

**Errata Sheet  
for**

3582 Series Valve Positioners, Type 3582i Valve Positioner,  
and 3583 Series Valve Stem Position Transmitters  
Form 5054, February 2006

This errata sheet includes updated electromagnetic compatibility (EMC) information for the 582i electro-pneumatic converter.

- Replace the portion of the **Performance** section titled **Electromagnetic Interference (EMI)**, found in *Table 1. Specifications*, with the following updated information:

**Electromagnetic Compatibility for 582i electro-pneumatic converter**

Meets EN 61326-1 (First Edition)

Immunity—Industrial locations per Table 2 of the EN 61326-1 standard. Performance is shown in table 2 below.

Emissions—Class A

ISM equipment rating: Group 1, Class A

**The electromagnetic compatibility specifications also apply to the 3582i electro-pneumatic positioner.**

- Replace *Table 2. EMC Immunity Performance Criteria* with the updated table 2 below.

**Note**

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*Table 2. 582i Electro-Pneumatic Converter<sup>(1)</sup> EMC Summary Results—Immunity*

PORT	PHENOMENON	BASIC STANDARD	TEST LEVEL	PERFORMANCE CRITERIA <sup>(2)</sup>
Enclosure	Electrostatic Discharge (ESD)	IEC 61000-4-2	4 kV contact 8 kV air	A
	Radiated EM field	IEC 61000-4-3	80 to 1000 MHz @ 10V/m with 1 kHz AM at 80% 1400 to 2000 MHz @ 3V/m with 1 kHz AM at 80% 2000 to 2700 MHz @ 1V/m with 1 kHz AM at 80%	A
	Rated power frequency magnetic field	IEC 61000-4-8	60 A/m at 50 Hz	A
I/O signal/control	Burst (fast transients)	IEC 61000-4-4	1 kV	A
	Surge	IEC 61000-4-5	1 kV (line to ground only, each)	B
	Conducted RF	IEC 61000-4-6	150 kHz to 80 MHz at 3 Vrms	A

Specification limit = ±1% of span  
 1. The information contained in the table also applies to the 3582i positioner.  
 2. A = No degradation during testing. B = Temporary degradation during testing, but is self-recovering.



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# 3582 Series Valve Positioners, Type 3582i Valve Positioner, and 3583 Series Valve Stem Position Transmitters

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CONTROL VALVE WITH TYPE 3582 POSITIONER



W5498-1

CONTROL VALVE WITH TYPE 3583 TRANSMITTER



W8424

CONTROL VALVE WITH TYPE 3582i POSITIONER

Figure 1. Typical Mounting for the 3582 Series, Type 3582i, and 3583 Series Positioners and Transmitters



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## Introduction

### Scope of Manual

This instruction manual includes installation, operation, calibration, maintenance, and parts ordering information for the 3582 Series pneumatic valve positioners, the Type 3582i electro-pneumatic valve positioner, and the 3583 Series pneumatic valve stem position transmitters. Refer to separate instruction manuals for information on the control valve, actuator, and accessories.

No person may install, operate or maintain a 3582 Series pneumatic valve positioner, a Type 3582i electro-pneumatic valve positioner, or a 3583 Series pneumatic valve stem position transmitter without first ● being fully trained and qualified in valve, actuator and accessory installation, operation and maintenance, and ● carefully reading and understanding the contents of this manual. If you have any questions about these instructions, contact your Emerson Process Management™ sales office.

## Description

The 3582 Series pneumatic valve positioners and the Type 3582i electro-pneumatic valve positioner shown in figure 1 are used with diaphragm-actuated, sliding-stem control valve assemblies. The pneumatic valve positioners receive a pneumatic input signal from a control device and modulate the supply pressure to the control valve actuator. The positioner adjusts the actuator supply pressure to maintain a valve stem position proportional to the pneumatic input signal.

Type 3582NS positioners are designed for nuclear power applications. The Type 3582NS construction includes materials that provide superior performance at elevated temperature and radiation levels. The O-rings are EPDM (ethylene propylene) and the diaphragms are EPDM/NOMEX® fabric. EPDM demonstrates superior temperature capability and shelf life over nitrile. The NOMEX diaphragm fabric demonstrates improved strength retention at elevated temperature and radiation conditions.

## CAUTION

**Use a clean, dry, oil-free air supply with instruments containing EPDM components. EPDM is subject to degradation when exposed to petroleum-based lubricants.**

Under Fisher's® 10CFR50, Appendix B, quality assurance program, Type 3582NS positioner is qualified "commercial grade dedicated". These can be supplied as 10CFR, Part 21 items

The Type 3582i is an electro-pneumatic valve positioner, consisting of a Type 582i electro-pneumatic converter installed on a Type 3582 pneumatic valve positioner. The Type 3582i valve positioner provides an accurate valve stem position that is proportional to a dc current input signal.

The Type 582i electro-pneumatic converter is a modular unit that can be installed at the factory or in the field. However, do not plan to install a Type 582i converter on an existing positioner until you contact your Emerson Process Management sales office for application assistance.





Table 1. Specifications for 3582 Series and Type 3582i Valve Positioners

<p><b>Input Signal<sup>(1)</sup>,</b></p> <p><b>3582 Series:</b>          ■ 0.2 to 1.0 bar (3 to 15 psig), ■ 0.4 to 2.0 bar (6 to 30 psig), or ■ split range, see table 9</p> <p><b>Type 3582i:</b>          4 to 20 mA dc constant current with 30 V dc maximum compliance voltage, can be split range, see table 9</p> <p><b>Equivalent Circuit for Type 3582i</b></p> <p>The Type 582i converter equivalent circuit is 120 ohms, shunted by three 5.6-volt zener diodes (see figure 10)</p> <p><b>Output Signal<sup>(1)</sup></b></p> <p><b>Type:</b> Pneumatic pressure as required by actuator up to 95 percent of maximum supply</p> <p><b>Action<sup>(1)</sup>:</b> Field-reversible between ■ direct and ■ reverse within the pneumatic valve positioner</p> <p><b>Supply Pressure<sup>(1,4)</sup></b></p> <p><b>Recommended:</b> 0.3 bar (5 psi) above actuator requirement</p> <p><b>Maximum:</b> 3.4 bar (50 psig) or pressure rating of actuator, whichever is lower</p> <p><b>Supply Medium:</b> air or natural gas<sup>(5)</sup></p> <p><b>Type 3582i is not approved for use with natural gas as the supply medium</b></p> <p><b>Input Bellows Pressure Rating<sup>(2,4)</sup></b></p> <p>See table 8 for minimum and maximum pressure ratings (allowable input signal) for each available range spring</p> <p><b>Maximum Steady-State Air Consumption<sup>(1,3)</sup></b></p> <p><b>For 3582 Series</b>          1.4 bar (20 psig) Supply: 0.38 normal m<sup>3</sup>/hr (14.0 scfh)          2.0 bar (30 psig) Supply: 0.48 normal m<sup>3</sup>/hr (18.0 scfh)          2.4 bar (35 psig) Supply: 0.54 normal m<sup>3</sup>/hr (20.0 scfh)</p> <p><b>For Type 3582i Only</b>          1.4 bar (20 psig) Supply: 0.46 normal m<sup>3</sup>/hr (17.2 scfh)          2.0 bar (30 psig) Supply: 0.58 normal m<sup>3</sup>/hr (21.4 scfh)          2.4 bar (35 psig) Supply: 0.64 normal m<sup>3</sup>/hr (23.8 scfh)</p>	<p><b>Maximum Supply Air Demand<sup>(1)</sup></b></p> <p><b>For 3582 Series and Type 3582i</b>          1.4 bar (20 psig) Supply: 4.7 normal m<sup>3</sup>/hr (164.5 scfh)          2.0 bar (30 psig) Supply: 7.0 normal m<sup>3</sup>/hr (248.5 scfh)          2.4 bar (35 psig) Supply: 8.1 normal m<sup>3</sup>/hr (285.5 scfh)</p> <p><b>Performance</b></p> <p><b>For 3582 Series</b>  <i>Independent Linearity<sup>(1)</sup>:</i> ±1 percent of output signal span  <i>Hysteresis<sup>(1)</sup>:</i> 0.5 percent of span</p> <p><b>For Type 3582i Only</b>  <i>Independent Linearity<sup>(1)</sup>:</i> ±2 percent of output signal span  <i>Hysteresis<sup>(1)</sup>:</i> 0.6 percent of span</p> <p><b>Electromagnetic Interference (EMI):</b> Tested per IEC 61326-1 (Edition 1.1). Conforms to the European EMC Directive. Meets emission limits for class A equipment (industrial locations) and class B equipment (domestic locations). Meets immunity requirements for industrial locations (Table A.1 in the IEC specification document). Immunity performance is shown in table 2.</p> <p><b>For 3582 Series and Type 3582i</b>  <i>Typical Open Loop Gain (Output Signal)<sup>(1)</sup>:</i>          ■ 100 in the range of 0.2 to 1.0 bar (3 to 15 psig)          ■ 55 in the range of 0.4 to 2.0 bar (6 to 30 psig)</p> <p><b>Operating Influences<sup>(1)</sup></b></p> <p><b>Supply Pressure, For 3582 Series Units:</b> Valve travel changes less than 1.67 percent per bar (0.25 percent per 2 psi) change in supply pressure</p> <p><b>Supply Pressure, For Type 3582i Units:</b> Valve travel changes less than 3.62 percent per bar (1.5 percent per 2 psi) change in supply pressure</p> <p><b>Operative Temperature Limits<sup>(1,2,4)</sup></b></p> <p><b>Standard Construction, For 3582 Series and Type 3582i Units:</b> -40 to +71°C (-40 to +160°F)</p> <p><b>Type 3582NS Units:</b> -40 to +82°C (-40 to +180°F) with EPDM elastomers</p> <p><b>High-Temperature Construction, For Types 3582A and C only:</b> -18 to +104°C (0 to +220°F) without gauges</p>
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- Continued -

# 3582 and 3583 Series

Table 1. Specifications for 3582 Series and Type 3582i Valve Positioners (Continued)

<p><b>Electrical Classification for Type 582i</b></p> <p> Explosion proof, Dust-Ignition proof, DIV 2, Intrinsic Safety</p> <p> Explosion proof, Non-incendive, Dust-Ignition proof, Intrinsic Safety</p> <p>ATEX Intrinsic Safety, Type n, Explosion proof (Gas Atmospheres Only)</p> <p>SAA Intrinsic Safety, Flameproof, Type n</p> <p>Refer to Special Instructions for Safe-use and Installation in Hazardous Locations, tables 4, 5 and 6, and figures 29, 30, 31, 32, and 33 for additional information.</p> <p>Note: These classifications apply to Type 3582i</p> <p><b>Housing Classification for Type 582i</b></p> <p>NEMA 3, IEC 529 IP54: Mount instrument with vent on the side or bottom if weatherproofing is a concern.</p> <p><b>Hazardous Area Classification for Type 3582</b></p> <p>3582 Series valve positioners comply with the requirements of ATEX Group II Category 2 Gas and Dust</p> <p>  II 2 G D</p> <p>Note: This rating does not apply to 3582i Series</p>	<p><b>Pressure Gauges</b></p> <p>40 mm (1.5 inch) diameter with plastic case and brass connection ■ triple scale (PSI, MPa, and bar) or ■ dual scale (PSI and kg/cm<sup>2</sup>)</p> <p><b>Pressure Connections</b></p> <p>1/4-inch NPT female</p> <p><b>Electrical Connection for Type 3582i</b></p> <p>1/2-14 NPT conduit connection</p> <p><b>Maximum Valve Stem Travel</b></p> <p>105 mm (4.125 inches); adjustable to obtain lesser travels with standard input signals</p> <p><b>Characterized Cams</b></p> <p>See characterized cams section</p> <p><b>Approximate Weight</b></p> <p><b>3582 Series Units:</b> 2.5 kg (5.5 pounds)  <b>Type 3582i:</b> 3.6 kg (8 pounds)</p> <p><b>Declaration of SEP</b></p> <p>Fisher Controls International LLC declares this product to be in compliance with Article 3 paragraph 3 of the Pressure Equipment Directive (PED) 97 / 23 / EC. It was designed and manufactured in accordance with Sound Engineering Practice (SEP) and cannot bear the CE marking related to PED compliance.</p> <p>However, the product <i>may</i> bear the CE marking to indicate compliance with <i>other</i> applicable EC Directives.</p>
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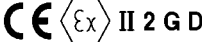
1. This term is defined in ISA Standard S51.1.  
 2. Do not exceed any of the pressure or temperature limits in this instruction manual. Also, any applicable standard or code should not be exceeded.  
 3. Normal m<sup>3</sup>/hr—normal cubic meters per hour (0°C and 1.01325 bar, absolute); Scfh—Standard cubic feet per hour (60°F and 14.7 psia).  
 4. The pressure and temperature limits in this document and any applicable standard or code limitation should not be exceeded.  
 5. Natural gas to contain no more than 20 ppm of H<sub>2</sub>S.

Table 2. EMC Immunity Performance Criteria

Port	Phenomenon	Basic Standard	Performance Criteria <sup>(1)</sup>
Enclosure	Electrostatic Discharge (ESD)	IEC 61000-4-2	A
	Radiated EM field	IEC 61000-4-3	A
	Rated power frequency magnetic field	IEC 61000-4-8	A
I/O signal/control	Burst (fast transients)	IEC 61000-4-4	A
	Surge	IEC 61000-4-5	B
	Conducted RF	IEC 61000-4-6	A

Specification limit = ±1% of span  
 1. A = No degradation during testing, B = Temporary degradation during testing, but is self-recovering.

Table 3. Specifications for 3583 Series Valve Stem Position Transmitters

<p><b>Input Signal<sup>(1)</sup></b> 105 mm (4.125 inches) of valve stem travel; adjustable to obtain full output signal with lesser stem travels</p> <p><b>Output Signal<sup>(1)</sup></b> <b>Type:</b> ■ 0.2 to 1.0 bar (3 to 15 psig) or ■ 0.4 to 2.0 bar (6 to 30 psig) pneumatic pressure <b>Action:</b> Field-reversible between direct and reverse</p> <p><b>Output Bellows Pressure Rating<sup>(2)</sup></b> See table 8 for minimum and maximum pressure ratings (allowable input signal) for each available range spring</p> <p><b>Supply Pressure<sup>(1,4)</sup></b> <b>Recommended:</b> 0.3 bar (5 psi) above upper limit of output signal range <b>Maximum:</b> 2.4 bar (35 psig) or pressure rating of connected equipment, whichever is lower <b>Supply Medium:</b> Air or natural gas<sup>(5)</sup></p> <p><b>Maximum Steady-State Air Consumption<sup>(1,3)</sup></b> 1.4 bar (20 psig) Supply: 0.38 normal m<sup>3</sup>/hr (14.0 scfh) 2.0 bar (30 psig) Supply: 0.48 normal m<sup>3</sup>/hr (18.0 scfh) 2.4 bar (35 psig) Supply: 0.54 normal m<sup>3</sup>/hr (20.0 scfh)</p> <p><b>Reference Accuracy<sup>(1)</sup></b> ±1 percent of output signal span</p>	<p><b>Operating Influence<sup>(1)</sup></b> Output signal changes 1.67 percent per bar (0.23 percent per 2 psig) change in supply pressure</p> <p><b>Operative Ambient Temperature Limits<sup>(1,2,4)</sup></b> <b>Standard Construction, 3583 Series:</b> -40 to +71°C (-40 to +160°F) <b>High-Temperature Construction, Type 3583C only:</b> -18 to +104°C (0 to +220°F)</p> <p><b>Hazardous Area Classification</b> 3583 Series valve stem position transmitters comply with the requirements of ATEX Group II Category 2 Gas and Dust </p> <p><b>Pressure Connections</b> Supply and output pressure connections are 1/4-inch NPT female</p> <p><b>Maximum Valve Stem Travel</b> 105 mm (4.125 inches); adjustable to obtain full output signal with lesser stem travels</p> <p><b>Cam</b> Linear</p> <p><b>Approximate Weight</b> 2.5 kg (5.5 pounds)</p>
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1. This term is defined in ISA Standard S51.  
2. Do not exceed any of the pressure or temperature limits in this instruction manual. Also, any applicable standard or code should not be exceeded.  
3. Normal m<sup>3</sup>/hr—normal cubic meters per hour (0°C and 1.01325 bar, absolute); Scfh—Standard cubic feet per hour (60°F and 14.7 psia).  
4. The pressure and temperature limits in this document and any applicable standard or code limitation should not be exceeded.  
5. Natural gas to contain no more than 20 ppm of H<sub>2</sub>S.

The Type 582i converter receives the dc current input signal and, through a nozzle/flapper arrangement, provides a proportional pneumatic output signal. This pneumatic output signal provides the input signal to the pneumatic valve positioner, eliminating the need for a remote-mounted transducer.

The 3583 Series pneumatic valve stem position transmitters are for use with sliding-stem diaphragm actuators. These units provide an output signal that is directly proportional to the valve stem position.

Refer to the type number description for a detailed explanation of type numbers.

**Type Number Descriptions**

The following descriptions provide specific information on the different valve positioner or valve stem position transmitter constructions. If the type number is not known, refer to the nameplate on the positioner. For the location of the nameplate, refer to key 25 in figure 20.

# 3582 and 3583 Series

**Type 3582**—Pneumatic valve positioner with bypass and instrument, supply, and output pressure gauges.

**Type 3582A**—Pneumatic valve positioner without bypass and without pressure gauges.

**Type 3582C**—Pneumatic valve positioner without bypass and with automotive tire valves instead of pressure gauges.

**Type 3582D**—Pneumatic valve positioner with bypass and with automotive tire valves instead of pressure gauges.

**Type 3582G**—Pneumatic valve positioner without bypass and with instrument, supply, and output pressure gauges.

**Type 3582NS**—Pneumatic valve positioner for nuclear service applications with or without bypass and with automotive tire valves instead of pressure gauges.

**Type 3582i**—Electro-pneumatic valve positioner without bypass; with Type 582i converter; and with supply and output pressure gauges, automotive tire valves, or pipe plugs.

**Type 582i**—Electro-pneumatic converter with: supply and output pressure gauges, automotive tire valves, or pipe plugs. Used for conversion of a 4 to 20 milliampere input signal to a 0.2 to 1.0 bar (3 to 15 psig) input signal for the pneumatic valve positioner.

**Type 3583**—Pneumatic valve stem position transmitter with supply and output pressure gauges.

**Type 3583C**—Similar to the Type 3583 valve stem position transmitter except with automotive tire valves in place of pressure gauges.

## Specifications

Specifications for the valve positioners are shown in table 1. Specifications for the valve stem position transmitters are shown in table 3.

Refer to the unit nameplate to determine the type of positioner or transmitter, supply pressure, etc.

## WARNING

**This product is intended for a specific current range, temperature range and other application specifications. Applying different current, temperature and other service conditions could result in malfunction of the product, property damage or personal injury.**

## Educational Services

For information on available courses for Type 3852 Series, 3582i and 3583 Series, as well as a variety of other products, contact:

Emerson Process Management  
 Educational Services, Registration  
 P.O. Box 190; 301 S. 1st Ave.  
 Marshalltown, IA 50158-2823  
 Phone: 800-338-8158 or  
 Phone: 641-754-3771  
 Fax: 641-754-3431  
 e-mail: [education@emersonprocess.com](mailto:education@emersonprocess.com)

### Note

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## Installation

If using natural gas as the pneumatic supply medium, natural gas will be used in the pressure connections of the unit to any connected equipment. The unit will vent natural gas into the surrounding atmosphere, unless it is remote vented.

## WARNING

**Always wear protective clothing, gloves, and eyewear when performing any installation operations to avoid personal injury.**

If installing into an existing application, also refer to the **WARNING** at the beginning of the Maintenance section in this instruction manual.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

valve stem position transmitter at the factory may not be possible, and field alignment and calibration is required. Before putting the valve positioner or valve stem position transmitter into service, check the operation of the unit to be sure it is calibrated. If the valve positioner or valve stem position transmitter requires alignment or calibration, refer to the appropriate calibration instructions in this manual.

 **WARNING**

Personal injury or property damage may result from fire or explosion if natural gas is used as the supply medium and preventative measures are not taken. Preventative measures may include: Remote venting of the unit, re-evaluating the hazardous area classification, ensuring adequate ventilation, and the removal of any nearby ignition sources.

Type 3582i does not meet third party approvals for use with natural gas as the supply medium. Use of natural gas as the supply medium can result in personal injury or property damage from fire or explosion.

**Note**

All valve positioners and valve stem position transmitters are shipped with foam rubber packing material inside the case. Remove the cover (key 33, figure 20) and the packing material before attempting to operate the unit. Make sure all vent openings are clear before installation of the unit and that they remain clear during use.

Typically, the positioner or transmitter is ordered with the actuator. If so, the factory mounts the valve positioner or valve stem position transmitter and connects the valve positioner output to the actuator. If a Type 67CFR filter-regulator is specified, it may be integrally mounted to the valve positioner or valve stem position transmitter, except for the Type 3582NS positioner. For the Type 3582NS, the Type 67CFR is separately mounted, not integrally mounted to the positioner.

**Note**

In some cases, alignment and calibration of the valve positioner or

If the valve positioner or valve stem position transmitter is ordered separately, disconnected, or removed from the actuator, refer to the appropriate sections of this manual for installation information.

**Special Instructions for Safe-Use and Installation in Hazardous Locations**

Certain nameplates may carry more than one approval, and each approval may have unique installation requirements and/or conditions of safe-use. Special instructions are listed by agency/approval.

After reading and understanding these special conditions of use, proceed with standard installation procedures.

 **WARNING**

Failure to follow these conditions of safe-use could result in personal injury or property damage from fire or explosion, and area re-classification.

**CSA**

**Type 582i**

**Special Conditions of Use**

None stated.

Refer to table 4 for additional information, figure 29 for CSA loop schematics, and figure 31 for the CSA/FM approvals nameplate.

