FLUID CONTROL DIVISION
Parker Hannifin Corporation
147 West Hoy Road
Madison MS, 39110

Telephone (601) 856-4123
For Technical Assistance
Telephone (860) 827-2300

Bulletin 7320
Includes: 7288, 7273, 7271
Revised 11/2024

GOLD RING™ SOLENOID VALVE
INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS
2-WAY CENTER PILOT DIAPHRAGM OPERATED STEAM, HOT AND COLD WATER VALVES
NORMALLY CLOSED
SERIES S5, 25, H5
NPT 1/4 – 3/8 – 1/2 – 3/4 – 1"
ORIFICE: 5/16 THROUGH 1"

WARNING: **Failure or improper selection or improper use of Parker Fluid Control Division Products, including valves, assemblies or related accessories ("Products") can 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 gasses
- Electrical shorts or burn out of equipment

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

This document and other information from Parker Hannifin Corp., 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 catalog and 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.

To the extent that Parker or its subsidiaries and authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

The product 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.

Warnings

1. If you purchase a Unit Valve and a Unit Solenoid, be sure the last two digits of the unit Valve match the first two digits of the Unit Solenoid number. If they do not match, do not install.

   04FS5C2420A**CF** Unit Valve
   CFGC05 Unit Solenoid
2. Check adhesive data label or nameplate for correct catalog number, pressure, voltage and service. Do not install if unsuitable.
3. For protection and proper operation of the solenoid valve, install a strainer or filter suitable for the service involved as close to the valve inlet as possible.
4. Solenoid valves require periodic cleaning and inspection depending on the service. This should be done at least once every 12 months or every 500,000 cycles, whichever occurs first.
5. **! Turn off electrical power supply and line pressure to the valve; bleed trapped pressure from the lines before inspection, cleaning servicing, or repairing the valve.**
6. For proper operation be sure that the minimum operating pressure differential is maintained.
7. If solenoid is disassembled, when reassembled it is mandatory all parts be properly installed, they are an important part for the magnetic circuit. Do not energize the solenoid unless it is assembled to a valve.

DESCRIPTION

Series S5, 25, H5

Series S5 solenoid valves have a center pilot and require a minimum operating pressure for acceptable system operation. Valves with watertight NEMA Type 4 or explosion proof Type 7 enclosures are covered by I&M Instructions, Bulletin 7220.

DIN Type Connectors, Open Frame Solenoids

DIN type coils meet DIN 43650 and ISO 4400 specifications. When supplied with an optional DIN connector kit, these valves are suitable for NEMA 4, watertight, locations.

Note: In order for DIN type coils to meet NEMA 4 requirements, the profile gasket, included in the connector kit, must be installed. DIN type coils should be connected to the electrical system by means of an approved DIN type connector.

NEMA 4 Solenoids

These solenoids are epoxy encapsulated with an integral ½'' conduit connector that meet the requirements for NEMA type 4 enclosures. The requirements for the following NEMA enclosure Types are also met: Type 1-general Purpose, Type 2-indoor protection against failing water and dirt, Type 3-outdoor protection against dust, rain, sleet, and external ice formation, Type 3R-outdoor protection against rain, sleet and external ice formation, Type 3S-same as type 3, but in addition provides for operation of external mechanisms when ice laden. Type 4-indoor or outdoor protection against dust, rain, splashing water, hose-directed water and damage from external ice formation, Type 4X-same as Type 4 plus protection against corrosion.

PRINCIPLES OF OPERATION

NORMALLY CLOSED

Closed when de-energized: open when energized.

INSTALLATION

1. Application
   -Refer to Parker Gold Ring™ catalog for application information.
2. Positioning
   -Unit valves may be mounted in any position. It is recommended that unit valves be mounted vertical and upright to prevent accumulation of debris in plunger tube.
3. Piping
   -Connect piping to valve according to markings on valve body. Apply pipe compound or sealing material sparingly to male pipe threads only.

