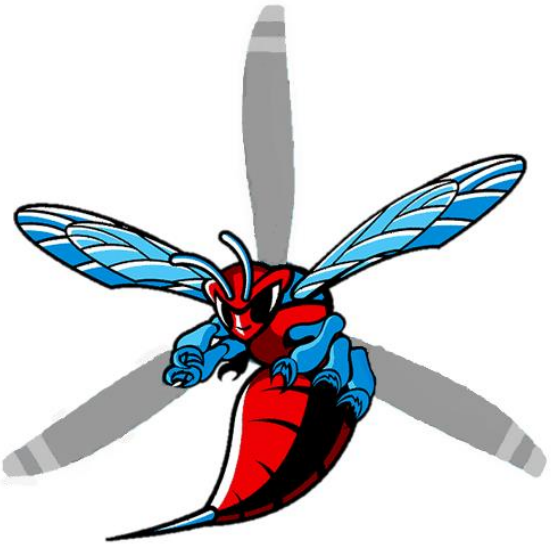
PILOT'S CHECKLIST



Seminole
PA-44-180
N747DS

Delaware State University
Making our mark on the world

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REVISIONS

Changes and/or additions in this checklist will be covered by Owner Advisories Published by the aircraft manufacturer. It is the responsibility of DSU to maintain this checklist in a current status when it is used for operational purposes. Additional checklist procedures may be inserted within the manufacture's procedures by DSU Flight Operations

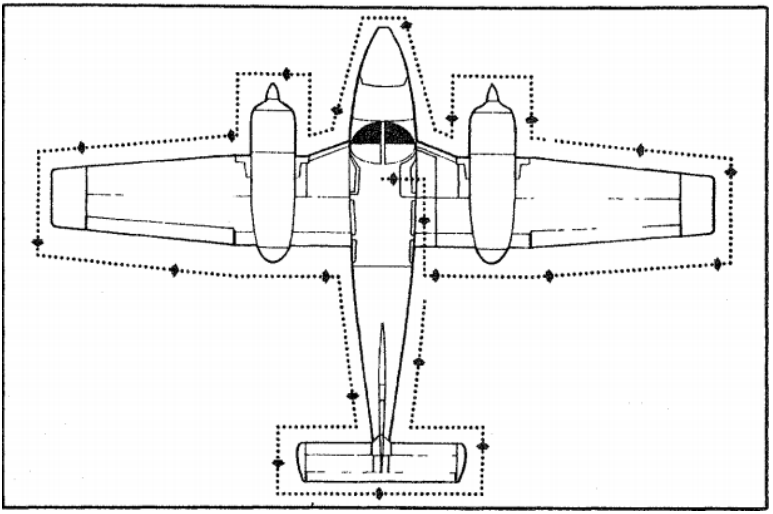
LOG OF REVISIONS

Revisions to this checklist shall supersede all previous revisions in its entirety as listed below. All previous checklists should be discarded.

Revision	Date
Original Issue	08/21/2020

ALL REFERENCES TO SECTIONS THROUGHOUT THIS CHECKLIST PERTAIN TO THE APPROPRIATE SECTION OF THE PILOT'S OPERATING HANDBOOK (POH) SHOULD ANY LIMITATION OR PROCEDURAL DIFFERENCE EXIST, THE MORE RESTRICTIVE SHALL APPLY

NORMAL PROCEDURES



Visually check airplane for general condition during walk around inspection. In cold weather, remove even the smallest of accumulations of frost, ice or snow from the aircraft per the DSU FOM. If a night flight is planned, check operation of all lights and ensure a flashlight is available. For detailed information and explanation of these procedures, refer to POH.

Procedures in the following Normal Checklist shown in **bold-faced** should be committed to memory

PREPARATION

Aircraft Status .....AIRWORTHY
REQUIRED PAPERS On Board
Flight Log ……..…….. CHECK FOR OPEN SQUAWKS
100 Hour/Annual /VOR Insp ..... CHECK
Hobbs/Tach Meters …..... RECORD
Weather …..... SUITABLE
Weight and C.G. ….....COMPUTED WITHIN LIMITS
Navigation ..... PLANNED
Charts and Navigation equipment ….....…..... ON BOARD
Performance and Range ..... COMPUTED AND SAFE
Covers and Plugs ……..…… REMOVED and STOWED
Pitot Cover ….....…… REMOVED and STOWED
Tow bar ..... REMOVED and STOWED
Baggage …..... WEIGHED, STOWED, SECURED

PREFLIGHT

COCKPIT

Parking Brake ..... SET
Control Wheel ..... RELEASE RESTRAINTS
Flight Controls ..... FREE and CORRECT
Static System ..... DRAIN
Alternate Static Source ..... CLOSED
Gear Control ..... DOWN
Throttles ..... IDLE
Prop Controls ..... FULL FORWARD
Mixture Controls ..... IDLE CUTOFF
Alternate Air Controls ..... CLOSED
Cowl Flaps ..... OPEN
Fuel Selectors ..... BOTH ON
Rudder and Stabilator Trim ..... NEUTRAL
Circuit Breakers ..... CHECK IN
CABIN HEAT Switch ..... OFF
Avionics Master .....OFF
All Other Switches .....OFF
LEFT/RIGHT FUEL PUMPs ..... OFF
LEFT/RIGHT Mag Switches..... OFF
BATT MASTR Switch ..... ON
Landing Gear Indicators ..... 3 GREEN
PFD ..... CHECK NO RED Xs
EIS ..... CHECKED ON
Fuel Quantity Indicators ..... CHECK QUANTITY
Interior Lights (Night Flight) ..... CHECK OPERATION
Navigation Lights Switch ..... ON
Strobe Light Switch ..... ON
LDG Light Switch ..... ON
TAXI Light Switch .....ON
Pitot Heat Switch ..... ON

