Type P539A Pneumatic Actuator

WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher™ equipment must be installed, operated and maintained in accordance with federal, state and local codes and Fisher instructions. The installation in most states must also comply with NFPA No. 58, ANSI K61.1 and DOT standards.

Only personnel trained in the proper procedures, codes, standards and regulations of the LP-Gas or anhydrous ammonia (NH_3) industries should install and service this equipment.

Introduction

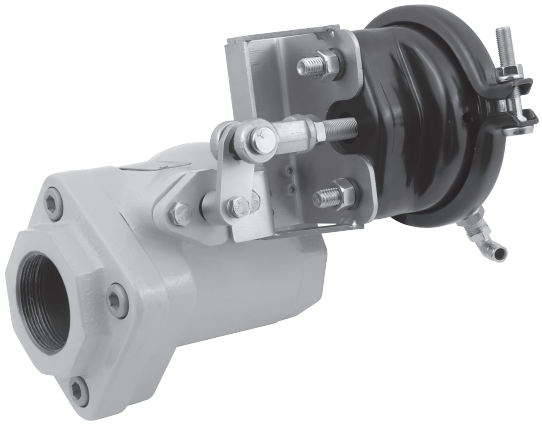
Scope of the Manual

This Instruction Manual covers installation of the Type P539A Pneumatic Actuator onto the N550/N551 Series Emergency Shutoff Valve (ESV).

Description

Type P539A pneumatic actuators permit opening and closing Fisher N550/N551 Series Snappy Joe™ emergency shutoff valves (ESVs), both at the valve and with the use of a pneumatic 3-way valve from a remote location. The actuator opens the valve when pressure is applied.

Upon loss of pressure, the N550/N551 Series closes, assisted by the spring in the pneumatic actuator.



P1136

Figure 1. *Type P539A Installed on N550/N551 Series*

Installation

CAUTION

Minimum air consumption and maximum ESV life are obtained by using a minimum actuator operating pressure between 20 to 30 psig / 1.4 to 2.1 bar. A Fisher 67C Series regulator can be used to supply pressure to the actuator if desired.

Do not use LP-Gas as a pressure source for the Type P539A Actuator. Use only Air or Nitrogen.

WARNING

When installing the bracket on N550/N551 Series already in-line, first remove all line pressure, inlet and outlet, from the N550/N551 Series valve. Failure to do so could result in personal injury.

Specifications

This section lists the specifications for the Type P539A. Factory specifications are stamped on the nameplate fastened on the Type P539A at the factory.

Pressure Source
Air or Nitrogen

System Pressure Limits[1]
Minimum: 20 psig / 1.4 bar
Maximum: 30 psig / 2.1 bar[2]
Recommended: 20 to 25 psig / 1.4 to 1.7 bar[2]

Temperature Capabilities[2]
-40 to 150°F / -40 to 66°C

Return Mechanism
Internal spring, no air

Melt Point, Fuse Link
212°F / 100°C

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.
2. Pressures in excess of 30 psig / 2.1 bar will shorten the service life of the N550/N551 Series valve.
3. Emergency pressure rating for the air chamber is 125 psig / 8.6 bar.

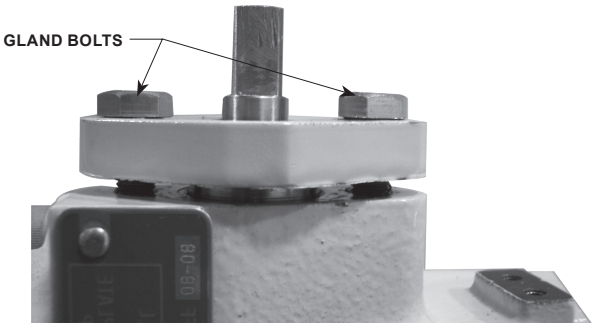


Figure 2. *Tighten Gland Bolts Evenly to Keep Retainer Plate Parallel from Valve Body*

