

Type TM600 Integral True-Monitor™ Regulator

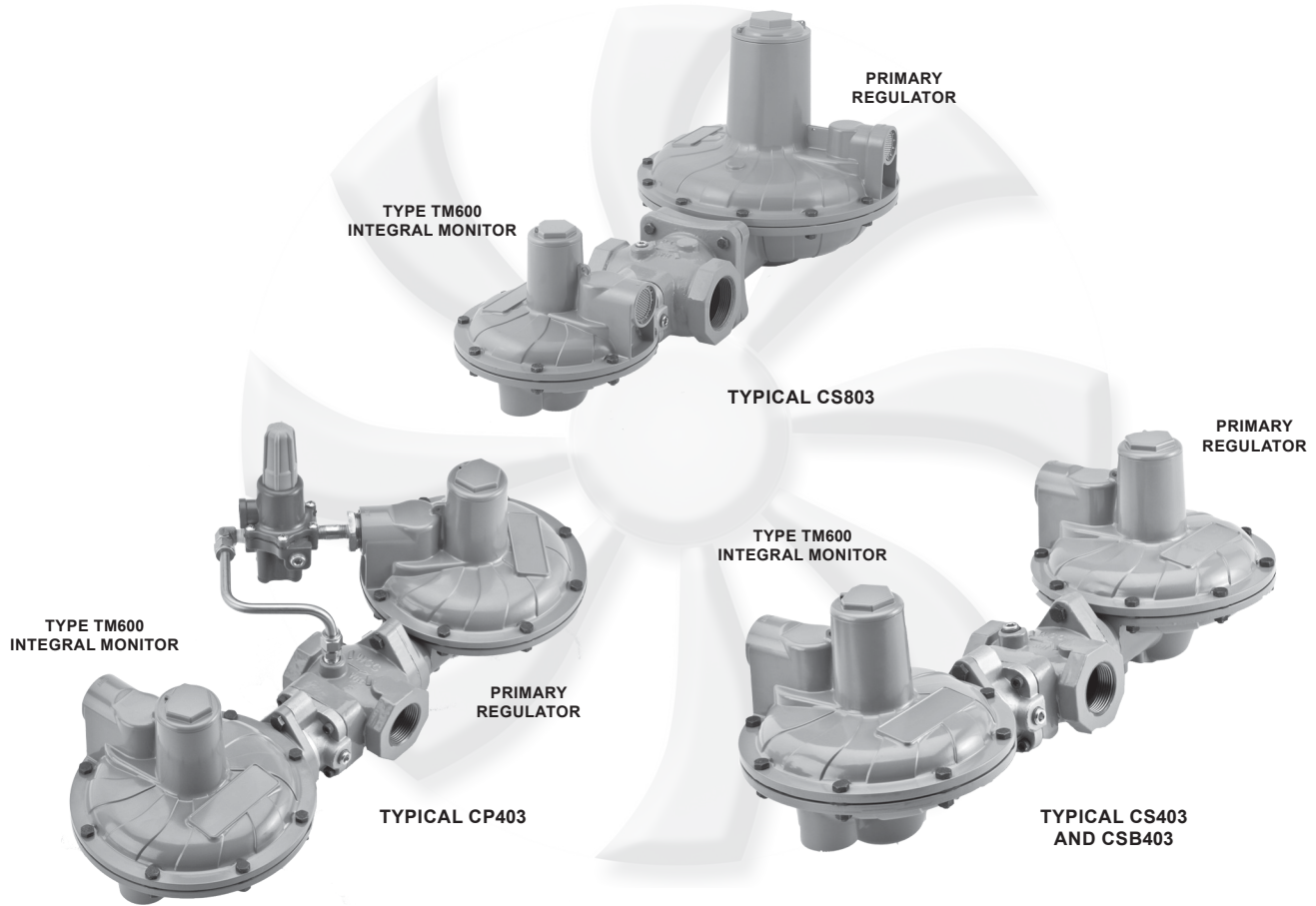


Figure 1. Type TM600 Integral Monitor Installed on Types CS403, CP403 and CS803 Regulators

Table of Contents

| | |
|-------------------------------|----|
| Introduction | 1 |
| Specifications | 2 |
| Principle of Operation | 3 |
| Installation | 3 |
| Startup | 10 |
| Adjustment | 10 |
| Shutdown | 10 |
| Maintenance and Testing | 10 |
| Regulator Reassembly | 12 |
| Parts Ordering | 12 |
| Parts List | 13 |

Introduction

Scope of the Manual

This manual provides instructions for the Installation, Startup, Adjustment, Maintenance and Parts Ordering information for the Type TM600 Integral True-Monitor regulator.

The Type TM600 must be installed on service regulators with body connections suitable for the Type TM600.

Type TM600

Specifications

The Specifications section lists the specifications for Type TM600 configurations. The following information is stamped on the nameplate of the Type TM600: Spring Range and Orifice Size. Additional operating information is located on the Primary Regulator nameplate.

Available Configurations

Type TM600I—Integral True-Monitor™ regulator with internal registration

Type TM600E—Integral True-Monitor regulator with external registration

Body Size and End Connection Styles

See the Instruction Manual of the primary regulator for available Body Sizes and End Connections.

| PRIMARY REGULATOR SERIES | INSTRUCTION MANUAL |
|--------------------------|--------------------|
| CS400 | D103120X012 |
| CP400 | D103122X012 |
| CSB400 | D103123X012 |
| CS800 | D103124X012 |

Allowable Inlet Pressures⁽¹⁾

See Table 8

Port Size

1 inch / 25 mm

Monitor Set Pressure Range⁽¹⁾

14 in. w.c. to 7.5 psig / 35 to 517 mbar

Maximum Downstream Pressures⁽¹⁾

Casing: 25 psig / 1.7 bar

To Avoid Internal Parts Damage:

5 psig / 345 mbar over set pressure

Operating: 14.5 psig / 1 bar

Setpoints of Primary Regulator and Integral Monitor

See Tables 1 through 7

Maximum Lockup above True-Monitor Setpoint

Setpoints at or below 14 in. w.c. / 35 mbar:

3 in. w.c. / 7.5 mbar

Setpoints above 14 in. w.c. / 35 mbar:

15% over monitor setpoint

Temperature Capabilities⁽¹⁾⁽²⁾

-20 to 150°F / -30 to 66°C

Pressure Registration

When used with:

CS400, CP400 and CS800 Series: Same as primary regulator

CSB400 Series: External recommended

Approximate Weight

14 lbs / 6.3 kg

Certifications and Standards

PED/PE(S)R

ANSI B109.5 and CSA 6.18

Hydrogen Blend up to 25% Compatible

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

2. Product has passed Emerson Process Management Regulator Technologies, Inc. testing for lockup down to -40 °F / -40 °C.



WARNING

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

Fisher™ regulators and integral True-Monitor regulators must be installed, operated, and maintained in accordance with federal, state and local codes, rules and regulations, and Emerson Process Management Regulator Technologies, Inc. (Emerson) instructions.

If the regulator vents gas or a leak develops in the system, service to the unit may be required. Failure to correct trouble

could result in a hazardous condition.

Call a gas service person to service the unit. Only a qualified person must install or service the regulator.

Description

The Type TM600 Integral Monitor provides True-Monitor Protection by taking the place of a separate service regulator on monitor applications. Intended for commercial and light industrial applications, it can be used for pressure reducing service on natural, manufactured or LP gas. To be functional, Type TM600 must be mounted on primary regulators with orifices up to 1 in. / 25 mm. The Type TM600 is not currently orderable separate from a service regulator.

