



**Product Manual 03016**  
**(Revision D)**  
Original Instructions

# **Low Lube Oil Pressure Shutdown for UG 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.



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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.

## Low Lube Oil Pressure Shutdown for UG Governors

The low lubricating oil pressure shutdown for UG governors is a spring-loaded, hydraulically triggered device that provides engine protection without additional linkage. It is mounted on top of the governor cover in the same tapped hole that accommodates the solenoid type shutdown. Lubricating oil pressure is admitted to the unit through the 1/8" NPTF hole located in the square end plate. The low lubricating oil shutdown can be installed on a unit equipped with an auxiliary motor.

It is necessary to override the shutdown before the engine is started (see Figure 1). Do this by manually lifting the reset knob (8). The latch piston (3) then engages the shoulder on the latch rod (7). When the latch rod is in this position, a groove encircling it is exposed above the body casting (15). A rise in the lubricating oil pressure above the reset value causes the shutdown piston (2) to move, increasing the compression of the spring (10) and carrying the latch piston with it. This movement transfers the latching action from the latch piston to the shutdown piston and causes the groove around the latch rod to disappear within the body casting again. Whenever this has occurred and the groove is no longer visible, the unit is ready to operate normally. (The first model of this shutdown did not have the groove, so the pressure gauge should be observed after starting the engine to verify the operation of the unit.)

If the lubricating oil pressure drops below the established tripping pressure, the shutdown piston spring will move the piston, trip the latch, and permit the latch rod to depress the governor shutdown (load limit) strap. This action lifts the pilot valve plunger, and the engine is shut down. The action within the governor is explained in the UG-8 and UG-40 manuals.

Models are available in shutdown pressure ranges from 5 to 12 psi (34 to 83 kPa), 12 to 26 psi (83 to 179 kPa), and 26 to 69 psi (179 to 476 kPa). Clockwise rotation of the plug (13) increases the tripping pressure. The plug is locked in position by a set screw (12).

A remote-reset low lubricating oil shutdown operated by air signal is available. The pressure necessary to arm this remote-reset shutdown is determined by the customer's requirements (see Figure 3).

### Replacement Parts Information

When ordering replacement parts, include the following information:

- Governor serial number and part number shown on nameplate, and the pressure range of the lubricating system.
- Manual number (this is manual 03016).
- Parts reference number in parts list and description of part or part name.

### Illustrated Parts Breakdown

The illustrated parts breakdown (Figures 1 through 3) illustrates and lists all the replaceable parts for the Low Lube Oil Pressure Shutdown. The numbers assigned are used as reference numbers and are not specific Woodward part numbers. Woodward will determine the exact part number for your particular governor.