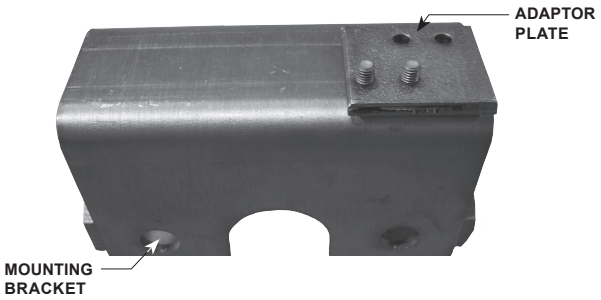


Figure 3. *1-1/4 in. / 32 mm Bracket Adaptor*

Note

The external spring is not required after installation of the Type P539A pneumatic actuator.

Refer to Figure 4, **for units with an external spring:** Remove the bolt (key 23), spring mandrel (key 61), the external torsion spring (key 62), fuse link (key 22), handle (key 18), latch block (key 36) and the rear gland bolt (key 33). **KEEP THE BOLTS (keys 23 and 33) AND THE RETAINER (key 24).**

Refer to Figure 4, **for units without an external spring:** Remove the latch block (key 36), fuse link (key 22), bolt (key 23), handle (key 18) and the rearward rear gland bolt (key 33), closest to the actuator clevis. The other gland bolt should remain in place. **KEEP THE BOLTS (keys 23 and 33).**

Refer to Figure 5, **mounting the actuator as following steps**:

1. Mounting the actuator BRACKET the same direction as Figure 5 onto the valve's rear gland. Replace and tighten the rear gland bolt (key 33, Figure 4). **DO NOT OVER TIGHTEN THE GLAND BOLT** because binding of the ESV shaft could occur. Tighten the gland bolt only enough to prevent leakage and ensure that the retainer plate is parallel to the valve body (see Figure 2). For Type N551-24F or N551-16F flanged units, mount the actuator BRACKET the same direction as onto the valve's rear gland. Ensure spacer (key 69) is placed between rear gland hole and bottom plate of bracket. Replace rear gland bolt (key 33) and tighten with actuator mounting bolt (key 68) (Figure 6). For Type N551-16F, ensure washer (key 70) is placed between mounting bolt (key 68) and bracket adapter (Figure 7).

