# RELAYAIR® VALVE H-5, H-5-D, & L-2-A

# Service Information

## TECHNICAL DATA

**Port Sizes**: Port 1 1/4" - 18 NPT
Port 9, 11 & 12 3/8" - 18 NPT
Port 10 1/4" - 18 NPT

**Working Pressure**: 200 PSI max. (Unless otherwise noted)

**Pilot Pressure**: 140 PSI max. for H-5 models
300 PSI max. for L-2-A models

**Temperature Range**: -40°F to +160°F

**Media**: Air, clean & dry

**Materials**: Housing & Body: die cast aluminum
Internal Parts: brass, rubber (Buna-N), aluminum, and steel

**Weight** (approx.): H-5: 5 lbs.
H-5-D: 15 lbs.
L-2-A: 5.75 lbs.

## DESCRIPTION

The RELAYAIR VALVE is a pneumatic or hydraulic piloted, three-way valve that changes the air passages through it when pressure of a predetermined amount, or more, is in the control chamber. The valve may be piped for either normally open or normally closed operation. Although used in many ways, the valve's three basic purposes are:

1. As a non-graduated relay to provide a large flow of air from a separate source when piloted by a small volume of control media and to stop this flow when the control pressure is vented.

2. As an interlock to govern the flow in one circuit by placing its control in another independent circuit.

3. As a sequence valve for such circuit functions as timing, cycling, etc.

All H-5 RELAYAIR VALVES are structurally identical (H-5-D and L-2-A models excepted), except for spring variations as follows:

a. Valves operated by a control or piloting pressure of 35 psi or less have only one diaphragm spring. Valves operated by control or piloting pressure greater than 35 psi have two diaphragm springs.

b. Valves for supply pressures not exceeding 200 psi have a light supply valve spring. Valves for supply pressures up to 300 psi have a heavier spring.

**H-5 MODEL**

To obtain the variety of piloting pressures, different sizes and combinations of inner and outer diaphragm springs are used.

These springs are color coded for identification (see page 3). The nominal control or piloting pressure is stamped on the upper body flange of each valve. Under no conditions should this pressure exceed 140 psi, except for the L-2-A model where control pressure up to 300 psi is permitted.

## WARNING – INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION!** Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic systems and devices, or under trained supervision.

Compressed air systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under pressure. Always exhaust the pressure from an air system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

## INSTALLATION

The RELAYAIR VALVE consists of a valve portion attached to a pipe bracket, which can be mounted to any suitable structure and to which pipe connections are made. Once the valve has been mounted and piping connected, the valve portion is easily removed for cleaning and servicing without disconnecting piping. In mounting, 13/16-inch clearance should be allowed to remove the valve portion from the studs in the pipe bracket.

The valve can be mounted in any position by three 3/8-inch bolts through holes in the flange of the pipe bracket. The valve structure permits a selection of piping arrangements, depending on the function desired (see "Operation"). Port 10, the control port at all times, is tapped 1/4"-18 NPT, as is Port 1, the breather port that can be used for double piloting. All other ports are 3/8"-18 NPT. For additional mounting information, see the "Outline Dimensions."

## ADJUSTMENTS

No adjustments are required on the RELAYAIR VALVE.

## GENERAL MAINTENANCE AND REPAIR RECOMMENDATIONS

Maintenance periods should be scheduled in accordance with frequency of use and working environment of the RELAYAIR® VALVE.

All valves must be visually inspected for wear and given an "in system" operating performance and leakage test at least once a year. If these visual observations indicate valve repair is required, the valve must be removed, repaired and tested.

A major overhaul is recommended at one million cycles. However, where frequency of use is such that it would require more than two years to obtain one million cycles, the valve must be overhauled at the two-year period.

When it is determined that the RELAYAIR VALVE requires a major repair as a result of the one million cycles, one year routine inspection, or the two year service period has elapsed, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. Refer to **MAJOR REPAIR AND MAINTENANCE INSTRUCTION**, page 6.

## OPERATION

In the released position, the piloting or control pressure above the diaphragm is vented. The diaphragm spring returns the diaphragm follower and exhaust valve to their upper positions, allowing the exhaust valve to unseat. The supply valve spring causes the supply valve to seat and close off air in Port 12. With the exhaust valve off its seat, Ports 9 and 11 are connected.

In the applied position, piloting or control pressure enters through Port 10 to the chamber above the diaphragm (two diaphragms on the H-5-D model). When the pressure reaches the setting of the diaphragm spring (31), the diaphragm (27) and its follower (29) move downward, compressing the spring and seating the exhaust valve (14) on top of the supply valve (9). As the downward movement continues, the supply valve moves away from its seat and compresses the supply valve spring (8). With the exhaust valve closing off air in Port 9, Ports 11 and 12 are connected.

## DOUBLE PILOTING

Additional flexibility of operation can be obtained by removing the breather plug (39) and using this tap as Port 1 to introduce another piloting pressure below the diaphragm. This permits double piloting, which provides that the introduction of control pressure above the diaphragm causes downward movement of the parts with corresponding port connections. Then admission of pressure under the diaphragm balances the control pressure and allows the diaphragm spring (31) to return the diaphragm follower and related parts to the upper position.

## CURRENT MODEL DESIGN IMPROVEMENTS

The parts list and exploded view on the following pages show the design of the RELAYAIR VALVE and the repair kits listed provide normal service parts for current valves; most component parts are interchangeable. Complete part numbers of both current and obsolete models are shown in the "Identity Schedule" on page 3.