Walk around to check lights, stall indicator and Pitot Heat

Landing/Taxi lights ..... ILLUMINATED
Pitot Heat ..... CHECKED
Stall Warning Horn ..... OPERATIONAL
ALL other external lights ..... ILLUMINATED
ALL Light and Pitot Heat Switches ..... OFF
BATT MASTR Switch ..... OFF
Flaps ..... SET 40°
Empty Seats ..... FASTEN SEAT BELTS
Emergency Exit ..... CLOSED and LOCKED

CAUTION
If the emergency exit is unlatched in flight, it may separate and damage the exterior of the airplane.

ELT Remote Switch ……..... CHECKED SET to “ARM”
Fire Extinguisher ….....…… CHECK SECURE and EXPIRATION

RIGHT WING

Fuel Sump Drains …….....……..... DRAIN
CHECK FOR WATER
SEDIMENT AND PROPER FUEL
Surface Condition…..... FREE OF ICE SNOW, FROST
Flap and Hinges ..... CHECK
Aileron, Hinges & Freedom of Movement ..... CHECK
Static Wicks …..... CHECK SECURE
Wing Tip and Lights ..... CHECK
Leading Edge Condition .....…….....….....CHECK
Tie Down ..... REMOVE
Air Inlets ..... CLEAR
Fuel Tank Vent …..... CHECK OPEN
Scupper Drain ..... CLEAR
Nacelle Fuel Filler Cap ..... CHECK SUPPLY VISUALLY
SECURE CAP and COVER
Oil Quantity ..... CHECK LEVEL
Dipstick …..... PROPERLY SEATED
Oil filler Door …….....……..……SECURE
Propeller & Spinner …….....…… CHECK
Cowl Plugs ..... REMOVED
Air Inlets ..... CLEAR
Cowl Flap Area …….....…… CHECK
Cowling ..... SECURE
Main Gear Strut .....…..... CHECK
(2.60±0.25”)
Tire Condition ..... CHECK
Brake Blocks/Caliper/Pad …..... CHECK
Hydraulic Lines ..... CHECK
Chock …….....…..…… REMOVED

NOSE SECTION

Windshield ..... CLEAN
Nose Gear Strut .....CHECK
(2.70±0.25")
Nose Wheel Tire ..... CHECK
Heater Air Inlet ..... CLEAR
Battery Vents ..... CLEAR
Landing Lights ..... CHECK
Chock ..... REMOVE

LEFT WING

Surface Condition..... FREE OF ICE SNOW, FROST
Leading Edge Condition .....CHECK
Main Gear Strut ..... CHECK
(2.60±0.25")
Tire Condition ..... CHECK
Brake Blocks/Caliper/Pad ..... CHECK
Hydraulic Lines ..... CHECK
Chock .....REMOVED
Propeller & Spinner ..... CHECK
Cowl Plugs ..... REMOVED
Air Inlets ..... CLEAR
Scupper Drain ..... CLEAR
Fuel Tank Vent ..... CHECK OPEN
Tie Down ..... REMOVE
Cowl Flap Area ..... CHECK
Cowling ..... SECURE
Oil Quantity ..... CHECK LEVEL
Dipstick ..... PROPERLY SEATED
Oil filler Door .....SECURE
Nacelle Fuel Filler Cap ..... CHECK SUPPLY VISUALLY
SECURE CAP and COVER
Stall Warning Detector ..... CHECK
Pitot Tube ..... CHECK
Wing Tip and Lights ..... CHECK
Static Wicks ..... CHECK SECURE
Aileron, Hinges & Freedom of Movement ..... CHECK
Flap and Hinges ..... CHECK

FUSELAGE, Left Side

Condition …............................ FREE OF ICE, SNOW, FROST
Emergency Exit .... CHECK
Windows…………..…........................…………………. CHECK
Antennas .... SECURE
Fresh Air Inlet .... CLEAR

EMPENNAGE

Condition …............…….…. FREE OF ICE SNOW, FROST
Stabilator, Trim Tab & Freedom of Movement .... CHECK
Rudder, Trim Tab & Freedom of Movement .... CHECK
Static Wicks ….. CHECK SECURE
Tie Down ….. REMOVE

FUSELAGE, Right Side

Condition …............................... FREE OF ICE SNOW, FROST
Windows ……... CHECK
Baggage Door ……...........................………………... CHECK
Cabin Door .... CHECK

