

INSTALLATION (continued)

booster with the arrows pointing in the direction of the flow. Tighten connections securely. Avoid undersized fittings that will limit the flow through the booster and cause a pressure drop down stream. For more information, see Figure 1. "Outline Drawing" on page 1.

NOTES: Oil free air must be applied to the booster. Use a filter to remove dirt and entrained liquid in the air line ahead of the booster. If an air line lubricator is used, it **MUST** be located downstream of the booster, to avoid interference with booster performance.

OPERATION

The Model 20 reproduces a pneumatic signal in a 1:1 ratio or in multiplying or dividing ratios. ($P_o = P_s \times R$); where P_o is output pressure, P_s is signal pressure, R is ratio.

LEGAL NOTICE:

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Table 1. Model 20 Components		
Item	Qty.	Description
1	1	Valve
2	6	Screw
3	1	Bonnet
4	See Table 3	Diaphragm Assembly
5	1	Spacer Ring
6	1	Spacer Ring
7 ⁸	1	Washer
8	1	Spring
9	4	Screw
10	1	Seal Plate Assembly
11 ⁷	1	Seal Plate Gasket
12	1	Body Assembly
13 ⁹	1	Seat Assembly (<i>Nitrile</i>)
13 ^{3,6}	1	Seat Assembly (<i>Silicone</i>)
13 ¹⁰	1	Seat Assembly (<i>Viton</i>)
14	1	Screen
15 ⁹	1	Inner Valve Asm. (<i>Nitrile</i>)
15 ^{3,6}	1	Inner Valve Asm. (<i>Silicone</i>)
15 ¹⁰	1	Inner Valve Asm. (<i>Viton</i>)
16	1	Retainer Plate
17	1	Retainer Cap
18	2	Screw

1	For 19513-11I	Service Kit Only. (1:1 Ratio)
2	For 19513-11NI	Service Kit Only. (1:1 Ratio)
3	For 19513-11AI	Service Kit Only. (1:1 Ratio)
4	For 19513-11JI	Service Kit Only. (1:1 Ratio)
5	For 19513-11JNI	Service Kit Only. (1:1 Ratio)
6	For 19513-11A	Service Kit Only. (1:1 Ratio)
7	For All 19513	Service Kits.
8	For 19513	-11, -12, -13, -21, -31, -11A, -11J, -12J, -13J, -21J, -31J, -11JN, -12JN, -13JN, -21JN, -31JN, -11N, -12N, -13N, -21N, -31N Service Kits.
9	For 19513	-11, -12, -13, -21, -31, -11I, -11N, -12N, -13N, -21N, -31N, -11NI Service Kits.
10	For 19513	-11J, -12J, -13J, -21J, -31J, -11JI, -11JN, -12JN, -13JN, -21JN, -31JN, -11JNI Service Kits.