   If applied to valve thread, it may enter valve and cause operational difficulties. Pipe strain should be avoided by proper support and alignment of piping. Caution! Do not use valves as a lever when tightening pipe.
4. Wiring
   -Wiring must comply with local and national electrical codes. Housing for all solenoids are made with connections for 1/2-inch electrical connections. Coils supplied with spade or screw terminals "should be connected to the electrical system by means of suitable insulated connectors. Ensure there is adequate clearance between the coil terminals and any current conducting materials. The enclosures may be rotated to facilitate wiring.
5. Unit Solenoid Installation
   -**Turn off electrical power supply**. Slide unit solenoid over plunger tube. Apply nameplate or label. Slide solenoid retainer over plunger tube until it snaps securely into place. If applicable, slide spacer over plunger tube.
6. Solenoid Temperature
   -Standard catalog valves are supplied with coils designed for continuous duty service. When the solenoid is energized for a long period, the solenoid enclosure becomes hot and can be touched with the bare hand for only an instant. This is a safe operating temperature. Excessive heating will be indicated by the smoke and odor of burning coil insulation. Ambient and fluid temperature limitations for a solenoid valve depend on the solenoid and the valve materials.

MAINTENANCE

1. Cleaning
   -Periodic cleaning of solenoid valves is recommended. Frequency will depend on fluid and service, but should never be less than every 12 months or 500,000 cycles whichever occurs first. In general, if the voltage to the coil is correct, sluggish operation, excessive leakage or noise will indicate cleaning or repair is required. Clean valve filter or strainer when cleaning valve. See valve disassembly and reassembly instructions below.
2. Preventive Maintenance
   a. Keep the media flowing through the valve free from dirt and foreign matter as much as possible.
   b. While not in service, operate valve at least once a month to insure proper opening and closing.
   c. Periodic inspection (depending on media and service conditions) of internal valve parts for damage or excessive wear is recommended. Inspect at least every 12 months or 500,000 cycles, whichever occurs first. Thoroughly clean all parts. Replace worn or damaged parts with Gold Ring™ Spare Parts Kit. Use all parts for best results. Clean valve filter or strainer when cleaning valve.
3. Troubleshooting Guide
   a. Faulty Controls Circuit
      Check the electrical system by energizing the solenoid. A metallic click signifies the solenoid is operational. Absence of the click indicates loss of power supply. Check for loose or blown out fuses, open circuit or grounded coil and broken lead wires or splices.
   b. Burned-Out Coil
      Check for open-circuited coil. Replace coil if necessary.
   c. Low Voltage
      Check voltage across the coil lead. Voltage must be at least 85% of adhesive data label rating.
   d. Incorrect Pressure
      Check valve pressure. Pressure to valve must be within range specified on nameplate.
   e. Excessive Leakage
      Disassemble valve and clean all parts. Replace worn or damaged parts with a Gold Ring™ Spare Parts Kit. Use all parts for best results. Install filtration if indicated. See valve disassembly and reassembly instructions.
4. Unit Solenoid Replacement
   ! Warnings
   Turn off electrical power supply and disconnect coil lead wires. Refer to exploded views.
   a. Remove solenoid retainer by inserting a 3/16'' wide screwdriver under tab on retainer and slide forward. Valves may be supplied with E-rings which slide into the enclosure tube retaining groove.
   b. Replace old coil with new coil of correct wattage, voltage, and class.
   c. Reassemble by sliding unit solenoid over plunger tube. Install label and spacer. Slide solenoid retainer over plunger tube until it snaps securely into place. Reconnect your electrical circuit.
5. Valve Disassembly and Reassembly
   (Refer to exploded view)
   ! Warnings
   Turn off electrical power supply and line pressure. Disconnect coil lead wires. Bleed trapped pressure from lines.
   a. Remove solenoid retainer by inserting a 3/16'' wide screwdriver under tab on retainer and slide forward.
   b. -For 1/4" and 3/4" NPT, unscrew enclosure tube assembly, and remove plunger, spring, square section seal, diaphragm guide, diaphragm support, strainer, and cover assembly.

