

## V9055A,D Modulating Fluid Power Gas Valve Actuator

### PRODUCT DATA



### APPLICATION

The V9055 Gas Valve Actuator in combination with a V5055, VE5000<sup>a</sup> or V5097 Gas Valve provides modulating control of the gas supply to commercial and industrial burners.

### FEATURES

- Actuator opens the valve to the low-fire position when energized. Actuator then modulates to meet firing rate controller (Series 90) demand.

- Actuator is equipped with an integral shaft that may be used to drive a combustion air damper in unison with the gas valve.
- The V5055 or V5097 Gas Valve includes a yellow SHUT indicator. The actuator includes a red OPEN indicator. The indicators provide constant visual indication of valve position.
- Actuator can be used with all VE5000<sup>a</sup>, V5055 or V5097 Valve models; however, the V5055B or V5097B with characterized guide is recommended for optimum control and low-fire repeatability.
- Ambient temperature range for 60 Hz models is -40°F to 125°F (-40°C to 53°C). Ambient temperature range for 50 Hz and 50/60 Hz models is -10°F to 125°F (-23°C to 52°C).
- Auxiliary 1/2 hp rated switch is available for field installation.
- Integral damper shaft provides a maximum of 20 lb (9 kg) of force.
- Valve and actuator may be mounted in any position.
- Model is available with NEMA 4 (weatherproof) enclosure.
- V9055D/V5055C,E and V9055D/V5097C,E combinations available with proof-of-closure switch and two valve seals (valve seal overtravel interlock) to meet specific code/standard/insurer requirements.
- Field addable adapter available for 4-20 dc mA control of actuator.
- When replacing a V9034 Actuator with a V9055, the V5034 Valve body must also be replaced with a V5055 or V5097 Gas Valve.

<sup>a</sup> VE5000 is a European manufactured and approved valve for European use only.

### Contents

Application .....	1
Features .....	1
Specifications .....	2
Ordering Information .....	2
Installation .....	5
Wiring .....	6
Adjustments .....	7
Operation .....	7
Checkout and Service .....	8



## SPECIFICATIONS

### Models:

V9055A: Modulating Fluid Power Gas Valve Actuator.

V9055D: Modulating Fluid Power Gas Valve Actuator with proof-of-closure switch.

**Low-Fire Adjustment:** 0.14 inch to 0.65 inch (with respect to V5055/V5097B Valve) valve stem travel. Refer to form 70-8311 for valve flow (capacity) curves.

**Table 1. Pressure Ratings of Actuator-Valve Combinations.**

Valve	Actuator	
	V9055 <sup>a</sup>	V9055D <sup>a</sup> (use with V5055C,E)
V5055B/V5097B 3/4 to 3 in.	5 psi (35 kPa) diff.; 15 psi (105 kPa) closeoff.	—
V5055B 4 in.	3 psi (21 kPa) diff.; 15 psi (105 kPa) closeoff	—
V5055A,C/V5097A,C 3/4 to 3 in.	5 psi (35 kPa) diff.; 15 psi (105 kPa) closeoff.	5 psi (35 kPa) diff.; 15 psi (105 kPa) closeoff.
V5055A,C 4 in.	3 psi (21 kPa) diff.; 15 psi (105 kPa) closeoff.	3 psi (21 kPa) diff.; 15 psi (105 kPa) closeoff.
V5055D,E/V5097D,E 3/4 to 1-1/2 in.	5 psi (35 kPa) diff.; 75 psi (525 kPa) closeoff.	5 psi (35 kPa) diff.; 75 psi (525 kPa) closeoff.
V5055D,E/V5097D,E 2, 2-1/2, 3 in.	5 psi (35 kPa) diff.; 45 psi (315 kPa) closeoff.	5 psi (35 kPa) diff.; 45 psi (315 kPa) closeoff.

<sup>a</sup> The low-fire flow of the V5055/V5097A,C,D and E Valves will differ from those of the V5055/V5097B. Check the valve flow curves in form 70-8311 and match the low-fire adjustment to the burner design and application.

**Table 2. Electrical Ratings.**

Voltage/ Frequency	Opening		Holding	
	Watts	VA	Watts	VA
120/60	60	122	20	32
100-50/60	57/46	100/81	25/20	36/31
220/50	68	141	20	32
240/50	88	194	19	36

**Table 3. Auxiliary and Proof-of-Closure Switch Ratings: 1/2 hp<sup>a</sup>.**

	120V	240V
Full Load	9.8A	4.9A
Locked Rotor	58.8A	29.4A

<sup>a</sup> Maximum total connected power to both switches (if used) is 1800 VA.

