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INSTALLATION, OPERATING & MAINTENANCE INSTRUCTIONS
3-WAY N.C., N.O. and M.P. SOLENOID VALVES
1/8" NPT, 1/4" NPT
TYPE:7131K, 7132K,7133K

This document is intended for use as a complementary resource to the User Safety Responsibility Statements located in product literature and posted to www.parker.com/safety.

WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS ("Products") COULD CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

Possible consequences of failure or improper selection, or improper use of these Products include, but are not limited to:

- Unintended or mistimed cycling or motion of machine members or failure to cycle
- Work piece or component parts being thrown off at high speeds
- Failure of a device to function properly, for example, failure to clamp or unclamp an associated item or device
- Explosion
- Sudden moving or falling objects
- Release of toxic or otherwise injurious liquids or gases
- Electrical shorts or burn out of equipment

Before selecting or using any of these Products, it is important that you read and follow the subsequent instructions.

This document and other information from Parker Hannifin Corporation, its subsidiaries, and authorized distributors provide Product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the Product in the current Product literature and in any other materials provided from Parker or its subsidiaries or authorized distributors. Due to the variety of operating conditions and applications for these Products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety, and warning requirements of the application are met.

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The Products described herein, including without limitation, Product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice. Do not, at any time, make alterations or modifications to any Product without the express and written approval of Parker Fluid Control Division. Do not, at any time, make alterations or modifications to any Product without the express and written approval of Parker Fluid Control Division.

DESCRIPTION

These valves are 3-way, direct operated models. They are available in normally closed (N.C.), normally open (N.O.), and multipurpose (M.P.) versions. The 7131K, 7132K, and 7133K are offered in a combination of brass and stainless steel construction. Valves may be ordered with either NEMA 2, 4, 4X integrated coils for ordinary locations or NEMA 4, 4X, 7, and 9 for hazardous locations: Divisions I and II; Class I, Groups A, B, C, and D; Class II, Groups E, F, and G. Additional solenoid coils and enclosures are offered as described in our catalog.

PRINCIPLES OF OPERATION

Normally closed type: 7131K

De-energized: Pressure is connected to Port 2 and is blocked by the plunger seal pressing on the body orifice.

Flow is from Port 1 through sleeve orifice Port 0.

Energized: The plunger is lifted off the orifice **allowing** flow through the valve (Port 2 to 1). The exhaust port is sealed by the top plunger seal pressing up against the sleeve orifice port).

Normally open type: 7132K

De-energized: Pressure is connected to Port 2 and fluid is free to flow out Port 1. Port O in the sleeve is blocked.

Energized: The inverted sleeve design pushes the plunger and seal onto the orifice when energized, causing the seal to block the normally open orifice. Flow between Ports 2 and 1 is then stopped. Flow occurs from Port 1 to Port 0.

Multipurpose type: 7133K

Flow paths are the same as the 7131K except that supply pressure can be connected to any port to get a variety of functions. Port 2 is the normally closed port, port 1 is the common port, and port O is the normally open port.

FLUID CODES

Listed below are the codes utilized by Underwriters Laboratories (UL) and the Canadian Standards Association (CSA) for various common fluids. The codes for those fluids that are approved or certified by the agencies for use with each valve are printed on the outside of the individual packaging.

CODE	FLUID
A	- Air or nontoxic, nonflammable gases
AC	- Acetylene
F	- Common refrigerants except ammonia
G	- City gas supplied by public utilities
GA	- Gasoline
HO	- Petroleum based hydraulic oils having viscosities of up from 125 to 400 SSU at 38°c
02	- Nos. 1 and 2 fuel oils, oils having viscosities not more than 40 SSU at 38°C
02-06	- No. 2 through No. 6 oil
OX	- Oxygen
S	- Steam
W	- Water or other aqueous nonflammable liquids

For the maximum fluid temperatures, as well as valve ambient limitations, check the valve part number on the nameplate and refer to the catalog.

INSTALLATION INSTRUCTIONS

Mounting position and pressure limits: Valves can be mounted directly on piping or by using the two (2) #10-24 UNC threaded holes in the bottom of the valve body.

