

TG Governors



LEVER SPEED SETTING TYPE

APPLICATION

The TG Governors are self-contained mechanical-hydraulic speed droop governors for use on small steam turbines where isochronous (constant speed) operation is not required.

STANDARD FEATURES

Simplicity and low cost are distinct advantages of the TG governors. The governors operate with speed droop for stability of control.

An internal oil pump, driven by the governor's drive shaft, transports oil from the self-contained sump. Internal pressure is maintained by a relief valve-accumulator system. An oil sight-glass provides ease in checking the oil level.

The output (terminal) shaft extends out both sides of the case, and the governor drive rotation can be in either direction.

TG Governors are available in two different work outputs: 12 ft-lbs (16.272 N·m) for the TG-13 and 17.5 ft-lbs (23.73 N·m) for the TG-17. Two different types of speed-setting adjustments are available for each power output. Screw speed-setting is standard and lever speed-setting is optional.

This unit is hydraulically powered for a high work output and is available for three speed ranges.

SPECIAL FEATURES

The built-in relief valve-accumulator helps maintain full oil pressure in the governor hydraulic system during transient conditions.

Contamination is reduced by the weatherproof construction and the self-contained oil sump.



SCREW SPEED SETTING TYPE

- Low Cost
- Speed Droop Control
- Weatherproof
- Self-Contained Sump
- NEMA "A"
- 12 and 17.5 Ft-Lbs (16.272 and 23.73 N·m) Outputs

SPECIFICATIONS

Screw	Adjustment on top of cover
Shaft500-36 serration on both sides of cover
Speed Range	Can be adjusted to meet NEMA "A" requirements at any speed within the following ranges: 1100 to 2400 rpm 2400 to 4000 rpm 4000 to 6000 rpm Different governor part numbers are required for different ranges.
NOTE	Both governors are capable of controlling at lower-than-specified speed range with some loss of output torque and performance.
Drive Power Requirement	1/2 hp (373 W) maximum required to turn drive shaft at rated speed
Rotation	Cw or ccw, as viewed from the top of the governor
NOTE	Rotation can be changed on the die cast aluminum governor by removing four screws and rotating pump housing 180°. On the cast-iron governor, it can be changed internally.

OUTPUT

Refer to Figure 1.

- A - Overtravel to insure prime mover stops are reached
- B - No load to full load travel – normally 2/3 of full governor travel is recommended
- C - Travel required to accelerate the prime mover
- D - Travel required to decelerate or shut down the prime mover

Maximum work capacity over full governor travel of 40° is
 *. See above for recommended governor output travel. In special applications min and max prime mover stops may be outside.

- * TG-13 12 ft-lbs (16,272 N·m)
- * TG-17 17.5 ft-lbs (23.73 N·m)

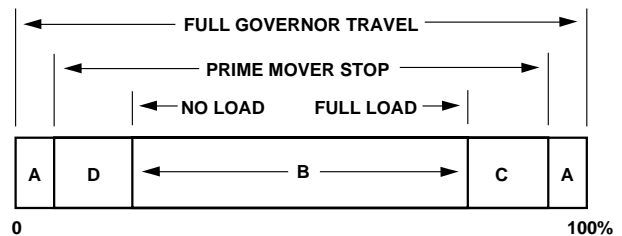


FIGURE 1.

Output Shaft625-36 serration on both sides of case
--------------------	---

CONTROL CHARACTERISTICS

Intended to meet NEMA "A" requirements

Steady State Speed Band	±0.75% of rated speed
Droop	Internally adjustable and must be set as required for stability. Factory set at 6% for 20° terminal shaft travel at 1800, 3600, or 5400 rpm, depending on speed range selected.
Typical Response	7.2% overspeed with full load change on a 50% per sec acceleration turbine at 4% droop setting
Operating temperature	Continuous operating temperature 140°F (60°C) to 200°F (93°C). Ambient temperature -20°F (-29°C) to 200°F (93°C). Contact Woodward if operating beyond these limits.

