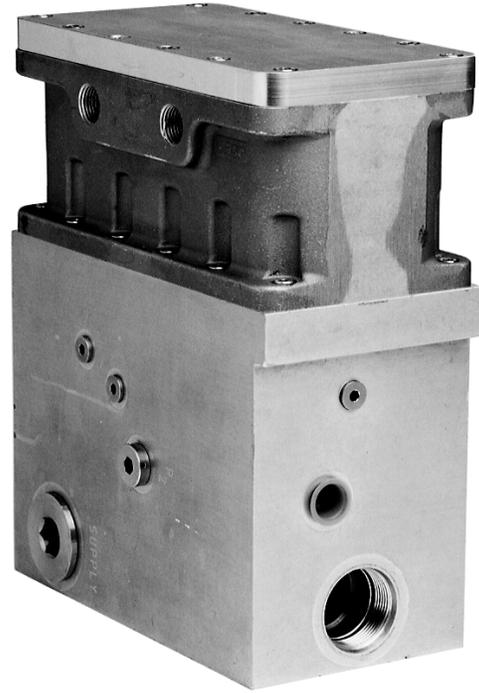




Installation and Operation Manual



Liquid Shutoff Valve 25 (LSOV25)

Manual 40148 (Revision K)

IMPORTANT



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DEFINITIONS

- **DANGER**—Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING**—Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**—Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE**—Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT**—Designates an operating tip or maintenance suggestion.

WARNING

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.



Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Practice all plant and safety instructions and precautions. Failure to follow instructions can cause personal injury and/or property damage.



This publication may have been revised or updated since this copy was produced. To verify that you have the latest revision, be sure to check the Woodward website:

www.woodward.com/pubs/current.pdf

The revision level is shown at the bottom of the front cover after the publication number. The latest version of most publications is available at:

www.woodward.com/publications

If your publication is not there, please contact your customer service representative to get the latest copy.



Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

NOTICE

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

NOTICE

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Revisions—Text changes are indicated by a black line alongside the text.

Woodward Governor Company reserves the right to update any portion of this publication at any time. Information provided by Woodward Governor Company is believed to be correct and reliable. However, no responsibility is assumed by Woodward Governor Company unless otherwise expressly undertaken.

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Regulatory Compliance

European Compliance for CE Marking:

These listings are limited only to those units bearing the CE marking and/or the LCIE agency identification.

Pressure Equipment Directive: Certified to Pressure Equipment Directive 97/23/EC of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment, Category II.
Moody International Certificate 90 174

ATEX - Potentially Explosive Atmospheres Directive: Declared to 94/9/EEC COUNCIL DIRECTIVE of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres.
LCIE 03 ATEX 6100
Zone 1, Category 2, Group II G, EEx d IIB T4

Other European Compliance:

Compliance with the following European Directive does not qualify this product for application of the CE Marking:

Machinery Directive: Compliant as a component with 98/37/EC COUNCIL DIRECTIVE of 23 July 1998 on the approximation of the laws of the Member States relating to machinery.

North American Compliance:

These listings are limited only to those units bearing the CSA agency identification.

CSA: CSA Certified for Class I, Division 1, Groups C & D, and Class I, Division 2, Groups B, C, & D, T4 at 121 °C Ambient for use in Canada and the United States.

Proximity Switch Version: CSA Certified for Class I, Division 1, Group D and Class I, Division 2, Groups B, C, & D, T4 at 121 °C Ambient for use in Canada and the United States.

Wiring must be in accordance with North American Class I, Division 1 or 2, or European Zone 1, Category 2 wiring methods as applicable, and in accordance with the authority having jurisdiction.

Special Conditions For Safe Use:

Field wiring must be suitable for at least 130 °C.

Connect ground terminal to earth ground.

The LSOV25 is certified to a Zone 1-Category 2/ method of protection. Wiring methods must comply with the Zone 1-Category 2 method of protection when installed in a Zone 2 classified atmosphere.

 **WARNING**

EXPLOSION HAZARD—Do not remove covers or connect/disconnect electrical connectors unless power has been switched off or the area is known to be non-hazardous.

Substitution of components may impair suitability for Class I, Division 2 or Zone 2

 **AVERTISSEMENT**

RISQUE D'EXPLOSION—Ne pas enlever les couvercles, ni raccorder / débrancher les prises électriques, sans vous en assurez auparavant que le système a bien été mis hors tension; ou que vous situez bien dans une zone non explosive.

La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Classe I, Division 2 et/ou Zone 2.

 **WARNING**

The shutoff valve is a critical component for protection against equipment failure and turbine overspeed. Routine inspection is necessary for the protection of the turbine and the turbine operators.

Chapter 1.