### Opening Time:

50 Hz models: 32 seconds (nominal).

60 Hz models: 26 seconds (nominal).

**Closing Time:** 1 second (maximum)

### Damper Arm Rating (damper drives one direction only):

Standard Models: 20 lb. maximum at 2-11/16 in. radius at 20°F to 125°F and 5 lb at -40°F to 20°F (9 kg maximum at 68 mm radius at -7°C to 66°C and 2.3 kg at -40°C to -7°C).

Model with Damper Shaft Return Spring: 10 lb maximum at 2-11/16 in. radius at 20°F to 125°F and 5 lb at -40°F to 20°F (4.5 kg at 68 mm radius at -7°C to 66°C and 2.3 kg at -40°C to -7°C).

**Damper Shaft:** Shaft is 3/8 in. (9.5 mm) for use with 7616BR Damper Arm. Models available with damper shaft return spring.

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Relations  
Honeywell, 1885 Douglas Drive North  
Minneapolis, Minnesota 55422-4386 (800) 328-5111

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.

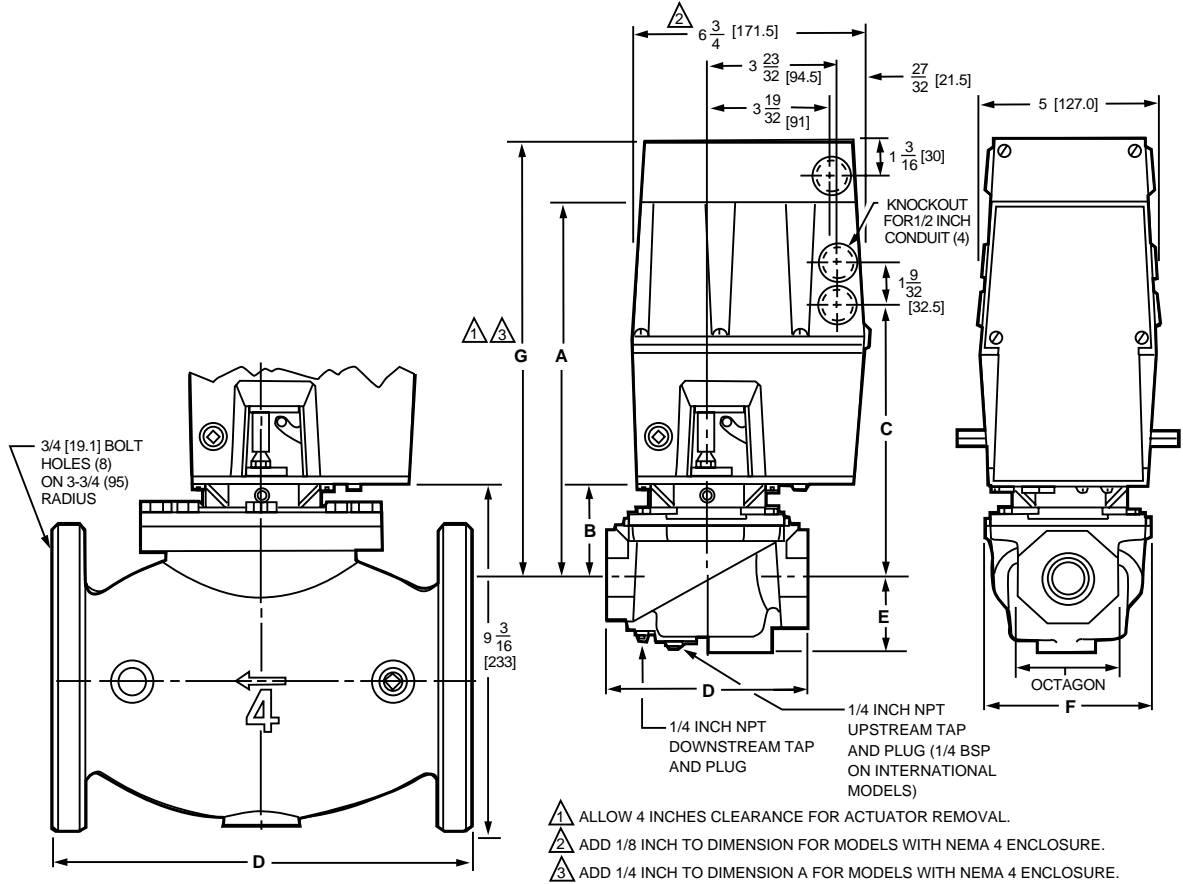
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

**Ambient Temperature Rating:**

-40°F to 125°F (-40°C to 52°C) for 60 Hz models, and  
 -10°F to 125°F (-23°C to 52°C) for 50 Hz and 50/60 Hz  
 models.

