**LOAD CONTROL - ADJUSTMENTS DESCRIPTION**

| LOAD DERIVATIVE | The LOAD DERIVATIVE adjustment modifies the load change rate. It will change the rate at which the governor modifies the load change dynamics. When a notch setting is changed, the engine speed changes are made with a certain rate. This rate is determined by the LOAD DERIVATIVE setting. If the LOAD DERIVATIVE is set to a high value, the engine speed will change quickly. If the load change is too rapid, the engine could experience / drop in pressure. If the LOAD DERIVATIVE is set to a low value, the engine speed will change slowly. This will cause the engine to operate / respond to load changes. When the LOAD DERIVATIVE is increased, the load change rate will increase. When the LOAD DERIVATIVE is decreased, the load change rate will decrease.
| GAIN | The LOAD GAIN is a proportional adjustment that controls the rate at which the governor adjusts the engine speed. The LOAD GAIN determines the sensitivity of the governor to changes in load. A higher LOAD GAIN setting will result in a more responsive governor. A lower LOAD GAIN setting will result in a less responsive governor. When the LOAD GAIN is increased, the governor will respond more quickly to changes in load. When the LOAD GAIN is decreased, the governor will respond more slowly to changes in load.

**SPREAD CONTROL - ADJUSTMENTS DESCRIPTION**

| SPREAD CONTROL | The SPREAD CONTROL is an adjustable speed control that limits the maximum speed of the engine. It is used to control the maximum speed of the engine and is usually set at the factory. It can be adjusted to a lower value if necessary. When the SPREAD CONTROL is increased, the maximum speed of the engine will decrease. When the SPREAD CONTROL is decreased, the maximum speed of the engine will increase.
| ACCELERATION | The ACCELERATION is an adjustable speed control that limits the acceleration of the engine. It is used to control the acceleration of the engine and is usually set at the factory. It can be adjusted to a lower value if necessary. When the ACCELERATION is increased, the acceleration of the engine will decrease. When the ACCELERATION is decreased, the acceleration of the engine will increase.

**LOAD CONTROL - ADJUSTMENTS PROCEDURE**

1. **LOAD DERIVATIVE**: The LOAD DERIVATIVE adjustment is used to control the load change rate of the governor. It is used to control the rate at which the governor modifies the load change dynamics. When the LOAD DERIVATIVE is increased, the load change rate will increase. When the LOAD DERIVATIVE is decreased, the load change rate will decrease. **LOAD GAIN**: The LOAD GAIN is a proportional adjustment that controls the rate at which the governor adjusts the engine speed. The LOAD GAIN determines the sensitivity of the governor to changes in load. A higher LOAD GAIN setting will result in a more responsive governor. A lower LOAD GAIN setting will result in a less responsive governor. When the LOAD GAIN is increased, the governor will respond more quickly to changes in load. When the LOAD GAIN is decreased, the governor will respond more slowly to changes in load.

**ADJUSTMENTS**

The control system has been factory-set to provide a stable, accurate system. The final application is dynamically different from the laboratory settings and the control system should be readjusted to achieve the proper performance of the load control. The following steps should be followed to perform this adjustment:

1. **Section 1**: Turn ON SW3 #3 (Damping)
2. **Section 2**: Turn OFF SW3 #3 (Damping)
3. **Section 3**: Crank and start the engine

NOTE: If good stability is not achieved, or the GAIN adjustment is set below 20, readjust the settings to the next highest numbered step. When the governor is operating at its maximum droop setting, the minimum engine speed will be very slow and the governor will be unstable. It is recommended to increase the LOAD DERIVATIVE setting to provide additional stability.

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**BASIC WIRING**

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**WHEEL SLIP:**

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>LED ON</td>
</tr>
<tr>
<td>No. 2</td>
<td>10V</td>
</tr>
<tr>
<td>No. 3</td>
<td>10V</td>
</tr>
<tr>
<td>No. 4</td>
<td>10V</td>
</tr>
<tr>
<td>No. 5</td>
<td>10V</td>
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<tr>
<td>No. 6</td>
<td>10V</td>
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<tr>
<td>No. 7</td>
<td>10V</td>
</tr>
<tr>
<td>No. 8</td>
<td>10V</td>
</tr>
</tbody>
</table>

**LOAD REGULATION:**

- The load regulation in the LCC is 0. If regulation of the load, or a lowering of the voltage to the unit, set in the IDLE position, DO NOT crank the engine.
- If the load control loop is stable, adjust each notch setting according to the load control loop gain, is required, a resistor can be soldered between posts E1 and E2 on the circuit board. For a resistor can be soldered between posts E10 and E11. A 50KΩ resistor will provide approximately 10% regulation, or reduce the load loop gain by approximately 10%.

**LOAD DERIVATIVE:**

- The load derivative in the LCC is 0. If the load, or a lowering of the speed to the unit, set in the IDLE position, DO NOT crank the engine.
- If the load control loop is stable, adjust each notch setting according to the load control loop gain, is required, a resistor can be soldered between posts E1 and E2 on the circuit board. For a resistor can be soldered between posts E10 and E11. A 50KΩ resistor will provide approximately 10% regulation, or reduce the load loop gain by approximately 10%.

**LOAD RAMPING:**

- The load ramping adjustment is used to both increase and decrease the load ramp time. It is desired to make the load decrease when the generator is running. A static resistor can be soldered between posts E10 and E11. A 50KΩ resistor will change the load decrease time by approximately 20%. A jumper wire, which includes the load derivative adjust, will decrease the load decrease time by approximately 20% (Speed Control adjustment modification).

**LOAD OVERSPEED:**

- The load over-speed adjustment is used to both increase and decrease the load over-speed time. It is desired to make the load over-speed when the generator is running. A static resistor can be soldered between posts E10 and E11. A 50KΩ resistor will change the load over-speed time by approximately 20%. A jumper wire, which includes the load derivative adjust, will decrease the load over-speed time by approximately 20% (Speed Control adjustment modification).

**LOAD DERIVATIVE CONTROL:**

- To boost the load control when a notch is stepped up, adjust the derivative CM to 20 - 40. This will temporarily boost engine power.

**LOAD CURRENT LIMIT:**

- The load current limit adjustment is used to both increase and decrease the load current limit. It is desired to make the load current limit when the generator is running. A static resistor can be soldered between posts E10 and E11. A 50KΩ resistor will change the load current limit by approximately 20%. A jumper wire, which includes the load derivative adjust, will decrease the load current limit by approximately 20%

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