



# Series “BA” Bladder Accumulators

- 10 Cu. In. through 40 Gallons
- 3,000 and 5,000 psi Standard
- Bottom and Conventional Top Repairable

## Installation

All accumulators shipped from the factory will be precharged to a nominal pressure in order to seat the poppet valve on the hydraulic port. In this case the precharge will not be listed on the label. However, in some cases they will be shipped with a nitrogen charge, the value of which will be marked on the label/nameplate.

Keep the hydraulic port covered to keep out foreign material until ready to make the hydraulic connections.

The accumulator should be mounted within 25° of vertical with the hydraulic port on the bottom. It should also be rigidly mounted using appropriate mounting hardware, which is shown in the Accumulator Accessories section of this catalog. The hydraulic circuit, which contains a connection to the accumulator, should be designed so that it automatically discharges all hydraulic fluid from the accumulator when the equipment is turned off.



## Bladder Accumulators

Hydraulic Accumulators  
Maintenance Instructions

## Pre-Charging

Use only an inert gas such as nitrogen for precharging piston accumulators. Do not use oxygen or shop air.

If water pumped nitrogen is not available, oil-pumped nitrogen may be used. (C.G.A. Standards: Nitrogen gas bottles for water pumped nitrogen has a right-hand valve thread which requires charging and gauging assembly †144595XX00 for units up to 3000 psi. Oil-pumped nitrogen requires a left-handed valve thread (use †144596XX00).

It is recommended to use charging and gauging assembly as shown in Figure 1 (Part †144595XX00, right-hand thread; Part †144596XX00, left-hand thread), and in Figure 4 Part †0871XX0000 for 1-15 gallon & Part †087102XX00 for 10-150 cu. in. accumulator rated for 3,000 psi or less. For accumulators rated for 5,000 psi, as well as the 25-40 gallon, 3,000 psi accumulators, use assembly shown in Figure 6 (Part †144912XX00). If other equipment is used, make sure it is compatible with the gas valve assembly and nitrogen source. All components must be rated for a pressure at least as high as the nitrogen source. **It is strongly recommended that the nitrogen bottle used have a high pressure regulator.**

Make sure nitrogen supply is shut off. Attach hose to nitrogen bottle. If accumulator has a gas valve as shown in Figure 8A or 8B, follow steps A through L and skip steps F and J. If accumulator has a gas valve as shown in Figure 9, follow steps A through L and skip steps E and I.

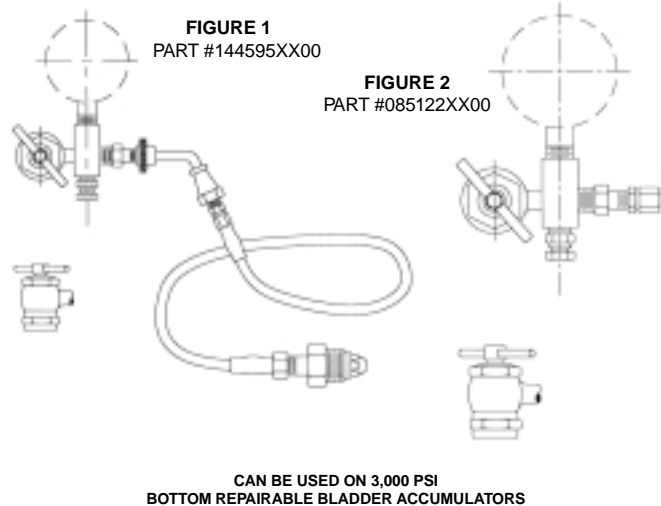
## Accumulators having gas valve per Figure 8A or 8B

- Remove gas valve guard and gas valve cap.
- Back gas chuck "T" handle all the way out (counterclockwise) before attaching charging assembly to accumulator gas valve.
- Close bleed valve.
- Making sure not to loop or twist the hose, attach swivel nut to gas valve and tighten (10-15 in. lb.) (11.5-17 cm kg).

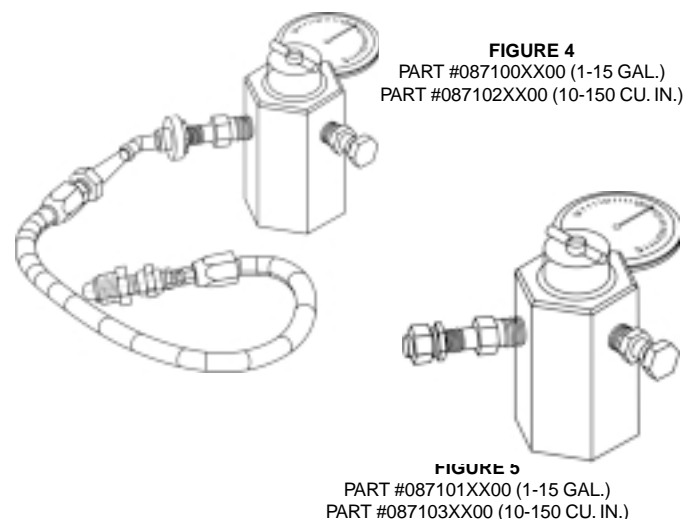
**NOTE:** For top repairable units having valves as shown in Figure 8B, a valve extension as shown in Figure 3 must be attached to the gas valve after removing valve cap.