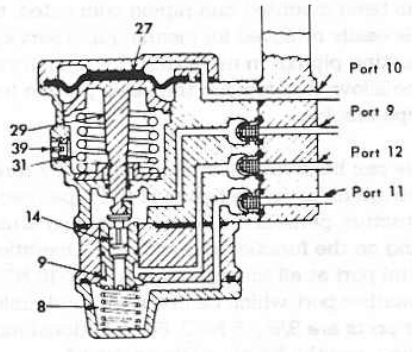
An obsolete valve can be identified by the absence of a nameplate on the check valve body (12). All valves of the current design have a nameplate attached and the part number of the valve shown.

Obsolete valves contain a pressed-in brass wear bushing in the valve body (37). In the current design a sirvon bushing (38) is used, which provides much longer wear and is an easily replaceable service part when required.

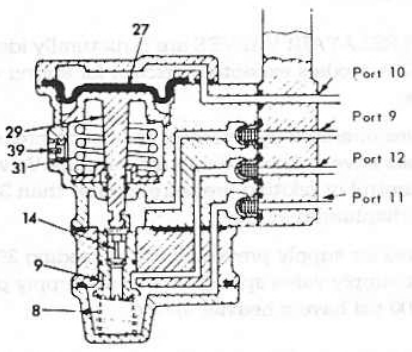
Strainers (5) in the obsolete design were held in the valve body by a retaining ring. This ring is not required in the current design. While the current strainer will fit in an obsolete valve when the retaining ring is discarded, the obsolete strainer cannot be used in a current valve.

The obsolete H-5-D RELAYAIR VALVE has undergone more extensive redesign in addition to the changes noted above. In place of a special body and an oversize diaphragm, diaphragm follower, and diaphragm cover, the current valve uses a standard body and a two-diaphragm stacked assembly to obtain the 3 psi control pressure required. This redesign results in smaller envelope dimensions and maximum interchangeability of parts between H-5 models.

If required for servicing an obsolete H-5-D model, order a diaphragm, Part No. 541886. If the obsolete body, diaphragm cover, or diaphragm follower unit are required for servicing, a current complete H-5-D RELAYAIR VALVE should be ordered.



