Full Manifold System

Compact Manifold System

These instructions are for the assembly of the ACVB system with the following limitations:

- Applicable Cylinders: 1-1/4” to 5” bore of 2MA, MA, or 2A cylinders having the catalog standard N.P.T.F. ports.
- Applicable Valves: Parker Pneumatic Division B3, B5, and B6 valves modified for cylinder mounting.
- Operating Temperature Range: -5°F to 120°F
- Maximum Operating Pressure: 145 P.S.I. filtered air.

Note: Always lubricate o-rings and / or gasket before installing them with the grease provided in this kit.

Qty.	Description	Compact Manifold				Full Manifold			
		1-1/4 Bore	1-1/4 Bore	1-1/2 thru 2-1/2 Bore	1-1/2 thru 2-1/2 Bore	1-1/2 thru 2-1/2 Bore	1-1/2 thru 2-1/2 Bore	3-1/4" thru 5" Bore	3-1/4" thru 5" Bore
	Kit Number	**L087340000**	**L087360000**	**L078350000**	**L078370000**	**L078380000**	**L078400000**	**L078390000**	**L078410000**
36 in.	Tubing	0880383836	None	0880383836	None	0880386336	None	0880386336	None
1 ea	Adapter	0879370000 (1/4" N.P.T.)		0880290000 (3/8" N.P.T.)		0860690000 (3/8" N.P.T.)		0861780000 (1/2" N.P.T.)	
1 ea	Elbow Fitting	0880322038 (1/4" N.P.T.)		0880323038 (3/8" N.P.T.)		0880323062 (3/8" N.P.T.)		0880324062 (1/2" N.P.T.)	
1 ea.	Bulletin	0955-G-TSD-2				0955-G-TSD-2			
1 ea.	Manifold Ass’y.	0880420000				0880440000			
1 ea.	M'fold.Fastener	0881520048 (10-32 X 3/4" Long S.H.C.S.)				0880390048 (1/4-20 X 3/4 Long B.H.C.S.)			
1 ea.	o-ring Kit	L078420000 (See Below)				L078420000 (See Below)			
2 ea.	Valve Fastener	1406530208 (#5-40 X 1" Long S.H.C.S.)				B3 Valve-1406530208 (#5-40 X 1" Long S.H.C.S.) B5 & B6 Valve-0866440040 (M5-0.8 X 40mm B.H.C.S.)			
2 ea.	Valve Lock Washer	0108800005 (#5 Split Lock Washer)				B3 Valve-0108800005 (#5 Split Lock Washer) B5 & B6 Valve-0880510005 (M5 Tooth Lock Washer)			

L078420000 (o-ring kit)			
Qty.	**Description**	**Part No.**	**Size**
1	grease packet	0870910000	N/A
1	o-ring (full adapter)	0477380007	15/16" O.D. x 13/16"I.D.
1	fastener o-ring	0104030024	3/8" O.D. x 1/4"I.D.
2	o-ring (B3 valve)	0477380004	3/4" O.D. x 5/8"I.D.
1	gasket (B5 valve)	0886770000	N/A
3*	o-ring: B6 valve o-ring and compact adapter o-ring	0477380005	13/16" O.D. x 11/16"I.D.

Tools and Materials Required
* M3 Allen Wrench
Adjustable Wrench
5/64" Allen Wrench
5/32" Allen Wrench
3/32" Allen Wrench
Parker Tubing Cutter P/N PTC-001-RB (Brass Products Division)
Liquid Leak Detector

* Use only 1 for sealing manifold around compact adapter.

* Compact manifold only.

Figure 1 Parts List and Tools Required for ACVB System Installation

1. System Assembly:

Warning: The plumbing for this system is to be done using only Parker Prestomatic fittings and Parker Air Brake tubing PFT-6B and PFT-10B. The use of other components may lead to a tubing failure which will cause the cylinder piston rod to suddenly retract or extend at high speed. It is also recommended that the tubing not be used as a handle to transport the finished assembly.

1.1. Cut tubing to length using the instructions and tables below. If a cylinder contains a stop tube, use the value of the gross stroke to determine tube length:
- 1.1.1. For Compact Manifold, Tube Length = Stroke **PLUS** 'L'
- 1.1.2. For Full Manifold, Tube Length = Stroke **MINUS** 'L'

'L' Dimension (inches)				
	Compact Manifold		Full Manifold	
Bore	2A & MA	2MA	2A & MA	2MA
1-1/4	-	1.25	-	-
1-1/2	1.32	1.38	3.68	3.62
2	1.32	1.38	3.68	3.62
2-1/2	1.44	1.44	3.56	3.56
3-1/4	-	-	3.31	3.31
4	-	-	3.31	3.31
5	-	-	3.06	3.06

Figure 2 Tube Length 'L' Value

2. Adapter:
- 2.1. Install adapter into head or cap where manifold is to be mounted.
- 2.2. Tighten adapter in place, as shown in Figure 3.

