



Product Manual 54009
(Revision A)
Original Instructions

**EGB-2P Governor Actuator Installation
on the Detroit Diesel I-71 Engine**

Kit Installation 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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Revisions—Changes in this publication since the last revision are indicated by a black line alongside the text.

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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.

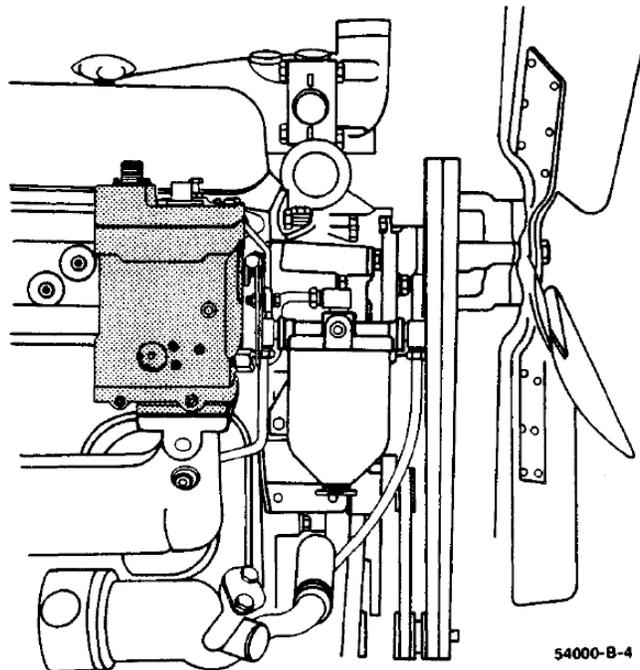
EGB-2P Governor Actuator Installation on the Detroit Diesel I-71 Engine

Introduction

These instructions are for the conversion from the Woodward SG governor to the Woodward EGB-2P governor actuator.

For information about electric controls, see manuals:

- 25070, Electric Governor Installation Guide.
- 82570, EGB-2P Governor-Actuator
- 82510, Magnetic Pickups for Electric Governors
- 82575, EGB-2P Governor Actuator product spec



Parts List

The installation kit is for use on the Detroit Diesel I-71 engine with drive designed for the Woodward SG governor. The parts are sold in kit number 8956-162 which includes item 1 through 12. Items may be purchased separately.

When ordering installation replacement parts, give the following information:

- Manual number 54009
- Part reference number, name of part, or description of part

Ref. No.	Part Name	Quantity
54009-1	Washer - 0.250 Hi collar Lock	2
54009-2	Screw - 0.250-28 x 1.000 Hex Hd. cap	2
54009-3	Lever	1
54009-4	Nut - 0.250-28 Elastic Hex (thin)	2
54009-5	Drain Adapter Gasket	1
54009-6	Rod End - Size 4	1
54009-7	Hex Nut 0.250-28	1
54009-8	Fuel Rod - EG-82P	1
54009-9	Rubber Accordion Boot	1
54009-10	Boot Adapter Assembly	1
54009-11	Cotter Pin - 62 x 0.500 Long	1
54009-12	Bushing - Magnetic Pickup - Not Shown	1
54009-13-16	Not Used	

Ref. No.	Part Name	Quantity
54009-17	Kit - Connector Assembly Clamp & 2 pin 90°	1
	Kit includes the following parts:	
54009-18	Plug - 2 contact (socket) 90°	1
54009-19	Cable clamp - MS 3054A	1
54009-20	Bushing - MS 3420-4 Cable Clamp	1

Ref. No.	Part Name	Quantity
54009-21	Kit connector Assembly 2 Pin Straight	1
	Kit includes the following parts:	
54009-22	Plug - Elec conn. Size 12.S Straight	1
54009-23	Clamp - MS 3057-4A Cable	1
54009-24	Bushing - MS 3420-4 Cable Clamp	1

Ref. No.	Part Name	Quantity
54009-25	Magnetic Pickup Assembly	1
	Kit includes the following parts which may be ordered separately:	
54009-26	Plug - M5 3106-A 105-L-45	1
54009-27	Clamp - MS 3057-4A Cable	1
54009-28	Bushing - MS 3420-4 Cable Clamp	1
54009-29	Magnetic Pickup	1

Actuator Installation

See Figure 1 to install the EGB-2P governor actuator on engine.

1. Remove the SG governor from the engine.
2. Install drain adapter gasket (5) and EG8-2P governor actuator on engine.
3. Install boot adapter assembly (10), boot (9), jam nut (7), and rod end (6) on new fuel rod (8). (See figure 1).
4. Install the actuator on the engine. Linkage must move freely.
5. Attach output lever (3) to actuator output shaft.
6. Attach fuel rod (8) to engine fuel rack.
7. Install oil line from the oil reservoir to either of two 1/8" pipe tapped inlet holes in the base of the actuator. A minimum of 5 psi (34 kPa) oil supply pressure is needed. The supply should be filtered engine oil.

