WOODWARD

Product Manual 04040
(Revision B)
Original Instructions

SGT Torque Converter Governor

Supplement to Manual 04048

Operation Manual

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

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 *publications page* on the Woodward website:
www.woodward.com/publications
The current revision and distribution restriction of all publications are shown in manual *26311*.

The latest version of most publications is available on the *publications page*. 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*.

Contents

Illustrations and Tables

Chapter 1.
General Information

Introduction

This manual covers the SGT Torque Converter Governor. When used in conjunction with manual 04048, *SG Governor*, this manual provides all the information necessary for operation and maintenance of the SGT governor.

⚠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.

Description

The SGT torque converter governor consists of two hydraulic speed droop governors arranged in a single housing so that either governor can override the other in the direction of reducing fuel to the engine. One governor is driven conventionally by the engine and the other by the torque converter output shaft through a flexible cable.

The two governors utilize a single servomotor to actuate the engine fuel system linkage. The feedback from this servomotor back to the two governor speeder springs is separately adjustable so that the required amount of speed droop may be adjusted independently for engine and torque converter control.

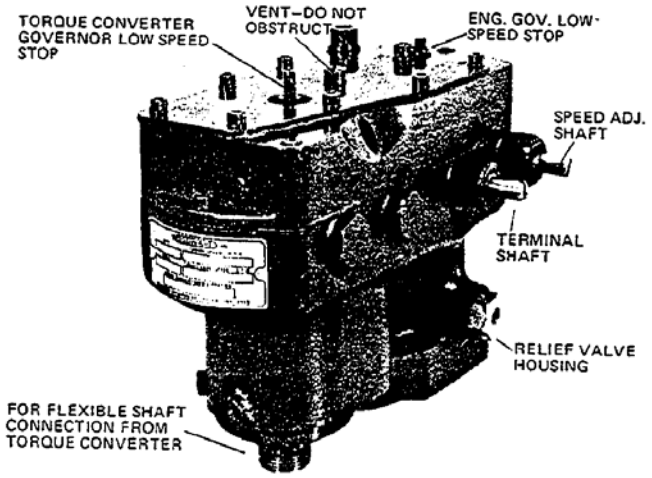


Figure 1-1. SGT Torque Converter Governor

The engine-driven governor is essentially the same as the standard SG governor described in manual 04048 except that it has a larger oil pump in order to supply sufficient oil for both governors.

Oil metered by the engine governor pilot valve is transmitted to and from the governor servomotor by passing through the torque converter governor pilot valve rather than directly as in the case of the standard SG governor.

As long as the torque converter output shaft speed is below the set value, the torque converter pilot valve furnishes a straight-through oil passage from the engine governor to the servomotor since the force exerted by the torque converter governor flyweights is not sufficient to raise the pilot valve. Under this condition, the fuel is under control of the engine governor alone.

As engine speed setting is increased or as load is decreased, the speed of the output shaft increases until it reaches the level for which the torque converter speed adjustment is set. At this point, the torque converter governor pilot valve has been raised by the flyweights to cover the port connecting the engine governor and the servomotor, and the torque converter governor takes over control.

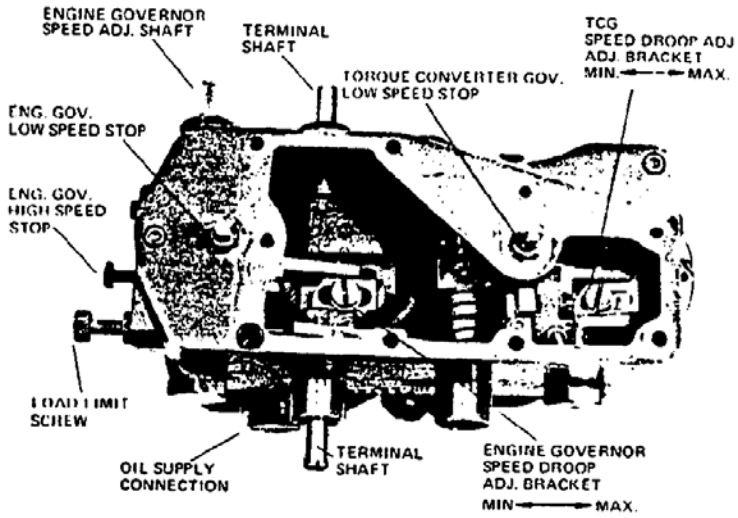


Figure 1-2. SGT Governor with Cover Removed

Further decrease in load or increase in engine speed setting produces no additional increase in output shaft speed since the torque converter governor pilot valve is raised to bleed oil from the servomotor and reduce fuel flow to the engine. This arrangement is typical for a drag line or bulldozer application since constant speed of the output shaft is required for varying ground conditions.

When adjustable control of both engine and converter speeds is required for control of vehicles, hoists, or power shovels, a single control lever can be provided. The first segment of travel of the lever adjusts the engine speed setting, and the second segment of travel adjusts the output shaft speed setting (Echelon Speed Setting). Therefore the engine governor acts as a power limit and the converter governor acts as the shaft speed regulator.

If necessary to control power input to the converter in order to hold zero speed on the output shaft, such as is required when setting structural steel, the engine speed can be controlled at a value which produces the horsepower required to hold the shaft stationary. An increase of engine speed setting then lifts the load (beam, column, etc.), and a decrease of engine speed setting lowers the load.

The Echelon speed setting, referred to in the Auxiliary Equipment chapter, is provided with a single speed-control shaft for use on power shovels, etc., and in addition incorporates a solenoid acting on the torque converter governor to increase its speed setting. When heavy loads are expected to be encountered in shovel operation, energize the solenoid before applying load to temporarily increase power output.

NOTICE

The speed adjusting linkage should be equipped with a yield mechanism to avoid damage to the governor from excess torque on the speed adjusting shaft.

