

## Model 43APG Pneumatic Gas Operation Controller Style A

### MODEL CODE

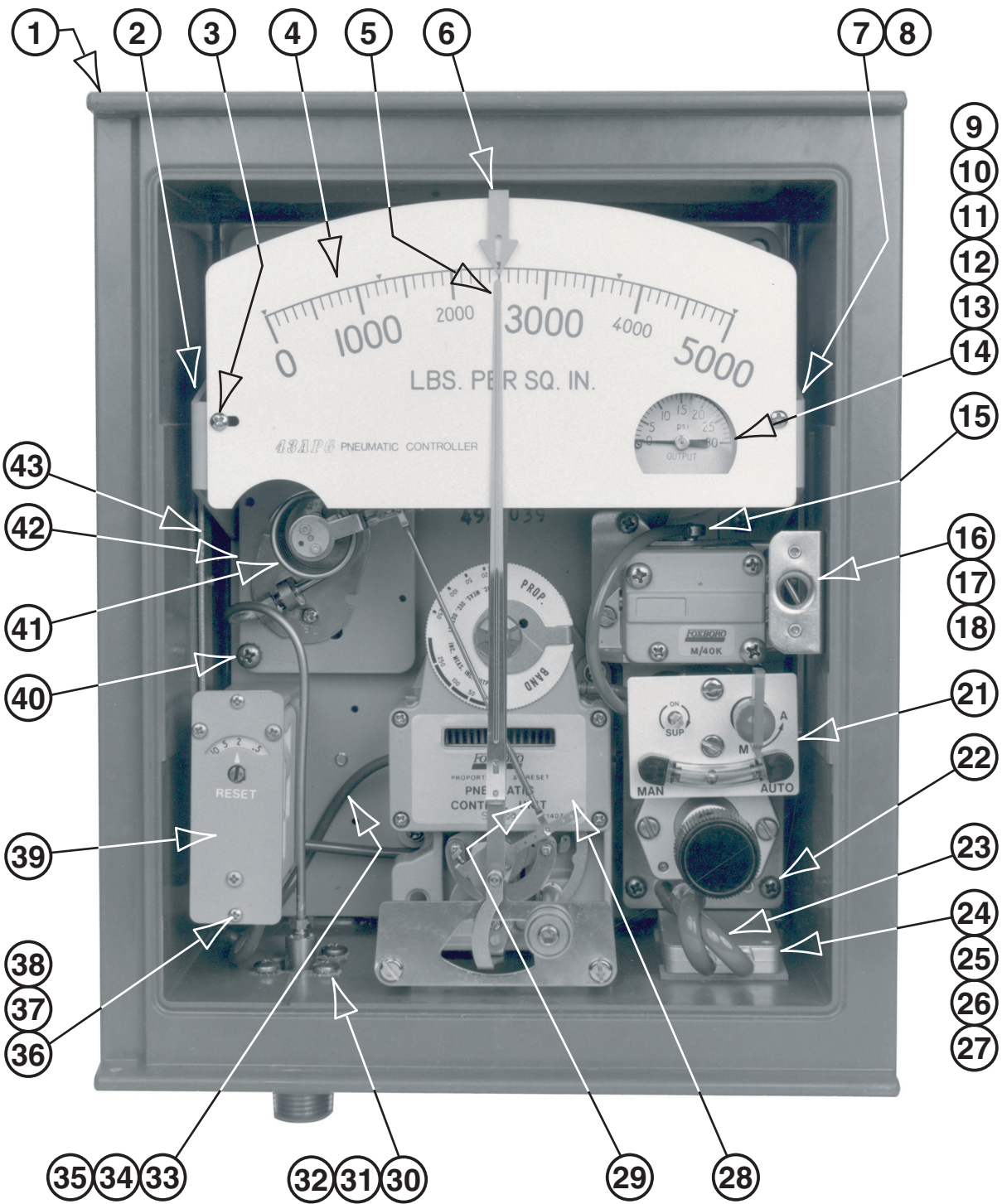
| Description  | Model    |
|--|----------|
| Pneumatic Indicating Gas Operation Controller                          | 43APG    |
| <b>Mounting</b>  |          |
| Field, NEMA 3 Enclosure 2 Inch Pipe or Element Yoke Mounted            | -F       |
| Panel or Surface (Not available with Element Prefix /DE or /PB-G)      | -P       |
| <b>Type of Control (a)</b>   |          |
| On-Off   | A1       |
| Proportional 4 to 400%   | A2       |
| Proportional + Derivative 0.05 to 50 Minutes                           | A3       |
| Proportional + Reset 0.01 to 50 Minutes per Repeat                     | A4       |
| Proportional + Reset + Derivative                                      | A5       |
| Differential Gap 1 to 100%   | A7       |
| <b>Output Signal (a)</b>   |          |
| 3 to 15 psi  | 2        |
| <b>Auto/Manual Switch</b>  |          |
| Internal Regulator and 2-Position Transfer Switch                      | C        |
| 2-Position Transfer Switch   | D        |
| None   | N        |
| <b>Optional Selection</b>  |          |
| Pneumatic Set Point (Not available with Element Prefix /PA-C or /PB-G) | P        |
| <b>Element Prefix</b>  |          |
| Type 37  | /DE      |
| Absolute Pressure  | /PA-C,-M |
| Pressure - Helical   | /PB-A    |
| Pressure - Spiral  | /PB-B    |
| Pressure - Bellows   | /PB-C    |
| Pressure - Diaphragm   | /PB-D,-P |
| Pressure - Long Helical  | /PB-G    |
| Receiver Bellows   | /PC-OC   |
| Temperature  | /TA      |
| Without Element  | /XX-XX   |

a. Automatic Shutdown Control (Code A8), and Output Signals 0.2 to 10 kg/cm<sup>2</sup>, 20 to 100 kPa, and 0.2 to 1.0 bar (Output Signal Codes 4, 5, and 6) have been cancelled. Contact Invensys Foxboro if further information is required.

Give instrument Model Code when ordering.  
\*Parts preceded by an asterisk are recommended spare parts.  
See Recommended Spare Parts Summary section for quantities.

TO ORDER PARTS, CALL INVENSYS SYSTEMS INC. AT 1-866-746-6477.