General Information

Shutoff Valve Description

The Woodward High Speed Liquid Fuel Shutoff Valve is a three-way, two-stage valve, designed to provide fuel bypass in 0.100 seconds or less after termination of the solenoid current. The valve has been designed for fail-safe operation. Loss or termination of the electrical signal will result in all fuel delivery to the valve being bypassed to the return system.

A wash flow filter screen in the valve prevents contaminants in excess of 40 μm (nominal) from damaging the pilot-valve section.

The shutoff valve housing is constructed of anodized aluminum. All moving internal parts are hardened stainless steel.

There is no filtration of normal fuel flow through the valve.

The shutoff valve is designed to protect the turbine should the normal fuel control become inoperative for any reason. Critical overspeed may occur should the valve fail to shut off fuel to the turbine. Engine overspeed can cause serious mechanical damage as well as personal injury or death.

Always use the shutoff valve to stop the turbine. This exercise provides proof of the proper operation of the safety equipment.

Because of the critical function of the valve, it is mandatory that the operator regularly monitor the valve whenever the turbine is shut down as well as during normal operation.

Woodward recommends the installation of two shutoff valves per API-616.

Specifications

Electrical Requirements

Voltage Available	Nominal 24 Vdc or 115 Vdc
Power Consumption	20 W nominal
Resistance to Ground	10 M Ω minimum at 500 Vdc
Dielectric Strength	Leakage current less than 0.5 mA at 1000 Vac plus twice the rated solenoid voltage for one minute

General

Fuel Compatibility	The valve is compatible with most types of diesels, kerosenes, gasolines, heavy and light distillates including naphtha, gas turbine fuels and fuel oils, and other liquid fuels such as biodiesel that are compatible with fluorocarbon (FKM) type elastomers and conform to international standards for utility, marine, and aviation gas turbine service. Ultra low sulfur diesels are also acceptable with proper lubricity additives. Other fuels such as ethanol or methanol may be acceptable with internal seal compound substitutions. Contact Woodward for these and other special fuel applications.
Fuel Viscosity	Fuel viscosity must be between 0.5 and 12.0 centistokes
Fuel Cleanliness	Liquid fuel must be filtered to limit particulate size to 20 µm or smaller. Water content must be limited to 0.1% by volume. Solids, sediment, and particulates must be limited to 1.0 mg per liter of fuel.
Fuel Temperature	0 to +250 °F (–18 to +120 °C)
Rated Flow	30 000 lb/h (13 608 kg/h) based on US MIL-C-7024 calibrating fluid at 70 °F (21 °C)
Cycle Life	10 000 cycles
Weight	45 lb (20 kg)
Construction	Anodized aluminum housing. Hardened stainless steel internal components.
Fuel Connections	Fuel inlet, fuel outlet, and bypass ports machined to accept –20 (SAE 070120) straight thread fittings. –04 (SAE 070120) straight thread for overboard drain on versions with proximity switch.
Nominal Diameter	41 mm
Electrical	0.500-14 NPTF conduit connector or M20-1.5 cable entries
Proximity Switch	5 A, 250 Vac, 60 Hz
Opening Time	Maximum of 0.400 seconds after admission of fuel and solenoid current
Closing Time	Within 0.100 s after the solenoid is de-energized with 100–1200 psig (690–8274 kPa) fuel applied to the inlet
Pressure Drop	53 psid (365 kPa) inlet to discharge at 30 000 lb/h (13 608 kg/h) 139 psid (958 kPa) inlet to bypass at 30 000 lb/h (13 608 kg/h)
Internal Leakage Shutoff	From inlet to discharge: None From inlet to bypass: 500 ccm maximum at 800 psid (5516 kPa)
Reverse Pressure Condition	900 psig (6206 kPa)
Fluid Supply Pressure:	
Maximum Working	1200 psig (8274 kPa)
Proof	1800 psig (12 411 kPa)
Burst	6000 psi (41 370 kPa)
Maximum Bypass Pressure	250 psig (1724 kPa)
Cracking Pressure	100 psi (690 kPa) above reference pressure (bypass)

 **WARNING**

EXPLOSION HAZARD—Do not remove covers or connect/disconnect electrical connectors unless power has been switched off or the area is known to be non-hazardous.

Substitution of components may impair suitability for Class I, Division 1 or Zone 1.

 **AVERTISSEMENT**

RISQUE D'EXPLOSION—Ne pas enlever les couvercles, ni raccorder / débrancher les prises électriques, sans vous en assurer auparavant que le système a bien été mis hors tension; ou que vous vous situez bien dans une zone non explosive.

La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Classe I, Division 1 ou de Zone 1.

Chapter 2. Installation

Receiving

The liquid fuel shutoff valve is tested with a non-corrosive liquid, drained and packed in a foam filled box for shipment. The unit may be stored for an extended period in the original container.

! WARNING

External fire protection is not provided in the scope of this product. It is the responsibility of the user to satisfy any applicable requirements for their system.