Released Position



Applied Position

# IDENTIFY SCHEDULE

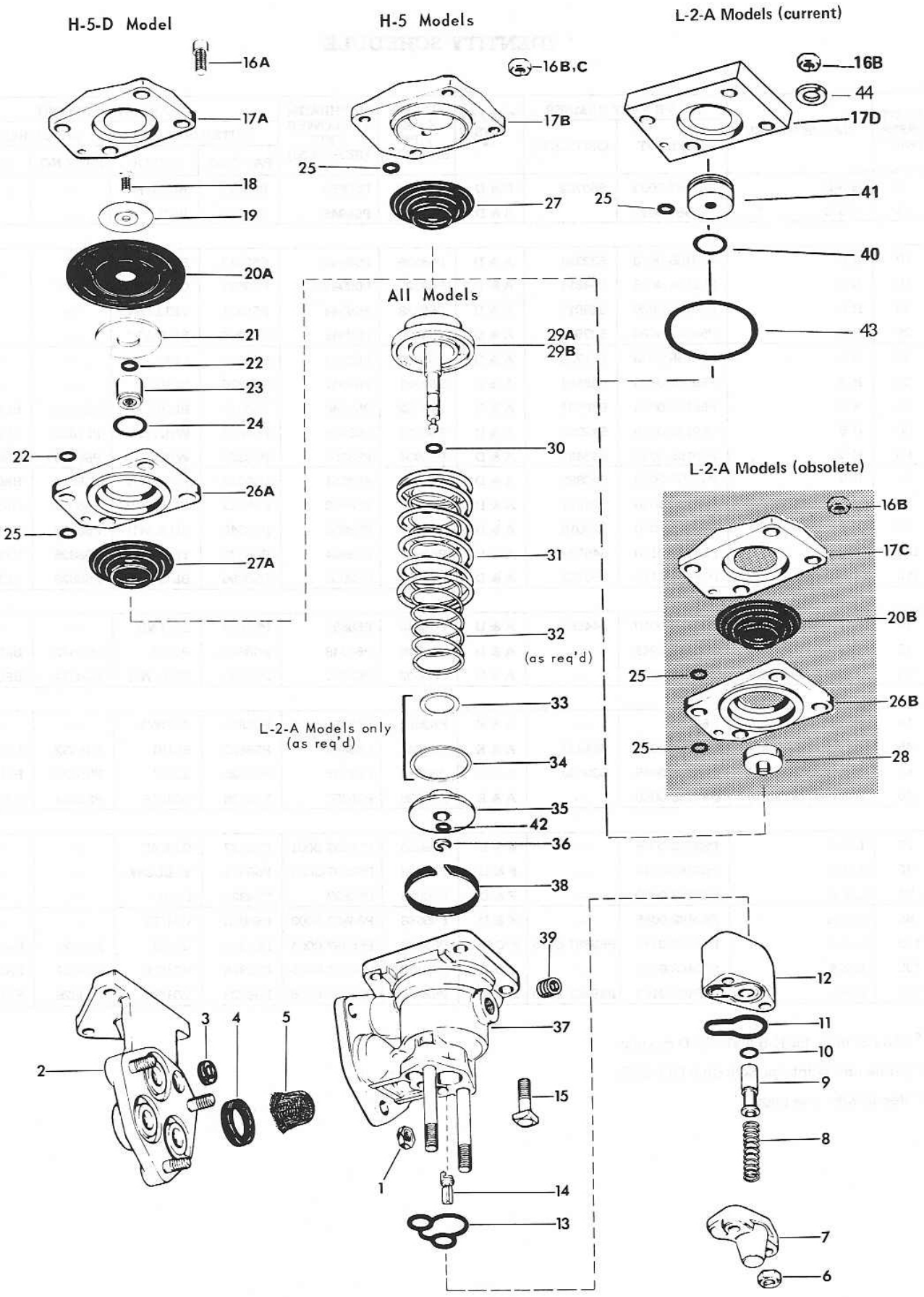
| Pilot | Valve Model | Valve Part Number | | | Repair | Valve Less Bracket | | Diaphragm Follower | | | Diaphragm | | Springs | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pressure | | Old Part | New Part | Obsolete | Kits++ | Old Part | New Part | Unit (Ref. 29-36) | | Outer Spring | (Ref. 31) | | Inner Spring | (Ref. 32) | |
| (PSI)* | | Number | Number | | | Number | Number | Old P/N | New P/N | Old P/N | New P/N | Color | Old P/N | New P/N | Color |
| 3 | H-5-D | P -059567-00003 | R431005195 | 850723 | B & D | P -059568-00000 | R431005197 | P -058653-K0000 | R431004637 | P -058817-00000 | R431004739 | Brown | | | |
| 15 | H-5-D | P -059567-00012 | R431005196 | | B & D | P -061131-00000 | R431005672 | P -058946-K0000 | R431004844 | P -058653-K0000 | R431004637 | Red | | | |
| 10 | H-5 | P -059155-00010 | R431004910 | 532234 | A & D | P -058926-K0000 | R431004817 | P -058653-K0000 | R431004637 | P -058817-00000 | R431004739 | Brown | | | |
| 15 | H-5 | P -059155-00015 | R431004911 | 534814 | A & D | P -058927-00000 | R431004818 | P -058943-00000 | R431004838 | P -059637-00000 | R431005206 | Green | | | |
| 20 | H-5 | P -059155-00020 | R431004912 | 529017 | A & D | p -058928-00000 | R431004819 | P -058944-K0000 | R431004840 | P -058971-00000 | R431004866 | Yellow | | | |
| 25 | H-5 | P -059155-00025 | R431004913 | 527561 | A & D | P -058929-00000 | R431004820 | P -058945-K0000 | R431004842 | P -058956-00000 | R431004859 | BR & YL | | | |
| 30 | H-5 | P -059155-00030 | R431004914 | 651738 | A & D | P -058930-K0000 | R431004822 | P -058946-K0000 | R431004844 | P -058653-K0000 | R431004637 | Red | | | |
| 35 | H-5 | P -059155-00035 | R431004915 | 528561 | A & D | P -058931-00000 | R431004823 | P -058947-00000 | R431004845 | P -058825-00000 | R431004758 | Blue | | | |
| 45 | H-5 | P -059155-00045 | R431004916 | 528681 | A & D | P -058932-K0000 | R431004825 | P -058948-K0000 | R431004847 | P -058825-00000 | R431004758 | Blue | P -058632-00000 | R431004617 | Blue |
| 50 | H-5 | P -059155-00050 | R431004917 | 542237 | A & D | P -058933-K0000 | R431004827 | P -058949-K0000 | R431004849 | P -058828-00000 | R431004760 | White | P -058632-00000 | R431004617 | Blue |
| 60 | H-5 | P -059155-00060 | R431004918 | 543489 | A & D | P -0058934-00000 | R431004828 | P -058950-K0000 | R431004851 | P -058828-00000 | R431004760 | White | P -058824-00000 | R431004757 | Brown |
| 70 | H-5 | P -059155-00070 | R431004919 | 543893 | A & D | P -058935-00000 | R431004829 | P -058951-K0000 | R431004853 | P -058830-00000 | R431004762 | BR & WH | P -058824-00000 | R431004757 | Brown |
| 80 | H-5 | P -059155-00080 | R431004920 | 534671 | A & D | P -058936-00000 | R431004831 | P -058952-00000 | R431004854 | P -058829-00000 | R431004761 | GR & WH | P -058635-00000 | R431004620 | Green |
| 90 | H-5 | P -059155-00090 | R431004921 | 529016 | A & D | P -058937-00000 | R431004832 | P -058653-K0000 | R431004637 | P -058840-00000 | R431004768 | RD & WH | P -058635-00000 | R431004620 | Green |
| 100 | H-5 | P -059155-00100 | R431004922 | 545707 | A & D | P -058938-00000 | R431004833 | P -058954-K0000 | R431004857 | P -058673-00000 | R431004641 | YL & WH | P -058826-00000 | R431004759 | Yellow |
