Warning: Installation, disassembly, repair and maintenance must be performed only by qualified personnel.

All gas MUST be evacuated from the system before starting repairs. Remove the entire valve before performing repairs.

Emergency service, on the actuator and lower stem assembly portion of the valve only, may be carried out with the valve installed, provided downstream pressure is relieved under the same conditions required for releasing LP-Gas, as in the caution below, and that there is positive assurance that the valve is closed tight with no leakage past the main seat disc.

Installation, usage and maintenance of this product must be in compliance with all RegO® instructions as well as requirements and provisions for NFPA #54, NFPA #58, DOT, ANSI and all applicable federal, state, provincial and local standard, codes regulations and laws.

Inspection and maintenance on a periodic basis is essential.

Be sure all instructions are read and understood before installation, operation, and maintenance. These instructions must be passed along to the end user of the product.

Thermal links or thermal fuses must not be painted or have any type of ornamental finish applied. Doing so could prevent the thermal device from activation when exposed to a temperature of 250°F.

CAUTION: Contact or inhalation of liquid propane, ammonia and their vapors can cause serious injury or death! NH_3 and LP-Gas must be released outdoors in air currents that will insure dispersion to prevent exposure to people and livestock. LP-Gas must be kept far enough from any open flame or other source of ignition to prevent fire or explosion! LP-Gas is heavier than air and may not disperse or evaporate rapidly if released in still air.

Disassembly and Repair Procedure

CAUTION: READ THROUGH ALL OF THESE INSTRUCTIONS, INCLUDING THE NOTICE AND WARNINGS BEFORE BEGINNING ANY DISASSEMBLY OR REPAIR.

NOTE: Before repairing valve, thoroughly examine valve lever and all associated parts for excessive wear. Check handle for proper function. Any components that are not in good condition and not fully operational should be replaced during repairs.

Repairs must be performed in clean area. Hands, clothing, tools and work area must be completely free of oil, grease, and foreign matter to prevent contamination of component parts and valves.

Manual/Pneumatic Actuator Disassembly

NOTE: The standard A3212R Series is equipped with a manual actuator. It is possible that the valve under repair has been fitted with a A3213PA pneumatic actuator or A3212RA pneumatic rotary actuator. Please follow the disassembly and reassembly procedures for the appropriate actuator.

Manual Actuator Removal

1. Remove the roll pin from the handle and pivot shaft assembly. Discard the roll or cotter pin.
2. Remove handle and save for reassembly.

Pneumatic Actuator Removal

1. Remove the cotter pin from the clevis pin.
2. Remove the roll pin from the crank arm and pivot shaft.
3. Remove the three socket cap screws securing the mounting bracket to the valve body. Save for reassembly.
4. Remove the actuator and save for reassembly.

Pneumatic Rotary Actuator Removal

1. Remove two hex nuts, lock washers and spacers. Save for reassembly.
2. Remove the roll pin from the drive adapter and retain for reassemby.

A3212R-50 Repair Kit for A3212R Series Internal Valves

Valve Disassembly

Stem Assembly

1. Remove the plug from the valve body using a 1/4" NPT wrench. Save for reassembly.
2. Using a 3/16" socket head wrench through the hole created by the plug removal, loosen the socket head screw. The pivot shaft may be secured outside the valve with the handle removed in the earlier section. Through the valve outlet remove the screw and washer from the pivot shaft and save both for reassembly.
3. Through the valve outlet, remove the cam and save for reassembly.
4. Using a 1 3/8" wrench on the seal housing hex, remove the entire pivot shaft assembly from the valve body. The nylon bushing may remain in the body. If it comes out with the assembly, simply place it back into the body.
5. Remove the retaining ring at the small end of the bushing from the pivot shaft.
6. Push the pivot shaft through the seal housing and packing assembly taking care not to scratch the pivot shaft.
7. Carefully remove the spring, washer, jam ring, and two pressure seal rings from the seal housing. Save the washer for reassembly and discard the spring, jam ring, and pressure seal rings.
8. Remove the o-ring from inside the seal housing and discard.

