

CVS Series 2000 Pressure Pilot

Introduction

The CVS Series 2000 Pressure Pilot is a High and Low Pressure sensing unit; used to monitor process or pipeline pressure in high/low pressure shut down installations. It is operated by either a hydraulic or pneumatic signal. By utilizing a spring loaded piston, the CVS Series 2000 Pressure Pilot is able to sense the preset pressure settings and activate the pilot valve.

FEATURES

- Adjustable pressure range from 10 psi to 6000 psi (0.7 bar to 413 bar)
- Easy field adjustable set points
- Operating temperature range from -46°C to 100°C (-50°F to 212°F)
- Available in both manual and automatic reset configurations
- Ideal for use as a part of a complete CVS Shutdown System (ESD)
- Signal/Supply pressure up to 150 psig
- 316 SST Body, or Impreglon coated carbon steel body
- Optional NACE capable MR0175



CVS Series 2000 Automatic Reset

Standard 2" NPT threaded input connection

SPECIFICATIONS

Model		2000	2200	2400
Piston Diameter		5/8"	1-1/4"	3/8"
Automatic Reset		AR - Automatic Reset Pilot Valve		
Manual Reset		MR – Manual Reset Pilot Valve		
Maximum Working Pressure (PSIG)		3500	2800	6000
Range Limit/Max Span (PSIG)	High	3250/1670	820/430	6000/4450
	Low	40/390	10/105	85/1120
Deadband (PSIG)	Minimum	55	25	160
	Maximum	265	95	775
Weight (lbs)	Auto Reset	11		
	Manual Reset	13.5		
Supply Pressure Range (PSIG)	Auto Reset	20-150		
	Manual Reset	60-150		
Temperature Limits	Process	-46°C to 200°C (-50°F to 392°F)		
	Ambient	-46°C to 100°C (-50°F to 212°F)		