- Turn gas chuck "T" handle until the gauge starts showing the pressure in the accumulator. Do not turn the "T" handle all the way down, as it will damage the valve core.
- For gas valves as shown in Figure 9**, hold gas valve at point "C" with one (1) wrench while unscrewing hex nut at point "D" with a second wrench. This will open the poppet inside the gas valve. Note: Three (3) turns will fully open the valve.
- Crack open nitrogen bottle or regulator valve and **slowly** fill accumulator. **Caution:** If the precharge is not done slowly, the bladder may suffer permanent damage. Shut off when gauge indicates 100 psi above desired precharge. (Note: It is recommended that precharge pressure be at least 25% of maximum system pressure.) Damage to bladder may occur if this ratio is not maintained or exceeded. For shock suppression applications, precharge is usually set at about 65% of system pressure. When the accumulator is used to supplement pump flow, auxiliary power supply or leakage compensation, precharge is usually set at approximately 90% of minimum system pressure.
- Let the precharge set for 10 to 15 minutes. This will allow the gas temperature to stabilize. If the desired precharge is exceeded, close nitrogen bottle valve, then slowly open bleed valve. Do not reduce precharge by depressing valve core with a foreign object. High pressure may rupture rubber valve seat.

- When finished precharging accumulator, turn "T" handle all the way out on gas chuck, then open bleed valve.
- For gas valves as shown in Figure 9**, with a wrench, tighten hex nut at point "D" to close internal poppet (5-8 ft. lbs.) (5.7-9.2 cm kg).
- Hold gas valve to keep from turning, loosen swivel nut, remove assembly. Check for precharge leak using a common leak reactant.
- Replace gas valve cap (10-15 in. lbs.) (11.5-17 cm kg) and valve guard. (Gas valve cap serves as a secondary seal.)

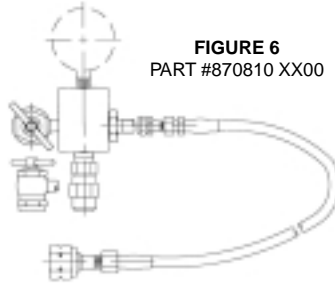


**FIGURE 3**  
VALVE EXTENSION P.N. 085434 0000 FOR USE ON CONVENTIONAL  
TOP REPAIRABLE UNITS IN CONJUNCTION WITH FIGURES 1 OR 2

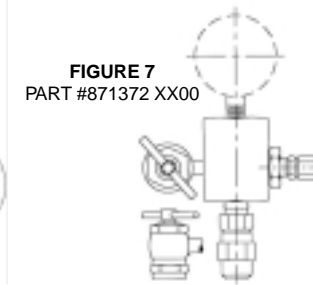


† "XX" Denotes to gauge pressure

<b>Part Number</b>	<b>Charging and Gauging Assembly for 3000 PSI Bottom Repairable</b>
144595 XX00 (Std) (Right Hand)	Charging and Gauging Assembly consists of 10' charging hose with standard right-hand thread nitrogen fittings adapter incorporating gas valve bleeder valve and gas chuck (less gauge). For left-hand thread nitrogen bottle fitting specify part number 144596 XX00.
<b>Part Number</b>	<b>Charging and Gauging Assembly for 3000 PSI Bottom &amp; Top Repairable</b>
087102 XX00 (10-150 cu. in.) 087100 XX00 (1-15 gal.)	Charging and Gauging Assembly consists of 10' charging hose with standard right-hand thread nitrogen fittings adapter incorporating gas valve bleeder valve and gas chuck (less gauge).
<b>Part Number</b>	<b>Gauging Assembly for 3000 PSI Bottom Repairable</b>
085122 XX00	Gauging device consisting of adapter incorporating gas valve bleeder valve and gas chuck including gauge.
<b>Part Number</b>	<b>Gauging Assembly for 3000 PSI Top Repairable</b>
087103 OXX00 (10-150 cu. in.) 087101 OXX00 (1 - 15 gal.)	Gauging device consisting of adapter incorporating gas valve bleeder valve and gas chuck (less gauge).
<b>Part Number</b>	<b>Valve Extension for 3000 PSI</b>
085434 XX00	Contains extension and valve core.



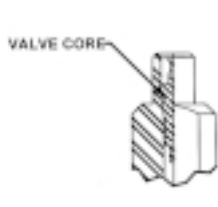
**FIGURE 6**  
PART #870810 XX00



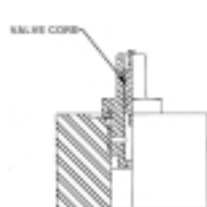
**FIGURE 7**  
PART #871372 XX00

**25 - 40 GALLON 3000 PSI AND ALL 5000 PSI UNITS**

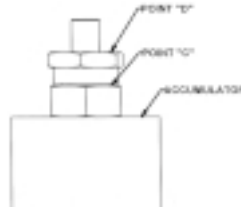
<b>Part Number</b>	<b>Charging and Gauging Assembly for 25-40 Gal. 3000 &amp; 5000 PSI</b>
870810 XX00	Charging and Gauging Assembly consists of 10' charging hose with standard right-hand thread nitrogen fittings (1.035-14 NGO female) adapter incorporating gas valve bleeder valve and gas chuck (less gauge).
<b>Part Number</b>	<b>Gauging Assembly for 5000 PSI</b>
871372 XX00	Gauging device consisting of adapter incorporating gas valve bleeder valve and gas chuck (less gauge).



**FIGURE 8A**  
3000 PSI VALVES



**FIGURE 8B**



**FIGURE 9**  
5000 PSI VALVES

**Maintenance**

Little maintenance is required for a bladder accumulator. If there is external leakage, tighten all connections. If leakage continues, remove accumulator from system and replace faulty components.