! WARNING

Due to typical noise levels in turbine environments, hearing protection should be worn when working on or around the LSOV25.

! WARNING

The surface of this product can become hot enough or cold enough to be a hazard. Use protective gear for product handling in these circumstances. Temperature ratings are included in the specification section of this manual.

! WARNING

Do not lift or handle the valve by any conduit.

Mounting

The valve is designed for installation in any attitude with four 3/8 inch bolts. (See the outline drawing for location of the mounting holes and of the valve.)

1.625-12 UNF (-20) straight thread ports are provided for inlet, bypass and outlet pipe connections. When applicable, the "P2 main" port is supplied with a (-06) fitting. The bypass plumbing must be of equal size to the inlet and unobstructed to assure positive shutoff by the valve.

0.438-20 UNF (-04) straight thread port provided for overboard drain connection on versions with proximity switch.

Electrical

⚠ WARNING

Due to the hazardous location listings associated with this product, proper wire type and wiring practices are critical to operation.

NOTICE

Do not connect any cable grounds to “instrument ground”, “control ground”, or any non-earth ground system. Make all required electrical connections based on the wiring instructions.

Field wiring must be suitable for at least 130 °C. A 0.500 inch-14 NPTF or an M20 x 1.5 conduit adapter is provided for the electrical connection. Connect the proper voltage to the two pins on the terminal block (see the outline drawing). Polarity is not important.

Damage to sealing surfaces may result in moisture ingress, fire or explosion. Clean the surface with rubbing alcohol if necessary. Inspect the LSOV25 joint surfaces to ensure that they are not damaged or contaminated.

⚠ WARNING

Take care not to damage the cover seal, the cover surface, or the valve surface while removing or replacing the cover. The cover bolts must be torqued to 77 to 85 lb-in (8.7 to 9.6 N·m).

⚠ WARNING

For Zone 1 / Division 1 products: Proper torque is very important to ensure that the unit is sealed properly.

Maintenance

Recommended: Disassembly for cleaning and inspection every 10 000 cycles or three years of operation, whichever occurs first. In case of contamination of the interior passages, the valve may be disassembled and cleaned in the field by a trained service technician.

Routinely check the shutdown switches or relays to be sure they are capable of interrupting the electronic signal to the shutoff valve.

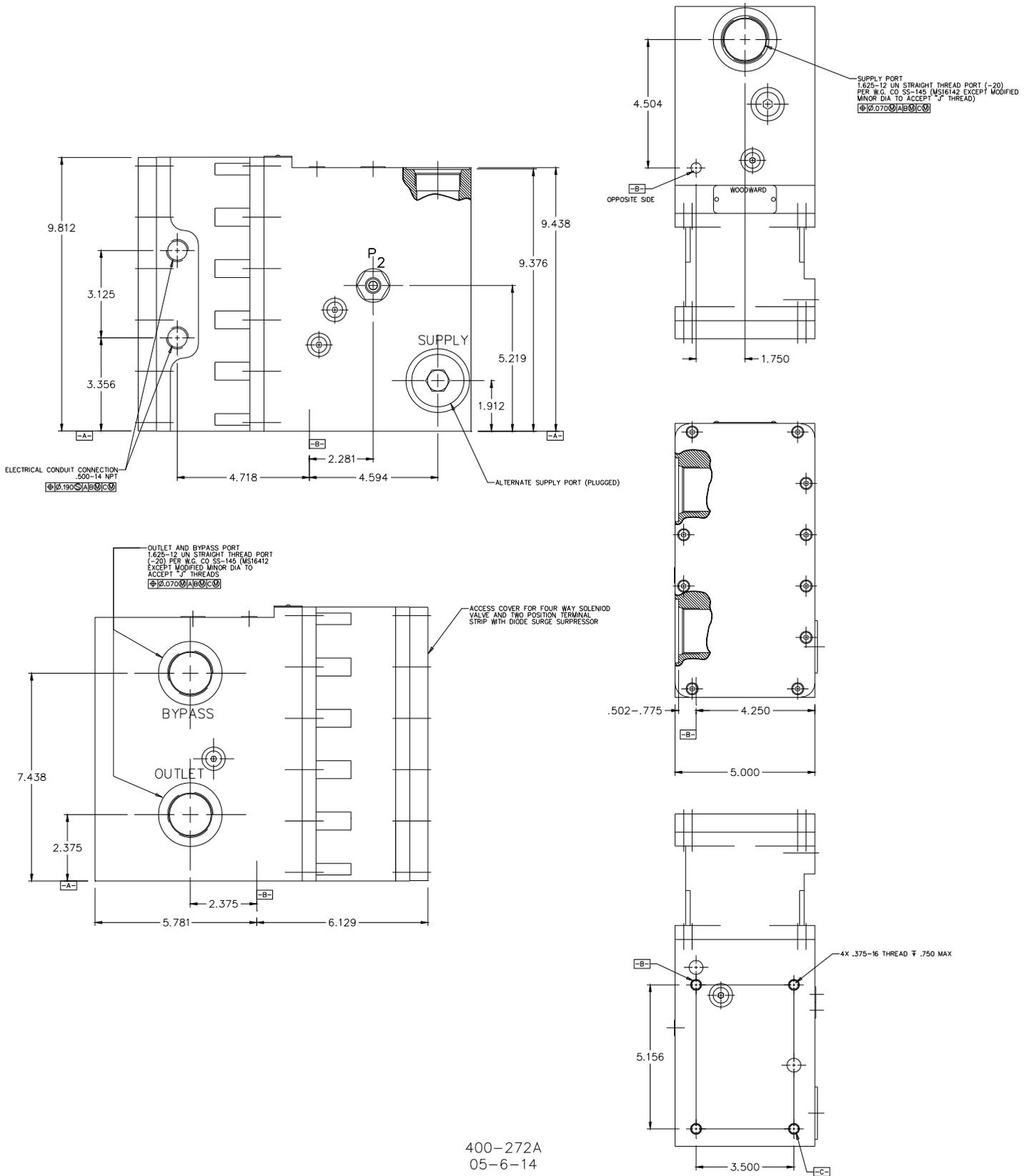
Always use the valve for routine shutdown as a check for continued operation.

