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TURBOCHARGER CONTROLS - MAINTENANCE PRACTICES

1. General

A. The turbocharger is controlled by the wastegate assembly and absolute pressure sloped controller. The sloped controller is designed to maintain the rated deck pressure at wide open throttle, and to maintain a reduced deck pressure at partthrottle settings. The controller senses both deck and manifold pressure and monitors the differential between them. If either the deck pressure or differential pressure rises above predetermined values for a given throttle setting, the controller opens the exhaust bypass valve, thus lowering compressor speed and output.

A pressure relief valve, set slightly in excess of maximum deck pressure, is installed to prevent excessive overboost in the event of a system malfunction. The pressure relief valve is set to open at 41.5 inches of Hg.

- 2. Sloped Controller Adjustment
 - A. Sloped Controller Adjustments.
 - With engine oil temperature at middle of green arc slowly open throttle and note maximum manifold pressure obtainable. Do not exceed 39.5 inches Hg.
 - (2) Using a flat-bladed screwdriver rotate metering valve seat clockwise to increase manifold pressure and counterclockwise to decrease manifold pressure. Lightly tap the unit after each adjustment to seat internal parts. Set manifold pressure to 39 ±0.5 inches Hg.
 - NOTE: When adjusting rotate in VERY small increments as this is an extremely sensitive adjustment. Approximately 13 degrees rotation will change the manifold pressure reading about one inch Hg.
 - (3) Operate engine as in step 2A.(1) to verify that the controller adjustment provides a maximum manifold pressure of 39 ±0.5 inches of Hg.
 - (4) After final adjustment the aircraft must be flight tested to check results.
 - (5) Repeat this procedure until desired results are obtained.
- 3. Controller and Turbocharger Operational Flight Check

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- A. Cruise Turbocharger Performance Check (Refer to Figure 201).
 - (1) Cowl Flaps Fully closed.
 - (2) Airspeed Level flight.
 - (3) Pressure Altitude 17,000 feet.
 - (4) Engine Speed 2400 RPM.
 - (5) Part-Throttle M.P. 30 in Hg.
 - (6) Fuel Flow Lean to 20.0 GPH.
 - (7) Propeller Control -
 - (a) Slowly decrease engine RPM until manifold pressure starts to drop, indication that the wastegate valve is closed. If the wastegate valve closes at engine speeds below the RPM shown in Figure 201, the turbocharger performance is normal.
 - (b) Note the outside air temperature and RPM where the manifold pressure begins to drop. Refer to the chart in Figure 201 with these values and assure that no bootstrapping occurs above the line.

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