3. Elbow Fitting: Apply thread sealant (paste only) to elbow fitting. Insert into end cap opposite of manifold position.
- 3.1. Cylinders with a stroke of less than 12", tighten elbow fitting using adjustable wrench and align elbow fitting with opposite cylinder port as shown in Figure 3.
- 3.2. Cylinders with a stroke of greater than or equal to 12", tighten elbow with an adjustable wrench and align elbow fitting approximately 30° from cylinder centerline as shown in Figure 3. The fitting is required to be tight and inline with the cylinder centerline and manifold outlet later in the assembly process.

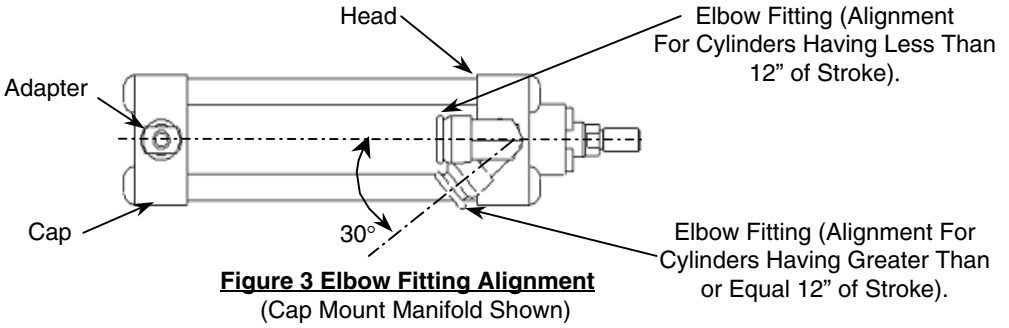


Figure 3 Elbow Fitting Alignment
(Cap Mount Manifold Shown)

4. Manifold Assembly to Cylinder:
- 4.1. Cylinders with less than 12" stroke:
  - 4.1.1. Slide tube into manifold and elbow fitting. Set manifold over adapter and onto head or cap by depressing sleeve as shown below to adjust tube length.
  - 4.1.2. Lift manifold and install lubricated o-ring in manifold.
  - 4.1.3. Lower manifold and o-ring over adapter and onto end cap, being careful not to pinch the o-ring.
  - 4.1.4. Install manifold fastener holding manifold to adapter. Note that the full manifold requires the fastener o-ring to be placed underneath the fastener while the compact manifold does not.
  - 4.1.5. Torque fastener to values in Figure 6.
  - 4.1.6. To prevent manifold rotation while in use tighten set screw in Figure 5, in small recessed hole, to values in Figure 6.

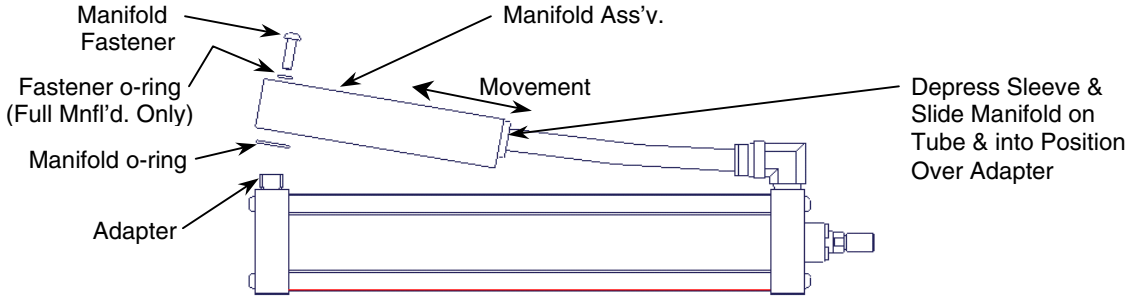


Figure 4 Manifold Assembly With Less Than 12" of Cylinder Stroke
(Cap Mounted Full Manifold Shown)

4.2. Cylinders with greater than or equal to 12" stroke:
- 4.2.1. Lift manifold and install lubricated o-ring in manifold.
- 4.2.2. Lower manifold and o-ring over adapter and onto end cap, being careful not to pinch the o-ring.
- 4.2.3. Install manifold fastener hand tight to hold manifold to adapter. Note that the full manifold requires the fastener o-ring to be placed underneath the fastener while the compact manifold does not.
- 4.2.4. Install tubing into manifold and elbow as shown in Figure 5. Then rotate both manifold and elbow until the manifold, tubing, and elbow are in line with the cylinder centerline.
- 4.2.5. Torque fastener to values in Figure 6.
- 4.2.6. To prevent manifold rotation while in use tighten set screw in Figure 5, in small recessed hole, to values in Figure 6.