IMPORTANT

The travel of the actuator output shaft from no fuel to full fuel is approximately 21°. Adjust linkage so the maximum stop of the actuator will prevent the fuel rack from traveling beyond the full fuel position. The fuel injectors must move freely. Rotation is either cw or ccw as marked on the actuator.

Magnetic Pickup Installation

1. Remove the pipe plug that is located on the lower right front side of the flywheel housing as viewed from the rear of the engine. If the engine has an air starter, remove the plug on the lower left side of the flywheel housing as viewed from the rear of the engine.
2. Install the 1.000-11 1/2 NPTF magnetic pickup bushing (12) in the flywheel housing.
3. Install the magnetic pickup (29) in the bushing. Magnetic pickup is listed in optional parts list.
4. The distance between the pickup and the outside diameter of the gear should be approximately 0.040" (1.02 mm) at the closest point. This clearance must be kept through one full turn of the flywheel.

IMPORTANT

Find the distance by turning the magnetic pickup in until it just touches the gear tooth. Back it out about 3/4 turn (0.0555" [1.410 mm] per one 360° turn ccw).

5. Tighten the jam nut. Be careful not to turn the magnetic pickup.

Figure 1 illustrates the linkage connections and part reference numbers. Figures 2 and 3 show the 90° connector and the straight connector assembly. Figure 4 shows the magnetic pickup assembly.

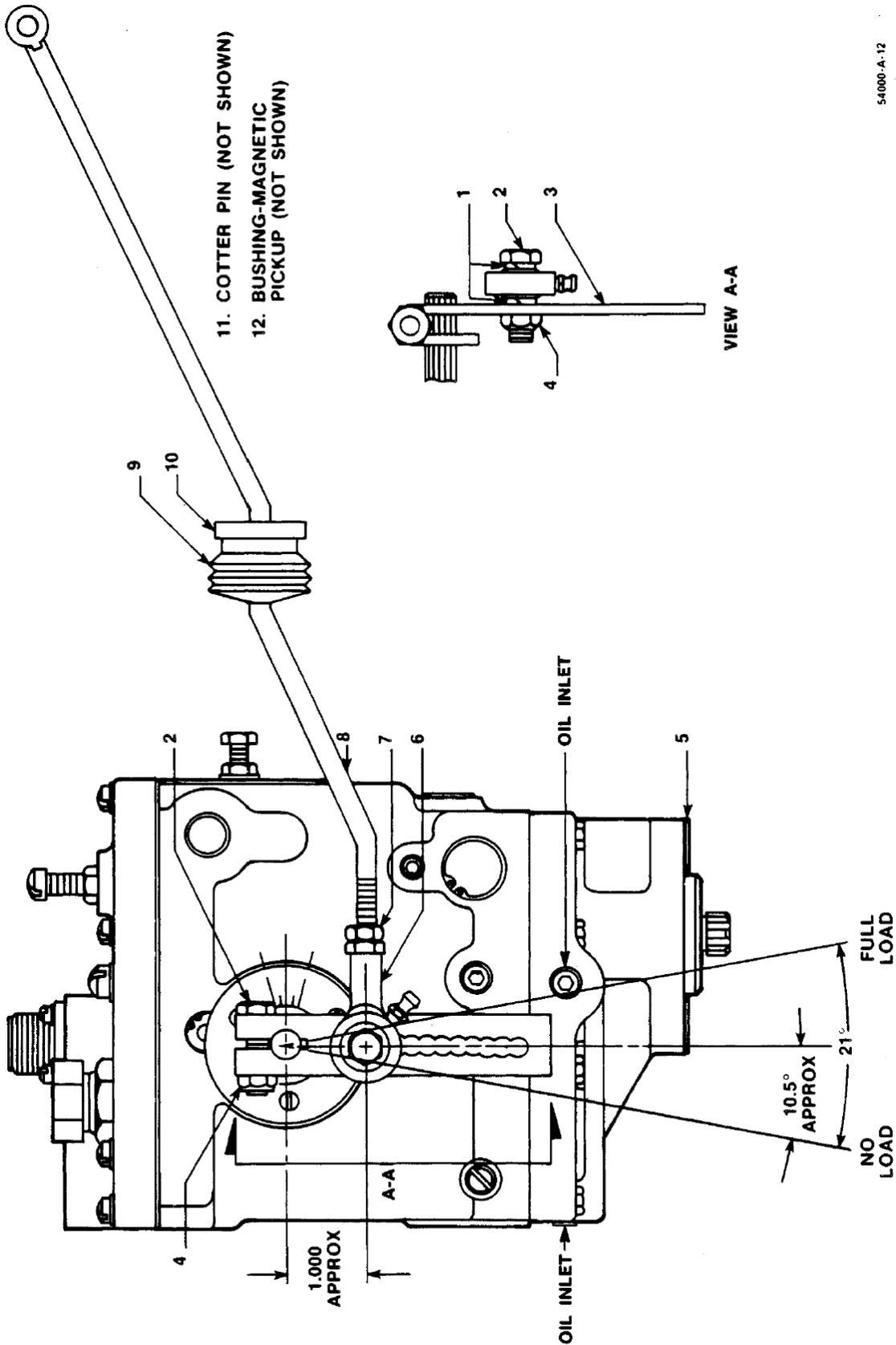
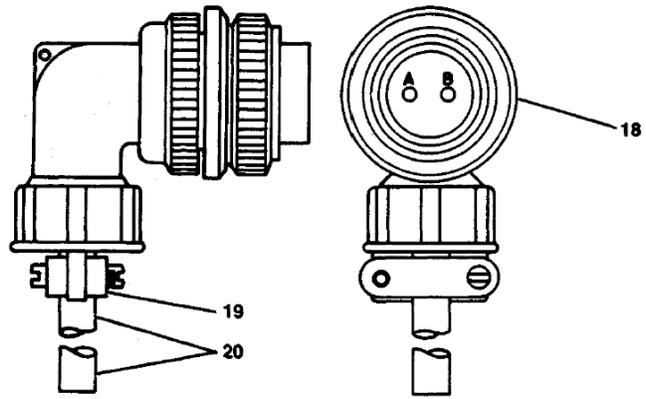
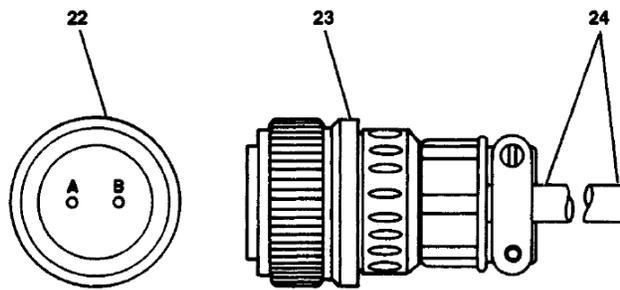


