

OPERATIONS MANUAL  
VOLUME THREE  
(DAKOTA)

**IMPORTANT**

Engine Handling

1. R.P.M. Restricted Ranges

Below	1700 R.P.M.	-	due to tail unit vibration
Between	1900 - 2025 R.P.M.	-	due to propeller tip vibration
Between	2100 - 2300 R.P.M.	-	to reduce crankcase rejection on overhaul
Between	2450 - 2650 R.P.M.	-	due to propeller tip vibration caused by reonance

Expect control column vibration between 1850 - 1900 R. P. M.

2. Alteration of engine speed and power.

Changes of engine speed should be made gradually, so as to avoid sudden changes in the centrifugal loads imposed on the master rod, crankshaft etc. When operating near max. BMEP, and changing speed, it is also important to avoid an increase in the gas loads. The correct technique, to avoid momentary high BMEP's is as follows:

- 1 When increasing power, increase RPM before raising the manifold pressure. Increase speed progressively in steps of 100-200 RPM, at each step adjust the manifold pressure accordingly.
- 2 When decreasing power, reduce the manifold pressure before decreasing the RPM. Reduce manifold pressure progressively, at each step decreasing RPM by 100-200.

3. Effect of Atmospheric Temperature and Pressure

At constant manifold pressure and RPM, power will increase with altitude. Since the engine power limitations for Take-off, Rated and Max Cruise do not increase with altitude, it is essential to have a compensatory drop in manifold pressure.

If the air temperature should rise, a power reduction will occur (whether the temperature rise was caused naturally or by the selection of carburettor hot air). A greater power reduction will be caused by the selection of hot air, because of the loss of ram effect.

Although the effect of air temperature on Take-off or Rated power should not be compensated by an increase in manifold pressure, it