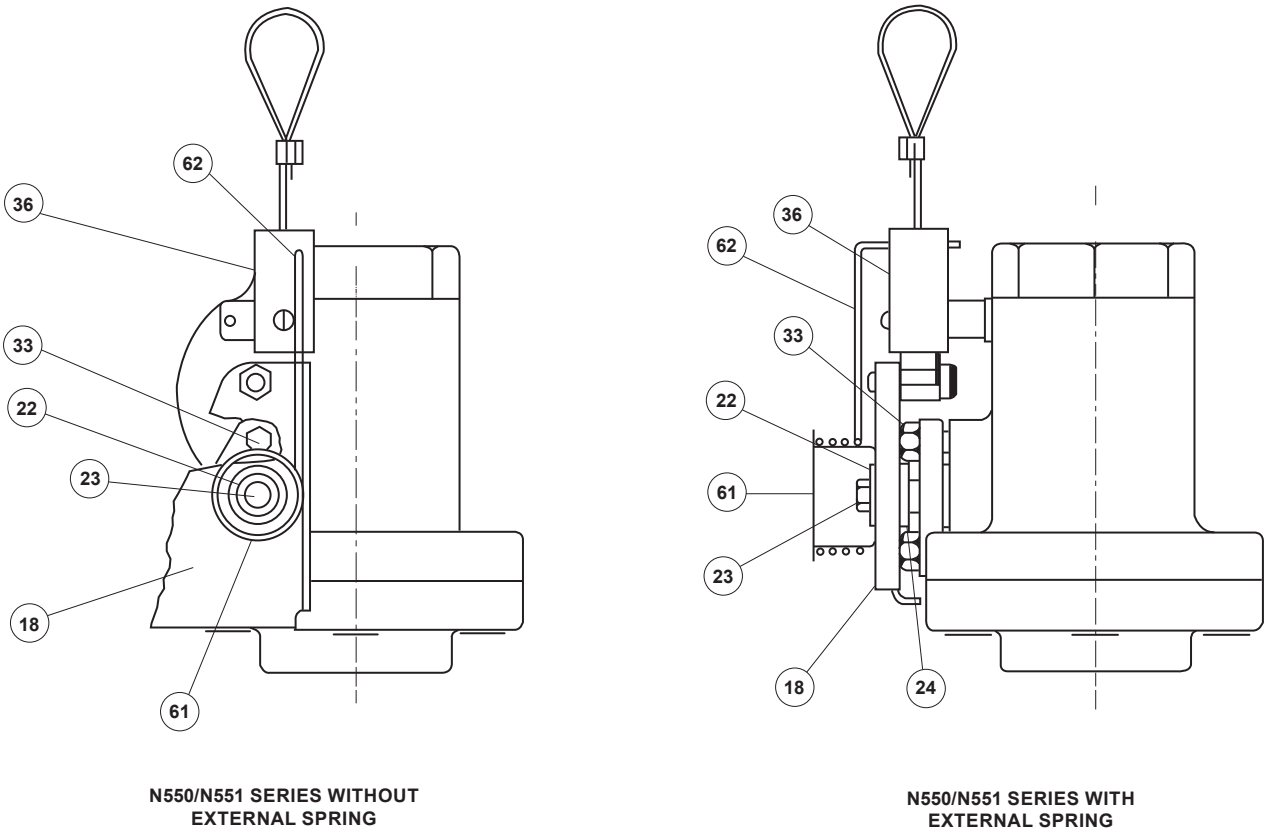


Figure 4. *N550/N551 Series Valve Prior to Mounting Type P539A*

2. Install the hex bolts (key 15) through hole in the bracket and attach to the N550/N551 Series body. For installing the Type P539A to the NPS 1-1/4 / DN 35 N550/N551 Series, you must utilize the adaptor plate which was used to attach the latch block. Remove the adaptor plate and attach to the actuator mounting bracket as shown in Figure 3. Then mount the assembly to the N550/N551 Series body.

Note

The clevis (key 8B) is factory installed such that the clevis eye is at 3 in. / 76 mm from the face of the brake chamber for optimal installation on N550/N551 Series.

3. Put the LEVER on the ESV shaft and then reinstall the BOLT (key 23, Figure 4) and the LOCKWASHER (key 7).
4. Connect the actuating pressure line tubing to the push to connect fitting port (key 10).

After installing the unit, operate the actuator with pressure to see that it smoothly opens and closes the N550/N551 Series without sticking or jamming. Check to make sure the N550/N551 Series shuts tightly.

A small 3-way control valve (sold separately, part number T1139599012) for pneumatic ESV installations can be used as primary control (used to open or close the ESV) or an auxiliary remote release (close only).

Placing the valve's button in the upward position permits pressure to the actuator; pushing the button down exhausts pressure to close all valves connected to the system.

Maintenance

WARNING

Only qualified service person should attempt to repair these valves. Before starting any type of repair, close off the upstream valve and remove all pressure from both the inlet and outlet of the N550/N551 Series Emergency Shutoff Valve.

Because the actuator has a diaphragm seal and no rod bushing, internal lubrication is not required. Periodic lubrication of the operating lever/clevis pivot is recommended.

At least once a month inspect and check the following things:

1. See that the actuator fully opens and closes the ESV without sticking. Keep actuator's rod free of any build-up of mud, corrosive or other foreign materials. Such a build-up could prevent the actuator from closing which could jam the internal valve in the open position. Do not permit this condition to occur.
2. Make sure that the lever and clevis are working smoothly.
3. Check for packing and joint leakage on the N550/N551 Series valve.

