

FAA APPROVED AIRPLANE FLIGHT MANUAL  
SUPPLEMENT

OR

SUPPLEMENTAL FLIGHT MANUAL

FOR

AIRCRAFT MODEL: \_\_\_\_\_

SERIAL NUMBER: \_\_\_\_\_

REGISTRATION NUMBER: \_\_\_\_\_

This supplement must be attached to the FAA approved Airplane Flight Manual, when the Precise Flight Standby Vacuum has been installed in accordance with STC(s).

SA2160NM, SA2161NM, SA2162NM, SA2164NM, SA2167NM,  
SA2168NM, SA2683NM - Aircraft

&

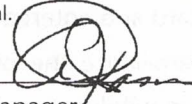
SE1779NM - Lycoming Engine

or

SE1780NM - Continental Engine

The information contained in this document supplements or supersedes the basic manual only in those areas listed. For Limitations, Procedures, and Performance information not contained in this supplement, consult the basic Airplane Flight Manual.

FAA APPROVED: \_\_\_\_\_

  
Manager,

Special Certification Branch

Seattle Aircraft Certification Office

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ISSUED: February 4, 2000

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### 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 valve system to drive your 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, upon recurrent IFR training, in VFR conditions, in the presence of a CFI, that the aircraft be flown at the RPM and or Manifold Pressure settings found on the required placard and entered in this AFMS. This procedure will familiarize the pilot with limitations of using engine manifold vacuum for instrument power and maintaining level flight.

## I. OPERATING LIMITATIONS

### A. INSTRUCTIONS

1. The Standby Vacuum System is for emergency or standby use only and not for dispatch purposes.
2. Vacuum powered and/or Vacuum gyro directed autopilot operation may be unreliable when the Standby Vacuum System is the sole source of vacuum. Vacuum powered or vacuum gyro directed autopilot should be OFF when operating with a failed primary vacuum system.
3. The Supplemental Vacuum System is not designed to operate pneumatic de-ice systems. DO NOT operate a pneumatic de-ice system when operating with a failed primary vacuum system.
4. Above 10,000 ft. pressure altitude, engine power settings may have to be significantly reduced to provide adequate vacuum power for proper gyro instrument operation.
5. The following placards are required to be in full view of pilot:

**I. OPERATING LIMITATIONS (CONT.)**

**B. PLACARDS**

Placard to be located on the push/pull control cable.



Placard to be located around the LED for the pump inop warning light.



Placard to be placed in front and in full view of the pilot.

**STANDBY VACUUM SYSTEM EQUIPPED: FOR  
OPERATING INSTRUCTIONS AND LIMITATIONS  
SEE SUPPLEMENT IN OWNERS MANUAL OR  
PILOTS OPERATING HANDBOOK**

**I. OPERATING LIMITATIONS (CONT.)**

**B. PLACARDS**

One of the following placards must be placed in full view of the pilot near the instrument vacuum indicator after appropriate entries have been made.

Approximate Standby Vacuum Available - Altitude - Power Chart for aircraft with Constant Speed Propeller - Maximum Continuous RPM.

PRESS ALT. (FT.)	RPM	MAN. PRESSURE	SVS VACUUM IN. HG MIN.
2000	Max. Cont.		
4000	Max. Cont.		
6000	Max. Cont.		
8000	Max. Cont.		
10,000	Max. Cont.		

Approximate Standby Vacuum Available - Altitude - Power Chart for aircraft with a Fixed Pitch Propeller.

PRESS ALT. (FT.)	RPM	SVS VACUUM IN. HG MIN.
2000		
4000		
6000		
8000		
10,000		

## II. OPERATING PROCEDURES

### A. NORMAL PROCEDURES

#### 1. GROUND CHECK

- a. Cycle the Standby Vacuum Control Knob  
**OUT - ON** - and return Control Knob  
**IN - OFF** - position.

#### 2. BEFORE TAKEOFF

- a. 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

- a. Regularly check vacuum gauge and monitor warning light for proper vacuum system operation.

## **B. EMERGENCY PROCEDURES**

### **1. PRIMARY VACUUM FAILURE**

#### **WARNING LIGHT ILLUMINATES**

- a. 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 - Ref Chart/ Placard 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.
- b. The SVS 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 SVS. IT MAY NOT BE POSSIBLE TO MAINTAIN A SAFE ALTITUDE AND MAKE USE OF THE SVS. IN SUCH A SITUATION THE AIRPLANE MUST BE FLOWN USING NON-VACUUM POWERED INSTRUMENTS.**

## **B. EMERGENCY PROCEDURES (CONT.)**

- c. 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/or 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.

## **III. PERFORMANCE**

**NO CHANGE**