      -For 1" NPT valves unscrew enclosure tube assembly, and remove cover bolts, cover, and all internal parts.

   c. All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with Gold Ring™ Spare Parts Kit. Use all parts for best results.
   d. Inspect valve body seat for scratches, nicks, dents, or other blemishes. Replace if damaged.
   e. Reassemble in reverse order of disassembly, paying careful attention to exploded views provided. Apply 240±48 inch pounds of torque when tightening the plunger tube assembly on the 1/4" NPT bonnet and apply 360±48 inch pounds of torque to the 3/8", 1/2", and 3/4" NPT bonnets. Apply 175±25 inch pounds of torque to the 1" NPT bonnet. Cover screws on the 1" NPT valve should be torqued to 140±10 inch pounds. Lubricate all gaskets with Dow Corning® Dc 200 OIL or an equivalent light machine oil.
   f. DO NOT alter, modify or use parts not obtained in Spare Parts Kit from original manufacturer.

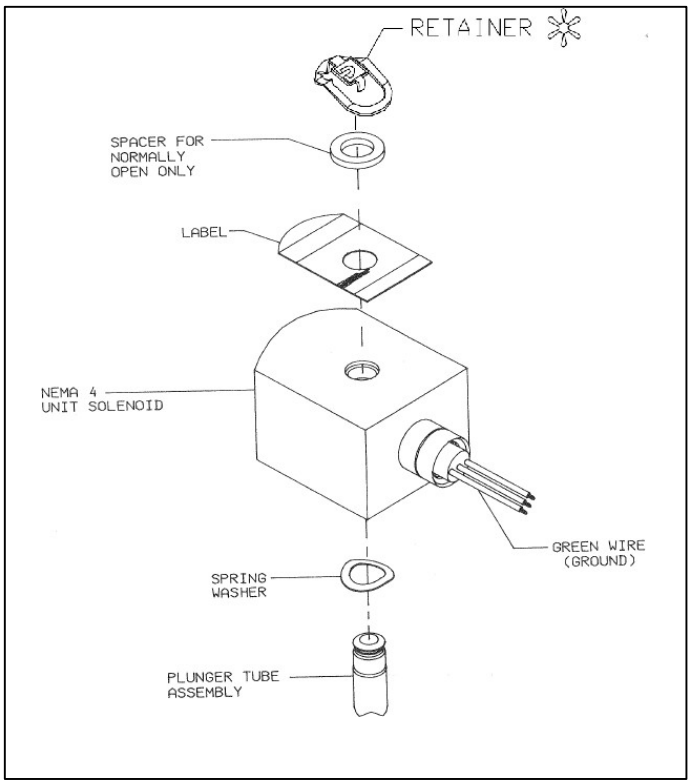
Parker-Gold Ring™ Spare Parts Kits

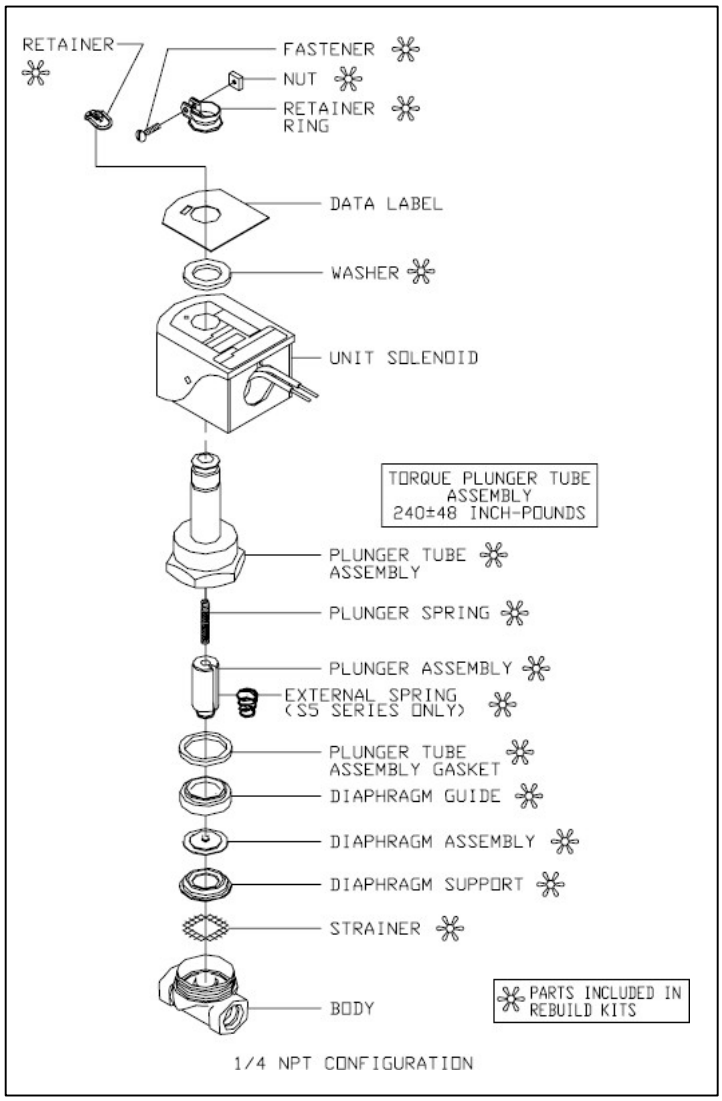
Spare Parts Kit and Unit Solenoids are available for Gold Ring™ Valves. Parts marked with and asterisk (*) are included in Spare Parts Kits (see exploded view).

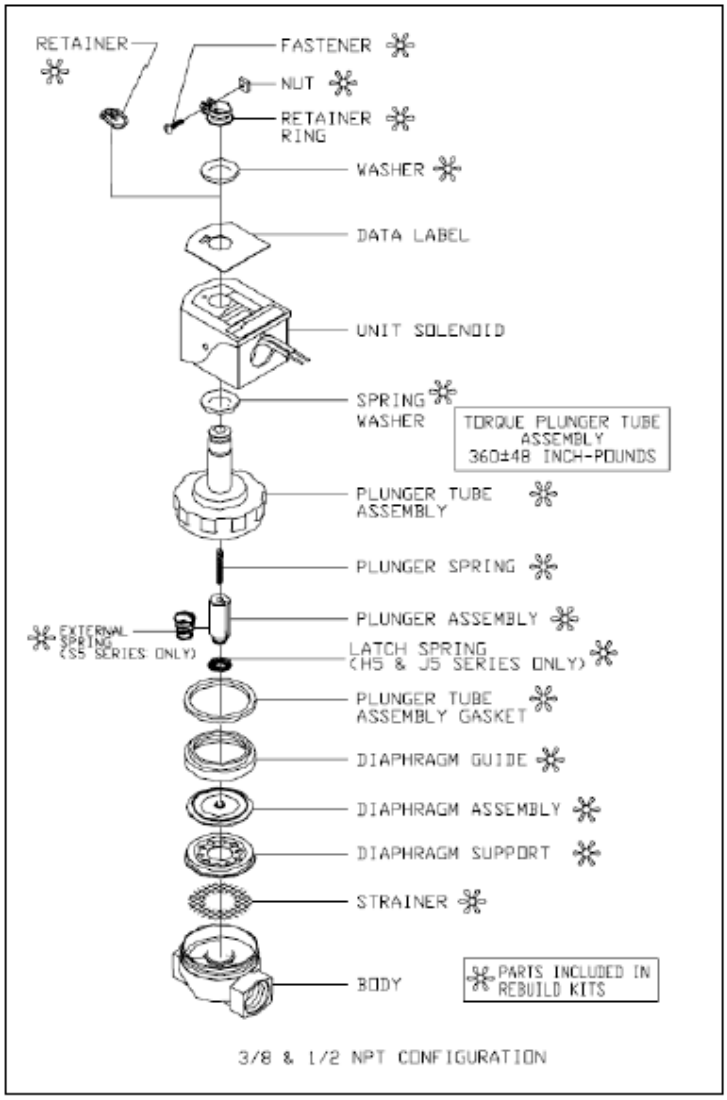
Ordering Information for Spare Parts Kits

When ordering Parker Gold Ring™ Spare Parts Kits or Unit Solenoids, specify Valve Catalog Number, Serial Number, and Voltage.