Figure 1. 43APG Pneumatic Gas Operation Controller



**Table 1. Parts for Figure 1  
Standard (Parts 1-18)**

| Item | Part No. | Qty. | Part Name  |
|------|----------|------|--|
| 1    | –        | 1    | Case (give instrument serial number)             |
| 2    | Below    | 1    | Bracket, Left Hand                               |
|      | D0138KY  |      | Pressure, Temperature, Receiver, Type 37 Element |
|      | M0154UZ  |      | Pressure (long helical)                          |
| 3    | X0167TJ  | 2    | Screw, panhead, 0.123-20 x 0.250                 |
| 4    | –        | 1    | Dial (give instrument serial number)             |
| 5    | M0154XW  | 1    | Measurement Pointer                              |
| 6    | M0154XX  | 1    | Setting Index                                    |
| 7    | D0138KY  | 1    | Bracket, Right Hand                              |
| 8    | X0169DL  | 4    | Sems, panhead, 0.190-32 x 0.313                  |
| 9    | X0100CF  | 2    | Screw, fillister head, 0.164-32 x 0.250          |
| *10  | R0128AA  | –    | Tubing (order 1 m [3 ft] per instrument)         |
| 11   | C0128FK  | 1    | Insert (seals tubing in gauge base)              |
| 12   | C0156HT  | 1    | Connection Assembly                              |
| *–   | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID                      |
| 13   | M0151AL  | 1    | Base   |
| 14   | Below    | 1    | Output Gauge (Note 1)                            |
|      | K0129AA  |      | 0 to 30 psi (ss element and case) (Note 2)       |
| 15   | C0156HT  | 1    | Connection Assembly                              |
| *–   | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID                      |
| 16   | M0154XR  | 1    | Latch Bracket                                    |
| 17   | X0124GJ  | 4    | Screw, fillister head, 0.164-32 x 0.375          |
| 18   | X0167AJ  | 2    | Keps, 0.164-32                                   |

**— NOTE**

1. Gauges with kPa, kg/cm<sup>2</sup>, and bar units are no longer offered. Contact IPS if further information is required.
2. The output gauge includes Items 10 and 13.

**Table 2. Parts for Figure 1  
Optional Auto-Manual Transfer System (Parts 21-29)**

| Item | Part No. | Qty. | Part Name                                  |
|------|----------|------|--|
| 21   | C0156GH  | 1    | Auto-Man Transfer Sys. (also see Figure 5) |
| 22   | X0169ZY  | 3    | Sems, panhead, 0.164-32 x 1.125            |
| *23  | C0140ZH  | 2    | Tube                                       |
| 24   | C0140QA  | 1    | Manifold Assembly                          |
| *25  | U0103FP  | 2    | Screen                                     |
| 26   | X0169LP  | 2    | Screw, panhead, 0.190-32 x 0.375           |
| 27   | Below    | 1    | Gasket                                     |
|      | C0140QQ  |      | Standard                                   |
|      | M0151CK  |      | Vented Case Applic.                        |
| 28   | –        | 1    | Control Unit (see Figure 2)                |

**Table 2. Parts for Figure 1  
Optional Auto-Manual Transfer System (Parts 21-29) (Continued)**

| Item | Part No. | Qty. | Part Name  |
|------|----------|------|--|
| 29   | Below    | 1    | Adjustable Link Assembly   |
|      | X0101BE  |      | Pressure (helical, spiral)<br>Absolute Pressure (double spirals)                   |
|      | X0101BM  |      | Temperature, Receiver Pressure (bellows, 50 mm [2 in] diaphragm), Type 37<br>Meter |
|      | X0101CW  |      | Pressure (long helical)  |
|      | X0101BK  |      | Pressure (75 mm [3 in] diaphragm)  |
|      | X0101CY  |      | Absolute Pressure (bellows)  |

**Table 3. Parts for Figure 1  
Optional Pneumatic Set Unit Parts**

| Item | Part No. | Qty. | Part Name   |
|------|----------|------|---|
| –    | B0185TC  | 1    | Pneumaticset Unit, (under dial-when used)                     |
| –    | U0100FW  | 1    | Lever Assembly  |
| –    | U0110BM  | 1    | Tube  |
| –    | X0101BK  | 1    | Adjustable Link, (connects pneumaticset unit to control unit) |
| –    | X0169LP  | 2    | Screw, panhead, 0.190-32 x 0.375                              |
| –    | X0169DL  | 2    | Screw, panhead, 0.190-32 x 0.313                              |

**Table 4. Parts for Figure 1  
Optional Case Vent Conn. Parts**

| Item | Part No. | Qty. | Part Name                    |
|------|----------|------|------------------------------|
| –    | X0167NT  | 1    | 1/2 NPT Case Vent Connection |
| –    | U0102TK  | 1    | Gasket                       |

**— NOTE**

1. For Batch Switch and associated parts, refer to PL 004-490.
2. For Differential Flow Element parts, refer to PL 003-320 (Type 37 Element).

**Table 5. Parts for Figure 1  
Pressure Connection (Parts 30-32)**

| Item | Part No. | Qty. | Part Name  |
|------|----------|------|--|
| 30   | Below    | 1    | Pressure Connection (when used)                          |
|      | M0154RY  |      | Brass, 1/4 NPT, 0 to 14 MPa (0 to 2000 psi)              |
|      | M0154SD  |      | ss, 1/4 NPT, 0 to 14 MPa (0 to 2000 psi)                 |
|      | M0154SJ  |      | ss, 1/2 NPT, 14 to 70 MPa (2001 to 10,000 psi)           |
|      | M0154SG  |      | ss, 9/16-18 Aminco, 70 to 210 MPa (10,001 to 30,000 psi) |
|      | M0154WW  |      | Brass, R 1/4, 0 to 14 MPa (0 to 2000 psi)                |
|      | M0154WU  |      | ss, R 1/4, 0 to 14 MPa (0 to 2,000 psi) (see Note)       |
|      | M0154WT  |      | ss, R 1/2, 14 to 70 MPa (2001 to 10,000 psi) (see Note)  |
| –    | M0154QF  | 1    | Cover Plate (filled systems)                             |

**Table 5. Parts for Figure 1  
Pressure Connection (Parts 30-32) (Continued)**

| Item | Part No. | Qty. | Part Name                           |
|------|----------|------|-------------------------------------|
| –    | X0107AA  | 2    | Sleeve - Bronze Elements            |
| –    | U0100CB  | 2    | Compression Screw - Bronze Elements |
| –    | B0102XL  | 2    | Sleeve - ss Elements                |
| –    | B0102XK  | 2    | Compression Screw - ss Elements     |
| 31   | X0169LP  | 3    | Screw, panhead, 0.190-32 x 0.375    |
| 32   | Below    | 1    | Gasket                              |
|      | B0101LK  |      | Pressure                            |
|      | M0154KY  |      | Filled Systems                      |
| –    | M0154KU  |      | Slot Cover (filled systems)         |

**— NOTE**

For IS07 pressure connections, substitute M0154WW for M0154RY, M0154WU for M0154SD, and M0154WT for M0154SJ. Not available in U.S. area.