While the valve is closed, check for excessive leakage, either through the valve or through the vent. Any leakage through the valve to the turbine should be considered proof of wear and/or possible malfunction. The valve should be immediately replaced and returned for factory service.

A minimal amount of leakage can be expected through the bypass connection of the valve. Should the volume of leakage change appreciably, the valve should be replaced and returned to a service facility.

⚠ WARNING

For Zone 1 / Division 1 products: Proper torque is very important to ensure that the unit is properly sealed. Cover bolts should be torqued to 77 to 85 lb-in (8.7 to 9.6 N·m).



400-272A
05-6-14

Figure 2-1. Outline Drawing of Liquid Fuel Shutoff Valve without Position Switch

Chapter 3.

Principles of Operation

Figures 3-1 and 3-2 illustrates the operating principle of the shutoff valve.

The shutoff valve is designed to be the last element in the fuel-supply line to the turbine. Its rapid closure time of less than 0.1 second, and opening time of 0.4 second, makes it an ideal valve for both routine and emergency shutoff of the fuel supply to the controlled device.

In the full open (valve energized) mode, a very small amount of leakage will occur to bypass. Termination of the electrical signal will result in all fuel delivery to the valve being bypassed to the fuel return system.

Fuel pressure and flow must be present to ensure proper operation of the valve. Springs on the control plunger in the valve will cause the valve to close itself should the fuel flow drop below a nominal amount.

The regulator generates a working pressure within the valve. In the de-energized state, the working pressure supplements the return spring force on the outlet piston to provide a positive no-leak seal at the turbine fuel manifold. This ensures rapid shutdown capability and prevents nozzle contamination when dual-fuel turbines are operated on gaseous fuel.

When energized, the first stage solenoid valve directs full pressure to the bottom of the bypass piston and away from the bottom of the outlet piston. The combination of fuel pressure and spring pressure drives the bypass piston up. This closes the bypass port and drives the outlet piston away from the seal, opening the fuel passage through the valve to the turbine.

As soon as fuel system pressures reach 100 psi (690 kPa) above bypass (reference) pressure, the outlet piston opens completely. This results in a minimum pressure drop through the valve and assures that maximum fuel flow can be achieved through the valve.

When the electrical signal is removed from the solenoid inlet pressure is directed below the outlet piston. simultaneously, the pressure below the bypass piston is vented to bypass. The combination of fuel pressure and spring pressure drives the outlet piston tightly against the seal and allows the bypass piston to open, allowing fuel to return to the supply system.

A 40 μm wash-flow filter is provided between inlet pressure and the solenoid control valve to assure trouble free operation of the shutoff valve. In the shutoff position all inlet flow is directed to bypass. This prevents buildup of pressure in the positive-flow fuel system which could cause damage to the pump or plumbing. For optimum dynamic response, it is important that the bypass fuel plumbing be sized large enough to accommodate the maximum expected pump delivery with less than 250 psi (1724 kPa) head measured at the valve bypass port. Also, inlet pressure should be at least 100 psi (690 kPa) higher than bypass pressure in all operating conditions.

Polarity is unimportant in the dc operated valve.

