

OPERATING INSTRUCTIONS

THIS SECTION IS DESIGNED:

1. To help you operate your Seneca with safety and confidence.
2. To more fully acquaint you with the basic performance and handling characteristics of the airplane.
3. To more fully explain your Seneca's operation than is permissible to set forth in the Airplane Flight Manual.

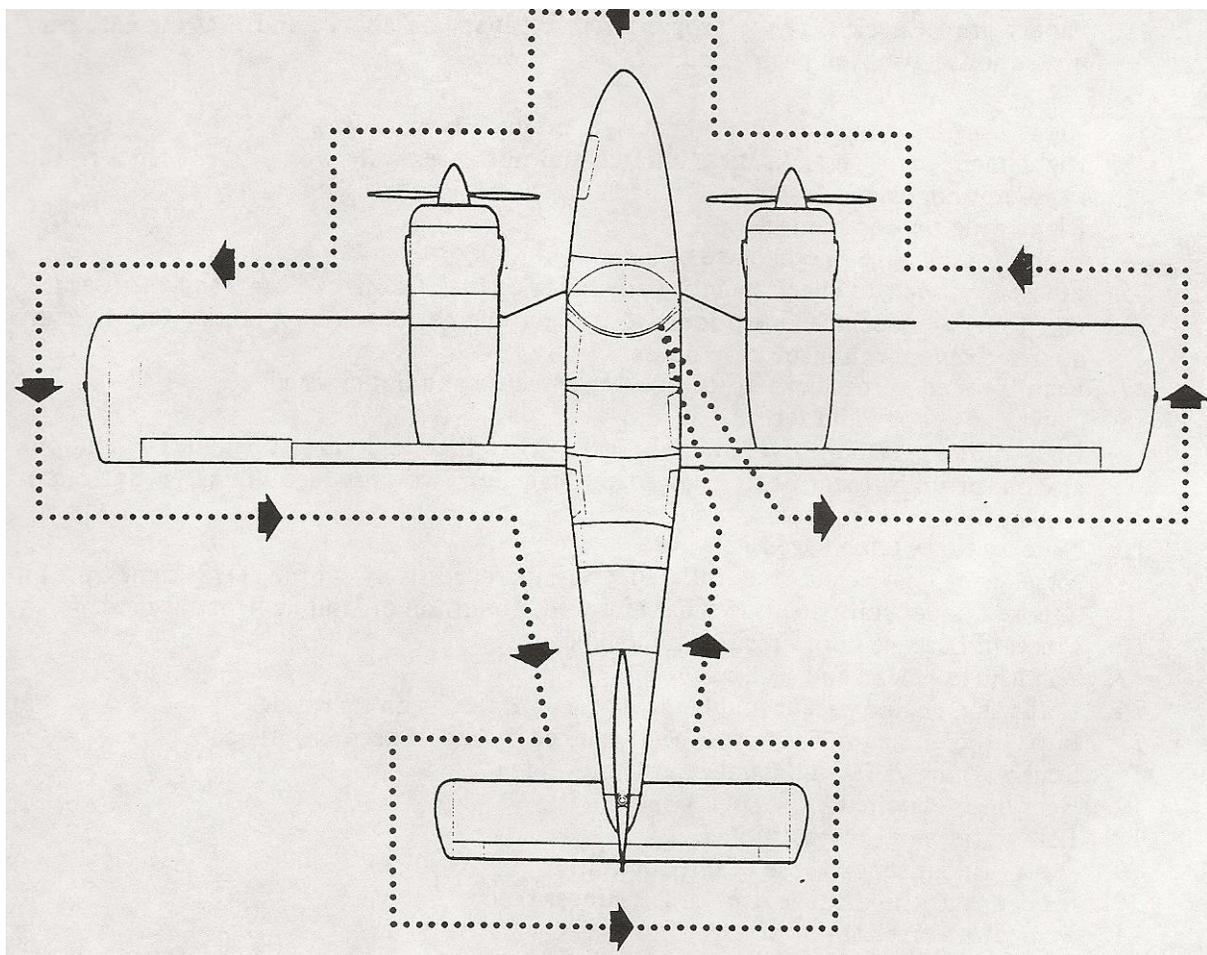
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OPERATING INSTRUCTIONS

PREFLIGHT

If you are planning a flight in the Seneca:

1. Make sure the weather is suitable.
2. Plan the navigation (if going cross-country).
3. Check weight and balance for the flight. (See weight and balance section of this manual.)
4. Investigate performance and range. (See performance section of this manual.)



