

Fermilab

**Particle Physics Division
Mechanical Department Calibration
Standards/Procedures**

Number: MD-CALPROC-014

Date: 6/26/2009

Manufacturer: Cash Acme

Model: Cash-Acme Type B Repair & Maintenance Sheet

Reviewer(s): *James E. Tweed*

This Procedure is used for:

Calibration of Cash Acme cryogenic pressure regulators.

Title:

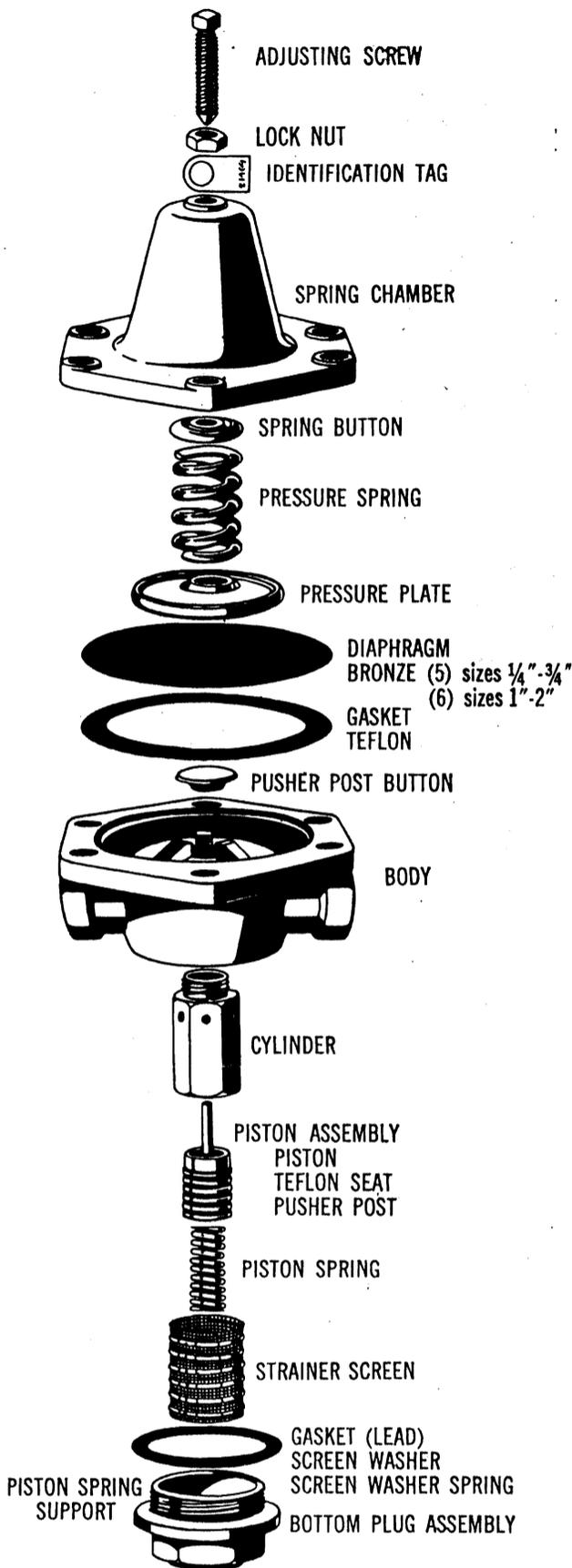
**CRYOGENIC SERVICE REGULATORS
CASH-ACME TYPE B
REPAIR & MAINTENANCE SHEET**

This Is Page No.: **CRYO-10c**

Date Of This Issue: **11-23-88**

Supersedes Page No. **CRYO-10b**

Dated: **4-5-85**



SIZES:

1/4" to 2" Screwed ends.

CONSTRUCTION:

Bronze body
Bronze trim
Teflon seat
Bronze diaphragms

Teflon diaphragm gasket
Silicon bronze bolts and nuts
Stainless steel pressure spring
Lead bottom plug gasket

All parts commercially cleaned.