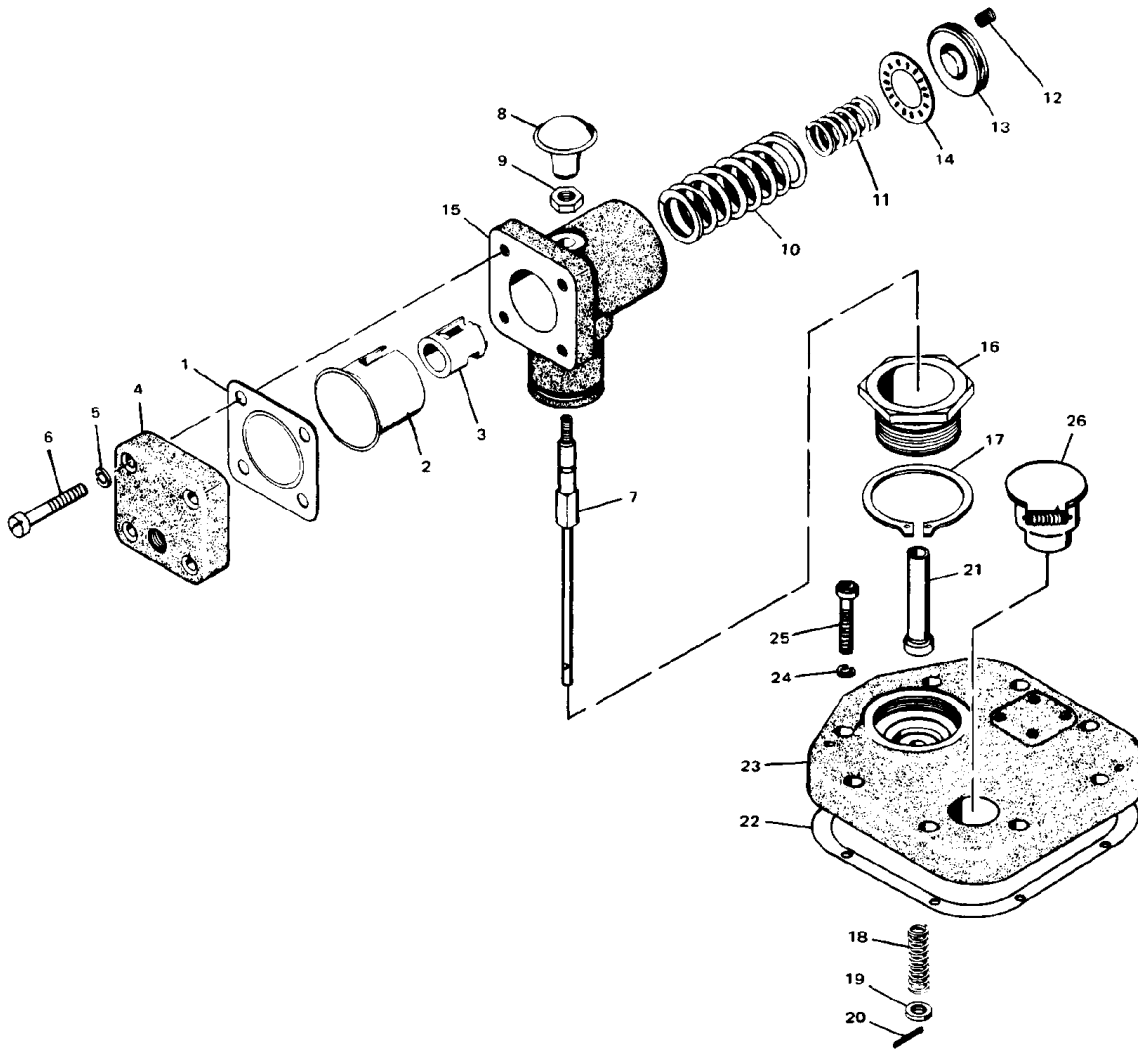


Figure 1. Exploded View of 12 to 26 psi Lube Oil Shutdown

### Parts List For Figure 1

Ref. No.	Part Name.....	Quantity	Ref. No.	Part Name.....	Quantity
03016-1	Diaphragm.....	1	03016-14	Bearing.....	1
03016-2	Shutdown piston.....	1	03016-15	Body casting.....	1
03016-3	Latch piston.....	1	03016-16	Clamping nut.....	1
03016-4	Cover.....	1	03016-17	Retaining ring, 1.098" ID.....	1
03016-5	Splitlock washer, #10.....	4	03016-18	Spring.....	1
03016-6	Fillister screw, #10-32 x 7/8".....	4	03016-19	Washer, 3/8 OD.....	1
03016-7	Latch rod.....	1	03016-20	Roll pin, 1/16 D x 2 3/8 L.....	1
03016-8	Reset knob.....	1	03016-21	Sleeve.....	1
03016-9	Hex nut, #10-32.....	1	03016-22	Gasket.....	1
03016-10	Shutdown piston spring.....	1	03016-23	Governor cover.....	1
03016-11	Compensating spring.....	1	03016-24	Lockwasher.....	8
03016-12	Set screw, soc. head.....	1	03016-25	Screw.....	8
03016-13	Adjustment plug.....	1	03016-26	Oil filler cap.....	1