After original installation, check pre-charge once during first week to see that no leak has developed. Thereafter, check pre-charge monthly. Check pre-charge if the system is acting sluggish. If pre-charge is low, check gas valve for leakage and recharge.

If there is no gas in bladder and fluid appears at gas valve, unit must be removed and bladder replaced.

**Pre-charge Checking Procedure**

Using appropriate valve in the hydraulic system, discharge all oil from accumulator.

For accumulators rated for 3000 psi, either use gaging assembly in Figure 2 (Part #085122XX00) or gaging assembly in Figure 5 (Part #087101XX00) and follow Steps 1 through 7.

For accumulators rated for 5000 psi, use gaging assembly in Figure 7 (Part #871372XX00) and follow steps 8 through 14.

**3000 PSI RATED UNITS**

- (1) Remove gas valve guard and gas valve cap. (For top repairable unit connect valve extension Part #085434XX00) as shown in Figure 3 and tighten with wrench.
- (2) Close bleed valve and turn "T" handle all the way out.
- (3a) Attach gauging assembly to gas valve or to gas valve extension and tighten swivel nut (10-15 in. lb.) (11.5-17 cm kg), when using gauging assembly in Figure 1.
- (3b) Install gas valve o-ring on the gas valve, and attach gauging assembly to valve stem. Tighten assembly (25-30 in. lb.) (29-35 cm kg) when using gauging assembly in Figure 4.
- (4) Turn "T" handle all the way down, which will depress core in gas valve and check pressure.
- (5) To remove gauging assembly, turn "T" handle all the way out and then open bleeder valve.
- (6) Hold gas valve from turning, loosen swivel nut and remove assembly.
- (7) If necessary, remove valve extension, then install cap on gas valve (10-15 in. lb.) (11.5-17 cm kg) and valve guard.

**25-40 GALLON 3000 PSI AND 5000 PSI RATED UNITS EQUIPPED WITH MS GAS VALVE AS SHOWN IN FIGURE 9.**

- (8) Remove gas valve guard and gas valve cap.
- (9) Close bleed valve.
- (10) Attach gauging assembly to gas valve and tighten swivel nut (10-15 in. lb.) (11.5-17 cm kg).
- (11) Referring to Figure 9, hold gas valve at point "C" with one (1) wrench while unscrewing hex nut at point "D" with a second wrench. This will open the poppet inside the gas valve. Note, four (4) turns will fully open poppet. Check pre-charge pressure.
- (12) With wrench, tighten hex nut at point "D" to close internal poppet (10-15 in. lb.) (11.5-17 cm kg).
- (13) Hold gas valve at point "C" with a wrench and remove swivel nut assembly.
- (14) Replace cap on gas valve (10-15 in. lb.) (11.5-17 cm kg) and install gas valve guard.

**Removal of Accumulator From Hydraulic System**

Shut equipment down and make certain that hydraulic pressure at the accumulator is at zero.

Remove gas valve guard and gas valve cap.

**3000 PSI RATED UNITS**

Accumulators rated for 3000 psi will have a gas valve as shown in Figure 8A or 8B. For these units, attach gaging assembly (Part #085122XX00) or (Part #087103XX00) for 10 - 150 cubic inch, and (Part #087101XX00) for 1 - 15 gallon.

Open bleed valve and release all the gas pressure. Detach gauging assembly and, using valve core removing tool (Part #582441XX00), **remove valve core.**

Remove accumulator from hydraulic system.

**25-40 GALLON 3000 PSI AND 5000 PSI RATED UNITS EQUIPPED WITH MS GAS VALVE AS SHOWN IN FIGURE 9.**

Accumulators rated for 5000 psi will have a gas valve as shown in Figure 9. For these units, after removing valve cap, hold valve at point "C" with one (1) wrench while unscrewing hex nut at point "D" with a second wrench until gas begins to escape through the top of the valve. Wait until all the gas pressure has been released.

(Caution: Keep face away from gas valve as the high pressure nitrogen is discharging.)

Remove accumulator from hydraulic system.

### Disassembly of Bottom Repairable Accumulators

**Figure 1.** Once the accumulator has been removed from the equipment, the accumulator body should be secured in a vise, preferably a chain vise. If a standard jaw vise is used, brass inserts should be used to protect the accumulator hydraulic port assembly from damage. Clamp on wrench flats only when using a jaw vise to prevent accumulator from turning.



FIGURE 1



FIGURE 2

**Figure 2.** Remove bleeder plug (if the accumulator is equipped with one) on hydraulic port assembly. Using a spanner wrench, remove lock nut from the hydraulic port assembly; use an adjustable wrench on the flats located on the port assembly to prevent port assembly from rotating.



FIGURE 3

**Figure 3.** Remove spacer, then push the hydraulic port assembly into the shell prior to Step 4.



FIGURE 4

**Figure 4.** Insert hand into the accumulator shell and remove the o-ring backup, o-ring, metal backup. Separate the anti-extrusion ring from the hydraulic port. Fold anti-extrusion ring to enable removal of anti-extrusion ring from shell.



FIGURE 5

**Figure 5.** Remove hydraulic port plug from accumulator shell.



FIGURE 6

**Figure 6.** Remove jam nut from bladder valve stem. Secure valve stem from twisting with an appropriate wrench applied to the valve stem flats.



FIGURE 7

**Figure 7.** Fold bladder and pull out of accumulator shell. A slight twisting motion while pulling on the bladder reduces effort required to remove bladder from shell. If bladder is slippery, hold with a cloth.