BEFORE STARTING ENGINE

Pre-Flight Inspection ……...........................…………COMPLETE
Cabin Door ….................. CLOSE and SECURE AS REQUIRED
Passenger Safety Brief …... BRIEFED
Empty Seats …................................SEAT BELTS FASTENED
Seats ……………..........…...............…….… ADJUSTED
Belts and Harnesses ….. SECURE
PARK BRAKE .... SET
LANDING GEAR CONTROL .... DOWN
THROTTLES ...….................…...............……………… IDLE
PROPELLERS ....……..................……… FULL FORWARD
MIXTURES ……….......................…………… IDLE CUT-OFF
Friction Control ………...........…………………... AS DESIRED
ALT AIR ……….........……...................………… CLOSE
COWL FLAPS .... OPEN
Flaps ………………..……...........………………. SET 0°
Rudder and Stabilator Trim ……..........……….……… SET
Fuel Selectors ……………….. ON
Circuit Breakers .... CHECK IN
CABIN HEAT Switch …................................…………. OFF
AVION MASTER Switch ………..........………........…... OFF
All Other Switches ……..……….........……….....…...……OFF

LEFT/RIGHT FUEL PUMPs ..... OFF
LEFT/RIGHT ALTR Switches ..... ON
(OFF, if external power connected)

EMERG BATT Switch …..…….. ARM
E VOLTS Indication ……..…..…….23.3 VOLTS (minimum)

NOTE
The EMERG BATT should remain ON after checking for proper bus operation. This allows the PFD to remain powered during engine start.
E VOLTS MUST be greater than 23.3 volts prior to departure

BATT MASTR Switch ..... ON
STROBE Lights .....……..……FIN STROBE ON

ENGINE START GENERAL

WARNING

The L START ENGD or R START ENGD warning CAS message will illuminate after 30 seconds of continuous engine cranking. If CAS message illuminates after the engine is running, STOP the engine and determine the cause

CAUTION
If engine does not start within 10 seconds, prime and repeat starting procedure. Starter manufacturer recommends cranking periods be limited to 10 seconds with a 20 second rest period between cranking periods. Maximum of 6 start periods allowed. If start is not achieved on sixth attempt, allow ENG START to cool for 30 minutes before attempting additional starts. DO NOT engage the ENG START immediately after releasing it. This practice may damage the ENG START mechanism

NOTE
When starting at ambient temperatures +20° and below, operate first engine started with alternator ON (at max charging rate not to exceed 1500 RPM for 5 minutes before initiating start on second engine.

NOTE
When engine starts, adjust the throttle and monitor the oil pressure. If no pressure is indicated within 30 seconds, shut down the engine and have it checked. In cold weather it may take somewhat longer for an oil pressure indication

NORMAL START – COLD Engine

BATT MASTR Switch ..... ON
Gear Position Indicators ..... 3 GREEN
CAS Messages ….....….CONSIDER ANY ILLUMINATED
PFD Annunciations ..... CONSIDER ANY ILLUMINATED
THROTTLES ..... ¼ Inch OPEN
PROPELLERS ……..…….. FULL INCREASE
COWL FLAPS ..... OPEN
*FUEL PUMP ..... ON
*MAG LEFT/RIGHT Switches ..... ON
*MIXTURE .....FULL RICH
(Until Stabilized Fuel Flow then) IDLE-CUTOFF
*Prop Area ..... VISUALLY, AUDIBLY CLEAR
*ENG START ..... ENGAGE
*MIXTURE ……..……..…. ADVANCE as engine starts
*THROTTLE ..... 1000 RPM
*Oil Pressure ..... CHECK

Repeat Above Procedure (*) for Second Engine
VOLTS ……..……..……..…… CHECK
ALTR AMPS ….....……CHECK
FUEL PUMPS .....OFF

WARM-UP

THROTTLES ..... 800 to 1200 RPM

BEFORE TAXI

External Power Source .....….. VERIFY REMOVED
Mixtures ..... LEAN for TAXI
BATT MASTR Switch .....VERIFY ON
FUEL Selectors ….....…ON, BOTH XFEED (30 sec), ON
AVION MASTER Switch ..... ON
MFD splash screen .....….. VERIFY Database Currency
FUEL Totalizer .....… Engine Page, SET TO REFLECT
VISUAL AMMOUNT
MAP page ..... MAP PAGE, SELECT MAP OPTIONS
CONFIRM – Terrain to display TOPO
.....CONFIRM – TRAFFIC to display
CONFIRM – LO AIRWAYS to display
TRAFFIC page .....SELECT TRAFFIC PAGE
CONFIRM ADSB Active

AUX page ..... SELECT GPS STATUS
CONFIRM Satellite signal
.....SELECT SBAS
CONFIRM WAAS STATUS
.....SELECT SYSTEM STATUS
CONFIRM ALL LRUs OPERATIONAL
.....ANN Test Softkey PRESS
TEST STALL ANNUNCIATORS

CAUTION

Adjust headset volume to hear the "STALL STALL" voice alert at an acceptable level. This will ensure all aural alerts and tones will be audible thru the headset

CAS Messages .....CONSIDER ANY ILLUMINATED
PFD Annunciations .....CONSIDER ANY ILLUMINATED
System Messages (MSG Softkey) ..... Consider
Standby Flight Instrument ..... VERIFY ON
with no RED X's or failure annunciations
Altimeters (Standby & PFD) ..... SET
Autopilot ..... Verify PFT complete and
DISCONNECT Tone heard
Radios NAV/COMM ..... ON, SET & CHECK
Transponder ..... SET CODE and ON ALT
FUEL Selectors ..... VERIFY ON
CABIN HEAT ..... AS DESIRED
ATIS/Airport Info/ Departure Clearance ..... RECEIVED

TAXI

Taxi Clearance ..... RECEIVED
Nav Lights Switch .....AS REQUIRED
TAXI Light Switch ..... ON
Taxi Area ..... CLEAR
PARK BRAKE ..... RELEASE
THROTTLES ..... APPLY SLOWLY
Brakes ..... CHECK
Steering ..... CHECK
Directional Gyro (PFD/Standby) ..... SWINGS FREELY
Standby Attitude Indicators ..... ERECT
Turn Indicators (PFD/Standby) ..... SHOWS TURN
DIRECTION
Skid Indicator (PFD/Standby) ..... MOVES to
OUTSIDE OF TURN

NOTE

During Taxi, If the VOLTS indication decreases into the warning range, Increase engine RPM (if possible) to retain adequate battery charging.

GROUND RUN-UP

PARKING BRAKE ..... SET
MIXTURES ..... FULL RICH
PROPELLERS ..... FULL INCREASE
COWL FLAPS ..... OPEN
THROTTLES ..... 1500 RPM
PROPELLERS (max. drop -500 RPM) ..... FEATHER - CHECK
THROTTLES ..... 2000 RPM
LEFT/RIGHT MAG ..... CHECK
(175 RPM max drop, 50 RPM max differential)

Operation of an engine on one magneto should be kept to a MINIMUM

ALT AIR ..... CHECK
THROTTLES ..... 2200 RPM
PROPELLERS (max. drop -300 RPM) ..... EXERCISE

NOTE

The governor can be checked by retarding the propeller control until a drop of 100–200RPM appears, then advance the throttles slightly. The propeller speed should stay the same

THROTTLES (550 to 650) ..... IDLE - CHECK
FUEL PUMP .....ON
THROTTLES ..... 1000 RPM
Friction Handle ..... SET

If E VOLTS indication was less than 23.3 VOLTS during BEFORE STARTING ENGINE checklist:

EMERG BATT Switch ..... VERIFY ARM
AVION MASTER Switch ..... OFF
ALTR LEFT/RIGHT Switches ..... OFF
E VOLTS Indication ..... 23.3 VOLTS MINIMUM

NOTE

If E VOLTS less than 23.3 VOLTS, determine cause and correct issue prior to flight.

If E VOLTS greater than or equal to 23.3 VOLTS:

BATT MASTER Switch ..... ON
ALTR LEFT/RIGHT Switches ..... ON
AVION MASTER Switch ..... ON

WARNING

ALL CAS Messages and PFD Annunciations must be CONSIDERED prior to departure

BEFORE TAKEOFF

Flight Controls ..... FREE AND CORRECT
Flight Instruments ..... CHECK
Engine instruments ..... CHECK
Flight plan ..... LOADED and CHECKED
AUTOPILOT ..... CHECKED and PROGRAMED

CAUTION

Prior to takeoff with autopilot ON, verify that the autopilot servos are disengaged and flight controls move freely

FUEL QTY ..... SUFFICIENT
PROPELLERS ..... FULL INCREASE
MIXTURES ..... FULL RICH
ALT AIR ..... CLOSE
COWL FLAPS ..... OPEN
FLAPS ..... CHECK & SET
Stabilator & Rudder Trim ..... SET
FUEL SELECTORS ..... ON
CAS Messages .....CONSIDER ANY ILLUMINATED
PFD Annunciations .....CONSIDER ANY ILLUMINATED
System Messages (MSG Softkey) ..... Consider
Transponder ..... CODE SET, ALT
MAGNETOS ..... ALL ON
FUEL PUMPS ..... ON
Radio Stack/Clock ..... SET
Takeoff Procedure ..... BRIEF
Takeoff Emergencies ..... BRIEF
Seat Back ..... ERECT
Belts and Harness ..... FASTENED
Door ..... LATCHED (Lower then Upper)

CAUTION

Fast taxi turns immediately prior to takeoff should be avoided to prevent unporting fuel feed lines.

NOTE

Adjust mixture prior to takeoff at high elevations. Do not overheat engines. Adjust mixtures only enough to obtain smooth engine operation.

NOTE
TAS aural alerts will be muted when GPS altitude is lower than 400FT AGL

When Cleared for Takeoff

PARK BRAKE ..... RELEASE
All Strobes ..... ON
Landing Light ..... ON
Clock ..... START

TAKEOFF

NORMAL TAKEOFF

FLAPS ..... 0° to 10°
Directional Gyro ..... CHECKED TO RWY HDG
Brakes ..... APPLY AND HOLD
Throttle ..... 2,000 RPM
Engine Instruments ..... CHECKED ALL GREEN
Brakes .....RELEASED
POWER .....2700 RPM, FULL THROTTLE
Airspeed ..... ALIVE
Rotate Speed ..... 75 KIAS
Climb speed (V_Y) …….....…….....……88 KIAS
GEAR ..... UP
FLAPS ..... UP

SHORT FIELD

0° FLAP, PERFORMANCE

FLAPS ..... SET 0°
Directional Gyro ..... CHECKED TO RWY HDG
Brakes ..... APPLY AND HOLD
POWER .....2700 RPM, FULL THROTTLE
MIXTURE ..... FULL RICH (or SET for ALTITUDE
Engine Gauges ..... CHECKED ALL GREEN
Brakes .....RELEASED
Airspeed ..... ALIVE
Rotate ..... 70 KIAS
Obstacle Clearance Speed ..... 82 KIAS
GEAR (With positive rate) ..... UP
Accelerate to V_Y ..... After Obstacle is Clear