References

Manual 04048 *SG Governor*

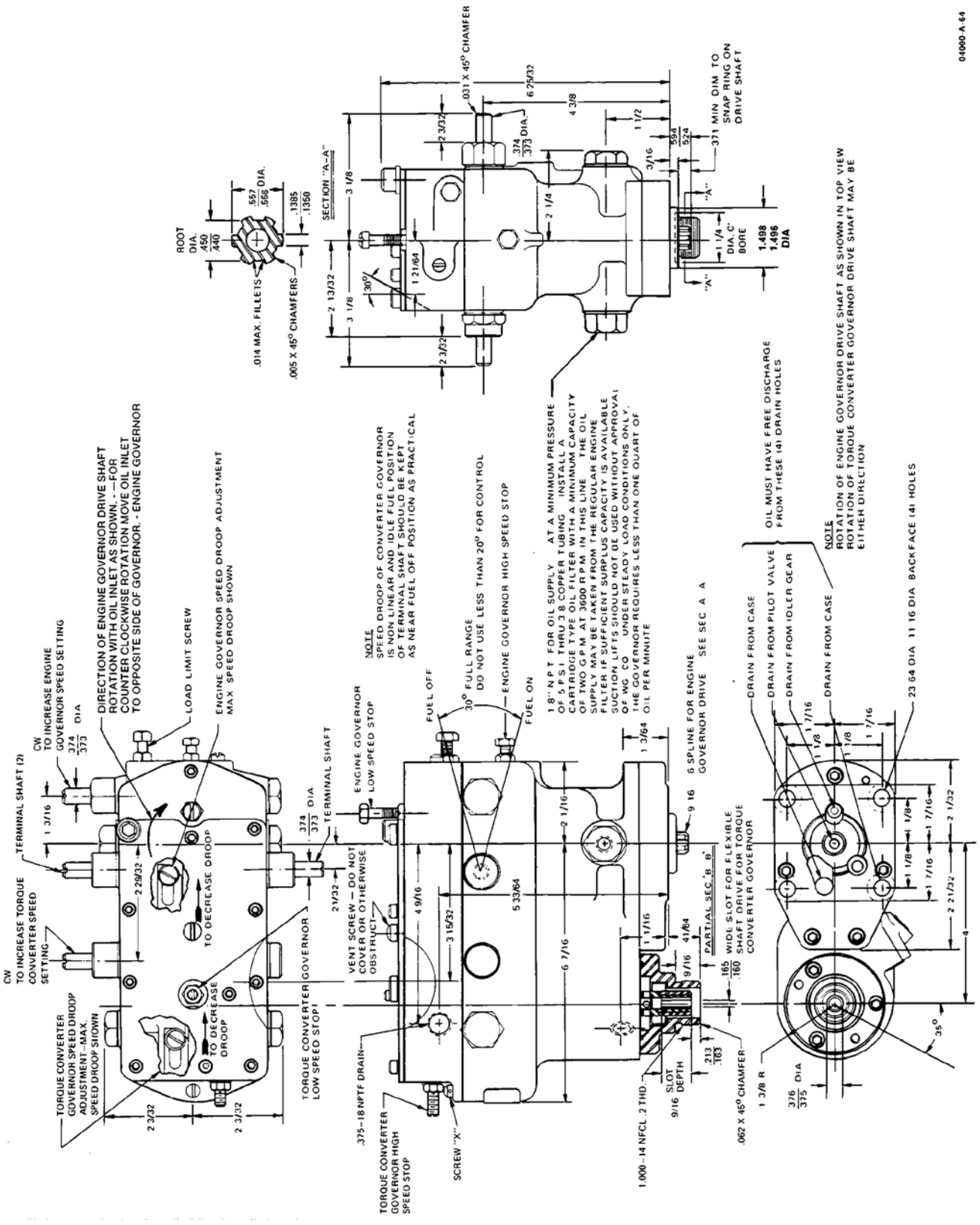


Figure 1-3. Outline Drawing of SGT Torque Converter Governor

Chapter 2.
Adjustments

Introduction

This section provides information for making adjustments on the SGT governor. Refer to figure 3-1 for adjustment screws,

Adjustment of Speed Adjusting Shaft Stops

This applies to SGT governors with fixed or manual speed adjustment.

Engine Governor Low Speed Stop

A. De-clutch the torque converter or disconnect flexible cable drive from torque converter.

B. With the engine running, reduce the engine governor speed setting to the minimum desired. The speed adjusting shaft should now contact the low-speed stop screw.

C. Turn the governor low speed stop screw clockwise to increase idle speed.

D. Secure the stop screw with the jam nut once the desired idle speed is attained.

Engine Governor High Speed Stop

A. De-clutch the torque converter or disconnect the flexible cable drive from the torque converter.

B. With the engine running, slowly increase the governor speed setting.

⚠WARNING **Do not overspeed the engine.**

1. If the high engine speed desired is reached before the speed adjusting shaft contacts the high speed stop screw, set the engine speed a few rpm above the desired high speed. Turn the high speed stop screw clockwise until engine speed decreases to the desired speed. Secure the high speed stop screw with the jam nut.

2. If the high engine speed desired is not reached before the speed adjusting shaft contacts the high speed stop, turn the governor's high speed stop screw counterclockwise while maintaining contact between the speed adjusting shaft and stop screw. When the desired high speed is reached secure the high speed stop screw with the jam nut.

Torque Converter Governor Low-Speed Stop (with speed adjusting shaft)

A. Connect the flexible cable drive to the torque converter.

B. Adjust the torque converter speed adjusting shaft to the mid-point of available travel.

C. Start the engine and operate it at idle speed.

D. Engage the clutch to the torque converter if applicable. Allow the torque converter to lock up. If the engine stops or runs at a speed below idle, increase the torque converter governor speed setting.

E. Slowly decrease the torque converter governor speed setting until the speed adjusting shaft contacts the torque converter governor low speed stop.