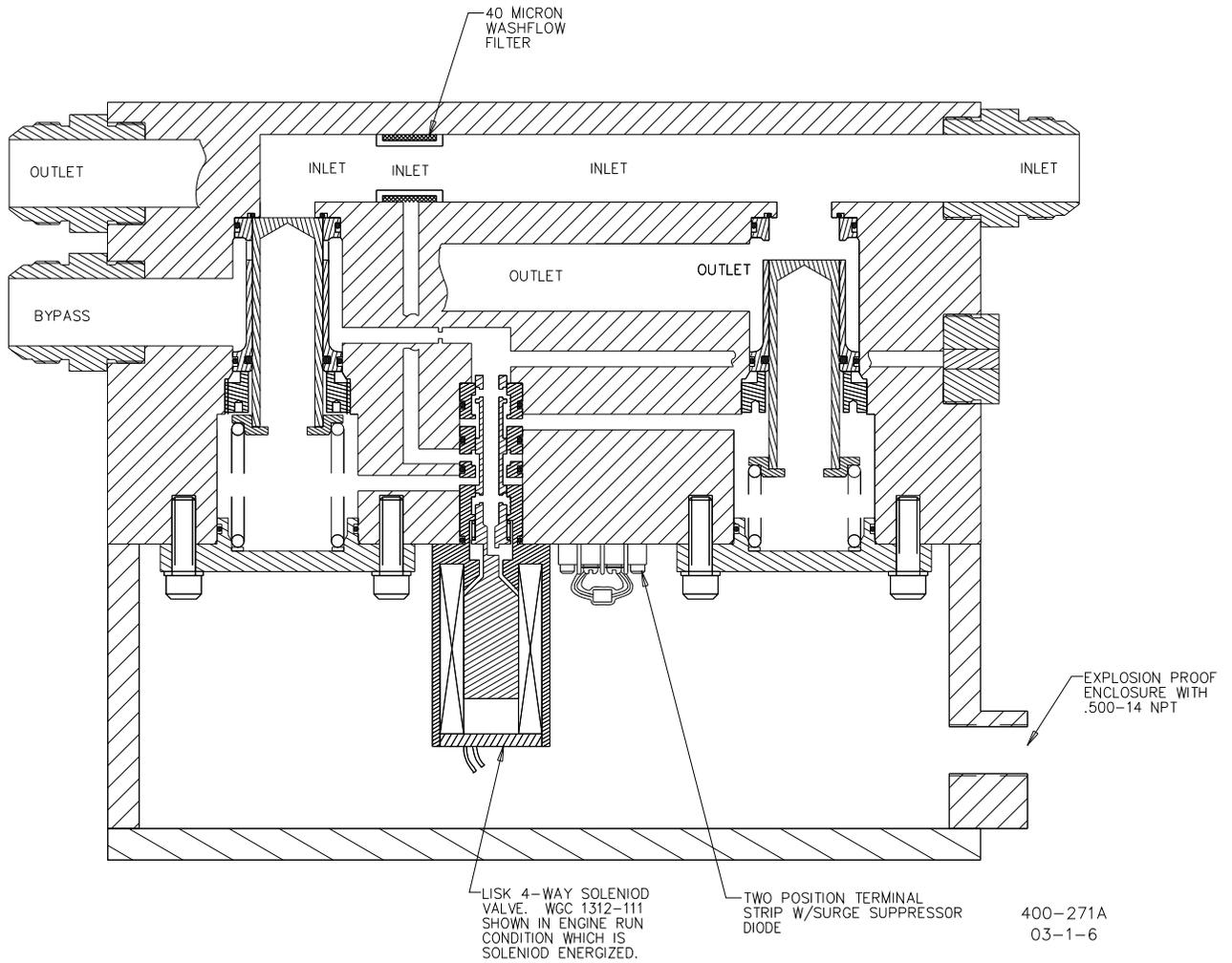


Figure 3-1. Schematic of Liquid Fuel Shutoff Valve without Position Switch

The maximum power consumption of the valve is 25 watts of power. A bipolar zener diode is provided in the solenoid wiring to prevent voltage spikes during operation and to prevent the generation of electromagnetic interference (EMI).