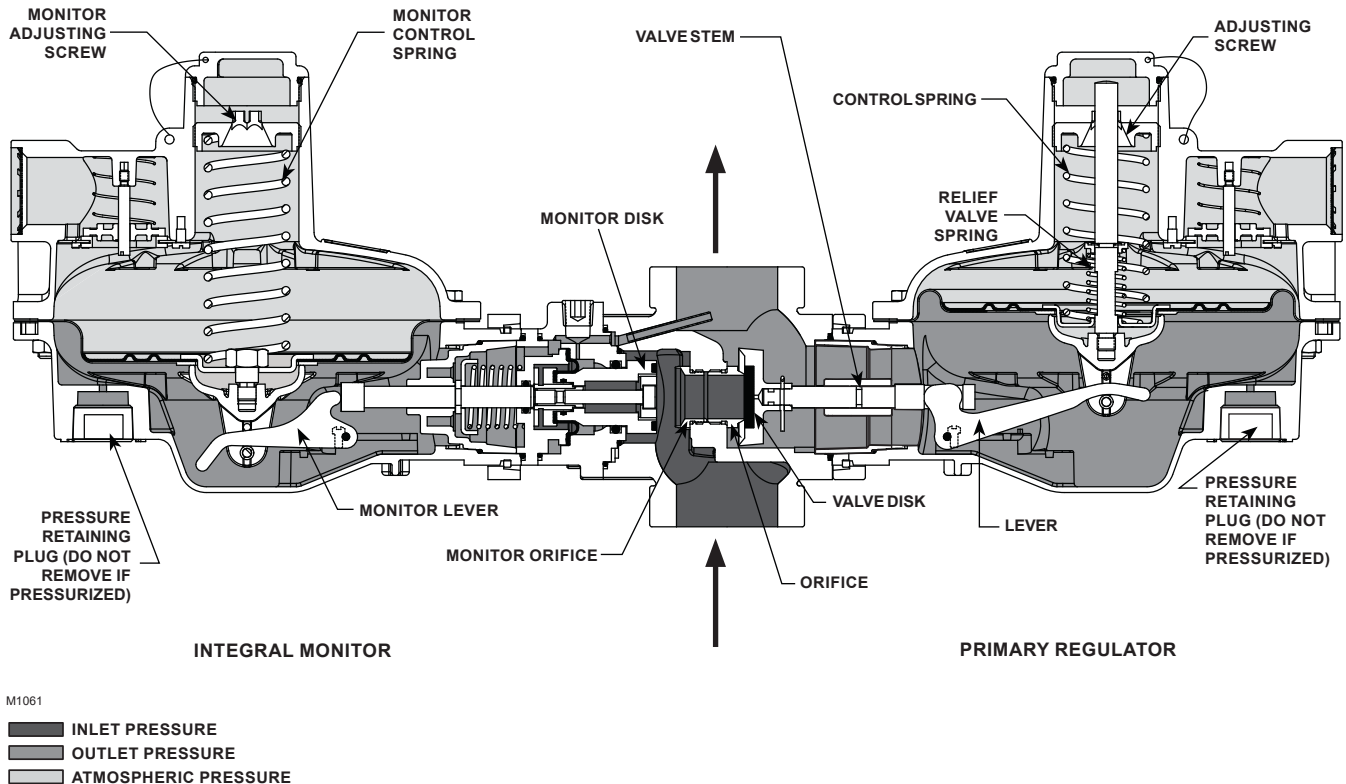


Figure 2. Internally Registered Regulator Operational Schematic

Principle of Operation

As downstream pressure registers under the main diaphragm of the Primary Regulator, it also registers under the diaphragm of the Integral Monitor. If for any reason the Primary Regulator ceases to regulate downstream pressure below the setpoint of the Integral Monitor, the monitor will begin to throttle the flow and maintain a downstream pressure below the maximum pressure indicated in Tables 1 through 7. If the Primary Regulator is equipped with a token internal relief valve, it will begin to relieve to provide an indication via smell that the Integral Monitor is controlling the downstream pressure. As downstream demand decreases, the Integral Monitor closes to maintain a downstream pressure below the maximum value given in Tables 1 through 7. As downstream demand increases, the Integral Monitor opens to supply additional gas flow as needed to maintain downstream pressure.

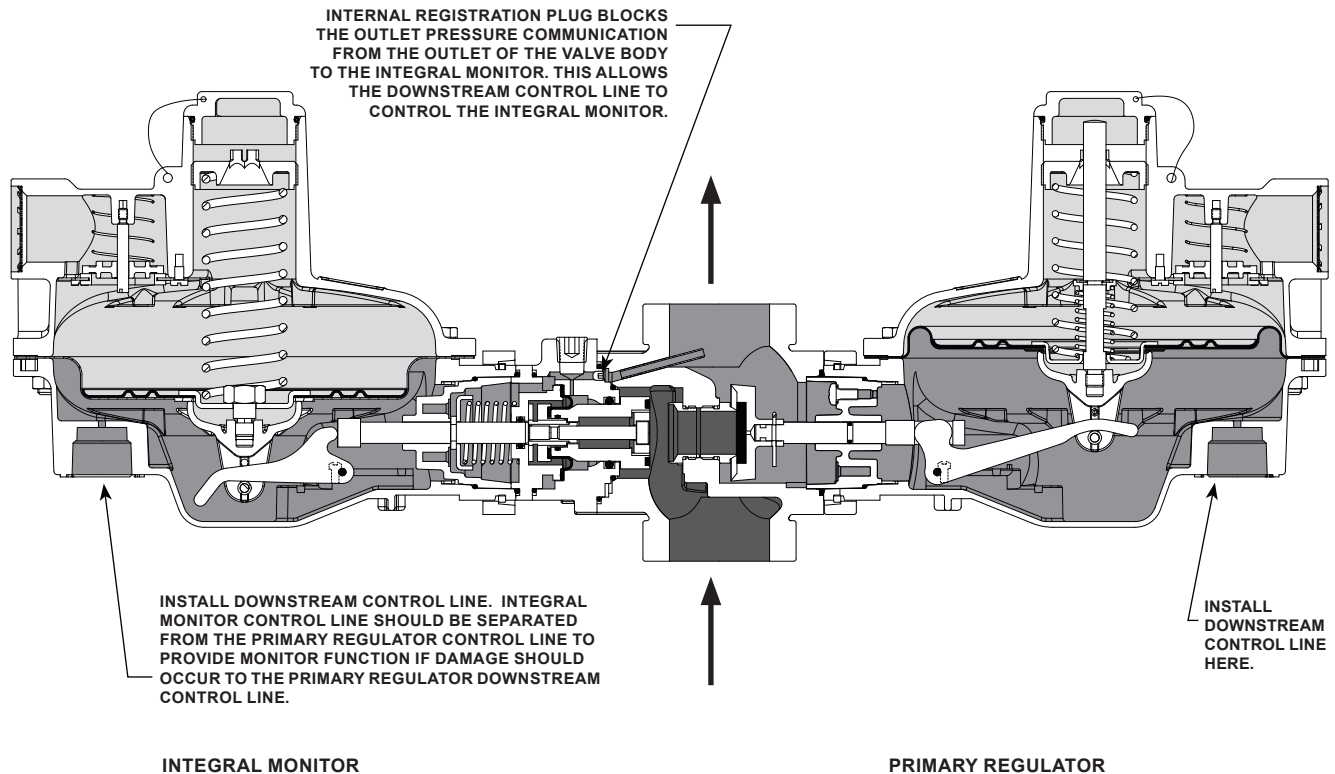
Installation

WARNING

All vents should be kept open to permit free flow of gas to the atmosphere. Protect openings against entrance of rain, snow, insects or any other foreign material that may plug the vent or vent line. When installing outdoors, point the spring case vent of the Primary regulator and Integral Monitor downward to allow condensate to drain. This minimizes the possibility of freezing and accumulation of water or other foreign materials entering the vent and interfering with proper operation.

Under enclosed conditions or indoors, escaping gas may accumulate and be an explosion hazard. In these cases, the vents should be piped away from the regulator to the outdoors.

Type TM600



M1062

■ INLET PRESSURE
■ OUTLET PRESSURE
■ ATMOSPHERIC PRESSURE

Figure 3. Externally Registered Regulator Operational Schematic

CAUTION

The Type TM600 Integral Monitor has an outlet pressure rating lower than their inlet pressure rating. Overpressuring any portion of the regulators beyond the limits in Specifications section and Tables 1 through 8 may cause leakage, damage to regulator parts, or personal injury due to bursting of pressure-containing parts.

If the Type TM600 is exposed to an overpressure condition, it should be inspected for any damage that may have occurred. Integral Monitor operation below these limits does not preclude the possibility of damage from external sources or from debris in the pipeline.