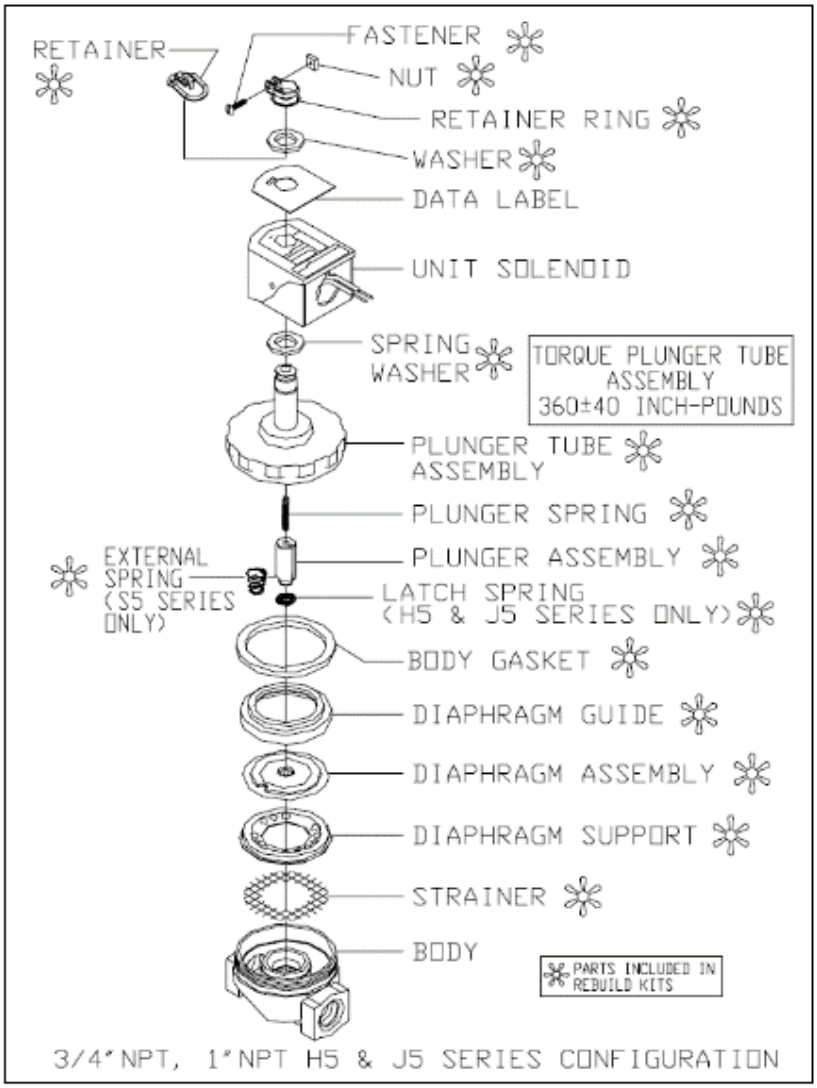
NOTE: This product may contain chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm. This warning is given in compliance with California Proposition 65 as detectable amounts of chemicals subject to Proposition 65 may be contained in this product.