IMPORTANT **If engine speed decreases before the speed adjusting shaft contacts the stop screw, turn the stop screw clockwise several turns.**

Keep the speed adjusting shaft in contact with the stop screw, and turn the stop screw counterclockwise until the engine speed begins to decrease. Turn the screw back in at least one turn to ensure that the torque converter's low speed is higher than the engine's idle speed.

To increase the torque converter's low speed, turn the stop screw further clockwise and lock it in place with the jam nut.

Torque Converter Governor High Speed Stop (with speed adjusting shaft)

A. With no load on the engine, increase the governor speed setting shaft to contact the high speed stop.

B. Slowly increase the torque converter governor speed setting shaft until the high speed stop is contacted, Turn the high speed stop screw clockwise to decrease the high speed—no-load speed for the torque converter. Secure the stop screw with the jam nut after adjustment.

Torque Converter Governor Speed Adjustment (without speed adjusting shaft)

A. Connect the flexible cable drive to the torque converter.

B. Start the engine and operate it at a high idle speed.

C. Engage the clutch drive to the torque converter but do not apply load. Allow the torque converter to lock up.

D. Turn the adjusting screw clockwise to increase the high speed—no-load speed for the torque converter. Secure the adjusting screw with the jam nut when the desired speed is attained.

Chapter 3. Operation

Introduction

This chapter explains the operation of the SGT governor. The schematic diagram, Figure 3-1, provides a visual means of understanding the operation of the governor.

Description of Operation

Refer to the Principles of Operation in Woodward manual 04048, *SG Governor*. The SGT governor shown in Figure 3-1 contains the same type of governor in the left hand position of the schematic.

Engine speed setting is controlled by moving a speed-setting lever which rotates the engine governor speed-setting shaft between the limits set by the high and low speed-setting stops. Oil from the engine governor pilot valve is transmitted to the underside of the servomotor piston by way of the tail shaft governor pilot valve shown on the right-hand side of the cut.

When the engine governor is controlling the speed of the engine, the torque converter governor ballhead is running below the set speed, its flyballs are in their inner position, and the pilot valve plunger is lower than is shown in Figure 3-1. Oil is released to the servo piston. Therefore with the torque converter governor running at less than its set speed, overall operation of the governor is exactly like that shown in manual 04048.

The ballhead of the torque converter governor is driven by a flexible cable from the converter. If the tail shaft of the torque converter exceeds its set speed, the flyballs of its governor move out from their normal central position, and the oil under the servomotor piston escapes below the pilot valve plunger and returns to the engine sump. The external return spring moves the servo piston down, and reduces the fuel to the engine. This downward movement also lowers the upper end of the speeder spring of the torque control governor, causing the pilot valve plunger to again cover the port in the rotating bushing. This stops the escape of the oil. If the tail shaft now drops below the speed for which its governor is set, the flyballs will move inward, dropping the pilot valve plunger, and oil flows under the servo piston and increases fuel to the engine. Therefore when the engine is running below the speed for which its governor is set, the torque control governor controls engine speed. It is possible that the tail shaft is running at its set speed, and even through the torque converter governor's pilot valve plunger is covering the control port, the engine is running too last. The centrifugal force of the engine governor raises the pilot valve plunger, releasing the oil between the pilot valve bushings. The check valve then releases oil from under the servo piston to sump.

