

## Electronic Engine Pressure Governor

The Class1 Pressure Governor is designed to maintain a selected pump pressure or engine speed setting. This unit will work with most major electronically controlled engines.

### Modes of Operation:

Power On When the unit is powered up, the display will show [**MODE**] and the engine will remain at idle until the mode switch is pressed to select the desired operating mode

#### (**PRESSURE or RPM**)

If the pump is engaged and the **OK to Pump LED** is illuminated, **PRESSURE** will be the first mode selected otherwise **THROTTLE** will be the first mode.

#### RPM Mode

When the unit is in RPM mode, the display will read "**THROTTLE**" and the green RPM LED will be illuminated. Engine speed is controlled by the increase and decrease switches, the display will indicate "**INCREASE**" or "**DECREASE**" matching the switch that is depressed. The governor will maintain the last speed attained with these switches.

#### Pressure Mode

When the unit is operating in the Pressure mode, the display will show "**PRESSURE**" and the amber PRESSURE LED will be illuminated. Pump pressure is set by using the increase and decrease switches. The governor will maintain the last pressure achieved with these switches. The display will indicate "**INCREASE**" or "**DECREASE**" as appropriate. The governor maintains pump pressure by controlling engine RPM in response to a signal from the pressure transducer mounted on discharge side of the pump.

#### Switching between modes

Pressing the mode switch will change the governor from RPM to Pressure mode without a significant change in engine speed or pump pressure. The message center will indicate "**PRESSURE**" or "**THROTTLE**" as appropriate.

**NOTE:** You need not go to IDLE to change modes, but all interlocks must be present.

#### PRESET Mode

Pressing the **PRESET** switch in either mode will control the engine to attain the preset RPM or pump pressure set in governor memory.

#### High Idle Mode

An input is available to bring the engine speed to a PRESET RPM (High Idle) from a remotely mounted switch. When the governor is operating in this mode, the display will read "**HIGHIDLE**". This function is unavailable when the governor is operating with a mode selected or if the pump engaged input is active. Pressing the **IDLE** switch causes the high idle to drop out and the high idle input must be toggled off and then on again to reinstate high idle. The **INC** and **DEC** switches are active in high idle mode, however they will not change the preset RPM that is set in memory.

#### Idle Mode

Pressing the **IDLE** switch at any time returns the engine to idle speed.

## **Operation 1** Tank Supply for pre-connects or small diameter hose.

Upon arrival at the scene, position the apparatus and shift into pump gear using department SOP.

At the pump panel, the three interlock LED's must be ON. and the governor Message Center should display

**[MODE]**

If the Throttle Ready Interlock is not present,

**NO INTLK**

will be displayed in the message center when the MODE switch is pressed and the governor will not respond to an increase or decrease request.

The governor will check for a valid pressure transducer signal at power up, if none is found,

**SENSOR**

will be displayed. If this is the case, the governor will operate as a throttle only. It cannot react to pressure changes.

The MODE switch must be depressed to select a governing mode.

Ensure that water is available to the pump by checking the Master Discharge Gauge for pressure.

Prime the pump and establish water prior to pressing the governor Preset Switch.

Once pressure mode is selected, the PRESET switch may be depressed to quickly bring the pump up to the preset operating pressure.

The governor will respond to increase and decrease commands from the INC and DEC switches within the operating capabilities of the engine. When the INCrease switch is pressed,

**INCREASE**

is displayed in the message center. When the DECrease switch is pressed,

**DECREASE**

is displayed.

Whenever the governor adjusts the engine speed to maintain the established RPM,

**CTRL INC** or

**CTRL DEC**

will be displayed while the governor is actively adjusting engine speed to maintain the setpoint.

The message center will display:

**THROTTLE** or **PRESSURE**

to indicate the current operating mode.



Whenever operating with a limited water supply, always be aware of the

possibility of running out of water. When the governor is operating in pressure mode it will attempt to recover from a discharge pressure loss and increase engine RPM to compensate. If water is introduced to the pump while the engine RPM is advanced, a pressure spike will result. The magnitude will be a factor of pump speed and water quantity. It is not uncommon to lose water and regain it during operation with extremely low water levels due to the position and configuration of the tank sump.

## **Operation 2** Transferring from tank to pressurized water source.

The transition from tank to hydrant or relay is an operation that needs to be approached with awareness. Resultant pressure with no change in pump speed is a combination of the operating pressure prior to the change **plus** the incoming pressurized supply. If operating at 125 PSI and adding a 100 PSI pressurized water source, the resultant discharge pressure will be 225 PSI. The governor will compensate, but it will not be instantaneous. Any time the pump receives air or an air-water mixture, the discharge pressure will drop and the governor operating in pressure mode will increase pump speed to maintain the set pressure. Every effort should be made to purge or bleed air from the system. When pressurized water hits the impeller, a significant pressure spike can occur. This may be an occasion to change the governor to RPM MODE before the changeover, establish an adequate supply and then switch back to pressure mode. In some instances, a decrease in RPM would be in order and then the PRESET switch can be used after switching back to pressure mode to re-establish pressure governing.

## **Operation 3** Transferring from tank to draft

The transition from tank to draft is another scenario that requires a knowledgeable operator/engineer. A positive water supply must be established prior to changing the water source. If this is not accomplished, the governor will increase pump speed and when the supply is established, the pressure will be more than desired. If the engine RPM increases dramatically, press IDLE, establish the water supply, press MODE and then PRESET to return to pressure governed operation. The total time should be less than 3 seconds.

## **Operation 4** Portable Tank (Pond)

The transition from onboard tank to portable tank is a tank to draft operation. When the portable tank is refilled is a time when the pump operator must control the situation. When the tank gets low, air can be introduced into the system. The operator must control this so that a pressure spike is not introduced. When the tank is refilled from a dump, a wave action can be set up that would allow running away from water for a short period of time. This can be controlled by switching to RPM mode temporarily while the tank is refilled.