Disc Retainer and Poppet Stem Assembly

1. Use a 11/16" or 7/8" socket wrench in the outlet of the valve body to secure the bottom of the poppet stem assembly.

NOTE: Disc retainer assembly is spring loaded. Hold down the retainer assembly when removing the retainer nut.

2. Remove the retainer nut from the top of the disc retainer assembly with a 1/2" wrench. Save for reassembly.
3. Remove the o-ring from the top of the poppet stem and discard.
4. Remove the disc retainer assembly, excess flow spring, spring guide and retaining ring (valve maybe equipped with a spring wire retaining ring) through the top of the valve body. Save the excess flow spring for reassembly. Remove the three cap screws from the disc retainer assembly. Remove the retaining plate and main seat disc and discard the main seat disc.
5. Remove the poppet stem assembly through the outlet of the valve.
6. Remove the return spring from poppet stem and save for reassembly.
7. Discard stem assembly.

Valve Reassembly

*NOTE: Clean all parts prior to reassembly. When lubrication is required use a non-detergent grease**.*

Seal Housing and Shaft Subassembly

1. Carefully place the new o-ring inside seal housing.
2. Lubricate the pivot shaft and carefully insert through the seal housing, with retaining ring on outside of housing as shown in Figure 1.
3. Lubricate the two new pressure seal rings, new jam ring, and the washer saved from disassembly. Assemble these one piece at a time over the stem and into the seal housing, as shown in Figure 1. Be careful not to damage any pieces on the flat edges of the stem.
4. Holding the seal housing and pivot shaft in a vertical position, place the new spring onto the washer in the seal housing.