| 110 | H-5 | P -059155-00110 | R431004923 | 850732 | A & D | P -058939-00000 | R431004834 | P -058955-00000 | R431004858 | P -058866-00000 | R431004788 | BL & WH | P -058826-00000 | R431004759 | Yellow |
| 10 | H-5 (NonMagnetic) | P -059156-00010 | R431004924 | 544559 | A & D | P -058940-00000 | R431004835 | P -058653-K0000 | R431004637 | P -058817-00000 | R431004739 | Brown | | | |
| 45 | H-5 (NonMagnetic) | P -059156-00045 | R431004925 | | A & D | P -063526-00000 | R431006295 | P -058948-K0000 | R431004847 | P -058825-00000 | R431004758 | Blue | P -058632-00000 | R431004617 | Blue |
| 70 | H-5 (NonMagnetic) | P -059165-00070 | No Cross | | A & D | P -063502-00000 | R431006293 | P -058951-K0000 | R431004853 | P -058830-00000 | R431004762 | BR & WH | P -058824-00000 | R431004757 | Brown |
| 10 | H-5 (300 psi sup) | P -062691-00000 | R431006121 | | A & E | P -062692-00000 | R431006122 | P -058653-K0000 | R431004637 | P -058817-00000 | R431004739 | Brown | | | |
| 45 | H-5 (300 psi sup)* | P -059157-00045 | R431004926 | 544835 | A & E | P -058941-00000 | R431004836 | P -058948-K0000 | R431004847 | P -058825-00000 | R431004758 | Blue | P -058632-00000 | R431004617 | Blue |
| 45 | H-5 (300 psi sup) | P -059158-00045 | R431004927 | 530530 | A & E | P -058942-00000 | R431004837 | P -058948-K0000 | R431004847 | P -058825-00000 | R431004758 | Blue | P -058632-00000 | R431004617 | Blue |
| 60 | H-5 (300 psi sup) | P -059158-00060 | No Cross | | A & E | P -066426-00000 | R432006817 | P -058950-K0000 | R431004851 | P -058828-00000 | R431004760 | White | P -058824-00000 | R431004757 | Brown |
| 15 | L-2-A | P -062482-00015 | No Cross | | F & D | P -065650-00000 | No Cross | P -066897-00001 | R431006919 | P -059637-00000 | R431005206 | Green | | | |
| 40 | L-2-A | P -062482-00040 | R431006062 | | F & D | P -064748-00000 | R431006491 | P -066897-00002 | R431006920 | P -058971-00000 | R431004866 | Yellow | | | |
| 70 | L-2-A | P -062482-00070 | R431006063 | | F & D | P -066896-00000 | R431006917 | P -066897-00000 | R431006918 | P -058825-00000 | R431004758 | Blue | | | |
| 85 | L-2-A | P -062482-00085 | R431006064 | | F & D | P -065088-00000 | R431006560 | P -066897-00003 | R431006921 | P -058828-00000 | R431004760 | White | | | |
| 110 | L-2-A | P -062482-00110 | R431006065 | P59581-0110 | F/C & D | P -062483-00000 | R431006069 | P -066897-00004 | R431006926 | P -058825-00000 | R431004758 | Blue | P -058824-00000 | R431004757 | Brown |
| 135 | L-2-A | P -062482-00135 | R431006067 | | F & D | P -063193-00000 | R431006205 | P -066897-00005 | R431006923 | P -058828-00000 | R431004760 | White | P -058824-00000 | R431004757 | Brown |
| 150 | L-2-A | P -062482-00150 | R431006068 | P59581-0150 | F/C & D | P -062484-00000 | R431006070 | P -066897-00006 | R431006927 | P -058828-00000 | R431004760 | White | P -058826-00000 | R431004759 | Yellow |
| 220 | L-2-A | P -065215-00000 | R431006573 | | F/C & D | P -065216-00000 | R431006574 | P -066897-00004 | R431006926 | P -058825-00000 | R431004758 | Blue | P -058824-00000 | R431004757 | Brown |
| 225 | L-2-A | P -065215-00000 | R431006574 | | | P -065216-00000 | | P -066897-00004 | | P -058825-00000 | | Blue | P -058824-00000 | | |