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Table 4. Hazardous Area Classifications for Type 582i—North America (CSA and FM)

CERTIFICATION BODY	CERTIFICATION OBTAINED	ENTITY RATING	TEMPERATURE CODE	ENCLOSURE RATING
CSA	(Intrinsic Safety) Class/Division •Class I, II Division 1 GP A, B, C, D, E, F, G per drawing 21B5606		T4A ( $T_{amb} \leq 71^{\circ}\text{C}$ )	CSA ENC 3
	(Explosion Proof) Class I, Division I, Groups A, B, C, D	---	T5 ( $T_{amb} \leq 71^{\circ}\text{C}$ )	CSA ENC 3
	Class I, Division 2, GP A, B, C, D Class II, Division 1, Groups E, F, G Class II, Division 2, GP E, F, G	---		CSA ENC 3
FM	(Intrinsic Safety) •Class I, II, III Division 1 GP A, B, C, D, E, F, G per drawing 21B5607	$V_{max} = 40 \text{ Vdc}$ $I_{max} = 200 \text{ mA}$ $C_i = 0 \text{ nF}$ $L_i = 0 \text{ mH}$	T4A ( $T_{amb} \leq 71^{\circ}\text{C}$ )	NEMA 3
	(Explosion Proof) Class I, Division I, Groups A, B, C, D	---	T5 ( $T_{amb} \leq 71^{\circ}\text{C}$ )	NEMA 3
	Class I, Division 2, GP A, B, C, D Class II, Division 1, Groups E, F, G Class II, Division 2, GP F, G	---		NEMA 3

Table 5. Hazardous Area Classifications for Type 582i—ATEX

CERTIFICATE	CERTIFICATION OBTAINED	ENTITY RATING	TEMPERATURE CODE	ENCLOSURE RATING
ATEX	Ⓔ II 1 G —Intrinsic Safety Gas •EEx ia IIC T4/T5/T6	$U_i = 30 \text{ Vdc}$ $I_i = 150 \text{ mA}$ $P_i = 1.25 \text{ W}$ $C_i = 0 \text{ nF}$ $L_i = 0 \text{ mH}$	T4 ( $T_{amb} \leq 71^{\circ}\text{C}$ ) T5 ( $T_{amb} \leq 62^{\circ}\text{C}$ ) T6 ( $T_{amb} \leq 47^{\circ}\text{C}$ )	IP54
	Ⓔ II 2 G Gas •EEx d IIB T6 —Flameproof	---	T6 ( $T_{amb} \leq 71^{\circ}\text{C}$ )	IP54
	Ⓔ II 3 G Gas •EEx nA IIC T6 —Type n	---	T6 ( $T_{amb} \leq 71^{\circ}\text{C}$ )	IP54

## FM

### Type 582i

#### Special Conditions of Use

None stated.

Refer to table 4 for additional information, figure 30 for the FM loop schematic, and figure 31 for the CSA/FM approvals nameplate.

## ATEX Flameproof

### Type 582i

#### Special Conditions for Safe-Use

Electrical connections are typically made using either cable or conduit.

- If using a cable connection, the cable entry device shall be certified in type of explosion protection flameproof enclosure “d”, suitable for the conditions of use and correctly installed.

For ambient temperatures over  $70^{\circ}\text{C}$ , cables and cable glands suitable for at least  $90^{\circ}\text{C}$  shall be used.

- If using a rigid conduit connection, an EEx d certified sealing device such as a conduit seat with setting compound shall be provided immediately to the entrance of the enclosure.

For ambient temperatures over  $70^{\circ}\text{C}$ , the wiring and setting compound in the conduit seal shall be suitable for at least  $90^{\circ}\text{C}$ .

Refer to table 5 for additional information, and figure 32 for ATEX approval nameplates.

Table 6. Hazardous Area Classifications for Type 582i—Australia (SAA)

CERTIFICATION	CERTIFICATION OBTAINED	TEMPERATURE CODE	ENCLOSURE RATING
SAA	Ex ia IIC —Intrinsic Safety	T4 ( $T_{amb} \leq 40^{\circ}\text{C}$ )	IP54
	Ex n IIC —Type n	T4 ( $T_{amb} \leq 40^{\circ}\text{C}$ )	IP54
	Ex d IIC —Flameproof	T6 ( $T_{amb} \leq 40^{\circ}\text{C}$ )	IP54

**ATEX Intrinsic Safety**

**Type 582i**

**Special Conditions for Safe Use**

This equipment is intrinsically safe and can be used in potentially explosive atmospheres.

The electrical parameters of certified equipment which can be connected to the device must not exceed one of these following values:

$U_0 \leq 30 \text{ Vdc}$   
 $I_0 \leq 150 \text{ mA}$   
 $P_0 \leq 1.25 \text{ W}$

Ambient temperature:

T6, at  $T_{amb} = 47^{\circ}\text{C}$   
 T5, at  $T_{amb} = 62^{\circ}\text{C}$   
 T4, at  $T_{amb} = 71^{\circ}\text{C}$

Refer to table 5 for additional information, and figure 32 for ATEX approval nameplates.

**ATEX Type n**

**Type 582i**

**Special Conditions for Safe-Use**

None stated.

Refer to table 5 for additional information, and figure 32 for ATEX approval nameplates.

**SAA Intrinsic Safety, Type n**

**Type 582i**

**Conditions of Certification**

1. It is a condition of certification that the following parameters are taken into consideration during

installation when the equipment is used as an Ex ia apparatus:

Input Parameters	2-Way terminal block
Maximum Input Voltage $U_i$	32 V
Maximum Input Current $I_i$	150 mA
Maximum Internal Capacitance $C_i$	0 $\mu\text{F}$
Maximum Internal Inductance $L_i$	0 mH

2. It is a condition of safe use that the input voltage does not exceed 32 Volts when the equipment is used as an Ex n apparatus.

3. It is a condition of safe use that the equipment shall be mounted such that the exhaust vents will be self-draining.

4. It is a condition of safe use that the cable gland or conduit adaptor with an ingress protection rating of IP54 must be used in the conduit entry in order to maintain the IP rating of the enclosure.

5. It is a condition of safe use that the irrelevant explosion protection marking codes on the certification label are permanently scribe off upon completion of commissioning.

Refer to table 6 for additional information, and figure 33 for the SAA approvals nameplate.

**SAA Flameproof**

**Type 582i**

**Conditions of Certification**

1. It is a condition of safe use that the enclosure must be connected to external circuits via Standards Australia certified Ex d cable gland or conduit adaptor with a minimum rating of IP54.

2. It is a condition of safe use that the equipment must be mounted in position between upward and horizontal such that the vent is facing downwards or horizontally.

3. It is a condition of safe use that the irrelevant explosion protection marking codes on the certification label are permanently scribed off upon completion of commissioning.

Refer to table 6 for additional information, and figure 33 for the SAA approvals nameplate.

# 3582 and 3583 Series

Table 7. 3582 and 3583 Series Mounting Information

ACTUATOR TYPE	ACTUATOR SIZE	MAXIMUM TRAVEL		MOUNTING HOLES SET NO.(1)	TRAVEL PIN POSITION(2)	ACTUATOR TYPE	ACTUATOR SIZE	MAXIMUM TRAVEL		MOUNTING HOLES SET NO.(1)		TRAVEL PIN POSITION(2)
		mm	Inch					mm	Inch	657	667	
513 & 513R	20	19	0.75	2	Normal	657 & 667 Without Side-Mounted Handwheel	30	19	0.75	3	4	Normal
	32	19	0.75	2	Normal		34	19	1.125	3	2	Normal
656	40	51	2	4	Inverted		40	38	1.5	2	3	Normal
	60	89	3.5	4	Inverted		45	19	0.75	1	4	Inverted(3)
		102	4	4	Inverted		45	51	2	1	1	Normal
							50	51	2	1	2	Normal
657-4 Without Side-Mounted Handwheel	70	102	4	3	Inverted		60	51	2	1	2	Normal
657-4 With Side-Mounted Handwheel	70	102	4	2	Inverted		70	51	2	2	1	Normal
	87	102	4	1	Inverted			52-76	2.0625-3	3	2	Normal
657-8	30	54	2.125	3	Normal		78-102	3.0625-4	3	1	Inverted(4)	
	34	54	2.125	3	Normal			80	76	3	2	2
	40	79	3.125	3	Normal		87		51	2	2	2
	40	89	3.5	3	Normal	52-76			2.0625-3	2	2	Normal
	46	79	3.125	2	Normal	78-102	3.0625-4		3	1	Inverted(4)	
	46	105	4.125	2	Normal	100	102	4	4	4	Inverted	
47	79	3.125	2	Inverted	657 & 667 With Side-Mounted Handwheel		34	19	0.75	2	2	Normal
47	105	4.125	1	Inverted		40	38	1.5	1	2	Normal	
60	105	4.125	4	Inverted		45	51	2	1	4	Normal	
70	105	4.125	2	Inverted		657 & 667 Without Side-Mounted Handwheel	50	51	2	4	1	Inverted(4)
667-4 Without Side-Mounted Handwheel	70	102	4	1	Normal		60	51	2	3	1	Inverted(4)
	87	102	4	1	Normal		70	102	4	2	2	Inverted
							80	76	3	2	2	Normal
							87	76	3	2	2	Normal
						78-102	3.0625-4	2	2	1	Inverted	

1. The indicated set number should be considered a reference point only, due to the variables related to making up the stem connection.  
 2. Normal position is shown in figure 3.  
 3. Travel pin position for Type 657 is normal.  
 4. Travel pin position for Type 667 is normal.

## Mounting

Key numbers used in this procedure are shown in figure 2 except where indicated.

1. Figure 2 shows the various mounting parts required for mounting on Fisher actuators. Mounting parts for Fisher actuators that require spacers have the spacers (key 50) included. Type 657 and 667 actuators, sizes 70 through 100, with or without a side-mounted handwheel, use spacers (keys 97 and 102) between the stem connector and the connector arm (key 48). On all other actuators that use spacers, place the spacers (key 50) between the mounting plate (key 63) and the actuator mounting boss.

When mounting the valve positioner or valve stem position transmitter on an actuator by another

manufacturer, provide spacers, if necessary, by cutting sections from 1/2 or 3/8-inch pipe so that the "X" dimension matches the value given in figure 4.

2. As shown in figures 2 and 3 attach the connector arm (key 48) to the stem connector so that the connector arm extends through the yoke legs on the side of the lower mounting boss.

3. Attach the valve positioner or valve stem position transmitter to the mounting plate (key 63) using the holes shown in figure 5.

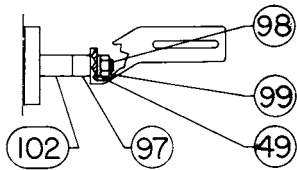
4. Mount the Type 67CFR regulator:

- **3582 Series valve positioners (except Type 3582NS) and 3583 Series valve stem position transmitters**, mount the regulator on the integral boss on the bypass block.

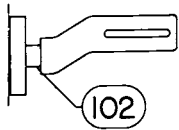
# Instruction Manual

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February 2006

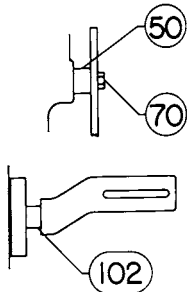
# 3582 and 3583 Series



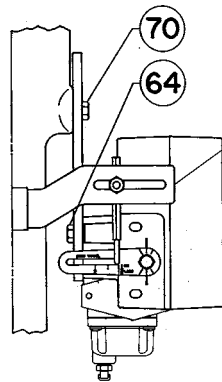
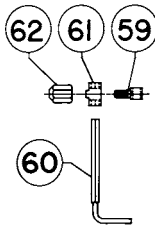
TYPE 657, 657MO, 667, 667MO  
SIZE 80 UP TO 51 mm (2 IN) TRAVEL



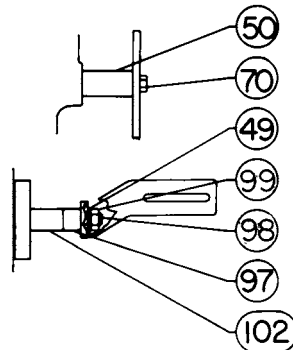
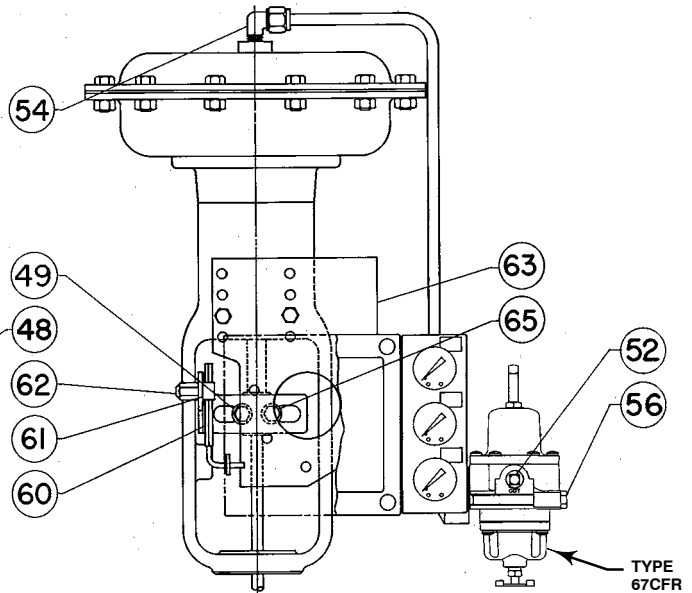
TYPE 657  
SIZE 70, 87 UP TO 51 mm (2 IN) TRAVEL



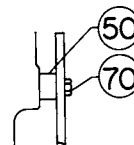
TYPE 657, 657MO, 667, 667MO  
SIZE 100 ALL TRAVEL  
TYPE 657, 657MO, 667, 667MO  
SIZE 80 52 TO 76 mm (2.0625 TO 3 IN) TRAVEL  
TYPE 657MO, 667MO  
SIZE 70, 87 78 TO 102 mm (3.0625 TO 4 IN) TRAVEL  
TYPE 657-4MO, 667-4MO  
SIZE 70, 87 102 mm (4 IN) TRAVEL



TYPE 657MO, 667MO  
SIZE 70, 87 UP TO 78 mm (3 IN) TRAVEL



TYPE 513  
SIZE 32  
TYPE 650, 656, 657-8  
ALL SIZES  
TYPE 657MO  
SIZE 34, 45, 50, 60  
TYPE 657-4, 667-4  
SIZE 70, 87 102 mm (4 IN) TRAVEL  
TYPE 657, 667  
SIZE 70, 87 78 TO 102 mm (3.0625 TO 4 IN) TRAVEL  
TYPE 667  
SIZE 70, 87, 52 TO 78 mm (2.0625 TO 3 IN) TRAVEL



NOTE:  
KEY 55 (TUBING CONNECTOR) NOT SHOWN  
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Figure 2. Mounting Assembly

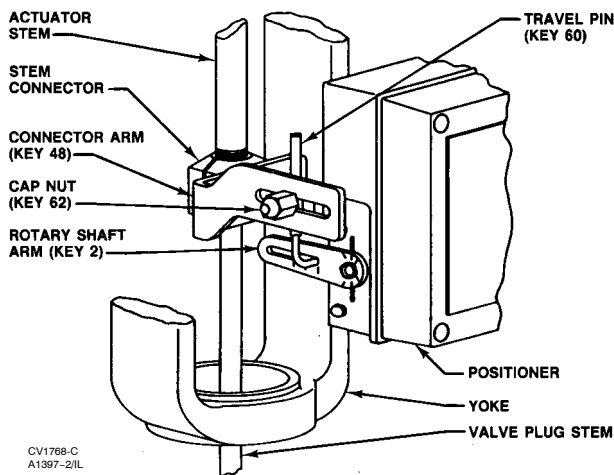


Figure 3. Isometric View Showing Motion Feedback Arrangement and Typical Stem Connection

- **Type 3582NS valve positioners**, use the mounting plate with provision for separately mounting the Type 67CFR regulator. Separately mount the positioner and the regulator on the mounting plate.
  - **Type 3582i valve positioners**, mount the regulator on the integral boss that is part of the Type 582i converter housing.
5. As shown in figure 5, the mounting bracket has four sets of holes for mounting the assembly to the actuator. Refer to table 7 to determine which set of mounting holes to use, then attach the assembly to the lower mounting pad on the actuator.

### CAUTION

**To avoid equipment damage, be certain the connector arm clears the valve positioner or valve stem position transmitter case as the actuator moves through its complete stroke.**

6. Position the actuator to its mid-travel position using a handwheel or manual loading regulator.
7. Slip the round end of the travel pin (key 60) into the rotary shaft arm (key 2) slot as shown in figure 3.
8. Slide the square end of the travel pin into the pin holder and pin lock (keys 61 and 59). Place the pin lock and holder into the slot in the connector arm (key 48). Screw the cap nut (key 62) onto the pin lock (key 59), but do not tighten.

STEM TRAVEL	X		
	9.5 mm (0.375 Inch) Stem	12.7 mm (0.5 Inch) Stem	19.1 mm (0.75 Inch) Stem
Millimeters			
29 or less	81	87	100
38	90	97	109
51	102	108	121
64	113	119	132
76	124	130	143
89	135	141	154
102	146	152	165
Inches			
1.125 or less	3.19	3.44	3.94
1.5	3.56	3.81	4.31
2	4.00	4.25	4.75
2.5	4.44	4.69	5.19
3	4.88	5.12	5.62
3.5	5.31	5.56	6.06
4	5.75	6.00	6.50

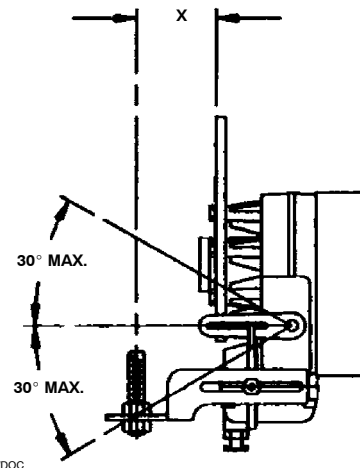
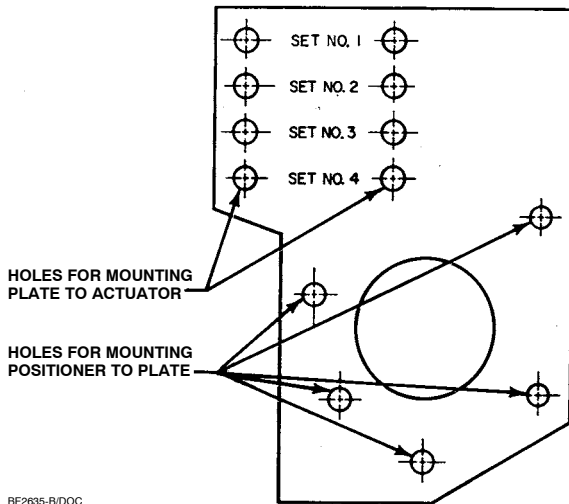


Figure 4. Spacing for Mounting on Other Than Fisher Actuators

9. With the actuator at its mid-travel position, lift the rotary shaft arm so that the 0-degree index marks on the rotary shaft arm are aligned with the case index marks as shown in figure 6.

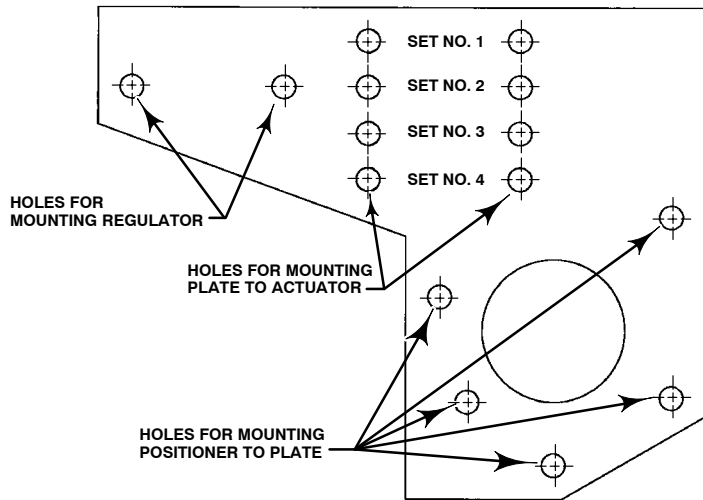
### CAUTION

**Never set the travel pin at a setting that is less than the actual actuator stroke. Setting the travel pin at a setting that is less than the actual actuator stroke will cause the cam to rotate more than 60 degrees, causing damage to the cam or other parts.**



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**MOUNTING PLATE FOR MOUNTING POSITIONER WITH INTEGRALLY MOUNTED FILTER REGULATOR**



**MOUNTING PLATE FOR MOUNTING POSITIONER WITH SEPARATELY MOUNTED FILTER REGULATOR**

Figure 5. Mounting Plates Used with 3582 Series Valve Positioners and 3583 Series Valve Stem Position Transmitters

10. Position the travel pin so that it is perpendicular to the connector arm and aligns with the correct actuator stem travel index on the rotary shaft arm. Tighten the cap nut (key 62 in figure 3).

11. Check the travel pin setting using the following procedures:

- **For standard travel pin setting** (that is, with the travel pin setting equal to total actuator travel). Stroke the actuator to each end of its travel. At each end of travel, the 30-degree index marks on the rotary shaft arm should align with the case index marks. If the index marks are not in line, loosen the cap nut (key 62) and slide the travel pin (key 60) in the rotary shaft arm slot until the 30-degree index marks align with the case index marks. Be sure the travel pin remains perpendicular to the connector arm. After making this adjustment, tighten the cap nut and re-check the arm at the mid-travel position. If the 0-degree index marks do not align, repeat this procedure.

- **For special travel pin setting** (that is, with the travel pin setting greater than total actuator travel). Check the index marks using a procedure similar to the standard settings procedure. The arm will not rotate a full 60 degrees as the actuator is stroked, and the 30-degree index marks on the cam will be short of aligning with the case index marks. If necessary, adjust the travel pin position so that the

30-degree marks are the same distance from the respective case index mark at each end of actuator travel.

### Changing Cam Position

Refer to figure 20 for a typical cam illustration and key number locations.