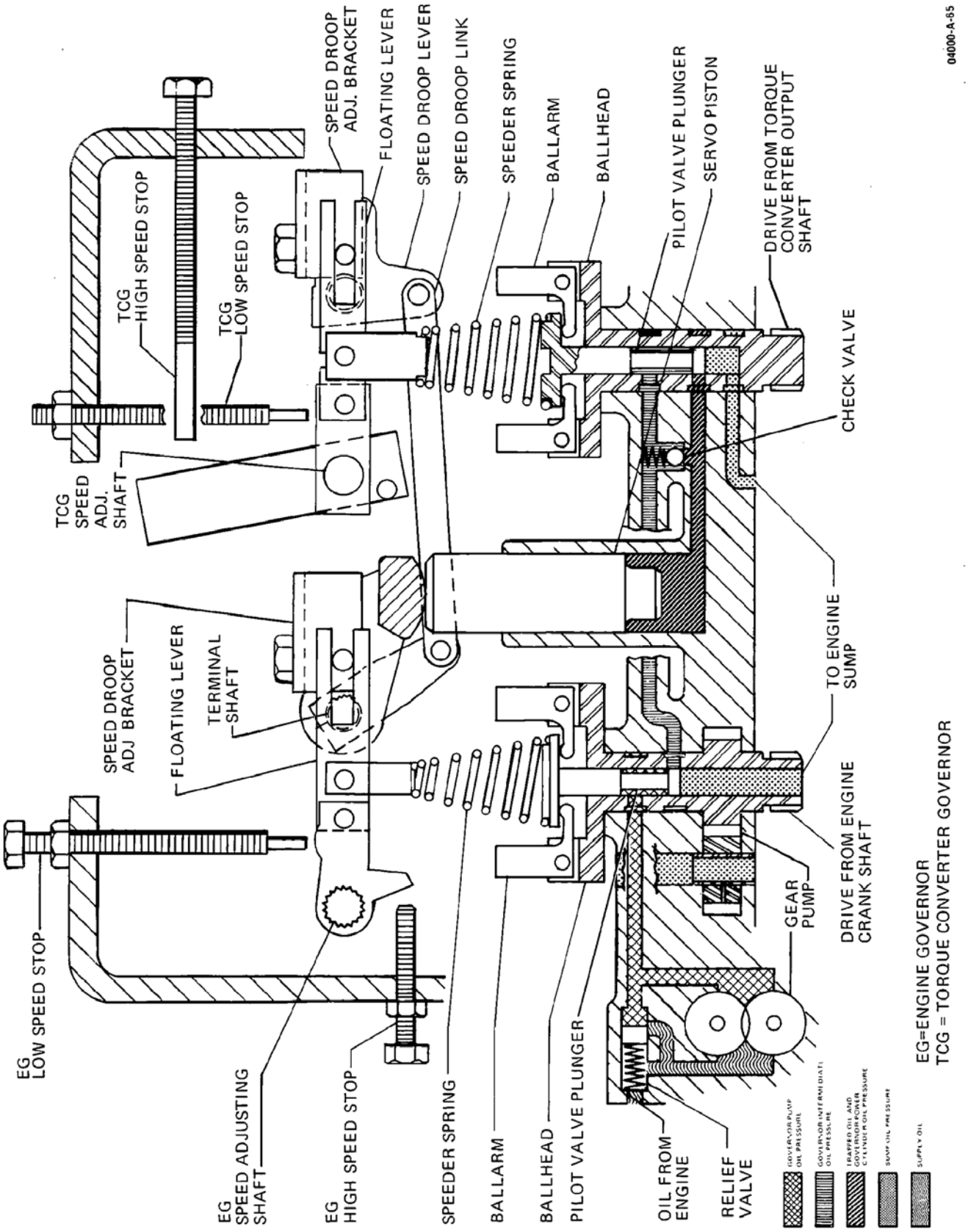


Figure 3-1. Schematic Diagram of the SGT Torque Converter Governor

Chapter 4.
Replaceable Parts

This chapter provides replacement parts information for the SGT torque converter governor. When ordering replacement parts, include the following information:

- Governor serial number and part number shown on nameplate.
- Manual number (this is manual 04040).
- Parts reference number in parts list and description of part or part name.

Ref. No.	Part Name	Quantity
04040-1	Fil. hd. screw 1/4-28 x 2 3/8 (eng. gov. low speed stop)	1
04040-2	Hex hd. jam nut, .250-28	2
04040-3	Soc. hd. screw, 10-32 x 1.5	2
04040-4	Lockwasher, 10-.190 ID	12
04040-5	Soc. hd. cap screw, 10-32 x .375	3
04040-6	Soc. hd. cap screw, 10-32 x 1.750	5
04040-7	Load limit screw	1
04040-8	Washer	1
04040-9	Hex hd. screw, 1/4-28 x 1 1/2	1
04040-10	Nut, 1/4-28 UNF2B	1
04040-11	Washer	1
04040-12	Cover	1
04040-13	Sub cap gasket	1
04040-14	Flat washer, .265 x .500 x .031	1
04040-15	Elastic hex nut, 1/4-20	1
04040-16	Screw, .250-20 x 3.250 UNC2A high speed stop (T.C. governor)	1
04040-17	Fil. hd. dr. screw, 10-32 x .500	1
04040-18	Washer	1
04040-19	Soc. hd. cap screw, 10-32 x .625	1
04040-20	High collar lockwasher, #10	1
04040-21	Soc. hd. cap screw, 10-32 x 7/8	1
04040-22	Cover plate gasket	1
04040-23	Cover plate	1
04040-24	Screw (T.C. gov. low speed stop)	1
04040-25	Shakeproof washer, 1/4	6
04040-26	Vent screw, .250-28	1
04040-27	Lockwasher, .375 ID	1
04040-28	Soc. hd. cap screw, .375-24 x .625	1
04040-29	Lockwire	1
04040-30	Cotter pin, .094 x .850	1
04040-31	Speed adjusting lever	1
04040-32	Fork pin	2
04040-33	Floating lever	1
04040-34	Terminal lever	1
04040-35	Washer, .265 x .500 x .064 thick	2
04040-36	Speed droop adj. screw	2
04040-37	Speed droop adj. bracket	2
04040-38	Lever	1
04040-39	Steel washer, .203 ID	1
04040-40	Cotter pin, .060 x .312	1
04040-41	Servomotor piston	1
04040-42	Speed droop lever	1
04040-43	Cotter pin, 1/16 5/8	3
04040-44	Drilled headed pin	1
04040-45	Ollite bushing. .439 OD	2
04040-46	Washer, .641 x .875 x .025 to .029	6
04040-47	Speed adj. sleeve	1
04040-48	Speed adj. shaft (eng. gov.)	1
04040-49	Oil seal, .762 OD	6
04040-50	Terminal shaft	1
04040-51	Cotter pin, .094 x 1.000	3
04040-52	Terminal sleeve	2
04040-53	Bushing	2
04040-54	Plug	2
04040-55	Spacer	1
04040-56	Bushing	2
04040-57	Speed adj. sleeve	1
04040-58	Shaft	1
04040-59	Retaining ring, .338 dia.	1
04040-60	Shaft	1
04040-61	Soc. hd. pipe plug, .250	2
04040-62	Case	1
04040-63	Soc. hd, plug, 1/16 NPTF	1
04040-64	Adapter oil seal	1
04040-65	Oil seal	1
04040-66	Adapter	1
04040-67	Shipping plug, 1/4 NPT	1
04040-68	Taper pin, #10	2
04040-69	Soc. hd. cap screw. .250-20 x .750	3
04040-70	0-ring, .301 ID. x .070	1
04040-71	Check valve plug	1
04040-72	Check valve	1
04040-73	Soc. hd. cap screw	1
04040-74	High collar lockwasher, .250 ID	5
04040-75	Governor base	1
04040-76	Pin	2
04040-77	Base oil seal	1
04040-78	Shaft spacer cap	1
04040-79	Relief valve stop sleeve	1
04040-79A	Relief valve plunger	1
04040-80	Pin	1
04040-81	Relief valve spring	1
04040-82	Relief valve sleeve	1
04040-83	Plastic plug, 118 NPT	1
04040-84	Terminal shaft	1
04040-85	Spacer cap	1
04040-86	Torsion spring	1
04040-87	Soc. hd. pipe plug	1
04040-88	Hex hd. jam nut, .250-28	1
04040-89	Drilled cap screw, 1/4-28 x 1.500 (eng. gov. high speed stop)	1
04040-90	Drive gear	1
04040-91	Idler gear stud	1
04040-92	Idler gear	1
04040-93	Speed droop lever	1
04040-94	Spring	1
04040-95	Pin	1
04040-96	Speed adjusting lever pin	1
04040-97	Floating lever	1
04040-98	Fork pin	2
04040-99	Spring fork	1
04040-100	Speed adj. lever	1
04040-101	Spacer	1
04040-102	Speeder spring	1
04040-103	Pilot valve plunger (torque converter)	1
04040-104	Thrust bearing (T.C. gov.)	1
04040-105	Flyweight	2
04040-106	Ballarm pin	2
04040-107	Retaining ring	4
04040-108	Ballhead assembly	1
04040-109	Ballhead plug	1
04040-110	Retaining ring	2
04040-111	Spring fork	1
04040-112	Speeder spring	1
04040-113	Pilot valve plunger (eng. gov.)	1
04040-114	Thrust bearing	1
04040-115	Flyweight (eng. gov.)	2
04040-116	Straight pin	2
04040-117	Ballhead	1
04040-118 through 150		Not used