X 140 PSI max. for H-5 and H-5-D models

* Prime and paint per Schedule CI U.S.N.

** Repair Kits, see page 7

## EXPLODED VIEW



# PARTS LIST

| REF | QUANTITY | | | DESCRIPTION | OLD PART NO. | NEW PART NO |
|---|---|---|---|---|---|---|
| | H-5-D | H-5 | L-2-A | | | |
| 1A | 3 | 3 | 3 | NUT, 3/8" Hex. | P-049876-00001 | R431002357 |
| 1B | --- | 3 | --- | NUT, 3/8" Hex. (note 1) | P -049901-00010 | R431002417 |
| 2A | 1 | 1 | 1 | BRACKET, Pipe - With Studs | P -054358-00001 | R431003353 |
| 2B | --- | 1 | --- | BRACKET, Pipe - With Studs (note 1) | P -054359-00001 | R431003355 |
| 3* | 1 | 1 | 1 | GASKET, Port | * | * |
| 4* | 3 | 3 | 3 | GASKET, Port | * | * |
| 5 | 3 | 3 | 3 | STRAINER | P -058974-00000 | R432004867 |
| 6A | 2 | 2 | 2 | NUT 3/8" Hex. | P -049876-00001 | R431002357 |
| 6B | --- | 2 | --- | NUT 3/8" Hex. (note 1) | P -049901-00010 | R431002417 |
| 7 | 1 | 1 | 1 | COVER, Check Valve Body | P -032663-00000 | R431009100 |
| 8A* | 1 | 1 | 1 | SPRING, Supply Valve - 200 PSI | P -058633-00000 | R431004618 |
| 8B* | --- | 1 | --- | SPRING, Supply Valve - 300 PSI (note 1) | P -058966-00000 | R431004864 |
| 9* | 1 | 1 | 1 | VALVE, Supply | P -058642-00000 | R431004628 |
| 10* | 1 | 1 | 1 | RING, 1/2" OD "O" | P -049708-00012 | R431002138 |
| 11* | 1 | 1 | 1 | GASKET, Check Valve Body Cover | * | |
| 12 | 1 | 1 | 1 | BODY, Check Valve | P -058643-00000 | R431004630 |
| 13* | 1 | 1 | 1 | GASKET, Check Valve Body Cover | * | * |
| 14* | 1 | 1 | 1 | VALVE, Exhaust | P -058640-00000 | R431004626 |
| 15A | 4 | --- | --- | SCREW, Socket Head | P -049609-00006 | R431001894 |
| 15B | --- | 4 | --- | BOLT, 3/8" X 1/8" | P -050275-00000 | R431002621 |
| 15C | --- | 4 | --- | BOLT, 3/8" X 1/8" (note 1) | P -049900-00014 | R431002415 |
| 15D | --- | --- | 4 | BOLT, 3/8" - 16 | P -049871-00005 | R431002351 |
| 16A | 4 | --- | --- | SCREW, Socket Head | P -049856-00110 | R431002309 |
| 16B | --- | 4 | 4 | NUT, 3/8" Hex. | P -049876-00001 | R431002357 |
| 16C | --- | 4 | --- | NUT, 3/8" Hex. (note 1) | P -049901-00010 | R431002417 |
| 17A | 1 | --- | --- | COVER, Diaphragm | P -059515-00000 | R431005175 |
| 17B | --- | 1 | --- | COVER, Diaphragm | P -058648-00001 | R431004634 |
| 17C | --- | --- | 1 | COVER, Diaphragm | P -065652-00001 | R431006652 |
| 17D | --- | --- | 1 | COVER, Piston | P -062486-00001 | R431006073 |
| 18 | 1 | --- | --- | SCREW | P -049878-00007 | R431002369 |
| 19 | 1 | --- | --- | FOLLOWER, Diaphragm H-5-D | P -059517-00000 | R431005177 |
| 20A* | 1 | --- | --- | DIAPHRAGM | * | * |
| 20B* | --- | --- | 1 | DIAPHRAGM | * | * |
| 21 | 1 | --- | --- | FOLLOWER, Diaphragm | P -059516-00000 | R431005176 |
| 22* | 2 | --- | --- | RING, 7/16" OD "O" | * | * |
| 23 | 1 | --- | --- | PISTON | P -059518-00000 | R431005178 |
| 24* | 1 | --- | --- | RING, 1-1/2" OD "O" | * | * |
| 25* | 1 | 1 | --- | GASKET, Port | * | * |
| 26A | 1 | --- | --- | SPACER | P -059514-00000 | R431005174 |
| 26B | --- | --- | 1 | | obsolete | Obsolete |
| 27* | 1 | 1 | --- | DIAPHRAGM | P -053394-00000 | Obsolete |
| 28 | --- | --- | 1 | ADAPTER, Diaphragm Follower | P -053393-00000 | Obsolete |
| 29A | 1 | 1 | 1 | FOLLOWER, Diaphragm | P -058637-00000 | R431004623 |
| 29B | --- | --- | 1 | FOLLOWER, Diaphragm (L-2-A Models) | P -053392-00000 | Obsolete |
| 30* | 1 | 1 | 1 | RING, 3/8" OD "O" | P -049804-00028 | R431002162 |
| 31 | 1 | 1 | 1 | SPRING, Outer Diaphragm | (see schedule) | (see schedule) |
| 32 | --- | 1 | 1 | SPRING, Inner Diaphragm | (see schedule) | (see schedule) |
| 33 | --- | --- | 3† | WASHER, 1-7/32" OD | P -049804-00028 | R431002162 |
| 34 | --- | --- | 3† | WASHER, 1-23/32" OD | P -049804-00029 | R431002163 |
| 35 | 1 | 1 | 1 | SEAT, Spring | P -058636-00000 | R431004621 |
| 36 | 1 | 1 | 1 | RETAINER, Spring Seat | P -058672-00000 | R431004640 |
| 37A | 1 | 1 | 1 | BODY, With Studs, Includes Ref Nos. 38 & 39 | P -058963-00000 | R431004860 |
| 37B | --- | 1 | --- | BODY, With Studs, Includes Ref Nos. 38 & 39 (note 1) | P -058964-00000 | R431004862 |
| 38 | 1 | 1 | 1 | STRIP, Bushing | P -058967-00000 | R431004865 |
| 39 | 1 | 1 | 1 | PLUG, Breather | P -049594-00000 | R431001875 |
| 40 | --- | --- | 1 | O-RING | P -049783-00220 | R431002131 |
| 41 | --- | --- | 1 | PISTON | P -062485-00000 | R431006071 |
| 42† | --- | --- | 3 | SHIMS | P -049904-00064 | R431002471 |
| 43* | --- | --- | 1 | RING, 3-1/8" X 3-1/2" OD "O' | * | * |
| 44 | --- | --- | 4 | WASHER, 3/8" Lock | P -049866-00011 | R431002346 |

* Recommended spare parts to be retained in stock at all times. These parts are available in repair kits (see page 7), and the Identity Schedule on page 3.
X Installed at factory when required. Quantity may vary.
† As required to meet setting.
NOTE 1: P -059156-00010 (New no. R431004924), P -059156-00045 (New no. R431004925, P -059156-00070 (unknown) & P -059157-00045 (New no. R431004926) only

# MAJOR REPAIR AND MAINTENANCE INSTRUCTION

When it is determined that the RELAYAIR® VALVE requires shop repairs (see page 2 for GENERAL MAINTENANCE AND REPAIR RECOMMENDATIONS), the following general instructions are recommended.