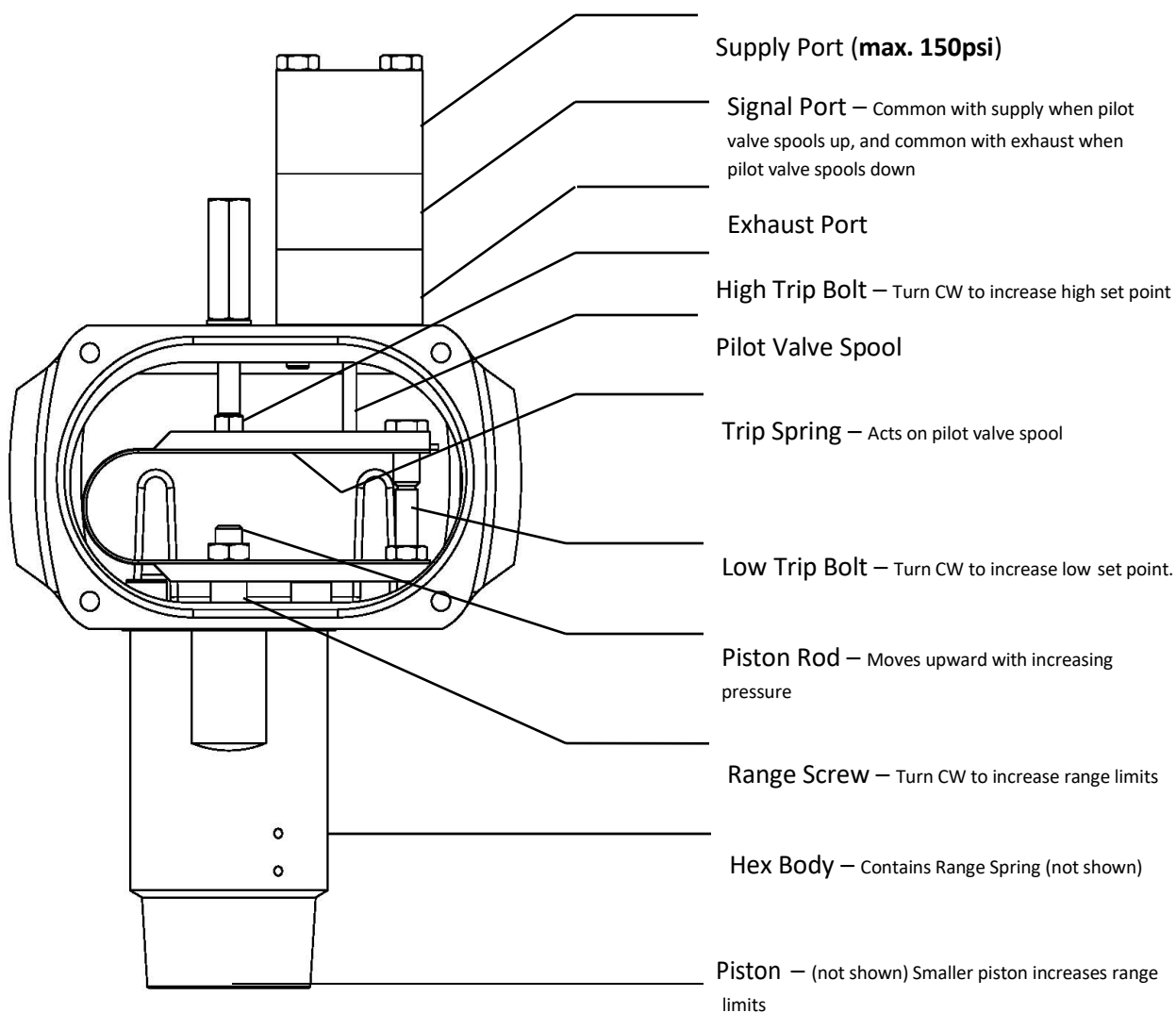


CVS Series 2000 Pressure Pilot as part of a complete ESD System

Installation and Adjustments

Note: Prior to beginning installation or disassembly of CVS Controls product, consult and follow the established safety procedures of your facility.

Ensure that all pressure is exhausted from the system prior to performing any service work. Failure to remove the pressure from the system can result in serious personal injury.



CVS Series 2000 AR

CVS Series 2000 Pilot, Spring and Model Selection

When selecting the CVS Series 2000 Pressure Pilot to best suit your application, use the softest spring with the largest piston to meet your high/low requirements. This will reduce the pilots deadband.