Figure 1. Linkage Connections to EGB-2P Governor Actuator



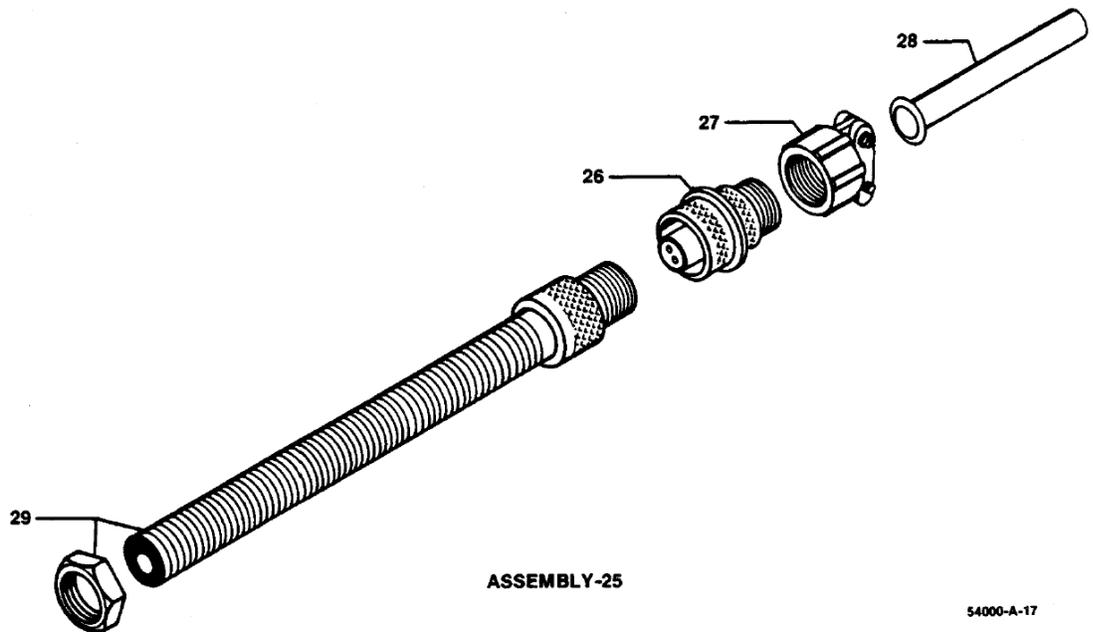
17-ASSEMBLY

Figure 2. 90° Connector Assembly



21-ASSEMBLY

Figure 3. Straight Connector Assembly



ASSEMBLY-25

54000-A-17

Figure 4. Magnetic Pickup Assembly

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