**Table 6. Parts for Figure 1  
Optional Restrictor Unit (Parts 33-43)**

| Item | Part No. | Qty. | Part Name  |
|------|----------|------|--|
| *33  | R0128AA  | –    | Tubing (order 1.3 m [4 ft] per instrument)         |
| 34   | C0137RT  | 1    | Tee, Tubing  |
| 35   | C0128NE  | 2    | Coupling, Tubing                                   |
| 36   | 0032491  | 2    | Screw, panhead, 0.099-48 x 0.188                   |
| 37   | C0131DM  | 1-2  | Bracket  |
| 38   | X0169CM  | 2-4  | Screw, panhead, 0.138-32 x 0.188 (holds Item 37)   |
| 39   | C0156GN  | 1-2  | Restrictor Unit, Integral Reset                    |
| 40   | X0169DL  | 2    | Screw, panhead, 0.190-32 x 0.313                   |
| –    | Below    | 2    | Column   |
|      | M0145FL  |      | Pressure, helical, spiral, diaphragm, temperature  |
|      | 0038066  |      | Pressure, receiver, bellows                        |
|      | C0156GF  |      | Restrictor Unit, Derivative                        |
| 41   | –        | 1    | Measuring Element (give instrument serial number)  |
| 42   | Below    | 1    | Element Adapter Plate                              |
|      | 0041518  |      | Pressure, spiral, helical, temperature Class 1B, 2 |
|      | U0101AN  |      | Pressure, receiver, 50 mm (2 in) bellows           |
|      | M0154NX  |      | Pressure, 75 mm (3 in) bellows                     |
| 43   | M0154PK  | 2    | Side Mounting Plate                                |

Figure 2. Control Unit

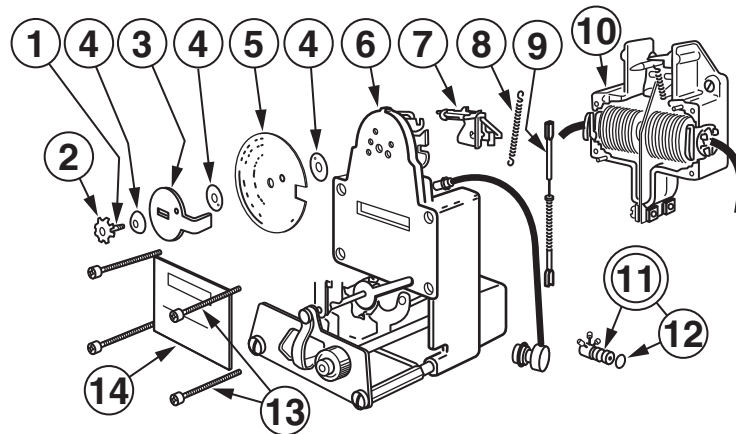


Table 7. Parts for Figure 2

| Item | Part No. | Qty. | Part Name   |
|------|----------|------|---|
| *_   | Below    |      | Control Unit  |
|      | C0156GA  |      | On-Off  |
|      | C0156GB  |      | Proportional and Proportional plus Derivative   |
|      | C0156GC  |      | Proportional plus Integral (reset)<br>Proportional plus Integral plus Derivative (manual set) |
|      | C0156GP  |      | Proportional plus Integral for Pneumaticset   |
|      | C0156GD  |      | Differential Gap  |
| 1    | X0116BS  | 1    | Screw, panhead, 0.112-48 x 0.25   |
| 2    | C0128CL  | 1    | Washer  |
| 3    | C0128EP  | 1    | Plate   |
| 4    | C0128CE  | 4    | Washer, 4.4 mm (0.17 in) hole   |
| 5    | Below    | 1    | Dial  |
|      | C0128EN  |      | Used in C0156GA   |
|      | C0128KB  |      | Used in C0156GB, C0156GC, C0156GP   |
|      | C0128MC  |      | Used in C0156GD   |
| 6    | -        | 1    | Subassembly, front half (Figure 3)  |
| *7   | C0128EX  | 1    | Flapper Assembly  |
| 8    | C0128EF  | 1    | Spring  |
| 9    | X0101MM  | 1    | Link, Adjustable, 67 to 83 mm (2.6 to 3.3 in)   |
| 10   | -        | 1    | Base Assembly, rear half (Figure 4)   |
| 11   | Below    | 1    | Connection Assembly   |
|      | C0156HT  |      | Used with C0156GA, C0156GD (one connection)   |
|      | C0156HS  |      | Used with C0156GB (two connections)   |
|      | C0156HU  |      | Used with C0156GC, C0156GP (three connections)  |
| *12  | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID   |
| 13   | X0116PE  | 4    | Screw, fillister head, 0.125-40 x 1.125   |
| 14   | Below    | 1    | Label   |
|      | C0140ZZ  |      | Used in C0156GA   |
|      | C0140ZY  |      | Used in C0156GB   |
|      | C0140ZW  |      | Used in C0156GC, C0156GP  |
|      | C0140ZX  |      | Used in C0156GD   |
| -    | C0128NE  | 2    | Tubing Coupling   |

Figure 3. Control Unit Subassembly (also see Item 6, Figure 2)

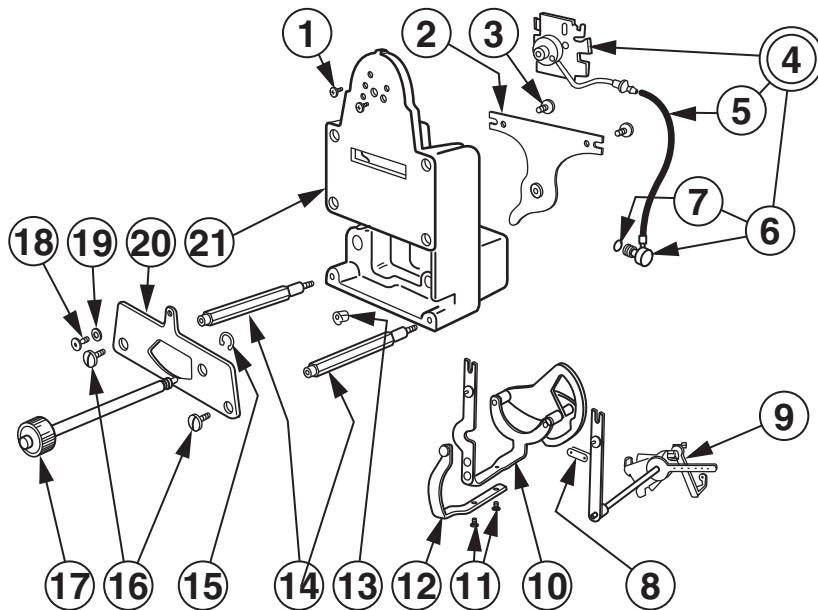
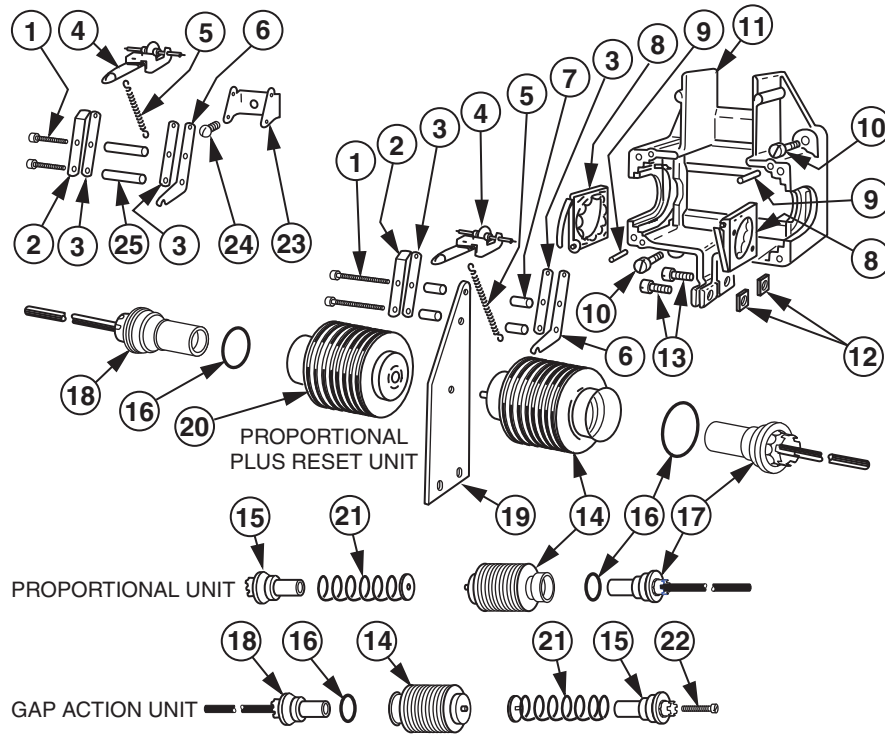