The 7131K, 7132K and 7133K valves are designed to be multi-poised and will perform properly when mounted in any position. However, for optimum life and performance the valves should be mounted vertically upright so as to minimize wear and reduce the possibility of foreign matter accumulating inside the sleeve area.

Line pressure must conform to nameplate rating.

Piping: Remove protective closures from the ports. Connect line pressure to the inlet port. Use of Teflon tape, thread compound or sealants is permissible, but should be applied sparingly to male pipe threads only. For installations requiring sleeve port connections an adapter nut for the sleeve port is available with 1/8" and 1/4" NPT female thread connection. Please consult the factory for component part numbers.

CAUTION: *Do not allow foreign particles, Teflon tape, or thread compound to enter valve. Tightening torque should not exceed the following values for each port size: 1/8"*

NPT - 100 in-lbs., 114" NPT - 175 in-lbs. **Do not use the sleeve or enclosure as a lever when applying torque**.

Media filtration: Normally filtration is not required, but dirt or foreign material in the media may cause excessive leakage, wear, or in exceptional cases, malfunction. If filtration is used, install the filter on the inlet side as close to the valve as possible. Clean periodically depending on service conditions.

Lubrication: Lubrication is not required although air line lubrication will substantially increase valve life.

Electrical connection: Electrical supply must conform to nameplate rating. Connect coil leads or terminals to the electrical circuit using standard electrical practices in compliance with local authorities and the National Electrical Code.

WARNING: *Valves to be installed in **Hazardous Locations**, must be outfitted with Hazardous Location coils only. Verify nameplate data and coil part number before installing the valve.*

WARNING: *Turn off electrical power before connecting the valve to the power source.*

If the coil assembly is located in an inconvenient orientation, it may be reoriented to facilitate installation. Loosen coil assembly nut, rotate coil assembly to desired position, then retighten the nut with an input torque of 43-53 in-lbs.

DIN Coil and Terminal Box Assembly (Coil Code D100, 0200 or 0300; Option Code TB): Loosen cover screws and swing cover goo toward the conduit hub in order to access the interior space. Separate the plastic block containing the screw terminals from the metal enclosure using a small Flathead screwdriver. Feed the lead wires through the conduit hub and attach them to the appropriate screw terminal. For electrical connection within the terminal box, use field wire that is rated for 90° C or greater. Snap the plastic block back into place inside the metal enclosure. Replace the cover and hand-tighten the cover screws. Place the gasket over the DIN spades on the coil and press the terminal box and coil together. Secure the terminal box to the coil using the mounting screw provided. Apply 20 to 30 in-lbs. torque to the mounting screw.

Screw Terminal Coll and Terminal Box Assembly (Coll Code 8100, S200, or S300; Option Code TB): Loosen cover screws and swing cover 90° toward the conduit hub in order to access the interior space. Feed the lead wires through the conduit hub and attach them to the appropriate screw terminal. For electrical connection within the terminal box, use field wire that is rated for 90° C or greater. Replace the cover and hand-tighten the cover screws. Press the terminal box and coil together. Secure the terminal box to the coil using the mounting screw provided. Apply 20 to 30 in-lbs. torque to the mounting screw.

CAUTION: *When the DIN or Screw Terminal coifs are used with the Terminal Box **Assembly,** be sure to apply a wrench to the wrench fists on the conduit hub when installing electrical conduit.*

Coil/enclosure temperature: Standard valves are supplied with coils designed for continuous duty service. Normal free space must be provided for proper ventilation. When the coil is energized continuously for long periods of time, the coil assembly will become hot. The coil is designed to operate permanently under these conditions. Any excessive heating will be indicated by smoking and/or odor of burning coil insulation.

For the maximum valve ambient conditions, as well as the fluid temperatures, check the valve part number on the nameplate and refer to the catalog to determine the maximum temperatures.

MAINTENANCE

Note: Depending on service conditions, fluid being used, filtration, and lubrication, it may be required to periodically clean and/or replace worn components. See Disassembly Instructions.

CAUTION: *Do not expose plastic or a/sstomaric materials to any type of commercial cleaning fluid. Parts should be cleaned with a mild soap and water solution.*

DISASSEMBLY INSTRUCTIONS

WARNING: *Depressuriza system and tum off electrics/ power to the valve before attempting repair.*
The valve body need not be removed from the Jina for disassembly or repair.