General Installation Instructions

Before installing the Type TM600:

- Check for damage, which might have occurred during the shipment.
- Check for and remove any dirt or foreign material, which may have accumulated in the regulator body.
- Blow out any debris, dirt, or copper sulfate in the copper tubing and the pipeline.
- Apply pipe compound to the external threads of the pipe before installing the pipe into the Type TM600 vent or external control line port.
- Make sure gas flow through the primary regulator is in the same direction as the arrow on the body. “Inlet” and “Outlet” connections are clearly marked.

Table 1. Type CS403 Setpoints and Associated True-Monitor™ Setpoints, with Token Relief

| PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|----------------------------|------|-----------------------|------------|--------------------|--------------|---------------------------------|------|----------------------|------------|--------------------|--------------|
| Typical Regulator Setpoint | | Spring Range | | Spring Part Number | Spring Color | Monitor Setpoint ⁽¹⁾ | | Spring Range | | Spring Part Number | Spring Color |
| In. w.c. | mbar | In. w.c. | mbar | | | In. w.c. | mbar | In. w.c. | mbar | | |
| 4 | 10 | 3.5 to 5 | 9 to 13 | GE30198X012 | Red | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 5 | 12 | 4.5 to 6.5 | 11 to 16 | GE30195X01 | Purple | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 7 | 17 | 6 to 8 | 15 to 20 | GE30188X012 | Gold | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 11 | 27 | 7.5 to 11 | 19 to 28 | GE30189X012 | Blue | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| | | | | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 14 | 35 | 10 to 14 | 25 to 35 | GE30224X012 | Unpainted | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| | | | | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 18 | 45 | 12 to 19 | 30 to 48 | GE30196X012 | Green | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 1 psig | 69 | 18 in. w.c. to 1 psig | 45 to 69 | GE30225X012 | Orange | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | GE35081X012 | Purple |
| 2 psig | 138 | 1 psig to 2 psig | 69 to 138 | GE30190X012 | Black | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | GE35081X012 | Purple |
| | | | | | | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | GE30192X012 | Dark Blue |
| 3 psig | 207 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | GE30192X012 | Dark Blue |
| | | | | | | 6 psig | 414 | 5.1 psig to 7.5 psig | 352 to 517 | GE33121X012 | Red |
| 4 psig | 276 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 7 psig | 483 | | | | |
| 5 psig | 345 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 7.5 psig | 517 | | | | |

1. Integral Monitor setpoints shown represent the minimum Monitor setpoint for the Primary regulator Type CS400 with a Token Relief. Higher monitor setpoints can be chosen, e.g., for a Primary regulator setpoint of 7 in. w.c. / 17 mbar, the Integral Monitor can also be set at 21 in. w.c. / 52 mbar, 1 psig / 69 mbar, or higher.

Installation Location

- The installed Type TM600 should be adequately protected from vehicular traffic and damage from other external sources.
- Install both Primary and Type TM600 Integral Monitor with both vents pointing vertically down, see Figure 4. If the vents cannot be oriented in a vertically down position, then Type TM600 must be installed under a separate protective cover. Installation with the vents down allows condensation to drain, minimizes the entry of water or other debris from entering the vent, and minimizes vent blockage from freezing precipitation.
- Do not install Type TM600 in a location where there can be excessive water accumulation or ice formation, such as directly beneath a down spout, gutter or roof line of building. Even a protective hood may not provide adequate protection in these instances.
- Install the Type TM600 so that any gas discharge through the vents or vent assemblies is over 3 ft / 0.91 meters away from any building opening.

Type TM600

Table 2. Type CS403 Setpoints and Associated True-Monitor™ Setpoints, without Token Relief

| PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|----------------------------|------|-----------------------|------------|--------------------|--------------|---------------------------------|------|----------------------|------------|--------------------|--------------|
| Typical Regulator Setpoint | | Spring Range | | Spring Part Number | Spring Color | Monitor Setpoint ⁽¹⁾ | | Spring Range | | Spring Part Number | Spring Color |
| In. w.c. | mbar | In. w.c. | mbar | | | In. w.c. | mbar | In. w.c. | mbar | | |
| 4 | 10 | 3.5 to 5 | 9 to 13 | GE30198X012 | Red | 14 | 35 | 12 to 21 | 30 to 52 | GE30189X012 | Blue |
| | | | | | | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 5 | 12 | 4.5 to 6.5 | 11 to 16 | GE30195X012 | Purple | 14 | 35 | 12 to 21 | 30 to 52 | GE30189X012 | Blue |
| | | | | | | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 7 | 17 | 6 to 8 | 15 to 20 | GE30188X012 | Gold | 14 | 35 | 12 to 21 | 30 to 52 | GE30189X012 | Blue |
| | | | | | | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| 11 | 27 | 7.5 to 11 | 19 to 28 | GE30189X012 | Blue | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| | | | | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 14 | 35 | 10 to 14 | 25 to 35 | GE30224X012 | Unpainted | 21 | 52 | 18 to 30 | 45 to 75 | GE30196X012 | Green |
| | | | | | | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| | | | | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 18 | 45 | 12 to 19 | 30 to 48 | GE30196X012 | Green | 1 psig | 69 | 26 to 40 | 65 to 99 | GE30225X012 | Orange |
| | | | | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| 1 psig | 69 | 18 in. w.c. to 1 psig | 45 to 69 | GE30225X012 | Orange | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | GE35081X012 | Purple |
| 2 psig | 138 | 1 psig to 2 psig | 69 to 138 | GE30190X012 | Black | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | GE30190X012 | Black |
| | | | | | | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | GE35081X012 | Purple |
| | | | | | | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | GE30192X012 | Dark Blue |
| 3 psig | 207 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | GE35081X012 | Purple |
| | | | | | | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | GE30192X012 | Dark Blue |
| | | | | | | 6 psig | 414 | 5.1 psig to 7.5 psig | 352 to 517 | GE33121X012 | Red |
| 4 psig | 276 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | GE30192X012 | Dark Blue |
| | | | | | | 6 psig | 414 | 5.1 psig to 7.5 psig | 352 to 517 | GE33121X012 | Red |
| | | | | | | 7psig | 483 | | | | |
| 5 psig | 345 | 2 psig to 5.5 psig | 138 to 380 | GE30197X012 | Yellow | 6 psig | 414 | 5.1 psig to 7.5 psig | 352 to 517 | GE33121X012 | Red |
| | | | | | | 7psig | 483 | | | | |
| | | | | | | 7.5 psig | 517 | | | | |

1. Integral Monitor setpoints shown represent the minimum Monitor setpoint for the Primary regulator Type CS400. Higher monitor setpoints can be chosen, e.g., for a Primary regulator setpoint of 7 in. w.c. / 17 mbar, the Integral Monitor can also be set at 14 in. w.c. / 35 mbar, 21 in. w.c. / 52 mbar, 1 psig / 69 mbar, or higher.

Table 3. Type CP403 Setpoints and Associated True-Monitor™ Setpoints, with Token Relief

| PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|----------------------------|------|--------------|-----------|--------------------|---------------|------------------|------|--------------|------------|--------------------|--------------|
| Typical Regulator Setpoint | | Spring Range | | Spring Part Number | Spring Color | Monitor Setpoint | | Spring Range | | Spring Part Number | Spring Color |
| psig | mbar | psig | mbar | | | psig | mbar | psig | mbar | | |
| 1 | 69 | 1 to 2 | 69 to 138 | GE30199X012 | Yellow Stripe | 5 | 345 | 3.6 to 6 | 248 to 414 | GE30192X012 | Dark Blue |
| 2 | 138 | | | | | 5.5 | 379 | 5.1 to 7.5 | 352 to 517 | GE33121X012 | Red |