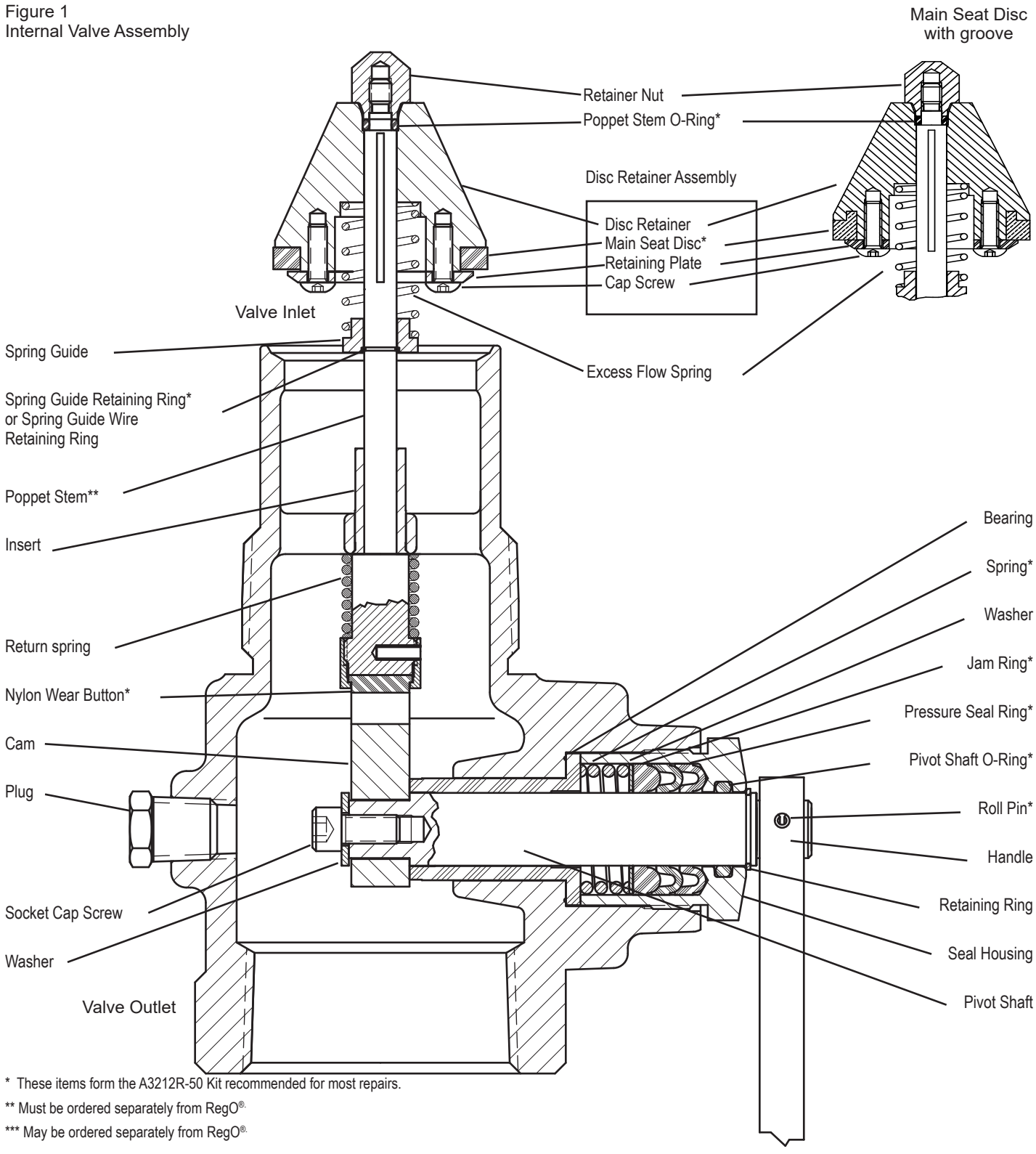
5. Apply Loctite 271® thread locking compound*** to the threads of the seal housing using care not to allow Loctite 271® compound to touch the o-ring or seal rings.
6. Slide the seal housing assembly into the valve body taking care to not scratch the nylon bushing with the pivot shaft. Torque to 750-850 in-lbs.
7. Lubricate the cam contact surface and install onto the pivot shaft inside the valve body as shown in Figure 1. Apply Loctite 271® compound*** to socket cap screw and torque screw to 60-80 in-lbs.
8. Apply Teflon tape to pipe plug and thread back into the valve body with 240-300 in-lbs.
9. Check to see that shaft rotates smoothly.

Disc Retainer and Poppet Stem Assembly

NOTE: Select appropriate main seat disc depending on whether there is a groove in the disc retainer. See Figure 1.

1. Install main seat disc to disc retainer. Apply Loctite 271® thread locking compound*** to threads of the three retaining screws taking care to keep Loctite 271® compound off sealing surfaces and reinstall with the retaining plate.
2. Lubricate the middle and upper portions of the poppet stem.
3. Slide return spring down poppet stem, onto flared end of poppet stem.
4. Carefully slide poppet stem assembly into valve body through the outlet. Hold in position with a 11/16" or 7/8" socket wrench.

Figure 1
Internal Valve Assembly



* These items form the A3212R-50 Kit recommended for most repairs.

** Must be ordered separately from RegO®.

*** May be ordered separately from RegO®.

5. Install a new spring guide retaining ring onto the poppet stem taking care TO NOT STRETCH the retaining ring. Place the spring guide and excess flow spring over the top of the poppet stem as shown in Figure 1.

Note: Use either the spring guide wire retaining ring or standard external retaining ring depending on how the valve was equipped.

6. Carefully place the disc retainer assembly onto the top of the poppet stem.
7. Lubricate new o-ring. While compressing disc retainer assembly down onto poppet stem, install the o-ring onto poppet stem.
8. Apply Loctite 271® thread locking compound*** to the threads of the poppet stem. Be careful not to allow Loctite cement to come in contact with o-ring or seat disc. While holding the disc retainer assembly down onto poppet stem, thread retaining nut onto poppet stem. Tighten with 1/2" wrench.