### Clean & Inspect

**Cleaning:** All metal parts should be cleaned with a cleaning agent. Seals and soft parts should be wiped clean.

**Bladder:** Inflate bladder to normal size. Wash bladder with a soap solution. If soap solution bubbles, discard bladder. After testing, deflate bladder immediately.

**Hydraulic Port:** Inspect assembly for damage; check the poppet plunger to see that it spins freely and functions properly.

In cases where the accumulator is used with water, check assembly for rust and/or defective plating. If rust is detected, clean with commercial rust remover. If parts are pitted, replace with new components. If protective plating is damaged, replace with new components.

**Seals:** Check anti-extrusion ring and soft seals for damage and wear; replace all worn or damaged seals with original equipment seals from the Hydraulic Accumulator Division.

**Shell:** After shell has been cleaned with a cleansing agent, check the inside and outside of shell. Special attention should be given to the area where the gas valve and hydraulic assembly pass through the shell. Any nicks or damages in this area could destroy the accumulator bladder or damage new seals. If this area is pitted consult factory.

### Bladder Assembly in Bottom Repairable Accumulators

1. After shell has been cleaned and inspected, replace accumulator shell in vise or on table.
2. Spray the inside of the accumulator shell with approximately 10% of the accumulator volume with clean system fluid to lubricate and cushion bladder. Make sure the entire internal of the shell is lubricated.
3. With all gas completely exhausted from bladder, collapse bladder and fold longitudinally in a compact roll.



FIGURE 8

4. **Figure 8.** Insert the bladder pull rod through the valve stem opening and through the shell fluid port; attach the bladder pull rod to the bladder valve stem.



FIGURE 9

5. With one hand, pull the bladder pull rod while feeding the bladder into the shell with the other hand. Slight twisting of bladder will assist in this insertion.

6. **Figure 9.** Once the bladder valve stem has been pulled through the valve stem opening in the shell, install the valve stem nut by hand. Once the valve stem nut is in place, remove the bladder pull rod.

### Disassembly of Conventional Top-Repairable Accumulators

The conventional top-repairable accumulator uses a gas-end adapter which is retained in the shell with an anti-extrusion ring exactly like those used in port assemblies (see **Figure 10**).

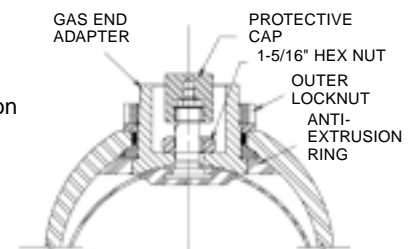


FIGURE 10

1. Make sure the gas is relieved from the accumulator. (See Removal of Accumulator from System).
2. Remove jam nut from bladder gas valve stem using a 1-5/16" socket wrench.

## Bladder Accumulators

- Using a spanner wrench, remove outer lock nut on the gas end adapter.
- Push the gas end adapter complete with the bladder into the shell.
- Insert hand into accumulator, remove the o-ring back-up, o-ring and metal back-up. Separate the anti-extrusion ring from the gas end adapter.
- Fold the anti-extrusion ring and remove from shell. See **Figure 4**.
- Remove gas end adapter from shell.
- Remove bladder from shell.

**NOTE:** Conventional top repairable accumulators may be repaired by removing the bladder from either the hydraulic end or the gas end of the accumulator.

### Clean & Inspect

**Cleaning:** All metal parts should be cleaned with a cleaning agent. Seals and soft parts should be wiped clean.

**Bladder:** Inflate bladder to normal size. Wash bladder with a soap solution. If soap solution bubbles, discard bladder. After testing, deflate bladder immediately.

**Hydraulic Port:** Inspect assembly for damage; check the poppet plunger to see that it spins freely and functions properly. In cases where the accumulator is used with water, check assembly for rust and/or defective plating. If rust is detected, clean with commercial rust remover. If parts are pitted, replace with new components. If protective plating is damaged, replace with new components.

**Seals:** Check anti-extrusion ring and soft seals for damage and wear; replace all worn or damaged seals with original equipment seals from the Accumulator Division.

**Shell:** After shell has been cleaned with a cleansing agent, check the inside and outside of shell. Special attention should be given to the area where the gas valve and hydraulic assembly pass through the shell. Any nicks or damages in this area could destroy the accumulator bladder or damage new seals. If these areas are pitted, consult factory.

### Bladder Assembly in Conventional Top-Repairable Accumulators

- Spray the inside of the accumulator shell with a liberal amount of clean system hydraulic fluid to lubricate and cushion the bladder. Make sure the entire internal surface of the shell is lubricated.
- With all air completely exhausted from bladder, collapse bladder and fold longitudinally in a compact roll.
- Install the gas end adapter on the bladder and secure with jam nut.
- Insert bladder into accumulator shell.
- Insert gas end adapter.
- Fold anti-extrusion ring and place inside accumulator.
- Reaching inside the accumulator, insert the gas end adapter through the anti-extrusion ring and pull into place. The steel surface on anti-extrusion ring should face outward.
- Holding the gas end adapter in place, fill accumulator with approximately 50 PSI nitrogen. This will hold the gas end adapter in place.
- Install the metal backup, o-ring and o-ring backup.
- Install the outer spacer.
- Install the outer locknut.

## Hydraulic Accumulators Maintenance Instructions

### Hydraulic Port Assembly Installation

- Holding the hydraulic port assembly by the threaded end, insert the poppet end into the shell fluid port. Lay complete assembly inside shell.

- Figure 11.** Fold anti-extrusion ring to enable insertion into the shell. Once the anti-extrusion ring has cleared the fluid port opening, place the anti-extrusion ring on the poppet assembly with the steel collar facing toward the shell fluid port.



FIGURE 11

- Pull the threaded end of the port assembly through the shell fluid port until it seats solidly into position on the shell fluid port opening.

- Figure 12.** With port assembly firmly in place, install valve core into the bladder stem. Slowly pressurize the bladder, using dry nitrogen with sufficient pressure (approximately 40-50 psi) to hold poppet assembly in place so both hands are free to continue with assembly.



FIGURE 12

- Figure 13.** Install metal backup washer over hydraulic port assembly and push into the shell fluid port to bottom it out on anti-extrusion ring.



FIGURE 13

- Install o-ring over hydraulic port assembly and push it into the shell fluid port until it has bottomed out against washer.

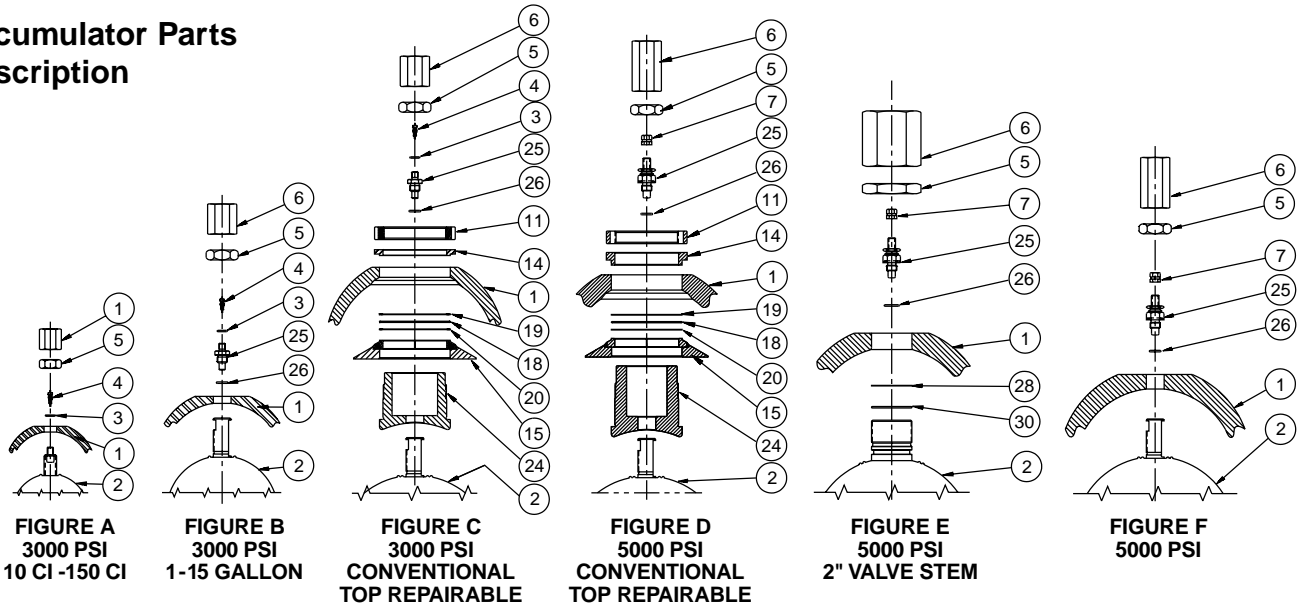
**CAUTION:** Do not twist o-ring.

- Install o-ring backup over hydraulic port assembly and push until it bottoms against o-ring (1-40 gallon sizes and 5K only).
- Insert spacer with the smaller diameter of the shoulder facing the accumulator shell.
- Figure 14.** Install the lock-nut on the hydraulic port assembly and tighten securely. This will squeeze the o-ring into position. Use appropriate wrench on flats of port assembly to insure the unit does not turn.
- Thread bleeder plug into the hydraulic port assembly.
- Position accumulator so that fluid (same fluid as used in the system) can be poured into the accumulator (add approximately 10% of the accumulator capacity). This fluid will act as a cushion when the accumulator is pre-charged with gas.
- Pre-charge accumulator to desired pressure. See pre-charge instructions. Install accumulator on machine.



FIGURE 14

**Accumulator Parts Description**



Item No.	Description
1	Shell
2	Bladder
3	O-ring
4	Valve Core
5	Lock Nut (Jam)
6	Protective Cap
7	Valve Cap
11	Lock Nut Outer
14	Spacer
15	Anti-Extrusion Ring Ass'y.
18	O-ring
19	O-ring Back-up
20	O-ring Back-up Metal
24	Top Adapter
25	Gas Valve
26	O-ring (Gas Valve)
28	Back-up Washer (Stem)
30	O-ring (Stem)

**Suggested Approximate Torque Values**

Protective Cap	14 ft. lbs.
Lock Nut (Jam)	56 ft. lbs.
Valve Core	3-4 in. lbs.
Bleeder Plug	10 ft. lbs.
Lock Nut Outer (1 qt.)	73 ft. lbs.
Lock Nut Outer (1 gal.)	200 ft. lbs.
Lock Nut Outer (2 1/2-15 g.)	275 ft. lbs.
Gas Valve Cap	10-15 in. lbs.

