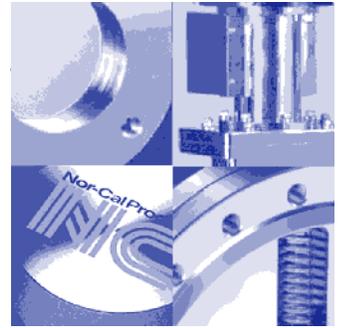


N-Series

Isolation Poppet Valves

OPERATOR'S



MANUAL

N-Series OP-LIT 10-2011

NAP

NAP-075
NAP-100
NAP-150
NAP-200

NAIP

NAIP-075
NAIP-100
NAIP-150
NAIP-200



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Nor-Cal Products


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Information in this manual is subject to change without notice.

1.0 - Introduction

Thank you for purchasing an N-Series isolation poppet valve from Nor-Cal Products. Before installing and operating the product, please read this manual thoroughly as it contains critical hook-up and operating tips. In addition, this manual contains detailed information on spare parts, options and valve accessories.

If you encounter any problems, or if you have any questions, please contact Customer Service.

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2.0 - Safety

2.1 Symbols Used

Throughout this manual, information that is of particular importance to the installation, the safety of operating personnel and the protection of equipment are highlighted by the following three symbols. The **WARNING** symbol is also used on the equipment wherever necessary.



NOTE: Calls attention to helpful tips about proper installation, maintenance or use of the controller.



CAUTION: Highlights areas of concern that, if overlooked, could result in damage to the controller or surrounding equipment.



WARNING: Alerts the installation, operating or maintenance personnel of hazardous aspects of the controller, which, if ignored could result in serious personal injury or death.

2.2 Precautions

When installing, using or servicing this product please adhere to the following precautions.

- 
WARNING: **REPAIR & MAINTENANCE:** Use only Nor-Cal replacement parts for product maintenance and repair, and adhere strictly to rework instructions outlined in this manual.
- 
WARNING: **PRODUCT ALTERATION:** Do not alter or modify the product without first consulting with Nor-Cal Products' product management or applications engineering staff.
- 
CAUTION: **MATERIAL COMPATIBILITY:** Make sure to understand the compatibility between hazardous and reactive process chemicals and the product's materials of constructions.
- 
WARNING: **OPERATION:** The product's moving parts present a severe pinching hazard. Please keep fingers, hands or other objects away from all ports and openings.
- 
NOTE: **INSTALLATION:** Use proper installation hardware and mating components. In particular, make sure that electrical connectors and pneumatic supply fittings are selected in accordance with the instructions in this manual.

3.0 - Specifications

The following figures and tables summarize specifications of the N-Series vacuum valve.

TABLE 3.1 ENVIRONMENTAL SPECIFICATIONS

FEATURE	SPECIFICATION
Installation Orientation	Product may be installed in any orientation, with gas flow in either direction.
Ambient Operating Temperature Range	32° – 122°F (0°C – 50°C)
Allowable Ambient Humidity	0 – 95% non-condensing
Process Temperature Range	0° F – 392° F (-18° C – 200° C). Process temperatures above 302° F (150° C), may require use of seal materials other than Viton®.
Heating Capabilities	Body can be heated up to 302° F (150° C) with optional heater kits.
Maximum internal Pressure	20 psi (138 kPa).
Maximum delta-P across poppet	30 psi (206 kPa) in open direction. 35 psi (241 kPa) in closing direction.

TABLE 3.2 OPERATIONAL SPECIFICATIONS

FEATURE	SPECIFICATION
Open / Close speed	0.5 seconds to open, 0.7 seconds to close at 80 psig.
Pneumatic Supply	60 – 100 psig (414 – 689 kPa) CDA or N ₂ . Standard connection accepts 5/32" [4MM] OD tubing. Thread is 10-32 [M5].
Solenoid Electrical Specifications	120 VAC: 2.5 Watt (-S11 option code) 24 VDC: 1.8 Watt (-S21 option code) 240 VAC: 4.0 Watt (-S31 option code) 24 VAC: 4.0 Watt (-S41 option code)
Position Indicators	Optical: Standard NPN type (-0 option code) Optical: Optional PNP type (-02 option code)
Reliability	3 million cycles MTBF at 90% confidence factor, clean environment

TABLE 3.3 CERTIFICATION

FEATURE	SPECIFICATION
Leak Rate	1 x 10 ⁻⁹ atm-cc/sec He (for valves with Viton® seals)