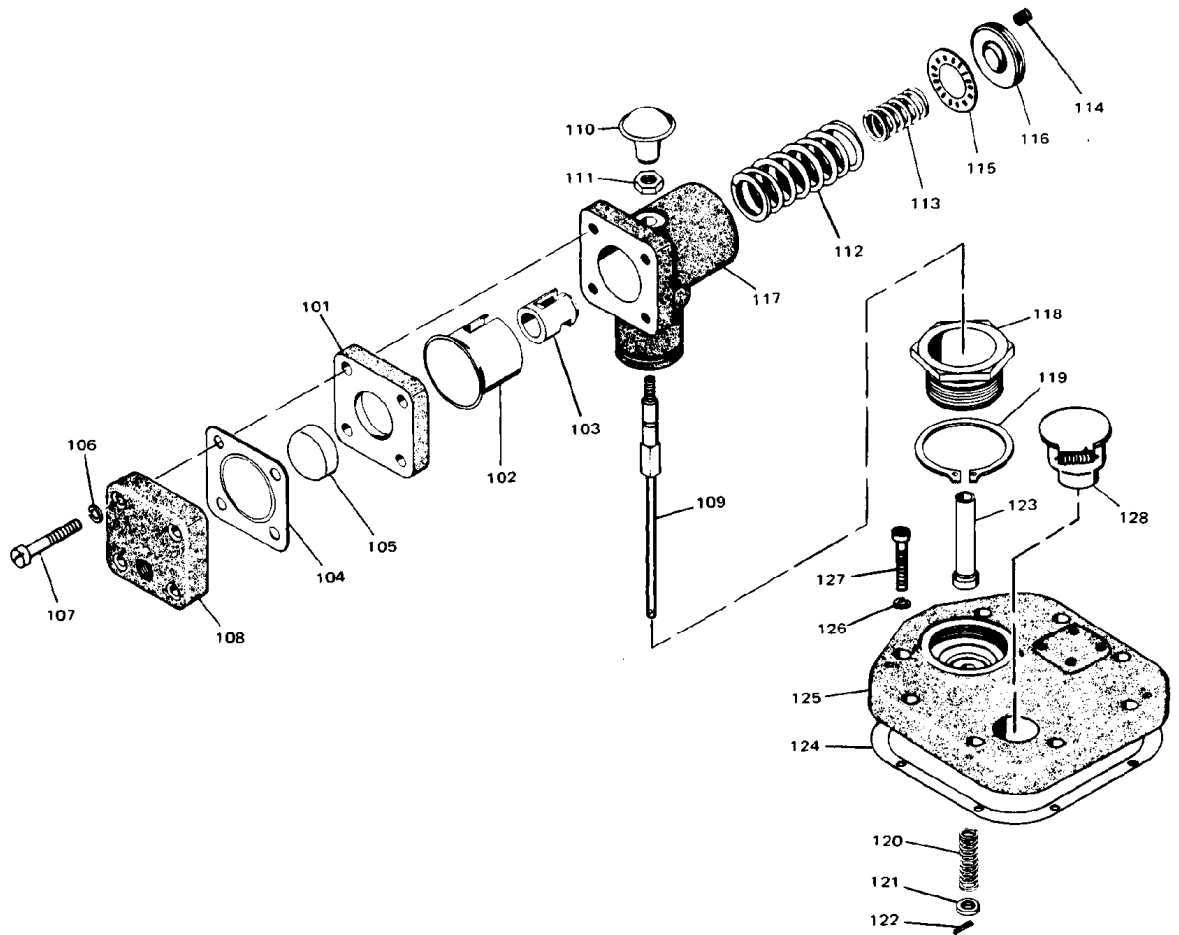
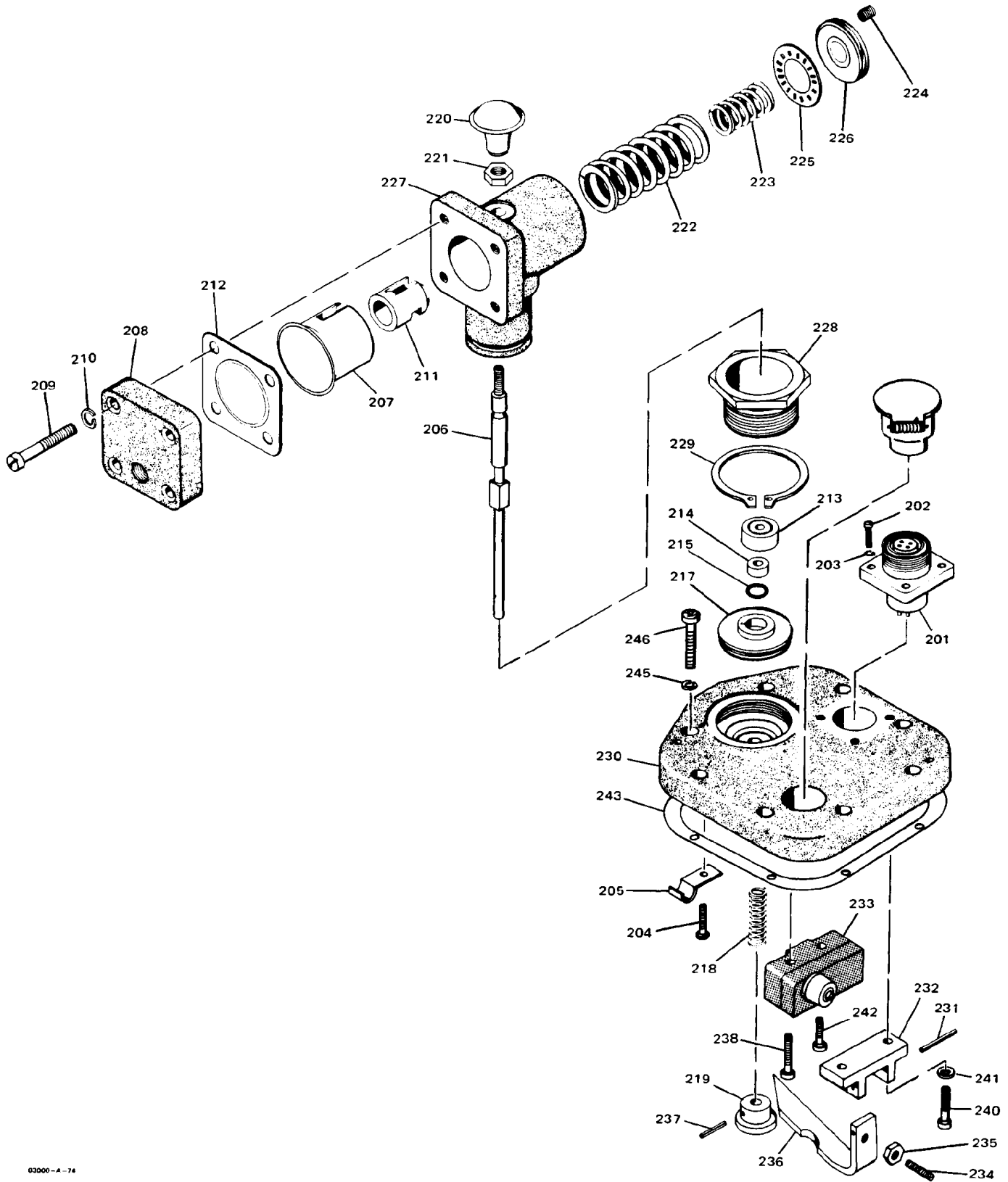


