

Precise Flight Standby Vacuum System

System Description

A Precise Flight Standby Vacuum System may be installed to provide a temporary vacuum system in the event of a primary vacuum failure. The standby vacuum system operates on the differential between the intake manifold and ambient air pressure and is directed through a shuttle system to drive the flight instruments.

CAUTION: The use of the standby vacuum system requires a degree of pilot skill and proficiency that is best maintained through practice. It is recommended - in VFR conditions, in the presence of a safety pilot - that the aircraft be flown at the power settings found on the required placard and entered in the POH or airplane flight manual. This procedure will familiarize the pilot with the limitations of using engine manifold vacuum for instrument power and maintaining level flight.

Instructions

1. The standby vacuum system is for emergency or standby use only and not for dispatch purposes.
2. Vacuum powered or gyro-directed autopilot operation may be unreliable when the standby vacuum system is the sole source of vacuum. Vacuum powered or gyro-directed autopilot should be **OFF** when operating with a failed primary vacuum system.
3. Above 10,000 foot pressure altitude, engine power settings may have to be significantly reduced to provide adequate vacuum power for proper gyro instrument operation.

Normal Procedures

1. **GROUND CHECK.** Cycle the Standby Vacuum Control Knob OUT (**ON**) and return Control Knob IN (**OFF**).
2. **BEFORE TAKEOFF.** Idle Engine at low speed, momentarily pull the standby vacuum knob OUT (**ON**) and check vacuum gauge. Normally, the vacuum reading will be slightly higher. After checking system push Standby Vacuum System knob IN (**OFF**). Check that vacuum gauge has returned to the previous reading.
3. **ENROUTE.** Regularly check vacuum gauge and monitor warning light for proper vacuum system operation.

Emergency Procedures

1. Pull the Standby Vacuum System knob OUT (ON) and adjust throttle setting as required to maintain adequate vacuum for the primary instruments: suction gauge reading in the green arc. If necessary, descend to a lower altitude to obtain a larger differential between manifold and ambient pressure. Vacuum power must be closely monitored by checking the vacuum gauge frequently.
2. The Standby Vacuum System is not designed for continued IFR flight. Immediate steps should be taken to return to VFR conditions or to land. If this is not possible, IFR flight should be continued only as long as necessary to return to VFR conditions or land the airplane.

WARNING: Failure of the vacuum system still constitutes an emergency situation regardless of the installation of the Standby Vacuum System. It may not be possible to maintain a safe altitude and make use of the Standby Vacuum System. In such a situation the airplane must be flown using non-vacuum powered instruments.

3. If descent is impractical:
 - Periodically and temporarily reduce power as required to provide adequate vacuum to the aircraft primary instruments.
 - Reapply power as required, while comparing vacuum driven gyros against the Turn and Bank indicator, Turn Coordinator, VSI and other flight instruments.
When an obvious discrepancy is noted between the vacuum driven instruments and other
 - flight instrumentation: periodically and temporarily reduce power as required to provide adequate vacuum to the aircraft primary instruments.