WALK-AROUND INSPECTION**In Cabin**

1. Landing gear control -Ensure that it is in the "DOWN" position.
2. Avionics- Turn off, to save power and wear on the units.
3. Master switch- Turn on.
4. Landing gear lights- Three green lights should be illuminated. No red light.
5. Fuel quantity- Ensure adequate for flight plus reserve.
6. Cowl flaps- Open to facilitate inspection and ensure cooling after engine start.
7. Master switch - Turn off to save battery.
8. Ignition switches - should be off to prevent inadvertent start during inspection of propeller.
9. Mixture controls - should be in idle cut-off position, again to prevent inadvertent engine start.
10. Trim indicators- Set to neutral so that tabs may be checked for alignment.
11. Flaps - Extend and retract to check operation. This should be done before engine start so that you can hear any noise which might indicate binding.
12. Control locks - Unlock, and check control motion.
13. Fasten seat belts snugly on empty seats.
14. Drain pitot and static systems before flight.
15. Paperwork - Check that the proper aircraft papers are aboard and that the necessary inspections have been performed.

Outside Airplane

1. Right wing, aileron and flap - no damage, no ice. Check hinges.
2. Right main gear- no leaks, tires inflated and not excessively worn, 3-1/2 inches piston exposed under static load.
3. Right wing tip- no damage.
4. Right leading edge- no damage or ice.
5. Fuel cap - open to check quantity and color of fuel. Check cap vent. and then secure.
6. Right engine nacelle -Open doors to inspect engine. Check oil quantity- six to eight quarts. Secure both inspection doors.
7. Right propeller- no nicks or leaks, spinner secure and not cracked.
8. Cowl flaps- open and secure.
9. Fuel drains - Drain five on right side: two fuel tank drains (under wing), one gascolator drain (near bottom of engine nacelle), two crossfeed drains on bottom of fuselage inboard from wing flap.
10. Nose section- undamaged.
11. Nose gear - no leaks, tire inflated and not excessively worn. 2-1/2 inches piston exposed under static load, tow bar removed, condition of landing light checked.
12. Forward baggage door - secure and locked.
13. Windshield -clean and secure.
14. Left wing, engine nacelle and landing gear- inspect as on right side.
15. Pitot tube - hole unobstructed, heat checked by feel if need is anticipated.
16. Stall warning vanes- no damage, free movement.
17. Rear door -latched.
18. Left static vent- unobstructed.
19. Dorsal fin air scoop- free of obstruction.
20. Empennage- no damage, free of ice, hinges secure.
21. Stabilator- freedom of motion.
22. Right static vent- unobstructed.
23. Antennas- secure and undamaged.
24. Navigation and landing lights- check (after master switch and light switches have been turned on in cabin).

BEFORE STARTING ENGINES

1. Seats adjusted
2. Seat belts, shoulder harness – fastened
3. Parking brake – set
4. Circuit breakers – in
5. Radios – off
6. Cowl flaps – open
7. Alternate air – off
8. Alternators – on

STARTING ENGINES

1. Mixture controls – idle cut-off
2. Throttle controls – open 1/2 inch
3. Propeller controls – forward
4. Master switch – on
5. Ignition switch – on
6. Electric fuel pumps – on
7. Mixture controls – move to rich position until a fuel flow is indicated and stabilized: then move to idle cut-off.
8. Propeller – clear
9. Starter – engage
10. Mixture control – advance as engine starts.
11. Oil pressure – check to see that the oil pressure comes up within 30 seconds, (except in very cold weather, when it may take somewhat longer). If the oil pressure does not show an indication, shut down the engine and have it checked.
12. Repeat steps 8 through 11 with the other engine.
13. Electric fuel pumps – off; check fuel pressure.

HOT START

1. Mixture controls – idle cut-off
2. Throttle controls – open 1/2 inch
3. Propeller controls – forward
4. Master switch – on
5. Ignition switch – on
6. Electric fuel pumps – off
7. Propeller – clear
8. Starter – engage
9. Mixture control – advance as engine starts.
10. Repeat steps 7 through 9 with the other engine.
11. If an engine does not start with the above method, which omits the priming, use the normal starting procedure, which includes priming.

NOTE

To prevent starter damage, limit starter cranking to 30-second periods. If the engine does not start within that time, allow a cooling period of several minutes before engaging starter again. Do not engage the starter immediately after releasing it. This practice may damage the starter mechanism.

FLOODED START

1. Mixture control- idle cut-off
2. Throttle control - full forward
3. Propeller control- forward
4. Master switch - on
5. Ignition switches- on
6. Electric fuel pump - off
7. Propeller - clear
8. Starter- engage
9. When engine fires, retard throttle and advance mixture slowly.

STARTING ENGINES WITH AID OF EXTERNAL ELECTRIC POWER

An optional feature known as Piper External Power (PEP) allows the operator to use an external battery to crank the engine without having to gain access to the aircraft battery.

The procedure is as follows:

1. Turn aircraft MASTER SWITCH to OFF.
2. Connect RED lead to PEP kit jumper cable to POSITIVE (+) terminal of external 12 volt battery and BLACK lead to NEGATIVE(-) terminal.
3. Insert plug of jumper cable into socket located on aircraft fuselage.
4. Turn aircraft MASTER SWITCH to ON and proceed with NORMAL engine starting technique.
5. After engine has been started, turn MASTER SWITCH to OFF and remove jumper cable plug from aircraft.
6. Turn aircraft MASTER SWITCH to ON and check alternator ammeter for indication of output. DO NOT ATTEMPT FLIGHT IF THERE IS NO INDICATION OF ALTERNATOR OUTPUT.

TAXI

Before taxiing, the brakes should be checked by moving forward a few feet, throttling back and applying pressure on the toe pedals. As much as possible, turns during taxiing should be made using rudder pedal motion and differential power (more power on the engine on the outside of the turn, less on the inside engine) rather than brakes. The following equipment may be checked during taxiing:

1. Instruments - turn indicator, directional gyro, coordination ball
2. Heater and defroster- especially important on a cold day
3. Fuel selector - Place each selector on "CROSSFEED" for a short time, while the other selector is in the "ON" position. Return selectors to the "ON" position. Do not attempt takeoff with selector on "CROSSFEED."

The autopilot, if installed, should be off during taxiing, and the electric fuel pump should be off in order to check the operation of the engine-driven fuel pump.

PRETAKE-OFF CHECK

A thorough check should be made before take-off, using a check list. Before advancing the throttle to check the magnetos and the propeller action, be sure that the engine is warm enough to accept the power if it is a cold day. If there is no hesitation in engine action when the throttle is advanced, the engine is warm enough.

1. Parking brake - on
2. Engine run-up
 - a. Mixture controls- forward
 - b. . Propeller controls- forward
 - c. Throttle controls- forward to 1500 RPM
 - d. . Propeller controls -Check the feather position by bringing the propeller controls fully back and then to the full forward position. The RPM should drop to 1000 RPM in 1 - 3 seconds. If more time is required, the propeller dome pressure may be excessively low resulting in a danger of propeller overspeed or loss of feathering capability.
 - e. Throttle controls- forward to 2000 RPM
 - f. Propeller controls - Exercise to check governor. Retard control until a 200 to 300 drop in RPM is indicated. This should be done three times on the first flight of the day. The governor can be checked by retarding the propeller control until a drop of 100 RPM to 200 RPM appears, then advancing the throttle to get a slight increase in manifold pressure. The propeller speed should stay the same when the throttle is advanced, thus showing that the governor is governing.
 - g. Propeller controls- full forward
 - h. Alternate air controls - on, then off again. There should be a drop in RPM when the control is placed in the "ON" position, since heated air is being supplied to the engine. Do not check the alternate air on the ground if dusty air conditions prevail.
1. Magnetos - check
 - Normal drop- 100 RPM
 - Maximum drop- 175 RPM
 - Maximum differential drop- 50 RPM
- j. Alternator output- check, approximately equal output for both alternators
- k. Throttles - 800-1000 RPM