TABLE 3.4 PNEUMATIC N-SERIES ANGLE VALVE DIMENSIONS TABLE

MODEL NUMBER	PORT OD	DESCRIPTION	A	B	C	WEIGHT (Lb.)
NAP-075	0.75	No Flanges	1.42 (36)	3.95 (100)	4.90 (124)	1.6
NAP-075-NW	0.75	NW-16	1.57 (40)	4.10 (104)	5.05 (128)	1.7
NAP-075-CF	0.75	CF-133, Rotatable	1.91 (49)	4.73 (120)	5.68 (144)	1.9
NAP-100	1.0	No Flanges	1.82 (46)	4.35 (110)	5.30 (134)	1.6
NAP-100-NW	1.0	NW-25	1.97 (50)	4.50 (114)	5.45 (138)	1.7
NAP-100-CF	1.0	CF-212, Rotatable	2.28 (58)	4.81 (122)	5.76 (146)	1.9
NAP-150	1.5	No Flanges	2.41 (61)	4.94 (125)	5.89 (149)	1.6
NAP-150-NW	1.5	NW-40	2.56 (65)	5.09 (129)	6.04 (153)	1.7
NAP-150-CF	1.5	CF-275, Rotatable	2.62 (67)	5.15 (131)	6.09 (155)	1.9
NAP-200	1.5	No Flanges	2.61 (66)	5.14 (131)	6.09 (155)	1.6
NAP-200-NW	1.5	NW-50	2.76 (70)	5.29 (134)	6.24 (158)	1.7
NAP-200-CF	1.5	CF-338, Rotatable	2.84 (72)	5.37 (136)	6.32 (160)	1.9

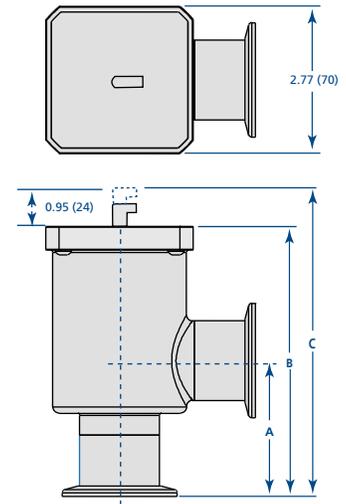
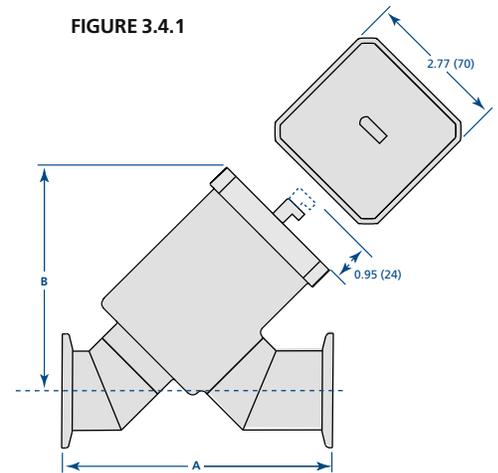


TABLE 3.5 PNEUMATIC N-SERIES ANGLE IN-LINE VALVE DIMENSIONS TABLE

MODEL NUMBER	PORT OD	DESCRIPTION	A	B	WEIGHT (Lb.)
NAIP-075	0.75	No Flanges	3.64 (92)	4.60 (117)	1.7
NAIP-075-NW	0.75	NW-16	3.94 (100)	4.60 (117)	1.8
NAIP-075-CF	0.75	CF-133, Rotatable	4.20 (107)	4.60 (117)	2.0
NAIP-100	1.0	No Flanges	3.64 (92)	4.00 (102)	1.7
NAIP-100-NW	1.0	NW-25	3.94 (100)	4.00 (102)	1.8
NAIP-100-CF	1.0	CF-212, Rotatable	4.75 (121)	4.00 (102)	2.0
NAIP-150	1.5	No Flanges	4.82 (122)	4.37 (111)	1.7
NAIP-150-NW	1.5	NW-40	5.12 (130)	4.37 (111)	1.8
NAIP-150-CF	1.5	CF-275, Rotatable	5.24 (133)	4.37 (111)	2.0
NAIP-200	1.5	No Flanges	5.21 (132)	4.37 (111)	1.7
NAIP-200-NW	1.5	NW-50	5.51 (140)	4.37 (111)	1.8
NAIP-200-CF	1.5	CF-338, Rotatable	5.66 (144)	4.37 (111)	2.0

FIGURE 3.4.1



4.0 Description of N-Series Valve

4.1 Overview

Nor-Cal Products N-Series valves are pneumatically operated bellows sealed poppet valves, designed for light weight and compact size as well as robust operation and long life. The pneumatic valve is controlled by a pneumatic cylinder located inside the top of the valve body for extra low profile and envelope size. The valve closes by use of an internal spring. Supplying compressed air to the pneumatic cylinder opens the valve. In the event of a power or pneumatic failure the valve closes automatically, and is therefore considered a “normally closed” or “fail close” design.

The electropolished 304 stainless steel valve body is available in a right angle or angle in-line configuration with a selection of flange types. Customer specific flange arrangements and combinations are available upon request, as are a variety of O-ring seal types. Viton is the default elastomer material used.

Optional position indicators can be ordered with the valve, or they can easily be installed as a retrofit at the user's site. The position indicators are mounted on a small circuit board that resides in a molded slot in the valve top cover. No adjustment or bracket hardware is needed for the position indicator installation.

An air solenoid operated pneumatic valve may also be ordered with the valve. This valve allows electrical control of the N-Series valve while it is connected directly to the user's pneumatic supply. The solenoid valves are available in 24 VDC as well as 24, 120 and 240 VAC varieties.