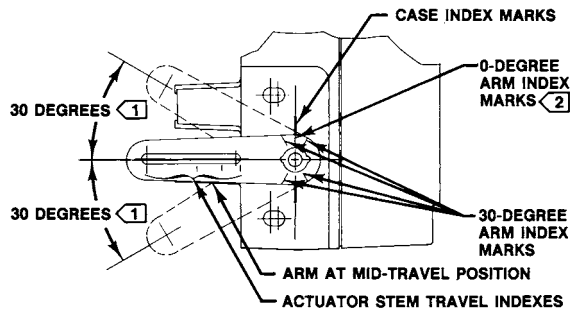
#### Note

- **For Valve Positioners:** The small arrow on the cam must point in the direction of stem movement with increasing actuator diaphragm pressure.

- **For Valve Stem Position Transmitters:** If the arrow on the cam points up toward the nozzle, output pressure increases with downward stem movement. If the arrow points down, output pressure decreases with downward stem movement.

If the arrow is pointing in the wrong direction, use the following procedure to remove, reverse, and re-install the cam.

When mounting a valve positioner or valve stem position transmitter, check to see if the correct cam (key 4) and cam position has been selected. To



- NOTES:  
**1** MAXIMUM ROTATION FROM MID-TRAVEL POSITION.  
**2** ALIGN INDEX MARKS AS SHOWN FOR MID-TRAVEL POSITION.

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Figure 6. Rotary Shaft Arm and Case Index Marks

change the cam or cam position, unhook the extension spring (key 38), and remove the cam bolt and locking nut (keys 6 and 45). Remove the cam and spring retainer bracket (key 43).

To install the cam, screw the locking nut all the way onto the cam bolt. Attach the cam and spring retainer bracket to the shaft assembly with the cam bolt. Tighten the bolt to secure the cam. Then, tighten the locking nut against the spring retainer bracket. Hook the spring into the spring retainer bracket.

Details on cam characteristics can be found in the cam information portion of the operating information section.

## Pressure Connections



**Valve positioners and valve stem position transmitters are capable of providing full supply pressure to connected equipment. To avoid personal injury or equipment damage caused by parts bursting from system overpressure, make sure the supply pressure never exceeds the maximum safe working pressure of any connected equipment.**

Pressure connections are shown in figure 7. All pressure connections are 1/4-inch NPT female. Use 3/8-inch tubing for all pressure connections. After making pressure connections, turn on the supply pressure and check all connections for leaks.

## Supply Connection



**Personal injury or property damage may occur from an uncontrolled process if the supply medium is not clean, dry, oil-free air, or noncorrosive gas. While use and regular maintenance of a filter that removes particles larger than 40 microns in diameter will suffice in most applications, check with a Fisher Field office and Industry Instrument air quality standards for use with corrosive air or if you are unsure about the proper amount or method of air filtration or filter maintenance.**

**Type 3582i does not meet third party approvals for use with natural gas as the supply medium. Use of natural gas as the supply medium can result in personal injury or property damage from fire or explosion.**

## CAUTION

**Use a clean, dry, oil-free air supply with instruments containing EPDM components. EPDM is subject to degradation when exposed to petroleum-based lubricants.**

Supply pressure must be clean, dry, oil-free air or noncorrosive gas. Use a Fisher Type 67CFR Filter Regulator, or equivalent, to filter and regulate supply air. Except for the Type 3582NS, the filter regulator can be mounted on the positioner. For the Type 3582NS the regulator can be mounted on the mounting plate with the positioner but not on the positioner. The supply pressure should be high enough to permit setting the regulator 0.3 bar (5 psi) above the upper limit of the appropriate pressure range, for example: 1.4 bar (20 psig) for a 0.2 to 1.0 bar (3 to 15 psig) range. However, do not exceed the maximum allowable supply pressure of 3.4 bar (50 psig) nor the pressure rating of any connected equipment.

Connect the nearest suitable supply source to the 1/4-inch NPT IN connection on the filter regulator (if furnished) or to the 1/4-inch NPT SUPPLY connection on the positioner block assembly.

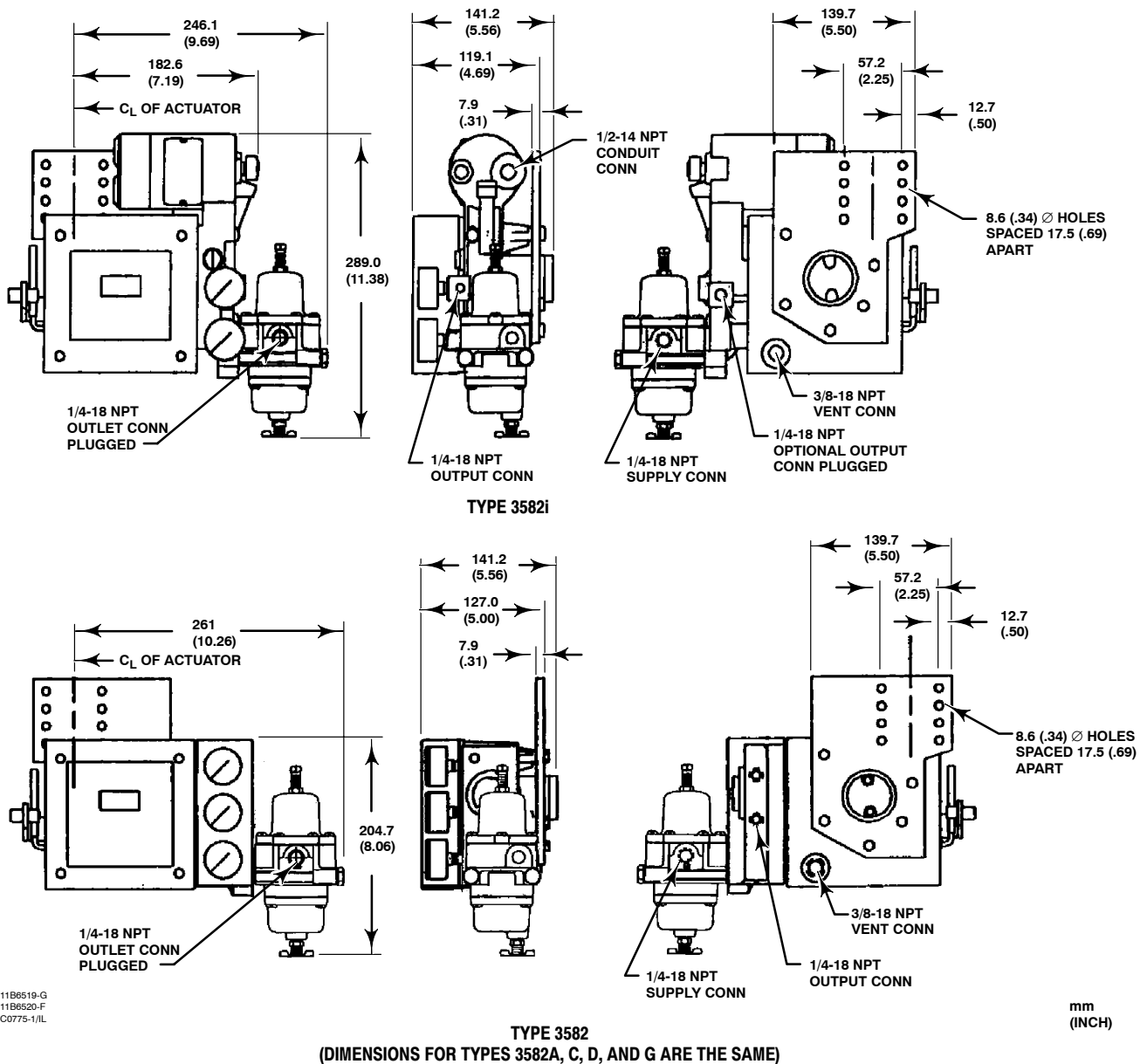


Figure 7. Typical Dimensions and Connections

### Output Connection

A factory mounted valve positioner has the valve positioner output piped to the supply connection on the actuator. If mounting the valve positioner in the field, connect 3/8-inch tubing between the 1/4-inch NPT valve positioner connection marked OUTPUT and the actuator supply pressure connection. Connect the valve stem position transmitter connection marked OUTPUT to an instrument that indicates valve stem position.

### Instrument Connection

For a 3582 Series pneumatic valve positioner connect 3/8-inch tubing from the control device to the 1/4-inch NPT INSTRUMENT connection. If the control device is mounted on the control valve assembly by the factory, this connection is made.

The Type 3582i electro-pneumatic valve positioner requires a 4 to 20 milliamper dc current input signal

# 3582 and 3583 Series

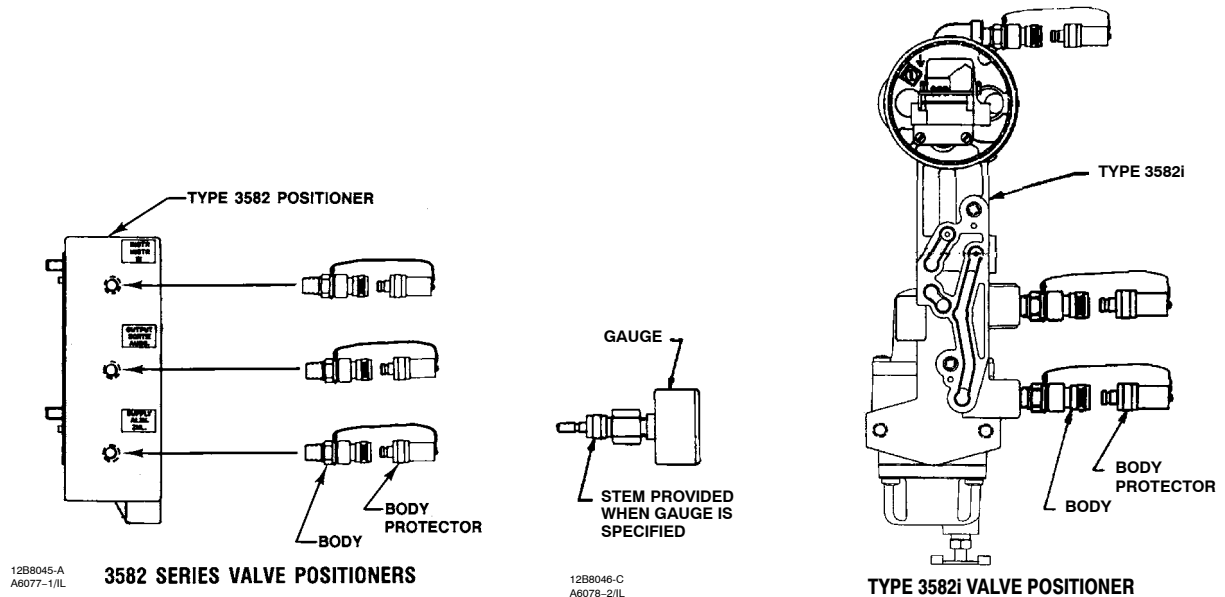


Figure 8. Diagnostic Connections

from the control device. A 1/2-inch NPT conduit connection is provided for properly wiring electrical installations. For more information, see the electrical connections section.

### Diagnostic Connections

To support diagnostic testing of valve/actuator/positioner/accessory packages, special connectors and hardware are available. The hardware used includes 1/8-inch NPT connector bodies and body protectors. If the diagnostic connectors are ordered for a positioner with gauges, 1/8-inch stems are also included.

Install the connectors on the 3582 block assembly or Type 582i housing as shown in figure 8. Before installing the connectors on the positioner, apply sealant to the threads. Sealant is provided with the diagnostic connections and hardware.

**enclosed area. The positioner/actuator assembly does not form a gas-tight seal, and when the assembly is enclosed, a remote vent line, adequate ventilation, and necessary safety measures should be used. For leakage rates, see the Maximum Steady-State Air Consumption specification. A remote vent pipe alone cannot be relied upon to remove all hazardous gas. Vent line piping should comply with local and regional codes and should be as short as possible with adequate inside diameter and few bends to reduce case pressure buildup.**

### Vent



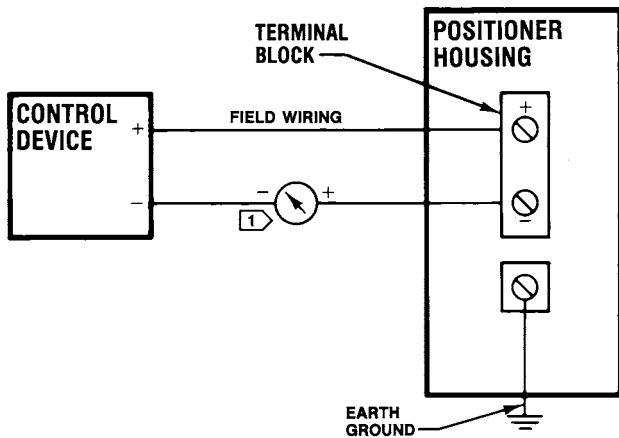
**WARNING**

**Personal injury or property damage could result from fire or explosion of accumulated gas if a flammable gas is used as the supply pressure medium and the positioner/actuator is in an**



**WARNING**

**Type 3582i does not meet third party approvals for use with natural gas as the supply medium. Use of natural gas as the supply medium can result in personal injury or property damage from fire or explosion,**



NOTE:  
① FOR TROUBLESHOOTING OR MONITORING OPERATION, AN INDICATING DEVICE CAN BE A VOLTMETER ACROSS A 250 OHM RESISTOR OR A CURRENT METER.

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Figure 9. Typical Field Wiring Diagram

## CAUTION

When installing a remote vent pipe, take care not to overtighten the pipe in the vent connection. Excessive torque will damage the threads in the connection.

The vent opening at the back of the case marked VENT should be left open to prevent pressure buildup inside the case and to provide a drain hole for any moisture that might collect inside the case. The perforated section of the nameplate normally covers this opening to prevent blockage from debris or insects. Also, ensure the exhaust holes in the relay (key 32 in figure 20) are kept open.

If a remote vent is required, the vent line must be as short as possible with a minimum number of bends and elbows. The vent connection is 3/8-inch NPT female. Use 3/8-inch or larger tubing to provide a remote vent. The 582i has a 1/4-inch NPT female vent connection. Use optional remote vent 83L Relay for remote vent applications.

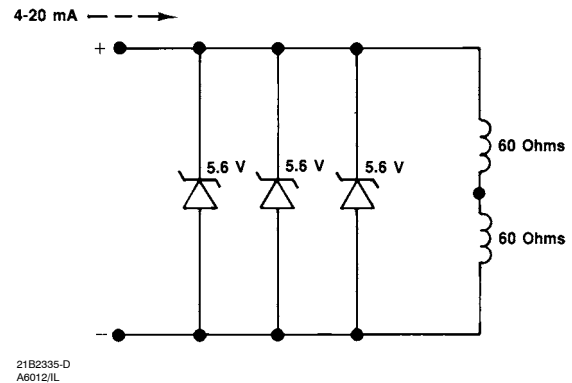


Figure 10. Type 582i Input Equivalent Circuit

## Electrical Connections for Type 3582i Valve Positioner

### WARNING

For explosion-proof applications, disconnect power before removing the converter housing cap.

For Class I, Division 1 explosion-proof applications, install rigid metal conduit and a conduit seal no more than 457 mm (18 inches) from the converter. Personal injury or property damage might result from explosion if the seal is not installed.

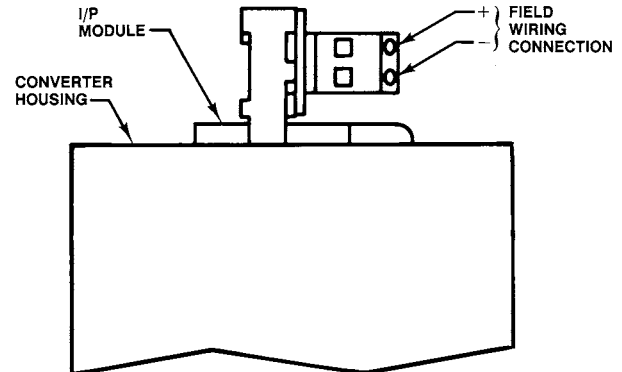
For intrinsically safe installations, refer to the loop schematics shown in figures 29 and 30, factory drawings, or to instructions provided by the barrier manufacturer for proper wiring and installation.

Select wiring and/or cable glands that are rated for the environment of use (hazardous area, ingress protection and temperature). Failure to use properly rated wiring and/or cable glands can result in personal injury or property damage from fire or explosion.

Use the 1/2-inch NPT conduit connection on the Type 582i converter housing for installation of field wiring. For Class I, Division I explosion-proof applications, install rigid metal conduit and a seal no more than 457 mm (18 inches) from the converter. Also, install conduit according to local and national electrical codes which apply to the application.

# 3582 and 3583 Series

Refer to figures 9, 10 and 11 when connecting field wiring from the control device to the converter. Connect the positive wire from the control device to the converter positive (+) terminal, and the negative wire from the control device to the converter negative (-) terminal. Do not overtighten the terminal screws. Maximum torque is 0.45 N•m (4 lbf•in.). Connect the converter grounding terminal to an earth ground.



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Figure 11. Type 582i Converter Wiring Connections

## Installation Of Type 582i Converter

### Note

Contact your Emerson Process Management sales office for application information before upgrading any existing 3582 Series valve positioner by field installation of a Type 582i electro-pneumatic converter.

- Vent actuator loading pressure.
- Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.
- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

### Note

Before planning to retrofit an installed 3582 Series positioner, refer to the positioner mounting plate illustrations shown in figure 5. Mounting plates with a three-hole mounting pattern (positioner to mounting plate) cannot support a Type 582i converter. Do not attempt to mount a Type 582i converter on an existing 3582 Series positioner which has a three-hole mounting pattern.

Isolate the control valve from the line pressure, and release pressure from both sides of the valve body. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

If a 3582 Series pneumatic valve positioner has previously been installed using a mounting plate with a five-hole mounting pattern (positioner to mounting plate), either at the factory or in the field, it can be upgraded to a Type 3582i electro-pneumatic valve positioner by installation of a Type 582i converter. To install a Type 582i converter, refer to the following instructions.

## WARNING

Avoid personal injury from sudden release of process pressure. Before mounting the Type 582i converter:

- Always wear protective clothing, gloves, and eyewear when performing any maintenance operations.
- Disconnect any operating lines providing air pressure or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.
- Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve.

**Note**

**Inspect the existing valve positioner to determine the input signal range. If the input signal range is not 0.2 to 1.0 bar (3 to 15 psig), refer to the appropriate sections of this manual describing input signal ranges and how to change the range spring.**

1. Inspect the positioner mounting plate. Be certain that five screws fasten the positioner to the mounting plate. Two additional screws fasten the plate to the actuator.

When the positioner is correctly attached to the mounting plate, proceed with the installation by taking the control valve/actuator/positioner package out of service.

2. Properly vent the actuator loading pressure and the supply pressure. Disconnect the pressure tubing connections to the valve positioner.
3. Remove the two screws (key 105 in figures 24 or 25) holding the bypass block (key 34A in figures 24 or 25) to the valve positioner case and remove the bypass block. Save the screws to reattach the Type 582i converter.
4. Remove and discard the existing gasket (key 104 in figures 24 or 25) between the bypass block and valve positioner case.
5. Unpack the Type 582i converter to be installed.
6. Position the new gasket on the Type 582i converter as shown in figure 26. Insert the existing screws (key 105 in figures 24 or 25) through the appropriate holes in the Type 582i converter housing and new gasket.
7. Mate the converter and new gasket to the side of the valve positioner case using the alignment pins on the converter housing.
8. Tighten the screws.
9. Reconnect the pressure connections according to the instructions given in the pressure connections section of this manual.
10. Make the electrical connections according to the instructions given in the electrical connections section of this manual.
11. Complete the standard calibration procedure described in the calibration section of this manual.
12. Return the control valve package to service.

**Operating Information**

Instructions for setting the zero and span are found in the calibration section.

**Valve Positioner Cam Information**

**Note**

**The small arrow on the valve positioner cam must point in the direction of stem movement with increasing actuator diaphragm pressure. If the arrow is pointing in the wrong direction, remove, reverse, and re-install the cam. Refer to the Changing Cam Position section of this manual.**

Refer to figure 20 for key number locations. Unhook the spring (key 38), and remove the cam bolt and locking nut (keys 6 and 45). Remove the cam (key 4) and spring retainer bracket (key 43). To install the cam, screw the locking nut all the way onto the cam bolt. Attach the cam and spring retainer bracket with the cam bolt. Tighten the bolt to secure the cam. Then, tighten the locking nut against the spring retainer bracket. Hook the spring into the spring retainer bracket.

When shipped from the factory, 3582 Series valve positioners and the Type 3582i valve positioner have a linear cam, Cam A, installed in the operating position. Two characterized cams, Cams B and C, are available. These characterized cams may be used to modify the valve flow characteristics.

Figure 12 shows resultant stem travel due to an incremental instrument pressure change for each cam. In figure 12, the curves are based on 60 degrees cam rotation for 100 percent stem travel. At

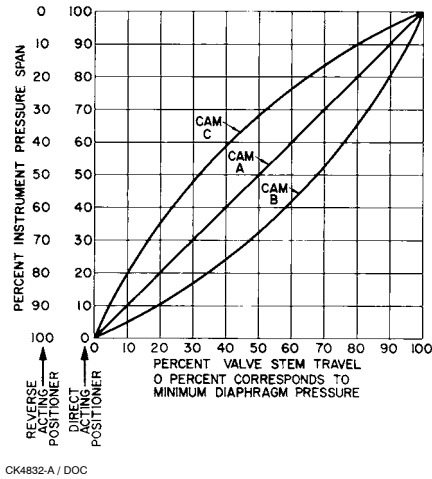


Figure 12. Cam Characteristic Curves

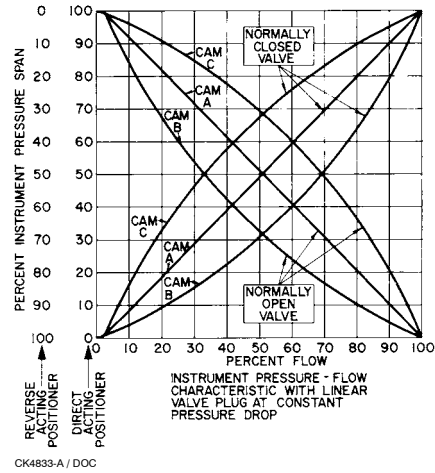


Figure 14. Flow Characteristics with Different Cams and Linear Valve Plug

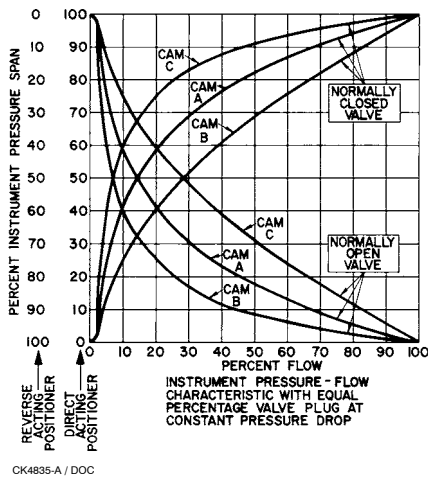


Figure 13. Flow Characteristics with Different Cams and Equal Percentage Valve Plug

50 percent of the input signal span, for example, the stem will travel 50 percent with cam A, 68 percent with cam B, and 32 percent with cam C. Figure 13 shows how the flow characteristics change when using the cams with a valve that has equal percentage characteristics. Figure 14 shows how the flow characteristics change when using the cams with a valve that has linear characteristics.