Table 8. Parts for Figure 3

| Item | Part No. | Qty. | Part Name                                  |
|------|----------|------|--|
| 1    | X0119PX  | 2    | Screw, fillister head, 0.086-56 x 0.375    |
| 2    | C0140ZG  | 1    | Plate                                      |
| 3    | 0009577  | 2    | Sems, panhead, 0.164-32 x 0.313            |
| *4   | Below    | 1    | Nozzle Assembly                            |
|      | C0128CB  |      | Used in C0156GA, C0156GB, C0156GC, C0156GP |
|      | C0128LZ  |      | Used in C0156GD                            |
| *5   | C0130AR  | 1    | Tube                                       |
| 6    | Below    | 1    | Connection                                 |
|      | C0156HT  |      | Used in C0128CB                            |
|      | C0156HS  |      | Used in C0128LZ                            |
| *7   | M0155QV  |      | O-ring, 4.5 mm (0.18 in) ID                |
| *8   | M0133AF  | 1    | Link Assembly                              |
| 9    | C0162AU  | 1    | Arbor Assembly                             |
| 10   | C0156GE  | 1    | Bracket Assembly                           |
| 11   | X0170CX  | 2    | Screw, panhead, 0.086-56 x 0.188           |
| 12   | C0140ZE  | 1    | Lever Assembly                             |
| 13   | C0128CA  | 1    | Bearing Liner (manual set only)            |
| 14   | C0128CP  | 2    | Column                                     |
| 15   | X0106BZ  | 1    | Retaining Ring (manual set only)           |
| 16   | X0100PM  | 2    | Screw, panhead, 0.164-32 x 0.250           |
| 17   | C0128CR  | 1    | Shaft Assembly (manual set only)           |
| 18   | C0140ZJ  | 1    | Bearing Screw                              |
| 19   | 0043480  | 1    | Nut, 0.086-56                              |
| 20   | C0140ZK  | 1    | Plate                                      |
| 21   | C0140PA  | 1    | Base                                       |

Figure 4. Control Unit Base Assembly (also see Item 10, Figure 2)



Control Unit C0156GA uses Base Assembly C0128CX.

Control Unit C0156GB uses Base Assembly C0162AH.

Control Units C0156GC and C0156GP use Base Assembly C0162AJ.

Control Unit C0156GD uses Base Assembly C0162AK

Table 9. Parts for Figure 4

| Item | Part No. | Part Name                                | Base Assembly |         |         |         |
|------|----------|--|---------------|---------|---------|---------|
|      |          |  | C0128CX       | C0162AH | C0162AJ | C0162AK |
| 1    | M0103AE  | Screw, fillister, head, 0.099-48 x 0.750 | 2             | 2       | 2       | 2       |
| 2    | B0152MM  | Spring                                   | 1             | 1       | 1       | 1       |
| 3    | C0144BL  | Plate                                    | 2             | 2       | 2       | 2       |
| 4    | C0132MK  | Arbor Assembly                           | 1             | 1       | 1       | 1       |
| 5    | M0152AC  | Spring                                   | 1             | 1       | 1       | 1       |
| 6    | C0128FW  | Plate                                    | 1             | 1       | 1       | 1       |
| 7    | C0128FX  | Column                                   | -             | 4       | 4       | 4       |
| 8    | C0128FY  | Bellows Lock Spring Assembly             | -             | 2       | 2       | 2       |
| 9    | 0043707  | Grooved Pin                              | 2             | 2       | 2       | 2       |
| 10   | X0124FH  | Screw, fillister head, 0.164-32 x 0.500  | 2             | 2       | 2       | 2       |
| 11   | X0143QJ  | Lockwasher                               | 2             | 2       | 2       | 2       |
| 11   | C0128EL  | Base, rear half                          | 1             | 1       | 1       | -       |
| 12   | C0144AX  | Base, rear half                          | -             | -       | -       | 1       |
| 13   | X0104KB  | Nut, 0.164-32                            | -             | 2       | 2       | 2       |
| 14   | X0116MP  | Screw, socket head, 0.164-32 x 0.375     | -             | 2       | 2       | 2       |
| 15   | C0162AL  | Bellows Assembly                         | -             | 1       | 1       | 1       |

Table 9. Parts for Figure 4 (Continued)

| Item | Part No. | Part Name                            | Base Assembly |         |         |         |
|------|----------|--------------------------------------|---------------|---------|---------|---------|
|      |          |                                      | C0128CX       | C0162AH | C0162AJ | C0162AK |
| 16   | C0128FB  | Bushing Molding                      | -             | 1       | -       | 1       |
|      | M0155RB  | O-ring, 17.1 mm (0.67 in) ID         | -             | 1       | 2       | 1       |
| 17   | D0124QE  | Connection Assembly                  | -             | 1       | 1       | -       |
| 18   | D0124QF  | Connection Assembly                  | -             | -       | 1       | 1       |
| 19   | C0128EC  | Flexure                              | -             | 1       | 1       | 1       |
| 20   | C0162AM  | Bellows Assembly                     | -             | -       | 1       | -       |
| 21   | C0128FR  | Spring Assembly                      | -             | 1       | -       | 1       |
| 22   | X0100TA  | Screw, socket head, 0.190-32 x 1.000 | -             | -       | -       | 1       |
| 23   | C0128EK  | Bracket                              | 1             | -       | -       | -       |
| 24   | 0024520  | Screw, round head, 0.099-48 x 0.188  | 1             | -       | -       | -       |
| 25   | C0128EE  | Column                               | 2             | -       | -       | -       |