3. Fuel- 'ON" position
4. Alternators - on
5. Engine gauges - in the green
6. Vacuum gauge- 4.5 to 5.2 in. Hg.
7. Altimeter- set
8. Attitude indicator- set
9. Clock- wound and set
10. Mixture - set
11. Propellers - set in forward position
12. Quadrant friction - adjusted
13. Alternate air- off
14. Cowl flaps- set
15. Seat backs- erect
16. Wing flaps- set
17. Trim (stabilator and rudder)- set
18. Seat belts and shoulder harness- fastened
19. Empty seats- seat belts snugly fastened
20. Controls- free, full travel
21. Doors -latched
22. Electric fuel pumps - on
23. Pitot heat - as required

The normally recommended procedure for sea level take-off is full throttle at 2700 RPM. During pretake-off check at a high elevation, lean the mixture to obtain maximum power. Apply full throttle ; then lean the mixture until the fuel flow pointer stabilizes at a fuel consumption mark consistent with the density altitude (about 14.9 for 2000-foot elevation, 14.0 for 4000-foot elevation and 13.3 for 6000-foot elevation). Leave the mixture in this position for take-off. Do not overheat the engine when operating with mixture leaned. If overheating occurs, enrich the mixture enough that temperature returns to normal.

TAKE-OFF

Take-off should not be attempted with ice or frost on the wings. Take-off distances and 50-foot obstacle clearance distances are shown on charts in the Performance section of this manual. The performance shown on charts will be reduced by uphill gradient, tailwind component, or soft, wet, rough or grassy surface.

Avoid fast runs onto the runway, followed by immediate take-off, especially with a low fuel supply. As power is applied at the start of the take-off roll, look at the engine instruments to see that the engines are operating properly and putting out normal power, and at the airspeed indicator to see that it is functioning.

Normal Take-off (Flaps Up)

When obstacle clearance is no problem, a normal take-off may be used. Accelerate to 80-85 MPH and ease back on the wheel enough to let the airplane lift off. After lift-off, accelerate to the best rate of climb speed (105 MPH) or higher if desired, retracting the landing gear when a gear-down landing is no longer possible on the runway.

Short Field Take-off (Flaps Up)

When a short field effort is required but the situation presents a wide margin on obstacle clearance, the safest short field technique to use is with the flaps up. In the event of an engine failure, the airplane is in the best flight configuration to sustain altitude immediately after the gear is raised. Set the stabilator trim indicator in the take-off range. Set the brakes and bring the engines to full power before release. Accelerate to 80 MPH and rotate the airplane firmly so that the airspeed is approximately 85 MPH when passing through the 50-foot height. The airplane should then be allowed to accelerate to the best angle of climb speed (90 MPH at sea level) if obstacle clearance is necessary, or best rate of climb speed (105 MPH) if obstacles are not a problem. The landing gear should be retracted when a gear-down landing is no longer possible on the runway. The distances for this take-off procedure are given on a chart in the performance section of this manual.

Short Field Take-off (25-degree Flaps)

When the shortest possible ground roll and the greatest clearance distance over a 50-foot obstacle is desired, use a 25-degree flap setting (second notch). Set the stabilator trim indicator slightly nose up from the take-off range. Set the brakes and bring the engines to full power before release. Accelerate to 70 MPH and rotate firmly so that when passing through the 50-foot height the airspeed is approximately 80 MPH. Retract the gear when a gear down landing is no longer possible on the runway.