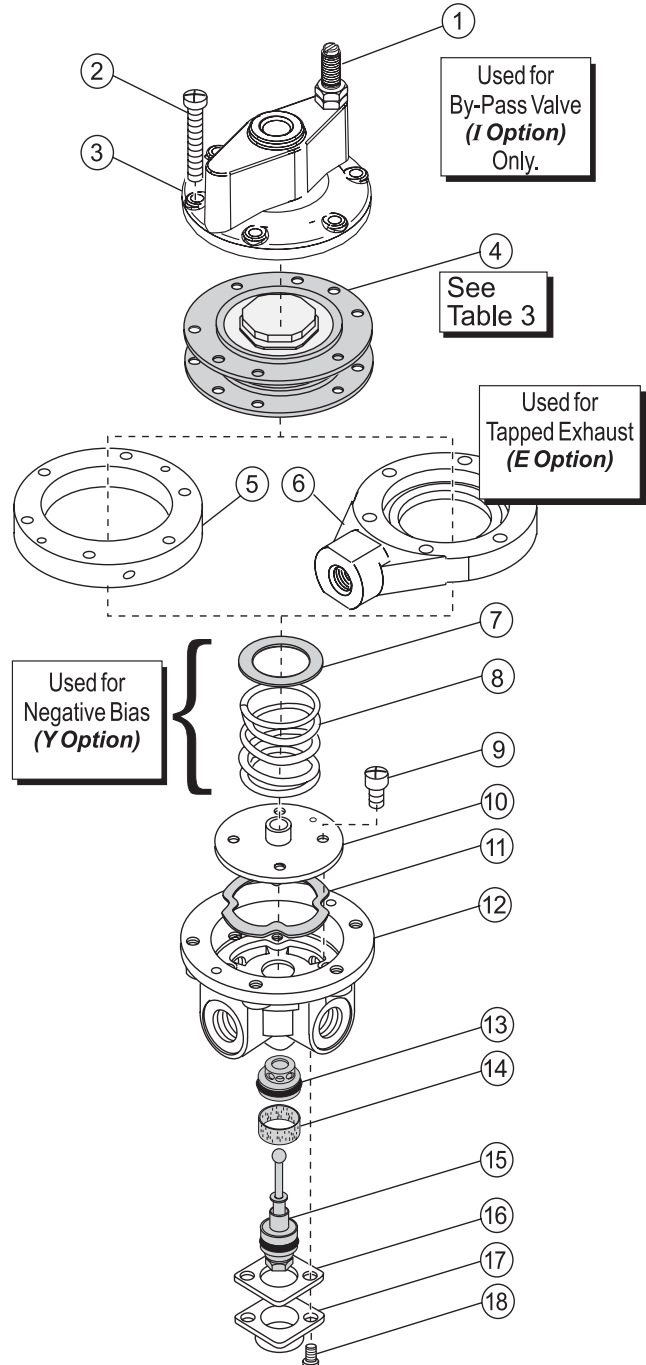


Figure 3. Exploded Drawing for 1:1, 1:2, 1:3, 2:1, & 3:1 Ratios.

MAINTENANCE

To clean the Model 20, use the following procedure:

1. Before disassembly, shut off the valve that is supplying air to the booster. This is to prevent air from escaping. **It is not necessary to remove the booster from the air line.**
2. Remove the two Screws (20) from **Figure 3** or (15) from **Figure 4**.
3. Pull out the Inner Valve Assembly (17) from **Figure 3** or (12) from **Figure 4**. Wash the Seat on the Inner Valve Assembly carefully.

4. Wipe off any particles that may be attached to rubber Seat Assembly (15) from **Figure 3** or (10) from **Figure 4**.

5. Replace the assembly carefully. For more information, see **Figure 3** on page 2 or **Figure 4** on page 3.

NOTES: Avoid such solvents as acetone, carbon tetrachloride and trichlorethylene.

If the standard maintenance procedure does not correct the trouble, install service kit.

Item	Qty.	Description
1	6	Screw
2	1	Bonnet
3 ¹	1	Diaphragm Assembly (Nitrile)
3 ²	1	Diaphragm Assembly (Nitrile)
3 ³	1	Diaphragm Assembly (Nitrile)
3 ⁴	1	Diaphragm Assembly (Nitrile)
3 ⁵	1	Diaphragm Assembly (Nitrile)
3 ⁶	1	Diaphragm Assembly (Viton)
3 ⁷	1	Diaphragm Assembly (Viton)
3 ⁸	1	Diaphragm Assembly (Viton)
3 ⁹	1	Diaphragm Assembly (Viton)
3 ¹⁰	1	Diaphragm Assembly (Viton)
4	1	Spacer Ring
5 ¹¹	1	Gasket
6	4	Screw
7	1	Seal Plate Assembly
8 ¹¹	1	Seal Plate Gasket
9	1	Body Assembly
10 ¹²	1	Seat Assembly (Nitrile)
10 ¹³	1	Seat Assembly (Viton)
11 ¹¹	1	Screen
12 ¹²	1	Inner Valve Assembly (Nitrile)
12 ¹³	1	Inner Valve Assembly (Viton)
13	1	Retainer Plate
14	1	Retainer Cap
15	2	Screw