Table 4. Type CP403 Setpoints and Associated True-Monitor Setpoints, without Token Relief

| PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|----------------------------|------|--------------|------------|--------------------|---------------|------------------|------|--------------|------------|--------------------|--------------|
| Typical Regulator Setpoint | | Spring Range | | Spring Part Number | Spring Color | Monitor Setpoint | | Spring Range | | Spring Part Number | Spring Color |
| psig | mbar | psig | mbar | | | psig | mbar | psig | mbar | | |
| 1 | 69 | 1 to 2 | 69 to 138 | GE30199X012 | Yellow Stripe | 2 | 138 | 1.4 to 2.9 | 97 to 200 | GE30190X012 | Black |
| | | | | | | 2.5 | 172 | 1.4 to 2.9 | 97 to 200 | GE30190X012 | Black |
| | | | | | | 3.5 | 241 | 2.6 to 3.7 | 179 to 255 | GE35081X012 | Purple |
| 2 | 138 | 1 to 2 | 69 to 138 | GE30199X012 | Yellow Stripe | 3 | 207 | 2.6 to 3.7 | 179 to 255 | GE35081X012 | Purple |
| | | | | | | 4 | 276 | 3.6 to 6 | 248 to 414 | GE30192X012 | Dark Blue |
| | | | | | | 5 | 345 | 3.6 to 6 | 248 to 414 | GE30192X012 | Dark Blue |
| 3 | 207 | 2 to 5 | 345 to 689 | GE27213X012 | Orange Stripe | 5 | 345 | 3.6 to 6 | 248 to 414 | GE30192X012 | Dark Blue |
| | | | | | | 6 | 414 | 5.1 to 7.5 | 352 to 517 | GE33121X012 | Red |
| 4 | 276 | 2 to 5 | 345 to 689 | GE27213X012 | Orange Stripe | 6 | 414 | | | | |
| | | | | | | 7 | 483 | | | | |
| 5 | 345 | 2 to 5 | 345 to 689 | GE27213X012 | Orange Stripe | 7 | 483 | | | | |

Table 5. Types CSB403 and CSB423 with and without Token Relief Setpoints and Maximum Downstream Pressures

| TYPE | PRIMARY REGULATOR | | | | | | | INTEGRAL TRUE-MONITOR | | | | | | | |
|--------------------|-------------------|-----------------------|-----------------------|-------------|---------------|-----------------|---|-----------------------|----------|------------------|-----------------------|-----------------------|-------------|-------------|-------------|
| | Factory Setpoint | | Set Pressure Range | | Color | Part Number | Factory Token Relief Set ⁽¹⁾ | | | Factory Setpoint | | Spring Range | | Color | Part Number |
| | In. w.c. | mbar | In. w.c. | mbar | | | % of REG. Set | In. w.c. | mbar | In. w.c. | mbar | In. w.c. | mbar | | |
| CSB403 and CSB403F | 8 | 20 | 7 to 10 | 17 to 24 | Pink | GE30191X012 | No Token Relief | | | 15 | 37 | 12 to 21 | 30 to 52 | Blue | GE30189X012 |
| | | | | | | | 170% | 14 | 35 | 21 | 52 | 18 to 30 | 45 to 75 | Green | GE30196X012 |
| | 12 | 30 | 10 to 14 | 24 to 35 | Orange Stripe | GE43955X012 | No Token Relief | | | 1 psig | 70 | 26 to 40 | 65 to 99 | Orange | GE30225X012 |
| | | | | | | | 150% | 18 | 45 | | | | | | |
| | 20 | 50 | 14 to 24 | 35 to 60 | Dark Green | GE30201X012 | No Token Relief | | | 1.5 psig | 103 | 1.4 psig to 2.9 psig | 97 to 200 | Black | GE30190X012 |
| 140% | | | | | | | 1 psig | 70 | | | | | | | |
| 1 psig | 70 | 0.87 psig to 1.5 psig | 60 to 100 | Tan | GE30202X012 | No Token Relief | | | 2 psig | 138 | 1.4 psig to 2.9 psig | 97 to 200 | Black | GE30190X012 | |
| CSB423 and CSB423F | 2 psig | 138 | 1.5 psig to 2.3 psig | 100 to 160 | Purple Stripe | GE35081X012 | No Token Relief | | | 2.5 psig | 172 | 1.4 psig to 2.9 psig | 97 to 200 | Black | GE30190X012 |
| | | | | | | | 130% | 2.6 psig | 180 | 3.5 psig | 241 | 2.6 psig to 3.7 psig | 179 to 255 | Purple | GE35081X012 |
| | 3 psig | 207 | 2.3 psig to 4.4 psig | 160 to 300 | Dark Blue | GE30192X012 | No Token Relief | | | 4 psig | 276 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue | GE30192X012 |
| | | | | | | | 125% | 3.8 psig | 260 | 5 psig | 345 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue | GE30192X012 |
| | 5 psig | 345 | 4.4 psig to 7.3 psig | 300 to 500 | Red | GE33121X012 | No Token Relief | | | 6 psig | 414 | 5.1 psig to 7.5 psig | 352 to 517 | Red | GE33121X012 |
| 125% | | | | | | | 6.25 psig | 430 | 6.5 psig | 448 | | | | | |
| 7 psig | 483 | 4.4 psig to 7.3 psig | 300 to 500 | Red | GE33121X012 | No Token Relief | | | 10 psig | 690 | 7.3 psig to 14.5 psig | 500 to 1000 | Light Blue | GE30203X012 | |
| | | | | | | 125% | 8.5 psig | 586 | | | | | | | |
| CSB453 | 10 psig | 690 | 7.3 psig to 14.5 psig | 500 to 1000 | Light Blue | GE30203X012 | No Token Relief | | | 12 psig | 828 | 7.3 psig to 14.5 psig | 500 to 1000 | Light Blue | GE30203X012 |
| | | | | | | | 125% | 11.5 psig | 793 | | | | | | |

1. Integral Monitor setpoints shown represent the minimum Monitor setpoint for the Primary regulator Type CSB400 without Token Relief. Higher monitor setpoints can be chosen, e.g., for a Primary regulator setpoint of 8 in. w.c. / 20 mbar, the Integral Monitor can also be set at 14 in. w.c. / 35 mbar, 21 in. w.c. / 52 mbar, or higher.

Type TM600

Table 6. Types CS803 and CS823 Setpoints and Associated True-Monitor™ Setpoints, without Token Relief

| Type | PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|---------------------|-------------------|------|--------------------|----------------------|------------|--------------|------------------|------|--------------------|----------------------|------------|--------------|
| | Factory Setpoint | | Spring Part Number | Spring Range | | Spring Color | Factory Setpoint | | Spring Part Number | Spring Range | | Spring Color |
| | In. w.c. | mbar | | In. w.c. | mbar | | In. w.c. | mbar | | In. w.c. | mbar | |
| CS803IN and CS803EN | 4 | 10 | GE30337X012 | 3.5 to 6 | 9 to 15 | Red | 14 | 35 | GE30189X012 | 12 to 21 | 30 to 52 | Blue |
| | | | | | | | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | 7 | 17 | GE30338X012 | 5.5 to 8.5 | 13 to 21 | Black | 14 | 35 | GE30189X012 | 12 to 21 | 30 to 52 | Blue |
| | | | | | | | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | 11 | 27 | GE30339X012 | 8 to 12 | 20 to 30 | Purple | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | | | | | | | 1.5 psig | 103 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | 14 | 35 | GE30340X012 | 10 to 16 | 25 to 40 | White Stripe | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | | | | | | | 1.5 psig | 103 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | 1 psig | 69 | GE30341X012 | 14 to 30 | 35 to 75 | Dark Green | 1.5 psig | 103 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | | | | | | | 2 psig | 138 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | | | | | | | 3.5 psig | 241 | GE35081X012 | 2.6 psig to 3.7 psig | 179 to 255 | Purple |
| CS823IN and CS823EN | 2 psig | 138 | GE30342X012 | 1 psig to 2.5 psig | 69 to 170 | Dark Blue | 2.5 psig | 172 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | | | | | | | 3 psig | 207 | GE35081X012 | 2.6 psig to 3.7 psig | 179 to 255 | Purple |
| | | | | | | | 5 psig | 345 | GE30192X012 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue |
| | 3 psig | 207 | GE46922X012 | 1.5 psig to 3.5 psig | 100 to 240 | Orange | 3.5 psig | 241 | GE35081X012 | 2.6 psig to 3.7 psig | 179 to 255 | Purple |
| | | | | | | | 4 psig | 276 | GE30192X012 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue |
| | | | | | | | 6 psig | 414 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |
| | 5 psig | 345 | GE30343X012 | 2.5 psig to 5.5 psig | 170 to 380 | Yellow | 6 psig | 414 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |
| | | | | | | | 7 psig | 483 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |
| | | | | | | | 7.5 psig | 517 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |

Table 7. Types CS803 and CS823 Setpoints and Associated True-Monitor™ Setpoints, with Token Relief

| Type | PRIMARY REGULATOR | | | | | | INTEGRAL MONITOR | | | | | |
|---------------------|-------------------|------|--------------------|----------------------|------------|--------------|------------------|------|--------------------|----------------------|------------|--------------|
| | Factory Setpoint | | Spring Part Number | Spring Range | | Spring Color | Factory Setpoint | | Spring Part Number | Spring Range | | Spring Color |
| | In. w.c. | mbar | | In. w.c. | mbar | | In. w.c. | mbar | | In. w.c. | mbar | |
| CS803IT and CS803ET | 4 | 10 | GE30337X012 | 3.5 to 6 | 9 to 15 | Red | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | 7 | 17 | GE30338X012 | 5.5 to 8.5 | 13 to 21 | Black | 21 | 52 | GE30196X012 | 18 to 30 | 45 to 75 | Green |
| | | | | | | | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | 11 | 27 | GE30339X012 | 8 to 12 | 20 to 30 | Purple | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | | | | | | | 1.5 psig | 103 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | 14 | 35 | GE30340X012 | 10 to 16 | 25 to 40 | White Stripe | 1 psig | 69 | GE30225X012 | 26 to 40 | 65 to 99 | Orange |
| | | | | | | | 1.5 psig | 103 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | 1 psig | 69 | GE30341X012 | 14 to 30 | 35 to 75 | Dark Green | 2 psig | 138 | GE30190X012 | 1.4 psig to 2.9 psig | 97 to 200 | Black |
| | | | | | | | 3 psig | 207 | GE35081X012 | 2.6 psig to 3.7 psig | 179 to 255 | Purple |
| CS823IT and CS823ET | 2 psig | 138 | GE30342X012 | 1 psig to 2.5 psig | 69 to 170 | Dark Blue | 3 psig | 207 | GE35081X012 | 2.6 psig to 3.7 psig | 179 to 255 | Purple |
| | | | | | | | 4 psig | 276 | GE30192X012 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue |
| | 3 psig | 207 | GE46922X012 | 1.5 psig to 3.5 psig | 100 to 240 | Orange | 5 psig | 345 | GE30192X012 | 3.6 psig to 6 psig | 248 to 414 | Dark Blue |
| | | | | | | | 6 psig | 414 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |
| | 5 psig | 345 | GE30343X012 | 2.5 psig to 5.5 psig | 170 to 380 | Yellow | 7 psig | 483 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |
| | | | | | | | 7.5 psig | 517 | GE33121X012 | 5.1 psig to 7.5 psig | 352 to 517 | Red |

Table 8. Inlet Pressure Ratings

| INTEGRAL MONITOR ORIFICE SIZE | | MAXIMUM OPERATING INLET PRESSURE ⁽¹⁾ | | MAXIMUM EMERGENCY INLET PRESSURE | |
|-------------------------------|----|---|-----|----------------------------------|------|
| In. | mm | psig | bar | psig | bar |
| 1 | 25 | 125 | 8.6 | 175 | 12.1 |

1. The maximum allowable inlet pressure for the Primary regulator per orifice may be lower than that of the Integral Monitor. Refer to the Primary Regulator Instruction manual for Inlet pressure capabilities of the Primary regulator.

Regulators Subjected to Heavy Snow Conditions

Some installations, such as in areas with heavy snowfall, may require a hood or enclosure to protect the regulator from snow load and vent freeze over.

Downstream Control Line Installation



WARNING

Integral Monitor external registration via the downstream control line is used when it is desired to control the Integral Monitor and primary regulator

from points other than the outlet of the valve body. The Integral Monitor may not be used as an upstream monitor for a regulator installed downstream since the intermediate pressure may be greater than the maximum outlet of the Integral Monitor.

If using a control line, use two separate control lines, one for the primary regulator and one for the Integral Monitor, see Figure 3. In this way, damage to the primary regulator control line will not affect operation of the Integral Monitor. Attach the control line from the primary regulator a minimum of 6 pipe diameters downstream of the regulator in a straight run of pipe. Attach the control line from the Integral Monitor a minimum of 6 pipe diameters downstream of the

Type TM600

regulator in a straight run of pipe. If it is impossible to comply with this recommendation due to the pipe arrangement, it may be better to make the control line taps nearer the regulator outlet rather than downstream of a block valve. Do not make the tap near any elbow, swage, or nipple which might cause turbulence. For optimal performance, use as large of a control line as practical.

In many instances, it will be necessary to enlarge the downstream piping to keep flow velocities within good engineering practices. Expand the piping as close to the regulator outlet as possible.

Startup



Pressure gauges should always be used to monitor downstream pressure during Startup.

With the downstream system depressurized, use the following procedure to start up the regulator.

1. Slowly open the upstream shutoff valve.
2. Slowly open the downstream shutoff valve.
3. Check all connections for leaks.

Adjustment

For adjustment of the Primary Regulator, refer to the appropriate Instruction Manual of the Primary Regulator (see Specifications section for details). If adjustment of the Integral Monitor is required, then the Primary Regulator will need to be adjusted above the intended lockup of the Integral Monitor, typically 0.25 psig / 0.17 mbar above setpoint of the Integral Monitor in order for the Integral Monitor to take control of the system and throttle the flow. This can be done by temporarily installing a set spring into the Primary Regulator with a higher setpoint than the Integral Monitor or by some other means of maintaining the Primary Regulator in a wide-open position. Once the Primary Regulator has been adjusted above that lockup pressure of the Integral Monitoring, adjustment can then be made to the Integral Monitor.

Refer to Figure 4. To increase the outlet pressure setting, the adjusting screw (key 65) must be turned clockwise. This requires removal of the closing cap (key 60). To reduce the outlet pressure setting, turn the adjusting screw counterclockwise. A pressure gauge should always be used to monitor downstream

pressure while adjustments are being made. If the required pressure is not within the range of the spring being used, substitute with the correct spring as shown in Tables 1 through 7. When changing the spring, also alter the nameplate or affix an additional label, so that the actual pressure range of the spring in use is indicated. After the spring adjustment has been completed, replace the closing cap.

Shutdown

Installation arrangements may vary, but in any installation it is important that the valves be opened or closed slowly and that the outlet pressure be vented before venting inlet pressure to prevent damage caused by reverse pressurization of the Integral Monitor. The steps below apply to the typical installation as indicated.

1. Open valves downstream of the Integral Monitor.
2. Slowly close the upstream shutoff valve.
3. Inlet pressure will automatically be released downstream as the Integral Monitor opens in response to the lowered pressure on the diaphragm.

Maintenance and Testing



To avoid personal injury or equipment damage, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure as described in “Shutdown”.

Failure to test for/of Integral True-Monitor™ regulation can result in a hazardous condition. Test the Integral Monitor for operation per applicable federal, state and local codes, rules and regulations and Emerson instructions.

Gas controlling devices such as the Primary Regulator and Integral Monitor that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Regulator Technologies should be used for repairing Fisher™ regulators.

Restart gas utilization equipment according to normal startup procedures. Due to normal wear or damage that may occur from external sources, this Integral Monitor should be inspected and maintained periodically.

The frequency of inspection and replacement of parts depends upon the severity of service conditions or the requirements of local, state and federal rules and regulations.

Recommended Test Frequency

True-Monitor™ devices should be tested periodically to confirm operation at the desired regulation pressure. Repair and/or replace the True-Monitor regulator if it does not regulate at the desired pressure or leaks gas after closure.

Parts are subject to normal wear and must be inspected periodically and replaced as necessary.

The frequency of inspection and replacement depends on the severity of service conditions, test results found during testing and on applicable codes and regulations.

Note

For adjusting setpoints above 1 psig / 69 mbar, use a 1/2 in. / 13 mm hex driver, a 1/2 in. / 13 mm socket or a 1-1/16 in. / 27 mm socket to turn the adjusting screw (key 65).