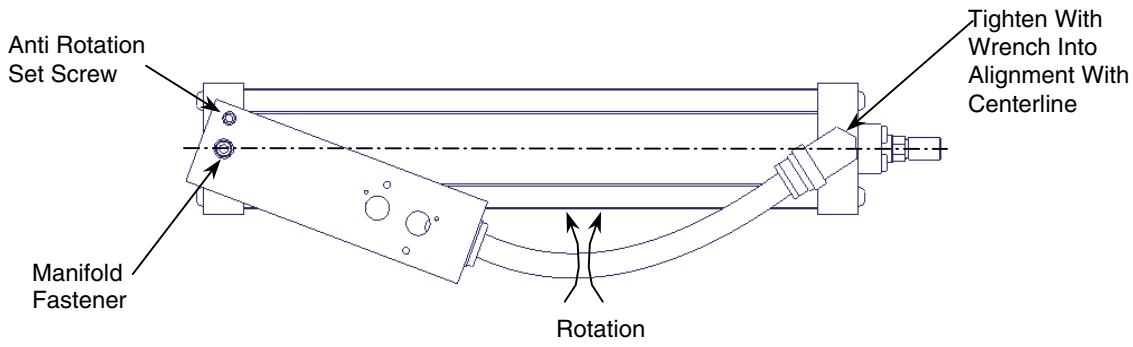


Figure 5 Manifold Assembly With Greater Than or Equal to 12" of Cylinder Stroke.
(Cap Mounted Full Manifold Shown)

Description	Compact Manifold	Full Manifold
Manifold Fastener	S.H.C.S. 150 + 15 in - lbs. (173 + 17 kg - cm)	B.H.C.S. 200 + 20 in - lbs (230 + 23 kg - cm)
Anti Rotation Set Screw	45 + 4 in - lbs (52 + 5 kg - cm)	70 + 7 in - lbs (81 + 8 kg - cm)

Figure 6 Torque Values for Manifold and Set Screw Mounting

5. Valve Installation

5.1. Sealing B3 and B6 Valves:
- 5.1.1. Insert lubricated o-rings into both valve counter bores as shown in Figure 7a below.
- 5.1.2. Careful not to damage the o-rings, align and secure valve on manifold using two (2) #5-40 valve fasteners with split lock washers for B3 valves or using two (2) M5 X 0.8 valve fasteners with tooth lock washers for B6 valves.

5.2. Sealing B5 Valves:
- 5.2.1. Apply lubricant to both sides of gasket. Place gasket on manifold as shown in Figure 7b, aligning both bolt holes and verifying ports are unrestricted by gasket.
- 5.2.2. Place valve on manifold with gasket, lining up the mounting holes on the valve with the tapped holes in the manifold.

5.3. Torque valve fasteners to values shown in Figure 8.

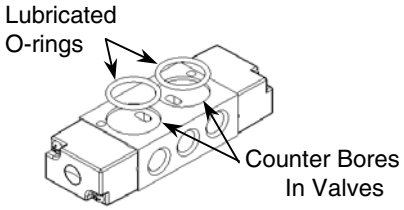


Figure 7a Valve O-Ring Installation
(B3 Series Valve w/ Remote Air Pilot Shown)

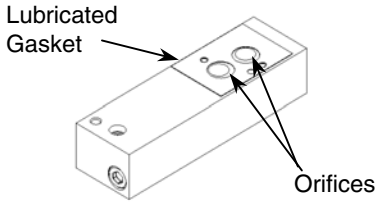


Figure 7b Manifold Gasket Installation
(B5 Series Valves)

Valve Model	Allen Wrench Size	Torque Required
B3 (w / #5-40 S.H.C.S.)	3/16"	45 in - lbs. (52.0 kg - cm)
B5 & B6 (w / M5 x 0.8 B.H.C.S.)	M3	55 in - lbs (63.2 kg - cm)

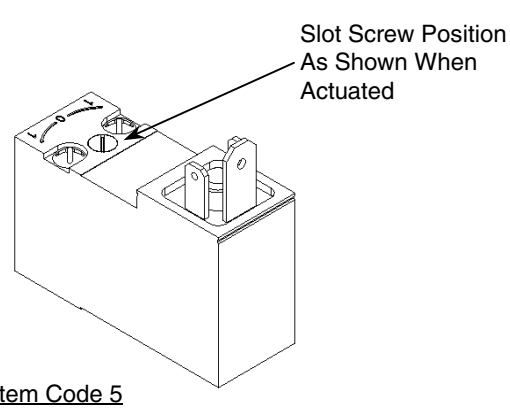
Figure 8 Torque Values for Valve Mounting