Manual/Pneumatic Actuator Reassembly

Manual Actuator Reassembly

1. Replace the handle and align holes with those on shaft.
2. Secure with new roll pin.

NOTE: The type of pin removed must be replaced with a pin of the same type. A cotter pin cannot be replaced by a roll pin and a roll pin cannot be replaced by a cotter pin.

Pneumatic Actuator Reassembly- Figure 3

1. Place end of crank arm on pivot shaft of internal valve.
2. Attach actuator bracket to valve body with three socket cap screws.

NOTE: Before attaching actuator to valve be sure cam is in contact with wear button on bottom of stem.

3. Check for correct position of cam as shown in Figure 2.
4. Align holes of crank arm and pivot shaft and secure with a roll pin.

NOTE: The type of pin removed must be replaced with a pin of the same type. A cotter pin cannot be replaced by a roll pin and a roll pin cannot be replaced by a cotter pin.

5. Align hole of crank arm with hole in clevis. Insert clevis pin through both as shown in Figure 3. Secure with a cotter pin through the hole in the clevis pin.

Figure 2
Correct Position of Cam

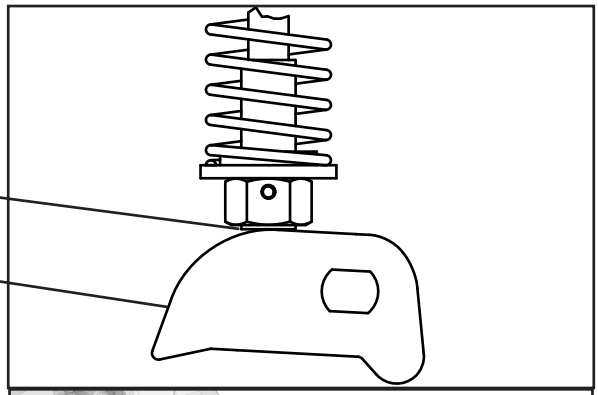


Figure 3
A3213PA Pneumatic Actuator Assembly

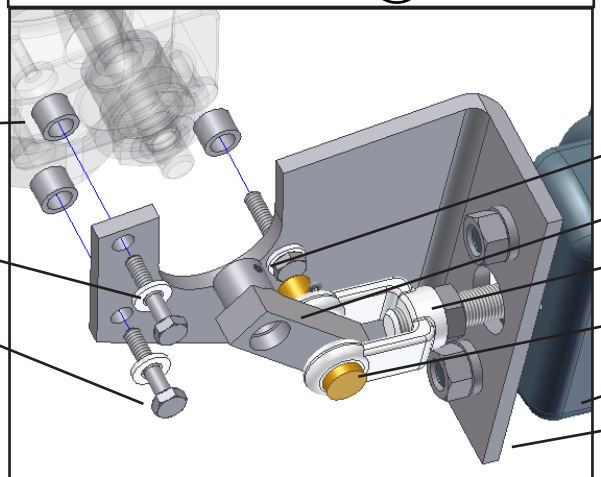
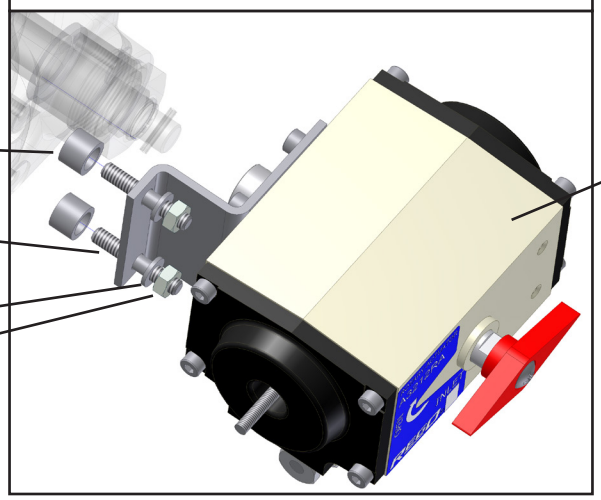


Figure 4
A3212RA Rotary Actuator Assembly



Pneumatic Rotaty Actuator Reassembly- Figure 4

1. Install the drive connection on shaft, align cross drilled hole and verify one flat on square conneaction is oriented horizontally.
2. Install bracket actuator assembly using spacers, lockwashers and nuts.

