

Overspeed Dump Valve

Operation Manual



General Precautions

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.



Revisions

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Proper Use

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.



Translated Publications

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Warnings and Notices

Important Definitions



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.

- **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

**Overspeed /
Overtemperature /
Overpressure**

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.

WARNING

**Personal Protective
Equipment**

The products described in this publication may present risks that could lead to personal injury, loss of life, or property damage. Always wear the appropriate personal protective equipment (PPE) for the job at hand. Equipment that should be considered includes but is not limited to:

- Eye Protection
- Hearing Protection
- Hard Hat
- Gloves
- Safety Boots
- Respirator

Always read the proper Material Safety Data Sheet (MSDS) for any working fluid(s) and comply with recommended safety equipment.

WARNING

Start-up

Be prepared to make an emergency shutdown when starting the engine, turbine, or other type of prime mover, to protect against runaway or overspeed with possible personal injury, loss of life, or property damage.

WARNING

**Automotive
Applications**

On- and off-highway Mobile Applications: Unless Woodward's control functions as the supervisory control, customer should install a system totally independent of the prime mover control system that monitors for supervisory control of engine (and takes appropriate action if supervisory control is lost) to protect against loss of engine control with possible personal injury, loss of life, or property damage.

NOTICE**Battery Charging
Device**

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.

Electrostatic Discharge Awareness

NOTICE**Electrostatic
Precautions**

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts:

- Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).
- Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.
- Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.

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*.

Follow these precautions when working with or near the control.

1. Avoid the build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as much as synthetics.
2. Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must remove the PCB from the control cabinet, follow these precautions:
 - Do not touch any part of the PCB except the edges.
 - Do not touch the electrical conductors, the connectors, or the components with conductive devices or with your hands.
 - When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.

Overspeed Dump Valve

General

The Woodward overspeed dump valve is a speed-sensitive device which reduces the pressure in an oil supply line to a predetermined pressure at a predetermined speed. The drop in supply line pressure is used to actuate a pressure sensitive switch or hydraulic relay (not furnished by Woodward). The pressure switch or hydraulic relay signal can be fitted into the operating scheme in whatever manner is desired (such as to cause a shutdown or reduction in engine speed, etc.).

The dump valve effects the reduction in supply pressure by moving its pilot-valve plunger in the direction which connects the oil supply to drain. The distance which the pilot-valve plunger moves determines the area of the orifice through which the pressure oil escapes to drain. Hence, the pilot valve position at a given speed determines the pressure drop (if any) at that speed.

The centrifugal force developed by the rotating flyweights tends always to move the pilot-valve plunger in the direction to open or increase the flow of pressure oil to drain. The speeder spring force opposes the flyweights' centrifugal force. Thus the loading on the speeder spring determines the speed required to develop enough centrifugal force to move the pilot-valve plunger the distance required to cause the desired pressure drop.

Generally, the overspeed dump valve is set to "trip" (reduce the supply pressure to the predetermined pressure level) in the range of 2500 to 4200 rpm. The setting can be adjusted externally over a limited range.

The oil passing through the dump valve drains internally back into the engine. Maximum flow through the dump valve is approximately 5 US quarts (4.7 L) of 70 SSU oil per minute. The drain to the engine must be adequate to handle this volume of oil with a minimum of back pressure.

Parts Replacement

When requesting information concerning the overspeed dump valve, or when ordering replacement parts, it is essential that the following information accompany the requests.

- Serial number of governor (on name plate)
- The part reference number and part description, as shown in this manual
- This manual number (this is manual 04020)

Part No.	Part Name	Quantity
04020-1	Flexible Shaft End.....	1
04020-2	Flexible Cable	1
04020-3	Flexible Shaft End.....	1
04020-6	Retaining Ring	1
04020-7	Washer	3
04020-9	Ball Thrust Bearing	1
04020-10	Speeder Spring.....	1
04020-12	Jam Nut, 1/4" x 20	1
04020-13	Adjusting Screw	1
04020-14	"O" Ring, 5/8'	1
04020-15	Ballarm	2
04020-16	Ballarm Pin	2
04020-17	Gasket	1
04020-18	Ballhead.....	1
04020-19	Pilot-valve Plunger.....	1
04020-20	Nameplate	1
04020-21	Drive Screw	2
04020-22	Case	1
04020-23	Screw, No. 10-32 x 1-5/8"	3
	Socket Head	3
04020-24	Cover	1