**Bladder Assembly Part Numbers**

Accumulator Size	Seal Type					
	- 01 Nitrile (NBR)	- 03 Hi Temp (NBR)	- 04 Hydrin	- 06 Butyl	- 08 EPR	- 28 Fluorocarbon
<b>3000 PSI - Standard - Ref. Figures A, B &amp; C. Contains Items 2,3,4,18,19,20,25 &amp; 26*</b>						
10 Cu. In.	702900	702901	702902	702903	702904	702906
1 Pt.	702914	702915	702916	702917	702918	702920
1 Qt.**	702928	702929	702930	702931	702932	702934
150 Cu. In.	702942	702943	702944	702945	702946	702948
1 Gal.***	702956	702957	702958	702959	702960	702962
2 1/2 Gal.	702970	702971	702972	702973	702974	702976
5 Gal.	702984	702985	702986	702987	702988	702990
10 Gal.	702998	702999	703000	703001	703002	703004
11 Gal.	703012	703013	703014	703015	703016	703018
15 Gal.	703026	703027	703028	703029	703030	703032
25 Gal.	703340	704007	704008	704009	703341	703342
40 Gal.	703346	704013	704014	704015	703347	703348
<b>5000 PSI - Ref. Figure D and contains Items 2,7,25 &amp; 26</b>						
2 1/2 Gal.	0870445025	C.F.	0870465025	0870455025	0870475025	0870465025
5 Gal.	0870445050	C.F.	0870465050	0870455050	0870475050	0870465050
10 Gal.	0870445100	C.F.	0870465100	0870455100	0870475100	0870465100
15 Gal.	0870445150	C.F.	0870465150	0870455150	0870475150	0870465150
<b>5000 PSI - 2" Valve Stem Ref. Figure E Contains Items 2,7,25,26,28 &amp; 30</b>						
1 Gal. 7/8" Ø Stem	8706135010	8706185010	8706175010	8706145010	8706145010	8706155010
1 Gal. 1" Ø Stem	704060	704061	704062	704063	704064	704066
2 1/2 Gal.	706000	706001	706002	706003	706004	706006
5 Gal.	706010	706011	706012	706013	706014	706016
10 Gal.	706020	706021	706022	706023	706024	706026
15 Gal.	707030	706031	706032	706033	706034	706036
<b>5000 PSI - Ref. Figure F Contains Items 2,7,25 &amp; 26</b>						
2 1/2 Gal.	0850695025	0870435025	0856665025	0850705025	0851055025	0851045025
5 Gal.	0850695050	0870435050	0856665050	0850705050	0851055050	0851045050
10 Gal.	0850695100	0870435100	0856665100	0850705100	0851055100	0851045100
15 Gal.	0850695150	0870435150	0856665150	0850705150	0851055150	0851045150

\*See page 164 for items 18-20.

C.F. = Consult Factory

\*\*Contains items 2,3, & 4 as shown in Figure A. \*\*\*Contains items 2,3,4,18,19,25 & 26.

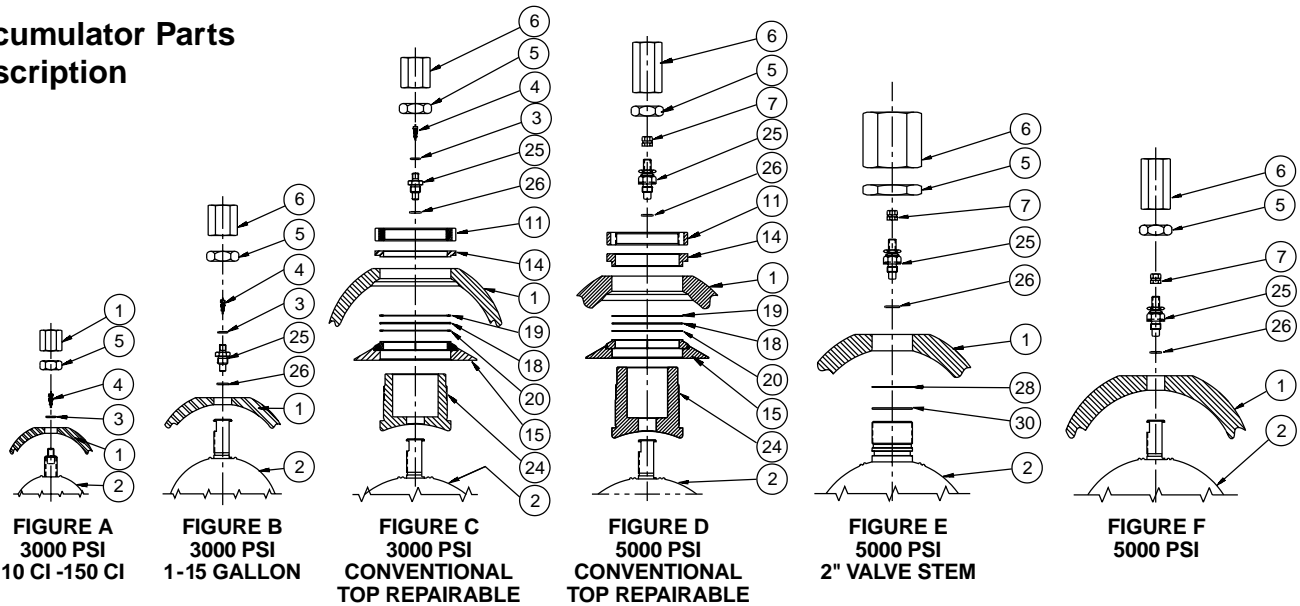
**Gas Valve Assembly Part Numbers**

Size	Pressure	Seal Type				
		Buna-Nitrile -01	Butyl -06	Fluorocarbon -28	EPR -08	Hydrin -04
10 - 150 C.I.	3000 PSI	NA	NA	NA	NA	NA
1 - 15 Gal.†	3000 PSI	L074210001	L074210003	L074210005	L074210007	L074210009
25 - 40 Gal.▲	3000 PSI	L074400001	L074400003	L074400005	L074400007	L074400009
1 - 15 Gal.▲	5000 PSI	L074400001	L074400003	L074400005	L074400007	L074400009

† Contains items 3, 4, 25 & 26.