Disassembly to Replace Type TM600 Main Diaphragm

For disassembly of the Integral Monitor, refer to Figures 4 and 6.

1. Remove closing cap (key 60) and turn the adjusting screw (key 65) out of the spring case.
2. Remove the spring (key 38).
3. Remove the cap screws (key 15) holding the spring case (key 1) to the lower casing (key 9). Remove the spring case.
4. The diaphragm and diaphragm head assembly (keys 55A and 55B) can be removed by sliding the diaphragm assembly off of the lever (key 10).
5. Unscrew the diaphragm retainer (key 45) from the diaphragm assembly and remove the lower spring seat (key 43) to expose the diaphragm

plate (key 55B) and diaphragm (key 55A). Remove the diaphragm plate (key 55B) and replace the diaphragm (key 55A).

6. Reassemble in reverse order of the above procedures. Before tightening the diaphragm retainer (key 45) into the lower spring seat (key 43) to secure the new diaphragm, place the loosely assembled diaphragm assembly into position in the lower casing (key 9), being sure the diaphragm assembly is properly hooked on the lever (key 10). Rotate the diaphragm so that the diaphragm and lower casing holes align. Tighten the diaphragm retainer (key 45) and proceed with Reassembly.



CAUTION

Before tightening cap screws on spring case, replace spring and adjusting screw. Tighten adjusting screw slightly. This will align the diaphragm to ensure a smooth seal.

Disassembly to Replace Integral Monitor Disk, Diaphragm and O-rings

For replacement of the Primary Regulator valve disk, refer to the appropriate Instruction Manual of the Primary Regulator (see Specifications for details). Refer to Figures 4 through 6.

1. Remove the two cap screws (key 36T) in the union ring (key 17).
2. The actuator assembly can be removed from the monitor housing assembly. Inspect the actuator/monitor housing assembly O-ring (key 21) and replace if necessary.
3. Remove the four monitor housing screws (key 36S) using an M6 Allen wrench. Inspect monitor housing/body O-rings (key 36P and 36O) and replace if necessary. Inspect Integral Monitor orifice (key 26) and replace it as well as Integral Monitor orifice O-ring (key 27) if necessary.
4. Unscrew monitor stem (key 36A). This is done by inserting or holding the disk retaining screw (key 36D) fixed. Care must be taken as monitor spring (key 36C) is in a compressed state and unscrewing monitor stem (key 36A) will release it. Inspect upper retainer/stem O-ring (key 36K) and replace if necessary.

5. Remove upper diaphragm retainer (key 36G). Inspect upper retainer/monitor housing O-ring and replace if necessary. Unscrew disk retaining screw (key 36D) while holding the middle diaphragm retainer (key 36H) fixed.
6. Remove disk retaining screw and disk retainer (keys 36D and 36J). Remove disk (key 36I) and inspect and replace monitor housing/disk O-ring (key 36Q) if necessary. Inspect monitor diaphragm (key 36E) and replace if necessary. Inspect disk/middle retainer O-ring (key 36R) and replace if necessary.
7. To reassemble monitor housing, re-insert disk into monitor housing and reverse previous steps taking care to apply the appropriate lube to O-rings and appropriate torque to fasteners as noted in Figures 4 through 6.

Changing from Internal to External Registration



If the Primary Regulator uses an external control line pressure registration, then the Integral Monitor must also use an external control line for pressure registration. Failure to change both devices will result in improper pressure control and could result in an overpressure condition.

1. Unscrew the four monitor housing screws (key 36S) and remove Integral Monitor from body. Thread the sense blocking screw (key 36U) into the internal sense port located in the monitor housing (key 36F). Reinstall the Integral Monitor into the body and reinstall the four housing screws (key 36S).
2. Remove the 3/4 NPT external pipe plug (key 22) from the Integral Monitor lower casing (key 9) and install a downstream sense line.

Changing from External to Internal Registration

1. Thread the 3/4 NPT external pipe plug (key 22) into the Integral Monitor lower casing (key 9).
2. Unscrew the four monitor housing screws (key 36S) and remove Integral Monitor from body. Remove the sense blocking screw (key 36U) from the internal sense port located in the monitor housing (key 36F). Reinstall the Integral Monitor into the body and reinstall the four housing screws (key 36S).

Regulator Reassembly

It is recommended that a good quality pipe thread sealant be applied to pressure connections and fittings and a good quality lubricant be applied to all O-rings. Also apply an anti-seize compound to the adjusting screw threads and other areas as needed.

Parts Ordering

The type number, orifice (port) size and date of manufacture are stamped on the closing cap. Always provide this information in any correspondence with your local Sales Office regarding replacement parts or technical assistance. If construction changes are made in the field, be sure that the closing cap is also changed to reflect the most recent construction.

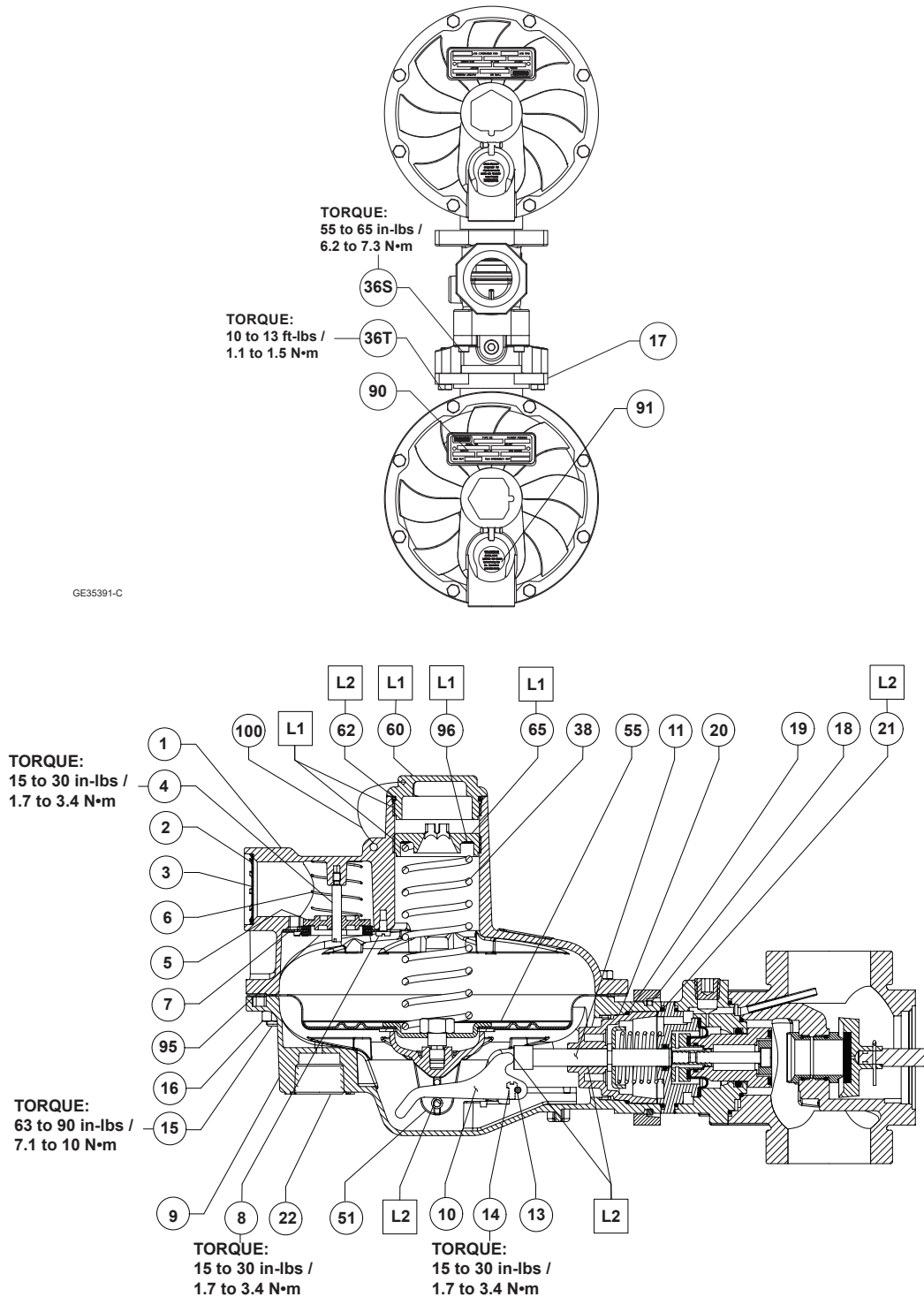
When ordering replacement parts, reference the key number of each needed part as found in the following parts list. Separate kit containing all recommended spare parts is available.