Parts Ordering

CAUTION

These actuators are produced with common automotive service chambers, customized specifically for use with Fisher™ valves. DO NOT use a standard, off-the-shelf service chamber for replacement as valve damage can occur.

The service chamber push rod has been modified to work specifically with Fisher valves. Fisher recommends contacting your local Sales Office for replacement service chambers.

When corresponding about this equipment, always reference the equipment type number found on the nameplate. A replacement parts list, D450042T012, is available for the N550/N551 Series valves. When ordering replacement parts, reference the complete 11-character part number of each part. For actuator repair kit order part number GE29511X012.

Should the user desire to repair the service chamber diaphragm and outer clamp, it is recommended to contact the local Haldex office for a listing of replacement parts and procedures for repairing your service chambers. Reference the SC09 brake chamber for the Type P539A model.

Parts List

Key	Description	Part Number
1	Mounting Bracket, Plated steel	GE40106T012
5	Lever, Stainless steel	GE38552T012
7	Washer, Plated steel	V120006X012
8	Brake Chamber Assembly	GE31134X012
8A	Brake Chamber	GE40920X012
8B	Clevis	GE33509X012
8C	Clevis Pin	GE33511X012
8D	Cotter Pin	GE33526X012
8E	Hex Nut	T12086X0022
9	Fuse Plug	T1033699982
10	Push-in Fitting, Brass	GE33586X012
15	Socket Hex Cap Screw	1D617032992