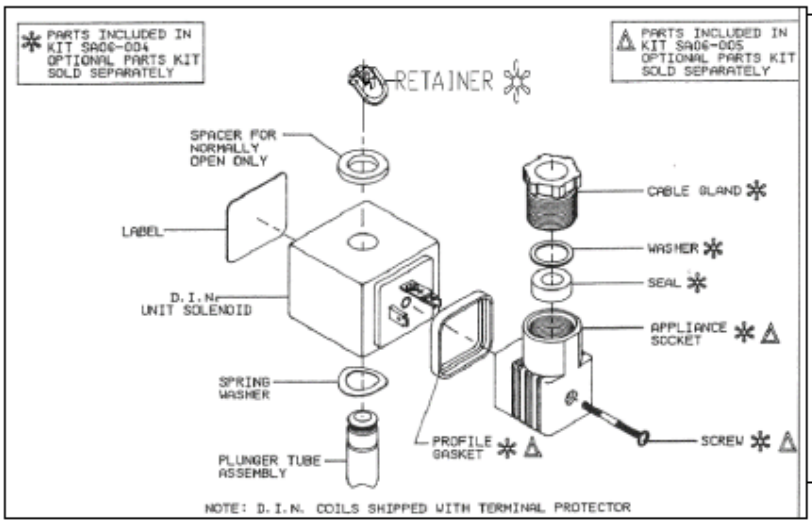




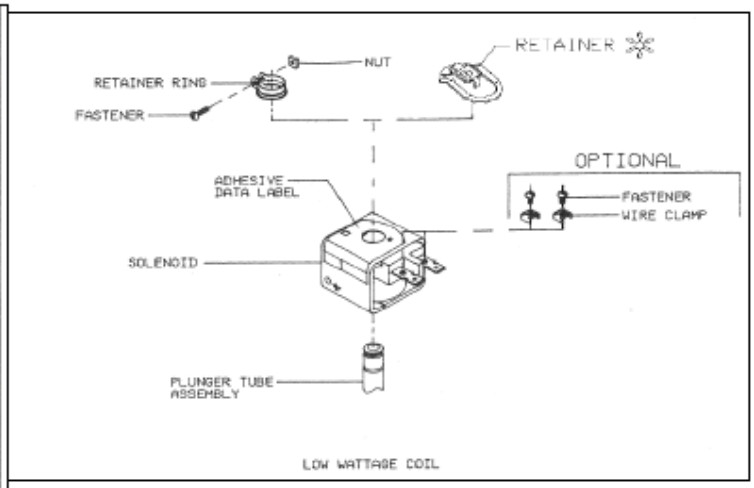
3/8 & 1/2 NPT CONFIGURATION



3/4" NPT, 1" NPT H5 & J5 SERIES CONFIGURATION

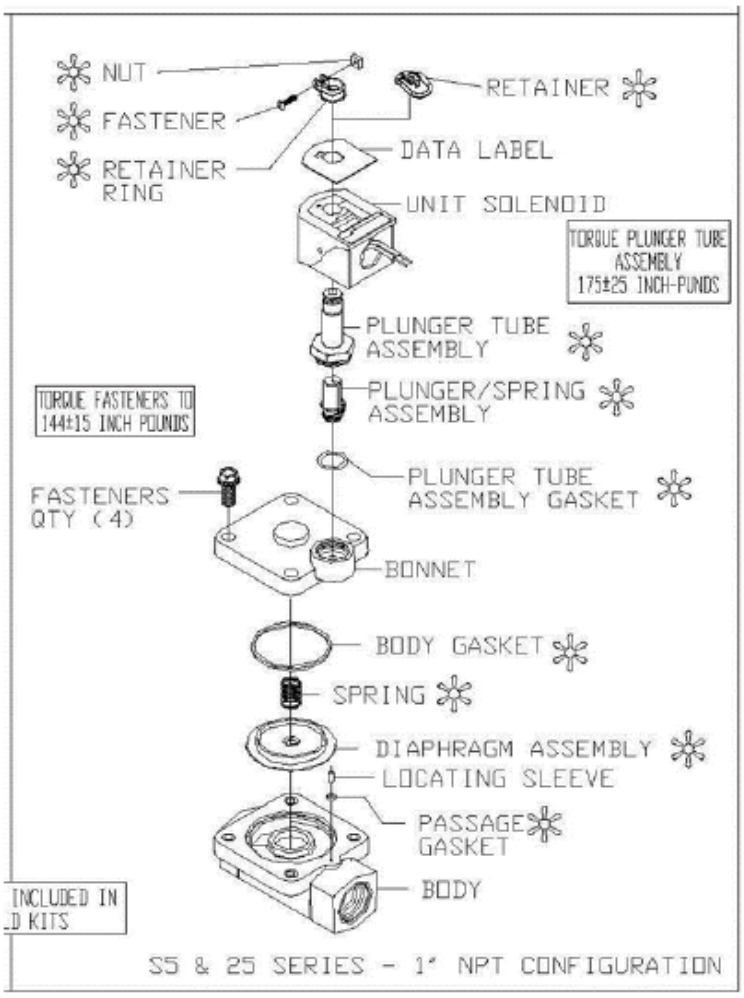


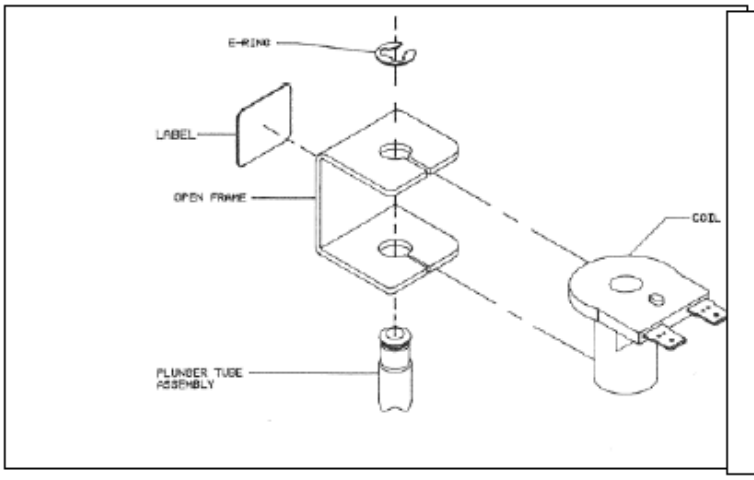
NOTE: D.I.N. COILS SHIPPED WITH TERMINAL PROTECTOR

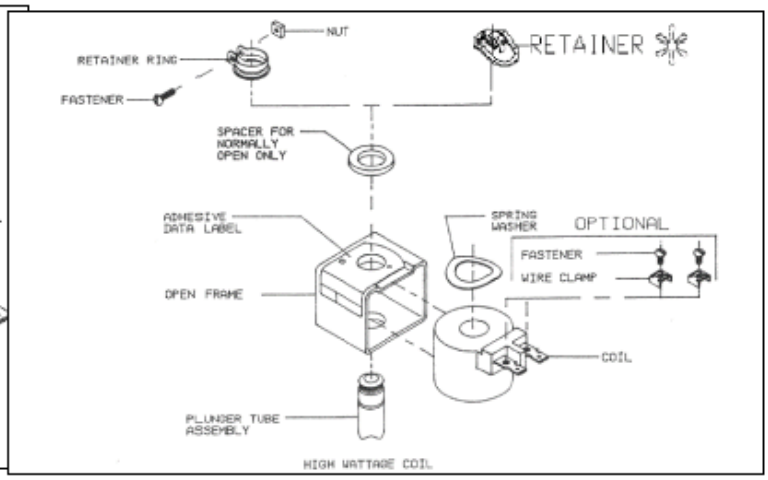


LOW WATTAGE COIL

GASKET


NUT
FASTENER
RETAINER RING
RETAINER
DATA LABEL
UNIT SOLENOID
TORQUE PLUNGER TUBE ASSEMBLY 175±25 INCH-POUNDS
PLUNGER TUBE ASSEMBLY
PLUNGER/SPRING ASSEMBLY
TORQUE FASTENERS TO 144±15 INCH POUNDS
PLUNGER TUBE ASSEMBLY GASKET
FASTENERS QTY (4)
BONNET
BODY GASKET
SPRING
DIAPHRAGM ASSEMBLY
LOCATING SLEEVE
PASSAGE GASKET
BODY
INCLUDED IN D KITS
S5 & 25 SERIES - 1" NPT CONFIGURATION