Figure 2. Exploded View of 26 to 69 psi Lube Oil Shutdown

### Parts List For Figure 2

Ref. No.	Part Name	Quantity	Ref. No.	Part Name	Quantity
03016-101	Reducer plate	1	03016-115	Bearing	1
03016-102	Shutdown piston	1	03016-116	Adjustment plug	1
03016-103	Latch piston	1	03016-117	Body	1
03016-104	Diaphragm	1	03016-118	Clamping nut	1
03016-105	Piston	1	03016-119	Retaining ring, 1.098 ID	1
03016-106	Splitlock washer, #10	4	03016-120	Spring	1
03016-107	Screw, 10-32 fil	4	03016-121	Washer, 3/8 OD	1
03016-108	Cover	1	03018-122	Roll pin, 1/16 D x 3/8 L	1
03016-109	Latch rod	1	03018-123	Sleeve	1
03016-110	Reset knob	1	03016-124	Gasket	1
03016-111	Hex nut, #10-32	1	03016-125	Governor cover	1
03016-112	Shutdown piston spring	1	03016-126	Lockwasher	8
03016-113	Compensating spring	1	03016-127	Screw	8
03016-114	Setscrew	1	03016-128	Oil filler cap	1



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Figure 3. Exploded View of 12 to 26 psi Lube Oil Shutdown with Remote Reset



### Parts List For Figure 3

Ref. No.	Part Name.....	Quantity
03016-201	Receptacle (Bendix 5 pin wall) .....	1
03016-202	Fillister screw 4-40 x 5/16" .....	4
03016-203	Splitlock washer, #4 .....	4
03016-204	Fillister screw, #8-32 x 5/16" .....	1
03016-205	Strap (1 wire).....	1
03016-206	Latch rod .....	1
03016-207	Shutdown piston.....	1
03016-208	Cover.....	1
03016-209	Fillister screw #10-32 x 7/8" .....	4
03016-210	Splitlock washer #10 .....	4
03016-211	Latch piston .....	1
03016-212	Diaphragm.....	1
03016-213	Reset piston .....	1
03016-214	Bushing .....	1
03016-215	O-ring .....	1
03016-216	Not used	
03016-217	Plug .....	1
03016-218	Cont. lever comp. spring.....	1
03016-219	Collar.....	1
03016-220	Reset knob .....	1
03016-221	Hex nut, #10-32.....	1
03016-222	Shutdown piston spring .....	1
03016-223	Compensating spring .....	1
03016-224	Set screw.....	1
03016-225	Bearing .....	1
03016-226	Adjustment plug.....	1
03016-227	Shutdown body.....	1
03016-228	Clamping nut .....	1
03016-229	Retaining ring. 1.098 ID.....	1
03016-230	Governor cover.....	1
03016-231	Pin .....	1
03016-232	Block .....	1
03016-233	SPDT micro switch .....	1
03016-234	Screw .....	1
03016-235	Nut, #6-32.....	1
03016-236	Lever .....	1
03016-237	Roll pin, 1/16 D x 3/8" L.....	1
03016-238	Screw, 6-32 x 7/8" .....	1
03016-239	Not used	
03016-240	Screw, #8-32 soc. head.....	2
03016-241	Splitlock washer .....	2
03016-242	Screw, 6-32 x 3/4" .....	1
03016-243	Governor cover gasket .....	1
03016-244	Oil filler cup.....	1
03016-245	Lockwasher, #10 .....	8
03016-246	Soc. hd. cap screw, 10-32x 5/8' .....	8

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