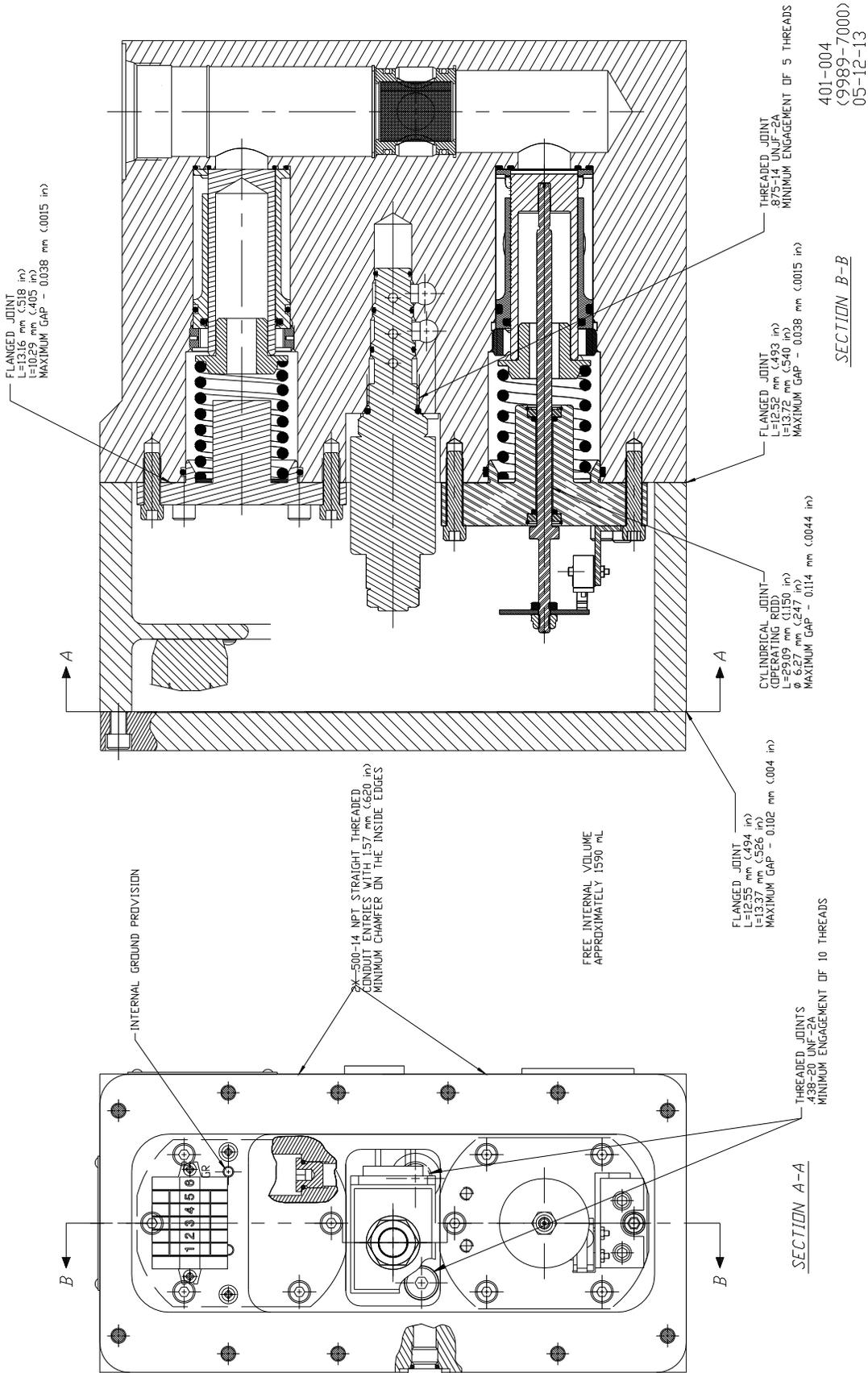


Figure 3-2. Schematic of Liquid Fuel Shutoff Valve with Position Switch

Chapter 4. Service Options

Product Service Options

If you are experiencing problems with the installation, or unsatisfactory performance of a Woodward product, the following options are available:

- Consult the troubleshooting guide in the manual.
- Contact the manufacturer or packager of your system.
- Contact the Woodward Full Service Distributor serving your area.
- Contact Woodward technical assistance (see “How to Contact Woodward” later in this chapter) and discuss your problem. In many cases, your problem can be resolved over the phone. If not, you can select which course of action to pursue based on the available services listed in this chapter.

OEM and Packager Support: Many Woodward controls and control devices are installed into the equipment system and programmed by an Original Equipment Manufacturer (OEM) or Equipment Packager at their factory. In some cases, the programming is password-protected by the OEM or packager, and they are the best source for product service and support. Warranty service for Woodward products shipped with an equipment system should also be handled through the OEM or Packager. Please review your equipment system documentation for details.

Woodward Business Partner Support: Woodward works with and supports a global network of independent business partners whose mission is to serve the users of Woodward controls, as described here:

- A **Full Service Distributor** has the primary responsibility for sales, service, system integration solutions, technical desk support, and aftermarket marketing of standard Woodward products within a specific geographic area and market segment.
- An **Authorized Independent Service Facility (AISF)** provides authorized service that includes repairs, repair parts, and warranty service on Woodward's behalf. Service (not new unit sales) is an AISF's primary mission.
- A **Recognized Engine Retrofitter (RER)** is an independent company that does retrofits and upgrades on reciprocating gas engines and dual-fuel conversions, and can provide the full line of Woodward systems and components for the retrofits and overhauls, emission compliance upgrades, long term service contracts, emergency repairs, etc.
- A **Recognized Turbine Retrofitter (RTR)** is an independent company that does both steam and gas turbine control retrofits and upgrades globally, and can provide the full line of Woodward systems and components for the retrofits and overhauls, long term service contracts, emergency repairs, etc.