**Mounting Means:** Actuator attaches directly to valve with  
 two setscrews. Valve and actuator can be mounted in any  
 position.

**Installation Dimensions:** See Fig. 1.



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		DIM G		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1-1/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1-1/2	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
2	11-1/4	285.8	2-7/8	73.0	8-5/16	211.1	8-3/8	212.7	2-3/4	69.9	7-19/32	192.9	13-1/4	336.5	3-1/2	88.9
2-1/2	11-3/4	298.5	3-3/8	85.7	8-13/16	223.8	9-1/4	235.0	2-3/4	69.9	7-19/32	192.9	13-3/4	349.3	4-1/2	114.3
3	11-3/4	298.5	3-3/8	85.7	8-13/16	223.8	9-1/4	235.0	2-3/4	69.9	7-19/32	192.9	13-3/4	349.3	4-1/2	114.3
4	14-1/8	358.8	5-13/16	147.6	11-7/32	285.0	12-1/2	317.5	4-5/8	117.5	—	—	16-3/16	411.0	—	—

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**Fig. 1. V9055/V5055 dimensions in in. (mm).**

**NEMA 4 Enclosure:** Model available.

**Table 4. V9055/V5097 dimensions in in. (mm)**

Valve Size <sup>a</sup> (in.)	Dim. A		Dim. B		Dim. C		Dim. D <sup>b</sup>		Dim. E		Dim. F		Dim. G		
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	
Small Body	3/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-5/8	142.9	2-1/2	63.5	4-13/16	122.2	13-3/16	335
	1	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-5/8	142.0	2-1/2	63.5	4-13/16	122.2	13-3/16	335
	1-1/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-5/8	142.9	2-1/2	63.5	4-13/16	122.2	13-3/16	335
	1-1/2	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-5/8	142.9	2-1/2	63.5	4-13/16	122.2	13-3/16	336
	2	11-1/8	282.6	2-7/8	73.0	8-3/16	208.0	5-5/8	142.9	2-1/2	63.5	7-19/32	192.9	13-3/16	335.0
Large Body	2	11-3/4	298.5	3-3/8	85.7	8-3/8	212.7	9-7/16	239.7	4	101.5	7-19/32	192.9	13-3/8	339.7
	2-1/2	11-3/4	298.5	3-3/8	85.7	8-3/8	212.7	9-7/16	239.7	4	101.5	7-19/32	192.9	13-3/8	339.7
	3	11-3/4	298.5	3-3/8	85.7	8-3/8	212.7	9-7/16	239.7	4	101.5	7-19/32	192.9	13-3/8	339.7

<sup>a</sup> Valve size using accessory pipe adapter fitting.

<sup>b</sup> Without flanges.

**Approvals:**

Underwriters Laboratories Inc. Listed: File No. MN1639,  
Guide No. Y10Z.

Factory Mutual Approved: Report Nos. 20835 and 24061

International Approval Services (IAS), a joint venture of AGA  
and (CGA): Design Certified.

Industrial Risk Insurers: Acceptable.

**Accessories:**

133568 Auxiliary Switch.

7616BR Crank Arm.

135796 Wrench.

133569 Proof-of-closure Switch Bag Assembly. Must be  
used with V5055C or E.

Q5055A1001 Adapter Assembly—Adapts ITT General V710  
Gas Valve to accept Honeywell Gas Valve Actuators.

Replaces ITT AH8 Gas Valve Actuator.

203422C Adapter Board—Used to control V9055 Actuator  
with 4-20 dc mA input.

## INSTALLATION

### WARNING

#### Electrical Shock Hazard.

#### Can cause serious injury, death or equipment damage.

1. Disconnect power before connecting wiring.
2. Assure that wiring complies with applicable electrical codes and ordinances.
3. Be sure that power supply is the same as that stamped on the nameplate of the device.
4. Be sure only a trained, experienced, flame safeguard control serviceman installs or services this device.
5. Assure that loads connected to the auxiliary switch, if used, do not exceed the ratings given in the Specifications section.