1	For 19513-14	Service Kit Only. (1:4 Ratio)
2	For 19513-15	Service Kit Only. (1:5 Ratio)
3	For 19513-16	Service Kit Only. (1:6 Ratio)
4	For 19513-41	Service Kit Only. (4:1 Ratio)
5	For 19513-51	Service Kit Only. (5:1 Ratio)
6	For 19513-14J	Service Kit Only. (1:4 Ratio)
7	For 19513-15J	Service Kit Only. (1:5 Ratio)
8	For 19513-16J	Service Kit Only. (1:6 Ratio)
9	For 19513-41J	Service Kit Only. (4:1 Ratio)
10	For 19513-51J	Service Kit Only. (5:1 Ratio)
11	For All 19513	Service Kits.
12	For 19513-14, -15, -16, -41, & -51	Service Kits.
13	For 19513-14J, -15J, -16J, -41J, & -51J	Service Kits.

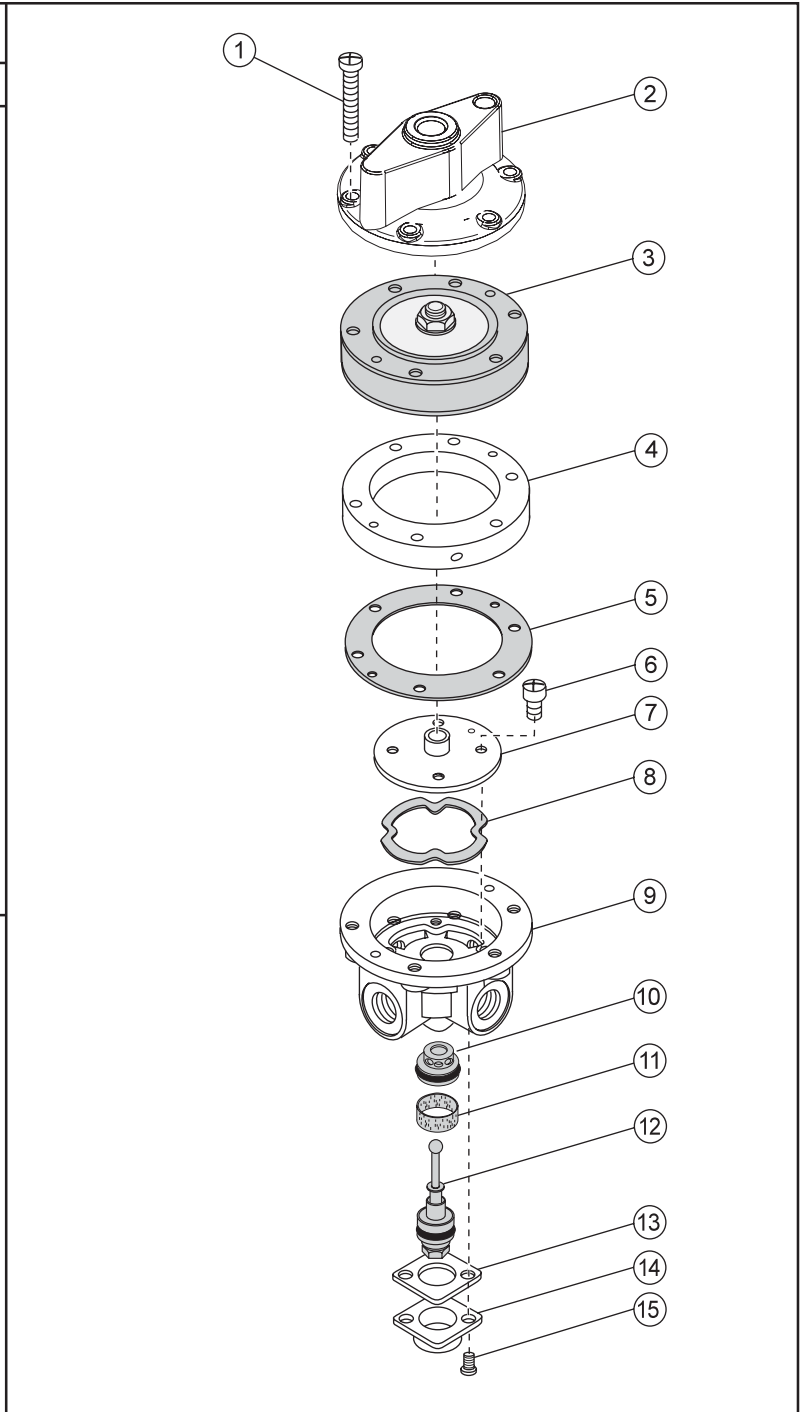


Figure 4. Exploded Drawing for 1:4, 1:5, 1:6, 4:1, & 5:1 Ratios.

MODEL 20 COMPONENTS (continued)

Table 3. Diaphragm Assembly		
Item	Qty.	Description
6 ¹	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ³	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ⁴	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ⁵	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ⁶	1	Diaphragm Assembly (<i>Silicone</i>)
6 ⁷	1	Diaphragm Assembly (<i>Silicone</i>)
6 ⁸	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ⁹	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁰	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹¹	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹²	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹³	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁴	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁵	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁶	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁷	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁸	1	Diaphragm Assembly (<i>Viton</i>)