▲ Contains items 7, 25 & 26.

**Accumulator Parts  
Description**



Item No.	Description
1	Shell
2	Bladder
3	O-ring
4	Valve Core
5	Lock Nut (Jam)
6	Protective Cap
7	Valve Cap
11	Lock Nut Outer
14	Spacer
15	Anti-Extrusion Ring Ass'y.
18	O-ring
19	O-ring Back-up
20	O-ring Back-up Metal
24	Top Adapter
25	Gas Valve
26	O-ring (Gas Valve)
28	Back-up Washer (Stem)
30	O-ring (Stem)

**Suggested Approximate  
Torque Values**

Protective Cap	14 ft. lbs.
Lock Nut (Jam)	56 ft. lbs.
Valve Core	3-4 in. lbs.
Bleeder Plug	10 ft. lbs.
Lock Nut Outer (1 qt.)	73 ft. lbs.
Lock Nut Outer (1 gal.)	200 ft. lbs.
Lock Nut Outer (2 1/2-15 g.)	275 ft. lbs.
Gas Valve Cap	10-15 in. lbs.

**Bladder Assembly Part Numbers**

Accumulator Size	Seal Type				
	Buna	Butyl	Fluorocarbon	EPR	Low Temp. Nitrile
<b>3000 PSI – Standard – Ref. Figures A, B &amp; C. Contains items 2, 3, 4, 18, 19, 20, 25 &amp; 26*</b>					
10 C.I.	0850693C10	0850703C10	0851043C10	0851053C10	0856663C10
1 pt.	0850693001	0850703001	0851043001	0851053001	0856663001
1 qt.**	0850693002	0850703002	0851043002	0851053002	0856663002
150 C.I.	0850693006	0850703006	0851043006	0851053006	0856663006
1 Gal.***	0850693010	0850703010	0851043010	0851053010	0856663010
2 1/2 Gal.	0850693025	0850703025	0851043025	0851053025	0856663025
5 Gal.	0850693050	0850703050	0851043050	0851053050	0856663050
10 Gal.	0850693100	0850703100	0851043100	0851053100	0856663100
11 Gal.	0850693110	0850703110	0851043110	0851053110	0856663110
15 Gal.	0850693150	0850703150	0851043150	0851053150	0856663150
25 Gal.	0850693250	0850703250	0851043250	0851053250	0856663250
40 Gal.	0850693400	0850703400	0851043400	0851053400	0856663400
<b>5000 PSI—Ref. Figure D and contains items 2, 7, 25, &amp; 26</b>					
2 1/2 Gal.	0870445025	0870455025	0870465025	0870475025	0870485025
5 Gal.	0870445050	0870455050	0870465050	0870475050	0870485050
10 Gal.	0870445100	0870455100	0870465100	0870475100	0870485100
15 Gal.	0870445150	0870455150	0870465150	0870475150	0870485150
<b>5000 PSI — 2" Valve Stem Ref. Figure E Contains Items 2, 7, 25, 26, 28 &amp; 30</b>					
1 Gal.	0850695010	0850705010	0851045010	0851055010	0856665010
2 1/2 Gal.	0861905025	0861915025	0861925025	0861935025	0861945025
5 Gal.	0861905050	0861915050	0861925050	0861935050	0861945050
10 Gal.	0861905100	0861915100	0861925100	0861935100	0861945100
15 Gal.	0861905150	0861915150	0861925150	0861935150	0861945150
<b>5000 PSI — Ref. Figure F Contains Items 2, 7, 25 &amp; 26</b>					
2 1/2 Gal.	0850695025	0850705025	0851045025	0851055025	0856665025
5 Gal.	0850695050	0850705050	0851045050	0851055050	0856665050
10 Gal.	0850695100	0850705100	0851045100	0851055100	0856665100
15 Gal.	0850695150	0850705150	0851045150	0851055150	0856665150

**NOTE:** Items shaded in gray will be phased out. \* See following page for items 18-20.  
 \*\*Contains items 2, 3 & 4 as shown in Figure A. \*\*\*Contains items 2, 3, 4, 18, 19, 25 & 26.

**Gas Valve Assembly Part Numbers**

Size	Pressure	Seal Type				
		Buna-Nitrile -01	Butyl -06	Fluorocarbon -28	EPR -08	Hydrin -04
10 - 150 C.I.	3000 PSI	NA	NA	NA	NA	NA
1 - 15 Gal.†	3000 PSI	L074210001	L074210003	L074210005	L074210007	L074210009
25 - 40 Gal.▲	3000 PSI	L074400001	L074400003	L074400005	L074400007	L074400009
1 - 15 Gal.▲	5000 PSI	L074400001	L074400003	L074400005	L074400007	L074400009

† Contains items 3, 4, 25 & 26.  
 ▲ Contains items 7, 25 & 26.