When cam A is the operating cam, there is a linear relationship between an incremental instrument pressure change and the resultant valve stem travel. The flow characteristic is that of the control valve. Installing either cam B or C as the operating cam,

changes the relationship between the incremental instrument pressure change and valve stem travel, thereby modifying the valve flow characteristic.

### Valve Stem Position Transmitter Cam Information

#### Note

If the small arrow on the valve stem position transmitter cam points up toward the nozzle, output pressure increases with downward stem movement. If the arrow points down, output pressure decreases with downward stem movement. If the arrow is pointing in the wrong direction, remove, reverse, and re-install the cam. Refer to the Changing Cam Position section of this manual.

Refer to figure 20 for key number locations. Unhook the spring (key 38), and remove the cam bolt and locking nut (keys 6 and 45). Remove the cam (key 4) and spring retainer bracket (key 43). To install the cam, screw the locking nut all the way onto the cam bolt. Attach the cam and spring retainer bracket with the cam bolt. Tighten the bolt to secure the cam.

Table 8. Standard Instrument Input Signals and Range Springs

INSTRUMENT INPUT SIGNAL RANGE	STANDARD SPAN	ALLOWABLE INPUT SIGNAL <sup>(1)</sup>		RANGE SPRING COLOR	RANGE SPRING PART NUMBER
		Minimum	Maximum		
0.2–1.0 bar (3–15 psig)	0.8 bar (12 psig)	0.07 bar (1 psig)	1.4 bar (21 psig)	Silver	1V621727012
4–20 mA <sup>(2)</sup>	16 mA	2 mA	22 mA		
0.4–2.0 bar (6–30 psig)	1.6 bar (24 psig)	0.07 bar (1 psig)	2.4 bar (35 psig)	Red	1V621927012

1. Minimum and maximum allowable input signals ensure functional operation.  
2. For Type 3582i, only.

Then, tighten the locking nut against the spring retainer bracket. Hook the spring into the spring retainer bracket.

The linear cam is the only cam available for the 3583 Series valve stem position transmitter. There is always a linear relationship between stem travel and the stem position transmitter output.

### Valve Positioner Bypass Operation

Type 3582 and 3582D valve positioners, and Type 3582NS positioners with bypass, are supplied with a bypass assembly. A handle on the bypass assembly permits selecting positioner or bypass operation. Refer to figure 24 for key number locations.

### CAUTION

**Do not use bypass when the valve positioner is reverse-acting or is in split-range operation. In these cases, bypassing the valve positioner sends the input signal directly to the actuator. Such a change will affect the desired operation and possibly upset the system. Use bypass only when the input signal range is the same as the valve positioner output range required for normal actuator operation.**

Labels on the bypass block (key 34A) and a pointer on the bypass handle (key 34D) indicate if the input signal from the instrument goes to the positioner or directly to the control valve actuator. Push the bypass handle toward the back of the positioner to move the pointer over the word POSITIONER. With the bypass handle in this position, the input signal goes to the valve positioner bellows and the output pressure of the valve positioner goes to the actuator. Pull the bypass handle forward to move the pointer over the word BYPASS. In this position, the input signal goes directly to the actuator.

### Note

**A difference between the input signal pressure and the valve positioner output pressure could cause a transient bump in the controlled system when the bypass handle is moved to BYPASS.**

With a reverse-acting or split-range valve positioner, the bypass handle may be locked in the POSITIONER position so that bypass cannot be used. To lock the bypass handle in the POSITIONER position, first shut off the instrument and supply pressure to the valve positioner. Then, remove the hex head shoulder screw from the center of the handle. Remove the handle and rotate it 180 degrees and re-install it with the handle between the two lugs cast on the bypass block. Replace the shoulder screw.

### Input Signal Ranges

Standard input signal ranges for valve positioners and valve stem position transmitters are shown in table 8. Changing from one standard range to another requires changing the range spring. To change the range spring, refer to the instructions for changing the range spring in the maintenance section of this manual. Split-range operation of 3582 Series valve positioners or the Type 3582i valve positioner normally does not require changing the spring. Refer to the section below for split-range information.

# 3582 and 3583 Series

Table 9. Split-Range Capabilities

3582 SERIES POSITIONERS				
Split	0.2 to 1.0 Bar or 3 to 15 Psig Input Signal		0.4 to 2.0 Bar or 6 to 30 Psig Input Signal	
	Bar	Psig	Bar	Psig
Two-way	0.2 to 0.6 0.6 to 1.0	3 to 9 9 to 15	0.4 to 1.2 1.2 to 2.0	6 to 18 18 to 30
Three-way	0.2 to 0.5 0.5 to 0.7 0.7 to 1.0	3 to 7 7 to 11 11 to 15	0.4 to 0.9 0.9 to 1.5 1.5 to 2.0	6 to 14 14 to 22 22 to 30
TYPE 3582i POSITIONER				
Split	4 to 20 Milliampere Input Signal			
Two-way	4 to 12 12 to 20			
Three-way	4 to 9.3 9.3 to 14.7 14.7 to 20			

## Valve Positioner Split-Range Operation

The 3582 Series valve positioners and the Type 3582i valve positioner are suitable for split-range operations. In split-range operation, the input signal, either pneumatic or dc current, from a single control device is split between two or more control valves. No additional parts are required to use an existing valve positioner for split-range operation.

Table 9 shows some typical split-ranges for the valve positioners.

To change to split-range operation, perform the beam alignment procedures then perform the calibration procedure using the desired split range inputs that result in full valve travel. For example, for a 3582 Series positioner with a 0.2 to 1.0 bar (3 to 15 psig) input signal range in a two-way split, a 0.6 bar (9 psig) input signal should completely stroke the valve for a 0.2 to 0.6 bar (3 to 9 psig) signal range.

### Note

**The flapper must approach the nozzle squarely at the midpoint value of the input signal range for proper operation.**

**On some applications where the input signal span is comparatively small (as found with split-range applications), the nozzle adjustment may not be enough to set the proper starting point. Also, some difficulty may be experienced in keeping a valve**

**positioner from unloading when the input signal continues to increase above the split-range.**

**For example, for a 0.2 to 0.6 bar (3 to 9 psig) input signal range, the input signal could increase to 1.0 bar (15 psig). Continued bellows travel due to the increased input signal over the split-range would drive the flapper into the nozzle. The impact could possibly cause misalignment between the flapper and nozzle. Such a misalignment, in turn, could affect split-range calibration.**

**In these cases, adjust the follower assembly screw in addition to the nozzle adjustment to obtain satisfactory results.**

### Note

**The 3582 Series valve positioners require a relatively small percentage of the instrument pressure span to obtain full valve travel. With the travel pin set to equal the valve travel, the input signal change required to fully stroke the valve can be reduced to 33 percent of normal input signal change. With the travel pin set to a value greater than the valve travel, the input signal change required to fully stroke the valve can be reduced to a minimum of 20 percent of normal input signal change.**

## Changing Valve Positioner Action

Converting a 3582 Series valve positioner or Type 3582i valve positioner from direct acting (an increasing input signal, either pneumatic or electrical, increases output pressure) to reverse acting (increasing input signal decreases output pressure) or vice versa requires no additional parts. The position of the flapper assembly on the beam determines the action. As shown in figure 15, the beam is divided into quadrants. The direct-acting quadrant of the beam is labeled DIRECT and the reverse-acting quadrant is labeled REVERSE. To change the positioner action, simply move the flapper assembly to the opposite quadrant of the beam. Perform the calibration procedures in the valve positioner calibration section.

## Changing Valve Stem Position Transmitter Action

Refer to figure 20 for key number locations unless otherwise indicated.

The flapper of the 3583 Series valve stem position transmitter is always positioned in the reverse-acting quadrant as shown in figure 19. To reverse the signal, reverse the cam as follows:

1. Unhook the spring (key 38), and remove the cam bolt (key 6), cam (key 4), and spring retainer bracket (key 43).
2. Screw the locking nut (key 45) all the way onto the cam bolt.

### Note

**If the arrow stamped on the cam points toward the nozzle, output pressure increases with downward stem movement. If the arrow points down away from the nozzle, output pressure decreases with downward stem movement.**

3. Reverse the cam (key 4) from its original position. Attach the cam and spring retainer bracket with the cam bolt. Tighten the cam bolt to secure the cam. Then tighten the locking nut against the spring retainer bracket.
4. Hook the spring into the spring retainer bracket.
5. After reversing the cam, perform the calibration procedures in the calibration of valve positioners and transmitters section.

## Calibration Of Valve Positioner Or Valve Stem Position Transmitter

The following beam alignment and calibration procedures are applicable for both the 3582 Series and the Type 3582i valve positioners and 3583 Series valve stem position transmitters.

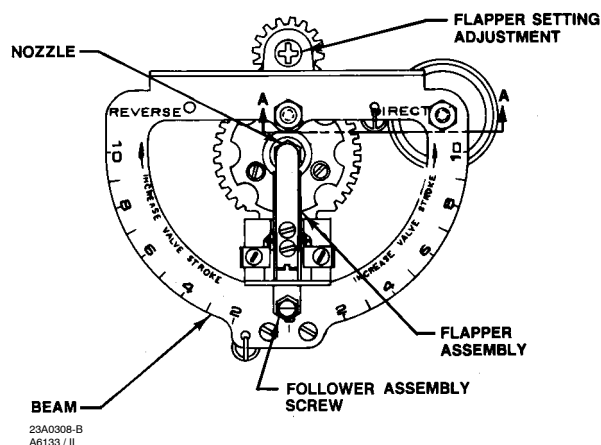
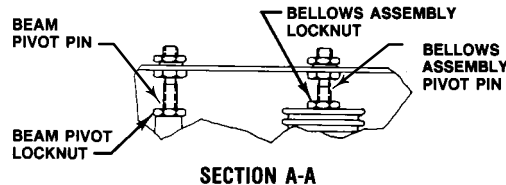


Figure 15. Partial View for Beam Leveling and Calibration

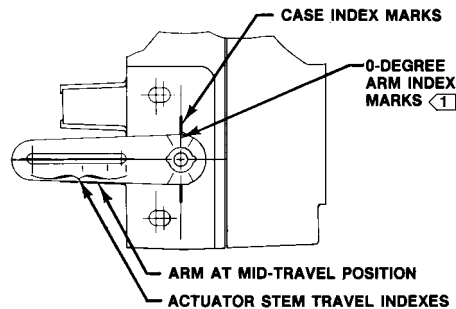
### WARNING

**During calibration the valve may move. To avoid personal injury or property damage caused by the release of pressure or process fluid, provide some temporary means of control for the process.**

## Beam Alignment

### Note

**The beam is leveled at the factory prior to shipment. Once the beam is leveled, no additional leveling should be required unless the beam pivot pin or the bellows assembly pivot pin are changed, the bellows assembly or range spring are replaced, or the valve positioner is changed to split range operation.**



NOTE:  
1 ALIGN INDEX MARKS AS SHOWN FOR MID-TRAVEL POSITION.  
A2452-3 / IL

Figure 16. Rotary Shaft Arm 0-Degree and Case Index Marks, Location and Alignment

The purpose of beam alignment is to ensure the correct mechanical position of parts so the valve positioner can be calibrated. Provide the appropriate supply pressure. Also, provide an input signal to the positioner which can be manually set at the midpoint of the desired input signal range.

Refer to figure 15 for parts locations. Refer to figure 20 for key number locations unless otherwise indicated. Position the flapper assembly by hand to different settings on the beam assembly or by using a screwdriver in the slot of the flapper setting adjustment.

To level the beam, proceed as follows:

### Note

**In the following steps, if the required rotary shaft arm position cannot be attained when adjusting a pivot point, adjust one of the other pivot points slightly. Then, repeat the original pivot adjustment. Continue this process until the required arm position can be attained.**

1. Stroke the actuator to its mid-travel position with a handwheel or a manual loader. Refer to figures 3 and 6. Lift the rotary shaft arm (key 2) so that the 0-degree index marks on the rotary shaft arm align with the case index marks as shown in figure 6. Then, position the travel pin (key 60) so that it is perpendicular to the arm and aligns with the appropriate total actuator travel index mark on the rotary shaft arm. Tighten the locking nut (key 62).

### Note

**Valve stem travels less than 29 mm (1.125 inches) require that the travel pin be set at the 1-1/8 inches travel index mark on the rotary shaft arm.**

2. Loosen the nozzle locknut and turn the nozzle clockwise to its lowest position. Then screw the nozzle out (counterclockwise) approximately 2 turns and tighten the locknut.

### Note

**For proper operation, the flapper must approach the nozzle squarely. Inspect the nozzle/flapper alignment. Be sure the flapper is not loose, bent, or twisted.**

3. Remove any loading pressure and/or disengage any handwheel used to position the actuator. Connect the necessary tubing from the valve positioner output to the actuator pressure connection.

4. Connect the input to the valve positioner and set the input signal value at midrange. For example, for a 3582 Series valve positioner with a 0.2 to 1.0 bar (3 to 15 psig) input signal range, set the input signal at 0.6 bar (9 psig). Then apply supply pressure to the valve positioner.

5. Move the flapper assembly to zero on the beam scale. The 0-degree index marks on the rotary shaft arm should align with the case index marks as shown in figure 16. If not, loosen the follower assembly screw locknut and adjust the follower assembly screw until the 0-degree index marks on the rotary shaft arm align with the case index marks. Tighten the locknut.

6. Move the flapper assembly to position 10 on the direct-acting side of the beam scale. The 0-degree index marks on the rotary shaft arm should align with the case index marks as shown in figure 16. If not, loosen the bellows assembly locknut and adjust the bellows pivot pin until the 0-degree index marks on the rotary shaft arm align with the case index marks. Tighten the locknut.

7. Move the flapper assembly to the left to position 10 on the reverse-acting side of the beam. The 0-degree index marks on the rotary shaft arm should align with the case index marks as shown in figure 16. If not, loosen the beam pivot pin locknut and adjust the beam pivot pin until the 0-degree index marks on the rotary shaft arm align with the case index marks. Tighten the locknut.

Table 10. Minimum Travel with Given Pin Position

TRAVEL PIN POSITION ALONG ROTARY SHAFT ARM	MINIMUM TRAVEL AVAILABLE	
	mm	Inch
1-1/8	6	0.25
1-1/2	8	0.3125
2	11	0.4375
2-1/2	13	0.5
3	16	0.625
4	22	0.875

8. Repeat steps 5, 6, and 7 to optimize alignment. Recheck to make sure the flapper approaches the nozzle squarely. If it does not, adjust the nozzle and re-level the beam. After alignment, the valve positioner is ready for calibration.

### Calibration

1. Shut off the supply pressure to the valve positioner. Connect or reconnect the necessary tubing from the valve positioner output to the actuator supply connection. Connect the input to the valve positioner and set the input signal value at midrange.

2. Move the flapper assembly to approximately position 6 in the proper operating quadrant of the beam (direct or reverse acting), and apply supply pressure to the valve positioner. The 0 degree index marks on the rotary shaft arm should align with the case index marks as shown in figure 16 and the actuator should be at its midtravel position. If not, first check for loose linkage or improper cam installation. A minor nozzle height adjustment might be necessary to make the desired input signal value correspond to the starting point of travel.

3. Apply an input signal equal to the low value of the input signal range. For example, for a 3582 Series valve positioner with a 0.2 to 1.0 bar (3 to 15 psig) input signal range, set the input signal at 0.2 bar (3 psig). Loosen the nozzle locknut and adjust the nozzle until the actuator moves to the proper end of its travel. Changing the nozzle position is intended only as a means of zero trim adjustment. Whenever nozzle position is changed, the zero reference point is changed.

4. Apply an input signal equal to the high value of the input signal range and observe the actuator stem travel. If the stem travel is short of its expected range, increase the travel by moving the flapper assembly to a higher number on the beam. If the desired stem travel occurs before the input signal reaches the high value of the input signal range, decrease the travel by moving the flapper assembly toward a lower number on the beam.

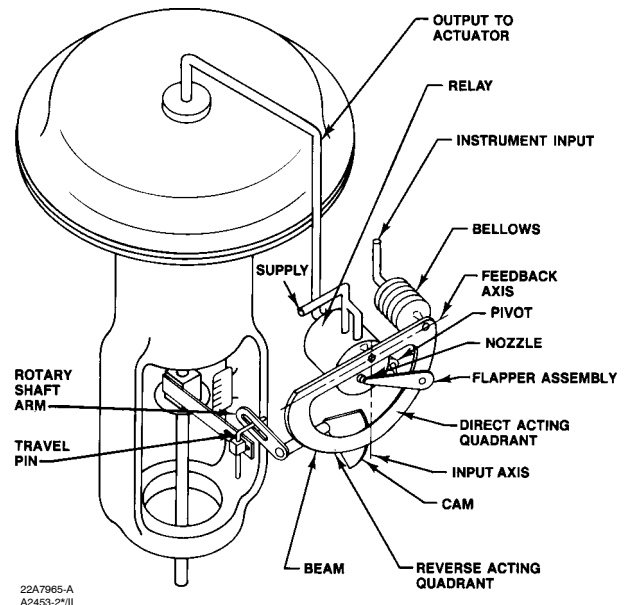


Figure 17. Schematic Illustration of 3582 Series Positioner

5. Repeat steps 3 and 4 until the correct travel is achieved. Each time the flapper position is changed in step 4, repeat step 3 to provide proper zero.

Moving the flapper assembly toward zero on the beam scale decreases stem travel. Table 10 lists the minimum stem travel available for different travel pin settings. For example, with a travel pin setting of 2 the minimum stem travel possible, for the full input signal range, would be 11 mm (0.4375 inch).

### Note

**The positioner will fully vent or pressurize the actuator to supply pressure at the ends of actuator travel when the positioner is calibrated correctly. Failure to properly calibrate the positioner may result in reduced seat loading.**

## Principle of Operation

### 3582 Series Valve Positioners

The 3582 Series (the Type 3582, 3582NS and Types 3582A, C, D, and G pneumatic valve positioners) accept a pneumatic input signal from a control device. Figure 17 is an operational schematic for a direct-acting pneumatic valve positioner.

## 3582 and 3583 Series

As shown in figure 17, in a diaphragm-actuated, sliding stem control valve package with a 3582 Series valve positioner, supply pressure is connected to the Type 83L relay. A fixed restriction in the relay limits flow to the nozzle so that when the flapper is not restricting the nozzle, air can bleed out faster than it is being supplied.

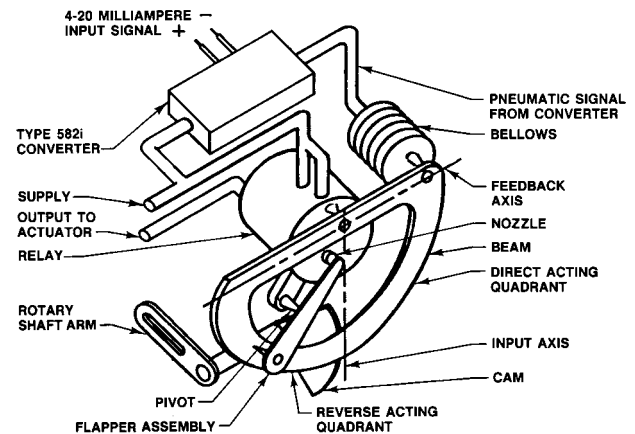
The input signal from the control device is connected to the bellows. When the input signal increases, the bellows expands and moves the beam. The beam pivots about the input axis moving the flapper closer to the nozzle. The nozzle pressure increases and, through relay action, increases the output pressure to the actuator. The increased output pressure to the actuator causes the actuator stem to move downward. Stem movement is fed back to the beam by means of a cam. As the cam rotates, the beam pivots about the feedback axis to move the flapper slightly away from the nozzle. The nozzle pressure decreases and reduces the output pressure to the actuator. Stem movement continues, backing the flapper away from the nozzle, until equilibrium is reached.

When the input signal decreases, the bellows contracts (aided by an internal range spring) and the beam pivots about the input axis to move the flapper away from the nozzle. Nozzle pressure decreases and the relay permits the release of diaphragm casing pressure to atmosphere. The actuator stem moves upward. Through the cam, stem movement is fed back to the beam to reposition the flapper closer to the nozzle. When equilibrium conditions are obtained, stem movement stops and the flapper is positioned to prevent any further decrease in diaphragm case pressure.

The principle of operation for reverse acting units is similar except that as the input signal increases, the diaphragm casing pressure is decreased. Conversely, a decreasing input signal causes an increase in the pressure to the diaphragm casing.

### Type 3582i Valve Positioner

As shown in figure 18, the Type 3582i electro-pneumatic valve positioner has a Type 582i electro-pneumatic converter attached to the valve positioner. The 582i contains an I/P module which provides a pneumatic output proportional to a dc current input signal. The dc current input operates coils in a force balanced beam system which in turn, control bleed air through an integral nozzle/flapper



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Figure 18. Schematic Illustration of Type 3582i Positioner

arrangement. The nozzle pressure provides the pneumatic input signal pressure used by the pneumatic valve positioner.

### 3583 Series Valve Stem Position Transmitters

3583 Series (Type 3583, 3583C) pneumatic valve stem position transmitters are mechanically linked to the valve stem in a diaphragm-actuated, sliding-stem control valve package. A change in the position of the valve stem changes the output pressure produced by the position transmitter. This signal is then piped to a reporting or recording device to indicate valve stem position.