CVS Series 2000 Pilot - Spring Range Selection

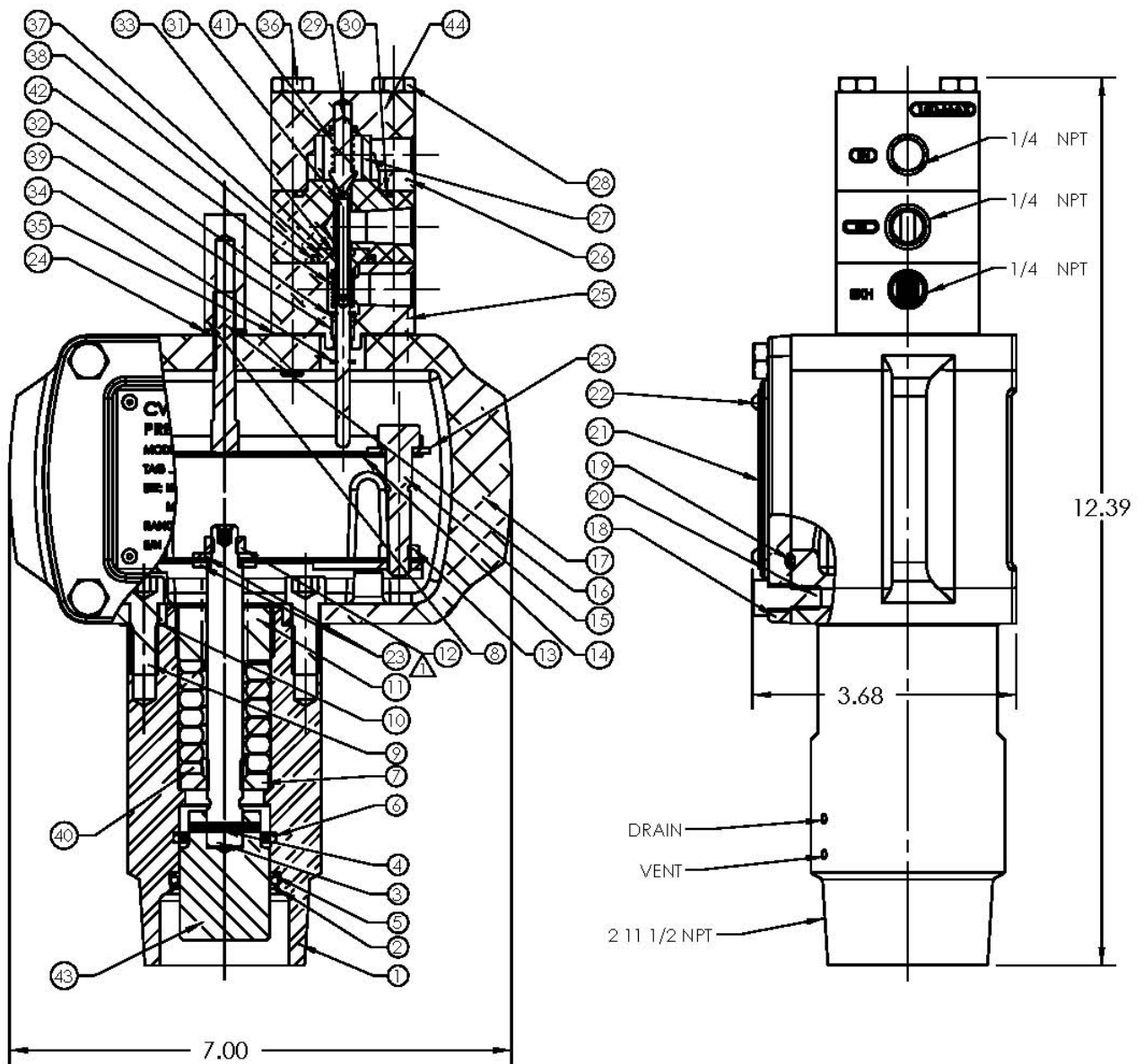
Model	Spring	Range Screw Turns	Span (PSIG)		Range Limit (PSIG)		Deadband (PSIG)	
			Min	Max	Low	High	Min	Max
CVS 2200 (MAWP 2800 PSI)	Blue 2" (-1)	0	55	105	10	(115)	25	--
		7-1/4	65	115	(190)	305	--	40
	Red 2" (-4)	0	90	180	15	(195)	25	--
		5-1/2	95	200	(270)	470	--	65
	Bronze 2" (-7)	0	95	295	15	(310)	30	--
		4	145	340	(385)	725	--	90
	Green 2" (-10)	0	130	395	20	(415)	35	--
		3	160	430	(390)	820	--	95

Model	Spring	Range Screw Turns	Span (PSIG)		Range Limit (PSIG)		Deadband (PSIG)	
			Min	Max	Low	High	Min	Max
CVS 2000 (MAWP 3500 PSI)	Blue 2" (-1)	0	185	390	40	(430)	55	--
		7-1/4	235	455	(745)	1200	--	130
	Red 2" (-4)	0	280	680	55	(735)	75	--
		5-1/2	320	770	(1060)	1830	--	185
	Bronze 2" (-7)	0	410	1190	80	(1270)	85	--
		4	460	1310	(1550)	2860	--	255
	Green 2" (-10)	0	450	1480	140	(1620)	120	--
		3	500	1670	(1580)	3250	--	265

Model	Spring	Range Screw Turns	Span (PSIG)		Range Limit (PSIG)		Deadband (PSIG)	
			Min	Max	Low	High	Min	Max
CVS 2400 (MAWP 6000 PSI)	Blue 2" (-1)	0	550	1120	85	(1205)	160	--
		7-1/4	775	1270	(2050)	3320	--	425
	Red 2" (-4)	0	720	1880	130	(2010)	195	--
		5-1/2	950	2150	(3000)	5150	--	550
	Bronze 2" (-7)	0	1000	3220	230	(3450)	270	--
		4	1400	3600	800	(4400)	--	750
	Green 2" (-10)	0	1100	4100	400	(4500)	360	--
		3	1650	4450	(4400)	8850	--	775

When ordering a CVS Series 2000 Pressure Pilot, add spring designation to end of model number.
For example, CVS 2200-10 is a Model 2200 with Green Spring.