Figure 5. Auto-Manual Transfer System

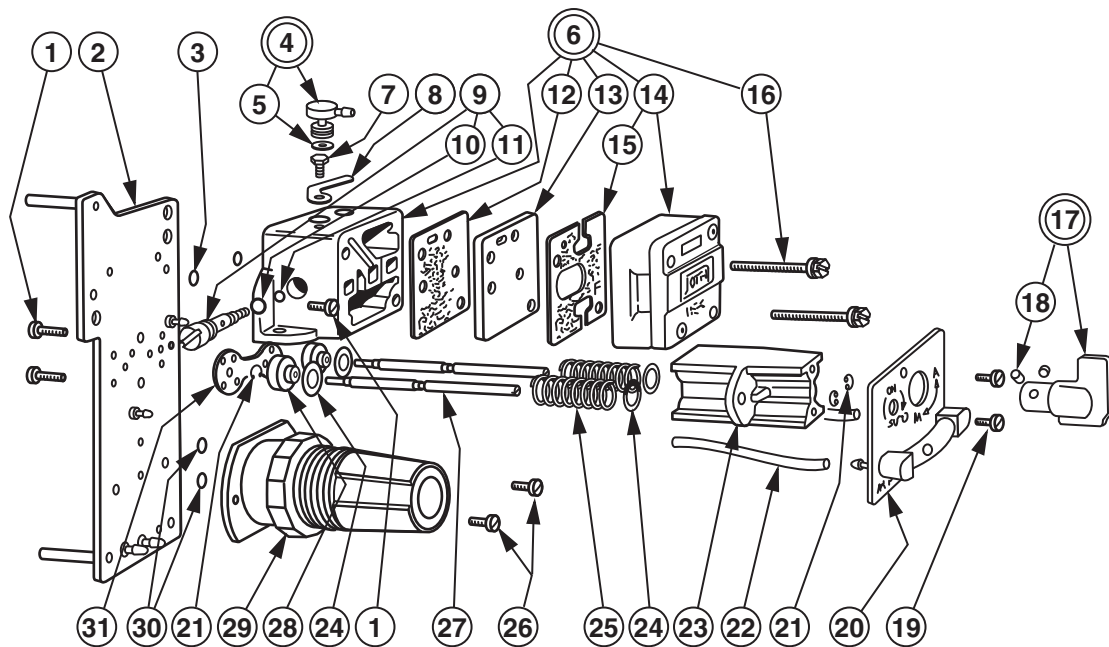


Table 10. Parts for Figure 5

| Item | Part No. | Qty. | Part Name                       |
|------|----------|------|---------------------------------|
| *-   | C0156GH  | -    | Auto-Manual Transfer System     |
| 1    | C0138KM  | 4    | Sems, panhead, 0.164-32 x 0.375 |
| 2    | C0140PS  | 1    | Circuit Plate Assembly          |
| *3   | M0155QV  | 2    | O-ring, 4.5 mm (0.18 in) ID     |
| 4    | C0156HT  | 1    | Connector Assembly              |
| *5   | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID     |
| 6    | C0156GK  | 1    | Relay Manifold Assembly         |

Table 10. Parts for Figure 5

| Item | Part No. | Qty. | Part Name                            |
|------|----------|------|--------------------------------------|
| 7    | X6000KL  | 1    | Screw, hex head, 0.138-32 x 0.187    |
| 8    | U0109EB  | 1    | Clamp Lever                          |
| 9    | C0156HP  | 1    | Orifice Screw Assembly               |
| *10  | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID          |
| *11  | M0155QU  | 1    | O-ring, 2.9 mm (0.11 in) ID          |
| 12   | U0110AX  | 1    | Gasket                               |
| 13   | U0113AK  | 1    | Plate                                |
| *14  | F0108FV  | 1    | Relay Replace. Kit M/40K             |
| *15  | C0100EM  | 1    | Gasket                               |
| 16   | X0127CS  | 2    | Screw, hex head                      |
| 17   | C0140QX  | 1    | Knob Assembly                        |
| 18   | X0100YT  | 2    | Set Screw, 0.125-40                  |
| 19   | X0100PZ  | 2    | Screw, panhead, 0.164-32 x 0.218     |
| 20   | C0156CV  | 1    | Tube Assembly                        |
| 21   | C0134EC  | 4    | Retaining Ring                       |
| 22   | R0128AA  | –    | Tubing (order 0.3 m [1 ft] per unit) |
| 23   | C0146PC  | 1    | Column                               |
| 24   | C0134EF  | 4    | Washer                               |
| 25   | C0134AZ  | 2    | Spring                               |
| 26   | X0169CZ  | 2    | Sems, panhead, 0.164-32 x 0.37       |
| 27   | C0140QY  | 2    | Shaft                                |
| 28   | C0134FA  | 2    | Switch Plate                         |
| *29  | D0156FX  | 1    | Regulator                            |
| *30  | M0155QW  | 2    | O-ring, 5.3 mm (0.21 in) ID          |
| *31  | C0162AX  | 1    | Gasket                               |

Figure 6. Relay Manifold Assembly (used if instrument does not have Auto-Manual Transfer System)

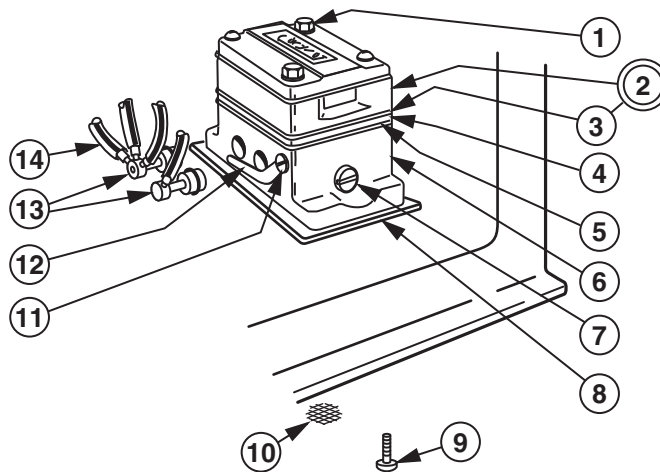


Table 11. Parts for Figure 6

| Item | Part No. | Qty. | Part Name                                  |
|------|----------|------|--|
| –    | C0156GG  | –    | Relay Manifold Assembly (Items 1-7, 10-12) |
| 1    | X0127CS  | 2    | Sems, hex head, 0.190-32 x 1.125           |
| *2   | F0108FV  | 1    | Relay Replace. Kit, M/40K                  |
| *3   | C0100EM  | 1    | Gasket                                     |
| 4    | U0113AK  | 1    | Plate                                      |
| 5    | U0110AX  | 1    | Gasket                                     |
| 6    | N0224PS  | 1    | Relay Manifold                             |
| *7   | C0156HP  | 1    | Orifice Screw Assembly                     |
| *–   | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID                |
| *–   | M0155QU  | 1    | O-ring, 2.9 mm (0.11 in) ID                |
| 8    | Below    | 1    | Gasket                                     |
|      | C0140QQ  |      | Standard                                   |
|      | M0151CK  |      | Vented Case                                |
| 9    | X0127DD  | 2    | Screw, panhead, 0.190-32 x 0.375           |
| *10  | U0103FP  | 2    | Screen                                     |
| 11   | X6000KL  | 1    | Screw, hex head, 0.138-32 x 0.218          |
| 12   | U0109EB  | 1    | Clamp Lever                                |
| 13   | Below    | –    | Connection Assembly                        |
|      | C0156HT  |      | One connection                             |
|      | C0156HS  |      | Two connections                            |
|      | C0156HU  |      | Three connections                          |
| *–   | M0155QV  | 1    | O-ring, 4.5 mm (0.18 in) ID                |
| 14   | R0128AA  | –    | Tubing (1 m [3 ft] per inst.)              |

