

EGB-200P and EGB-300P

Governor/Actuator

Application

The EGB-200P/-300P Governor/Actuator is used with Woodward electronic governors that produce a 20–160 mA control signal on dual fuel, diesel and gasoline engines, and steam turbines driving alternators, generators, pumps, or compressors.

Description

The EGB-200P/-300P is a governor/actuator providing the electronic governor with 200/300 lb-ft (270/400 N·m) work capacity for positioning the engine or turbine fuel racks or linkage.

The EGB-200P/-300P is a completely self-contained governor/actuator for use with large engines or turbines which require high output governors.

Upon loss of electric control signals, the standard EGB-200P/-300P is adjusted to cause engine or turbine shutdown. The addition of an optional starting device allows prime mover starting and operation under ballhead control. The ballhead section will also regulate fuel if the control fails in such a manner as to call for maximum fuel.

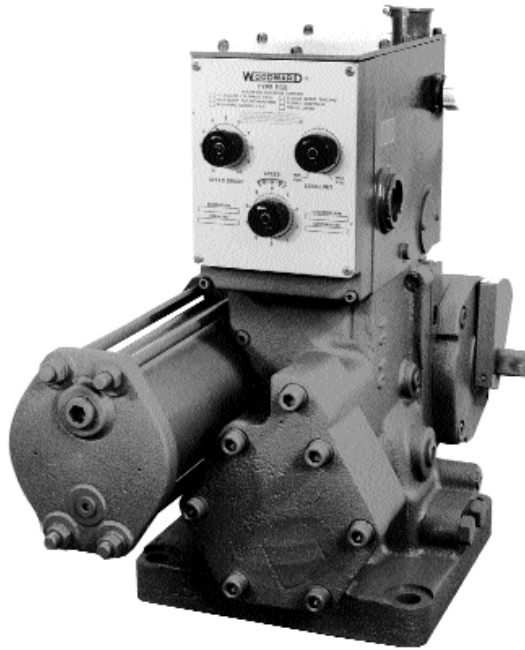
The EGB-200P/-300P can be factory set for a reverse-acting control to give maximum fuel upon loss of electric governor control signal.

The electric actuator section will respond to isochronous or droop governor control. Speed and droop adjustments for the electric actuator are made through the electric governor control system. If the control and EGB-200P/-300P are paralleled to an infinite bus or to other unlike governors, the droop mode must be used.

The EGB-200P/-300P ballhead section may operate isochronously for single unit application. A droop adjustment knob on the front panel provides droop adjustment for the ballhead governor in parallel application.

The load limit control knob is used to adjust the maximum output position of the EGB200P/-300P. The knob may be used to manually shut down the engine or turbine.

A high output booster servomotor may be used to help move the governor output toward the maximum fuel position before starting the engine or turbine.



- Electric hydraulic actuator
- Backup ballhead governor
- Single or parallel operation in droop or isochronous modes
- 200/300 lb-ft (270/400 N·m) output
- Self-contained oil supply

Installation

Governor Output

	200 lb-ft (270 N·m)	300 lb-ft (400 N·m)
Stalled Torque	Mid Travel 275 lb-ft (373 N·m)	Mid Travel 490 lb-ft (664 N·m)
Rated Work	172 lb-ft (233 N·m)	306 lb-ft (415 N·m)
Useful Work	115 lb-ft (156 N·m)	204 lb-ft (277 N·m)
Terminal Shaft	1/8"-48 SAE serration. Shaft may extend from either side.	
Terminal Shaft Travel	40 degree maximum travel. Use approximately 27 degrees travel between no load and full fuel. Relationship between engine torque output and rotary terminal shaft travel must be approximately linear.	

Governor Drive

Speed Range	300 to 1200 rpm. 900 to 1100 rpm recommended drive speed. 300 to 1200 rpm operating range.
Rotation	clockwise, counterclockwise, or both
Drive Requirements	2.5 hp (1.9 kW) to turn drive shaft at rated speed at normal operating temperature. 1 1/8-48 serration solid drive shaft is standard. Keyed and nonstandard serration shafts available.

Hydraulic System

Hydraulic Oil	petroleum based lubricating oil. Most synthetic oils are acceptable. 100 to 300 SUS at operating temperature is recommended. Contact Woodward if in doubt.
Operating Temperature	continuous operating temperature is 140 to 200 °F (60 to 93 °C). Ambient temperature is -20 to +210 °F (-29 to +99 °C). Hydraulic fluid pour point must be below lowest expected starting temperature.
Operating Pressure	200 psi (1379 kPa) for EGB-200P. 360 psi (2482 kPa) for EGB-300P.
Sump Capacity	7.4 quarts (7.0 L)

Transducer Coil

Control Current	20–16 mA control signal at 400 mA maximum
Electrical Connector	10 pin connector, RB-3102-18-1P standard. Other connectors available.

Control Characteristics

Steady State Speed Band	±0.25% of rated speed
Drop	in the ballhead section, droop is adjustable 0% to 12% through the full terminal shaft travel

Construction

Case and Base	cast iron
Column	cast aluminum column
Weight	335 lbs (152 kg) with no oil in sump

Mounting

Configuration	vertical
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Options

Ballhead Assemblies	solid (standard) or spring driven-oil damped. Available in undamped natural frequencies of 180, 290, 400, 550 cpm
Solenoid Valve Shutdown	the optional solenoid valve can be used for prime-mover shutdown. Energize or de-energize to shutdown versions are available.
Speed Adjusting Motor	permits remote, electric speed adjustment of the ballhead governor. The motor is series wound, split field and available in most standard voltages. Optional switch contacts are useful for maximum and minimum indicator lights and/or motor limit switches.
Oil Heat Exchanger	an external heat exchanger may be used with the EGB-200P/-300P if high ambient temperatures or high drive speeds cause oil operating temperatures greater than the oil manufacturer's temperature recommendation.

Pneumatic, Manual Starting Devices

a pneumatic or manually operated plunger lowers the actuator pilot valve in the increase direction so the prime mover can start. Oil pressure generated at cranking speed is allowed to move the terminal shaft in the increase direction so the prime mover can start.

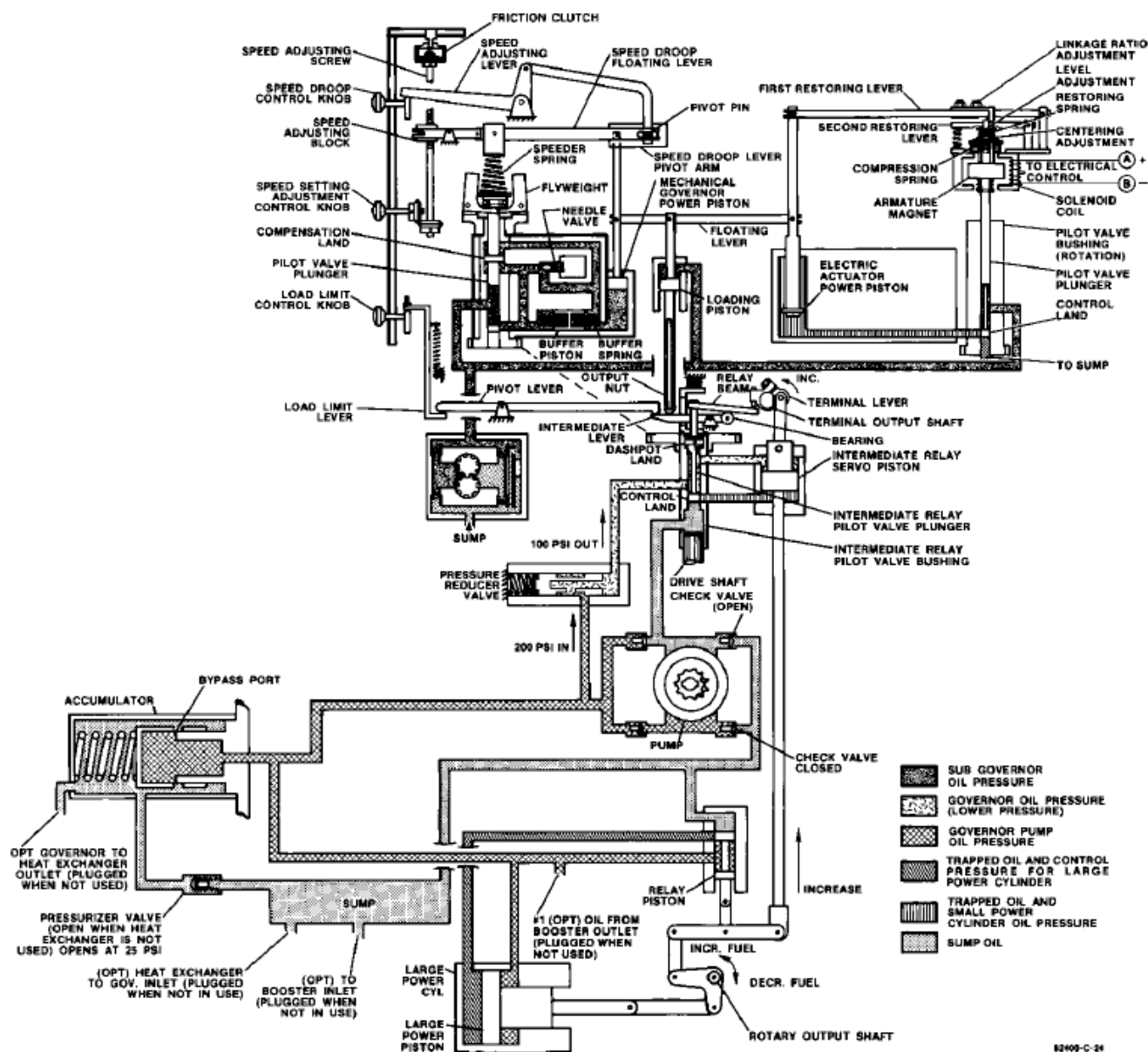
Booster Servomotor

pressure oil from the booster moves the servo piston to the maximum fuel position. The booster servomotor is detached from the EGB-200P/300P and is actuated by a starting air pressure of 150 to 200 psi (1034 to 1379 kPa).

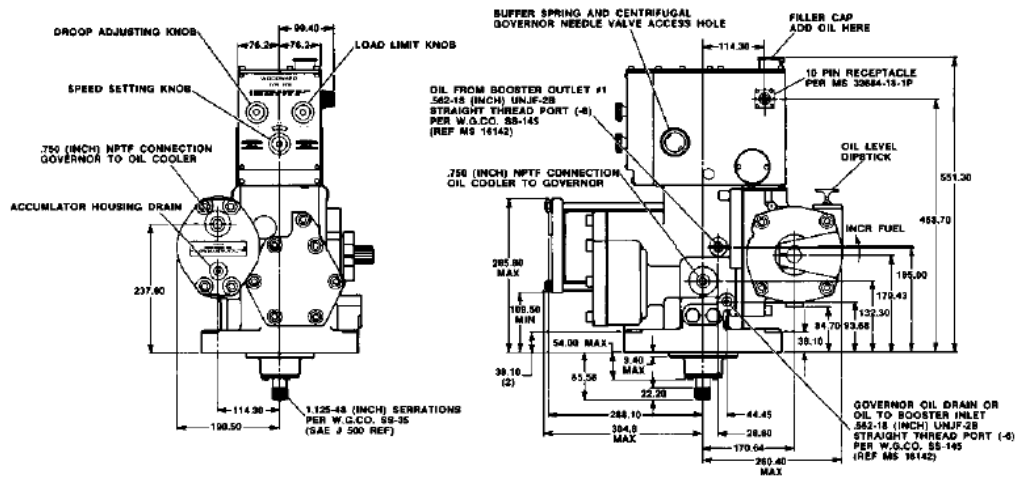
References

Woodward Manual
36641
25071
82462

Governor Oil Heat Exchanger, Remote and Integral Types
Oils for Hydraulic Controls
EGB-200/300P Proportional Governor/Actuator



Schematic Diagram, EGB-200P/300P Governor/Actuator



MM	INCH	MM	INCH
.500	.0200	134.300	4.5000
3.400	.1371	126.020	4.9200
12.700	.5000	126.081	4.9306
22.200	.8740	132.380	5.2087
22.230	.8752	142.620	5.2987
21.600	1.1280	170.040	6.7181
38.100	1.5000	175.460	6.9055
44.450	1.7500	179.430	7.0641
50.800	2.0000	190.580	7.5000
54.000	2.1260	196.000	7.7172
57.000	2.2441	237.900	9.3661
73.100	2.8780	280.480	10.2526
75.200	3.0000	285.800	11.2520
84.700	3.3346	288.100	11.3425
85.500	3.3662	293.700	11.5630
99.800	3.9292	304.800	12.0000
97.600	3.8425	350.800	13.8110
99.400	3.9134	468.700	18.4528
100.500	4.0110	651.300	21.7047



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Outline Drawing of EGB-200P
(Do not use for construction)



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