#### IMPORTANT

1. *Do not attempt to use the V9055 with one of the adapters that connects the V4055 Actuator to the older V5034 Valves. The adapter is for use with the V4055 only. The V9055 cannot be used with a V5034 Valve. When replacing a V9034 Actuator with a V9055, the V5034 Valve must be replaced with a V5055/V5097 Gas Valve.*
2. *Connect terminals R, W, and B only to Series 90 proportioning controller. Do not apply any voltage to these terminals.*
3. *Avoid mounting actuator upside down if water is likely to drip on it. In this position, water can become trapped in the electronics compartment.*

### When Installing This Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instruction and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete check product operation as provided in these instructions.

### Valve Installation

The actuator is mounted directly on the V5055/V5097 Valve after the valve is installed in the gas supply line. Refer to the instructions packed with the V5055/V5097 Valve for details of installation. When installing the valve, be sure that:

1. Sufficient clearance is left for installation and service of the actuator.
2. Ambient temperatures at the valve location will remain within the rated ambient range.
3. The position of the valve permits hookup to the damper if one is controlled.

#### IMPORTANT:

*When a damper crank arm is used with a NEMA 4 actuator that is exposed to ice or sleet, a suitable shield must be installed to prevent ice or sleet buildup.*

### Install Accessory Switches (If Needed)

An spdt switch may be installed to operate an auxiliary load of up to 1/2 hp. The switch may be adjusted to operate at any point in the valve stroke. A proof-of-closure switch may also be installed. The proof-of-closure switch must be used with the V5055 C,E/V5097C,E (two seals) Valve to provide valve seal overtravel interlock.

The spdt proof-of-closure switch is installed to make or break a circuit when the valve is in the closed position. The switch is not adjustable.

NOTE: Mark the actuator or valve to indicate any changes made.

To install the switches, proceed as follows:

1. Remove the actuator faceplate (two screws).
2. Remove the silver-colored barrier to expose the actuator stem.
3. Insert the auxiliary switch in the position indicated in Fig. 3. Fasten with two screws through the actuator base.
4. Insert the proof-of-closure switch in the position shown in Fig. 3. The proof-of-closure switch mounts against the side of the actuator housing. The mounting holes are spaced to mount the switch only in the correct position. Fasten with two screws through the actuator base.
5. If only one switch is used, install the narrow barrier included with the switch in the unused space.
6. Mount the actuator before making wiring connections and adjustments to the switch.

## Mount and Adjust Damper Crank Arm

### IMPORTANT:

When a damper crank arm is used with a NEMA 4 actuator that is exposed to ice or sleet, a suitable shield must be installed to prevent ice or sleet buildup.

The crank arm provides a maximum travel of 2-5/16 in. (59 mm). For complete installation information, refer to the instructions packed with the 7616BR Crank Arm.

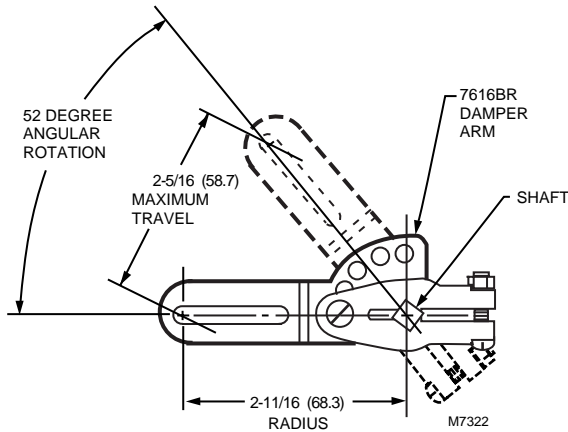


Fig. 2. Crank Arm Operation.

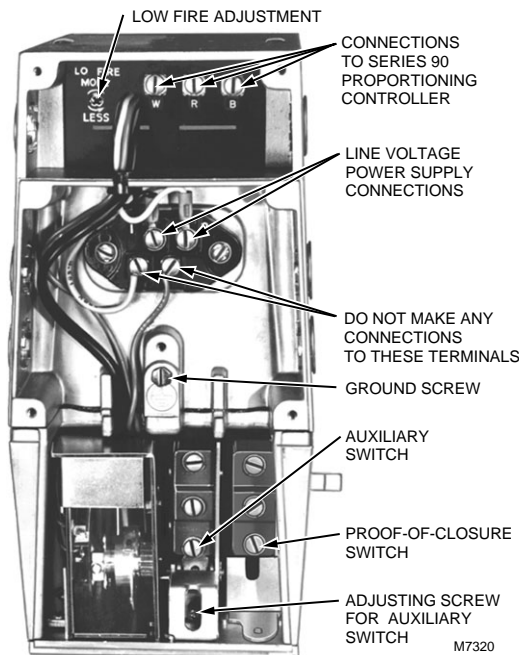


Fig. 3. Internal components and connections in V9055.