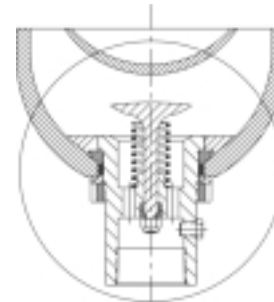
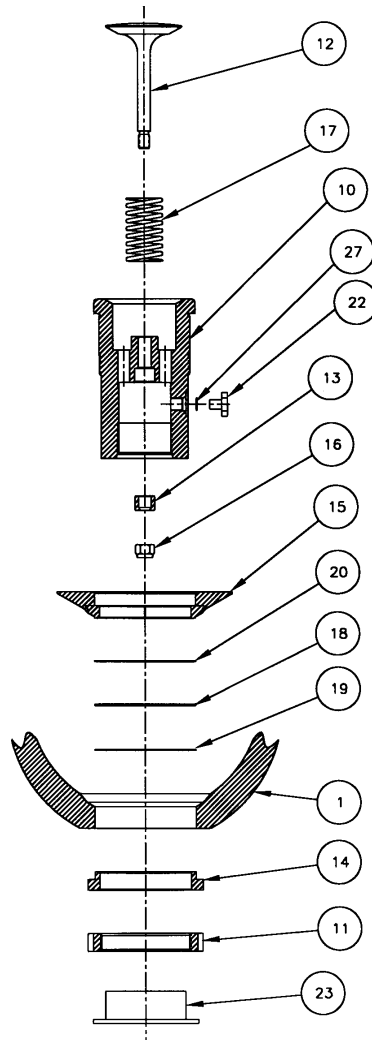
**Accumulator Parts Description**

Item No.	Description
1	Shell
8*	Oil Port Assembly
9**	Poppet & Plug Assembly
10	Oil Port (Machined)
11	Lock Nut Outer
12	Valve Poppet
13	Piston Poppet
14	Spacer
15	Anti-Extrusion Ring Assembly
16	Elastic Stop Nut
17	Spring Poppet
18	O-ring
19	O-ring Back-up
20	O-ring Back-up Metal
22***	Bleeder Plug
23	Dust Cap Oil Port
27	O-Ring (SAE Bleed Plug)

\* Oil Port Assembly contains items 10 through 23.

\*\* Port & Poppet Assembly contains items 10, 12, 13, 16, 17, 22 & 23.

\*\*\* Bleeder Plug for SAE straight thread port assemblies will also contain an o-ring (Item 27).



**Accumulator Accessories**

Description	Part No.
Pull Rod (1 Qt.-2 1/2 Gal)	085109 0250
Pull Rod (5 Gal)	085109 0500
Pull Rod (10-11 Gal)	085109 1000
Pull Rod (15 Gal)	085109 1500
Core Repair Tool	582441 0000
Core Installation Tool	300987
Spanner Wrench	085110 0000

**Accumulator Repair Tools**

1. Bladder Pull Rods—(Bladder Type Accumulator) Pull Rods are available in single or multiple lengths for different size accumulators. The pull rods attach to the gas valve of the bladder for ease of assembly into shell during reassembly.
2. Core Tool—The core tool is used to remove and reinstall the valve core. It is also used to ream valve seat and repair threads.
3. Spanner Wrench—Fits all standard size bladder accumulators. Used to remove hydraulic poppet assembly from accumulator shell.

**Oil Port Assembly Part Numbers**

3000 PSI Accumulators		Seal Type					Port & Poppet Assemblies
Accumulator Size	Port	-01 Buna-Nitrile	-04 Hydrin	-06 Butyl	-08 EPR	-28 Fluorocarbon	
10 Cu. In.	3/4" NPT - Male	L076741*01	L076749*01	L076743*01	L076747*01	L076745*01	L076740*01
10 Cu. In.	SAE #8	L076741*02	L076749*02	L076743*02	L076747*02	L076745*02	L076740*02
1 Pt. - Qt.	3/4" NPT	L075031*01	L075039*01	L075033*01	L075037*01	L075035*01	L075030*01
1 Pt. - Qt.	SAE #12	L075031*02	L075039*02	L075033*02	L075037*02	L075035*02	L075030*02
150 Cu. In.	1" NPT	L074151*01	L074159*01	L074153*01	L074157*01	L074155*01	L074350*01
150 Cu. In.	SAE #16	L074151*02	L074159*02	L074153*02	L074157*02	L074155*02	L074350*02
1 Gal.	1 1/4" NPT	L074161*01	L074169*01	L074163*01	L074167*01	L074165*01	L074360*01
1 Gal.	SAE #20	L074161*02	L074169*02	L074163*02	L074167*02	L074165*02	L074360*02
1 Gal.	1 1/4" SAE Split Flange	L074161*03	L074169*03	L074163*03	L074167*03	L074165*03	L074360*03
2 1/2 - 15 Gal.	2" NPT	L074171*01	L074179*01	L074173*01	L074177*01	L074175*01	L074370*01
2 1/2 - 15 Gal.	SAE #24	L074171*02	L074179*02	L074173*02	L074177*02	L074175*02	L074370*02
2 1/2 - 15 Gal.	2" SAE Split Flange	L074171*03	L074179*03	L074173*03	L074177*03	L074175*03	L074370*03
2 1/2 - 15 Gal.	1 1/4" NPT	L074171*04	L074179*04	L074173*04	L074177*04	L074175*04	L074370*04

\* = "0" (Std.) Oil Service

\* = "S" Water/Chem. Service