A current list of Woodward Business Partners is available at www.woodward.com/support.

Woodward Factory Servicing Options

The following factory options for servicing Woodward products are available through your local Full-Service Distributor or the OEM or Packager of the equipment system, based on the standard Woodward Product and Service Warranty (5-01-1205) that is in effect at the time the product is originally shipped from Woodward or a service is performed:

- Replacement/Exchange (24-hour service)
- Flat Rate Repair
- Flat Rate Remanufacture

Replacement/Exchange: Replacement/Exchange is a premium program designed for the user who is in need of immediate service. It allows you to request and receive a like-new replacement unit in minimum time (usually within 24 hours of the request), providing a suitable unit is available at the time of the request, thereby minimizing costly downtime. This is a flat-rate program and includes the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205).

This option allows you to call your Full-Service Distributor in the event of an unexpected outage, or in advance of a scheduled outage, to request a replacement control unit. If the unit is available at the time of the call, it can usually be shipped out within 24 hours. You replace your field control unit with the like-new replacement and return the field unit to the Full-Service Distributor.

Charges for the Replacement/Exchange service are based on a flat rate plus shipping expenses. You are invoiced the flat rate replacement/exchange charge plus a core charge at the time the replacement unit is shipped. If the core (field unit) is returned within 60 days, a credit for the core charge will be issued.

Flat Rate Repair: Flat Rate Repair is available for the majority of standard products in the field. This program offers you repair service for your products with the advantage of knowing in advance what the cost will be. All repair work carries the standard Woodward service warranty (Woodward Product and Service Warranty 5-01-1205) on replaced parts and labor.

Flat Rate Remanufacture: Flat Rate Remanufacture is very similar to the Flat Rate Repair option with the exception that the unit will be returned to you in “like-new” condition and carry with it the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205). This option is applicable to mechanical products only.

Returning Equipment for Repair

If a control (or any part of an electronic control) is to be returned for repair, please contact your Full-Service Distributor in advance to obtain Return Authorization and shipping instructions.

When shipping the item(s), attach a tag with the following information:

- return number;
- name and location where the control is installed;
- name and phone number of contact person;
- complete Woodward part number(s) and serial number(s);
- description of the problem;
- instructions describing the desired type of repair.

Packing a Control

Use the following materials when returning a complete control:

- protective caps on any connectors;
- antistatic protective bags on all electronic modules;
- packing materials that will not damage the surface of the unit;
- at least 100 mm (4 inches) of tightly packed, industry-approved packing material;
- a packing carton with double walls;
- a strong tape around the outside of the carton for increased strength.

NOTICE

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Replacement Parts

When ordering replacement parts for controls, include the following information:

- the part number(s) (XXXX-XXXX) that is on the enclosure nameplate;
- the unit serial number, which is also on the nameplate.

Engineering Services

Woodward offers various Engineering Services for our products. For these services, you can contact us by telephone, by email, or through the Woodward website.

- Technical Support
- Product Training
- Field Service

Technical Support is available from your equipment system supplier, your local Full-Service Distributor, or from many of Woodward's worldwide locations, depending upon the product and application. This service can assist you with technical questions or problem solving during the normal business hours of the Woodward location you contact. Emergency assistance is also available during non-business hours by phoning Woodward and stating the urgency of your problem.

Product Training is available as standard classes at many of our worldwide locations. We also offer customized classes, which can be tailored to your needs and can be held at one of our locations or at your site. This training, conducted by experienced personnel, will assure that you will be able to maintain system reliability and availability.

Field Service engineering on-site support is available, depending on the product and location, from many of our worldwide locations or from one of our Full-Service Distributors. The field engineers are experienced both on Woodward products as well as on much of the non-Woodward equipment with which our products interface.

For information on these services, please contact us via telephone, email us, or use our website and reference www.woodward.com/support, and then **Customer Support**.

How to Contact Woodward

For assistance, call one of the following Woodward facilities to obtain the address and phone number of the facility nearest your location where you will be able to get information and service.

Electrical Power Systems		Engine Systems		Turbine Systems	
Facility	Phone Number	Facility	Phone Number	Facility	Phone Number
Australia	+61 (2) 9758 2322	Australia	+61 (2) 9758 2322	Australia	+61 (2) 9758 2322
Brazil	+55 (19) 3708 4800	Brazil	+55 (19) 3708 4800	Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727	China	+86 (512) 6762 6727	China	+86 (512) 6762 6727
Germany:		Germany:			
Kempen	+49 (0) 21 52 14 51	Stuttgart	+49 (711) 78954-0		
Stuttgart	+49 (711) 78954-0	India	+91 (129) 4097100	India	+91 (129) 4097100
India	+91 (129) 4097100	Japan	+81 (43) 213-2191	Japan	+81 (43) 213-2191
Japan	+81 (43) 213-2191	Korea	+82 (51) 636-7080	Korea	+82 (51) 636-7080
Korea	+82 (51) 636-7080	The Netherlands	+31 (23) 5661111	The Netherlands	+31 (23) 5661111
Poland	+48 12 618 92 00				
United States	+1 (970) 482-5811	United States	+1 (970) 482-5811	United States	+1 (970) 482-5811

You can also contact the Woodward Customer Service Department or consult our worldwide directory on Woodward's website (www.woodward.com/support) for the name of your nearest Woodward distributor or service facility.