## WIRING

### ⚠ WARNING

**Electrical Shock Hazard.**  
Can cause serious injury, death or equipment damage.

To prevent electrical shock or equipment damage disconnect power supply before wiring.

All wiring must agree with applicable electrical codes and ordinances.

Connect power supply to terminals 1 and 2 on the terminal strip. Do not make any connections to the unmarked terminals shown in Fig. 3.

NOTE: When replacing a V9034, remove the 24 volt transformer because V9055 has a built-in transformer. When replacing a V9034 Actuator with a V9055, replace the V5034 Gas Valve with a V5055/V5097 Valve.

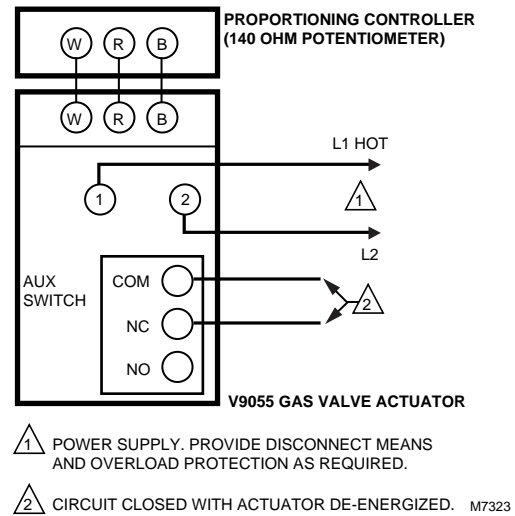


Fig. 4. Wiring for V9055 Modulating Gas Valve Actuator.

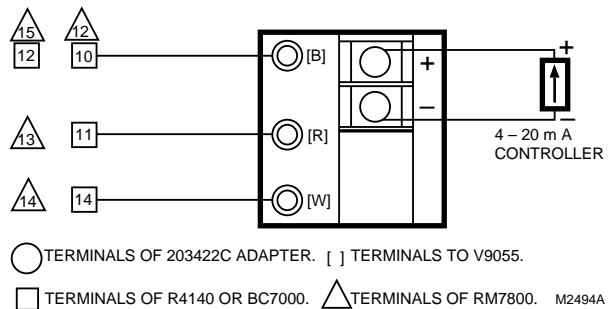


Fig. 5. Hookup of V9055 for firing rate control with a 4-20 mA input.

## 203422C—V9055 Adapter (For 4-20 mA Input)

### Installation

The 203422C Adapter Board allows the V9055 Modulating Fluid Power Gas Valve Actuator to be controlled with a 4-20 dc mA input. The adapter mounts in the wiring compartment and provides screw terminals for field wiring.

1. Remove the screws from terminals R,B and W on the V9055 Actuator.
2. Position the adapter board to the R, B and W terminals and install and tighten three screws (four screws provided in bag assembly) to the R, B, and W terminals.
3. Connect field wiring from 4-20 mA controller to the + and - terminals on the 203422C adapter board Be sure to observe polarity.



### CAUTION

**Equipment Damage Hazard.**  
**Incorrect wiring can damage the controller or adapter board.**

Be sure to observe polarity from the controller to the 203422C Adapter Board.

4. Reconnect power.
5. With manual shutoff gas valve Closed, apply power to the V9055 and check its operations with the 4-20 mA temperature controller by manually incrementing and decrementing the output; 4 mA input will drive the V9055 to low-fire position; 20 mA drives to high-fire. Assure V9055 completes a full stroke.
6. Turn manual shutoff gas valve to the open position and test the remainder of the system for proper operation.
7. If the V9055 is being used for firing rate control, connect system according to the drawing in Fig. 5.
8. Sequence the burner through a normal startup.