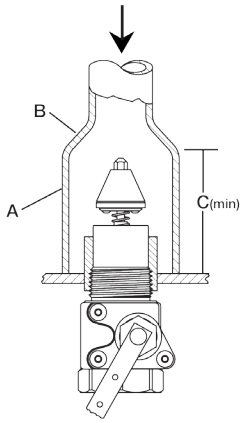
Functional Testing

Connect to 50 to 60 psig air line through a pressure regulated valve to the actuator.

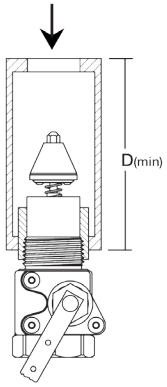
Bench Test: Slowly and alternately apply 0 to 35 psig air pressure to the actuator two or three times while checking for binding and any interference. Make any necessary adjustment so the actuator opens freely.

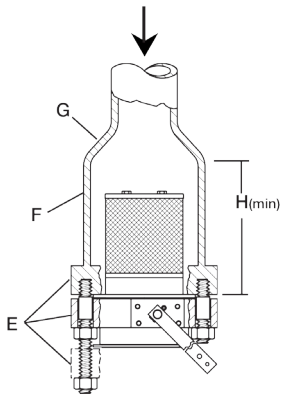
Installed Test: Same as the bench test, except a higher air pressure may be necessary if tank pressure is present.

PipeLine Application for Internal Valves



Standpipes			
	A Pipe Size	B Reducer	C Length (min)
A3209 Series (1 1/4" MNPT)	2"	2" x 1 1/4"	8"
A3212 Series (2" MNPT)	3"	3" x 2"	12"
A3213 Series (3" MNPT)	5"	5" x 3"	14"
A3217 Series (3" Flange)	6"	6" x 3"	14"
A3219 Series (4" Flange)	8"	8" x 4"	14"





In-Line Piping Connections		
Screwed Internal Valve	D (min)	Pipe (min)
A3209 Series (1 1/4" MNPT)	8"	2" Sched. 80
A3212 Series (2" MNPT)	12"	3" Sched. 80
A3213 Series (3" MNPT)	14"	5" Sched. 80

In-Line Piping Connections			
E 300 lbs ANSI RF Flange	F Pipe Size	G Reducer	H Length (min)
A3217 Series (3")	6"	6" x 3"	14"
A3219 Series (4")	8"	8" x 4"	14"

NOTICE

LP-Gas is extremely flammable and explosive. Failure to install parts exactly as described in the instructions could result in a product that will not perform satisfactorily. Even if parts are correctly installed, the product might fail to perform satisfactorily, if other parts are worn, corroded or dirty. Improper repair can cause leaks and malfunction, which could result in bodily injury and property damage. Any such use or installation of parts must ONLY be done by experienced and trained personnel using accepted governmental and industrial safety procedures.

Most RegO® products are listed with Underwriters Laboratories as manufactured. If repaired, the continued validity of the UL listing is contingent upon proper inspection to determine what needs repairing, proper repair using RegO® parts and procedures, and proper testing for leakage and performance following repairs and installation.

RegO® assumes no responsibility or liability for performance of products repaired in the field. It must be clearly understood that the person or organization repairing the product assumes total responsibility for performance of the product.