CLIMB

MAX PERFORMANCE

POWER ..... 2700 RPM, FULL THROTTLE
Best Rate (Flaps Up) ..... 88 KIAS
Best Angle (Flaps Up) ..... 82 KIAS
COWL FLAPS ..... OPEN
FUEL PUMPS ..... ON

NORMAL

MIXTURE ..... FULL RICH
POWER ..... 2500 RPM, 25" MP, SET
Climb Speed ..... 105 KIAS
COWL FLAPS .....AS REQUIRED
FUEL PUMPS ..... ON

CRUISE

Normal Max Power 75%
Power ..... SET PER POWER TABLE
MIXTURE ..... ADJUST
FUEL PUMPS ..... OFF
COWL FLAPS ..... AS REQUIRED
TRIM ..... AS REQUIRED
Landing Light ..... AS DESIRED

WARNING

Flight in Icing conditions is prohibited. If icing is encountered, select ALT AIR-OPEN and PITOT HEAT-ON. Take immediate action to exit icing conditions.

NOTE
The Seminole has one fuel tank per engine. It is advisable to feed the engines symmetrically so the same amount of fuel will be left in each side for landing. The crossfeed (XFEED) can be used to balance FUEL QTY if necessary.

MANEUVERS

Practice Area ..... CLEAR OF TRAFFIC
Airspeed ..... AT or BELOW V_A
Fuel Selectors ..... ON
MIXTURES ..... FULL RICH
FUEL PUMPS ..... SET as REQUIRED
(ON Below 1000' AGL)
Landing Light ..... ON

DESCENT

ATIS/Airport Info ..... RECEIVED
Approach/Landing Brief ..... COMPLETED
Landing Light ..... ON
Seat Back ..... ERECT
Belts/Harnesses .....FASTENED
MIXTURES ..... RICH
POWER ..... AS REQUIRED
COWL FLAPS ..... AS REQUIRED

NOTE

During the approach the CHECK GEAR aural alert may sound. The mutable CHECK GEAR is triggered when either manifold pressure drops below 14" and the gear is not down and locked. The Non-mutable CHECK GEAR is triggered when the gear is not down and locked and the flaps are extended beyond the first notch. The severity of the CHECK GEAR CAS message is determined by proximity to the ground. A CAUTION is triggered above 400 FT AGL and a WARNING below 400 FT AGL

APPROACH and LANDING

TO BE COMPLETED BY FAF or 1,000 FT AGL

FUEL PUMPS .... ON
FUEL SELECTORS ..... ON
Power ..... AS REQUIRED
GEAR (Below 140 KIAS) ..... DOWN
Gear Position Indicators ..... 3 GREEN
"Three Green, One in the Mirror"
MIXTURE ..... RICH
PROPELLER ..…..…..…..… FULL INCREASE
FLAPS ..... AS REQUIRED
ALT AIR ..... AS REQUIRED
Autopilot .....DISCONNECT (above 200' AGL)

GO AROUND

Power ..... 2700 RPM, FULL THROTTLE
FLAPS ..... RETRACT ONE POSITION
Pitch ..... UP
Airspeed .....88 KIAS
Positive Rate .....RETRACT GEAR
Obstacle Cleared ..... FLAPS UP
Climb ..... 105 KIAS

WARNING

Autopilot coupled go-around is not authorized during single engine operations

AFTER LANDING

When Off Runway ..... STOP AIRCRAFT
THROTTLES ..... 1,000 RPM
Flaps ..... RETRACT
FUEL PUMPS ..... OFF
Landing Light Switch ..... OFF
Pitot Heat Switch ..... OFF
Exterior Lights ..... AS REQUIRED
Mixture ..... LEANED FOR TAXI

PARKING

Parking Brake ..... SET
CABIN HEAT (if on).....FAN – 2 MIN. THEN OFF
VENT FAN..... OFF
AVION MASTER ..... OFF
EMERG BATT ..... OFF
LEFT/RIGHT ALTR ..... OFF
LEFT/RIGHT FUEL PUMP ..... OFF
All other electrical equipment ..... OFF
THROTTLES ..... 1000 RPM
MIXTURES ..... IDLE CUT-OFF
LEFT/RIGHT Mag Switches..... OFF
Nav and Cockpit Lights ..... OFF
Anti-Collision Light ..... ON
Hobbs and Tach Meters ..... RECORD
BATT MASTR ..... OFF
STANDBY INSTRUMENT ..... VERIFY SHUTDOWN
Parking Brake ..... RELEASE
Squawk Sheet ..... RECORD AND REPORT
Controls ..... RESTRAIN
Aircraft ..... TIED DOWN AND SECURE

ABNORMAL PROCEDURES

NORMAL START – HOT Engine

BATT MASTR Switch .... ON
Gear Position Indicators .... THREE GREEN
CAS Messages …..................…CONSIDER ANY ILLUMINATED
PFD Annunciations ....…CONSIDER ANY ILLUMINATED
THROTTLES ..…...............................…………… ½ Inch OPEN
PROPELLERS ……..........………………… FULL INCREASE
COWL FLAPS .... OPEN
*MIXTURE ....IDLE CUT-OFF
*FUEL PUMP .... ON
*MAG LEFT/RIGHT Switches .... ON
*Prop Area .... VISUALLY, AUDIBLY CLEAR
*ENG START ....……… ENGAGE
*MIXTURE ……...............………...…. ADVANCE as engine starts
*THROTTLE ….. 1000 RPM
*Oil Pressure .... CHECK