Figure 7. Auto-Manual Transfer Switch

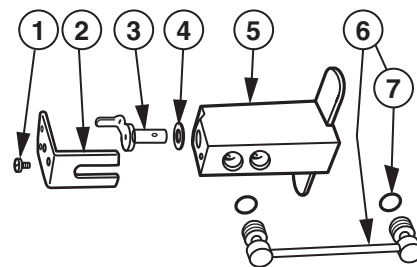


Table 12. Parts for Figure 7

| Item | Part No. | Qty. | Part Name                        |
|------|----------|------|----------------------------------|
| *1-5 | C0132KA  | –    | Transfer Switch Assembly         |
| 1    | C0132KR  | 1    | Screw, panhead, 0.112-48 x 0.125 |
| 2    | C0132KF  | 1    | Clip                             |
| 3    | C0132KM  | 1    | Stem Assembly                    |
| 4    | C0100CK  | 1    | O-ring                           |
| 5    | C0132KK  | 1    | Switch Block                     |
| 6    | C0156HQ  | 1    | Connector Assembly               |
| *7   | M0155QV  | 2    | O-ring, 4.5 mm (0.18 in) ID      |

Figure 8. Intermediate Movement and Linkages (for Type 37 Diaphragm Element)

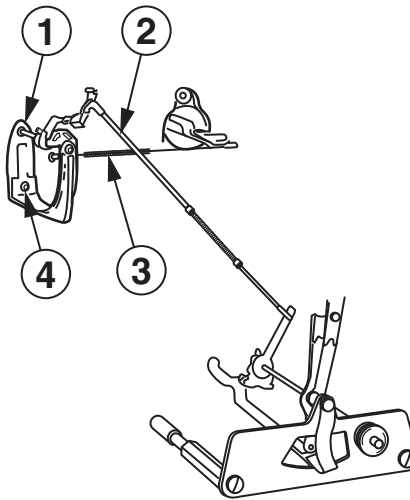


Table 13. Parts for Figure 8

| Item | Part No. | Qty. | Part Name                                   |
|------|----------|------|---|
| 1    | M0104LB  | 1    | Intermediate Movement Assembly              |
| 2    | X0101BM  | 1    | Link, Adjust. 133 to 146 mm (5.3 to 5.8 in) |
| 3    | X0101MM  | 1    | Link, Adjust. 67 to 83 mm (2.6 to 3.3 in)   |
| 4    | 0008462  | 1    | Sems, round head, 0.125-40 x 0.375          |

Figure 9. Integral Restrictor Assembly

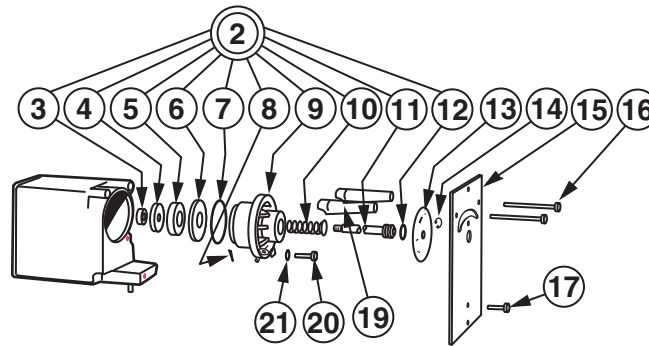


Table 14. Parts for Figure 9

| Item | Part No. | Qty. | Part Name                            |
|------|----------|------|--------------------------------------|
| *-   | C0156GN  | -    | Integral (reset) Restrictor Assembly |
| 1    | C0131CM  | 1    | Tank Assembly                        |
| 2    | C0156GM  | 1    | Body Assembly                        |
| 3    | X0142BT  | 1    | Nut, 0.250-28                        |
| 4    | C0131DK  | 1    | Washer                               |
| 5    | C0134BE  | 1    | Scratch Restrictor                   |
| 6    | C0162AW  | 1    | Gasket                               |
| *7   | M0155RA  | 1    | O-ring, 21.9 mm 90.86 in ID          |
| 8    | 0042884  | 1    | Grooved Pin                          |
| 9    | C0131DT  | 1    | Body                                 |
| 10   | C0131CV  | 1    | Spring                               |
| -    | C0134CZ  | 1    | Washer                               |
| 11   | C0131CS  | 1    | Restrictor Shaft                     |
| *12  | M0155QX  | 1    | O-ring, 7.6 mm (0.30 in) ID          |
| 13   | C0131CU  | 1    | Dial                                 |
| *14  | C0134CM  | 1    | Retaining Ring                       |
| 15   | C0131DN  | 1    | Cover Plate                          |
| 16   | X0170CE  | 2    | Screw, panhead, 0.123-20 x 1.000     |
| 17   | X0167TL  | 1    | Screw, panhead, 0.123-20 x 0.375     |
| 19   | X0118EM  | 2    | Block                                |
| 20   | X0167TN  | 1    | Screw, panhead, 0.123-20 x 0.500     |
| 21   | X0143EX  | 1    | Washer                               |
| -    | C0137RT  | 1    | Tee (see Note)                       |
| -    | C0138BM  | 1    | Cap (see Note)                       |
| -    | C0129BN  | 1    | Tube Assembly (see Note)             |

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— NOTE —  
Instruments with External Reset Connection.

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Figure 10. Derivative Restrictor Assembly

