QUICK REFERENCE GUIDE

altronic®

GAS ENGINE GOVERNOR
MODEL GOV10/GOV50 V2

TIPS AND HINTS TO ASSIST WITH INSTALLATION AND/OR OPERATION

3/12/07

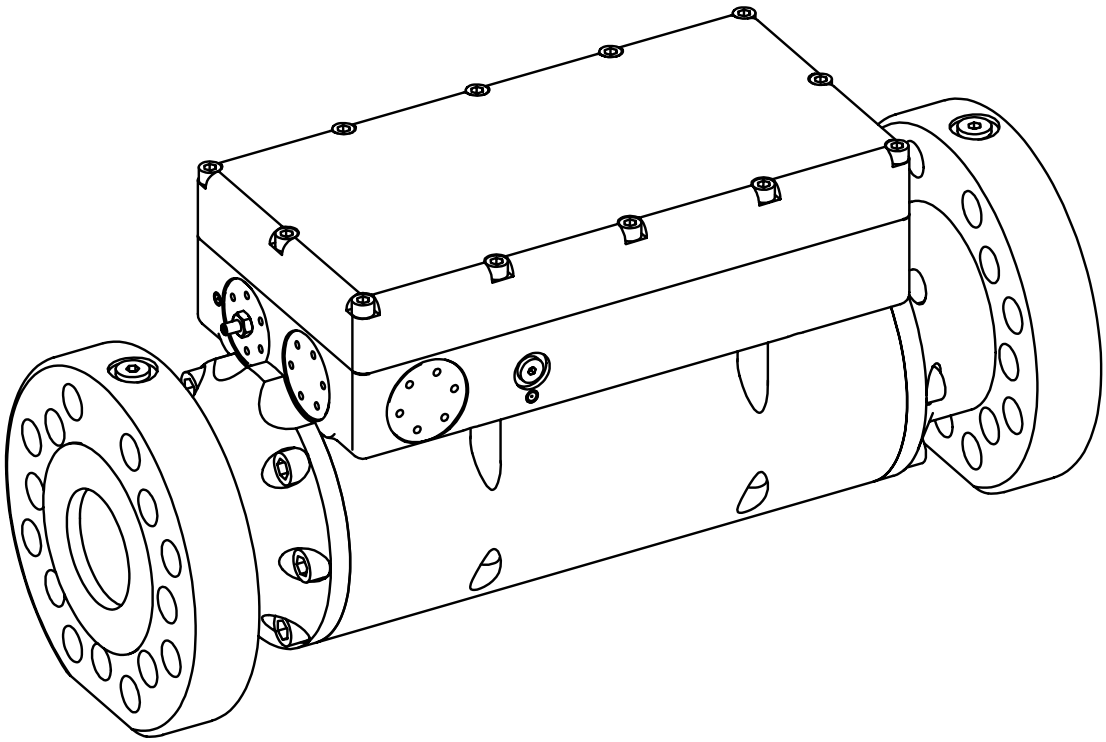
Overview

The **GOV** is applied to fuel-injected natural gas engines which fall into two main categories, each with particular tuning issues. The first class is the Superior engines which start at low Fuel Manifold Pressures (**FMP**) in the range of .10 to .3 psi. Sensor calibration is critical for startup since over-pressure will flood the engine. To address this issue, an **AutoZero** (abbreviated **AZ**) feature has been added to all production units starting with **S/N 1471**. This feature allows the software to automatically *zero* the pressure transducers each time the **GOV** and engine are shutdown. Once a start attempt is made, this feature assures that the **FMP** is accurate and allows the engine to start with a repeatable (less than .5 psi) **FMP**. **PLEASE SEE SERVICE BULLETIN 503** for a more complete summary of these features.

All units returned to Altronic for any type of service get updated (at no charge) to include this **AutoZero** feature, which is enabled, but turned off to allow the sensors to be manually zeroed in the field before turning this feature **ON**.

The second class of applications are the Integral Engines, which start with **FMP's** in ranges from 4-15 psi, and benefit less from the **AutoZero** functions. Many of these engines will start with a larger range of variability in the start **FMP**, so they are less susceptible to any **FMP** sensor drift.

This guide is provided to clarify and add information to the current Operating Manual, FORM GOV OM 4-06. Be sure to use this manual as it supersedes the previous manual dated 8-03. Current versions of Altronic literature can be found at www.altronicinc.com under PRODUCTS.



