Command Position	CP	Pins 2-3	115 VAC	24V or 115V
Readback Position	RP	Pins 1-2	115 VAC	24V or 115V

3.0 TROUBLESHOOTING

WARNING!

In known hazardous locations, it is dangerous to operate the actuator with the lid removed and a live circuit exposed to the environment. To avoid the risk of electrical shock or an explosion, disconnect all power before performing service on the actuator or valve.

In the event that the PLC & actuator does not work entirely or in part, there is a simple way to isolate the PLC from the actuator and verify if the actuator control board is functioning properly.

With main power connected, measure voltage of transformers primary and secondary wire leads, located on connector J1. (SEE Fig.1 or 2) The voltage between PR1-PR1 should be 115 VAC. The voltage between SEC-SEC should be 24 VAC. If this is not the case, check fuse F1 to see if it is blown, otherwise the transformer is not working

- Set board jumpers **JP1-JP8 to CP**. (command position mode)
- Set board jumper **JP9 to pins 2 & 3**.
- Set board jumper **JP10 to 115V**.
- Use a small screwdriver to remove connector J2. (Pull the entire blue plastic piece off the board, leaving the wires connected)
- Secure an alligator clip (jumper-wire) from the board fuse (F1) to the desired position (H-P7) located on connector J2.
- The valve will rotate until it reaches the desired position and stop on its own. Repeat for all positions.
- If all positions work properly, change the board settings back to the original control mode and check the PLC program and I/O modules.
- If problems persist, contact Keiser Mfg. and request technical support because the board may be defective.

4.0 SUPPORT, SERVICE AND WARRANTY

4.1 **TECHNICAL SUPPORT:**

At Keiser Mfg., our goal is to provide meaningful support to our customers. Should any questions or problems arise, please contact us:

Keiser Mfg., Inc.
3501 North Hwy. 123 Bypass Rd.
Seguin, TX 78155
(830) 379-0721
(830) 379-4609 fax
support@keiser-mfg.com

This document, along with others pertaining to our products is located on our web site.

www.keiser-mfg.com

In order for us to respond as quickly and accurately as possible, we will need some information about the actuator and electronics. Provided for your convenience is a pre-formatted technical-services-request form, which is located in appendix A. Fill out as much of the form as possible and fax it to us before calling for technical support.

4.2 **SERVICE AND REPAIR:**

The 9643-03 actuator control boards are electronic products designed and manufactured to function in adverse operating conditions. As with any product, many factors can change the expected life of the electronic board. In the event, that repair or replacement is required please direct returns to the above address, ATTN: Oil Valve Return / Repairs Dept. Returns must include a copy of the technical-services-request form with information on each returned item.

4.3 **WARRANTY:**

Keiser Mfg., Inc. (Hereinafter referred to as KMI) guarantees electronics for 90 days from the date of shipment against electronic defects in material or workmanship, which develop in the service for which they are designed. KMI will replace defective material without charge when returned to our factory with transportation charges prepaid. This is provided material is found defective after inspection. KMI assumes no liability for labor or other expenses in making adjustments or repairs. KMI will not be liable for consequential, special or indirect damages of any kind caused by defective products, parts, delay or default on delivery or otherwise. KMI assumes no liability for damages or attorney fees which exceeds the purchase price. All replacements will be F.O.B. from the KMI factory.

