

**Extensible Tailrod  
for PG Governors**

**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.

# Extensible Tailrod for PG Governors

## General

The extensible tailrod, an auxiliary device for Woodward PG governors, can be incorporated in a governor equipped with any type of fuel (or load) limit linkage, to permit an engine to carry overloads temporarily.

The schematic arrangement in Figure 1 shows the extensible tailrod as it relates to the PG governor basic elements. This arrangement shows the left end of a load limit lever to be pivoting about a fixed height. Other auxiliaries (such as a manifold pressure sensor) used in a particular governor may vary this height. The operation and function of the extensible tailrod is the same in either case.

Under normal operation, pressure oil is constantly directed to the underside of the extensible tailrod to hold it up against a pin in the main tailrod. The load control linkage is set with the tailrod linkage thus extended.

Should it be desired that the engine accept an overload, a normally de-energized solenoid is energized to move a plunger which shuts off the supply of pressure oil to the extensible tailrod and allows oil trapped under the extensible tailrod to escape to sump. Aided by a spring, the extensible tailrod moves downward until the adjusting screw contacts the stop pin in the main tailrod. This lowering of the extensible tailrod allows the power piston to move upward further—thus giving more fuel for increased loads—before the limiting linkage restricts the pilot valve plunger from taking a position below its centered position.

The greater the distance the extensible tailrod is permitted to “shift” when the solenoid operation vents the oil under it to sump, the greater will be the overload allowed on the engine. The position of the adjusting screw in the extensible tailrod determines the extent of the downward movement of the tailrod. The adjusting screw is factory adjusted to meet the specifications of the engine manufacturer.

When the solenoid is de-energized, the spring loaded plunger under the solenoid is raised, permitting pressure oil to lift the extensible tailrod and thus restrict fuel at the normal limit.

When the load limit lever is raised sufficiently high, it contacts and lifts the shutdown nuts and shutdown rod. The shutdown rod is connected to the pilot valve plunger. Thus, lifting the shutdown rod or restricting its downward movement has a like effect on the pilot valve plunger movement.

## Replacement Parts Information

When ordering replacement parts, it is essential to include the following information:

- Governor designation number shown on nameplate
- Governor serial number
- Manual number (this is manual 36640)
- Reference number and part name from parts list

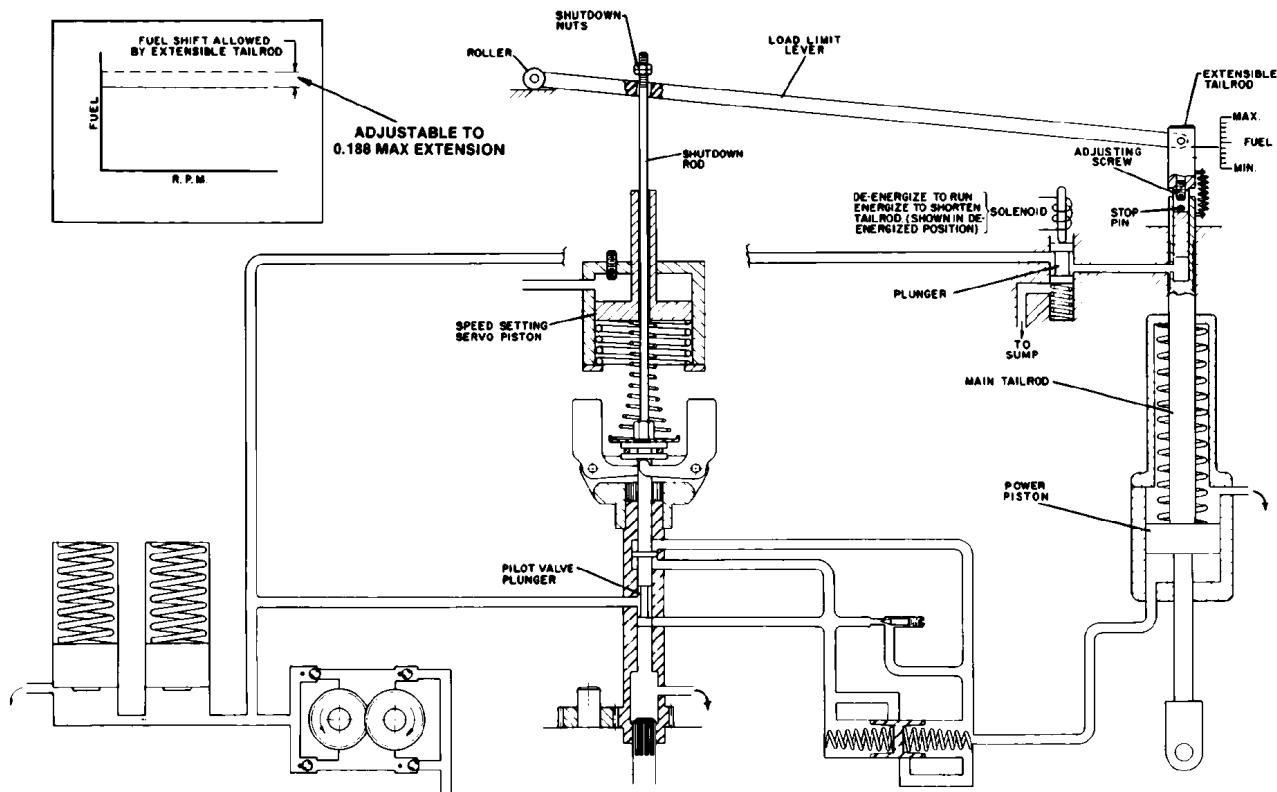


Figure 1. Extensible Tailrod

Ref. No.	Part Name .....	Quantity
36640-1	Tubing, Skinner Valve.....	1
36640-2	Washer .....	1
36640-3	Screw, 10-32 Nylok.....	1
36640-4	End, Tailrod .....	1
36640-5	Pin, Spacer .....	1
36640-6	Pin, Brass .....	1
36640-7	Connector, 0.250 Tube X 0.125 NPTF .....	1
36640-8	Pin, 0.186 X 0.906 Headed.....	1
36640-9	Pin, 0.031 Dia. X 0.376 Long .....	1
36640-10	Washer .....	1
36640-11	Tubing, Skinner Valve.....	1
36640-12	Fitting .....	1
36640-13	Pin, 0.186 X 1.094 Headed.....	1
36640-14	Pin, 0.031 Dia. X 0.375 Long .....	1
36640-15	Pin, 0.124 X 0.531 Headed.....	1
36640-16	Washer, 0.140 X 0.30 Thick.....	1
36640-17	Pin .....	1
36640-18	Rod, Tail .....	1
36640-19	Guard, Spring .....	1
36640-20	Connector, 0.250 X 0.125 NPTF.....	1
36640-21	Nut .....	1
36640-22	Strap. Wire.....	1
36640-23	Elbow, 0.125 Pipe Thrd. to 0.250 Tube .....	2
36640-24	Plate, Solenoid Mounting.....	1
36640-25	Washer, Spring Lock #10 0.190 ID .....	2
36640-26	Screw, 0.250-28 X 0.500 Soc Hd.....	2

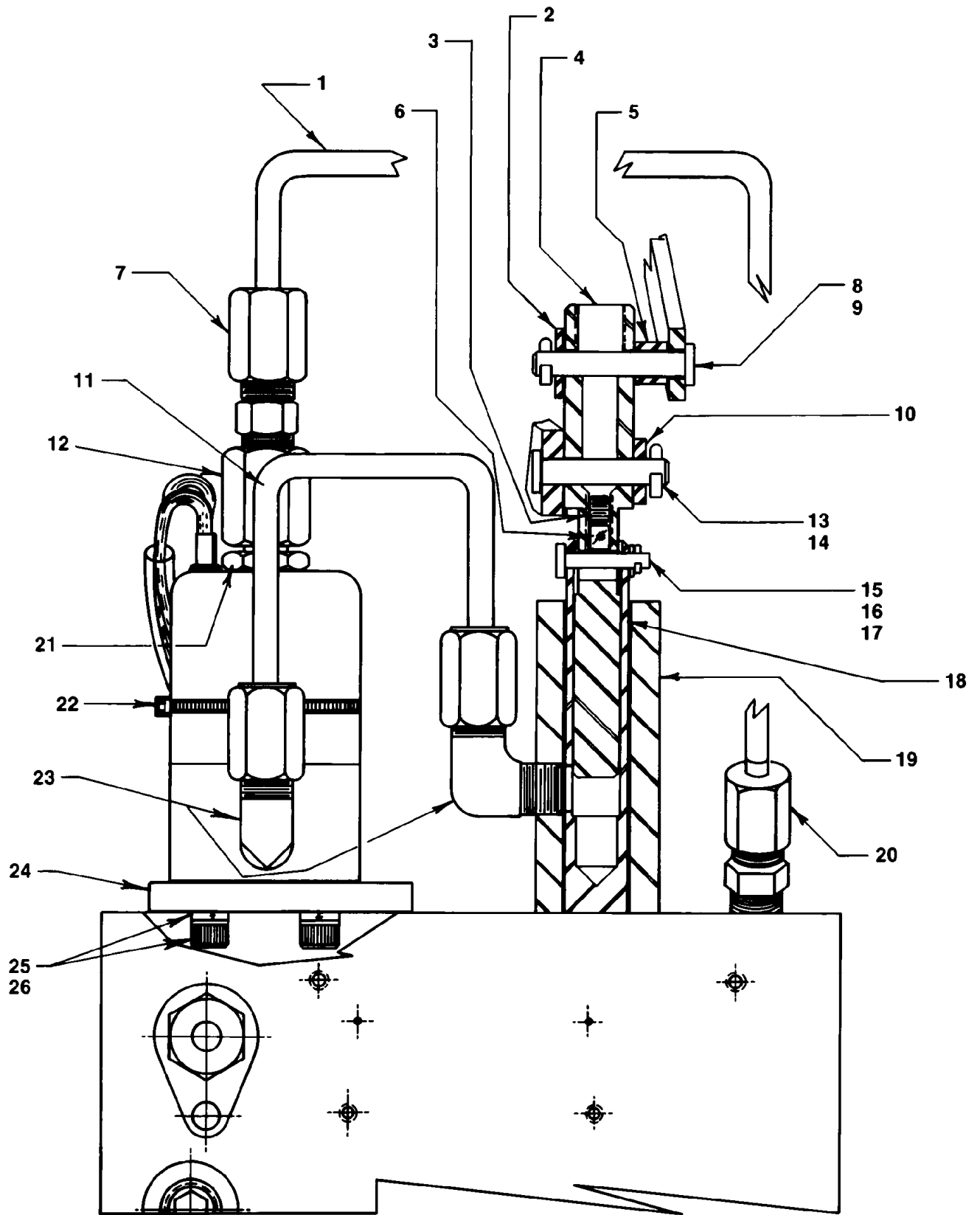


Figure 2. Extensible Tailrod Assembly

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**Please reference publication 36640B.**



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