Repeat Above Procedure (*) for Second Engine

VOLTS …………………………………..........……… CHECK
ALTR AMPS ..…..................................………………CHECK
FUEL PUMP ....OFF

NORMAL START – FLOODED Engine

BATT MASTR Switch .... ON
Gear Position Indicators .... THREE GREEN
CAS Messages ....… CONSIDER ANY ILLUMINATED
PFD Annunciations ....… CONSIDER ANY ILLUMINATED
THROTTLES ..…...………… FULL OPEN
PROPELLERS ……………………........…. FULL INCREASE
COWL FLAPS .... OPEN
*MIXTURE ....IDLE CUT-OFF
*FUEL PUMP .... OFF
*MAG LEFT/RIGHT Switches .... ON
*Prop Area .... VISUALLY, AUDIBLY CLEAR
*ENG START ....……… ENGAGE
*MIXTURE ....……….....................… ADVANCE as engine starts
*THROTTLE .... RETARD to 1000 RPM
*Oil Pressure .... CHECK

Repeat Above Procedure (*) for Second Engine
VOLTS ……..……..…… CHECK
ALTR AMPS .....……CHECK
FUEL PUMP .....OFF

ENGINE START with EXTERNAL POWER

BATT MASTR Switch ..... OFF
ALT LEFT/RIGHT Switch .....…VERIFY OFF
External Power ..... (24 – 28 VDC) CONNECT and ON

NOTE
The EMERG BATT switch may remain in ARM while using external power. The emergency bus does not receive power from external power

Proceed with NORMAL START

Oil Pressure .....CHECK
THROTTLES .....LOWEST POSSIBLE RPM

WARNING
Shutdown the right engine when it is warmed prior to disconnecting the external power plug.

External Power Plug ..... DISCONNECT

EMERGENCY PROCEDURES

Procedures in the following Emergency checklists shown in **bold-faced** type are immediate-action items which should be committed to memory.

Emergency procedures checklists, depicted within boxes, describe immediate action sequences that should be followed during critical situations.

GENERAL

This checklist provides the recommended procedures for coping with various emergency or critical situations. All of the emergency procedures required by the FAA are presented, along with those procedures that are necessary for operation of the airplane.

Emergency procedures associated with optional systems and equipment are presented in POH Section 9, Supplements.

Checklists within this section are divided into two distinct parts.

1. Emergency procedures checklists, depicted within boxes, describe immediate action sequences that should be followed during critical situations.
2. When applicable, amplified procedures are provided immediately below the relevant emergency procedure, to enhance the pilot's understanding of the procedure.

Pilots must familiarize themselves with the procedures in this section and must be prepared to take the appropriate action should an emergency situation arise. These procedures provide one course of action for coping with the particular situation or condition-described. They are not a substitute for sound judgement and common sense.

Most basic emergency procedures are a normal part of pilot training. The information presented in this section is not intended to replace this training. In order to remain proficient, pilots should periodically review standard emergency procedures.

NOTE

A detailed description of the Crew Alerting System and other annunciations and system messages may be found in the latest appropriate revisions and -XX part numbers of Garmin G 1OOO Cockpit Reference Guide (Garmin P/N 190-02199-00) and the Garmin G 1000 Pilot's Guide (Garmin P/N 19002198-00).

Annunciations and Alerts

The G1OOO System produces a number of annunciations and alerts by various means and methods. Some alerts are provided through visual indications, some are aural messages, and some are a combination of the two. The various methods of producing G1OOO annunciations and alerts are described in Section 7 of this handbook.

Crew Alerting System (CAS) Messages

For quick reference all messages associated with the Crew Alerting System (Warning, Caution and Advisory) are provided in this section. A more detailed description of all CAS, System and Aural alerts is provided in POH Description and Operation Section 7.9 GARMIN G1OOO AVIONICS SYSTEM.

The following tables show the color and significance of the Warning, Caution and Advisory messages which may appear on the Garmin (G1000 displays).

Crew Alerting System

(CAS) Warnings — Red

CAS Warnings with Text Messages

Event	CAS Message	POH Page	Cause*
Alternator Failure	L ALTR FAIL	3-28 3-29	Left and/or right alternator is turned ON and has failed as determined by voltage regulator
High Cylinder Head Temperature	L ENG CHT R ENG CHT	3-25	Left and/or right engine CHT exceeds 500 O F
Low Fuel Quantity	L FUEL.QTY R FUEL QTY	3-24	Left or right fuel quantity is less than 5 gals
CO Level High	CO LVL HIGH	3-52	CO level greater than 200 parts per million (PPM).
Starter Engaged	L START ENGD R START ENGD	3-49	Left or right engine starter is engaged for greater than 30 seconds
Landing Gear Failure	GEAR SYS	3-27	Landing Gear system malfunction on the ground
Landing Gear Position Unsafe	CHECK GEAR	3-26	Landing gear selector is not in the down position when less than 400 ft AGL with MAP less than 14in hg or flaps greater than first notch. Landing gear is selected UP on ground
High Heater Temp	HTR OVRHEAT	3-51	Cabin heater has sensed an overheat and shutdown
Underspeed Protection	USP ACTIVE	3-43	The AFCS Underspeed Protection is actively preventing an Underspeed condition