Application

The **GOV** has built in features to prevent fuel being introduced into the exhaust during a start attempt. It is not wise to disable these features as exhaust explosions are dangerous. The normal purge cycle can be automated using the **GOV DIGOUT**, which is a switch that closes when two programmable values are met, which are the **CrankRPM** and the purge timer, **PurgeSEC**. Once these two variables have been satisfied, this **DigOUT** switch can be wired to allow the fuel shutoff valve to come **ON**. Since the purpose of the **GOV** is one of governing, not shutoff, a block and bleed shutoff valve is required upstream of the **GOV**. The action of this block and bleed valve stops all fuel flow to the **GOV** during the crank and purge cycle, and once the **DigOUT** has closed, the block and bleed fuel valve can then open and supply fuel to the **GOV**. In this way, the **DigOUT** is a *permissive* to allow fuel to flow only after the engine has been rotated and purged according to the programmed values. If any pressure greater than the **FSPready** and **FMPready** values is trapped prior to rotation, the valve will never sequence to run the engine. This can be seen on the home screen by a **NOTRDY** message, which is detailed in **SECTION 7.4** of the **OPERATING MANUAL**. Default values of 2.5 psi are provided for **FSPready** and **FMPready**, and it should be discouraged that any higher values be used to disable this feature. Using larger values can allow trapped gas to enter the engine during the purge cycle which defeats the purpose of the purge cycle, and can result in exhaust explosions.

Default values have changed in the **OM DATED 4-06**, which depicts the ongoing modification of values that will most likely allow the **GOV** to operate on a wide variety of engines. Altronic keeps typical values of programmed variables for a variety of engines, which can be shared and used for a quicker startup. Since many similar models are tuned a little differently, this at least gets one in the ballpark to get an engine started and *tweaked* more quickly.

Sharing your configuration worksheets with the Altronic factory keeps our library current. Please FAX us a copy of your worksheet once you have fine-tuned the GOV.

FAX to 330-545-9005, attention SERVICE.

SERVICE BULLETIN (DATE: 4-2-04) regarding the **GOV Local** and **Remote** Control functions is available from our web site. This Bulletin provides details on control from the Display Module, as well as from a remote 4-20mA signal, and how Din1 selects the **Local** or **Remote** functions.

SERVICE BULLETIN (DATE: 3-5-04) regarding **GOV-10/50 Wiring Details** is also available from our web site. This bulletin details the connector adapter and the shared wiring of this option.

Also note that **Din2** is an input to cancel the warm-up timer. This input allows a temperature switch on the oil or water to cancel the warm-up of the engine more efficiently.

Troubleshooting & Tuning

VIEWING SHUTDOWN CAUSES:

Once running, the only state that the **GOV** can change to is the shutdown **(ShutDN)** state. After the engine has shutdown, and the **GOV** display has shown the cause for 3 seconds after seeing **0 RPM**, the display screen will transition to **READY** or **NOT READY**. To view the cause of the shutdown, the **NORM** (normal) key on the display may be pressed to view the original cause of the shutdown, which may or may not be due to internal shutdown functions within the **GOV**. Please refer to section 7.11 of the **Operating Manual** for an explanation of all available shutdown causes.

TERMINAL PROGRAM:

The **GOV** Terminal Program is highly recommended as a tool in commissioning a startup. Running the Terminal Program during a start (enable auto logging) and saving the *.csv* file, as well as the *chart* snapshot, help to document the **GOV** action during commissioning. This documentation is invaluable in troubleshooting and fine tuning an installation.

START VS. RPM CONTROL MODES:

The **GOV** has two control modes to allow two sets of variables to be in effect, one during **Start**, and another during **RPM** control. The transition from **Start** to **RPM** control takes place when the **StartRPM** is reached. In troubleshooting a start sequence, it is imperative to determine whether the engine is in the **Start** or **RPM** mode of control. Once determined, the appropriate values can be adjusted to tune the sequence. This can be determined by watching the display, where it will display **START** until the **StartRPM** is reached, which then transitions to **WARMUP** where the **RPM** control has taken over and ramps the engine up to the **Minimum RPM**.

MINIMUM FUEL SUPPLY PRESSURE:

The **GOV** requires a **FSP** that is 25 psi greater than the maximum **FMP**. If the **FSP** should drop below this value during engine operation the engine can stall, so a low setpoint can be entered in the **FSPshutdn** entry to safely shut the unit down and will flag this as a fault on the **GOV** display.

OVERLOAD:

FMPshutdn is a high Fuel Manifold Pressure that is programmed to prevent overload to the engine. This should be set a few psi higher than the maximum allowable **FMP**.

FMP VS. SCFR CONTROL MODES:

The **StartType** found under **Engine Config** is typically programmed for **FMP**. An **SCFR** method of starting has been provided to allow control using Standard Cubic Feet per Revolution, which is new for v2.0 firmware. This was introduced as an option when the **AutoZero** firmware was released (also v2.0), but has not been commonly used due to the success of the **AZ** variation.

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SUPERIOR HINTS:

Superior applications typically start the engine on **FMP's** of .1 to .3 psi. Once this start occurs, a **RampFMP** of .06 to .15 is typical. The **RampFMP** will add this programmed value to the **StartFMP** every second while in the **START** mode, and will allow the engine to ramp up the rpm until the **StartRPM** has been achieved. The **GainPSI** in Start Control determines the response of the start fuel PSI control loop, and is defaulted to 175 which is a good starting point for all applications. Once the engine has transitioned to RPM control, the Superior applications typically need **GainAccel** values of 125 to 150 (default is 100).