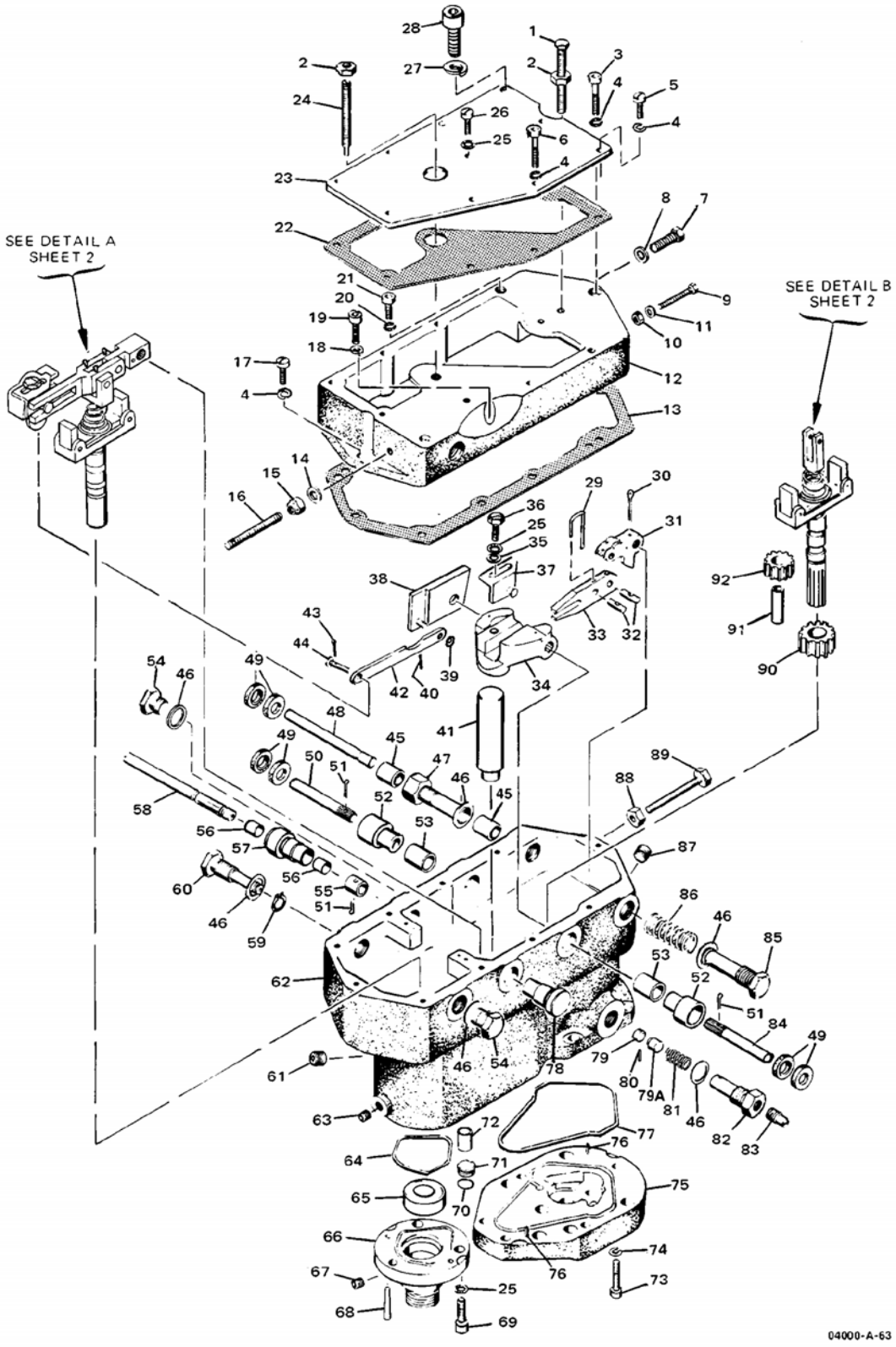


Figure 4-1a. Exploded View of the SGT Torque Converter Governor

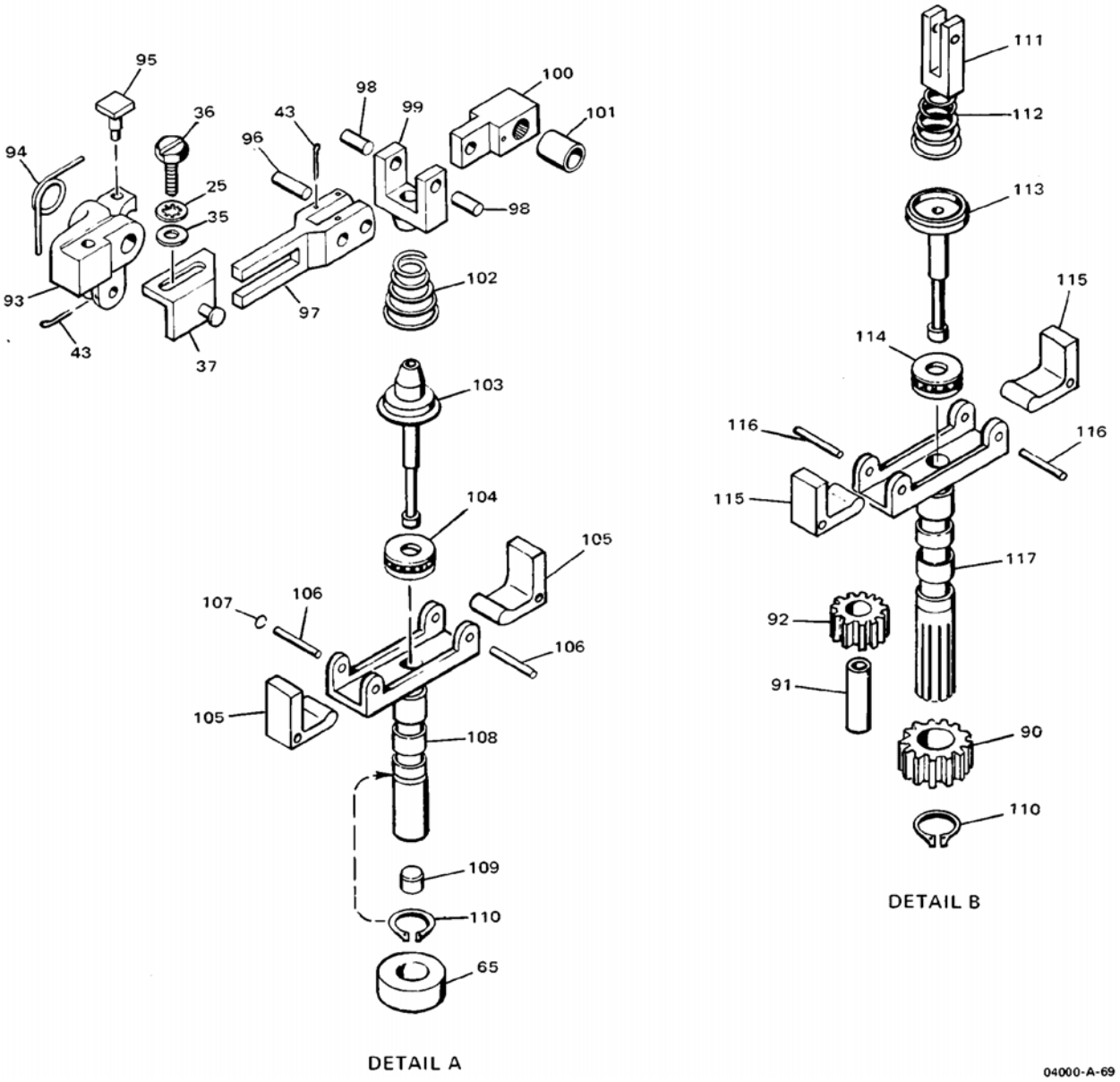


Figure 4-1b. Exploded View of the SGT Torque Converter Governor

Chapter 5.
Auxiliary Equipment

Introduction

This chapter provides information for the solenoid speed setting, and Echelon control. A brief explanation is followed by a schematic diagram (Figure 5-1) and an exploded view (Figure 5-4) of an SGT governor equipped with these options.

In some installations there is an additional manual speed setting shaft for the torque converter governor.

Echelon Control

Refer to Figures 5-1 and 5-2. Echelon control is used in some installations. In this arrangement the first portion of movement of the engine governor speed adjusting shaft raises the speed setting of the engine governor, and during this time the torque converter governor is at its minimum speed setting as determined by the low speed stop. Additional movement in the speed setting of direction progressively raises the speed setting of the torque converter governor to its maximum as determined by the high speed stop.

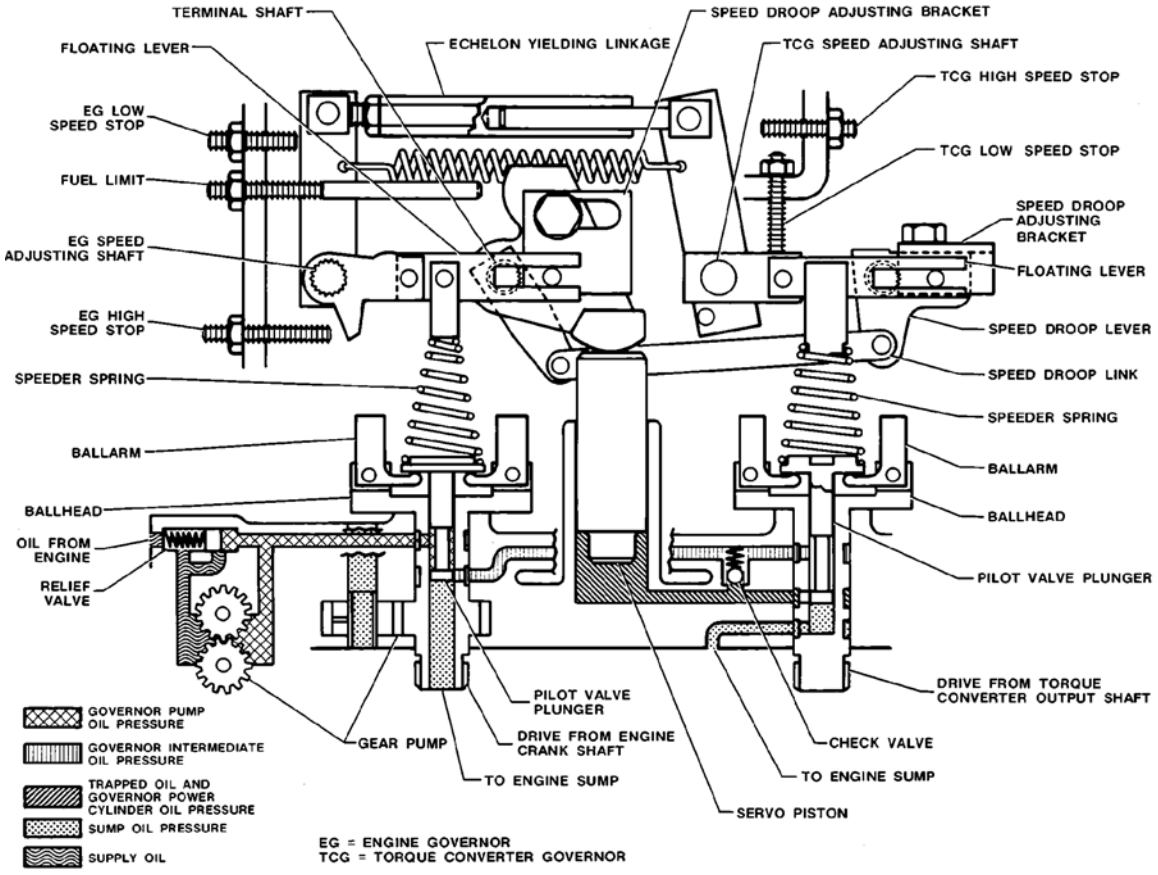


Figure 5-1. Schematic Diagram of the SGT Torque Converter with Echelon Yield Linkage

Solenoid Speed Setting

It is necessary to use a rather large amount of speed droop in the torque converter governor to obtain stable operation, which means that the tail shaft is governed at a much lower speed when fully loaded than when unloaded. To minimize this undesirable effect, yet avoid overspeeding when the converter is lightly loaded, governors are available with a solenoid which raises the torque converter governor's speed setting an amount equal to the speed droop. This solenoid is operated by a pushbutton switch (usually on the operator's crowd lever). Just as the machine encounters a heavy load, the governor's speed setting is increased for the duration of the heavy load condition. Releasing it when the load decreases prevents overspeeding the tail shaft under light load conditions.

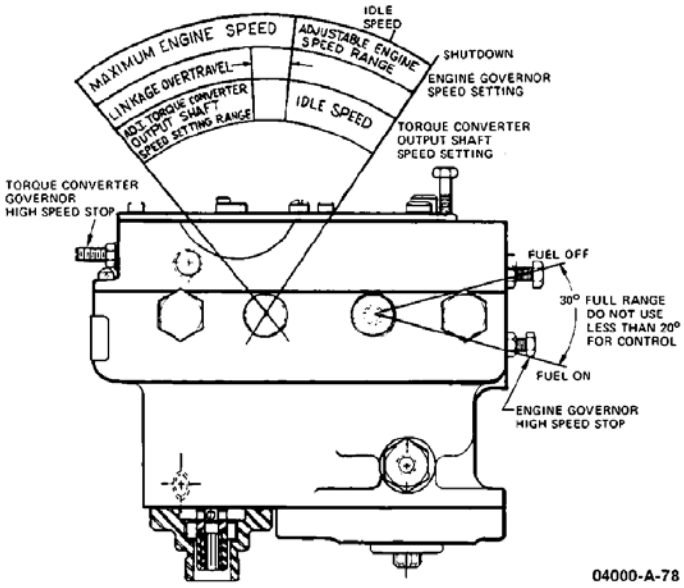


Figure 5-2. Echelon Speed Adjustment

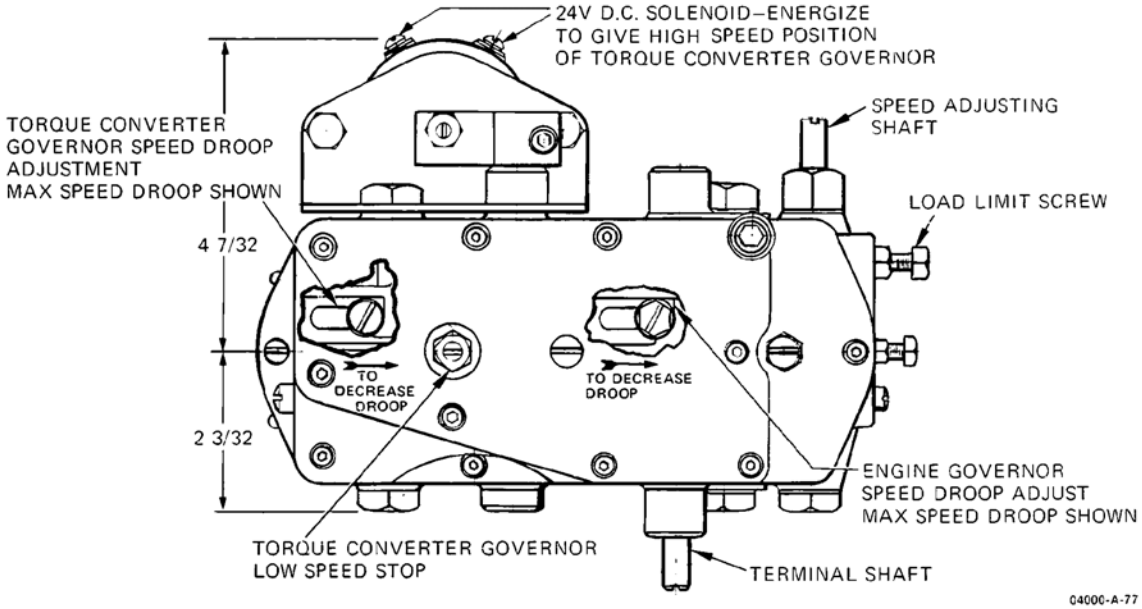
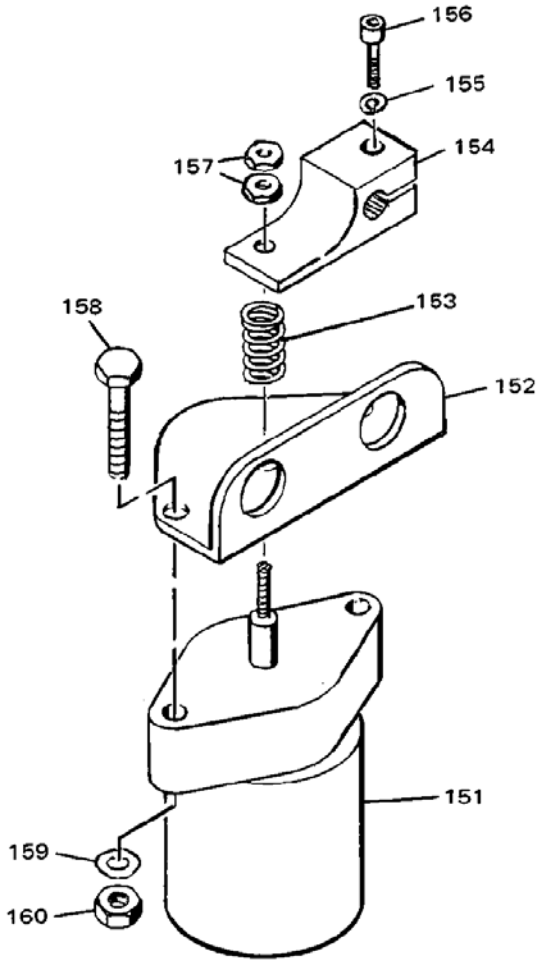