TEMPERATURE RATING

+150° F (339° K) to -320° F (78° K)

MAXIMUM INITIAL PRESSURE

400 psi

REDUCED PRESSURE RANGES

VALVE SIZE		SPRING NUMBER	RANGE PSI	VALVE SIZE		SPRING NUMBER	RANGE PSI
Inches	mm			Inches	mm		
1/4	8	4765	10-30	1	25	8484	10-35
		7337	25-100			8485	20-60
		8741	50-200			8486	50-100
		10661	100-250			8487	100-250
1/2	10	11143	20-50	1 1/2	32	8484	10-30
		8691	40-150			8485	20-40
		8683	100-225			8486	35-80
		14301	100-250			8487	75-150
3/4	15	11143	10-30	1 1/2	40	8484	10-30
		10016	20-75			8485	20-40
		10017	25-125			8486	35-80
		10018	100-200			8487	75-150
		10019	150-250			6301	10-20
1	20	11143	10-30	2	50	8773	10-50
		10016	20-70			12913	20-100
		10017	30-100				
		10018	50-150				
		10019	100-225				
		9983	150-250				

TYPE B REPAIR PARTS

Illustrated at the left are all working parts of the CASH-ACME Type B pressure regulators. All are factory guaranteed and available for shipment from stock. Complete instructions for replacing worn parts are found on the reverse of this page. The piston and cylinder wear equally; to insure correct fit they should always be replaced at the same time.

HOW TO ORDER PARTS:

When ordering repair parts, please use part names listed at left, and give the assembly number found on the brass identification tag under the adjusting screw lock nut. Pre-packaged repair kits are also available as listed on the reverse of this page. When ordering parts or kits, state the following:
"Repair parts for Type B" and state:

1. Pipe Size
2. Service and Temperature
3. Initial Pressure
4. Reduced Pressure
5. Quantity of Each Part

A.W. CASH VALVE MFG. CORP.
P.O. BOX 191



DECATUR, ILLINOIS, 62525
TELEPHONE 217/422-8574

REPAIR KITS

Kit Number	Pipe Size	Valve Number	Dia-phragm	Dia-phragm Gasket	Piston Assembly	Cylinder	Gasket Bottom Plug
12358	¼	12315	1632	12308	8597	1933	7984
12359	¾	12316	1763	12309	8598	1934	7984
12360	½	12317	1580	12311	12394	1935	3109
13658	½	12290	1580	12311	12294	12293	3109
12361	¾	12318	1582	12312	12394	1935	3109
13655	¾	12300	1582	12312	12294	12293	3109
12362	1	12319	1781	12297	7795	1936	4068
13656	1¼	12320	1802	12326	8561	1938	4608
13656	1½	12321	1802	12326	8561	1938	4068
-	2	8580	1834	8575	8576	1824	8578

TO REPLACE DIAPHRAGM OR PRESSURE SPRING

(Shut Off Service Before Starting Disassembly.)

Figure 1. First loosen lock nut, then back off adjusting screw by turning counter-clockwise until free of spring tension. This is most important.

Figure 2. Remove the six assembly bolts, using two standard end wrenches. When reassembling, tighten opposite sides alternately.

Figure 3. Spring chamber may now be removed. The spring button, pressure spring, pressure plate and diaphragm are now easily accessible.

Figure 4. Pressure plate may now be removed. Pressure plate is NOT secured to the diaphragm.

Figure 5. Diaphragm may now be removed. A Teflon gasket is located under the diaphragm. Five metal diaphragms are used in valve sizes ¼" through ¾"; 6 are used in valve sizes 1" through 1½".

Figure 6. The pusher post button may now be lifted off the protruding piston post. Note: When reassembling, be sure pusher post button is centered properly on the piston post.