Series 2000 Pressure Pilot Dimensions* and Assembly Parts Listing – Auto Reset



*Dimensions in Inches

CVS Series 2000 Parts Listing – Auto Reset

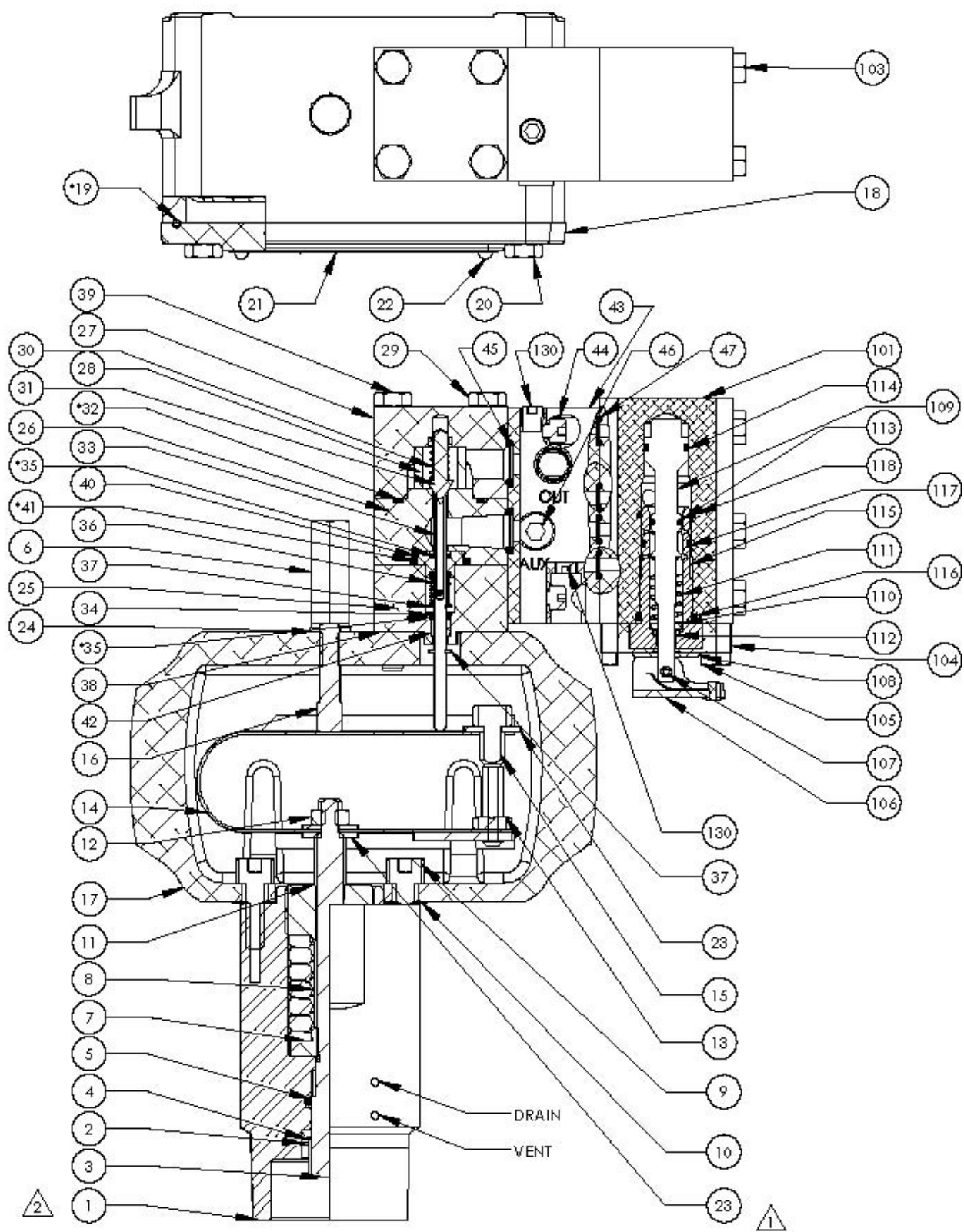
Item	Part Number	Description	Qty
1	CVS APB0570-20001	Body, C1018, Model 2000 – 5/8 Piston	1
	CVS APB057022001	Body, C1018, Model 2200 – 1-1/4 Piston	1
	CVS	Body, C1018, Model 2400 – 3/8 Piston	1
Optional 316 SST Body available – Contact CVS Controls for more information			
2	CVS APB0570-002	Retaining Ring, Model 2000 – 5/8 Piston	1
	CVS	Retaining Ring, Model 2200 – 1-1/4 Piston	1
	CVS	Retaining Ring, Model 2400 – 3/8 Piston	1
3	CVS APB0570-20002	Piston/Stem Assy. – Model 2000 – 5/8 Piston	1
	CVS APB0570-003-2	Stem only, Piston – Model 2200 – 1-1/4 Piston	1
	CVS	Piston/Stem Assy. – Model 2400 – 3/8 Piston	1
4	CVS APB0570-003-3	Spring Pin, (Model 2200 1-1/4 Piston)	1
5	*	Seal, Piston, Model 2000*	1
	**	Seal, Piston, Model 2200**	1
	***	Seal, Piston, Model 2400***	1
6	*	O-Ring, Model 2000*	1
	**	O-Ring, Model 2200**	1
	***	O-Ring, Model 2400***	1
7	CVS APB0570-007	Spring, Seat	1
8	CVS APB0570-006	High Trip Nut	1
9	CVS APB0570-009	Bolt, Body+	2
10	CVS APB0570-010	Gasket, Body	1
11	CVS APB0570-011	Range Screw	1
12	CVS APB0570-012	Jam Nut, Trip Spring+	1