Parts List

| Key | Description | Part Number | Key | Description | Part Number |
|-----|--|----------------------------|------|--|---|
| | Parts Kit | RTM600X0012 | 36A | Stem | GE27727X012 |
| | Repair Parts kit includes key numbers 19, 21, 36E, 36I, 36K, 36N, 36O, 36P, 36Q, 36R and 62. [True-Monitor™ Orifice is not included in repair kit. If Orifice replacement is required, select both True-Monitor Orifice (key 26) and Orifice O-ring (key 27).] | | 36B | Upper Spring Retainer | GE27013X012 |
| 1 | Spring Case, 1 in. / 25 mm with vent, Aluminum | GE24555X012 | 36C | Spring | GE32715X012 |
| 2 | Vent Screen, 18-8 Stainless steel | T1121338982 | 36D | Retaining Screw | GE27726X012 |
| 3 | Retaining Ring, 1-3/16 in. / 30 mm ID, Cast Zinc-plated steel | T1120925072 | 36E* | Diaphragm, Nitrile (NBR), Nylon (PA) | GE30441X012 |
| 4 | Stabilizer Guide, 1 in. / 25 mm vent, stainless steel | GE27061X012 | 36F | Housing, Aluminum | GE29110X012 |
| 5 | Stabilizer, 1 in. / 25 mm vent | GE27063X012 | 36G | Upper Diaphragm Retainer | GE29122X012 |
| 6 | Upper Stabilizer Spring, stainless steel | GE35010X012 | 36H | Middle Diaphragm Retainer | GE27087X012 |
| 7 | Retaining Ring, 1 in. / 25 mm vent, stainless steel | GE27024X012 | 36I* | Disk, Brass/Nitrile (NBR) | GE32951X012 |
| 8 | Stabilizer Screw, steel (3 required) | GE29724X012 | 36J | Disk Retainer | GE27089X012 |
| 9 | Lower Casing, Aluminum | GE24289X012 | 36K* | Stem/Upper O-ring | GE32716X012 |
| 10 | Lever, steel 2.5:1 Ratio 1:1 Ratio | GE28773X012 GE28772X012 | 36N* | Upper Retainer/Housing O-ring, Nitrile (NBR) | GE45216X012 |
| 11 | Guided Monitor Stem, Aluminum | GE27723X012 | 36O* | Lower Body/Housing O-ring, Nitrile (NBR) | GE32717X012 |
| 13 | Pin, 18-8 Stainless steel | T14397T0012 | 36P* | Upper Body/Housing O-ring, Nitrile (NBR) | GE32718X012 |
| 14 | Machine Screw, steel (2 required) | GE34243X012 | 36Q* | Disk Holder/Housing O-ring, Nitrile (NBR) | GE32719X012 |
| 15 | Bolt, Zinc-plated steel (8 required) | GE32059X012 | 36R* | Disk/Middle Retainer O-ring, Nitrile (NBR) | GE32720X012 |
| 16 | Nut, Zinc-plated steel (8 required) | GE32060X012 | 36S | Screw, Body/Housing (4 required) | GE30266X012 |
| 17 | Union Ring, Aluminum | GE27724X012 | 36T | Cap Screw (2 required) | GE29973X012 |
| 18 | Snap Ring, stainless steel | T1120637022 | 36U | Plug, Sense Blocking (for External Port Balanced Assembly Only) | GE30382X012 |
| 19* | O-ring, Nitrile (NBR) | 1K594906562 | 36V | Sense Plug, 1/4 NPT | 1C333528992 |
| 20 | Stem Guide, Aluminum | GE26027X01 | 38 | Spring 12 to 21 in. w.c. / 30 to 52 mbar, Blue 18 to 30 in. w.c. / 45 to 75 mbar, Green 26 to 40 in. w.c. / 65 to 99 mbar, Orange 1.4 to 2.9 psig / 97 to 200 mbar, Black 2.6 to 3.7 psig / 179 to 255 mbar, Purple 3.6 to 6 psig / 248 to 517 mbar, Dark Blue 5.1 to 7.5 psig / 352 to 517 mbar, Red | GE30189X012 GE30196X012 GE30225X012 GE30190X012 GE35081X012 GE30192X012 GE33121X012 |
| 21* | O-ring, Nitrile (NBR) | GE45216X012 | 43 | Lower Spring Seat, Zinc-plated steel | GE27327X012 |
| 22 | Pipe plug, 3/4 NPT, steel (For Internal Port Balanced Assembly only) | GE34199X012 | 45 | Diaphragm Retainer, Zinc-plated steel | GE30887X012 |
| 26 | Integral Monitor Orifice Medium Capacity Body High Capacity Body | GE30003X012 GE30327X012 | 51 | Pusher Post, Aluminum | ERAA00875A0 |
| 27* | Integral Monitor Orifice O-ring Medium Capacity Body High Capacity Body | 10A3802X022 GE32723X012 | 53 | Pin, stainless steel | GE29761X012 |
| 36 | Balanced Port Assembly Internal Port Balanced Assembly, 1 in. / 25 mm External Port Balanced Assembly, 1 in. / 25 mm | GE33118X012 GE34989X012 | 54 | Roller Pin, Brass | GE27060X012 |
| | | | 55* | Diaphragm Head Assembly, Nitrile (NBR) | GE31248X012 |
| | | | 55A | Diaphragm | GE31197X012 |
| | | | 55B | Diaphragm head | GE28755X012 |
| | | | 56 | Pusher Post Pin Retaining Ring, steel | GE33772X012 |
| | | | 60 | Closing Cap, Aluminum | GE29244X012 |
| | | | 62* | O-ring, Nitrile (NBR) | T10275X0012 |
| | | | 65 | Adjusting Screw, Aluminum | GE27828X012 |
| | | | 90 | Nameplate | ----- |
| | | | 91 | Warning Label | ----- |
| | | | 95 | Grommet, Nitrile (NBR) | GE35358X012 |
| | | | 96 | Slip Disk | GG05787X012 |
| | | | 100 | Lockwire, stainless steel | T14088T0012 |

*Recommended spare parts.

CS400 SERIES ASSEMBLY REFERENCE



GE35391-C

GE35391-G

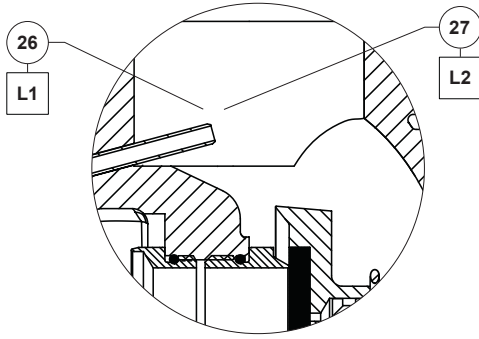
- APPLY LUBRICANT (L)⁽¹⁾:**
L1 = ANTI-SEIZE LUBRICANT
L2 = EXTREME LOW TEMPERATURE BEARING GREASE

1. Lubricants must be selected such that they meet the temperature requirements.

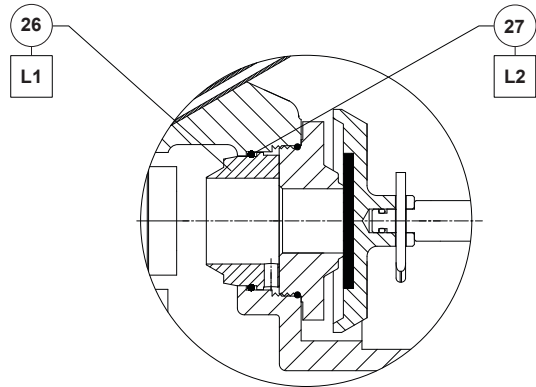
MEDIUM CAPACITY BODY ON CS400, CP400 AND CSB400 SERIES