6. Optional Muffler and Flow Controls.

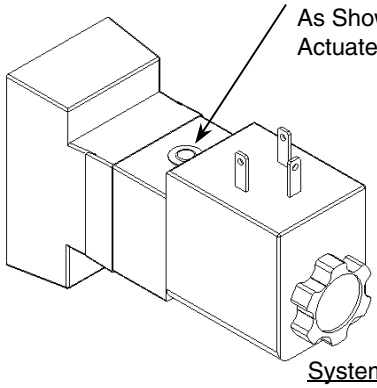
6.1. Apply thread sealant (paste only) to mufflers or flow controls.
6.2. Using adjustable wrench, tighten into port number 3 and number 5 as indicated on valve body shown in Figure 10 below.
6.3. If installing muffler with flow controls, loosen the locknut on the adjustable screw. Using a blade screwdriver, close the needle valve completely by turning stem clockwise, then open 3 turns and secure in place by re-tightening lock nut.

7. Manifold System Testing.

7.1. Obtain an air supply source with a pressure regulator and set pressure to zero PSI.
7.2. Connect air supply to port number 1 (center) on the valve as shown in Figure 10 below. Using the regulator, slowly increase the air pressure to 80 ± 5 PSI. This will make the piston rod extend or retract.
7.3. Leakage Evaluation:
7.3.1. For valves with solenoid actuators (5th digit of system code is 5, A, B, C, D, F, OR H) use the manual override near the solenoids as shown in Figure 9 below to manually cycle the cylinder. Check for leakage with the cylinder in both the extend and retract positions at the locations identified in Figure 10 below.
7.3.2. For valves with remote air pilot, (5th digit of system code is 0) supply at least 45 PSI air to remote pilot port to cycle the cylinder. Check for leakage with the cylinder in both the extend and retract positions at the locations identified in Figure 10 below.



System Code 5
Actuated (1) Slot Position Shown



System Codes A,B,C,D,F, & H
Actuated (Depressed)
Button Position Shown

Figure 9 Override Flush Locking Mechanism

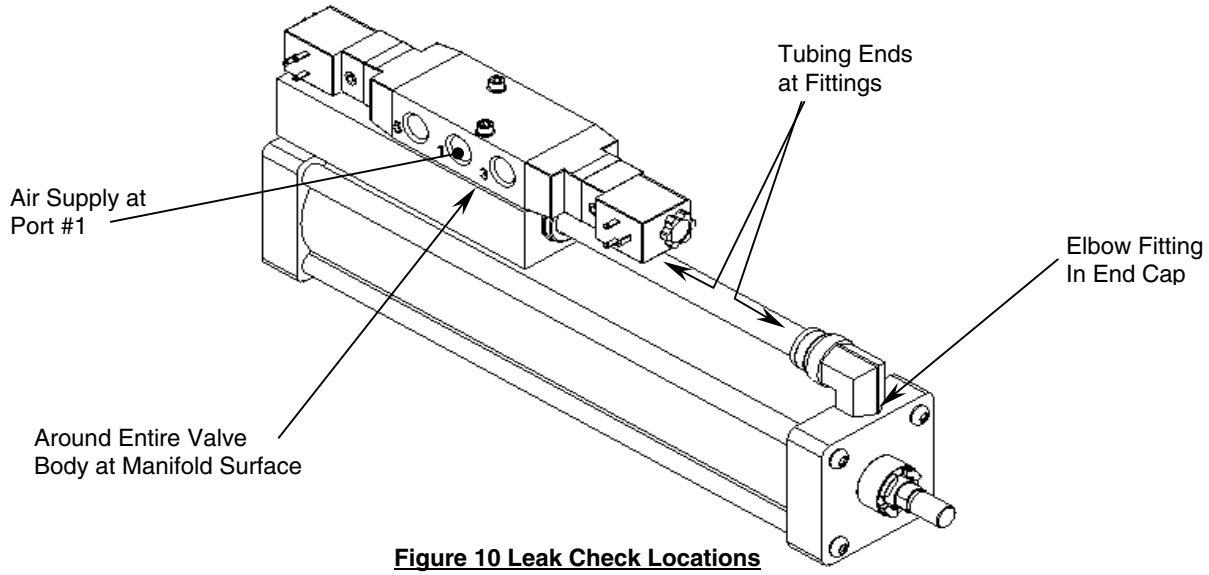


Figure 10 Leak Check Locations
(Full Manifold Shown)