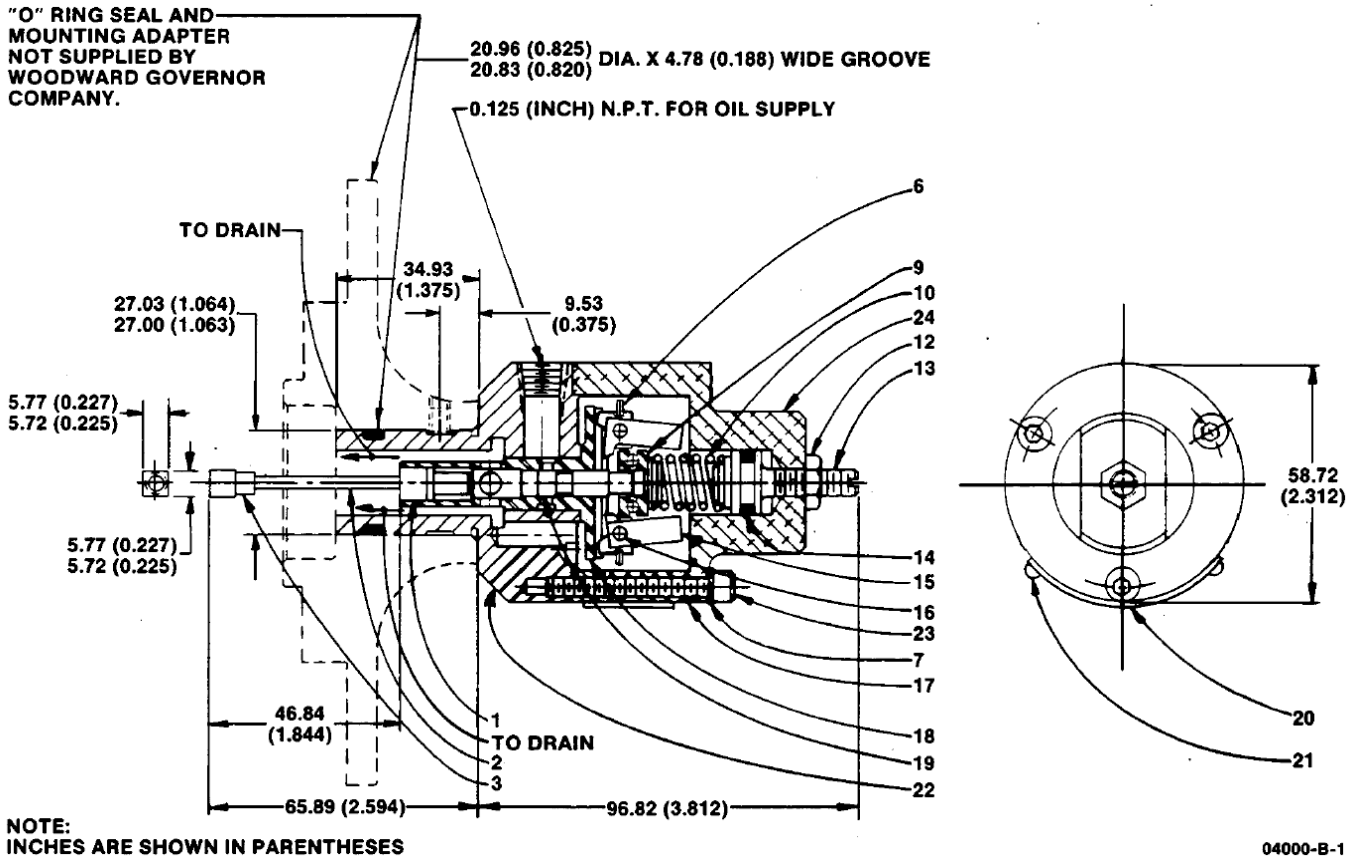


Figure 1. Overspeed Dump Valve

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