TRUE-MONITOR™ ASSEMBLY

Figure 4. Type TM600 Integral Monitor Assembly Attached to a CS400 Series Primary Regulator



MEDIUM CAPACITY BODY ORIFICE CONFIGURATION



HIGH CAPACITY BODY ORIFICE CONFIGURATION

GE35391-G

□ APPLY LUBRICANT (L)⁽¹⁾:

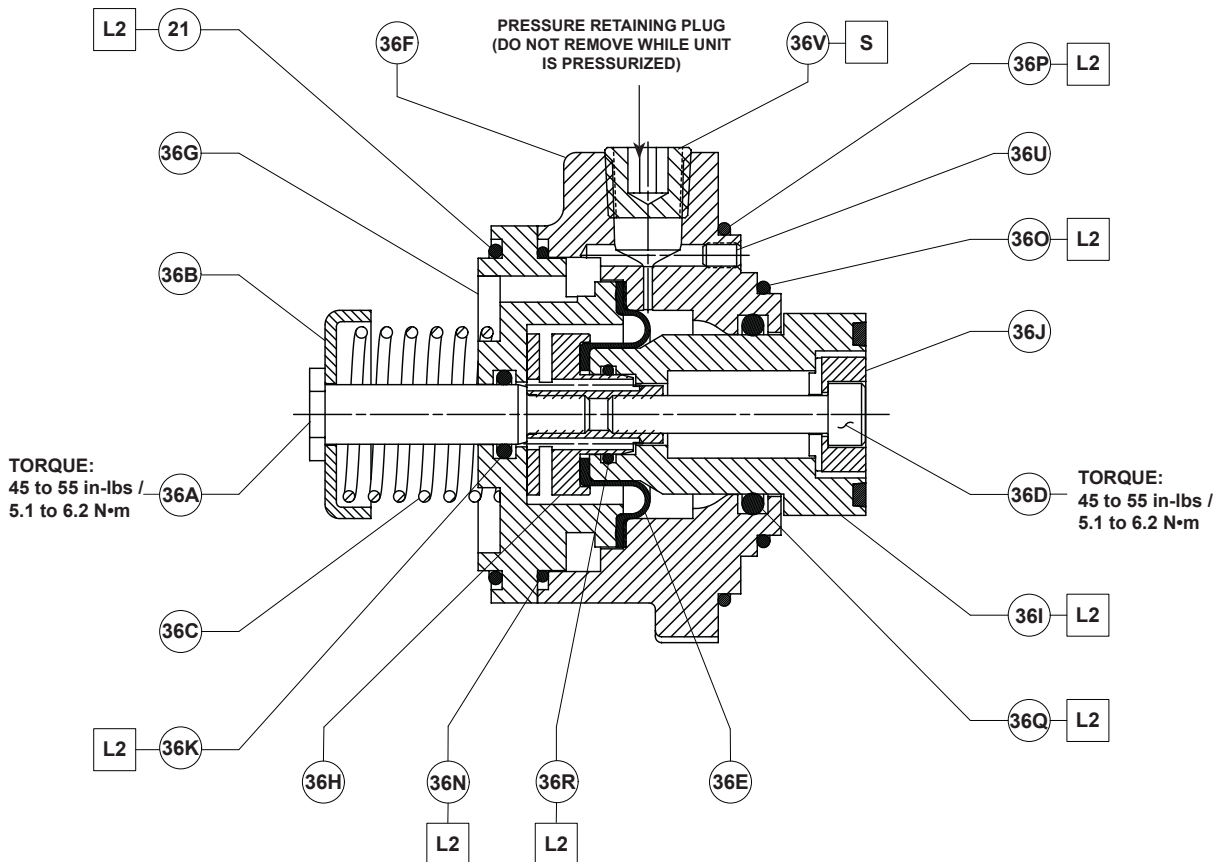
L1 = ANTI-SEIZE LUBRICANT

L2 = EXTREME LOW TEMPERATURE BEARING GREASE

1. Lubricants must be selected such that they meet the temperature requirements.

TRUE-MONITOR™ ASSEMBLY

Figure 4. Integral Monitor Assembly (continued)



GE35391-E

□ APPLY SEALANT (S) OR LUBRICANT (L)⁽¹⁾:

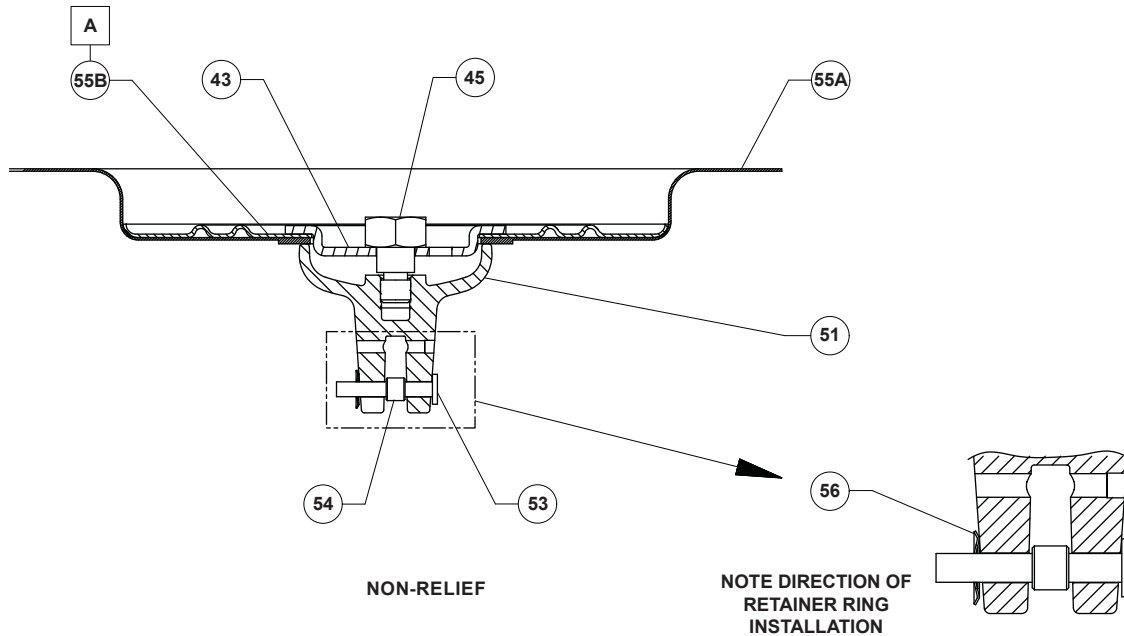
L2 = EXTREME LOW TEMPERATURE BEARING GREASE

S = MEDIUM STRENGTH PIPE SEALANT WITH PTFE

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 5. Type TM600 Balanced Port Assembly

Type TM600



GE35391-B

□ APPLY ADHESIVE (A)⁽¹⁾
A = ADHESIVE

1. Adhesive must be selected such that they meet the temperature requirements.

Figure 6. Main Diaphragm Assembly

✉ Webadmin.Regulators@emerson.com

Facebook.com/EmersonAutomationSolutions

Fisher.com

LinkedIn.com/company/emerson-automation-solutions

Twitter.com/emr_automation

Emerson Automation Solutions

Americas

McKinney, Texas 75070 USA
T +1 800 558 5853
+1 972 548 3574

Europe

Bologna 40013, Italy
T +39 051 419 0611

Asia Pacific

Singapore 128461, Singapore
T +65 6777 8211

Middle East and Africa

Dubai, United Arab Emirates
T +971 4 811 8100

D103126X012 © 2010, 2023 Emerson Process Management Regulator Technologies, Inc. All rights reserved. 12/23.

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners. Fisher™ is a mark owned by Fisher Controls International LLC, a business of Emerson Automation Solutions.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Process Management Regulator Technologies, Inc. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Process Management Regulator Technologies, Inc. product remains solely with the purchaser.



The distinctive swirl pattern cast into every actuator casing uniquely identifies the regulator as part of the Fisher™ brand Commercial Service Regulator family and assures you of the highest-quality engineering, performance, and support traditionally associated with Fisher™ and Tartarini™ regulators. Visit www.fishercommercialservice.com to access interactive applications.