13	CVS APB0570-013	Jam Nut, Low Trip Bolt+	1
14	CVS APB0570-014	Trip Spring Assembly	1
15	CVS APB0570-015	Adjust Bolt	1
16	CVS APB0570-016	Adjust Bolt, High	1
17	CVS APB0570-017	Housing	1
18	CVS APB0570-018	Cover Plate	1
19	CVS APB0570-019	O-Ring, Cover*	1
20	CVS APB0570-020	Bolt, Cover+	4
21	CVS APB0570-021	Name Plate, 316 SST	1
22	CVS APB0570-022	Drive Screw, Name Plate	4
23	CVS APB0570-023	Washer, Trip Spring+	3
24	CVS APB0570-024	Stat-O-Seal, Adjust Bolt*	1
25	CVS APB0570-025	Lower Pilot Body	1
26	CVS APB0570-027	End Cap	1
27	CVS APB0570-028	Filter, Bonded Felt	1
28	CVS APB0570-029	Cap Screw, End Cap+	2
29	CVS APB0570-031	Pilot Poppet	1
30	CVS APB0570-032	O-Ring, Upper body*	1
31	CVS APB0570-033	Pilot	1
32	CVS APB0570-034	Retaining Ring, Seal+	1
33	CVS APB0570-035	O-Ring, Spool*	2
34	CVS APB0570-037	Retaining Ring, Seal	2
35	CVS APB0570-038	Gasket	1
36	CVS APB0570-039	Cap Screw, pilot Mount+	2
37	CVS APB0570-040	Sleeve, Pilot	1
38	CVS APB0570-041	O-Ring, Sleeve*	1
39	CVS APB0570-042	Pilot Bushing	1
40	Refer to pg. 4 for Model and Spring selection	Range Spring – Blue (-1), Red (-4), Bronze (-7), Green (-10)	1
41	CVS APB0570-030	Poppet Spring	1
42	CVS APB0570-036	Spool Spring	1
43	CVS APB0570-003-1	Piston, Model 2200 – 1-1/4 Piston	1
44	CVS APB0570-026	Pilot Upper Body	1