TO REPLACE INNER RENEWABLE "WORKING UNIT"

(Shut Off Service Before Starting Disassembly)

Figure 7. Loosen hexagon bottom plug with standard wrench and carefully unscrew by hand; bottom plug is under slight tension because of piston spring. The lead gasket not only effects a tight closure, but assures later easy removal by preventing sticking or bonding of bottom plug to body. (On 2" valves bottom plug construction is different; see Figure 11.)

Figure 8. The piston, piston spring and strainer screen are held in place by the bottom plug and normally "drift" out with the bottom plug.

Figure 9. Unscrew hexagon cylinder, using a SOCKET wrench to prevent distortion. Note that the design extends end of cylinder BELOW face of valve body for quick and convenient removal.

Figure 10. Should the cylinder need replacing, the piston should also be replaced (and vice versa) because both parts wear simultaneously and equally. When ordering a new cylinder and piston be sure to specify the ASSEMBLY NUMBER found on metal identification tag under adjusting screw (See page 1).

Figure 11. On 2" valves the bottom plug is constructed as shown. To remove, unscrew six bottom screws and drop bottom plug. Next, remove two cylinder plate screws and cylinder plate. Strainer screen may now be removed, exposing piston and cylinder for removal as above.

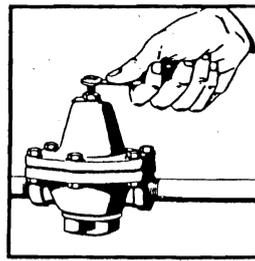


FIGURE 1

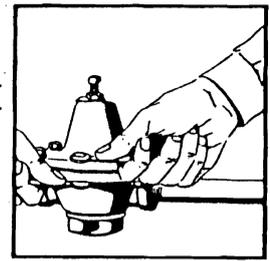


FIGURE 2

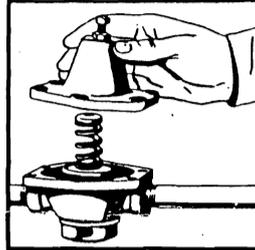


FIGURE 3

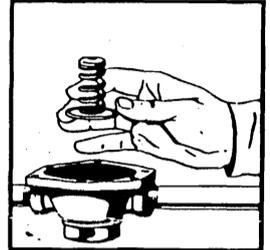


FIGURE 4

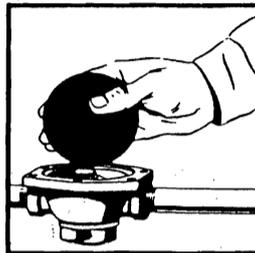


FIGURE 5

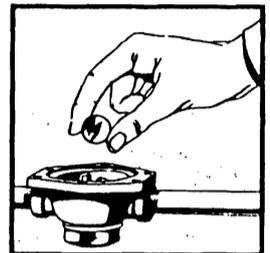


FIGURE 6

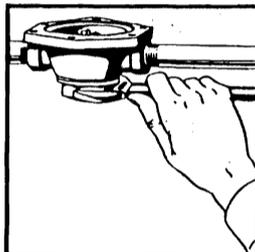


FIGURE 7

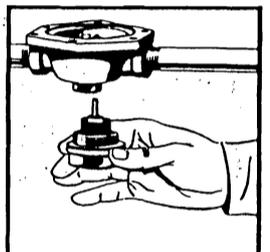


FIGURE 8

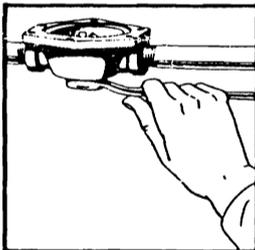


FIGURE 9

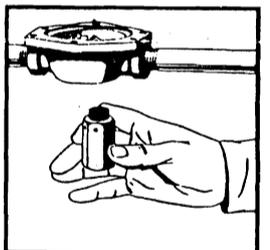


FIGURE 10

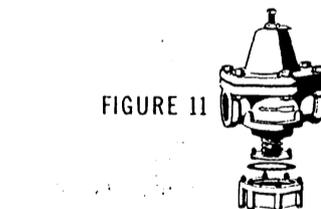


FIGURE 11

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