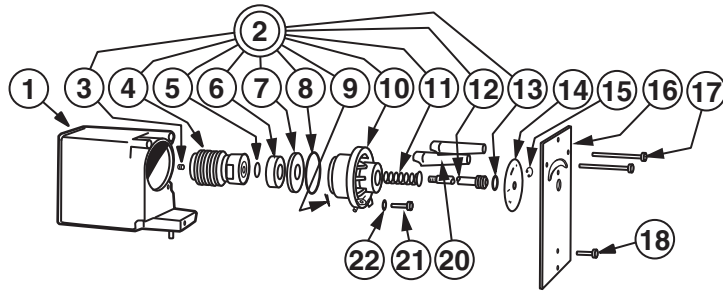


Table 15. Parts for Figure 10

| Item | Part No. | Qty. | Part Name                        |
|------|----------|------|----------------------------------|
| *-   | C0156GF  | -    | Derivative Restrictor Assembly   |
| 1    | C0131CM  | 1    | Tank Assembly                    |
| 2    | C0149PG  | 1    | Body Assembly                    |
| 3    | C0126RK  | 1    | Stop Screw                       |
| 4    | C0131CW  | 1    | Bellows Assembly                 |
| *5   | M0155QZ  | 1    | O-ring, 10.8 mm (0.43 in) ID     |
| 6    | C0134BE  | 1    | Scratch Restrictor               |
| 7    | C0162AW  | 1    | Gasket                           |
| *8   | M0155RA  | 1    | O-ring, 21.9 mm (0.86 in) ID     |
| 9    | 0042884  | 1    | Grooved Pin                      |
| 10   | C0131DU  | 1    | Body                             |
| 11   | C0131CV  | 1    | Spring                           |
| -    | C0134CZ  | 1    | Washer (not shown)               |
| 12   | C0131CT  | 1    | Restrictor Shaft                 |
| *13  | M0155QX  | 1    | O-ring, 7.6 mm (0.30 in) ID      |
| 14   | C0140GR  | 1    | Dial                             |
| *15  | C0134CM  | 1    | Retaining Ring                   |
| 16   | C0131DP  | 1    | Cover Plate                      |
| 17   | X0170CE  | 2    | Screw, panhead, 0.123-20 x 1.000 |
| 18   | X0167TL  | 1    | Screw, panhead, 0.123-20 x 0.375 |
| 20   | X0118EM  | 2    | Block                            |
| 21   | X0167TN  | 1    | Screw, panhead, 0.123-20 x 0.375 |
| 22   | X0143EX  | 1    | Washer                           |

Figure 11. Flush or Surface Panel Mounting Parts

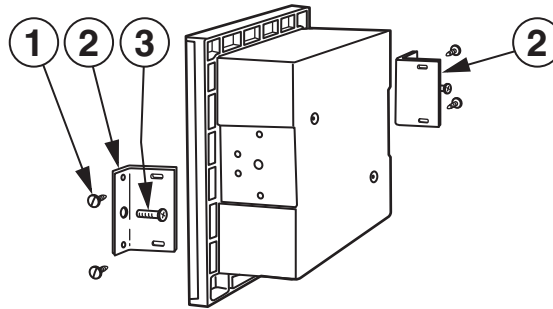


Table 16. Parts for Figure 11

| Item | Part No. | Qty. | Part Name                         |
|------|----------|------|-----------------------------------|
| -    | M0154TS  | -    | Mounting Kit                      |
| 1    | X0167GT  | 4    | Screw, hex head, 0.190-32 x 0.375 |
| 2    | M0154NJ  | 2    | Bracket                           |
| 3    | X0130MS  | 2    | Screw, panhead, 0.312-18 x 1.000  |

Figure 12. Pipe Mounting Parts for Temperature or Pressure Instrument

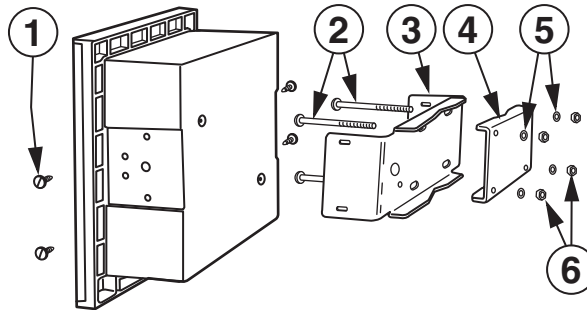


Table 17. Parts for Figure 12

| Item | Part No. | Qty. | Part Name                         |
|------|----------|------|-----------------------------------|
| -    | M0154TR  | -    | Mounting Kit                      |
| 1    | X0167GT  | 4    | Screw, hex head, 0.190-32 x 0.375 |
| 2    | X0116PN  | 4    | Bolt, Carriage, 0.250-20 x 4.000  |
| 3    | M0154NH  | 1    | Bracket                           |
| 4    | M0154NK  | 1    | Pipe Clamp                        |
| 5    | 0005653  | 4    | Washer                            |
| 6    | 0012354  | 4    | Nut, 0.250-20                     |

Figure 13. Yoke Mounting Parts for Instrument with Type 37 Diaphragm Element

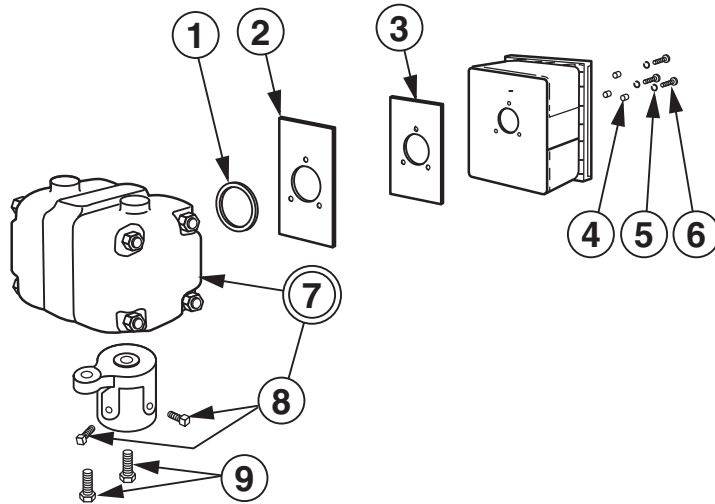


Table 18. Parts for Figure 13

| Item | Part No. | Qty. | Part Name                            |
|------|----------|------|--------------------------------------|
| 1    | D0116FM  | 1    | Gasket                               |
| 2    | M0154VE  | 1    | Plate                                |
| 3    | M0154QU  | 1    | Gasket                               |
| 4    | M0154QD  | 3    | Bushing                              |
| 5    | 0048218  | 3    | Lockwasher                           |
| 6    | X0100RM  | 3    | Screw, hex head, 0.375-16 x 1.00     |
| 7    | D0116AW  | 1    | Mounting Yoke                        |
| 8    | 0016809  | 2    | Screw, square head, 0.500-13 x 1.000 |
| 9    | X0100TT  | 2    | Screw, hex head, 0.625-18 x 1.250    |

Figure 14. Integral Air Supply Set and Pressure Gauges

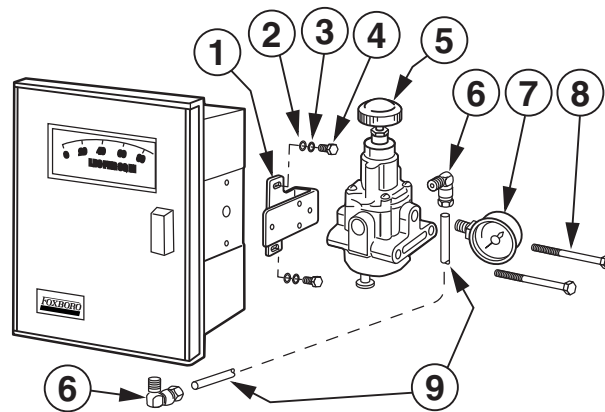


Table 19. Parts for Figure 14

| Item | Part No. | Qty. | Part Name                          |
|------|----------|------|------------------------------------|
| 1    | M0154WD  | 1    | Mounting Bracket                   |
| 2    | X0143FD  | 2    | Washer                             |
| 3    | X0143SC  | 2    | Lockwasher                         |
| 4    | X0127JP  | 2    | Screw, hex head, 0.190-32 x 0.625  |
| *5   | C0162AN  | 1    | Filter-Regulator, Adjust.          |
| 6    | X0172BE  | 2    | Elbow                              |
| *7   | C0162AP  | 1    | Pressure Gauge, 0-30 psi/0-200 kPa |
| 8    | X0100KW  | 2    | Screw, hex head, 0.312-18 x 3.750  |
| 9    | Below    | 1    | Tube                               |
|      | M0154WE  |      | Copper                             |
|      | M0154WJ  |      | pvc-Coated                         |