HYDRAULIC SYSTEM

Oil	Self-contained sump. SAE 10 to 50 is recommended with a viscosity of 100 to 300 SUS, depending on operating temperature. See Woodward Oil Manual 25071 for recommended oils.
Relief Valve	An integral part of accumulator—it maintains 150 psi for the TG-13 and 200 psi (89.635 and 1379 kPa) for the TG-17 at the specified speed ranges. Both governors are capable of controlling at lower speeds with some loss of output torque and performance.

Capacity1.75 quarts (1.6562 L)

CONSTRUCTION

Case and Pump HousingDie cast aluminum

Weight16 lbs (7.2576 kg) aluminum case

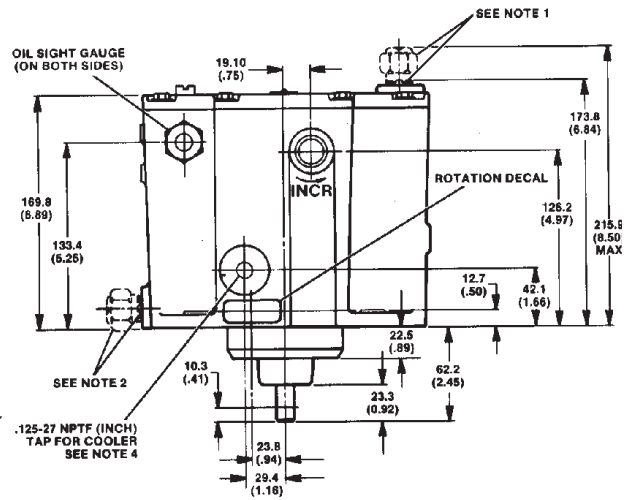
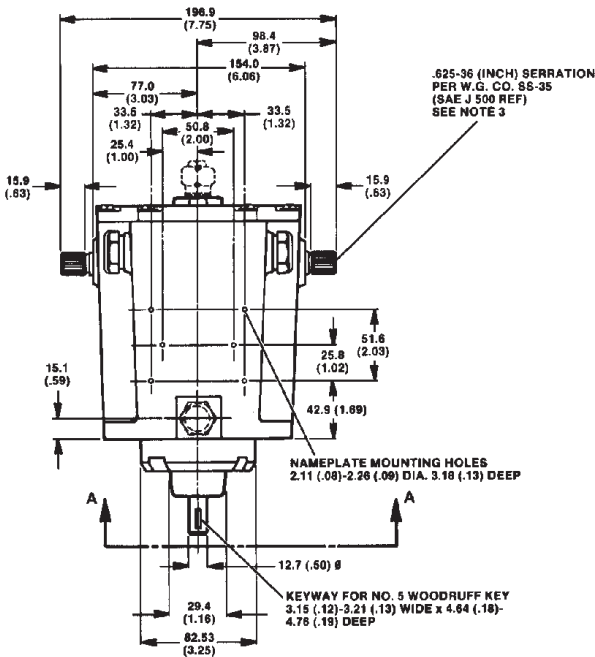
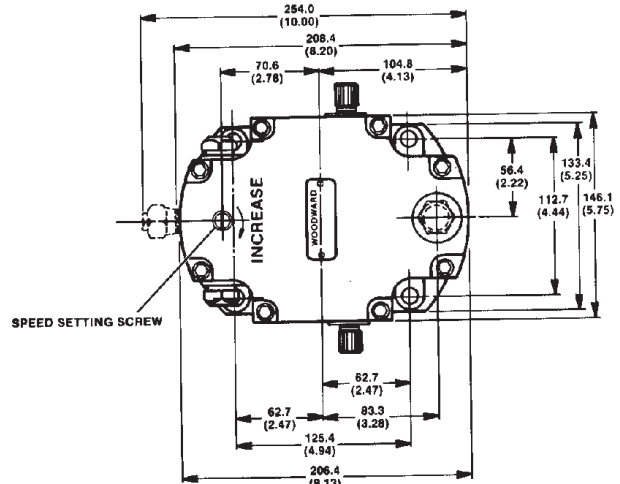
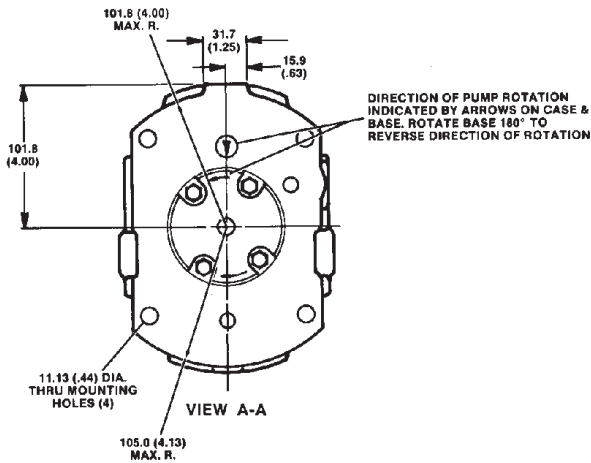
MOUNTING