4.2 Theory of Operation

Figure 4.2.1 illustrates the components of the pneumatic N-Series valve. From its normally closed position, the valve is opened when compressed air is applied to the pneumatic cylinder through the 10-32 [M5] female port (usually fitted with a 5.32" [4mm] quick disconnect fitting) in the valve stem). When the pneumatic pressure in the cylinder reaches a level sufficient to overcome the force of the spring, the piston starts to rise, pulling the poppet off of the seat.

The actuator cylinder is vented to allow air from within the bellows to enter or escape as its volume changes. At the lower end of the stem, the poppet is permanently attached to the stem. The poppet includes an O-ring seal residing in a dovetail shaped O-ring groove, which contacts the seat to seal the valve port. The bellows forms a flexible seal between the poppet and body valve housing.

As long as adequate pneumatic pressure is applied, the piston continues to travel upward, further compressing the spring, until the piston reaches the stop at the full open position.

To close the valve, the cylinder is vented through the same 10-32 [M5] female port (usually fitted with a 5.32" [4mm] quick disconnect fitting). As the air pressure falls below the value necessary to counter the spring force at the full open position, the piston and the poppet start to move towards the closed position. As venting continues, the poppet seat reaches the full close, sealed position.

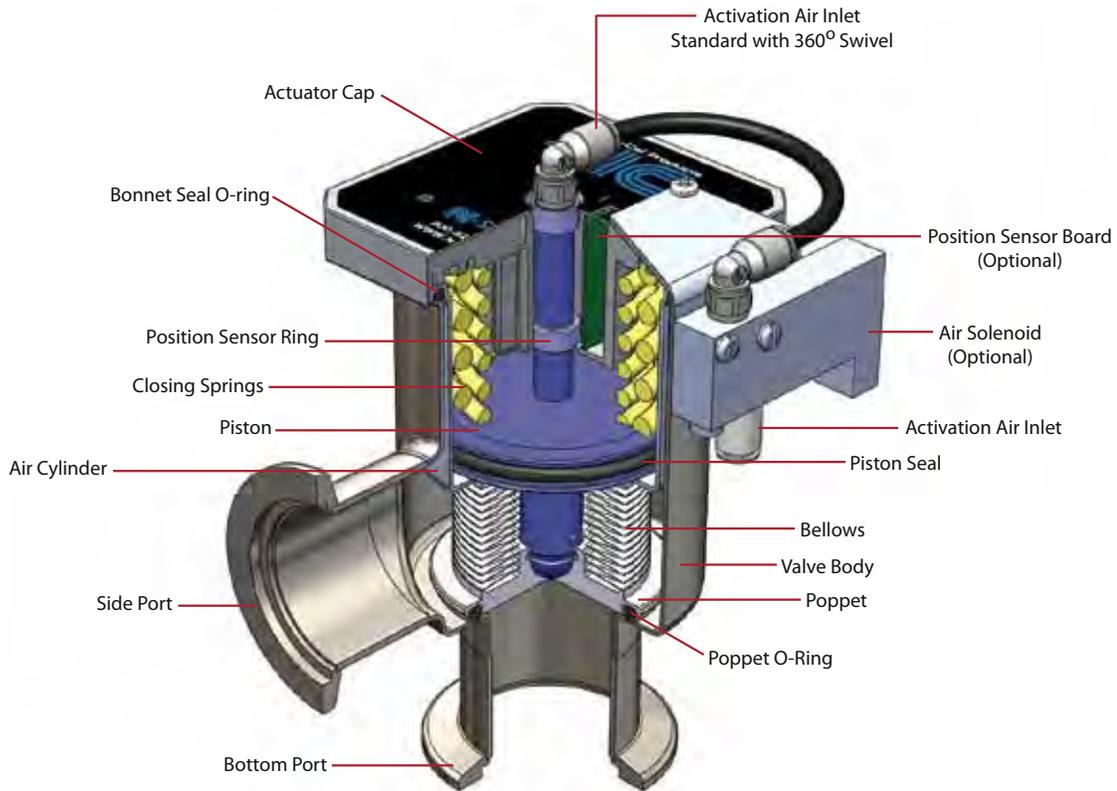


FIGURE 4.2.1

4.3 Valve & Options Nomenclature

N-Series Options

Please use the following part numbering tree to add the appropriate options to a standard N-Series valve model number.

FIGURE 4.3.1



Example: NAP-150-NW-O-O-K79-S11-SS

Right angle N-Series valve with 1.5 inch bore, NW-40 flanges, redundant optical position indicators, Kalrez 4079 O-rings, 120VAC air solenoid and soft start option.

5.0 Installation and Use

5.1 Unpacking and Detrashing

Unless otherwise requested, the N-Series valve is bagged and labeled according to standard clean room protocol. Outer packaging varies depending on the number and types of valves ordered.

Before unpacking, please inspect the box thoroughly to make sure it is undamaged. Report any obvious signs of damage or tampering to the freight carrier.

Leave plastic bag intact until the product is ready to be transferred to a clean area.



NOTE: HARD COPY DOCUMENTATION: Printed operating manuals are no longer supplied in the packaging with Nor-Cal valve products. All product documentation is available on-line at <http://www.n-c.com/productdocumentation.aspx>.

5.2 Valve Installation

Every N-Series valve is packaged with plastic protective flange end-caps. Leave these caps in place until the product is ready to be installed in the piping manifold or vacuum system. Even the smallest scratch or nick on the flange sealing surface can significantly compromise the leak integrity of the vacuum system and cause inadequate pump-down performance.

Be sure to always use the proper Nor-Cal flange connection hardware, including centering rings, O-rings, copper gaskets, clamps, nuts and bolts, etc.



CAUTION:

BENDING MOMENTS: Improper installation of the N-Series valve may lead to failure of the valve to seal or permanent damage to the valve housing body. Bending moments across the inlet and outlet flange connections should never exceed 50 ft-lb. Never force two tube ends together with clamps or fastening hardware. Doing so will likely damage components in the line, such as a valve. Instead, make use of flexible couplings to help join slightly misaligned sections of vacuum tubing.

5.3 Pneumatic Hook-Up

The standard N-Series valve comes equipped with a quick disconnect fitting. Use 5/32" [4mm] OD flexible tubing to supply compressed air to the valve. Alternate tubing connections can be accommodated by replacing the quick disconnect fitting. The valve stem thread is 10-32 [M5].

5.4 Solenoid Valve Connection

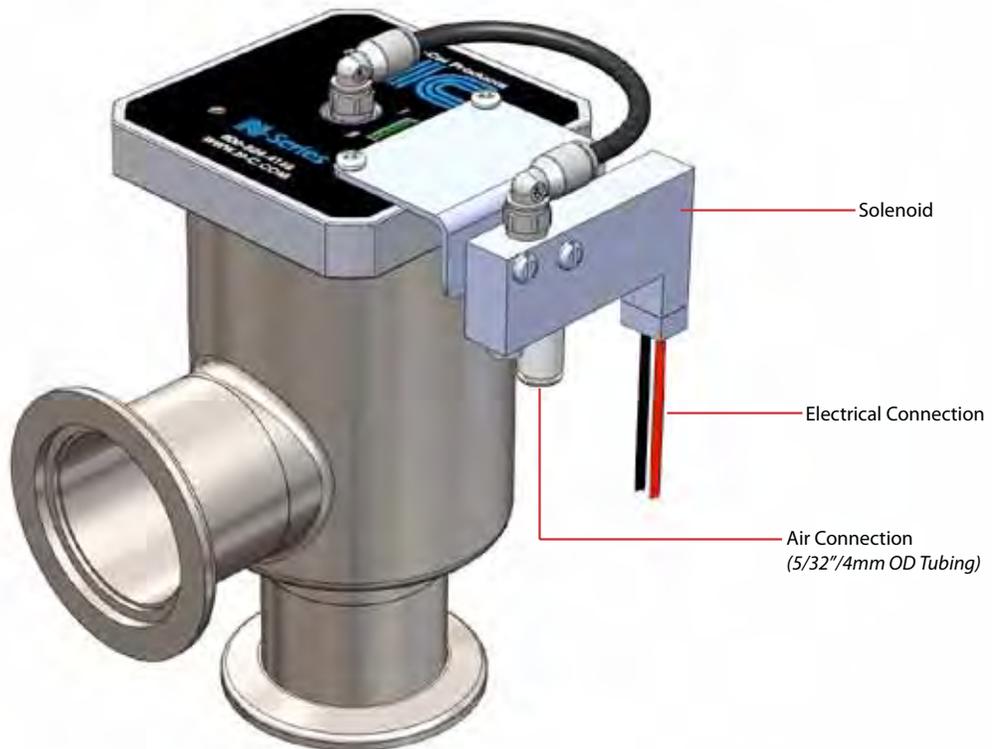


FIGURE 5.4.1

5.5 Position indicator Electrical Connection



FIGURE 5.5.1

6.0 Troubleshooting

Please refer to the following possible symptoms and root causes to troubleshoot your N-Series valve. Alternatively, you can contact Nor-Cal technical support at 800-824-4166. In many cases, the N-Series valve problem can be diagnosed and fixed in the field. Spare parts and kits can be found in Section 7 of this manual. Should it be necessary to return a valve to Nor-Cal Products for service, then please refer to Section 8 for instructions.



CAUTION:

FIELD SERVICE: Before attempting to diagnose or service a valve, please make sure that you have familiarized yourself with the safe operation and maintenance of the valve (See Section 7). Compressed air and strong spring forces present potential hazards. Make sure the valve is in a “safe state” before servicing by disconnecting the air supply line and/or the solenoid pilot valve power supply.



CAUTION:

FIELD SERVICE: While performing work on the N-Series valve, be certain to use only proper tools and any special fixtures or assembly aids recommended or supplied by Nor-Cal Products.

6.1 Valve Will Not Close and Remains Fully or Partially Open

Observe the pneumatic connection on top of the valve to watch the valve stem rise and fall. A completely closed valve should show the valve stem / push-to-fit-connector interface flush with the top cap of the valve. If the valve does not appear to be closing completely, possible causes include:

- An obstruction inside the valve that prevents the poppet from seating all the way (ex. process debris).
- A broken or worn spring in the valve actuator.
- Degraded or inadequate lubrication in the pneumatic cylinder.
- A complete or partial blockage of the air vent from the pneumatic cylinder
- A faulty solenoid valve, whereby it does not cut off pneumatic supply to the valve or allow the pneumatic cylinder to vent.

6.2 Valve Will Not Open All The Way or At All

Observe the pneumatic connection on top of the valve to watch the valve stem rise and fall. A completely open valve should show the valve stem / push-to-fit-connector interface about 0.4" (10mm) above the top cap of the valve. If the valve does not appear to be opening completely, possible causes include:

- Inadequate air supply pressure. (Minimum pressure is 60 psig [414 kPa])
- A kink or blockage in the pneumatic supply line or inlet fitting.
- A faulty solenoid valve, whereby the pressurized air is not routed to the pneumatic cylinder
- Pneumatic air cylinder piston O-ring leak. (Listen for hissing and feel for air escaping between the stem and the top cap near the air inlet fitting.)
- Piston stem seal leak causing compressed air to enter inside of bellows. (Listen for hissing and feel for air escaping between the stem and the top cap near the air inlet fitting.) This failure mode can also lead to overpressure and failure of the bellows, in which case compressed air would enter the vacuum system.

6.3 Valve Does Not Seal Adequately As Measured Between Inlet and Outlet Ports

This failure is most often related to the poppet O-ring seal. Consider the following possibilities:

- Poppet seal O-ring is defective, such as being cracked, chipped, process hardened, etc.
- Poppet seal O-ring is contaminated with process debris.
- Poppet valve seat is contaminated with process debris.
- Valve is not closing fully (refer to Section 6.1)

6.4 Vacuum System Will Not Pump Down To Base Pressure

This usually indicates a leak in the vacuum system or a problem with the vacuum pump. There are naturally many different possible causes for this problem, and some may have nothing to do with the N-Series valve at all. A basic pump operation and vacuum line integrity check should be performed first to narrow the problem down. If, by process of elimination, it is suspected that a system leak is stemming from the N-Series valve please check the following:

- If available, use a He-leak detector to determine the exact location of the leak. Verify leak integrity at the inlet and outlet flanges as well as in and around the top cap of the valve.
- Flange leaks can occur if the flanges or O-rings were damaged during installation.
- A valve body leak could occur if the valve was subjected to severe bending moments during installation. Look for signs of deformed port protrusions and subsequent cracking.
- If the static top cap O-ring is compromised, then ambient air will leak in to the valve body cavity and on in to the vacuum system.
- If the valve bellows is cracked or broken, then ambient air will leak in to the vacuum system through the annulus between the stem and the top cap near the air inlet fitting.

Seal and bellows kits are available to repair a defective valve in the field. Please refer to Section 7 for spare parts ordering details.

6.5 Position Indicators Are Not Sending Open / Close Signals

The position indicators are designed to provide remote indication when the N-Series valve is either fully open or fully closed. There is a reflective ring on the valve stem that is used to trigger the optical detection circuit used in the position sensing. If open / close signals are not received by the customer, please consider these causes:

- The valve is not closing fully, thereby not triggering the closed indicator. (see Section 6.1)
- The valve is not opening fully, thereby not triggering the open indicator. (see Section 6.2)
- The sensor cable is not connected properly or the connector pin-out is wrong. (Refer to Section 5.5 for proper position indicator connection.)
- The position indicator is broken and needs replacement.

The N-Series valve position indicators are mounted on a printed circuit board which, in turn, is located in a preformed slot in the valve actuator cap. It is held in place by the label on top of the valve. This label must be removed in order to access the position indicator circuit board.

6.6 Valve Makes Noise

Under normal circumstances, the N-Series valve will make a very faint sound when actuated. This sound stems from the spring compressing and coming in intentional contact with the guides inside the pneumatic cylinder housing. If the valve starts making loud scraping or vibrational noises, then a more serious problem has developed. Please contact Nor-Cal technical support at 1-800-824-4166.

6.7 Air Supply Solenoid Valve Is Leaking or Makes Noise

The air solenoid valve is controlled by a small electromagnetic solenoid coil, which typically lasts for millions of cycles. When operating normally, this part will not make any sounds other than a light clicking when opened or closed. If compressed air starts to leak through the valve, or if it makes a buzzing sound, it is possible that the valve is about to fail and replacement is necessary. A leading cause of premature failure is improper voltage. Check the power supplied to the solenoid valve and make sure it meets the specifications.

7.0 Spare Parts & Accessories

This section contains ordering information as well as service and installation instructions for O-ring seal kits, replacement bellows and actuator assemblies, in addition to solenoid valve and position indicator upgrade or replacement options.

**CAUTION:**

FIELD SERVICE: Before attempting to diagnose or service a valve, please make sure that you have familiarized yourself with the safe operation and maintenance of the valve (See Section 7). Compressed air and strong spring forces present potential hazards. Make sure the valve is in a "safe state" before servicing by disconnecting the air supply line and/or the solenoid valve power supply.

**CAUTION:**

FIELD SERVICE: While performing work on the N-Series valve, be certain to use only proper tools and any special fixtures or assembly aids recommended or supplied by Nor-Cal Products.

7.1 O-Ring Seal Kits

The N-Series valve contains two serviceable O-rings which include the main poppet seal and the bonnet seal (see Figure 4.2.1). N-Series valves sized from .75" to 2" use the same set of seals. The standard O-ring compound is Viton. Other compounds are available. [Aflas®, Buna-N®, Chemraz®, Dupra®, Kalrez®, Perlast®, etc...].

**NOTE:**

ORDERING REPLACEMENT SEALS: Please make sure to have the part number or serial number of the valve available when ordering seal replacements in the event you are not sure which seal compounds were originally installed.

Common replacement seal kits include:

- NA-075-95:** Viton® poppet and bonnet replacement O-rings
- NA-075-95-K79:** Kalrez® 4079 poppet and bonnet replacement O-rings
- NA-075-95-C13:** Chemraz® 513 poppet and bonnet replacement O-rings

NOTE: Other seal materials are available. Call for details.

To replace the O-ring seals, please see the following instructions :

7.1 Replacing O-Ring Seal



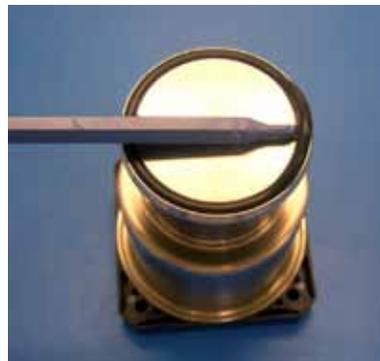
1
Remove air fitting, if installed.
Install vented screw with large flat washer [supplied in kit] until screw stops.
Do NOT overtighten.
(This partially opens the valve allowing the bellows /actuator assembly to be removed.)



2
Remove the four button head screws securing the bellows / actuator assembly to the body using a 3/32" hex key.



3
Grasp actuator top and lift bellows /actuator assembly out of body.



4
Remove and discard the old bonnet and poppet O-rings.
Avoid scratching the seal surfaces by using a plastic O-ring pick to remove the O-rings.



5
Using an IPA soaked cleanroom wipe thoroughly clean the bonnet and poppet O-ring grooves as shown.



6
Wipe O-rings with IPA and blow dry with CDA. Evenly apply a light sheen of Krytox to both O-rings.
Install the O-rings. Wipe off any excess Krytox with an IPA soaked cleanroom wipe.



7
Carefully install the sub assembly into the body. Be sure that the body O-ring is seated into the groove.



8
Place a small amount of anti-seize onto the button head screws.
Insert the button head screws. When all four screws are in place tighten down and torque to 15 in. lbs. using a cross pattern.
Now that the screws are torqued in place it is safe to remove the vented screw and flat washer from the top cap. Thread the air fitting into the stem to complete the valve.

7.2 Valve Rebuild Kit

All N-Series valves port size 0.75" thru 2", use the actuator rebuild kit. The rebuild kit consists of the pneumatic / spring actuator and the bellows assembly. The rebuild kit does NOT include the poppet and bonnet O-rings, solenoid valves or position indicators. These parts should either be reused from the original parts, or they need to be ordered separately (refer to Sections 7.1, 7.3 and 7.4 as applicable).

The valve rebuild kit can be ordered under part number:

NA-075-99: Rebuild kit fits sizes 0.75" – 2" N-Series valves.

To rebuild the N-Series valve, please follow the same instructions as outlined in section 7.1 for replacing the O-ring seal.

7.3 Replacement or Add-On Solenoid Valve Kit

The N-Series valve can be equipped with four different solenoid (air pilot) valves, including operating voltages of 24 VDC, 120 VAC, 240 VAC and 24 VAC.



NOTE: ORDERING SOLENOID VALVES: Please make sure to have the part number or serial number of the valve available when ordering the solenoid valve replacements in the event you are not sure which solenoid type (operating voltage) was originally installed.

The solenoid replacement kits include:

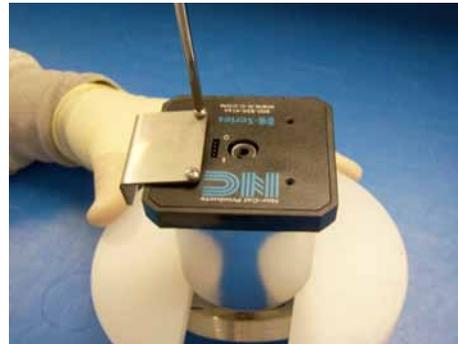
- N-S11-K:** 120 VAC solenoid kit
- N-S21-K:** 24 VDC solenoid kit
- N-S31-K:** 240 VAC solenoid kit
- N-S41-K:** 24 VAC solenoid kit

To add or replace the N-Series solenoid valve, please see the following instructions :



1 Install the two air fittings and air filter onto the solenoid as shown.

The straight air fitting accepts a 5/64" or 2mm hex key internally for easy fastening.



2 Install solenoid bracket using the two 4-40 x 1/4" thread forming screws supplied.



3 Attach the solenoid assembly to the bracket using the two 4-40 x 1/2" screws supplied.



4 Insert the poly tubing into the air fitting of the valve and the air fitting of the solenoid.



- 5**
Solenoid test:
Insert air supply line into the straight fitting on the solenoid.
Apply 60 to 100 psi air pressure.
Valve should not open until power is applied. Verify valve opens with power is applied and closes when power is removed.
Alternately you can actuate the solenoid valve by pressing the manual actuation button.

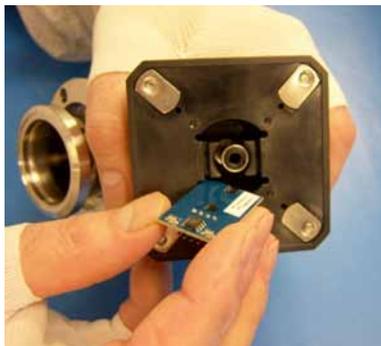
7.4 Replacement or Add-On Position Indicator

The N-Series valve position indicators are mounted on a printed circuit board which, in turn, is located in a preformed slot in the top housing of the valve. It is held in place by the label on top of the valve. This label must be removed in order to access the position indicator circuit board. As such, the position indicator replacement or add-on kit includes a spare label to be used, since the original adhesive likely will not be adequate to be used a second time.

The position indicator kit can be ordered under part number N-O-K.

Position indicator kit includes the circuit board, connection cable and top label.

To add or replace the N-Series position indicator, please see the following instructions :



- 1**
Remove the air fitting if installed.
Remove the label to access the position indicator card slot.
Replacement label is included in the kit.
Install the sensor board with the optics toward the stem, and the electrical connector located at the top of the valve facing away from the stem.
Do Not wear latex gloves when handling boards!!!



- 2**
Place label onto valve as shown so the electrical connector is accessible through the opening in the label.
Reinstall the air fitting.



Input: +5 to +28VDC
Output: NPN Standard
PNP Option available on request

- 3**
Connect position indicator cable as shown.
Connect air line for normal valve operation.



- 4**
When the valve is in the open position the "I" led should illuminate on the valve as shown.
When the valve is in the closed position the "O" led should illuminate on the valve as shown

8.0 Product Support & Returns

Many product support documents are available for viewing and download on the Nor-Cal Products website (www.n-c.com). Look for Frequently Asked Questions, Product Support, Operating and Service Manuals, 3D CAD models, and more. If you prefer, you may also reach Nor-Cal's Sales and Technical Support departments by phone at 800-824-4166.

To inquire about and schedule a product return, you may contact our RMA Coordinator directly by e-mail at RMA@n-c.com.



NOTE: RETURNING PRODUCT TO NOR-CAL: Do **NOT** return any parts to Nor-Cal Products without first being issued an RMA number. Any such shipments will be returned to you immediately.

This process may also be completed on-line by accessing the necessary forms in the RMA section of the Nor-Cal website (<http://www.n-c.com/rma.aspx>).

We are very concerned that we do not inadvertently expose our employees to hazardous materials as a result of handling components that have been returned for rework or repair. In compliance with Federal OSHA Safety Standard 1910-1200, Hazard Communications "Right to Know", Nor-Cal Products requires that a signed RMA (Return Material Authorization) form be completed to preclude any potential health risk or exposure to our employees that may occur during receiving, evaluating, disassembling/ assembling, cleaning, machining, welding or handling potentially contaminated products. The RMA (Return Material Authorization) may be returned by fax, e-mail or mail prior to issuance of an RMA (Returned Material Authorization) number.

If the products have been used, complete the PCDS (Product Contamination Data Sheet) section of the RMA form. Please provide specific information regarding the type of process in which the parts were used, the process chemicals they were exposed to, and the residues that may remain on the parts. Nor-Cal Products, Inc. is particularly concerned with compounds that outgas at room temperature and pressure. Strong odors emanating from a part may significantly delay or even stop work on a returned part.

NOTE: The PCDS section of the form must be filled out completely, and signed by a person authorized to do so by the Customer.

After the PCDS has been reviewed and accepted by Nor-Cal Products, the RMA number will be issued and shipping instructions will be forwarded to you.

Please use the following step-by-step guideline in completing this procedure:

1. Fill out the RMA and fax or mail it to Nor-Cal Products. Use the fax number or mailing address on the header of the RMA form.
2. Clean the part to meet DOT shipping and OSHA handling practices. If this cannot be done, contact Nor Cal Customer Service to determine a course of action. Nor-Cal will not accept any contaminated product without written evidence of decontamination.
3. Seal the part in a plastic bag.
4. Package and ship the bagged part to Nor-Cal Products according to the RMA instructions.
5. Clearly write the RMA# on the outside of the box and, if possible, also write it on the bag or attach a copy of the RMA to the bagged part.

NOTE: The RMA number must be clearly visible on the outside of the package, or included on the shipping label and the packing slip. It is also recommended that the RMA number or a copy of the RMA be attached to the bagged part inside the package. Packages received without an RMA number clearly visible, will promptly be returned to the sender.

Nor-Cal Products, Inc. reserves the right to refuse delivery of parts for improper or inadequate cleaning, incomplete or inadequate PCDS or RMA information, or for any other reason that may bring into question the safety of Nor-Cal employees.

Recommended Cleaning Facilities:

TMPI

Phone: 510-786-0680

Chemetal

Phone: 510-783-5050

For additional questions:

Phone: 530-841-9184

FAX: 866-640-9012

E-mail: rma@n-c.com

Nor-Cal Products



www.n-c.com
1967 South Oregon Street, Yreka, California 96097
800-824-4166 • 530-842-4457 • FAX: 530-842-9130

RMA #

Return Material Authorization

It is mandatory to obtain an RMA from Nor-Cal Products before returning any parts, items or materials. Complete the requested information in the Sections below and fax this form to Nor-Cal Products, attention RMA Coordinator at fax# 866-640-9012 or 530-842-9130.

Section A Customer Contact Information

Company Name _____
 Contact Name _____
 Telephone _____ e-mail address _____
 Original P.O.# _____ Sales Order # _____

Section B Item to be returned

***NOTE: If part is NEW (never been used) and still in the original Nor-Cal packaging, check the box in the New column, skip Section C PCDS, and sign and date Section D. If part has been removed from the original packaging, do NOT check the NEW box; continue to Sections C and D.**

Part Number	Serial Number	Quantity	New?	PCDS

Reason for Return _____

Do you need a replacement for this part? (Include replacement P/N, if known) _____

Section C Product Contamination Data Sheet

Type of process _____
 Chemical exposure history _____
 Cleaning performed _____
 Describe any expected residues on returned part _____

***NOTE: IF TWO PARTS WITH OR WITHOUT THE SAME MODEL NUMBER HAVE BEEN EXPOSED TO DIFFERENT CHEMICALS THEY MUST BE LISTED ON SEPARATE SHEETS. MAKE DUPLICATE COPIES OF THIS FORM AS NEEDED.**

Section D Legally Binding Declaration

I represent that the information in this declaration is correct and complete to the best of my knowledge. I, the undersigned, have sufficient knowledge regarding the condition of the product to complete this form. I am aware of the potential liabilities for damages and undertake to be responsible for such damages to the extent that the damages are caused by incomplete or inaccurate information on this form. I certify that I have provided accurate information to Nor-Cal Products or its Representatives and understand that any discrepancy between the information that I have provided and the part returned under the RMA may cause the RMA to be revoked and the part returned to me at my expense.

Signature _____ Date _____

Section E TO BE COMPLETED BY NOR-CAL PRODUCTS

Your RMA is: _____ Your shipment is authorized for freight collect (Y/N) _____ Shipper & account: _____
 Please return goods to: Nor-Cal Products Inc., 1967 South Oregon Street, Yreka, CA 96097

Date reviewed _____
 Determination _____
 RMA # assigned _____
 Rework/Repair Instructions _____

 Welding Allowed? Yes No Eval.
 Cleaning Allowed? IPA oH₂O Descale Chem Clean EP
 Signature _____ MSDS Review _____
 Signature _____

Repair Technician _____
 Repair Date _____
 I have reviewed the PCDS and corresponding MSDS's.
AND
 I understand how to safely handle these parts that may contain the following contaminants

 Signature _____
 Date _____

Appendix

Limited Warranty

Products manufactured by Nor-Cal Products, Inc. (hereinafter referred to as "Nor-Cal") are warranted against defects in material and workmanship for a period of twelve (12) months from the date of shipment from Nor-Cal to the buyer. Any modification to the product by the buyer or their agent voids this warranty. Liability under this warranty is expressly, limited to replacement or repair (at Nor-Cal's option) of defective parts. Nor-Cal may at any time discharge its warranty as to any of its products by refunding the purchase price and taking back the products. This warranty applies only to parts manufactured, and labor provided, by Nor-Cal under valid warranty claims received by Nor-Cal within the applicable warranty period and shall be subject to the terms and conditions hereof. Expendable items such as tubes, heaters, sources, bellows, etc., by their nature may not function for one year; if such items fail to give reasonable service for a reasonable period of time, as determined solely by Nor-Cal, they will be repaired or replaced by Nor-Cal at its election. All warranty replacement or repair of parts shall be limited to equipment malfunctions which, in the sole opinion of Nor-Cal, are due or traceable to defects in original materials or workmanship. Malfunctions caused by abuse or neglect of the equipment are expressly not covered by this warranty. Nor-Cal expressly disclaims responsibility for any loss or damage caused by the use of its products other than in accordance with proper operating and safety procedures. Reasonable care must be taken by the user to avoid hazards. In-warranty repaired or replacement parts are warranted only for the remaining unexpired portion of the original warranty period applicable to the parts that have been repaired or replaced. After expiration of the applicable warranty period, the buyer shall be charged at Nor-Cal's then current prices for parts and labor plus transportation. Except as stated herein, Nor-Cal makes no warranty, expressed or implied (either in fact or by operation of law), statutory or otherwise: and, except as stated herein, Nor-Cal shall have no liability for special or consequential damages of any kind or from any cause arising out of the sale, installation, or use of any of its products. Statements made by any person, including representatives of Nor-Cal, which are inconsistent or in conflict with the terms of this warranty shall not be binding upon Nor-Cal unless reduced to writing and approved by an officer of Nor-Cal. Merchandise may be returned at the sole discretion of Nor-Cal Products, but not more than 60 days after shipment. A fee may be charged for restocking the item. An RMA number must be obtained from Nor-Cal before returning any merchandise.

Intellectual Property

The products described in this manual are covered under U.S. Patents.