Figure 15. Door Assembly

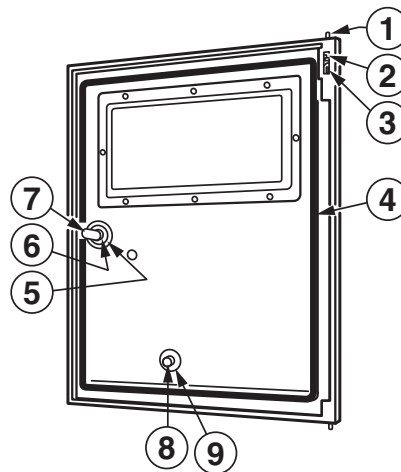


Table 20. Parts for Figure 15

| Item                                  | Part No. | Qty. | Part Name   |
|---------------------------------------|----------|------|---|
| –                                     | M0154NB  | –    | Door Assembly (internal set) (includes Items 1-4)       |
| –                                     | M0154UT  | –    | Door Assembly (external set) (includes Items 1-4)       |
| –                                     | M0154VL  | –    | Door Assembly (shatterproof glass) (includes Items 1-4) |
| 1                                     | M0154NP  | 1    | Pin   |
| 2                                     | X0167KH  | 1    | Retaining Washer  |
| 3                                     | X0167KE  | 1    | Spring  |
| 4                                     | M0154XY  | 1    | Gasket  |
| 5                                     | M0154XV  | 1    | Gasket  |
| 6                                     | X0106BB  | 1    | Retaining Washer  |
| 7                                     | M0154XP  | 1    | Knob  |
| 8                                     | M0154UW  | 1    | External Set Knob (for M0154UT)                         |
| 9                                     | M0151AC  | 1    | Seal (for M0154UT)                                      |
| Tamperproof Knob Assembly (not shown) |          |      |   |
| –                                     | M0154XU  | 1    | Knob Assembly   |
| –                                     | M0154XT  | 1    | Key   |

**RECOMMENDED SPARE PARTS SUMMARY**

| Figure Number | Item Number | Part Number  | Part Name   | Number of Parts Recommended for |         |         |
|---------------|-------------|--|---|---------------------------------|---------|---------|
|               |             |  |   | 1 Inst.                         | 2 Inst. | 3 Inst. |
| 1             | 10,33       | R0128AA  | Tubing (order 1 m [3 ft] per instrument)  | –                               | –       | –       |
|               | –           | M0155QV  | O-ring (used in connection, Item 12)  | 4                               | 8       | 12      |
|               | 23          | C0140ZH  | Tube  | 0                               | 0       | 2       |
|               | 25          | U0103FP  | Screen  | 0                               | 4       | 6       |
|               | 33          | R0128AA  | Tubing (order 1.3 m [4 ft] per instrument)  | –                               | –       | –       |
| 2             | -           | Below<br>C0156GA<br>C0156GB<br>C0156GC<br><br>C0156GP<br>C0156GD | Control Unit<br>On-Off<br>Proportional, Proportional plus Derivative<br>Proportional plus Integral, Proportional plus Integral plus Derivative<br>Proportional plus Integral (for Pneumaticset Control)<br>Differential Gap | 0                               | 0       | 1       |
|               | 7           | C0128EX  | Flapper Assembly  | 0                               | 1       | 2       |
|               | 12          | M0155QV  | O-ring (used in connection, Item 11)  | 1                               | 2       | 3       |
| 3             | 4           | Below<br>C0128CB<br>C0128LZ                                      | Nozzle Assembly<br>Used in C0156GA/GB/GC/GP<br>Used in C0156GD  | 0                               | 1       | 2       |
|               | 5           | C0130AR  | Tube  | 0                               | 1       | 2       |
|               | 7           | M0155QV  | O-ring (used in connection, Item 6)   | 1                               | 2       | 3       |
|               | 8           | M0133AF  | Link Assembly   | 0                               | 0       | 1       |
| 5             | -           | C0156GH  | Auto-Manual Transfer System   | 0                               | 0       | 1       |
|               | 3, 5, 10    | M0155QV  | O-ring  | 4                               | 8       | 12      |
|               | 11          | M0155QU  | O-ring  | 2                               | 4       | 6       |
|               | 30          | M0155QW  | O-ring  | 4                               | 6       | 8       |
|               | 14          | F0108FV  | Relay Replacement Kit, M/40K  | 1                               | 1       | 2       |
|               | 15          | C0100EM  | Gasket  | 1                               | 2       | 3       |
|               | 29          | D0156FX  | Regulator   | 0                               | 0       | 1       |
| 31            | C0162AX     | Gasket   | 0   | 1                               | 2       |         |
| 6             | 2           | F0108FV  | Relay Replacement Kit, M/40K  | 1                               | 1       | 2       |
|               | 3           | C0100EM  | Gasket  | 1                               | 2       | 3       |
|               | 7           | C0156HP<br>M0155QV<br>M0155QU                                    | Orifice Screw Assembly<br>O-ring<br>O-ring  | 1                               | 1       | 2       |
|               | 10          | U0103FP  | Screen  | 2                               | 4       | 6       |
| 7             | -           | M0155QV  | O-ring (used in connector, Item 13)   | 1                               | 2       | 3       |
|               | 7           | C0132KA<br>M0155QV   | Transfer Switch Assembly<br>O-ring (used in connector, Item 6)  | 0                               | 0       | 1       |
| 9             | 7           | M0155RA  | O-ring  | 2                               | 4       | 6       |
|               | 12          | M0155QX  | O-ring  | 2                               | 4       | 6       |
|               | 14          | C0134CM  | Retaining Ring  | 2                               | 4       | 6       |
|               | -           | C0156GN  | Restrictor Assembly, Integral   | 0                               | 0       | 1       |
| 10            | 5           | M0155QZ  | O-ring  | 2                               | 4       | 6       |
|               | 8           | M0155RA  | O-ring  | 2                               | 4       | 6       |
|               | 13          | M0155QX  | O-ring  | 2                               | 4       | 6       |
|               | 15          | C0134CM  | Retaining Ring  | 2                               | 4       | 6       |
|               | -           | C0156GF  | Restrictor Assembly, Derivative   | 0                               | 0       | 1       |
| 14            | 5           | C0162AN  | Filter-Regulator, Adjust.   | 0                               | 0       | 1       |
|               | 7           | C0162AP  | Pressure Gauge, 0-30 psi/0-200 kPa  | 0                               | 0       | 1       |



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