*Part of Seal Kit – CVS APB05705/8-SKF, Seal Kit Model 2000

**Part of Seal Kit – CVS ABB05701.125-SKF, Seal Kit Model 2200

+Part of Bolt Kit, Series 2000 – CVS PAR-2000-Kit, Bolt Kit all Series 2000

Series 2000 Pressure Pilot Assembly Parts Listing - Manual Reset



CVS Series 2000 Parts Listing – Manual Reset

Item	Part Number	Description	Qty	Item	Part Number	Description	Qty
1	CVS APB0570-20001	Body, 5/8 Piston	1	43	CVS CB0066-10-043	Manifold, Reset Valve	1
	CVS APB0570-001	Body, 1-1/4 Piston	1	44	CVS CB0066-10-044	Capscrew, Manifold	2
		Body, 3/8 Piston	1	45*	CVS CB0066-10-045	O-Ring, Manifold, 2-112	2
Optional 316 SST Available – Contact CVS Controls for more information				46	CVS CB0066-10-046	Plug, 1/4" NPT, Manifold	1
2	CVS APB0570-002	Ret Ring, 5/8 Piston	1	47*	CVS CB0066-10-047	O-Ring, Manifold, 2-011	4
	CVS	Ret Ring, 1-1/4 Piston					
	CVS	Ret Ring, 3/8 Piston	1	101	CVS CB0066-10-101	Body, Reset Valve	1
3	CVS APB0570-20002	Piston/Stem assy, 5/8 Piston	1	103	CVS CB0066-10-103	Capscrew, Reset Valve	3
	CVS APB0570-003-2	Stem, Piston, 1-1/4 Piston	1	104	CVS SCHA-RV-008	Sleeve Retainer	1
	CVS			105	CVS CB0066-10-105	Capscrew, Sleeve Retainer	2
4	*	Seal #1, Piston, 2000*	1	106	CVS SCHA-RV-002	Toggle Assembly	1
	**	Seal #1, Piston, 2200**	1	107	CVS CB 0066-10-107	Slotted Spring Pin, Ø 5/32"	1
		Seal #1, Piston, 2400	1	108	CVS SCHA-RV-004	Washer, Toggle	1
5	*	Seal #2, Piston, 2000*	1	109	CVS SCHA-RV-003	Spool, Reset Valve	1
	**	Seal #2, Piston, 2200**	1	110	CVS SCHA-RV-006	Washer, Spring	1
		Seal #2, Piston, 2400	1	111	CVS SCHA-RV-005	Spring, Reset Valve	1
6	CVS APB0570-006	High Trip Blind Nut	1	112*	CVS CB0066-10-112	O-Ring, Sleeve Stem, 2-011	1
7	CVS APB0570-007	Spring Seat	1	113*	CVS CB0066-10-113	O-Ring, Spool, 2-012	1
8	Refer to Page 4 for Spring Selection	Range Spring	1	114*	CVS CB0066-10-114	O-Ring, Spool Piston, 2-015	1
9	CVS APB0570-009	Bolt, Body	2	115	CVS SCHA-RV-007	Sleeve, Reset Valve	1
10	CVS APB0570-010	Gasket, Body	1	116*	CVS CB0066-10-116	O-Ring, Sleeve Head, 2-116	1
11	CVS APB0570-011	Range Screw	1	117*	CVS CB0066-10-117	O-Ring, Sleeve, 2-016	1
12	CVS APB0570-012	Jam Nut, Trip Spring	1	118*	CVS CB0066-10-118	O-Ring, Reset Valve, 2-018	1
13	CVS APB0570-013	Jam Nut, Low Trip Bolt	1	130	CVS CB0066-10-130	Plug, Manifold	2
14	CVS APB0570-014PR	Trip Spring Assembly	1				
15	CVS APB0570-015	Low Trip Adjustment Bolt	1				
16	CVS APB0570-016	High Trip Bolt	1				
17	CVS APB0570-017	Housing	1				
18	CVS APB0570-018	Cover Plate	1				
19*	CVS APB0570-019	O-ring, Cover 2-248	1				
20	CVS APB0570-020	Bolt, Cover	4				
21	CVS APB0570-021	Nameplate	1				
22	CVS APB0570-022	Drive Screw, Nameplate	4				
23	CVS APB0570-023	Washer, Trip Spring	3				
24	CVS APB0570-024	Stat-O-Seal	1				
25	CVS CB0066-10-025	Low Body, Pilot	1				
26	CVS CB 0066-10-026	Upper Body, Pilot	1				
27	CVS CB 0066-10-027	End Cap, Pilot	1				
28	CVS APB0570-028	Filter Element, Pilot	1				
29	CVS APB0570-029	Capscrew, Endcap	2				
30	CVS APB0570-030PR	Spring, Poppet	1				
31	CVS APB0570-031	Poppet, Pilot	1				
32*	CVS APB0570-032	O-Ring, Upper Body	1				
33	CVS APB0570-033	Spool, Pilot	1				
34	CVS APB0570-034	Retaining Ring, Seal	1				
35*	CVS APB0570-035	O-Ring, Spool	2				
36	CVS APB0570-036PR	Spring, Spool	1				
37	CVS APB0570-037	Retaining Ring, Seal	2				
38	CVS APB0570-038	Gasket, Pilot	1				
39	CVS APB0570-039	Capscrew, Pilot Mounting	2				
40	CVS APB0570-040	Sleeve, Pilot	1				
41*	CVS APB0570-041	O-Ring, Sleeve, 2-116	1				
42	CVS APB0570-042	Bushing, Spool	1				