The action of a valve stem position transmitter can be changed by reversing the internal cam. The valve stem position transmitter cam is supplied with an arrow stamped on one side. The cam can be positioned to obtain either increasing or decreasing output pressure with downward stem motion. If the cam arrow points toward the nozzle, the output pressure increases; if the cam points away, the output pressure decreases with downward stem motion.

Figure 19 depicts a diaphragm actuator which produces downward stem motion for increasing actuator pressure. For a stem position transmitter, the flapper assembly is always positioned in the reverse-acting quadrant of the beam. Supply pressure is connected to the Type 83L relay. A fixed restriction in the relay limits flow to the nozzle so that when the flapper is not restricting the nozzle, air can bleed out faster than it is being supplied.

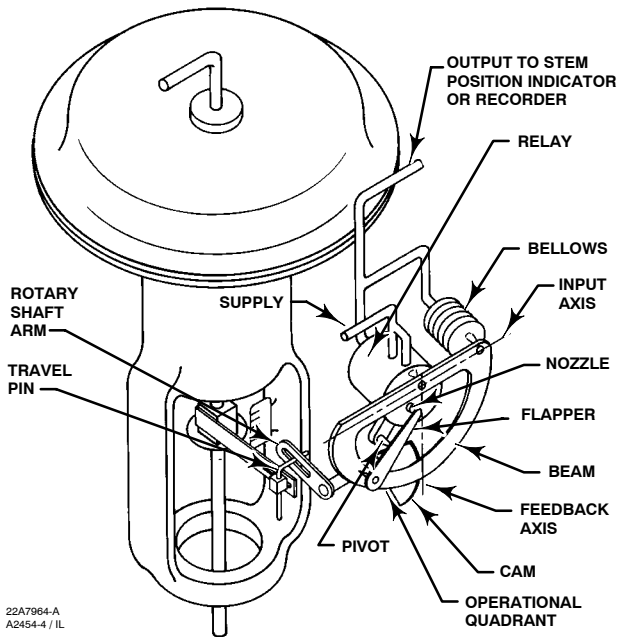


Figure 19. Schematic Illustration of 3583 Series Transmitter

As the pressure to the diaphragm actuator increases, the valve stem moves downward, causing the internal cam to rotate. Cam rotation causes the beam to pivot about the input axis moving the flapper closer to the nozzle. The nozzle pressure increases which, through relay action, increases the output pressure.

The output pressure is also connected to the bellows. As the output pressure increases, the bellows expands, causing the beam to pivot about the feedback axis moving the flapper slightly away from the nozzle until equilibrium is reached. The position transmitter output pressure is now proportional to the valve stem position.

As the pressure to the diaphragm actuator decreases, the valve stem moves upward, causing the internal cam to rotate. Cam rotation causes the beam to pivot about the input axis moving the flapper away from the nozzle. The nozzle pressure decreases which, through relay action, decreases the output pressure. The bellows contracts, causing the beam to pivot about the feedback axis and moving the flapper closer to the nozzle until equilibrium is reached. The position transmitter output pressure is again proportional to the valve stem position.

## Maintenance

### WARNING

Avoid personal injury from sudden release of process pressure. Before performing any maintenance operations:

- Always wear protective clothing, gloves, and eyewear when performing any maintenance operations.
- Disconnect any operating lines providing air pressure, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.
- When disconnecting any of the pneumatic connections, natural gas, if used as the supply medium, will seep from the unit and any connected equipment into the surrounding atmosphere. Personal injury or property damage may result from fire or explosion if preventative measures are not taken, such as adequate ventilation and the removal of any nearby ignition sources.
- Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve.
- Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.
- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

### WARNING

For explosion proof applications, disconnect power before removing the converter housing cap in an explosive atmosphere.

Due to normal wear or damage from external sources (such as debris in the supply medium), periodic maintenance or repair of the valve positioner or valve stem position transmitter may be

## 3582 and 3583 Series

necessary. Maintenance of these units consists of troubleshooting, removal for inspection, and replacement of component parts.

### WARNING

**When replacing components, use only components specified by Emerson Process Management. Substitution with other components may result in the positioner or transmitter no longer meeting safety certification requirements and personal injury or property damage.**

**Always use proper component replacement techniques. Improper techniques and poor quality repairs can impair the safety features of the device.**

In case of operational difficulties, the valve positioner or valve stem position transmitter should first be checked to see that adjustments have been properly made. All pressure lines and connections should be checked for leaks.

The pneumatic relay and gaskets should also be inspected and replaced if necessary.

Instructions are given below for:

- changing the range spring;
- replacing gaskets, nozzle O-rings, and the relay;
- adjusting the flapper pivot;
- replacing the Type 582i converter primary O-ring and filter;
- replacing the Type 582i converter cover O-ring;
- removing the Type 582i converter; and
- reassembling the Type 582i converter.

### Changing the Range Spring

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

Unless otherwise noted, key number locations are shown in figure 20.

The range spring is inside the bellows assembly. Standard range spring data is given in table 8. When an input signal range is split to operate two or more control valves, normally changing the range spring is not necessary. The input signal range for the range spring is stamped on the nameplate.

Perform the following procedure to change the range spring in a valve positioner or valve stem position transmitter.

1. Unhook the extension springs (keys 27, 77) from the beam (key 29).
2. Loosen and remove the two screws (key 13), and lock washers (key 12) that hold the bellows assembly (key 7) in place.
3. Lift out the beam and bellows assembly. Be careful not to lose the small O-ring (key 11).
4. Loosen the machine screw (key 10), and remove the range spring (key 8).
5. Install a new range spring, making sure the small end of the spring is against the spring seat (key 9). Replace the spring seat and tighten the screw.
6. If the O-ring (key 11) is worn or damaged, replace it with a new one after applying lubricant (key 94). Make sure the O-ring is in place, then install the bellows assembly, securing it with two mounting screws and lock washers.
7. Install the beam over the pivots and hook the springs to the beam.
8. Make any minor adjustments that may be necessary to re-level the beam as outlined in the beam alignment procedures of the valve positioners or the valve stem position transmitters calibration section. After leveling the beam, calibrate the unit according to the appropriate calibration instructions.

### Replacing Gaskets

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

Unless otherwise noted, key numbers used in this procedure are shown in figures 24 and 25.

A gasket (key 34C) is located behind the bypass handle (key 34D) of the 3582 Series valve

positioners or manifold (key 34D) of the 3583 Series valve stem position transmitters.

1. Remove the screw (key 34G), and lift out the bypass handle or manifold.
2. Remove the gasket.
3. Apply lubricant (key 94) to both sides of the replacement gasket when used with the bypass assembly of the 3582 Series valve positioners. Do not apply lubricant to the gasket when the bypass assembly is not used.
4. Set the new gasket in place on the four locating pins and replace the bypass handle or manifold.

The case gasket (key 104) is located between the case (key 1 in figure 20) and the bypass block (key 34A) in a 3582 Series valve positioner or a 3583 Series valve stem position transmitter or the housing of the Type 582i converter (key 1 in figure 26).

5. Remove the two mounting screws (key 105 in figures 24 and 25; key 11 in figure 26) that hold the bypass block or converter housing to the case and remove the unit to expose the case gasket.
6. Install a new gasket and replace the bypass block or converter housing.

### Replacing the Nozzle O-Ring

#### **WARNING**

**Refer to the Maintenance WARNING at the beginning of this section.**

Unless otherwise noted, key numbers are shown in figures 21 and 23.

1. Remove the two screws (key 19C) that hold the flapper and follower assembly (keys 19B and 19G) to the adjustment arm (key 19A).

#### **CAUTION**

**For proper operation, be careful not to bend or twist the flapper or nick the nozzle orifice during reassembly.**

2. Carefully remove the flapper and follower assembly for access to the nozzle (key 18 in figure 20).
3. Loosen the locking nut (key 71), and unscrew the nozzle (key 18).

4. Remove the locking sleeve (key 72) from the nozzle adaptor (key 3). The nozzle adaptor is bonded to the positioner case with adhesive (key 96) and should not be removed.
5. Inspect the O-ring (key 73) on the nozzle adapter and replace the O-ring, if necessary. If replacing the O-ring, apply lubricant (key 94) to the O-ring before installing it on the nozzle adapter.
6. Reinstall the nozzle onto the nozzle adapter, leaving the locking nut loose.
7. Replace the flapper and follower assembly. Make sure the letter "T" on the flapper is visible from the front of the positioner or transmitter.
8. Perform the beam alignment and calibration procedures in the Calibration of Valve Positioner or Valve Stem Position Transmitter section.

### Replacing the Relay

#### **WARNING**

**Refer to the Maintenance WARNING at the beginning of this section.**

#### **Note**

**The relay is not field repairable. If the relay is defective, replace the relay.**

Use the following procedure to replace the relay assembly. Refer to figure 20 for key number locations, unless otherwise noted.

1. For valve positioners using a bypass, direct action, and a full-range input signal, place the positioner in bypass operation by moving the bypass handle to BYPASS. Then, shut off the supply pressure. For all other valve positioners and valve stem position transmitters, isolate the control valve from the system and shut off all pressure lines.

#### **Note**

**A difference between input and valve positioner output pressure could cause a transient bump in the controlled system when the bypass handle is moved to BYPASS.**

2. Remove the Type 83L relay (key 32) from the back of the case by loosening the two mounting screws (key 10, figure 22).
3. Reinstall the new relay assembly on the case, making sure the O-rings (keys 13 and 15, figure 22)

## 3582 and 3583 Series

are in place. Secure with the two mounting screws (key 10, figure 22).

4. Resume operation by moving the bypass handle to the POSITIONER position or by connecting the valve positioner or valve stem position transmitter and control valve to the system.

### Adjusting the Flapper Pivot

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

Key numbers used in this procedure are shown in figure 23.

1. Loosen the two screws (key 19C).
2. Tighten the pivot pin (key 19L) by compressing the upturned ears of the arm support (key 19K). Tighten the screws (key 19C) and make sure the flapper (key 19B) does not rub on the supports.
3. The flapper should be snug, but not constricting to pivot action.

### Replacing the Type 582i Converter Primary O-Ring and Filter

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

Key numbers used in this procedure are shown in figure 26.

1. Locate and remove the nozzle restriction adaptor assembly (key 4).
2. Inspect and replace, if necessary, the O-rings (keys 5 and 6). Apply lubricant (key 15) to the O-ring before replacing.
3. Inspect and replace the filter cartridge (key 23).

### Replacing the Type 582i Converter Housing Cap O-Ring

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

Key numbers used in this procedure are shown in figure 26.

1. Unscrew and remove the converter housing cap (key 2). Inspect and replace the O-ring (key 8), if necessary. Apply lubricant (key 15) to the O-ring before replacing.

### Removing the Type 582i Converter

#### WARNING

**Refer to the Maintenance WARNING at the beginning of this section.**

During the following converter removal procedures, refer to figure 26 for key number locations.

#### CAUTION

**The I/P module should never be disassembled because the magnetism in the coils will decrease permanently. If troubleshooting or alignment attempts indicate a faulty I/P module, replace the module or return the converter to your Emerson Process Management sales office for repair.**

#### Note

**To check the operation of the I/P module, remove the pipe plug (key 12), and connect a pressure gauge. Provide a 1.4 bar (20 psig) supply pressure to the converter. With a 4-milliampere input signal the pressure output should read 0.16 to 0.24 bar (2.3 to 3.5 psig). With a 20-milliampere input signal the pressure output should read 0.96 to 1.07 bar (14.0 to 15.5 psig).**

1. Turn off the input signal to the converter. Release all supply pressure from the valve positioner.

2. Remove the housing cap (key 2).
3. Note the location of the wires, disconnect the field wiring from the terminal block. Disconnect the grounding wire from the external ground screw (key 10).
4. To remove the I/P module, remove the two screws (key 9), and pull the module out of the housing. Inspect the O-ring (key 6) and replace it, if necessary. Apply lubricant (key 15) to the O-ring before replacing.
  - a. To remove the entire Type 582i converter from the Type 3582i valve positioner, continue with steps 5 through 7.
  - b. To replace the I/P module only, obtain a replacement I/P module listed in the parts list and refer to the procedures for reassembling the Type 582i converter.
5. Disconnect the supply tubing, output tubing, and electrical conduit from the converter.
6. If necessary, remove the Type 67CFR regulator by removing the two screws (key 13). Then, remove the regulator from the converter assembly. Inspect the O-ring (key 3) and replace it if necessary. Apply lubricant (key 15) to the O-ring before replacing.
7. Remove the two screws (key 11) holding the Type 582i converter to the valve positioner case. Remove the converter from the valve positioner case (key 1 in figure 20). Inspect the gasket (key 20) and replace it if necessary.

### **Reassembling the Type 582i Converter**

During the following converter reassembly procedures, refer to figure 26 for key number locations.

1. If the Type 582i converter was removed from the valve positioner, install a new gasket (key 20) between the converter housing and the valve positioner case. Attach the converter housing to the valve positioner case with the screws (key 11) and tighten the screws.
2. If the I/P module was removed from the Type 582i converter, reinstall the I/P module in the converter housing. Secure the I/P module with the two screws (key 9).

3. If other valve positioner components are removed, refer to the appropriate reassembly procedures and assemble the valve positioner completely.
4. Reconnect the supply tubing, output tubing, and conduit to the valve positioner.
5. Reconnect the wiring to the terminal block. Do not overtighten the terminal screws. Maximum torque is 0.45 N•m (4 lbf•in.). Reconnect the grounding wire to the housing ground screw (key 10) and replace the cap (key 2).

#### **Note**

**To check the operation of the I/P module, remove the pipe plug (key 12), and connect a pressure gauge. Provide a 1.4 bar (20 psig) supply pressure to the converter. With a 4-milliampere input signal the pressure output should read 0.16 to 0.24 bar (2.3 to 3.5 psig). With a 20-milliampere input signal the pressure output should read 0.96 to 1.07 bar (14.0 to 15.5 psig).**

6. Plug the output connection and apply 2.4 bar (35 psig) to the supply pressure connection.

#### **CAUTION**

**Do not apply a signal greater than 35 milliamperes to the I/P module. Higher signal values may damage the converter module.**

7. Apply a 20 milliampere dc current input signal to the converter.
8. Check for leaks using a soap solution. Check any components which were disassembled or disconnected.

# 3582 and 3583 Series

## Parts Ordering

A serial number is assigned to each valve positioner or valve stem position transmitter and is stamped on the nameplate. Always refer to this number when corresponding with your Emerson Process Management sales office regarding spare parts or technical information. When ordering parts, also give the eleven-digit part number shown in the following parts list.

### Note

**Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Process Management should not, under any circumstances, be used in any Fisher instrument. Use of components not supplied by Emerson Process Management will void your warranty, might adversely affect the performance of the instrument, and might jeopardize worker and workplace safety.**

### Note

**Neither Emerson, Emerson Process Management, Fisher, nor any of their affiliated associates assumes responsibility for the selection, use, and maintenance of any product. Responsibility for the selection, use and maintenance of any product remains with the purchaser and end-user.**

## Parts Kits

Key	Description	Part Number
	Repair kit for positioner/transmitter (not for 3582NS) Kit contains keys 11, 16, 17, 33B, 34C, 73, and 104. This kit also contains keys 18C, 18E, and 18F for 3580 and 3581 Series positioners	
	For standard temperature applications	R3580X00022
	For high temperature applications	R3580X00032

Key	Description	Part Number
	Repair kit w/nozzle and flapper for Type 3582 Positioner Kit contains keys 11, 16, 17, 18, 19B, 19E, 33B, 34C, 73, and 104. For standard temperature applications, not for 3582NS	R3582X00012
	For high temperature applications, not for 3582NS	R3582X00022
	For Type 3582NS, contains EPDM parts	R3582X00032
	Repair kit for Type 582i electro-pneumatic converter Kit contains keys 3, 5, 6, 8, 20, and 23	R582X000012
	Replacement kit for Type 83L Relay Kit contains relay, gaskets and mounting screws (key 32 in figure 20, keys 10, 13, and 15 in figure 22) For 3582 Series except 3582NS, std. const.	R3580XRS012
	For 3582 Series except 2825NS, Remote Vent, std. temp.	R3580XRR012
	For 3582 Series except 3582NS, hi-temp. const.	R3580XRH012
	For 3582 Series except 2825NS, Remote Vent, hi-temp.	R3580XRR022
	For 3582NS	R3580XNS012
	For 3583 Series, std. const.	R3580XRS022
	For 3583 Series, hi-temp. const.	R3580XRH022

## Parts List

### Note

**Parts in the following list are common to both the 3582 Series valve positioners and the 3583 Series position transmitters, unless identified by specific type or series number.**

## Diagnostic Connections (figure 8)

FlowScanner™ valve diagnostics system hook-up.

Includes connector body and body protector. If ordered for units with gauges, a stem is also included. Also, part number provides correct quantities of each item.

Key	Description	Part Number
	For 3582 Series pneumatic valve positioners	
	For units w/gauges	
	SST fittings	12B8045X012
	brass fittings	12B8045X022
	For units w/o gauges	
	SST fittings	12B8045X032
	brass fittings	12B8045X042
	For 3582i electro-pneumatic valve positioners	
	For units w/gauges	
	SST fittings	12B8046X012
	brass fittings	12B8046X022
	For units w/o gauges	
	SST fittings	12B8046X032
	brass fittings	12B8046X042

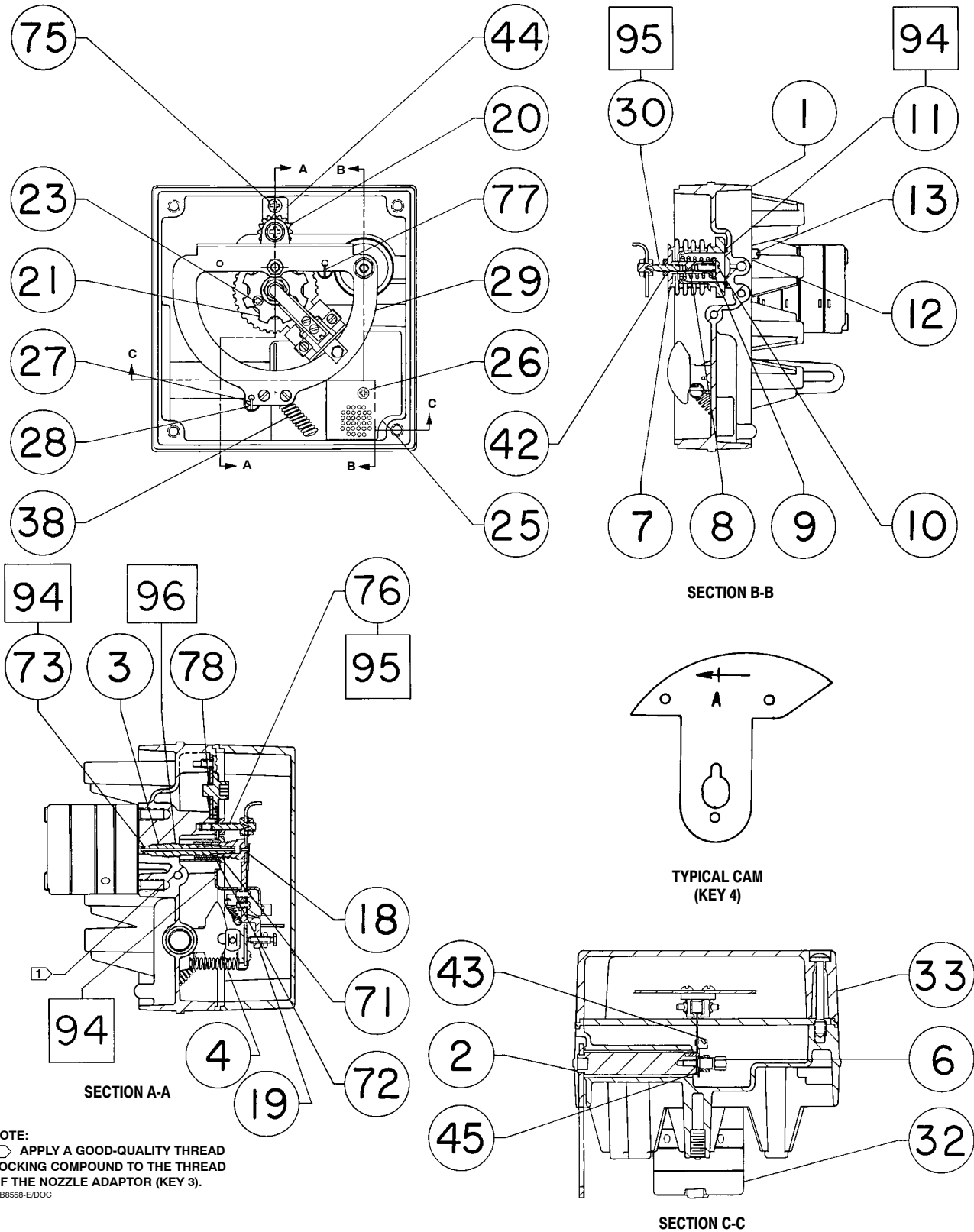
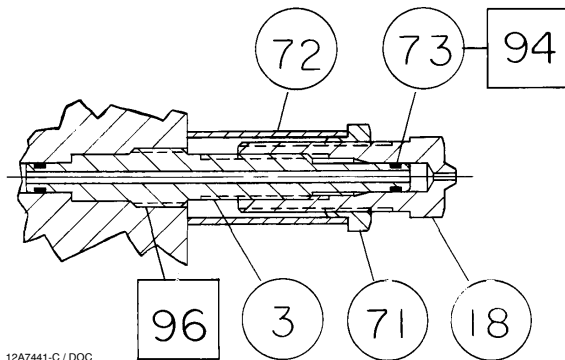
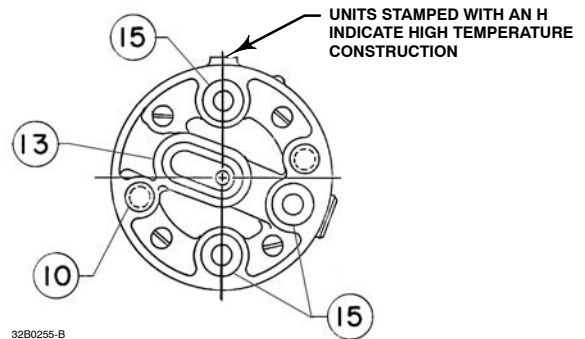