For the most current product support and contact information, please refer to the latest version of publication **51337** at www.woodward.com/publications.

Technical Assistance

If you need to telephone for technical assistance, you will need to provide the following information. Please write it down here before phoning:

General

Your Name _____
 Site Location _____
 Phone Number _____
 Fax Number _____

Prime Mover Information

Engine/Turbine Model Number _____
 Manufacturer _____
 Number of Cylinders (if applicable) _____
 Type of Fuel (gas, gaseous, steam, etc) _____
 Rating _____
 Application _____

Control/Governor Information

Please list all Woodward governors, actuators, and electronic controls in your system:

Woodward Part Number and Revision Letter _____
 Control Description or Governor Type _____
 Serial Number _____

Woodward Part Number and Revision Letter _____
 Control Description or Governor Type _____
 Serial Number _____

Woodward Part Number and Revision Letter _____
 Control Description or Governor Type _____
 Serial Number _____

If you have an electronic or programmable control, please have the adjustment setting positions or the menu settings written down and with you at the time of the call.

DECLARATION OF CONFORMITY

Manufacturer's Name: WOODWARD GOVERNOR COMPANY (WGC)
Manufacturer's Address: 1000 E. Drake Rd.
Fort Collins, CO, USA, 80525
Model Name(s)/Number(s): LSOV25 Valve 9904-516, 9907-997, 9908-350, 9908-352, 9908-353, 9904-1281, 9908-1284 and similar
Conformance to Directive(s): 97/23/EC COUNCIL DIRECTIVE of 29 May 1997 on the approximation of the laws of the Member States concerning Pressure Equipment
94/9/EC COUNCIL DIRECTIVE of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres

Marking:  Category 2 Group II G, EEx d IIB T4

Applicable Standards: ASME B31.3 Process Piping, 2008
ASME Boiler and Pressure Vessel Code VIII, Div. 1, 2007/A08
ASME Boiler and Pressure Vessel Code II, Part D, 2007/A08
EN 1503-2 : 2000 Valves – Materials for bodies, bonnets, and covers – Part 2 : Steels other than those specified in European Standards
EN50014:1998 Electrical apparatus for potentially explosive atmospheres – General requirements
EN50018: 2000 Electrical apparatus for potentially explosive atmospheres- Flameproof enclosure 'd'

Third Party Certification: LCIE 03ATEX 6100
LCIE
Siège Social : 33, Avenue du Général Leclerc
F92260 Fontenay-aux-Roses, France

Conformity Assessment: PED Module H – Full Quality Assurance, Certificate 90174
ATEX Production Quality Assessment Certificate ITS05ATEXQ4211

Notified Body Intertek (0359)
For ATEX: Intertek House, Cleeve Road
Leatherhead, Surrey, KT22 7SB UK

Notified Body Moody International Certification Limited (1277)
For Pressure Equipment: Merlin House, Stanier Way
Wyvern Business Park
Derby DE21 6BF United Kingdom

We, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).

MANUFACTURER

Signature

Suhail Horan

Full Name

Quality Manager

Position

WGC, Fort Collins, CO, USA

Place

Date

10/05/2009

Declaration of Incorporation

Woodward Governor Company
1000 E. Drake Road
Fort Collins, Colorado 80525
United States of America

Product: LSOV25 Valves

Part Numbers: 9904-516, 9907-997, 9908-350, 9908-352, 9908-353,
9908-354, 9904-1281, 9908-1284 and similar

The undersigned hereby declares, on behalf of Woodward Governor Company of Loveland and Fort Collins, Colorado, that the above-referenced product is in conformity with the following EU Directives as they apply to a component:

98/37/EC (Machinery)

This product is intended to be put into service only upon incorporation into an apparatus/system that itself will meet the requirements of the above Directives and bears the CE mark.

This declaration is satisfied by evaluation to Annex I and communication of residual risks in the product manual.

MANUFACTURER

Signature	<u></u>
Full Name	<u>Sam Coleman</u>
Position	<u>Compliance Engineering Supervisor</u>
Place	<u>WGC, Fort Collins, CO, USA</u>
Date	<u>August 19, 2009</u>

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PO Box 1519, Fort Collins CO 80522-1519, USA
1000 East Drake Road, Fort Collins CO 80525, USA
Phone +1 (970) 482-5811 • Fax +1 (970) 498-3058

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