It should be noted that the airplane is momentarily below V_{mc} when using the above procedure. IN THE EVENT THAT AN ENGINE FAILURE SHOULD OCCUR WHILE THE AIRPLANE IS BELOW V_{mc} IT IS MANDATORY THAT THE THROTTLE ON THE OPERATING ENGINE BE RETARDED AND THE NOSE LOWERED IMMEDIATELY TO MAINTAIN CONTROL OF THE AIRPLANE. It should also be noted that when a 25-degree flap setting is used on the take-off roll, an effort to hold the airplane on the runway too long may result in a "wheelbarrowing" tendency. This should be avoided.

The distances required using this take-off procedure are given on a chart in the Performance section of this manual.

DOOR OPEN ON TAKE-OFF

If either the main or rear cabin door is inadvertently left open or partially open on take-off, fly the airplane in a normal manner and return for a landing to close the door on the ground. If a landing cannot be made, it may be possible to close a door in flight in the following manner :

1. Maintain airspeed between 100 and 110 MPH.
2. Open the storm window.
3. Pull the door closed, making certain the upper latch is properly positioned.
4. Close the upper latch. It may be necessary to pull in on the upper portion of the door while the latch is being closed.

It is necessary to have someone in the airplane in addition to the pilot to carry out this procedure. If the door, either main or rear, cannot be closed in flight it is possible to continue safely for an extended period. In this case, the airspeed should be kept below 125 MPH and above 100 MPH to prevent buffeting as a result of the open door.

CLIMB

On climb-out after take-off, the best angle of climb speed (90 MPH at sea level) should be maintained until obstacles are cleared. The best rate of climb speed (105 MPH at sea level) should be maintained with full power on the engines until approximately 500 feet AGL. The best rate of climb speed decreases slightly with increased density altitude and the best angle of climb speed increases slightly. There is no time limit on full power engine operation. However, since full power requires a high fuel consumption and is unnecessary in most flight situations, it is advisable to reduce to a climb power setting any time after 500 feet AGL. When reducing power, the throttles should be retarded first, then the propeller controls. An en route climb speed of 120 MPH provides good visibility, climb performance and engine cooling.

Cylinder head temperatures should be monitored during climb and should be kept below 475 ° at all times. Better climb performance is attained with cowl flaps closed; however, cowl flap position should be adjusted for proper engine cooling during climb. The electric fuel pumps may be turned off one at a time above 500 feet AGL, and fuel pressure should be monitored as each pump is turned off, to see that the pressure stays in the green.

NORMAL CRUISE

When leveling off at cruise altitude, the pilot may reduce to a cruise power setting in accordance with the Power Setting Table in this manual. The mixture should be leaned in accordance with the recommendations for the 10-360-C engine in the Lycoming Operator's Manual which is provided with the aircraft.

For maximum service life, cylinder head temperature should be maintained below 435°F. during high performance cruise operation and below 400°F. during economy cruise operation. If cylinder head temperatures become too high during flight, reduce them by enriching the mixture, by opening cowl flaps, by reducing power, or by use of any combination of these methods.

Following level-off for cruise, the electric fuel pumps should be checked for being off. The cowl flaps should be closed or adjusted as necessary to maintain proper cylinder head temperatures. and the airplane should be trimmed to fly hands off.

The pilot should monitor weather conditions while flying and should be alert to conditions which might lead to induction system icing. Snow or freezing rain could result in icing of the air filter. Since alternate air is controlled manually by the pilot (not automatically), it should be turned on any time icing may occur. If the flight has been through rain in air that is above freezing and is then continued into an air mass which is below freezing, moisture which has collected in the air filter may subsequently freeze. Since the alternate air system of the Seneca supplies heated air, it is an excellent protection against induction icing if it is applied soon enough in an icing situation.

WARNING

Flight in icing conditions is prohibited unless aircraft is equipped with approved deicing equipment. If icing is encountered immediate action should be taken to fly out of icing conditions. Icing is hazardous due to greatly reduced performance, loss of forward visibility, possible longitudinal control difficulties due to increased control sensitivity, and impaired power plant and fuel system operation.

The ammeters for the electrical system should be monitored during flight, especially during night or instrument flight so that corrective measures can be taken in case of malfunction. The procedures for dealing with electrical failures are contained in the Airplane Flight Manual portion of this manual. The sooner a problem is recognized and corrective action taken, the greater is the chance of avoiding total electrical failure.

It is not recommended to take-off into IFR operation with a single alternator. During flight, electrical loads should be limited to 50 amperes for each alternator. Although the alternators are capable of 60 amperes output, limiting loads to 50 amperes will assure battery charging current.

Since the Seneca has one combined fuel tank per engine, it is advisable to feed the engines symmetrically during cruise so that approximately the same amount of fuel will be left in each side for the landing. A crossfeed is provided and can be used to even up the fuel should it be necessary.

During flight, keep account of time and fuel used in connection with power settings to determine how the fuel flow and fuel quantity gauging systems are operating. If the fuel flow indication is considerably higher than the fuel actually being consumed or an asymmetric flow gauge indication is observed, you may have a clogged fuel nozzle, which should be cleaned.

There are no mechanical uplocks in the landing gear system. In the event of a hydraulic system malfunction, the landing gear will free-fall to the gear down position. The true airspeed with gear down is approximately 75% of the gear retracted airspeed for any given power setting. Allowances for the reduction in airspeed and range should be made when planning extended flight between remote airfields or flight over water.

DESCENT

When power is reduced for descent, the mixtures should be enriched as altitude decreases. The propellers may be left at cruise setting; however if the propeller speed is reduced, it should be done after the throttles have been retarded.

APPROACH AND LANDING

Sometime during the approach for a landing, the throttle controls should be retarded to check the gear warning horn. Flying the airplane with the horn inoperative is not advisable. It can lead to a gear up landing as it is easy to forget the landing gear, especially when approaching for a single-engine landing, when other equipment is inoperative, or when attention is drawn to events outside the cabin.

Prior to entering the traffic pattern, the aircraft should be slowed to approximately 115 MPH, and this speed should be maintained on the downwind leg. The landing check should be performed on the downwind leg:

1. Seat backs- erect
2. Seat belts and shoulder harness- fastened
3. Fuel selectors- "ON"
4. Cowl flaps- set as required
5. Electric fuel pumps- on
6. Mixture controls- rich
7. Propellers- set to 2500 RPM
8. Landing gear- down (three green lights and nose wheel in mirror)
9. Flaps - set as required; 125 MPH maximum airspeed

The landing gear should be lowered at speeds below 150 MPH and the flaps at speeds as follows:

10° (first notch)	160 MPH maximum
25° (second notch)	140 MPH maximum
40° (third notch)	125 MPH maximum

Maintain a speed of 115 MPH on the downwind leg, 110 MPH on base leg, 110 MPH during the turn onto final approach, and 95 MPH on final approach. If the aircraft *is* lightly loaded, the final approach speed may be reduced to 90 MPH.

When the power is reduced on close final approach, the propeller controls may be advanced to the full forward position to provide maximum power in the event of a go-around.

The landing gear position should be checked on the downwind leg and again on final approach by checking the three green indicator lights on the instrument panel and looking at the external mirror to check that the nose gear is extended. Remember that when the navigation lights are on, the gear position lights are dimmed and are difficult to see in the daytime.

Flap position for landing will depend on runway length and surface wind. Full flaps will reduce stall speed during final approach and will permit contact with the runway at a slower speed. Good pattern management includes a smooth, gradual reduction of power on final approach, with the power fully off before the wheels touch the runway, to give the horn a chance to blow if the gear is not locked down. If electric trim is available, it can be used to assist a smooth back pressure during flare-out.

Maximum braking after touch-down is achieved by retracting the flaps, applying back pressure to the wheel and applying pressure on the brakes. However, unless extra braking is needed or unless a strong crosswind or gusty air condition exists, it is best to wait until turning off the runway to retract the flaps. This will avoid reaching for the gear handle instead of the flap handle by mistake and will permit full attention to be given to the landing and landing roll.

Normal Landing

Approach with full flaps (40 degrees) and partial power until shortly before touch-down. Hold the nose up as long as possible before and after contacting the ground with the main wheels.

Short Field Landing

Approach with full flaps at 87 MPH CAS. Immediately after touch-down, raise the flaps, apply back pressure to the wheel and apply brakes.

Crosswind or High-wind Landing

Approach with higher than normal speed and with zero to 25 degrees of flaps. Immediately after touch-down, raise the flaps. During a crosswind approach hold a crab angle into the wind until ready to flare out for the landing. Then lower the wing that is into the wind, to eliminate the crab angle without drifting, and use the rudder to keep the wheels aligned with the runway. Avoid prolonged side slips with a low fuel indication.

The maximum crosswind component for landing is 15 MPH.

POST LANDING

After leaving the runway:

1. Wing flaps- retract
2. Cowl flaps - fully open
3. Electric fuel pumps- off

SHUTDOWN

1. Radio and electrical equipment - off
2. Mixture controls- idle cut-off
3. Magneto switches - off
4. Master switch - off
5. Parking brake- on

AIRSPEED DATA

All airspeeds quoted in this manual are calibrated unless otherwise noted. Calibrated airspeed is indicated airspeed corrected for instrument and position errors. The following table gives the correlation between indicated airspeed and calibrated airspeed for the Seneca if zero instrument error is assumed. When below 90 MPH IAS, this calibration is valid only when level flight is maintained using power as required to prevent rapid altitude changes.

AIRSPEED CORRECTION TABLE

Flaps 0°										
IAS- MPH	70	80	90	100	120	140	160	180	200	218
CAS-MPH	72	82	92	102	122	142	161	181	200	217
Flaps 40°										
IAS- MPH	70	80	90	100	110	120	127			
CAS-MPH	70	80	89	99	109	118	125			

ROUGH AIR FLIGHT

In conditions of extreme turbulence, reduce power to slow the airplane to slightly below the design maneuvering speed, which varies from 133 MPH at light weight to 146 MPH at 4200 pounds gross weight. When flying in extreme turbulence or strong vertical currents and using the autopilot, the altitude-hold mode should not be used.

V_{mc}- MINIMUM SINGLE-ENGINE CONTROL SPEED

V_{mc} is the calibrated airspeed below which a twin-engine aircraft cannot be controlled in flight with one engine operating at take-off power at sea level density altitude and the other engine windmilling. V_{mc} for the Seneca has been determined to be 80 MPH. Under no circumstances should an attempt be made to fly at a speed below this V_{mc} with only one engine operating. As a safety precaution, when operating under single-engine flight conditions either in training or in emergency situations, maintain an indicated airspeed above 90 MPH.

The V_{mc} demonstration required for the FAA flight test for the multi-engine rating approaches an uncontrolled flight condition with power reduced on one engine. The demonstration should not be performed at an altitude of less than 3500 feet above the ground. Initiate recovery during the demonstration by immediately reducing power on the operating engine and promptly lowering the nose of the airplane.

More power is available on the operating engine at lower altitudes and hence there can be more asymmetric thrust. The V_{mc} is highest at low altitudes. Since V_{mc} decreases with altitude, at higher altitudes the airplane will approach a stall before reaching V_{mc}. The most critical situation occurs at the altitude where the stall speed and V_{mc} speed coincide. Care should be taken to avoid this flight condition because at this point loss of directional control occurs at the same time the airplane stalls and a spin could result.

NOTE

SINGLE ENGINE STALLS ARE NOT RECOMMENDED.