Figure 20. 3582 and 3583 Series Positioners and Transmitters Assembly Drawing



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Figure 21. Nozzle Sub-Assembly

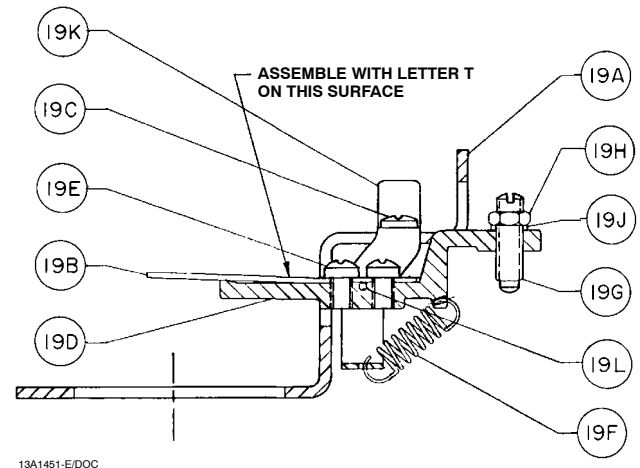


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Figure 22. Type 83L Relay

### Positioner/Transmitter Common Parts (figure 20)

Key	Description	Part Number
1	Case Assembly, Aluminum and PEEK	19B3103X012
2*	Shaft Assembly, SST/steel	
	For all except 3582NS and high vibration	
	For travel up to 54 mm (2.125 inch)	15A9609X012
	For travel up to 102 mm (4-inch)	15A9609X022
	For 3582NS and high vibration	
	For travel up to 54 mm (2.125 inch)	15A9609X062
	For travel up to 102 mm (4-inch)	15A9609X072
3	Nozzle Adaptor, SST	12A2613X012
4	Cam, SST	
	Cam A (For all types except 3582NS)	45A9614X012
	Cam B	
	(For all except Types 3582NS, 3583, 3583C)	45A9615X012
	Cam C	
	(For all except Types 3582NS, 3583, 3583C)	45A9616X012
4	Cam (for Type 3582NS and high vibration)	
	Cam A (for all types)	12B3642X012
	Cam B (For all except Types 3583, 3583C)	12B3643X012
	Cam C (For all except Types 3583, 3583C)	12B3644X012
6	Cam Bolt, 416 SST	12A2616X012
7*	Bellows Assembly	
	Standard brass	13B8783X012
	For sour gas	13B8783X022
8	Range Spring, pl steel (also see table 8)	
	0.2 to 1.0 bar (3 to 15 psi)	1V621727012
	0.4 to 2.0 bar (6 to 30 psi)	1V621927012
9	Spring Seat, aluminum	12A7355X012
10	Machine Screw, pl steel	T13305T0012
11*	O-Ring	
	Std. const., Nitrile	
	All except Type 3582NS	1F463606992
	Hi-temp. const., Fluoroelastomer	
	Types 3582A, 3582C & 3583C	1N571406382
	Type 3582NS, EPDM Duro 80A	17B4784X012
12	Lockwasher, pl steel (2 req'd)	1H322328982
13	Machine Screw, pl steel (2 req'd)	12B6351X012
18	Nozzle, SST	
	3582 Series	12A9840X012
	3583 Series	12A9841X012



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Figure 23. Flapper Sub-Assembly (Key 19)

Key	Description	Part Number
19	Flapper Sub-Assembly	
	All except Type 3582NS	13A1451X012
	Type 3582NS	13A1451X022
<b>Note</b>		
<b>Parts 19A through 19L are shown in figure 23.</b>		
19A	Adjustment Arm, pl steel	2V606625182
19B	Flapper, SST	13A1314X012
19C	Machine Screw, pl steel (2 req'd)	14A7797X012
19D	Flapper Arm, aluminum	23A1318X012
19E	Machine Screw, pl steel (2 req'd)	13B8786X012
19F	Flapper Spring, SST	13A1316X012
19G	Zero Adjustment Screw,	
	All except Type 3582NS 416 SST/nylon	13B8777X012
	Type 3582NS, 316 SST	17B4786X012
19H	Hex Nut, pl steel	1A330328982
19J	Lockwasher, pl steel	1H267128982
19K	Arm Support, SST	13A1315X012
19L	Pivot Pin, 440C SST	13A1317X012

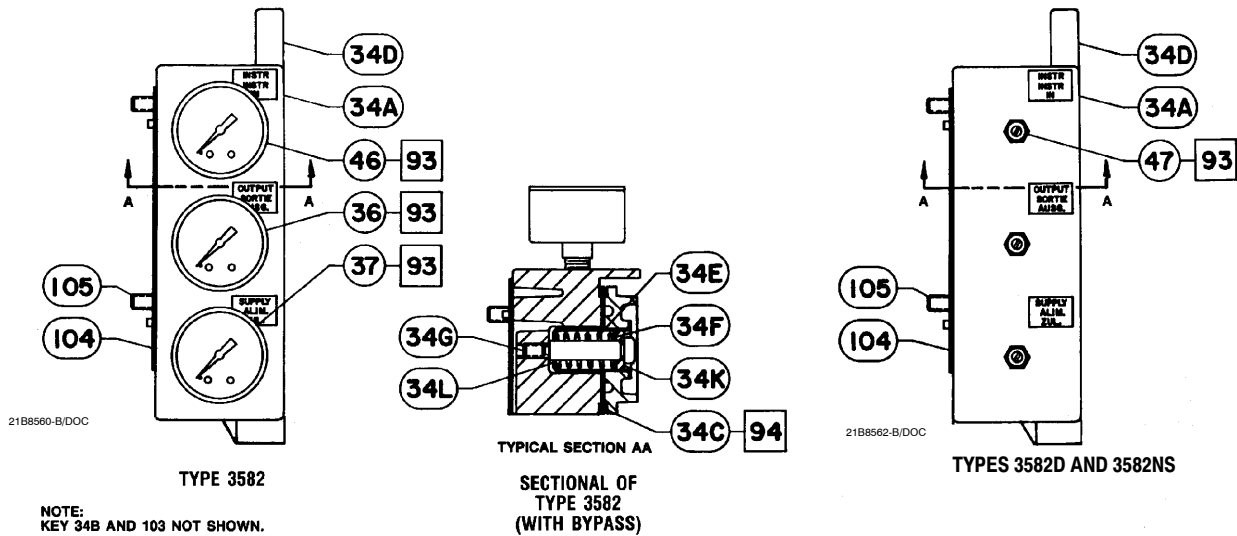


Figure 24. 3582 Series Block Assembly with Bypass

Key	Description	Part Number	Key	Description	Part Number
20	Setting Adjustment Gear, All except Type 3582NS, nylon Type 3582NS, 316 SST	2U905206162 27B4787X012	36*	Output Gauge, Dual Scale Types 3582, 3582G, 3583 0-30 psig/0-2 kg/cm <sup>2</sup> 0-60 psig/0-4 kg/cm <sup>2</sup>	11B4040X042 11B4040X052
21	Flapper Assembly Retainer, SST	2U905336012	36*	Output Gauge, Triple Scale Types 3582, 3582G, 3583 0-30 psig/0-0.2 MPa/0-2 bar 0-60 psig/0-0.4 MPa/0-4 bar	11B4040X012 11B4040X022
23	Self Tapping Screw, pl steel (2 req'd)	13B8764X012	37*	Supply Gauge, Dual Scale Types 3582, 3582G, 3583 0-30 psig/0-2 kg/cm <sup>2</sup> 0-60 psig/0-4 kg/cm <sup>2</sup>	11B4040X042 11B4040X052
25	Nameplate, aluminum	13B8758X0A2	37*	Supply Gauge, Triple Scale Types 3582, 3582G, 3583 0-30 psig/0-0.2 MPa/0-2 bar 0-60 psig/0-0.4 MPa/0-4 bar	11B4040X012 11B4040X022
26	Self Tapping Screw, steel (2 req'd)	13B8764X012	38	Extension Spring, SST	12A2937X022
27	Extension Spring, SST	14A8214X022	39	Shipping Stop (not shown)	1V451706992
28	Machine Screw, pl steel (3 req'd)	13B8765X012	42	Hex Nut, pl steel (2 req'd)	1A573528982
29	Beam Sub-Assembly For all except 3582NS and high vibration For 3582NS and high vibration	19B3119X012 22B3645X022	43	Spring Retainer Bracket, SST	25A9611X012
30	Bellows Pivot Pin, SST	12A7357X012	44	Gear Mounting Plate, aluminum	12A2611X012
32	Type 83L Relay See Parts Kits, Replacement Kit for Type 83L Relay		45	Locking Nut, aluminum	12A2618X012
33	Cover Assembly Plastic For all types except 3582NS Aluminum For all types except 3583, 3583C For 3583 and 3583C	22B4905X012 1U9065000A2 1U9065X00A2			
<b>Note</b>			<b>Note</b>		
<p><b>Bypass block assembly (key 34) and parts are listed later in this parts list. Non-bypass block assembly (also key 34) and parts are listed following the bypass block assembly and parts.</b></p> <p><b>Parts 35, 36 and 37 are shown in figures 24 and 25.</b></p>			<p><b>Parts 46 and 47 are shown in figures 24 and 25.</b></p>		
35	Pipe Plug, pl steel Req'd when gauges or test connections are not used: 3 req'd for 3582 Series, Plated carbon steel 316 SST	1D829328982 1D8293X0012	46*	Instrument Gauge, Dual Scale 0-30 psig/0-2 kg/cm <sup>2</sup> (3-15 psig/0.2-1.0 kg/cm <sup>2</sup> ranges) 0-60 psig/0-4 kg/cm <sup>2</sup> (6-30 psig/0.4-2.0 kg/cm <sup>2</sup> ranges)	11B4040X042 11B4040X052
			46*	Instrument Gauge, Triple Scale 0-30 psig/0-0.2 MPa/0-2 bar (3-15 psig/20-100 kPa/0.2-1 bar ranges) 0-60 psig/0-0.4 MPa/0-4 bar (6-30 psig/40-200 kPa/0.4-2 bar ranges)	11B4040X012 11B4040X022

\*Recommended spare parts

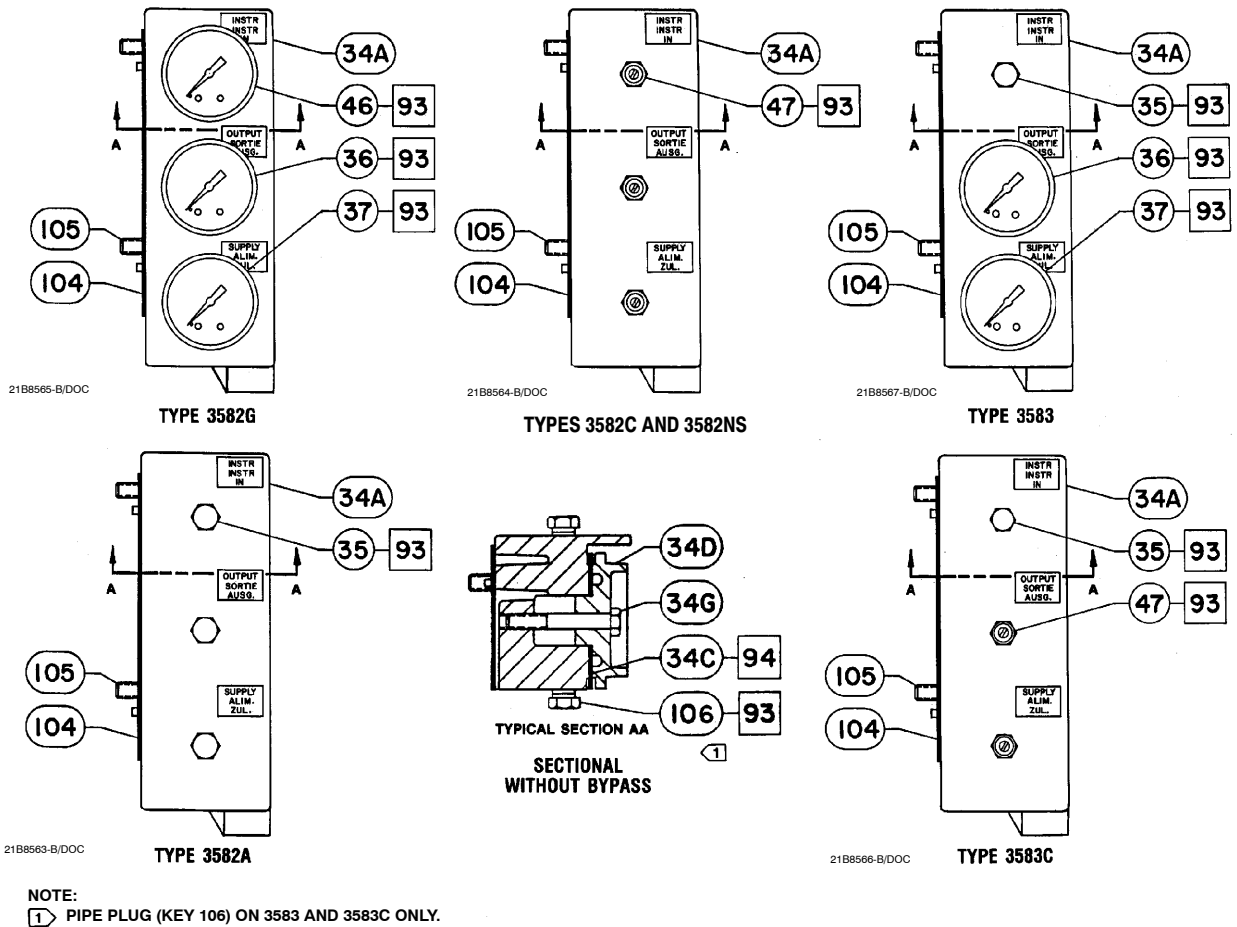


Figure 25. 3582 and 3583 Series Block Assemblies without Bypass

Key	Description	Part Number	Key	Description	Part Number
47	Test Connection Types 3582C, 3582D (3 req'd) Type 3583C (2 req'd) Type 3582NS (3 req'd)	1N908899012 17B4809X012 17B4809X012	96	Adhesive, Loctite® 680™ Retaining Compound (not furnished with positioner)	
71	Locking Nut, aluminum	12A2615X012	<b>Note</b>		
72	Locking Sleeve, aluminum	12A2619X012	<b>Parts 104 and 105 shown in figures 24 and 25.</b>		
73*	O-Ring (2 req'd) Std. const., Nitrile All except Type 3582NS Hi-temp. const., Fluoroelastomer Types 3582A, 3582C & 3583C Type 3582NS, EPDM	10A0871X012 14A0592X012 17B4783X012	103*	O-Ring, nitrile, (not shown) used with integrally mounted Type 67CFR filter regulator	1E591406992
75	Machine Screw, pl steel	13B8763X012	104*	Case Gasket, Std. const. Hi-temp. const. Type 3582NS, EPDM	1U907804132 1U9078X0012 17B4782X012
76	Beam Pivot Pin, SST	12A7358X012	105	Machine Screw, SST (2 req'd)	12B0909X012
77	Extension Spring, SST	14A8215X022	108	Shipping tag (not shown)	1N586406992
78	Speed Nut, SST	12A0801X012	<b>For Units With Bypass (figure 24)</b>		
93	Anti-Seize sealant (not furnished with positioner)		<b>Note</b>		
94	Lubricant, silicone sealant (not furnished with positioner)		<b>Bypass block assembly (key 34) and parts are listed below. Non-bypass block assembly (also key 34) and parts are listed following the bypass block assembly and parts.</b>		
95	Lubricant, All except Type 3582NS, Lithium grease (not furnished with positioner) Type 3582NS, Molykote®33 grease (not furnished with positioner)		34	Block Assembly Types 3582, 3582D Type 3582NS	21B8557X012 21B8557X032

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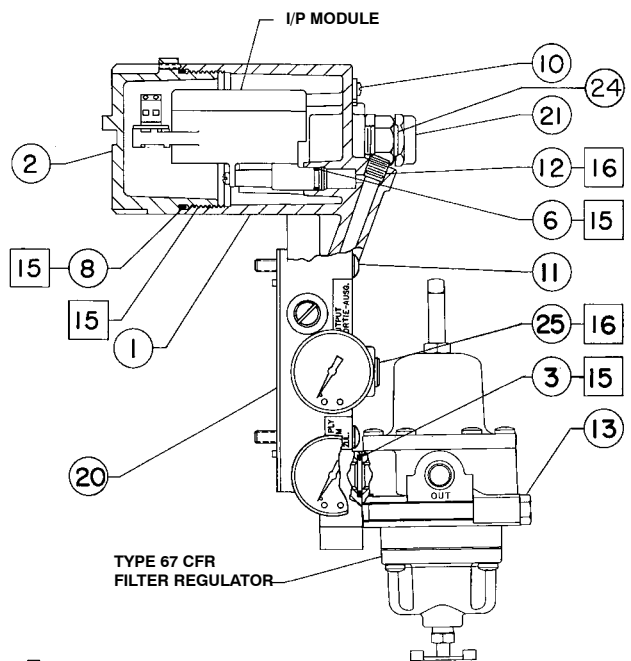
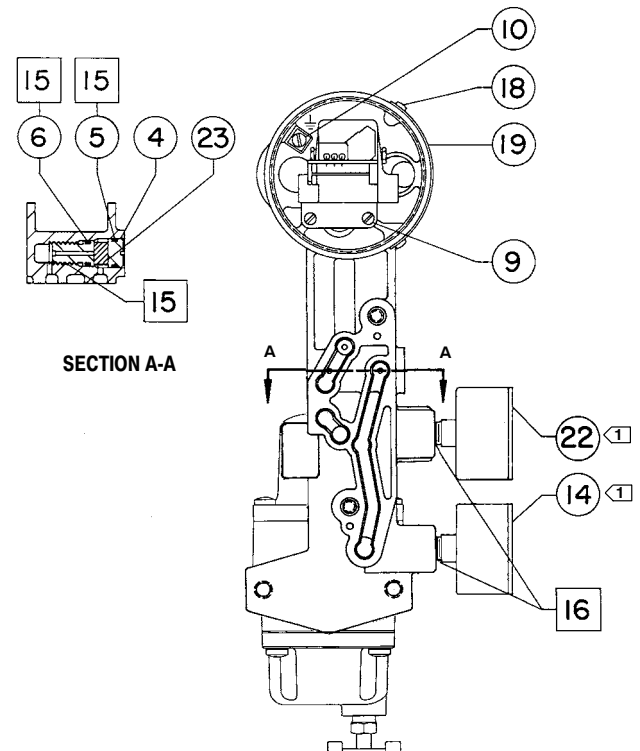
Key	Description	Part Number
34A	Bypass Block, aluminum	41B5987X012
34B	Groove-Pin, pl steel (not shown) (4 req'd)	1L942828992
34C*	Bypass Gasket	
	Types 3582, 3582D, chloroprene	1V606204132
	Type 3582NS, EPDM	17B4780X012
34D	Bypass Handle, aluminum	2V607108012
34E	Spring, pl steel	1V6063X0022
34F	Washer, polyethylene	1V606106992
34G	Screw, pl steel	1V605824642
34K	Spring Seat, SST	1V606035032
34L	Spring Retainer, pl steel	1V605925072

## For Units Without Bypass (figure 25)

34	Non-Bypass Block Assembly	
	Std. const.	
	Types 3582A, 3582C, 3582G	21B8555X012
	Types 3583, 3582C	21B8554X012
	Hi-temp. const.	
	Types 3582A, 3582C	21B8555X022
	Type 3583C	21B8554X022
	Type 3582NS	21B8555X052
34A	Bypass Block, aluminum	41B5987X012
34C*	Gasket	
	Std. const., chloroprene	1V606204132
	Hi-temp. const.	1V6062X0012
	Type 3582NS, EPDM	17B4780X012
34D	Manifold	
	3582 Series, std. and hi-temp. const.	1V942908012
	3583 Series, std. and hi-temp. const.	10A0746X012
34G	Cap Screw, pl steel	1J524128982
106	Pipe Plug, pl steel	
	For Types 3583 & 3583C (2 req'd)	1A767524662

## Type 582i (figure 26)

---*	I/P Module	33B7073X032
1	Housing	
	1/2-inch NPT conduit connection	22B0901X012
2	Cap, aluminum	37B7575X012
---	Screw, (not shown)	
	Used to lock cap	11B8574X012
3*	O-Ring, nitrile, used with integrally-mounted	
	Type 67CFR filter regulator	1E591406992
4	Nozzle Restriction Assembly,	
	Aluminum/Brass/SST	13B7116X022
5*	O-Ring, Nitrile	19A8597X012
6*	O-Ring, Nitrile (2 req'd)	1C8538X0162
7	Tire Valve (not shown)	
	(2 req'd w/tire valve option)	1N908899012
8*	O-Ring, Nitrile	1H8762X0012
9	Machine Screw, 304 SST (2 req'd)	1A9021X0012
10	Wire Retaining Screw (2 req'd)	16A2821X012
11	Machine Screw, SST (2 req'd)	12B0909X012
12	Pipe Plug, steel (2 req'd w/pipe plug option)	1E823128982
13	Screw, pl steel, used with	
	integrally-mounted Type 67CFR	
	filter/regulator (2 req'd)	T14109T0012
14*	Supply Gauge, Dual Scale	
	0-30 psig/0-2 kg/cm <sup>2</sup>	11B4040X042
	0-60 psig/0-4 kg/cm <sup>2</sup>	11B4040X052



□ APPLY LUB/SEALANT

NOTE:

① GAUGES MAY BE REPLACED BY PIPE PLUGS (KEY 12) OR TIRE VALVES (KEY 7).