E-RING
LABEL
OPEN FRAME
COIL
PLUNGER TUBE ASSEMBLY


NUT
RETAINER RING
FASTENER
RETAINER
SPACER FOR NORMALLY OPEN ONLY
ADHESIVE DATA LABEL
SPRING WASHER
OPTIONAL
FASTENER
WIRE CLAMP
OPEN FRAME
COIL
PLUNGER TUBE ASSEMBLY
HIGH WATTAGE COIL

Parker Gold Ring™ Solenoid Valve Temperature Limitations

The following table provides fluid and ambient temperature data for Parker Gold Ring™ solenoid valves.

Series or Catalog Number	Watt Rating	Coil Insulation Class (see note 2)	Maximum Ambient Temperature °F	Maximum Fluid Temperature °F
Series 20	9.5	130	77	200
Series p,20,22,24,25,26,30,34,38	6, 6.8, 6.9, 7.5, 8.1	155	130	180
Series 20,23,24,25,26,28,34,35,38,48	11,11.6,12.6,13.9	155	130	180
Series 20,22,23,24,25,26,28,30,34,35,38,48	6,6.8,6.9,7.5,8.1,11,11.6,12.6,13.9	180	167	216
Series 20,30	10.2,10.4,10.8,12.3,12.7	155	77	180
Series 20,30,34	16,16.7,17.4	155	77	200
Series 22	16,16.7,17.4	155	77	175
Series 20,22,30,34	10.2,10.4,10.8,12.3,12.7,16.7,17.4	180	113	236
Series 30	11,11.6	155	130	200
Exception 12F25	6,6.8,6.9,8.1,11	155	77	175
Exception 12F25	6,6.8,6.9,8.1,11	180	113	236
Series S3,S4,S5	6,6.8,6.9,8.1,9,11	155	77	300
Series S5	11	155	131	320
Series S5	11	180	131	353
Exceptions				
04F20C2410ACH	11,11.6,12.6,13.9	180	130	344
06F20C2410ACH	11,11.6,12.6,13.9	180	130	344
04F20C6414ACH	11,11.6,12.6,13.9	180	130	316
06F20C6414ACH	11,11.612.6,13.9	180	130	316
04F20C6418ADF	16,16.7,17.4	155	77	307
06F20C6418ADF	16,6.7,17.4	155	77	307
04F20C6408ACH	11,11.6,17.4	180	130	353
06F20C6408ACH Seven digit may also be 3	11,11.6,17.4	180	130	353
ALL	9.5	155	77	120
All	11.5	155	77	150
Exceptions				
With "5" in 8th Digit	11.5	155	77	140
With "20" before A3F	11.5	155	77	180
With "28" before A3F	11.5	155	77	180
04F20O1103	11.5	155	77	140
04F20O1106	11.5	155	77	140
Series 48	11.5	155	77	104
04F25	11.5	155	77	160

Note 1- Valves with case Urethane discs (8th digit is a 5) have a maximum 140°F fluid temperature.
Note 2- Insulation class is maximum allowable insulation material temperature, °C

CAUTION

(Rectified Coil Only)

This solenoid coil contains solid state components that can be damaged by voltage spikes, transient voltage, over temperature, over voltage or improper assembly. To protect against premature coil failure, please read and adhere to the following:

1. If this coil is used in an inductive circuit with other inductive loads either in series or in parallel, this coil should be protected by a voltage suppression device with a minimum rating of 1.4 times the input voltage and sufficient capacity to dissipate the inductive load.
2. This coil is designed to operate in a maximum of 77°F (25°C) ambient which should not be exceeded for an extended period of time.
3. If solenoid is disassembled, all components must be reassembled correctly. Do not energize the solenoid unless it is assembled to a valve.
4. Operating voltage is 85-100% of rated voltage. These limits should not be exceeded.