LIMITED 10 YEAR WARRANTY

RegO® warrants to the original purchasers the products and repair kits manufactured by it to be free from defects in materials and workmanship under normal use and service for a period of 10 years from the date of manufacture. If within thirty days after buyer's discovery of what buyer believes is a defect, buyer notifies in writing and ships the product to RegO® at 100 RegO Drive, Elon, N.C. 27244, RegO®, at its option, and within forty-five days of receipt, will repair, replace F.O.B. point of manufacture, or refund the purchase price of that part or product found by RegO® to be defective. Failure of buyer to give such written notice and ship the product within thirty days shall be deemed an absolute and unconditional waiver of any and all claims of buyer arising out of such defect.

This warranty does not extend to any product or part that is not installed and used continuously after installation in accordance with RegO®'s printed instructions, all applicable state and local regulations, and all applicable national standards, such as those promulgated by NFPA, DOT and ANSI. This warranty does not extend to any product or part that has been damaged by accident, misuse, abuse, failure to maintain, or neglect, nor does it extend to any product or part which has been modified, altered, disassembled, or repaired in the field. This warranty does not cover any cosmetic issues, such as scratches, dents, marring, fading of colors or discoloration.

Except as expressly set forth above, and subject to the limitation of liability below, RegO® MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, with respect to its products and parts, whether used alone or in combination with others. RegO® disclaims all warranties not stated herein.

LIMITATION OF LIABILITY

RegO® total liability for any and all losses and damages arising out of any cause whatsoever shall in no event exceed the purchase price of the products or parts in respect of which such cause arises, whether such causes be based on theories of contract, negligence, strict liability, tort or otherwise.

RegO® shall not be liable for incidental, consequential or punitive damages or other losses. RegO® shall not be liable for, and buyer assumes any liability for all personal injury and property damage connected with the handling, transportation, possession, further manufacture, other use or resale of products, whether used alone or in combination with any other products or materials.

From time to time buyers might call to ask RegO® for technical advice base upon limited facts disclosed to RegO®. If RegO® furnishes technical advice to buyer, whether or not a buyer's request, with respect to application, further manufacture or other use of the products and parts, RegO® shall not be liable for such technical advice or any such advice provided to buyer by any third party and buyer assumes all risks of such advice and the results thereof.

NOTE: Some states do not allow the exclusion or limitation of incidental, consequential or punitive damages, so the above limitation or exclusion may not apply to you. The warranty gives you specific legal rights, and you may have other rights that vary from state to state. The portions of the limited warranty and limitation of liability shall be considered severable and all portions which are not disallowed by applicable law shall remain in full force and effect.

WARNING

All RegO® products are mechanical devices that will eventually become inoperative due to wear, corrosion and aging of components made of materials such as rubber,etc. The environment and conditions of use will determine the safe service life of these products. Periodic inspection and maintenance are essential to avoid serious injury and property damage.

Many RegO® products are manufactured components which are incorporated by others on or in other products or systems used for storage, transport, transfer and otherwise for use of toxic, flammable and dangerous liquids and gases. Such substances must be handled by experienced and trained personnel only, using accepted governmental in industrial safety procedures.

NOTICE TO USERS OF PRODUCTS

The Limited Warranty stated above is a factory warranty to the first purchasers of RegO® products. Since most users have purchased these products from RegO® distributors, the user must within thirty (30) days after the user's discovery of what user believes is a defect, notify in writing and return the product to the distributor from whom he purchased the product/part. The distributor may or may not at the distributor's option choose to submit the product/parts to RegO®, pursuant to this Limited Warranty. Failure by buyer to give such written notice within thirty (30) days shall be deemed an absolute and unconditional waiver of buyer's claim for such defects. Acceptance of any alleged defective product/parts by RegO®'s distributor for replacement or repairs under the terms of RegO®'s Limited Warranty in no way determines RegO®'s obligations under this Limited Warranty.

Because of a policy of continuous product improvement, RegO® reserves the right to change designs, materials or specifications without notice.

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