6 ¹⁹	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²⁰	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²¹	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²²	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²³	1	Diaphragm Assembly (<i>Nitrile</i>)
6 ²⁴	1	Diaphragm Assembly (<i>Nitrile</i>)

1	For 19513- 11	Service Kit Only. (1:1 Ratio)
2	For 19513- 12	Service Kit Only. (1:2 Ratio)
3	For 19513-13	Service Kit Only. (1:3 Ratio)
4	For 19513-21	Service Kit Only. (2:1 Ratio)
5	For 19513-31	Service Kit Only. (3:1 Ratio)
6	For 19513-11A	Service Kit Only. (1:1 Ratio)
7	For 19513-11A1	Service Kit Only. (1:1 Ratio)
8	For 19513-11I	Service Kit Only. (1:1 Ratio)
9	For 19513-11J	Service Kit Only. (1:1 Ratio)
10	For 19513-12J	Service Kit Only. (1:2 Ratio)
11	For 19513-21J	Service Kit Only. (2:1 Ratio)
12	For 19513-11JI	Service Kit Only. (1:1 Ratio)
13	For 19513-11JN	Service Kit Only. (1:1 Ratio)
14	For 19513-12JN	Service Kit Only. (1:2 Ratio)
15	For 19513-13JN	Service Kit Only. (1:3 Ratio)
16	For 19513-21JN	Service Kit Only. (2:1 Ratio)
17	For 19513-31JN	Service Kit Only. (3:1 Ratio)
18	For 19513-11JNI	Service Kit Only. (1:1 Ratio)
19	For 19513-11N	Service Kit Only. (1:1 Ratio)
20	For 19513-12N	Service Kit Only. (1:2 Ratio)
21	For 19513-13N	Service Kit Only. (1:3 Ratio)
22	For 19513-21N	Service Kit Only. (2:1 Ratio)
23	For 19513-31N	Service Kit Only. (3:1 Ratio)
24	For 19513-11NI	Service Kit Only. (1:1 Ratio)

TROUBLE-SHOOTING

Table 4. Trouble-Shooting	
Problem	Solution (check)
Leakage	Check Body Screw tightness. Check Diaphragm.
High Bleed	Check Relief Pintle and Relief Seat for damage or contamination.

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