*Spare Parts Available

CVS Series 2000 Set Point Adjustment

Ensure that all pressure is exhausted from the system prior to performing any service work. Failure to remove the pressure from the system can result in serious personal injury.

High and Low Set Point Adjustment:

- The Low set point is to be adjusted first. Once set, it will not be changed while setting the high set point. This prevents changes in high set point adjustment as the low point is being set.

1. Turn the High Trip Bolt (16) counter clockwise, to be completely away from the trip spring.
2. Adjust Low Trip Bolt (15) by repeatedly turning clockwise to increase the low set point, until low trip occurs at required pressure. Tighten low trip bolt jam nut (13) to secure and recheck. Ensure there is at least 0.02" of piston travel to low trip bottom stop.

- The Low trip bolt is easily adjusted by hand by pushing down on the trip spring while turning the low trip bolt.

3. Continually adjust the high trip bolt by turning clockwise to increase the pressure for required high trip set point. Tighten the high trip locknut (8) to secure high set point and double check settings.

Low Set Point Only Adjustment:

1. Turn the High Trip Bolt (16) counter clockwise, to be completely away from the trip spring.
2. Adjust Low Trip Bolt (15) by repeatedly turning clockwise to increase the low set point, until low trip occurs at required pressure. Tighten low trip bolt jam nut (13) to secure and recheck set point. Ensure there is at least 0.02" of piston travel to low trip bottom stop.
3. Disable High Trip by increasing pressure until the piston is at the upper stop. Adjust high trip bolt downward until high trip occurs, then back off high trip bolt ½ turn. Ensure that high trip does not occur when piston travels to upper stop. This adjustment is required to prevent the trip spring from placing unnecessary force on the solenoid valve spool.

High Set Point Only Adjustment:

1. In order to disable the low trip set point, adjust the low trip bolt until low trip occurs when piston is within 0.02" of bottom stop. Back off low trip bolt by turning counterclockwise three full turns. Tighten low trip bolt jam nut, and ensure that low trip does not occur when piston travels to bottom stop.
2. Continually adjust the high trip bolt by turning clockwise to increase the pressure for required high trip set point. Tighten the high trip locknut (8) to secure high set point and recheck.

CVS Series 2000 Range Screw Adjustments

When purchasing a CVS Series 2000 Pressure Pilot, the range/span is set to the requirements specified by end user. Should further range/span adjustments be required please contact a CVS Controls representative for information.

Notes:

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