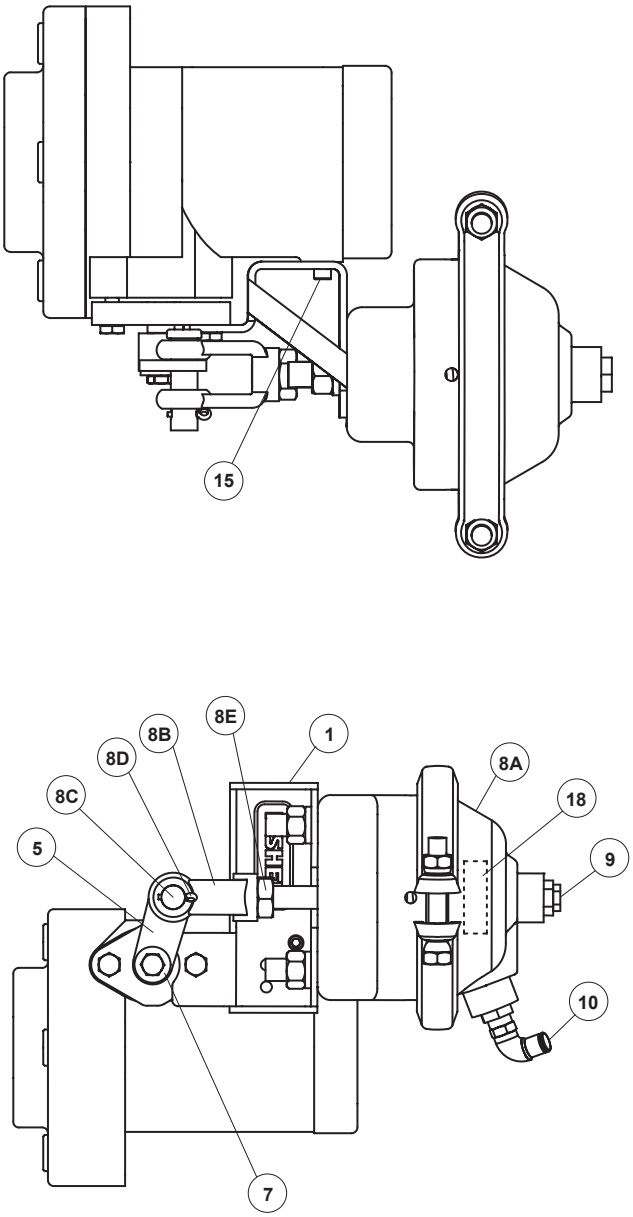


Figure 5. *Type P539A Pneumatic Actuator Assembly*

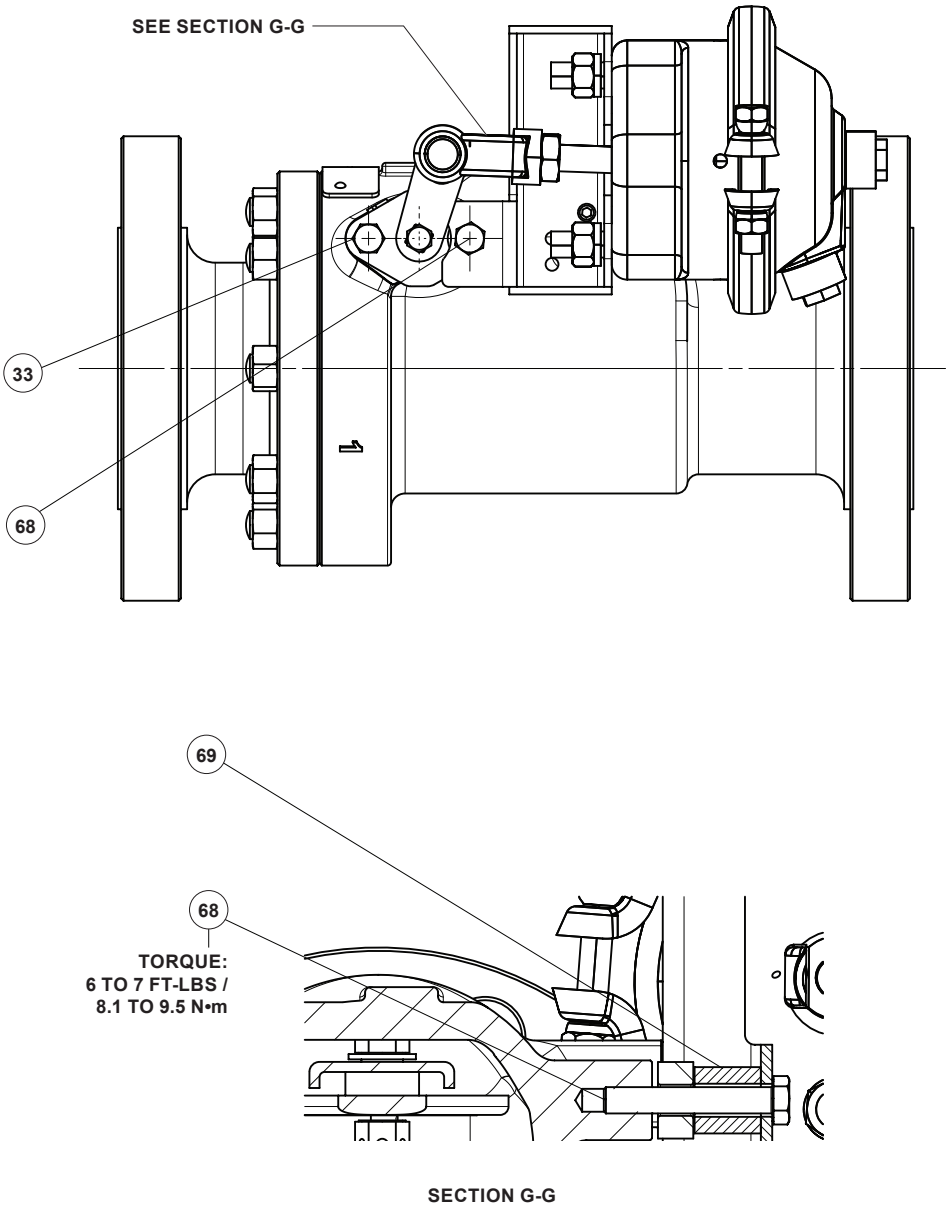


Figure 6. *Type P539A Pneumatic Actuator Assembly Mounted on Type N551-24F*

