

GENERAC®

POWER SYSTEMS, INC.

INSTRUCTIONS FOR GENERAC STEPPER MOTOR ELECTRONIC GOVERNOR

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INTRODUCTION

The Generac Stepper Motor Electronic Governor system is used on some small diesel and gas engines with 12 volt DC electrical systems. The governor system consists of a governor module mounted inside the generator control panel, a stepper motor mounted near the injection pump or carburetor, and interconnecting wires and connection boxes. (See Figure 1)

OPERATIONAL ANALYSIS

During the engine start-up and run, a +12 volt DC is applied to the control module via the red (+ positive) and black (- negative) wires. The voltage from the main engine control latch/crank PCB wire #14 (run circuit) powers up the control module for governor system operation. The control module receives a speed "sensing" signal from AC output frequency via the two (2) blue wires.

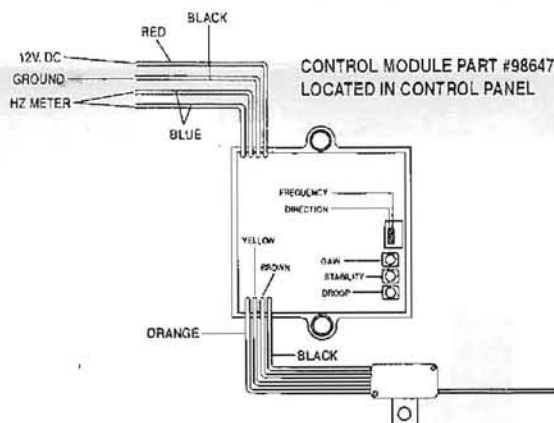
The control module sends variable signals to the stepper motor via the orange, yellow, brown and black wires to position the stepper motor and throttle linkage to obtain a steady 50 or 60 Hz. (selectable on the control module frequency switch)

SET-UP AND ADJUSTMENT PROCEDURE

(Stepper Motor/Throttle Linkage: Gas and Diesel)

Determine which direction the stepper motor must rotate to open the throttle to "full fuel". Adjust the rod length so when the throttle is wide open, the stepper motor is at its full rotation, then tighten the jam nuts. Ensure linkage moves freely and does not bind in any way.

Figure 1 - Stepper Motor & Control Module



CONTROL MODULE POTS AND SWITCHES

The following is a description of the adjustment procedure for the new electronic governor control module and stepper motor. (See Figure 1)

POT SETTINGS:

Set GAIN, DROOP, and STABILITY pots to midpoint.

SWITCH SETTINGS:

Set frequency switch to either 50 or 60 Hz.

* Frequency switch set to "OFF" = 60 Hz.

* Frequency switch set to "ON" = 50 Hz.

SET DIRECTION SWITCH:

Determine which direction the stepper motor lever needs to be set to open the throttle. Some units are set to open at the clockwise position, and some are set to open at the counterclockwise position.

If lever is set to open at the counterclockwise position, then the direction switch should be set in the "OFF" position. If the lever is set to open at the clockwise position, the direction switch should be set to the "ON" position.

When the switches and pots are set correctly, start the engine. Adjust the gain pot if necessary to stabilize engine speed.

* Apply load to system—25-50% is best. If system is unstable, reduce gain until it stabilizes.

* Adjust droop pot so that the engine speed recovers to the pre-selected speed. (50 or 60 Hz based on unit).

* Observe performance of system when loads are applied and removed.

* Increasing stability will decrease recovery time, but may result in damped oscillations (decreasing hertz around preset speed). Decreasing stability will soften the recovery and reduce the transient hertz.

Frequency and direction switches are integrated only at engine start. Changing switch settings while engine is running will have no effect until the engine is stopped and restarted.

STEPPER MOTOR PART #98290
LOCATED NEAR CARBURETOR
INJECTION PUMP

TURN COUNTERCLOCKWISE
TO OPEN THROTTLE SET
DIRECTION SWITCH TO "OFF"



TURN CLOCKWISE TO
OPEN THROTTLE SET
DIRECTION SWITCH TO "ON"