OPERATION IN KNOWN ICING CONDITIONS

The Piper Seneca is approved for flight into known icing conditions when equipped with the complete Piper Ice Protection System. Operating in icing conditions in excess of the Continuous Maximum and Intermittent Maximum as defined in FAR 25 Appendix C has been substantiated; however, there is no correlation between these conditions and forecast or reported "Light, Moderate and Severe" conditions. Therefore, on the basis of flight tests the following guidelines should be observed:

1. Flight into Severe icing is prohibited.
2. Moderate icing conditions above 10,000 ft. should be avoided whenever possible: if moderate icing conditions are encountered above 10,000 ft. a descent to a lower altitude should be initiated if practical.
3. Light icing is approved at all altitudes.

Icing conditions of any kind should be avoided wherever possible, since any minor malfunction which may occur is potentially more serious in icing conditions. Continuous attention of the pilot is required to monitor the rate of ice buildup in order to effect the boot cycle at the optimum time. Boots should be cycled when ice has built to between 1/4 and 1/2 inch thickness on the leading edge to assure proper ice removal. Repeated boot cycles at less than 1/4 inch can cause a cavity to form under the ice and prevent ice removal; boot cycles at thicknesses greater than 1/2 inch may also fail to remove ice.

Icing conditions can exist in any clouds when the temperature is below freezing; therefore it is necessary to closely monitor outside air temperature when flying in clouds or precipitation. Clouds which are dark and have sharply defined edges contain high water content and should be avoided whenever possible. Freezing rain must always be avoided.

The following listing contains a few of the more highly recommended operating procedures for flight in icing conditions.

1. Perform careful functional check of ice protection systems before flight. Turn on Pitot Heat, Windshield Heat and Propeller Heat for 30 seconds and feel for heat.
2. Avoid forecast icing conditions when possible.
3. When flying in clouds or precipitation monitor temperature closely.
4. Turn on windshield defroster and pitot heat before entering icing conditions.
5. Turn on Propeller Heat and Windshield Heat immediately upon entering icing conditions. Cycle boots as required.
6. Review Flight Manual procedures before any flight which might encounter icing conditions.
7. Plan an alternate airport whenever flying in ice.

EMERGENCY PROCEDURES

Procedures for handling in-flight emergencies and equipment malfunctions are detailed in the Airplane Flight Manual section. These should be read and followed by the pilot.

PIPER AUTOMATIC LOCATOR*

The Piper Automatic Locator, when installed, is located in the aft portion of the fuselage just below the stabilator leading edge and is accessible through a plate on the right side of the fuselage. It is an emergency locator transmitter which meets the requirements of FAR 91.52. The unit operates on a self-contained battery.

The battery has a useful life of four years. However, it complies with FAA regulations, it must be replaced after two years of shelf life or service life. The battery should also be replaced if the transmitter has been used in an emergency situation or if the accumulated test time exceeds one hour. The replacement date is marked on the transmitter label.

The unit has a three position selector switch placarded OFF, ARM and ON. The ARM position is provided to set the unit to the automatic position so that it will transmit only after impact and continue to transmit until the battery power is drained to depletion or the switch is manually moved to the OFF position. The ARM position is selected when the locator is installed at the factory and should remain in that position whenever the unit is installed in the aircraft. The ON position is provided so the unit can be used as a portable transmitter or in the event the automatic feature was not triggered by impact or to check the function of the transmitter periodically.

The OFF position is provided for the purpose of changing the battery or to prolong the service life of the battery if used as a portable transmitter or rearming the unit if it should be activated for any reason.

NOTE

If the switch has been placed in the ON position for any reason, the OFF position has to be selected before selecting ARM. If ARM is selected directly from the ON position the transmitter will continue to transmit in the ARM position.

Attached to the unit is a portable antenna, provided so that the locator may be removed from the aircraft, in case of an emergency, and used as a portable signal transmitter.

The locator should be checked during the Ground Check to make certain the unit has not been accidentally activated. Check by tuning a radio receiver to 121.5 MHz. If you hear an oscillating audio sound the locator may have been activated and should be turned off immediately. Reset to ARM position and check again to insure against outside interference.

*Optional equipment