Actuator Control Board

Rev-C

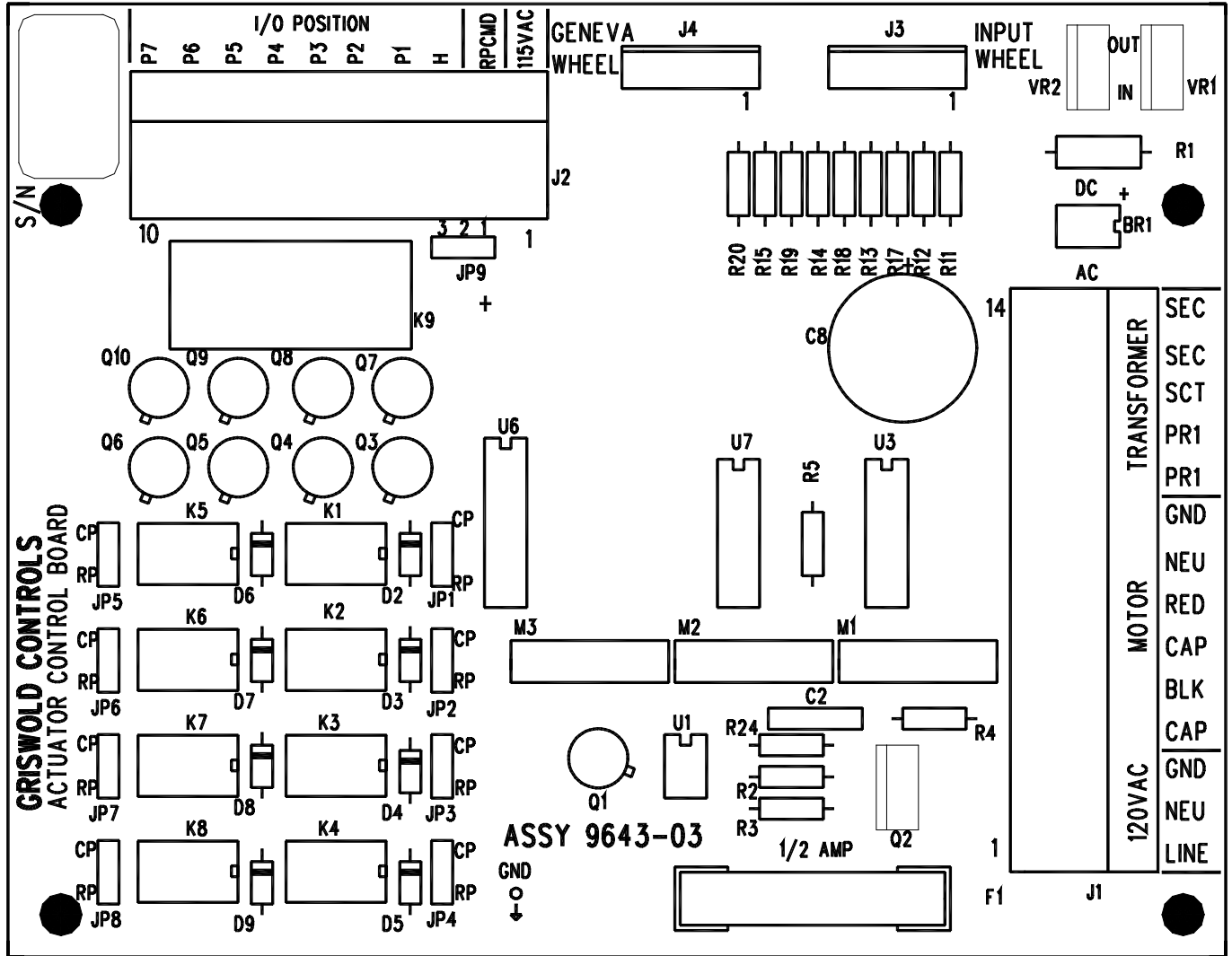


Fig.1

Actuator Control Board

Rev-D

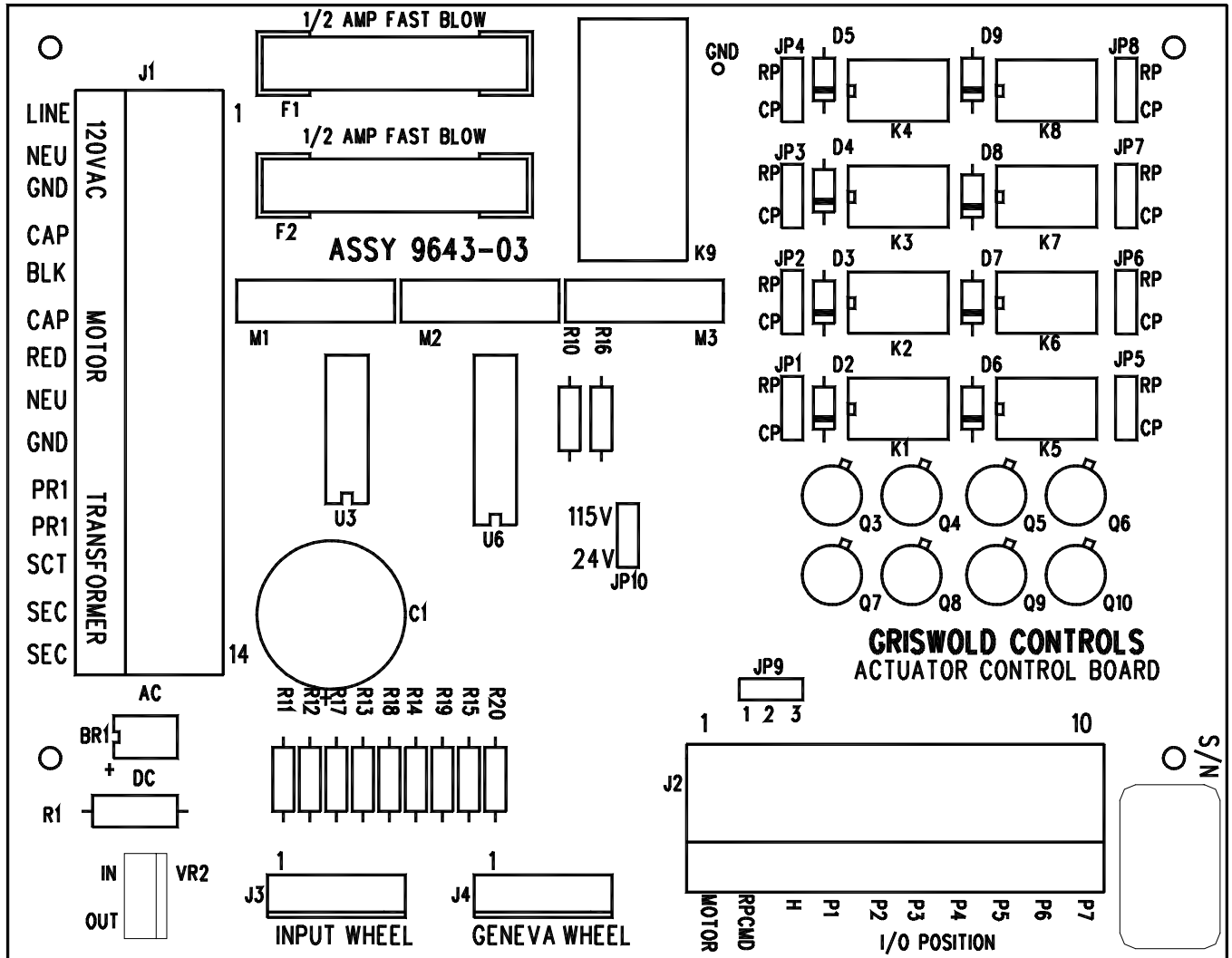


Fig. 2

Electrical Wiring Diagram

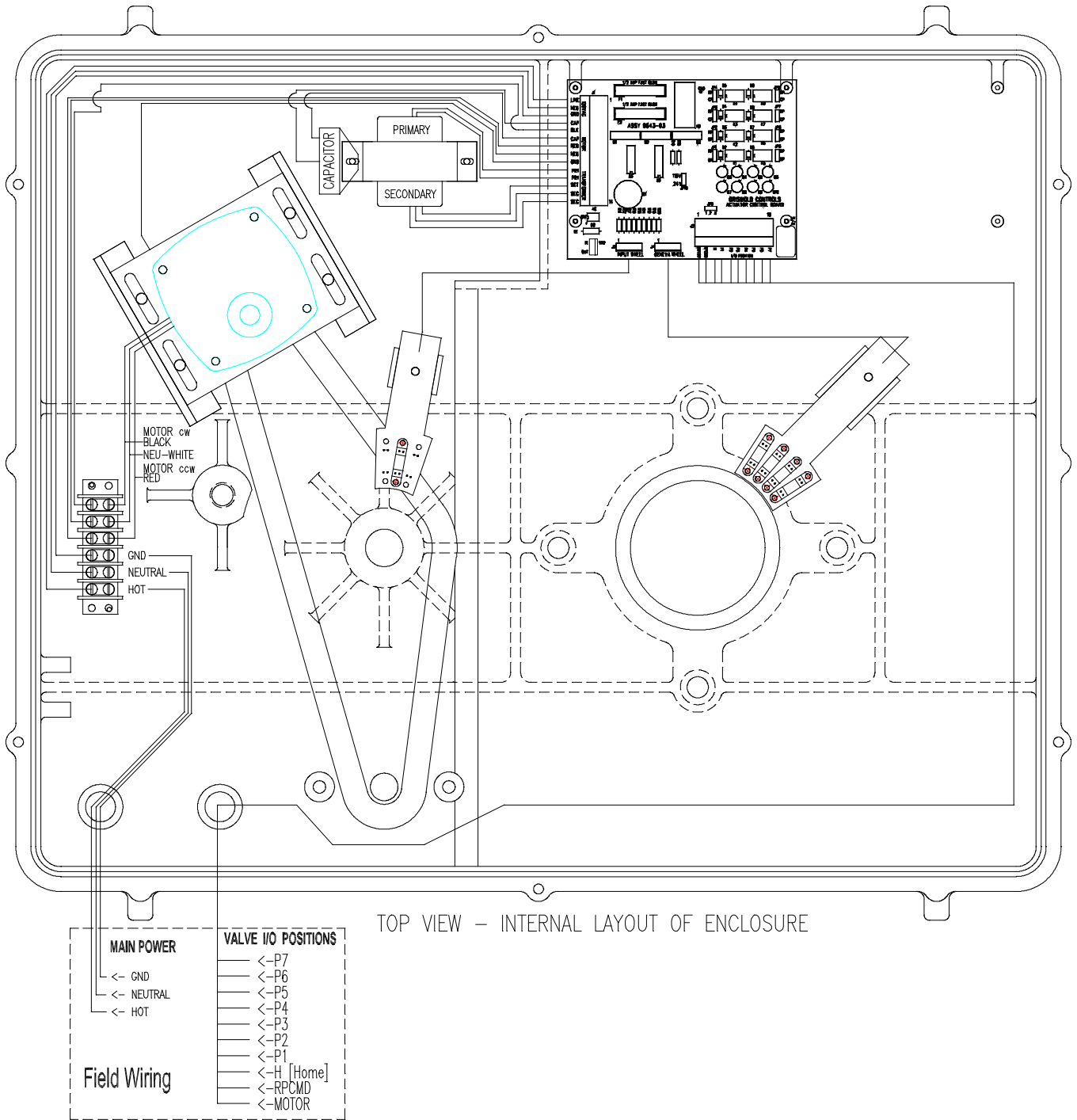


Fig. 3

Appendix A

Keiser Mfg., Inc.
Rotary Valve Actuator
Technical Services Request Form
Fax to: 830-379-4609
Or send email to: support@keiser-mfg.com

Company Name _____ Date _____

Your Name _____

Phone # _____

Fax # _____

Actuator Serial Number (If available) _____

Electronic Control Board Assembly # _____

(Located on top surface of board: **ex. ASSY 9643-03**)

Electronic Serial Number _____

Mechanical Seal Type _____

Nature of problem: Electrical Mechanical

Brief Description:

Appendix B

Electrical Startup Checklist

Actuators:

- Connect main power to actuator. (120VAC, 60Hz, single phase)
- Connect 8 I/O position wires to (H-P7) on J2.
- Check board jumper settings for desired control mode.
- Connect MOTOR control wire. (only for read-back mode)
- Connect RPCMD common wire. (only for read-back mode)