



ENGINE GOVERNING SYSTEMS

Application Guide

Section EG 90-3

This application guide provides information to attain precise speed control with a Roosa Master fuel injection pump using the UTDS engine governing system (see Figure 1). The information provided can address the model DB, DC and DM Roosa Master pumps with mechanical governors because their internal mechanical governors are similar. **This information has been approved by the Roosa Master service department.**

The application of our precise engine governing system to Roosa Master fuel injection pumps is achieved with the connection of the electric actuator by linkage to the stop lever of the fuel injection pump. The Roosa Master fuel injection pump may require modification to the internal mechanical governor parts. The modification is necessary for continuous use of the shutoff lever with an external governor. The method and parts required to perform the modification differ for the various Roosa Master fuel injection pumps.

The parts required for these modifications are available from any Roosa Master distributor or dealer. The modification should be performed by an authorized Roosa Master distributor or dealer who will also affix a new model number to the injection pump to assure future serviceability.

ROOSA MASTER PUMPS NOT REQUIRING MODIFICATION

Modification is not necessary to those Roosa Master fuel injection pumps that already have the provision to accept external governing. Consult an authorized Roosa Master distributor or dealer for identification assistance if uncertain about the fuel injection pump features.

INSTALLATION AND ADJUSTMENTS

CAUTION:
THE ENGINE SHOULD BE EQUIPPED WITH AN INDEPENDENT OVERSPEED SHUTDOWN MECHANISM TO PREVENT RUNAWAY WHICH CAN CAUSE EQUIPMENT DAMAGE OR PERSONNEL INJURY.

1. After installing the modified injection pump, install the **actuator, speed control unit, magnetic speed sensor and speed trim control** in accordance with the installation instructions furnished with the engine governing system. Do not connect the actuator linkage to the shutoff lever at this time.

The UTDS AGB 130 actuator and related engine governing components can easily control the DB, DC, and DM fuel injection pumps.

2. Adjust the mechanical governor maximum speed adjustment sufficiently high so that the full load droop speed is above rated speed. This adjustment will provide mechanical overspeed protection for the engine. When

making this adjustment, operate the engine with no load. Allowing for 10% mechanical governor droop, the high speed limit should be set at 1980 RPMs for 1800 RPMs rated engine speeds and 1650 RPMs for 1500 RPMs rated engine speeds. Then, with the shutoff lever fully CCW, rotate the throttle lever to operate the engine at the desired maximum limit. Lock the throttle lever shaft at the maximum speed position with the two set screws.

3. To set the shutoff lever to the no fuel point, slowly rotate the lever CW to a position where the engine stops. Set and lock the shutoff lever shaft assembly set screw to limit any further CW rotation.
4. Install the linkage between the actuator and the shutoff shaft lever following the actuator installation instructions and so that at no load about $\frac{1}{2}$ the battery supply can be measured and at full load about $\frac{3}{4}$ the battery supply voltage can be measured. The measurement is made at the two (2) actuator terminals that are connected to the output terminals of the speed control unit.

ENGINE SAFETY SHUTDOWN

The speed control unit has a built-in-fail-safe feature when electric power is removed or magnetic speed sensor signal is lost. These conditions will cause the actuator to return to no fuel or engine shutdown position.

As an added safety measure, UTDS recommends that an independent overspeed shutdown device be equipped on all engines. A typical device could be the UTDS speed switch, which could energize or de-energize the Roosa Master electric shutoff solenoid.

The Roosa Master electric shutoff solenoid mounts inside the mechanical governor and shuts off the metering valve when energized or de-energized (specify whether "energize to run" or "energize to shut off" is required when the modification is requested). Devices which sense overspeed, high water temperature, low oil pressure, etc., can activate the shutoff solenoid to shut off the engine. This feature is independent of the mechanical overspeed governor or speed control unit and will provide positive fuel shutoff. Consult your Roosa Master distributor or dealer for further information and parts for this modification.

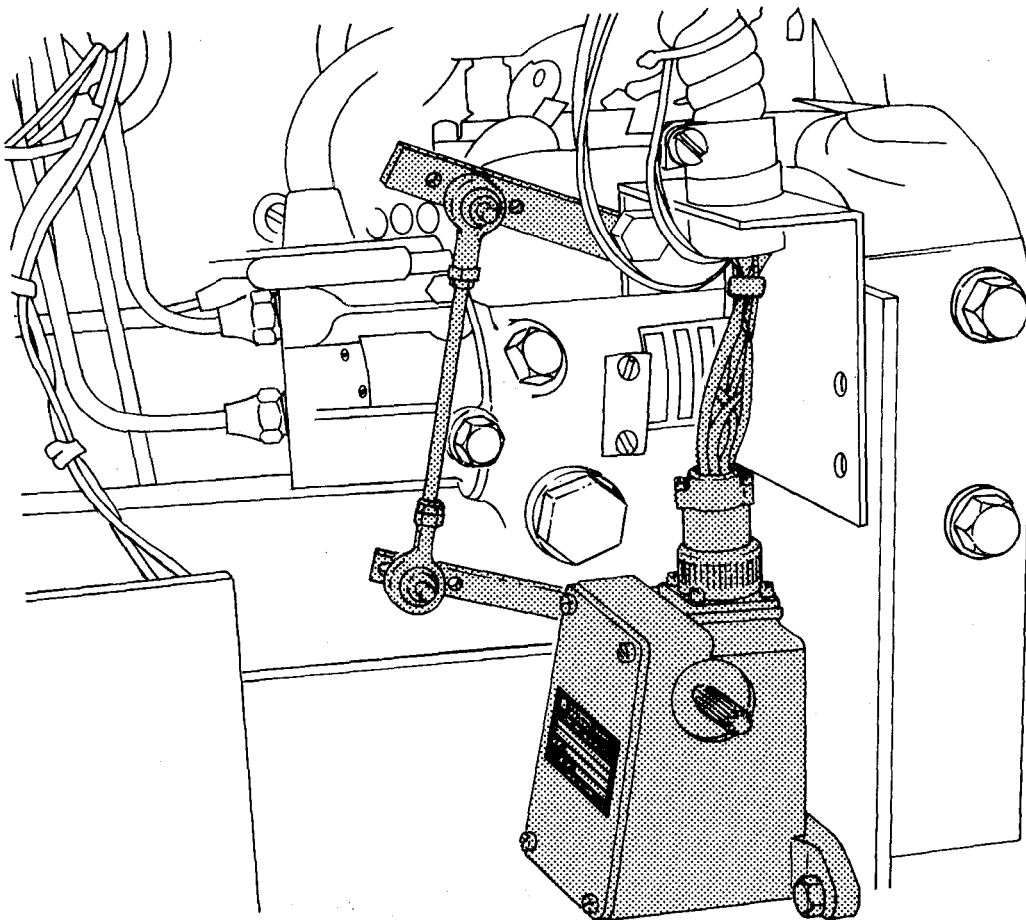


Figure 1. AGB 130 actuator connected to Roosa-Master fuel pump