AttitudeVertical or horizontal (breather cap up)

REFERENCES

Manual 04042—TG-13 and TG-17 Governors

Manual 25071—Oils for Hydraulic Control



NOTES:

- OIL FILL PORT/BREATHER FILTER CAP LOCATION WHEN GOVERNOR IS MOUNTED VERTICALLY. OIL DRAIN PLUG LOCATION WHEN GOVERNOR IS MOUNTED HORIZONTALLY.
- OIL FILL PORT/BREATHER FILTER CAP LOCATION WHEN GOVERNOR IS MOUNTED HORIZONTALLY. OIL DRAIN PLUG LOCATION WHEN GOVERNOR IS MOUNTED VERTICALLY.
- TERMINAL OUTPUT SHAFT MAX AVAILA STROKE IS 40° RECOMMENDED STRC FROM NO LOAD TO FULL LOAD IS 27°.
- COOLER TAP OUTPUT (USED ON 6000 R GOV.) COOLER RETURN TO BE CONNECT TO GOVERNOR DRAIN.
- INCHES ARE SHOWN IN PARENTHESES.

(DO NOT USE FOR CONSTRUCTION)

OUTLINE OF TG-13 AND TG-17 GOVERNORS (SCREW SPEED SETTING)



3800 N. Wilson Ave.
 P.O. Box 3800
 Loveland, CO, U.S.A.
 80539-3800
 Ph: 1 970-663-3900
 Ph: 1 800-835-5182
 Fax: 1 970-962-7050

www.woodward.com



International Plants

Australia, New South Wales
Brazil, Campinas
China, Tianjin
Germany, Aken/Elbe & Kelbra
India, Haryana
Japan, Tomisato & Kobe
Netherlands, Hoofddorp & Rotterdam
Singapore
United Kingdom, Reading, England, & Prestwick, Scotland
United States, Colorado[2], Illinois[3], Michigan[2], New York, South Carolina, Tennessee

Regional Sales Offices

Canada, Québec
China, Beijing
Czech Republic, Plzen
Germany, Tettnang
Korea, Pusan
Mexico, Mexico City
New Zealand, Christchurch
Poland, Warsaw
United Arab Emirates, Abu Dhabi
United States, Alabama, California, Illinois, Pennsylvania, Texas, Washington

Distributors & Service

Woodward has a network of distributors and service facilities. For your nearest representative call 1 800-835-5182 or see the Worldwide Directory on our web site.

CORPORATE HEADQUARTERS/
 AIRCRAFT CONTROLS
 Rockford, IL, U.S.A.
 1 815-877-7441

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward Governor Company contractual or warranty obligation unless expressly stated in a written sales contract.

© Woodward Governor Company, 1983
 All Rights Reserved

For more information contact: