

ESD5500 Series Controller Terminal Wiring and Features

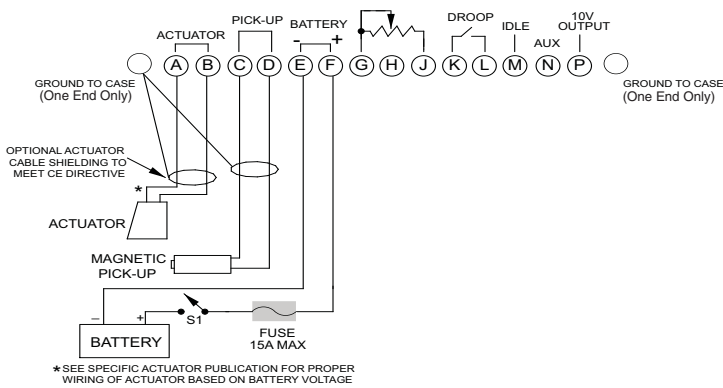
1 INTRODUCTION

The ESD5500 Series Governor Controller provides single speed isochronous operation with six wiring terminations. The actuator is connected to terminals A & B, the actuator connections are not polarity sensitive. A speed sensor / magnetic pick-up input is connected to terminals C & D, again the analog controller is interpreting an input frequency, the magnetic pick-up terminations are not polarity sensitive. Battery voltage is connected to terminals E(-) and F(+), the connection to terminal F should be fused for 15 amps as illustrated in section 2.

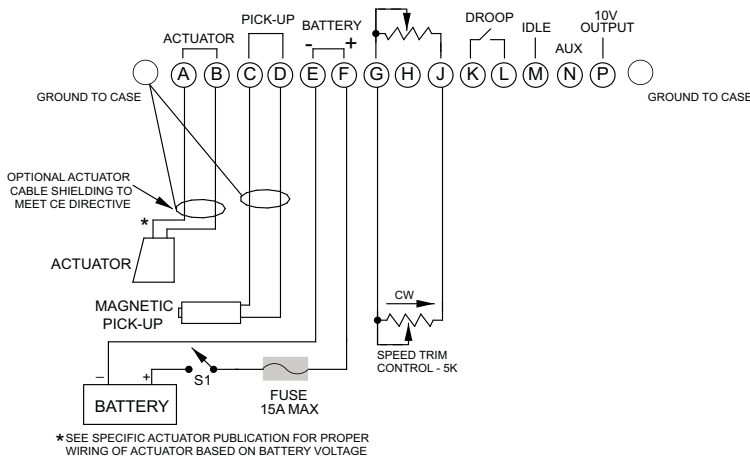
Actuator and battery connections to terminals A, B, E and F should be #16AWG (1.3mm²) or larger. Long cables require an increased wire size to minimize voltage drops.

Magnetic speed sensor wires connected to terminals C and D must be twisted and/or shielded for their entire length. The speed sensor cable shield should be connected as shown and insulated to insure no other part of the shield comes in contact with engine ground so no stray signals are introduced into the speed control unit.

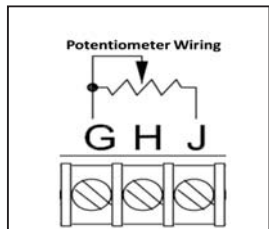
2 BASIC WIRING DIAGRAM



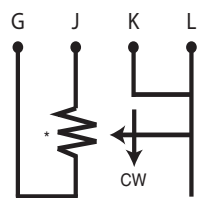
3 TERMINALS G & J - TRIM POT. WIRING



Trim Pot. Wiring



Wide Range Remote Variable Speed Pot. Wiring



* Select proper potentiometer value from Table 1

WIDE RANGE REMOTE VARIABLE SPEED OPERATION

A single remote speed adjustment potentiometer can be used to adjust the engine speed continuously over a specific speed range.

Select the desired speed range and corresponding potentiometer value. (Refer to TABLE 1 below) If the exact range cannot be found, select the next higher range potentiometer.

To maintain engine stability at the minimum speed setting, a small amount of droop can be added using the DROOP adjustment. At the maximum speed setting the governor performance will be near isochronous, regardless of the droop adjustment setting.

An additional fixed resistor may be placed across the potentiometer to obtain the exact desired range. Connect the speed range potentiometer as shown to Terminals G and J. Contact GAC for assistance if difficulty is experienced in obtaining the desired variable speed governing performance.

TABLE 1

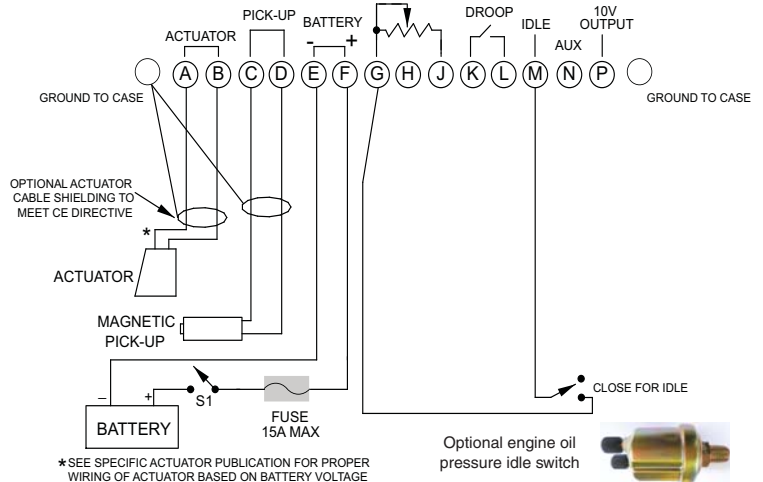
SPEED FREQUENCY RANGE	POTENTIOMETER VALUE
900 Hz	1 K
2400 Hz	5 K
3000 Hz	10 K
3500 Hz	25 K
3700 Hz	50 K

Conversion Formulas

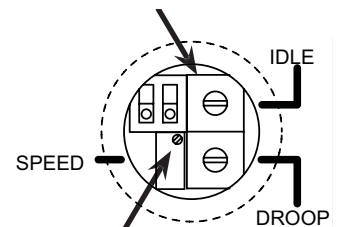
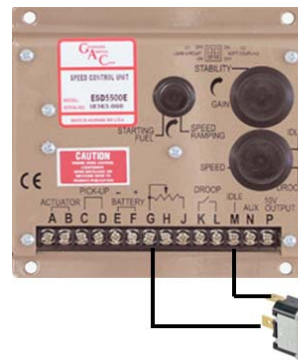
$$\text{Hertz}_{\text{MAG PICKUP}} = \frac{\text{RPM} \times \#\text{Teeth}}{60\text{sec}}$$

$$\text{RPM} = \frac{(\text{Hertz}_{\text{MAG PICKUP}} \times 60\text{sec})}{\#\text{Teeth}}$$

4 TERMINAL "M" IDLE SWITCH (OPTIONAL)



IMPORTANT:
Idle Speed Adjustment Is a 270° Turn Potentiometer

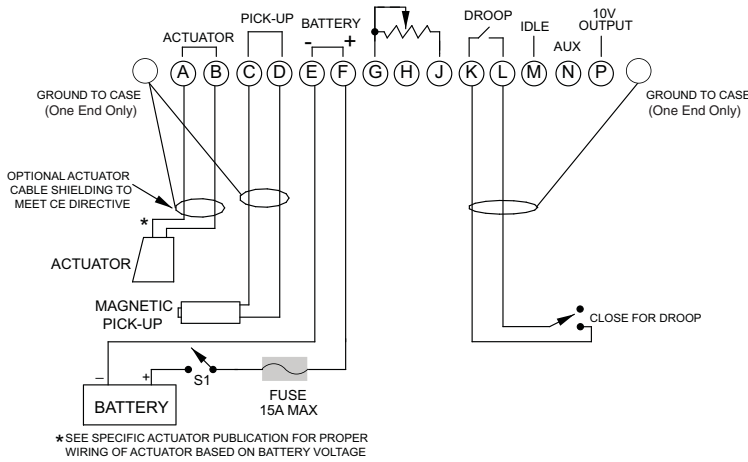


IMPORTANT:
Speed Adjustment Is a 25 Turn Potentiometer

IDLE SPEED SETTING

Place the optional external selector switch in the IDLE position. The idle speed set point is increased by the clockwise rotation of the IDLE adjustment control. When the engine is at idle speed, the speed control unit applies droop to the governor system to insure stable operation.

5 TERMINALS K & L - SPEED DROOP OPERATION



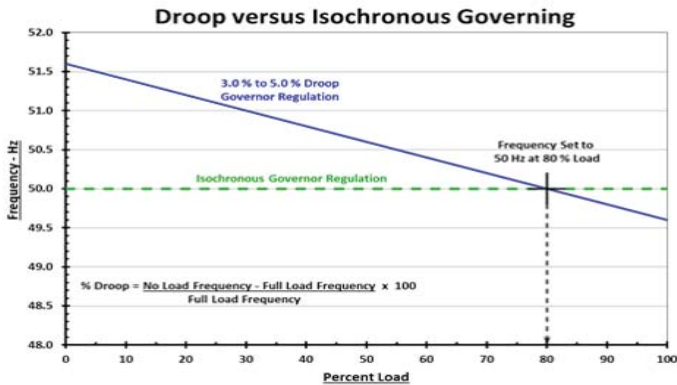
Droop is typically used for the paralleling of engine driven generators. When in droop operation, the engine speed will decrease as engine load increases. The percentage of droop is based on the actuator current change from no engine load to full load.

Place the optional external selector switch in the DROOP position. DROOP is increased by clockwise rotation of the DROOP adjustment control.

After the droop level has been adjusted, the rated engine speed setting may need to be reset. Check the engines speed and adjust that speed setting accordingly.

NOTE Though a wide range of droop is available with the internal control, droop level requirements of 10% are unusual. If droop levels experienced are higher or lower than those required, contact GAC for assistance.

SPEED DROOP OPERATION



6 TERMINAL "N" AUXILIARY INPUT

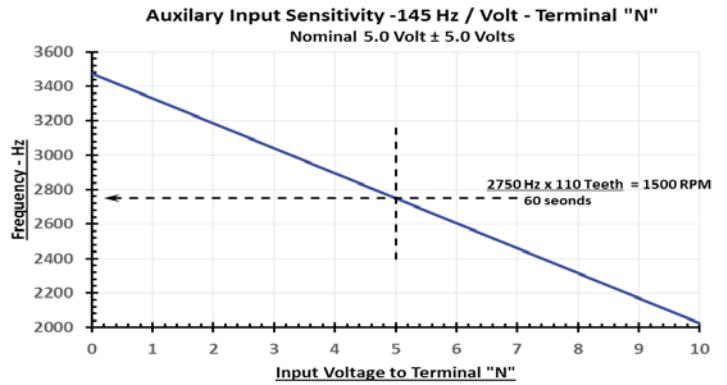
The Auxiliary Terminal N accepts input signals from load sharing units, auto synchronizers, and other governor system accessories, GAC accessories are directly connected to this terminal.

Terminal N is sensitive (-145 Hz/Volt) . Accessory connections must be shielded.

When an accessory is connected to Terminal N, the speed will decrease and the speed adjustment must be reset.

If the auto synchronizer is used alone, not in conjunction with a load sharing module, a 3 ohm resistor should be connected between Terminals N and P. This is required to match the voltage levels between the speed control unit and the synchronizer.

AUXILIARY / ACCESSORY INPUT - TERMINAL "N"



7 TERMINAL "P" ACCESSORY 10V OUTPUT

The +10 volt regulated supply, Terminal P, can be utilized to provide power to GAC governor system accessories. Up to 20 mA of current can be drawn from this supply. Ground reference is Terminal G.

CAUTION A short circuit on this terminal can damage the speed control unit. Do not connect 'N' and 'P' directly to each other.