To remove the coll assembly:

For all valves - Remove any piping connected to the sleeve port if applicable. For both ordinary and hazardous location constructions, unscrew the nut on the top of the coil assembly. The wave washer and coil assembly can now be removed.

To disassemble the pressure vessel:

Normally Closed and Multipurpose Valves - The 7131K and 7133K valves contain a hex style flange in the sleeve assembly. A wrench may be applied directly to the hex flange in order to loosen the sleeve assembly. The plunger and return spring may now be removed.

Normally Open Valves - The 7132K valves contain a hex style flange in the sleeve assembly. A wrench may be applied directly to the hex flange in order to loosen the sleeve assembly. The plunger, spring, wave washer, stop and o-ring may now be removed.

Replacement Parts: When ordering replacement parts kits, specify valve number and voltage from nameplate. Parts kits are available for each valve. Parts included in each kit are marked with an **asterisk** (*). See exploded views.

REASSEMBLY INSTRUCTIONS

WARNING: *When **replacing** coils, valves **equipped** with **Hazardous** Location coils must* use *Hazardous Location replacement coils only. Verify nameplate data and coil part number before installing the replacement coil.*

To reassemble the pressure vessel:

Normally Closed and Multipurpose Valves Refer to exploded view drawings. Parts must be replaced in the

order shown. The return spring must be placed over the plunger before placing the plunger in the sleeve. Tighten sleeve assembly with an input torque of 260-270 in-lbs.

Normally Open Valves - Refer to exploded view drawings. The stop, wave washer, spring, plunger and o-ring must be replaced in the order shown. Tighten sleeve assembly with an input torque of 260-270 in-lbs.

With coil assembly repositioned on the sleeve, slide the wave washer over the sleeve and tighten coil assembly nut with an input torque of 43-53 in-lbs.

Refer to the Installation Instructions for remaining installation procedures.

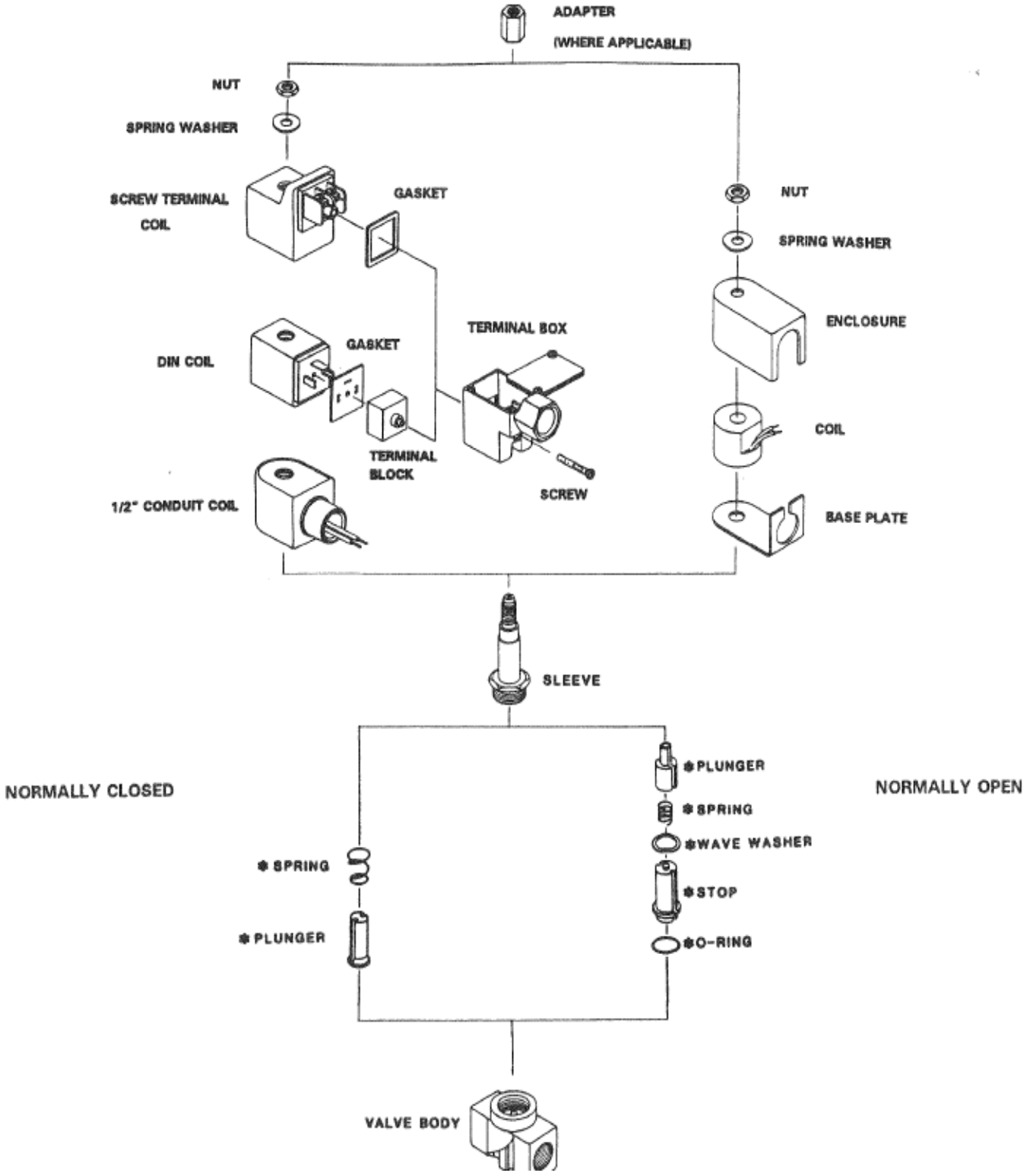
TROUBLE **SHOOTING**	
PROBLEM	PROCEDURE
Valve fails **to operate**	1. Check electrical **supply** with voltmeter. **Voltage** must agree with nameplate rating. **2.** Check coil with ohmmeter for shorted or open coil. **3.** Make sure that pressure complies with nameplate rating.
Valve is sluggish or inoperative - electrical supply and pressure check out	1. Disassemble valve as per the Disassembly Instructions. **Clean** out extraneous matter. The plunger and return **spring** must **be** free to move without **binding.** **2. The** return **spring must** not **be** broken. Replace spring if **necessary.**
External leakage at sleeve flange to body joint	1. **Check** that **sleeve is torqued to 260** - 270 **in-lbs.**
Internal leakage at body port	1. Disassemble valve **as** per the **Disassembly** Instructions. Remove extraneous matter. Clean parts **in** a mild soap **and** water solution. **2. Examine** surface of the plunger seal **or** retainer seal. **If damaged,** replace component. **3. Inspect** orifice **in** the **body/stop** for nicks. Damaged components may require a new valve or replacement **parts.**

DECLARATION

Parker's Fluid Control Division certifies its valve appliance products complies with the essential requirements of the applicable European Community Directives. We hereby confirm that the appliance has been manufactured in compliance with the applicable standards and is intended for installation in a machine or application where commissioning is prohibited until evidence has been provided that the machine or application is also in compliance with EC directives.

The data supplied in the Parker valve catalogs and general Installation, Operating & Maintenance Instructions are to be consulted and pertinent accident prevention regulations followed during product installation and use. Any unauthorized work performed on the product by the purchaser or by third parties can impair its function and relieves Parker Hannifin of all warranty claims and liability for any misuse and resulting damage.

A separate Declaration of Conformity or Manufacturer's declaration is available upon request. Please provide valve identification numbers and order serial numbers of products concerned.


ADAPTER
(WHERE APPLICABLE)
NUT
SPRING WASHER
SCREW TERMINAL
COIL
GASKET
NUT
SPRING WASHER
ENCLOSURE
TERMINAL BOX
GASKET
DIN COIL
COIL
TERMINAL
BLOCK
SCREW
1/2" CONDUIT COIL
BASE PLATE
SLEEVE
NORMALLY CLOSED
NORMALLY OPEN
*PLUNGER
*SPRING
*WAVE WASHER
*SPRING
*STOP
*PLUNGER
*O-RING
VALVE BODY