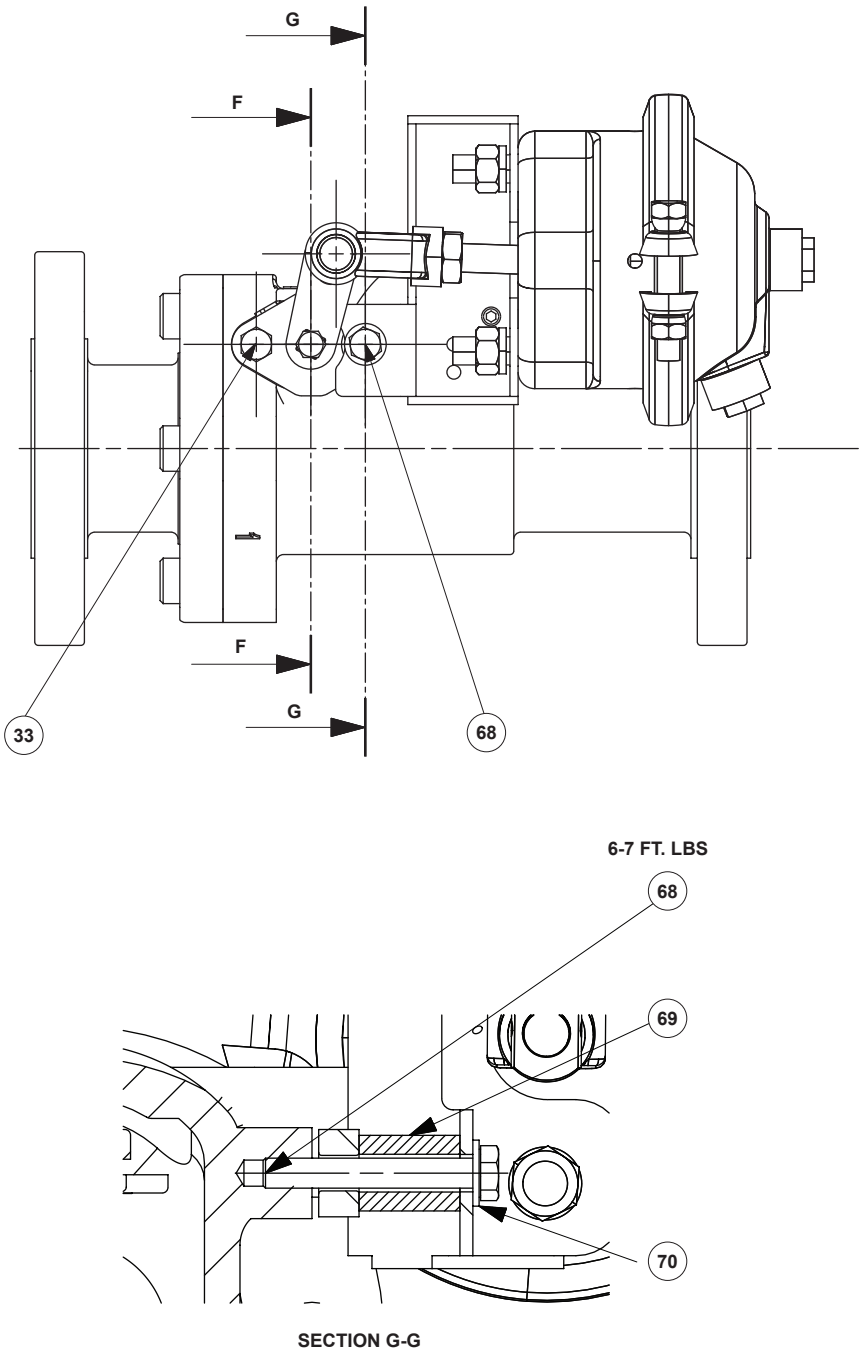


Figure 7. *Type P539A Pneumatic Actuator Assembly Mounted on Type N551-16F*

Type P539A

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