## DISASSEMBLY, CLEANING, AND LUBRICATION

By removing only the nuts (1) the valve portion can be removed from the pipe bracket for servicing without disconnecting piping. All necessary parts are available in convenient repair kits (see page 7 and the Identity Schedule, page 3).

Disassemble the valve for cleaning, inspection, and lubrication. Remove the nuts (6) and slide all parts off the studs in the valve body. The exhaust valve (14) will still be hooked to the diaphragm follower (29). Move the exhaust valve to one side and unhook. *This must be done before the diaphragm cover (17) is removed.*

After disassembly, clean all metal parts with a nonflammable solvent. Rinse thoroughly and blow dry with a low-pressure air jet. Replace all rubber parts and those parts that are damaged, corroded, or worn. The supply and exhaust valves (9, 14) are metal seated valves and, if not worn excessively, can be lapped using a fine grade valve grinding compound.

Since each valve is factory-set for its proper control pressure, *the diaphragm follower unit should not be disassembled* unless spring replacement is required. CAUTION should be taken during this disassembly as the caged diaphragm spring (31, 32) is under compression. After removing the "O" ring (30), place the assembly in a vise or press and compress the spring further to remove the split spring retainer (36). Slowly release the spring pressure. When reassembling, be sure the split spring retainer is assembled in the groove closest to the diaphragm follower piston. The groove closest to the follower tip is for the "O" ring (30).

L-2-A models may have shim washers (33, 34) under the diaphragm springs, and these must be reinstalled, as they are essential to maintaining the specified control pressure of the valve.

### REASSEMBLY

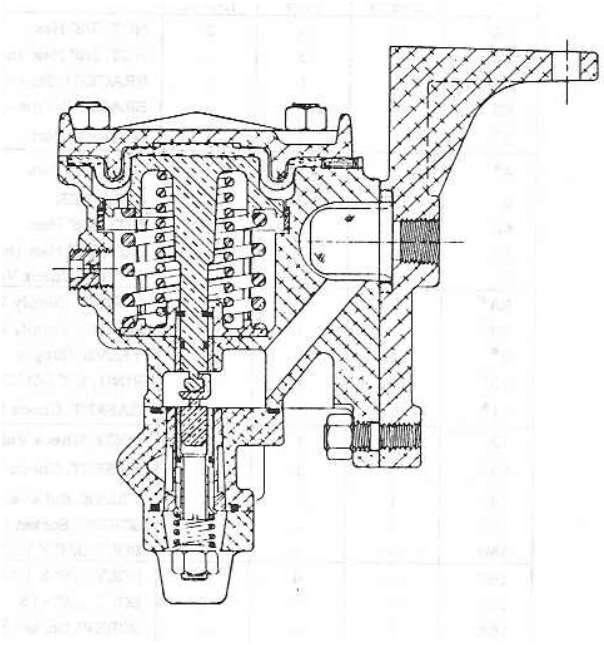
Reassemble the valve, using the exploded view as a reference. The valve should be reassembled using new rubber parts.

As the assembly proceeds, lubricate all rubber parts *except diaphragm* with Dow Corning 55 M Grease and all metal-to-metal surfaces with Number 107 Lubriplate.

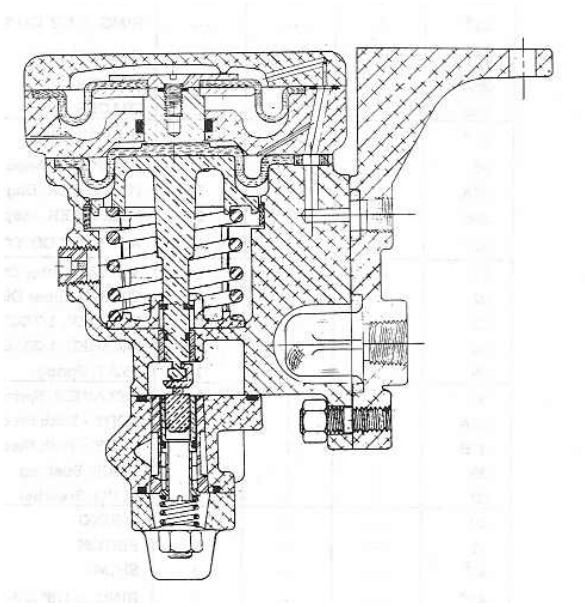
Before the strainers (5) are reassembled, insert them through the port gaskets (4) until the flange of the strainer is centered in the gasket. As a unit, insert the strainer and gasket into the pipe bracket. When assembled properly, the bottom of the strainer will rest against the valve body, and the port gasket will seat in the pipe bracket. If the *current strainer* is installed in an *obsolete valve body*, the *retainer* used with the obsolete strainer *must be discarded.*

### TEST

After the RELAYAIR VALVE has been disassembled, repaired and reassembled, it must be pressure tested for proper operation prior to returning to service.