### CAUTION

**Equipment Damage Hazard.**  
**Improper wiring can cause equipment damage or danger to personnel.**

Label all wires prior to disconnection when servicing valves. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

## ADJUSTMENTS

### IMPORTANT:

*When using the V9055D with the V5055/V5097C or E (two seals) Valves, match low-fire minimum adjustment to the burner and the application. Too low of an adjustment could result in loss of burner flame. Also plan to check this low-fire adjustment at periodic maintenance intervals.*



### Adjust Low-Fire Setting

The low-fire setting is adjustable from approximately 0.14 to 0.65 inch valve stem travel (with respect to V5055B/V5097B Gas Valve). The low-fire adjustment is factory-set at the maximum position (approximately 50 percent of full gas flow capacity). Refer to form 70-8311 for valve flow (capacity)

curves. Check to be sure the low-fire setting is at maximum (fully clockwise) before starting the adjustment procedure. To adjust:

1. Remove the lead to the V9055 terminal R. Jumper terminal R to W. This will prevent the actuator from going to the high-fire position.
2. Using a Phillips screwdriver, turn the low-fire adjusting screw to the desired low-fire position. Do not push inward on screw.
3. Shut down the burner, and then restart. Repeat several times to be sure the low-fire setting is suitable for correct burner lightoff.
4. Turn off power supply. Remove R-W jumper, and reconnect the lead to terminal R on the V9055.

### Adjust the Auxiliary Switch (if used)

The auxiliary switch is adjustable throughout the stroke of the actuator. With the switch installed in the actuator, turn the adjusting screw (Fig. 3) clockwise  to cause the switch to operate earlier in the stroke and counterclockwise  to operate later in the stroke.

## OPERATION

To function as intended, the V9055 must be connected to a properly sized valve. The proper sized V5055/V5097B Gas Valve with characterized guide is recommended for optimum control and low-fire repeatability. Too large of a valve will not properly modulate the gas flow. When the actuator is energized, it will drive at least to the adjusted low-fire position. The distance it will open beyond this low-fire position depends on the demands of the modulating controller.

When the controller calls for no heat, the actuator will modulate the valve to the low-fire position. When power to the actuator is interrupted, the valve will completely close.

Fig. 6 shows the V9055 in a typical flame safeguard control system.

# CHECKOUT AND SERVICE

## Checkout

### IMPORTANT

Only a trained, experienced flame safeguard control technician should service or repair this control.

After the valve installation is complete, cycle the valve a few times with the manual fuel shutoff cock closed before testing the system in actual operation.

## Service

The actuator is not field repairable except for replacing the auxiliary switch. See Install Accessory Switches section for the procedure.

Do not disassemble the valve actuator. Perform the following checks before removing and replacing the V9055 Gas Valve Actuator.

1. With manual gas valve closed, energize the V9055 and check for voltage on terminals 1 and 2. Actuator should modulate to the low-fire position.



## CAUTION

**Equipment Damage Hazard.**

**Improper wiring can damage the equipment and cause injury to personnel.**

Label all wires prior to disconnection when servicing valves. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

2. Disconnect the leads from the modulating controller (terminals W,R, and B). Connect a manual potentiometer, color-to-color, to terminals W, R, and B on the actuator. With the valve energized, use the potentiometer to open and close the actuator. It should run from the low-fire position and to the fully open position.

If the actuator itself has failed, return it to the factory for repair.

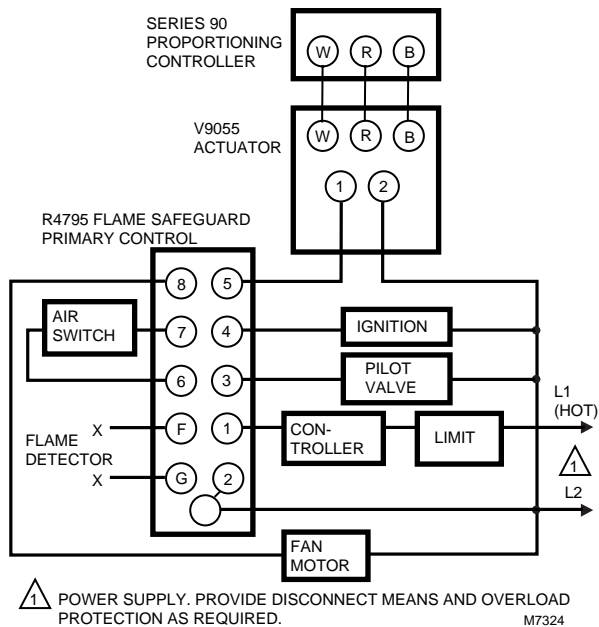


Fig. 6. V9055 connected to R4795 in typical application.

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