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Figure 26. Type 582i Converter

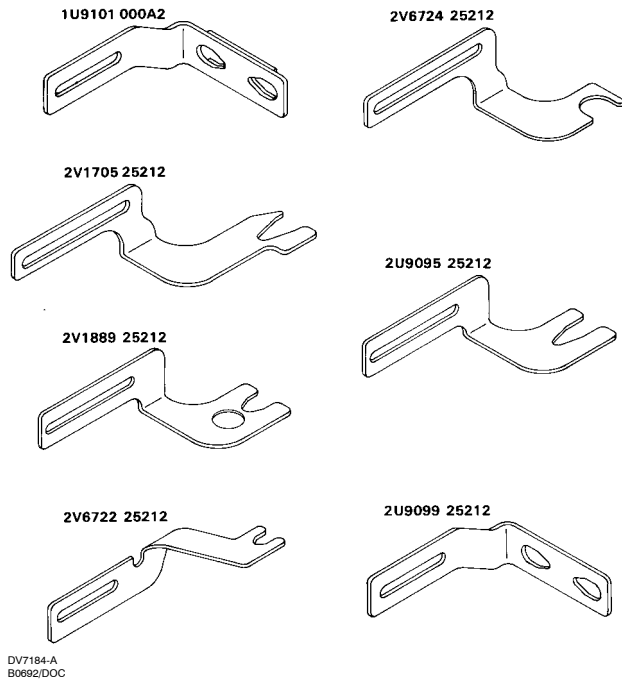


Figure 27. Connector Arm (Key 48)

Key	Description	Part Number
14*	Supply Gauge, Triple Scale 0–30 psig/0–0.2 MPa/0–2 bar 0–60 psig/0–0.4 MPa/0–4 bar	11B4040X012 11B4040X022
15	Lubricant, Lithium grease (not furnished with positioner)	
16	Anti-seize sealant (not furnished with positioner)	
18	Self-Tapping Screw, SST (2 req'd)	1P426928982
19	Nameplate, SST, without 3rd party approvals	11B5625X0A2
20*	Case Gasket, cork	1U907804132
21	Cable Gland, plastic, I.S. approved	12B0908F022
22*	Output Gauge, Dual Scale 0–30 psig/0–2 kg/cm <sup>2</sup> 0–60 psig/0–4 kg/cm <sup>2</sup>	11B4040X042 11B4040X052
22*	Output Gauge, Triple Scale 0–30 psig/0–0.2 MPa/0–2 bar 0–60 psig/0–0.4 MPa/0–4 bar	11B4040X012 11B4040X022
23*	Filter	11B5996X012
24	Vent Assembly	11B8279X012
25	Pipe Plug (required when a Type 582i is used without an integrally-mounted Type 67CFR filter/regulator) Steel SST	1C333528992 1C3335X0012

Key	Description	Part Number
-----	-------------	-------------

### Mounting Parts

For Mounting 3582, 3582i, or 3583 Only  
(figure 2)

#### Note

Part 48 also shown in figure 27.

48	Connector Arm, pl steel <b>Type 478</b> (Type 3583 only) Size 40 Sizes 46 & 60 <b>Type 513</b> Size 20 Size 32 <b>Type 650</b> Size 30 Size 40 Size 60 <b>Type 656</b> Sizes 30, 40, & 60 <b>Types 657 or 667</b> w/o side-mtd. h'wheel Sizes 30 & 34 Sizes 40 thru 100 w/side-mtd. h'wheel Size 34 Sizes 40, 50, & 60 Size 45 & 46 Sizes 70 thru 100 <b>Type 657NS or 667NS</b> Size 40 Size 45 Size 70 Size 80 <b>Type 657-4, 667-4</b> <b>Type 657-8</b> Sizes 30 & 34 Sizes 40 thru 70 <b>Type 1250 or 1250R</b> Sizes 225 & 450 Size 675 For Competitor's Actuators 0.375 to 0.75 stem	30A4897X012 3V479625192 2V6722X0012 2U909938992 20A5177X012 10A4870X012 10A4871X012 2V1705X0012 1U9101X0022 2U909938992 2V1889X00A2 2U9095X00A2 2V1705X0012 2U909938992 25A8816X012 26A9366X012 25A8824X012 25A8822X012 2U909938992 2V1889X00A2 2V6724X0012 39A7853X012 30B7285X012 2U9095X00A2
49	Washer, pl steel <b>Type 478</b> (none req'd) <b>Type 513</b> Size 20 6.4 mm (0.25 inch) stem (none req'd) 7.9 mm (0.3125 inch) stem (1 req'd) 9.5 mm (0.375 inch) stem (1 req'd) Size 32 (2 req'd) <b>Type 650</b> (2 req'd) Size 30 Size 40 Size 60 <b>Type 656</b> Sizes 30, 40, & 60 12.7 mm (0.5 inch) stem (1 req'd) 19.1 mm (0.75 inch) stem (none req'd) <b>Type 478</b> (none req'd)	--- --- 1B865928982 1E794128992 1D716228982 1B865928982 1K899525072 1P505725072 1K899525072 --- ---

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# 3582 and 3583 Series

Key	Description	Part Number	Key	Description	Part Number
49	Washer, pl steel (cont'd)		50	Spacer, steel (cont'd)	
	<b>Type 657</b>			<b>Type 657</b>	
	w/o side-mtd. h'wheel			w/o side-mtd. h'wheel	
	Sizes 30, 34, & 40 (2 req'd)	1D716228982		Size 30 thru 60 (none req'd)	---
	Size 45 thru 70, & 100 (2 req'd)	1H723125072		Size 70	
	Sizes 80 & 87 (2 req'd)	1K899525072		up to 51 mm (2-inch) travel (2 req'd)	1J830724092
	w/side-mtd. h'wheel			52 to 76 mm (2.0625 to 3-inch) travel (none req'd)	---
	Size 34 thru 60 (none req'd)	---		78 to 102 mm (3.0625 to 4-inch) travel (2 req'd)	1C559024092
	Size 70 (2 req'd)			Size 80	
	up to 76 mm (3-inch) travel	1K899525072		up to 51 mm (2-inch) travel (none req'd)	---
	78 to 102 mm (3.0625 to 4-inch) travel	1H723125072		over 51 mm (2-inch) travel (2 req'd)	1J830724092
	Sizes 80 & 87 (2 req'd)	1K899525072		Size 87 (2 req'd)	
	Size 100 (2 req'd)	1H723125072		up to 76 mm (3-inch) travel	1J830724092
	<b>Type 657-4</b> (2 req'd)			78 to 102 mm (3.0625 to 4-inch) travel	1C559024092
	w/o side-mtd. h'wheel			Size 100 (2 req'd)	
	Size 70	1H723125072		up to 64 mm (2.5 inch) travel	1J830724092
	w/side-mtd. h'wheel			65 to 102 mm (2.5625 to 4-inch) travel	1C559024092
	Size 70	1H723125072		w/side-mtd. h'wheel	
	Size 87	1K899525072		Sizes 34, 50, & 60 (2 req'd)	1J830724092
	<b>Type 657-8</b>			Size 40 (none req'd)	---
	Sizes 30 & 34 (2 req'd)	1K899525072		Size 45 & 46 (2 req'd)	1V102624092
	Sizes 40 thru 70 (none req'd)	---		Sizes 70 & 87 (2 req'd)	1R801924092
	<b>Type 667</b>			Size 80	
	w/o side-mtd. h'wheel			up to 51 mm (2-inch) travel (none req'd)	---
	Sizes 30, 34, & 40 (2 req'd)	1D716228982		over 51 mm (2-inch) travel (2 req'd)	1J830724092
	Size 45 thru 70, & 100 (2 req'd)	1H723125072		Size 100 (2 req'd)	
	Size 80 (2 req'd)	1K899525072		up to 64 mm (2.5 inch) travel	1J830724092
	Size 87			65 to 102 mm (2.5625 to 4-inch) travel	1C559024092
	up to 51 mm (2-inch) travel	1K899525072		<b>Type 657-4</b> (2 req'd)	
	52 to 76 mm (2.0625 to 3-inch) travel	1H723125072		w/o side-mtd. h'wheel	
	78 to 102 mm (3.0625 to 4-inch) travel	1K899525072		Size 70	1C559024092
	w/side-mtd. h'wheel			w/side-mtd. h'wheel	
	Size 34 thru 60 (none req'd)	---		Size 70 & 87	1R801924092
	Size 70 (2 req'd)			<b>Type 657-8</b> (2 req'd)	
	up to 76 mm (3 inch) travel	1K899525072		Sizes 30, 34, 47, & 70	1C559024092
	78 to 102 mm (3.0625 to 4-inch) travel	1H723125072		Size 40	1N952424092
	Size 80 & 87 (2 req'd)	1K899525072		Sizes 46 & 60	1R801924092
	Size 100 (2 req'd)	1H723125072		<b>Type 667</b>	
	<b>Type 657NS or 667NS</b>			w/o side-mtd. h'wheel	
	Size 40 (2 req'd)	1B865928982		Sizes 30 thru 60 (none req'd)	---
	Size 45 (2 req'd)	1H723125072		Size 70	
	Size 70 (none req'd)	---		up to 51 mm (2-inch) travel (none req'd)	---
	Size 80 (none req'd)	---		52 to 76 mm (2.0625 to 3-inch) travel (2 req'd)	1J830724092
	<b>Type 667-4</b> (2 req'd)			78 to 102 mm (3.0625 to 4-inch) travel (2 req'd)	1R801924092
	w/ or w/o side-mtd h'wheel			Size 80	
	Size 70	1H723125072		up to 51 mm (2-inch) travel (none req'd)	---
	Size 87	1K899525072		over 51 mm (2-inch) travel (2 req'd)	1J830724092
	<b>Type 1250 or 1250R</b> (1 req'd)	10B6609X012		Size 87 (2 req'd)	
				up to 76 mm (3-inch) travel	1J830724092
50	Spacer, steel			78 to 102 mm (3.0625 to 4-inch) travel	1R801924092
	<b>Type 478</b> (none req'd)	---		Size 100 (2 req'd)	
	<b>Type 513</b>			up to 64 mm (2.5 inch) travel	1J830724092
	Size 20 (none req'd)	---		65 to 102 mm (2.5625 to 4-inch) travel	1C559024092
	Size 32 (2 req'd)	1J830724092			
	<b>Type 650</b> (2 req'd)				
	Sizes 30 & 60	1J830724092			
	Size 40	1C559024092			
	<b>Type 656</b> (2 req'd)				
	Sizes 30, 40, & 60	1L200624092			

# 3582 and 3583 Series

Key	Description	Part Number	Key	Description	Part Number
50	Spacer, steel (cont'd) w/side-mtd. h'wheel Size 34 (2 req'd) Sizes 40, 50, & 60 (none req'd) Size 45 & 46 (2 req'd) Sizes 70 & 87 Size 80 up to 51 mm (2-inch) travel (none req'd) over 51 mm (2-inch) travel (2 req'd) Size 100 up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel	1J830724092 --- 1V102624092 1R801924092 --- 1J830724092 1C559024092	65	Cap Screw, pl steel <b>Type 478</b> (none req'd)  <b>Type 513</b> Size 20 (none req'd) Size 32 (2 req'd) <b>Type 650</b> , Sizes 30, 40, & 60 (none req'd) <b>Type 656</b> (none req'd)  <b>Type 657</b> w/o side-mtd. h'wheel Sizes 30, 34, & 40 (2 req'd) Sizes 45 thru 60 (none req'd) Size 70 (2 req'd) up to 51 mm (2-inch) travel 52 to 102 mm (2.0625 to 4-inch) travel Size 80 up to 51 mm (2-inch) travel (none req'd) over 51 mm (2-inch) travel (2 req'd) Size 87 up to 51 mm (2-inch) travel (2 req'd) 52 to 102 mm (2.0625 to 4-inch) travel (none req'd) Size 100 (2 req'd) up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel w/side-mtd. h'wheel Sizes 34 thru 60 (none required) Size 70 up to 76 mm (3-inch) travel (none req'd) 78 to 102 mm (3.0625 to 4-inch) travel (2 req'd) Size 80 up to 51 mm (2-inch) travel (none req'd) over 51 mm (2-inch) travel (2 req'd) Size 87 up to 76 mm (3-inch) travel (none req'd) 78 to 102 mm (3.0625 to 4-inch) travel (2 req'd) Size 100 (2 req'd) up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel <b>Type 657-4</b> (2 req'd) w/o side-mtd. h'wheel Size 70 w/ side-mtd. h'wheel Size 70 Size 87 <b>Type 657-8</b> (none req'd)  <b>Type 667</b> w/o side-mtd. h'wheel Sizes 30, 34, & 40 (2 req'd) Sizes 45 thru 70, & 87 (none req'd) Size 80 up to 51 mm (2-inch) travel (none req'd) over 51 mm (2-inch) travel (2 req'd) Size 100 (2 req'd) Up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel	--- --- 1B762424052 --- --- --- 1A352524052 --- 1A375124052 1A914524052 --- 1U625631192 1A950324052 --- 1C397924052 1A643024052 --- --- 1B366424052 --- 1U625631192 --- 1A950324052 1C397924052 1A643024052 --- 1A914524052 1B366424052 1A950324052 --- 1A352524052 --- --- 1U625631192 1C397924052 1A643024052
	<b>Type 657NS or 667NS</b> All except size 80 (3 req'd) Size 80 (none req'd) <b>Type 667-4</b> w/ or w/o side-mtd h'wheel Sizes 70 & 87 <b>Type 1250 or 1250R</b> (none req'd)	1N822924092 --- 1R801924092 ---			
52	Pipe Plug, 316 SST	1A649538992			
54	Elbow, 3/8-inch, brass (specify quantity)	15A6002X162			
55	Connector, 3/8-inch brass (not shown) (specify quantity)	15A6002X202			
56	Cap Screw, pl steel (2 req'd) <b>Type 657NS or 667NS</b> Sizes 40, 45, & 70 All other types	1C197024052 T14109T0012			
57	Hex Nut <b>Type 657NS or 667NS</b> Size 80 (none req'd) All other types and sizes (2 req'd)	--- 1A352724122			
58	Lockwasher <b>Type 657NS or 667NS</b> Size 80 (none req'd) All other types and sizes (2 req'd)	--- 1C225728982			
59	Pin Lock, SST <b>Type 650</b> , Sizes 30, 40, & 60 (none req'd) All other types	--- 1U909835032			
60	Travel Pin, SST <b>Type 650</b> , Sizes 30, 40, & 60 (none req'd) <b>Type 657-8</b> Size 30 & 34 Sizes 40 thru 70 <b>Type 657NS or 667NS</b> Size 80 All other types	--- 1U909646332 10A2167X012 1U909646332			
61	Pin Holder, SST <b>Type 650</b> , Sizes 30, 40, & 60 (none req'd) All other types	--- 1U909735032			
62	Cap Nut, SST <b>Type 650</b> , Sizes 30, 40, & 60 (none req'd) All other types	--- 1U910235032			
63	Mounting Plate, steel <b>Type 650</b> , Sizes 30, 40, & 60 <b>Type 1250 &amp; 1250R</b> All other types For integrally mounted Type 67CFR For separately mounted Type 67CFR	31B8553X012 39A7852X012 31B5993X012 37B1933X012			
64	Cap Screw, pl steel <b>Types 1250 and 1250R</b> (3 req'd) All other types (5 req'd)	1A381624052 1A381624052			

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Key	Description	Part Number	Key	Description	Part Number
65	Cap Screw, pl steel (cont'd)		70	Cap Screw, pl steel (2 req'd) (cont'd)	
	<b>Type 667</b>			<b>Type 657</b>	
	w/side-mtd. h'wheel			w/o side-mtd. h'wheel (cont'd)	
	Sizes 34 thru 60 (none required)	---		Size 80	
	Size 70			up to 51 mm (2-inch) travel	1A381624052
	up to 76 mm (3-inch) travel (none req'd)	---		over 51 mm (2-inch) travel	1A352524052
	78 to 102 mm (3.0625 to 4-inch) travel			Size 87	
	(2 req'd)	1B366424052		up to 76 mm (3-inch) travel	1A352524052
	Size 80			78 to 102 mm (3.0625 to 4-inch) travel	1A553424052
	up to 51 mm (2-inch) travel (none req'd)	---		Size 100	
	over 51 mm (2-inch) travel (2 req'd)	1U625631192		up to 64 mm (2.5 inch) travel	1A352524052
	Size 87			65 to 102 mm (2.5625 to 4-inch) travel	1B762424052
	up to 76 mm (3-inch) travel (none req'd)	---		w/side-mtd. h'wheel	
	78 to 102 mm (3.0625 to 4-inch) travel			Sizes 34, 50, & 60	1A352524052
	(2 req'd)	1A950324052		Size 40	1A381624052
	Size 100 (2 req'd)			Size 45 & 46	1C870224052
	up to 64 mm (2.5 inch) travel	1C397924052		Sizes 70 & 87	1B989624052
	65 to 102 mm (2.5625 to 4-inch) travel	1A643024052		Size 80	
	<b>Type 657NS or 667NS</b>			up to 51 mm (2-inch) travel	1A381624052
	Size 40 (2 req'd)	1U764835532		over 51 mm (2-inch) travel	1A352524052
	Size 45, 70, & 80 (none req'd)	---		Size 100	
	<b>Type 667-4</b>			up to 64 mm (2.5 inch) travel	1A352524052
	w/o side-mtd. h'wheel			65 to 102 mm (2.5625 to 4-inch) travel	1B762424052
	Size 70 & 87 (none req'd)	---		<b>Type 657-4</b>	
	w/ side-mtd. h'wheel			w/o side-mtd. h'wheel	
	Size 70 (2 req'd)	1B366424052		Size 70	1A553424052
	Size 87 (2 req'd)	1A950324052		w/side-mtd. h'wheel	
	<b>Type 1250 or 1250R</b> (2 req'd)	10B6605X012		Sizes 70 & 87	1B989624052
66	Actuator Rod, pl steel (not shown)			<b>Type 657-8</b>	
	<b>Type 650</b>			Sizes 30, 34, 47, & 70	1A553424052
	Size 30	10A5176X012		Size 40	1C197024052
	Size 40	10A4872X012		Sizes 46 & 60	1B989624052
	Size 60	10A4873X012		<b>Type 667</b>	
	All other types (none req'd)	---		w/o side-mtd. h'wheel	
67	Hex Nut, pl steel (not shown)			Sizes 30 thru 60	1A381624052
	<b>Type 650</b>			Size 70	
	Size 30 (2 req'd)	1A946324122		Up to 51 mm (2-inch) travel	1A381624052
	Size 40 & 60 (none req'd)	---		52 to 76 mm (2.0625 to 3-inch) travel	1A352524052
	All other types (none req'd)	---		78 to 102 mm (3.0625 to 4-inch) travel	1B989624052
68	Anti-Torque Rod, steel (not shown)			Size 80	
	<b>Type 478</b> (Type 3583 only)			up to 51 mm (2-inch) travel	1A381624052
	Sizes 40, 46, & 60	1V473824092		over 51 mm (2-inch) travel	1A352524052
	All other types (none req'd)	---		Size 87	
69	Damper Control Swivel (not shown)			Up to 76 mm (3-inch) travel	1A352524052
	<b>Type 650</b>			78 to 102 mm (3.0625 to 4-inch) travel	1B989624052
	Size 30, 40, & 60 (2 req'd)	10A4874X012		Size 100	
	All other types (none req'd)	---		up to 64 mm (2.5 inch) travel	1A352524052
70	Cap Screw, pl steel (2 req'd)			65 to 102 mm (2.5625 to 4-inch) travel	1B762424052
	<b>Type 478</b> (Type 3583 only)			w/side-mtd. h'wheel	
	Sizes 40, 46, & 60 (2 req'd)	1A381624052		Size 34	1A352524052
	<b>Type 513</b>			Sizes 40, 50, 60	1A381624052
	Sizes 20 & 32 (2 req'd)	1A381624052		Size 45 & 46	1C870224052
	<b>Type 650</b>			Size 70 & 87	1B989624052
	Sizes 30, 40, & 60 (2 req'd)	1A352524052		Size 80	
	<b>Type 656</b>			up to 51 mm (2-inch) travel	1A381624052
	Sizes 30, 40, & 60 (2 req'd)	1P7937X0012		over 51 mm (2-inch) travel	1A352524052
	<b>Type 657</b>			Size 100	
	w/o side-mtd. h'wheel			up to 64 mm (2.5 inch) travel	1A352524052
	Sizes 30 thru 60	1A381624052		65 to 102 mm (2.5625 to 4-inch) travel	1B762424052
	Size 70			<b>Type 657NS or 667NS</b>	
	Up to 51 mm (2-inch) travel	1A352524052		Sizes 40, 45, & 70 (3 req'd)	1A352524052
	52 to 76 mm (2.0625 to 3-inch) travel	1A381624052		Size 80 (3 req'd)	1A381624052
	78 to 102 mm (3.0625 to 4-inch) travel	1A553424052			