**H-5 RELAYAIR® VALVE**



**H-5-D RELAYAIR® VALVE**

# REPAIR KITS

**KIT "A" R431005477**
**(Old Part Number P –060309-00000)**
**(Rubber Parts only H-5)**

| Qty. | Ref. | Description |
|---|---|---|
| 1 | 3 | GASKET, Seal |
| 3 | 4 | GASKET, Port |
| 1 | 10 | RING, 1/2" OD "O" |
| 1 | 11 | GASKET, Check Valve Body Cover |
| 1 | 13 | GASKET, Check Valve Body |
| 1 | 25 | GASKET, Port |
| 1 | 27 | DIAPHRAGM |
| 1 | 30 | RING, 3/8" OD "O" |
| | | Grease, Dow Corning 55M |

**KIT "B" R431005479**
**(Old Part Number P –060310-00000)**
**(Rubber Parts only H-5-D)**

| Qty. | Ref. | Description |
|---|---|---|
| 1 | 3 | GASKET, Seal |
| 3 | 4 | GASKET, Port |
| 1 | 10 | RING, 1/2" OD "O" |
| 1 | 11 | GASKET, Check Valve Body Cover |
| 1 | 13 | GASKET, Check Valve Body |
| 1 | 20A | DIAPHRAGM |
| 2 | 22 | RING, 7/16" OD "O" |
| 1 | 24 | RING, 1-1/2" OD "O" |
| 1 | 25 | GASKET, Port |
| 1 | 27 | DIAPHRAGM |
| 1 | 30 | RING, 3/8" OD "O" |
| | | Grease, Dow Corning 55M |

**KIT "C" R431005480**
**(Old Part Number P –060311-00000)**
**(L-2-A Universal Diaphragm & Piston Type)**

| Qty. | Ref. | Description |
|---|---|---|
| 1 | 3 | GASKET, Seal |
| 3 | 4 | GASKET, Port |
| 1 | 10 | RING, 1/2" OD "O" |
| 1 | 11 | GASKET, Check Valve Body Cover |
| 1 | 13 | GASKET, Check Valve Body |
| 1 | 20B | DIAPHRAGM |
| 1 | 25 | GASKET, Port |
| 1 | 30 | RING, 3/8" OD "O" |
| 1 | 40 | RING, 1-5/8" OD "O" |
| 1 | 43 | RING, 3-1/8" x 3-1/2" OD "O" |
| | | Grease, Dow Corning 55M |

**KIT "D" R431005481**
**(Old Part Number P –060312-00000)**
**(Valve Parts)**

| Qty. | Ref. | Description |
|---|---|---|
| 1 | 8A | SPRING, Supply Valve – 200 PSI |
| 1 | 9 | VALVE, Supply |
| 1 | 14 | VALVE, Exhaust |

**KIT "E" R431005483**
**(Old Part Number P –060313-00000)**
**(Valve Parts)**

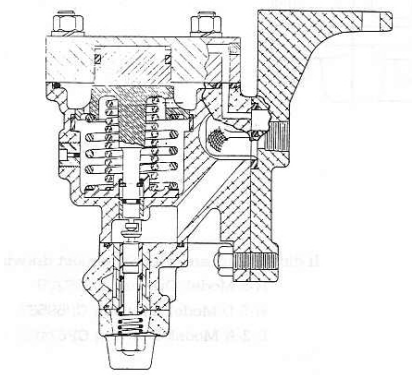
| Qty. | Ref. | Description |
|---|---|---|
| 1 | 8B | SPRING, Supply Valve – 300 PSI |
| 1 | 9 | VALVE, Supply |
| 1 | 14 | VALVE, Exhaust |

**KIT "F" R431006157**
**(Old Part Number P –062932-00000)**
**(Rubber Parts)**

| Qty. | Ref. | Description |
|---|---|---|
| 1 | 3 | GASKET, Seal |
| 3 | 4 | GASKET, Port |
| 1 | 10 | RING, 1/2" OD "O" |
| 1 | 11 | GASKET, Check Valve Body Cover |
| 1 | 13 | GASKET, Check Valve Body |
| 1 | 25 | GASKET, Port |
| 1 | 30 | RING, 3/8" OD "O" |
| 1 | 40 | RING, 1-5/8" OD "O" |
| 1 | 43 | RING, 3-1/8" x 3-1/2" OD "O" |
| | | Grease, Dow Corning 55M |