Figure 5-3. Outline Drawing, SGT Governor with Solenoid Speed Setting

Parts Information

Refer to the parts ordering information in section four when ordering parts for Figure 5-4.

Ref. No.	Part Name	Quantity
04040-151	Solenoid (24 V)	1
04040-152	Bracket	1
04040-153	Spring	1
04040-154	Solenoid lever	1
04040-155	Shakeproof washer, 1/4	1
04040-156	Soc. hd. cap screw, 250-18 x 750	1
04040-157	Nut	2
04040-158	Screw	2
04040-159	Shakeproof washer	2
04040-160	Nut, .312-24	2



SOLENOID SPEED SETTING PARTS

Figure 5-4. Exploded View, Solenoid Speed Setting

Chapter 6.
Product Support and Service Options

Product Support Options

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

1. Consult the troubleshooting guide in the manual.
2. Contact the **OE Manufacturer or Packager** of your system.
3. Contact the **Woodward Business Partner** serving your area.
4. Contact Woodward technical assistance via email (**EngineHelpDesk@Woodward.com**) with detailed information on the product, application, and symptoms. Your email will be forwarded to an appropriate expert on the product and application to respond by telephone or return email.
5. If the issue cannot be resolved, you can select a further course of action to pursue based on the available services listed in this chapter.

OEM or 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 current list of Woodward Business Partners is available at **www.woodward.com/directory**.

Product Service Options

Depending on the type of product, the following options for servicing Woodward products may be available through your local Full-Service Distributor or the OEM or Packager of the equipment system.

- 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 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.

Flat Rate Repair: Flat Rate Repair is available for many of the standard mechanical products and some of the electronic 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.

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. 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's Full-Service Distributors offer various Engineering Services for our products. For these services, you can contact the Distributor by telephone or by email.

- 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.

Product Training is available as standard classes at many Distributor locations. Customized classes are also available, which can be tailored to your needs and held at one of our Distributor 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 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 one of the Full-Service Distributors listed at **www.woodward.com/directory**.

Contacting Woodward's Support Organization

For the name of your nearest Woodward Full-Service Distributor or service facility, please consult our worldwide directory published at **www.woodward.com/directory**.

You can also contact the Woodward Customer Service Department at one of the following Woodward facilities to obtain the address and phone number of the nearest facility at which you can obtain information and service.

Products Used In Electrical Power Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany:	
Kempen	+49 (0) 21 52 14 51
Stuttgart	+49 (711) 78954-510
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

Products Used In Engine Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany	+49 (711) 78954-510
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
United States	+1 (970) 482-5811

Products Used In Industrial Turbomachinery Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

For the most current product support and contact information, please visit our website directory at **www.woodward.com/directory**.

Technical Assistance

If you need to contact technical assistance, you will need to provide the following information. Please write it down here before contacting the Engine OEM, the Packager, a Woodward Business Partner, or the Woodward factory:

General

Your Name _____

Site Location _____

Phone Number _____

Fax Number

Prime Mover Information

Manufacturer _____

Engine Model Number _____

Number of Cylinders _____

Type of Fuel (gas, gaseous, diesel, dual-fuel, etc.) _____

Power Output Rating _____

Application (power generation, marine, etc.)

Control/Governor Information

Control/Governor #1

Woodward Part Number & Rev. Letter _____

Control Description or Governor Type _____

Serial Number

Control/Governor #2

Woodward Part Number & Rev. Letter _____

Control Description or Governor Type _____

Serial Number

Control/Governor #3

Woodward Part Number & Rev. Letter _____

Control Description or Governor Type _____

Serial Number

Symptoms

Description _____

_____

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.

We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com

Please reference publication 04040B.

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Email and Website—www.woodward.com

**Woodward has company-owned plants, subsidiaries, and branches,
as well as authorized distributors and other authorized service and sales facilities throughout the world.**

Complete address / phone / fax / email information for all locations is available on our website.

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