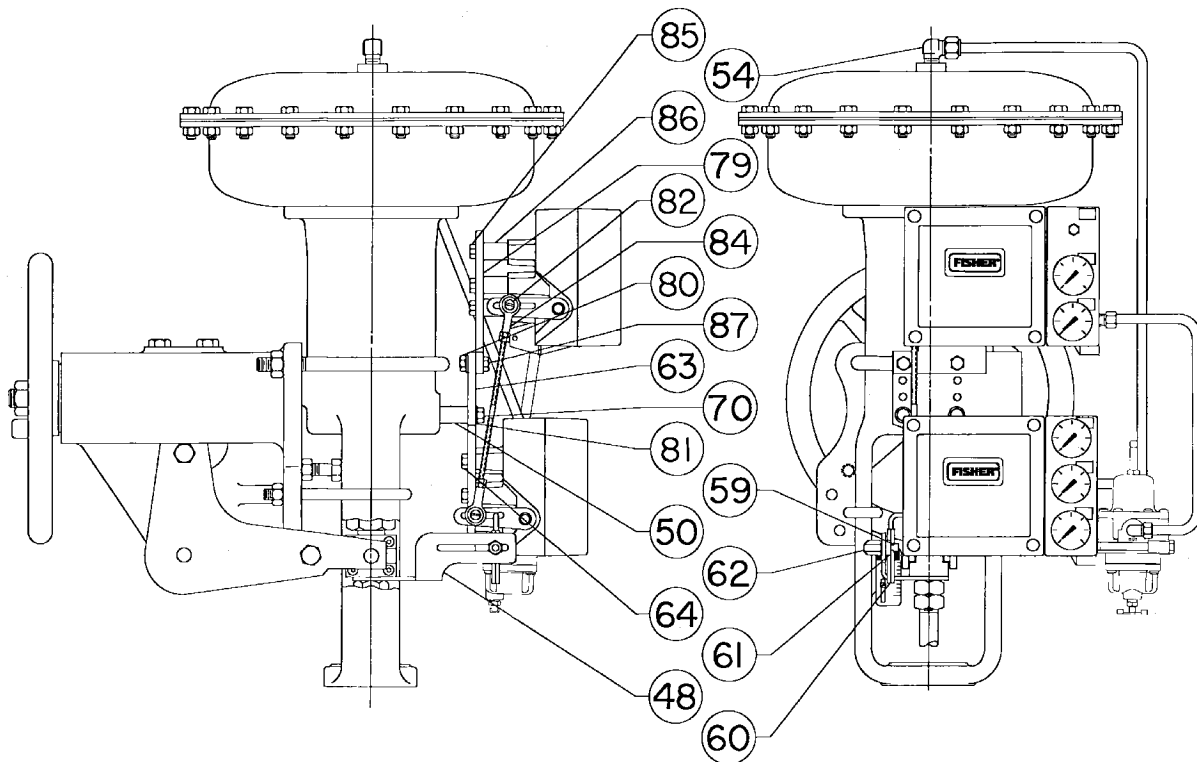
# 3582 and 3583 Series

Key	Description	Part Number	Key	Description	Part Number
70	Cap Screw, pl steel (2 req'd) (cont'd) <b>Type 667-4</b> Sizes 70 & 87 For Competitor's Actuators 0.375 to 0.75 inch stem <b>Type 1250 or 1250R</b> (none req'd)	1B989624052 1A381624052 ---	102	Spacer, steel <b>Type 657</b> w/o side-mtd h'wheel (cont'd) Size 87 up to 51 mm (2-inch) travel (2 req'd) 52 to 102 mm (2.0625 to 4-inch) travel (none req'd)	1R762324092 ---
86	Mounting Bracket (657NS and 667NS only) <b>Type 657NS</b> Size 45 <b>Type 667NS</b> Size 45 <b>Type 657NS or 667NS</b> Size 40 Size 70 Size 80	45A8814X012 45A8815X012 45A8814X012 45A8817X012 35A8821X012		<b>Type 667</b> w/o side-mtd h'wheel Size 34 thru 70 & 87 (none req'd) <b>Type 657 or 667</b> w/ side-mtd. h'wheel Size 34 thru 60 (none req'd) Size 70 & 87 up to 76 mm (3-inch) travel (2 req'd) Size 70 78 to 102 mm (3.0625 to 4-inch) travel (4 req'd) Size 87 78 to 102 mm (3.0625 to 4-inch) travel, (2 req'd)	---
97	Spacer, steel <b>Type 657 or 667</b> w/ side-mtd. h'wheel Sizes 70 & 87 up to 51 mm (2-inch) travel (2 req'd) 52 to 76 mm (2.0625 to 3-inch) travel (2 req'd) 78 to 102 mm (3.0625 to 4-inch) travel (none req'd) w/ or w/o side-mtd. h'wheel Size 80 up to 51 mm (2-inch) travel (2 req'd) over 51 mm (2-inch) travel (none req'd) All other types and sizes (none req'd)	1R409324092 1R409524092 ---		w/ or w/o side-mtd. h'wheel Size 80 (2 req'd) Size 100 up to 64 mm (2.5 inch) travel (4 req'd) 65 mm to 102 mm (2.5625 to 4-inch) travel (2 req'd) <b>Types 657-4 or 667-4</b> w/o side-mtd h'wheel Size 70 (none req'd) w/ side-mtd. h'wheel Size 70 (4 req'd) Size 87 (2 req'd) All other types (none req'd)	1R737024092 1R409624092 1V683324092 10A2567X012 10A5252X012 ---
98	Stud, continuous thread, steel (2 req'd) <b>Type 657 or 667</b> w/ side-mtd. h'wheel Sizes 70 & 87 up to 76 mm (3-inch) travel (2 req'd) 78 to 102 mm (3.0625 to 4-inch) travel (none req'd) w/ or w/o side-mtd. h'wheel Size 80 up to 51 mm (2-inch) travel over 51 mm (2-inch) travel (none req'd) All other types and sizes (none req'd)	1R166131012 ---			
99	Hex Nut, pl steel <b>Type 657 or 667</b> w/ side-mtd. h'wheel Sizes 70 & 87 up to 76 mm (3-inch) travel (2 req'd) 78 to 102 mm (3.0625 to 4-inch) travel (none req'd) w/ or w/o side-mtd. h'wheel Size 80 up to 51 mm (2-inch) travel (2 req'd) over 51 mm (2-inch) travel (none req'd) All other types and sizes (none req'd)	1A341224112 ---			
102	Spacer, steel <b>Type 657</b> w/o side-mtd h'wheel Size 34 to 60 (none req'd) Size 70 up to 51 mm (2-inch) travel (2 req'd) 52 to 102 mm (2.0625 to 4-inch) travel (none req'd)	1U830724092 ---	48	Connector Arm, pl steel (2 req'd) Sizes 30 & 34 Sizes 40 thru 100	1U9101X0022 2U909938992
			49	Washer, pl steel (4 req'd) <b>Type 657</b> Size 70 up to 51 mm (2-inch) travel 52 mm to 76 mm (2.0625 to 3-inch) travel 77 to 102 mm (3.0625 to 4-inch) travel Size 87 <b>Type 667</b> Size 70, all travels Size 87 up to 76 mm (3-inch) travel 77 to 102 mm (3.0625 to 4-inch) travel	1D716228982 1H723125072 1D716228982 1K899525072 1D716228982 1K899525072 1D716228982

## For Mounting 3582, 3582i, and 3583 on Type 657 or 667 Actuator without Side-Mounted Handwheel

### Note

The following parts (key numbers 48 through 102) are used when mounting both a 3582 Series positioner and a 3583 Series transmitter on a Type 657 or 667 actuator without a side-mounted handwheel.



41B8568-C/DOC

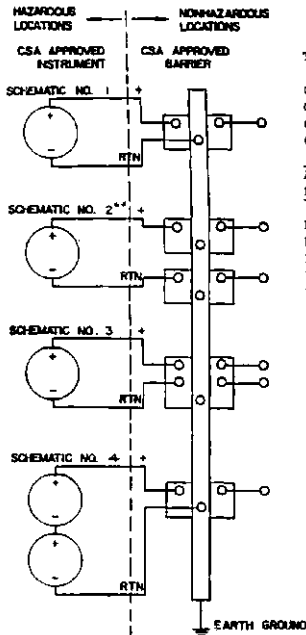
Figure 28. Typical Application of Transmitter and Positioner

Key	Description	Part Number	Key	Description	Part Number
49	Washer, pl steel (4 req'd) (cont'd) <b>Type 657 or 667</b> Sizes 30 thru 40 Sizes 45 thru 60 Size 80 Size 100 up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel	1D716228982 1H723125072 1K899525072 1H723125072 1D716228982	50	Spacer, steel (cont'd) <b>Type 657 or 667</b> Sizes 30 thru 60, & 80 (none req'd) Size 100 (4 req'd) up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel	--- 1J830724092 1C559024092
50	Spacer, steel <b>Type 657</b> Size 70 & 87 up to 76 mm (3-inch) travel (none req'd) 77 to 102 mm (3.0625 to 4-inch) travel (4 req'd) <b>Type 667</b> Size 70 & 87 up to 51 mm (2-inch) travel (none req'd) 52 to 76 mm (2.0625 to 3-inch) travel (4 req'd) 77 to 102 mm (3.0625 to 4-inch) travel (4 req'd) <b>Type 657</b> Size 70 & 87 up to 76 mm (3-inch) travel (none req'd)	--- 1C559024092 --- 1J830724092 1V102624092 ---	59	Pin Lock, SST, all sizes (2 req'd)	1U909835032
			60	Travel Pin, SST, all sizes (2 req'd)	1U909646332
			61	Pin Holder, SST, all sizes (2 req'd)	1U909735032
			62	Cap Nut, SST, all sizes (2 req'd)	1U910235032
			63	Mounting Plate, steel, all sizes (2 req'd) For integrally mounted Type 67CFR For separately mounted Type 67CFR	31B5993X012 37B1933X012
			64	Cap Screw, pl steel, all sizes (8 req'd)	1A381624052
			65	Cap Screw, pl steel Size 30 thru 87 (none req'd) Size 100 (4 req'd) up to 64 mm (2.5 inch) travel 65 to 102 mm (2.5625 to 4-inch) travel	--- 1C397924052 1A643024052



## Loop Schematics/Nameplates

This section includes loop schematics required for wiring of intrinsically safe installations. It also contains the approvals nameplates. If you have any questions, contact your Emerson Process Management sales office.



TYPE 3622, 582I, 3661 AND 646: CSA PARAMETRIC RATINGS\* (SCHEMATICS 1 AND 4)

CLASS I, GROUP A,B,C,D CSA RATING 30 V MAX, 330 OHM MIN, SINGLE INSTRUMENT  
 CLASS I, GROUP A,B,C,D CSA RATING 28 V MAX, 300 OHM MIN, SINGLE INSTRUMENT  
 CLASS I, GROUP A,B,C,D CSA RATING 22 V MAX, 150 OHM MIN, SINGLE INSTRUMENT  
 CLASS I, GROUP C,D CSA RATING 30 V MAX, 150 OHM MIN, SINGLE INSTRUMENT OR SPLIT RANGE

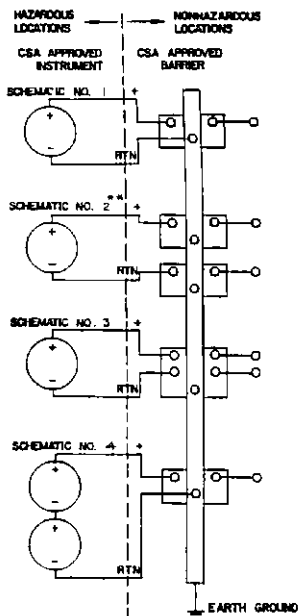
APPROVED BARRIER	BARRIER TYPE	MFG. INST. MANUAL	SCHEM NO.	APPLICABLE HAZARDOUS LOCATIONS	CSA BARRIER RATING
FOXBORO	2A0-V21-CGB	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	2A0-V31-CGB	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	2A0-V51-CGB	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	2A0-VA1-CGB	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	3A2-D21-CS-E/CGB-A	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	3A2-D31-CS-E/CGB-A	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
FOXBORO	2AS-131-CGB	MI 200-255	3	CL I, DIV 1, GP A,B,C,D	
STAHL	8903/51-200/050/7	89 036 01 31 0	2	CL I, DIV 1, GP A,B,C,D	20.41V, 300 OHM
STAHL	8901/33-293/000/7	89 016 03 31 0			28.1V, 470 OHM
STAHL	8901/31-280/165/8	89 015 03 31 0	2	CL I, DIV 1, GP C,D	27.3V, 179 OHM
STAHL	8901/33-293/000/7	89 016 03 31 0			28.1V, 470 OHM
STAHL	8901/31-199/100/7	89 016 03 31 0	1,4	CL I, DIV 1, GP A,B,C,D	19V, 220 OHM
STAHL	8903/31-200/050/7	89 036 01 31 0	1,4	CL I, DIV 1, GP A,B,C,D	19.95V, 286.7 OHM
STAHL	8903/31-263/050/7	89 036 01 31 0	1	CL I, DIV 1, GP A,B,C,D	26.5V, 386 OHM
BAILEY	766610AAV1	4576K16-034	3	CL I, DIV 1, GP C,D	27V, 345 OHM/10V, 40 OHM

\* ALSO APPLICABLE FOR CLASS II, GROUPS E,F,G WITH APPROPRIATE INSTRUMENT AND BARRIER APPROVAL

\*\* SCHEMATIC 2 REQUIRES THAT BARRIERS MUST BE USED IN PAIRS AS LISTED

LOOPS MUST BE CONNECTED ACCORDING TO THE BARRIER MANUFACTURER'S INSTRUCTIONS  
 SEE ANSI/ISA RP12.6 FOR GUIDANCE ON INSTALLATION

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APPROVED BARRIER	BARRIER TYPE	MFG. INST. MANUAL	SCHEM NO.	APPLICABLE HAZARDOUS LOCATIONS	CSA BARRIER RATING
TAYLOR	5850FL84100	IB-21E600	1	CL I, DIV 1, GP A,B,C,D	25.75V, 350 OHM
TAYLOR	5851FL84100	IB-21E600	1	CL I, DIV 1, GP A,B,C,D	25.75V, 350 OHM
TAYLOR	1130PG21000	IB-17E211	1	CL I, DIV 1, GP C,D	30V, 206 OHM
TAYLOR	1135FG21000	IB-17E212	1	CL I, DIV 1, GP C,D	30V, 266 OHM
TAYLOR	1150FE81010	IB-17E220	1	CL I, DIV 1, GP A,B,C,D	26V, 342 OHM
MTL	128+	PS-300-13	1	CL I, DIV 1, GP A,B,C,D	28V, 300 OHM
MTL	122+	PS-300-13	1	CL I, DIV 1, GP A,B,C,D	22V, 150 OHM
MTL	187+	PS-300-13	3	CL I, DIV 1, GP A,B,C,D	28V, 300 OHM/30V (DIODE)
MTL	787+	PS-700-2	3	CL I, DIV 1, GP A,B,C,D	28V, 300 OHM/28V (DIODE)
MTL	728+	PS-700-2	1	CL I, DIV 1, GP A,B,C,D	28V, 300 OHM
MTL	722+	PS-700-2	1	CL I, DIV 1, GP A,B,C,D	22V, 150 OHM
HONEYWELL	38545-0000-0110-113-C5D5	S 385-22	1	CL I, DIV 1, GP A,B,C,D	20V, 150 OHM
HONEYWELL	38545-0000-0110-111-C5D5	S 385-22	1	CL I, DIV 1, GP C,D	28V, 200 OHM
HONEYWELL	38545-0000-0110-111-C5D5	S 385-22	2	CL I, DIV 1, GP C,D	28V, 200 OHM
HONEYWELL	38545-0000-0110-112-C5D5	S 385-22	2	CL I, DIV 1, GP C,D	28V, 200 OHM

\* ALSO APPLICABLE FOR CLASS II, GROUPS E,F,G WITH APPROPRIATE INSTRUMENT AND BARRIER APPROVAL

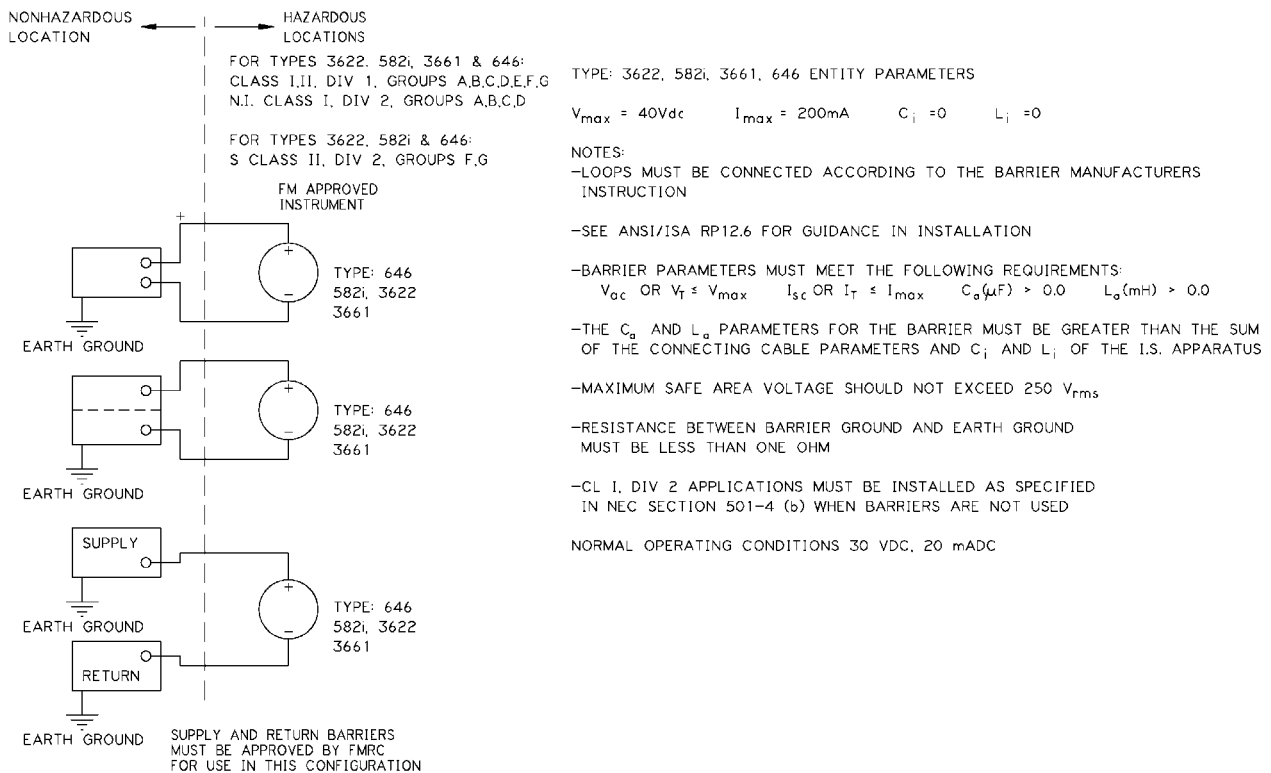
\*\* SCHEMATIC 2 REQUIRES THAT BARRIERS MUST BE USED IN PAIRS AS LISTED

LOOPS MUST BE CONNECTED ACCORDING TO THE BARRIER MANUFACTURER'S INSTRUCTIONS  
 SEE ANSI/ISA RP12.6 FOR GUIDANCE ON INSTALLATION

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Figure 29. CSA Loop Schematics

# 3582 and 3583 Series



21B5807-D / DOC

Figure 30. FM Loop Schematic

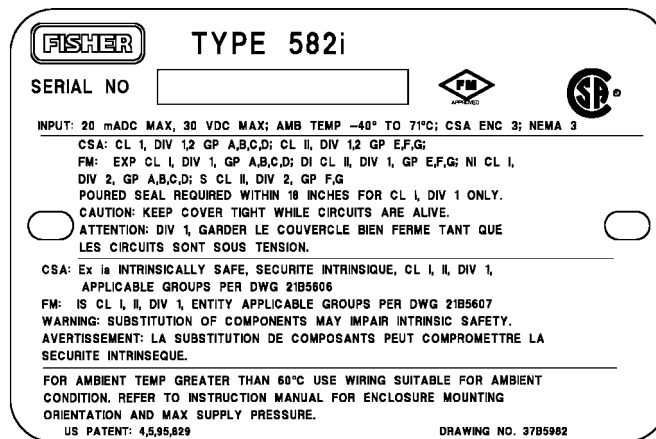
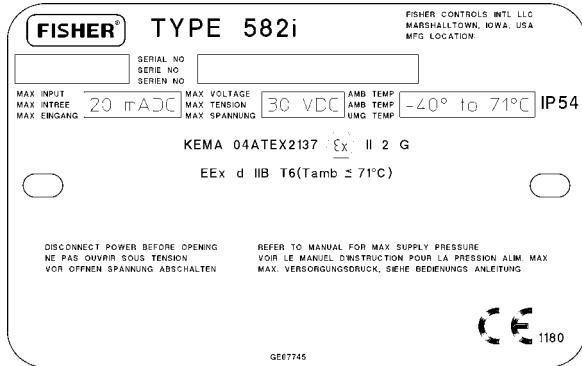
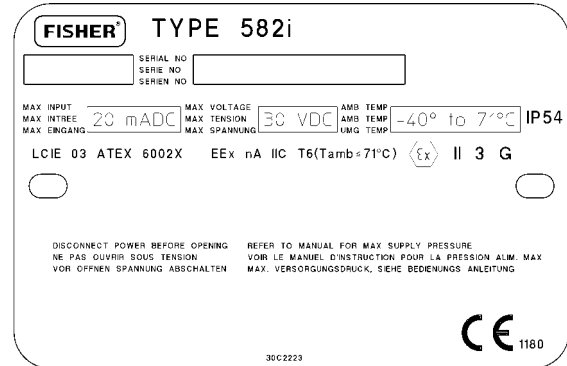


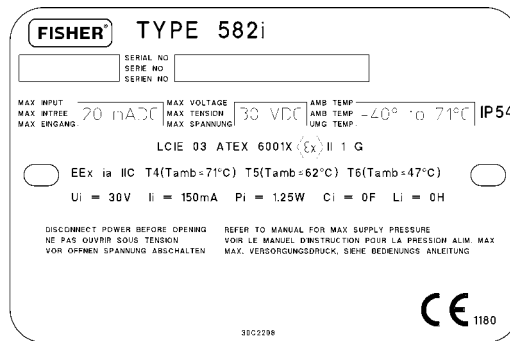
Figure 31. Type 582i—CSA/FM Approvals Nameplate



ATEX EXPLOSION PROOF

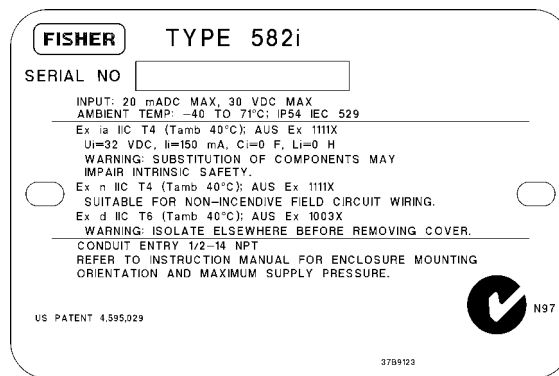


ATEX TYPE n



ATEX INTRINSIC SAFETY

Figure 32. Type 582i—ATEX Approval Nameplates



SAA INTRINSIC SAFETY, EXPLOSION PROOF, Type n

Figure 33. Type 582i—SAA Approvals Nameplate

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