**CONVERSION KIT R431006124**
**(Old Part Number P –062749-00000)**
**(L-2-A Diaphragm to Piston Type)**

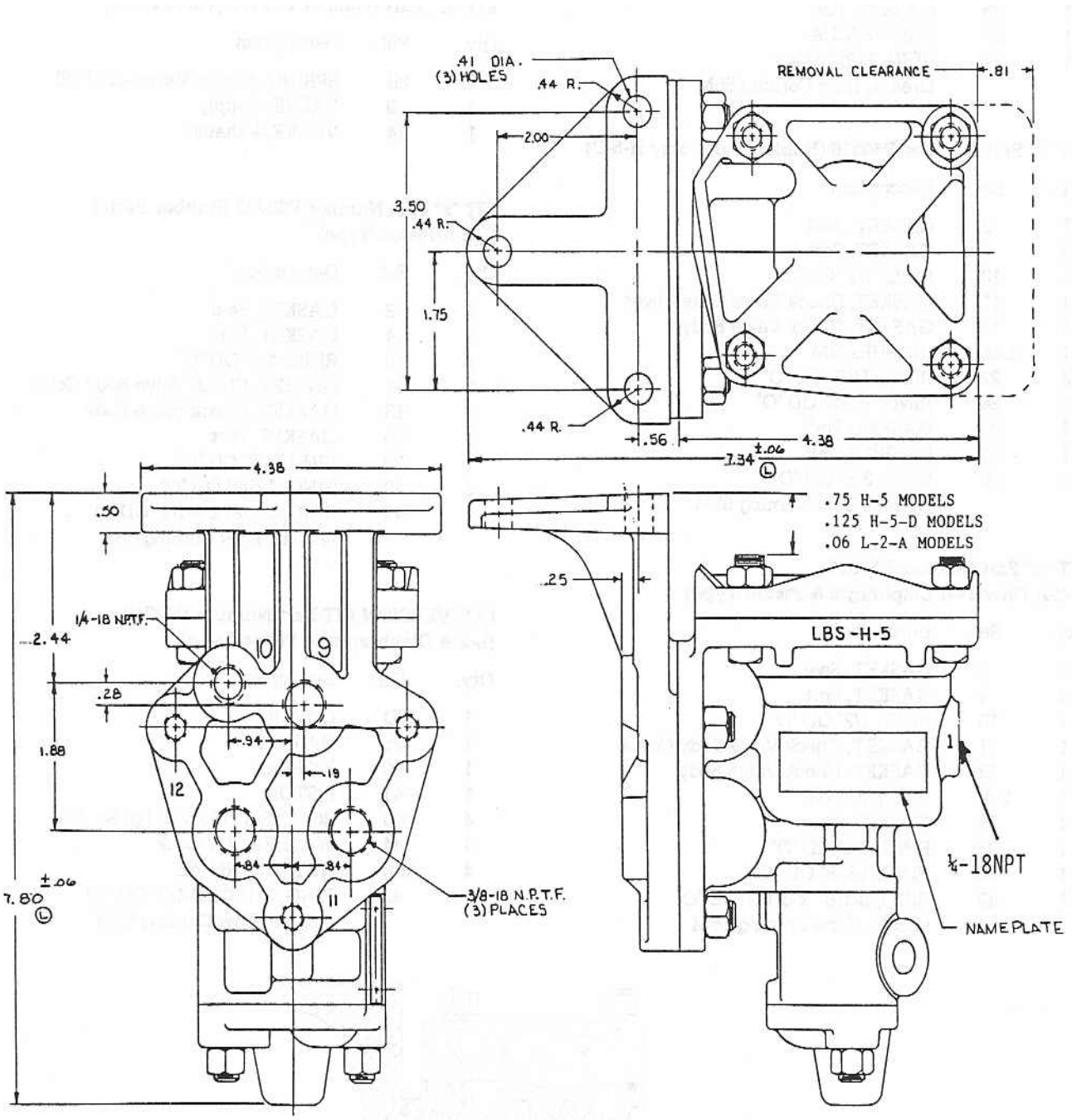
| Qty. | Ref. | Description |
|---|---|---|
| 1 | 17D | COVER |
| 1 | 25 | GASKET |
| 1 | 40 | "O" RING |
| 1 | 41 | PISTON |
| 4 | 15D | BOLT, 3/8"-16 x 2.0" Lg. Sq. Hd. |
| 4 | 44 | WASHER, 3/8" Lock |
| 4 | 16B | NUT, 3/8"-16 Hex. |
| 1 | 43 | RING, 3-1/8" x 3-1/2" OD "O" |
| | | Grease, Dow Corning 55M |



**L-2-A RELAYAIR® VALVE**

# OUTLINE DIMENSIONS

## RELAYAIR VALVE
## H-5, H-5-D, L-2-A




If dimensions are critical, request drawing:
H-5 Model: Drawing CP59209
H-5-D Model: Drawing CP59567
L-2-A Model: Drawing CP62482

# NOTICE TO PRODUCT USERS

**1. WARNING: FLUID MEDIA**
Bosch Rexroth pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, Bosch Rexroth must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

**2. WARNING: MATERIAL COMPATIBILITY**
Damage to product seals or other parts caused by the use of noncompatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids Bosch Rexroth's warranty and can result in product failure or other malfunction. See lubrication recommendations below.

**AIR LINE LUBRICANTS!** In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended.* (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. Bosch Rexroth recommends the use of only petroleum based oils without synthetic additives, and with an aniline point between 180° F and 210° F.

**COMPRESSOR LUBRICANTS!** All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants. It is recommended that users review the National Fluid Power Association "Recommended Guide Lines For Use Of Synthetic Lubricants In Pneumatic Fluid Power Systems" (NFPA T1.9.2-1978).

**3. WARNING: INSTALLATION AND MOUNTING**
The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION !** Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

**4. WARNING: APPLICATION AND USE OF PRODUCTS**
The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of a malfunction.

**5. WARNING: CONVERSION, MAINTENANCE AND REPAIR**
When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

**MAINTENANCE AND REPAIR!** Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All Bosch Rexroth products should provide a minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require a major repair as a result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

**6. PRODUCT CHANGES**
Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

*Many Bosch Rexroth pneumatic valves and cylinders can operate with or without air line lubrication; see individual sales catalogs for details.

## LIMITATIONS OF WARRANTIES & REMEDIES

Bosch Rexroth warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment Bosch Rexroth will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by Bosch Rexroth or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, Bosch Rexroth nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of Bosch Rexroth Corporation.

Bosch Rexroth reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.

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