Crew Alerting System (continued)

(CAS) Warnings with EIS Indications

Event	CAS Message	POH Page	Cause*
Propeller Overspeed	NONE	3-50	Propeller speed is greater than 2720$_{RPM}$ for more than 5 Seconds
Oil Temperature Exceedance	NONE	3-23	Oil Temperature greater than 245°$_{F}$.
Oil Pressure Exceedance	NONE	3-22	Oil Pressure is less than 25$_{PSI}$ or more than 115$_{PSI}$
Battery Voltage	NONE	N/A	Primary battery volts less than: 24$_{V}$ with RPM less than 1100$_{RPM}$ 25$_{V}$ with RPM greater than 1100$_{RPM}$ OR Primary Battery voltage greater than 32$_{V}$
Alternator Amperage	NONE	3-28	Left and/or Right alternator amperage is greater than 65$_{AMPS}$
Emergency Battery Voltage	NONE	3-32	Emergency Battery Voltage is less than 20$_{V}$ or greater than 32$_{V}$
Landing Gear Failure	NONE	3-27	Malfunction in any of the landing gear as indicated by a red circle on the landing gear display

Crew Alerting System (continued)

(CAS) Cautions — Amber

CAS Cautions with Text Messages

Event	CAS Message	POH Page	Cause*
CO Level High	CO LVL HIGH	3-52	CO level greater than or equal to 50 but less than 200 parts per million (PPM)
Low Fuel Quantity	L FUEL.QTY R FUEL QTY	3-24	Left or right fuel quantity is less than 10 gals
Landing Gear Failure	GEAR SYS	3-27	Landing Gear system malfunction while in flight
Landing Gear Position Unsafe	CHECK GEAR	3-26	Landing gear selector is not in the down position when greater than 400 ft AGL with MAP less than 14in hg or flaps greater than first notch.
Hydraulic Pump	HYD PUMP ON	3-48	Hydraulic pump has been running for greater than 16 seconds
Pitot Heat Fail	PITOT HEAT FAIL	3-47	Pitot heat is selected ON and is inoperative
Pitot Heat Off	PITOT HEAT OFF	3-47	Pitot heat is selected OFF (double chime is suppressed)

(CAS) Cautions with EIS Indications

Event	CAS Message	POH Page	Cause*
Oil Pressure Exceedance	NONE	3-22	Oil pressure between 26 and 55$_{PSI}$ when propeller speed is greater than 1500$_{RPM}$ or oil pressure between 96 and 115$_{PSI}$
Total Fuel Quantity Low	NONE	3-24	Total Fuel Quantity is less than 20$_{GALS}$
Emergency Battery Voltage	NONE	N/A	Emergency Battery Volts less than 23.3$_{V}$

Crew Alerting System (continued)

(CAS) Advisories — White

CAS Advisory with Text Messages

Event	CAS Message	POH Page	Cause*
Emergency Power In Use	EMERG BATT ON	3-31	Emergency Battery is in use
Fuel Imbalance	FUEL IMBAL	N/A	Left and Right fuel quantities differ by greater than 10GALS
PFD Fan Failure	PFD FAN FAIL	3-47	The PFD Cooling fan has failed
MFD Fan Failure	MFD FAN FAIL	3-47	The MFD cooling fan has failed
Avionics Fan Failure	AV FAN FAIL	3-47	The avionics cooling fan has failed

CAS Messages/Alerts may have small time delays to avoid nuisance alarms.

ENGINE INOPERATIVE PROCEDURES

ENGINE SECURING PROCEDURE

THROTTLE ..... CLOSE
PROPELLER ..... FEATHER
MIXTURE ..... CUT-OFF
COWL FLAP ..... CLOSE
MAG LEFT/RIGHT Switches ..... OFF
FUEL PUMP Switch ..... OFF
ALTR Switch ..... OFF
FUEL Selector ..... OFF
Electrical Load ..... REDUCE

ENGINE FAILURE DURING TAKEOFF

(Speed Below 75 KIAS or GEAR Down)

If Sufficient Runway Remains

Throttle ..... CLOSE
Land ..... STRAIGHT AHEAD
Brakes ..... AS REQUIRED

WARNING

If the take-off cannot longer be aborted and a safe height has not been reached, a straight ahead emergency landing should be carried out with only small changes in directions not exceeding 30° to the left or right.
Turning back can be fatal. Make only shallow banks to avoid obstructions

If Insufficient Runway Remains

Brakes ..... APPLY MAXIMUM BRAKING
MIXTURES ..... IDLE CUT-OFF
FUEL Selectors ..... OFF
Master Switch ..... OFF
MAG LEFT/RIGHT Switches ..... OFF

ENGINE FAILURE DURING TAKE-OFF
(Speed above 75 KIAS)

If Sufficient Runway Remains for a complete stop
GEAR ..... VERIFY DOWN
Land .....STRAIGHT AHEAD
THROTTLES ..... CLOSE
Brakes ..... AS REQUIRED

If the gear is in transit or UP and the decision is made to continue:

BALL, BANK, BLUELINE,
MIXTURES, PROPS, THROTTLES,
FLAPS, GEAR,
IDENTIFY, VERIFY, FEATHER, SECURE

MIXTURES ..... FULL RICH
PROPELLERS ..... FULL INCREASE
THROTTLES ..... FULL OPEN
FLAPS ..... UP
GEAR ..... VERIFY UP
Inoperative Engine ..... IDENTIFY and VERIFY
THROTTLE (Inop. Engine) .....CLOSE
PROPELLER (Inop. Engine) ..... FEATHER
MIXTURE (Inop. Engine) ..... CUT-OFF
Establish Bank ..... 2° to 3° INTO OPERATING ENGINE
Climb Speed ..... 88_{KIAS}
Rudder Trim ..... TOWARD OPERATING ENGINE
TO APPROXIMATELY ½ TRAPEZIOD
ON SLIP INDICATOR
COWL FLAP (Operating Engine) ..... AS REQUIRED
COWL FLAP (Inop. Engine) ..... CLOSE
MAG LEFT/RIGHT Switches (Inop. Engine) ..... OFF
ALTR Switch (Inop. Engine) ..... OFF
FUEL SELECTOR (Inop Engine) ..... CLOSE

Land as soon as practical

ENGINE FAILURE DURING FLIGHT
(Speed Below V_{MCA})

BALL, BANK, BLUELINE,
MIXTURES, PROPS, THROTTLES,
FLAPS, GEAR,
IDENTIFY, VERIFY, FEATHER, SECURE

Rudder .....APPLY AGAINST THE YAW
THROTTLES (Both Engines) .....RETARD
TO ARREST THE YAW
Pitch Attitude .....LOWER THE NOSE
TO ACCELERATE ABOVE V_{MCA} (56$_{KIAS}$)
Operating Engine ..... INCREASE POWER
AS AIRSPEED INCREASES
ABOVE V_{MCA}

If altitude permits, a restart may be attempted.
If restart fails or if altitude does not permit restart:

Inoperative Engine ..... IDENTIFY and VERIFY
PROPELLER ..... FEATHER
MIXTURE (Inop. Engine) ..... CUT-OFF
Establish Bank ..... 2° to 3° INTO OPERATING ENGINE
Climb Speed ..... 88$_{KIAS}$
Rudder Trim ..... TOWARD OPERATING ENGINE
TO APPROXIMATELY ½ TRAPEZIOD
ON SLIP INDICATOR
COWL FLAP (Operating Engine) ..... AS REQUIRED
COWL FLAP (Inop. Engine) ..... CLOSE
MAG LEFT/RIGHT Switches (Inop. Engine) ..... OFF
ALTR Switch (Inop. Engine) ..... OFF
FUEL SELECTOR (Inop Engine) ..... CLOSE

ENGINE FAILURE DURING FLIGHT
(Speed Above V_{MCA})

BALL, BANK, BLUELINE,
MIXTURES, PROPS, THROTTLES,
FLAPS, GEAR,
IDENTIFY, VERIFY, FEATHER, SECURE

Inoperative Engine ..... IDENTIFY
Operating Engine ..... ADJUST POWER AS REQUIRED
Airspeed ..... ATTAIN AND MAINTAIN AT LEAST 88KIAS

Before securing inoperative engine:

FUEL QTY ..... CHECK (XFEED AS REQUIRED)
FUEL PUMP ..... ON
MIXTURE ..... FULL RICH
ALT-AIR ..... OPEN
MAG LEFT/RIGHT Switches ..... CHECK
OIL TEMP ..... CHECK
OIL PRESSURE ..... CHECK

If engine does not restart, complete Engine Securing Procedures.

Power (Operating Engine) ..... AS REQUIRED
FUEL Selector (Operating Engine) ..... ON (XFEED AS REQUIRED)
FUEL PUMP (Operating Engine) ..... AS REQUIRED
COWL FLAP (Operating Engine) ..... AS REQUIRED
Establish Bank ..... 2° to 3° INTO OPERATING ENGINE
Airspeed ..... ATTAIN AND MAINTAIN AT LEAST 88KIAS
Rudder Trim ..... TOWARD OPERATING ENGINE TO APPROXIMATELY ½ TRAPEZIOD ON SLIP INDICATOR
Inoperative Engine ..... SECURE
Electrical Load ..... DECREASE TO MIN. REQUIRED

CAUTION
If engine failure is due to fuel starvation and a fuel leak is suspected, carefully monitor remaining fuel quantity if XFEED is used

ONE ENGINE INOPERATIVE LANDING

Inoperative Engine ..... ENGINE SECURING PROCEDURE COMPLETE
Seat Belts/Harnesses ..... SECURE
FUEL Selector (Operating Engine) ..... ON
MIXTURE (Operating Engine) ..... FULL RICH
PROPELLER Control (Operating Engine) ..... FULL INCREASE
FUEL PUMP (Operating Engine) ..... ON
COWL FLAP (Operating Engine) ..... AS REQUIRED
Altitude and Airspeed ..... MAKE NORMAL APPROACH

When Landing is Assured

GEAR ..... DOWN
FLAPS ..... 25° (2ND Notch)
Final Approach Speed 90KIAS
Power ..... RETARD SLOWLY and FLARE AIRPLANE
Trim ..... AS POWER IS REDUCED AIRPLANE WILL YAW IN DIRECTION OF OPERATING ENGINE

WARNING

Under some conditions of loading and density altitude, aircraft single engine climb performance and obstacle clearance may make a one engine inoperative go-around impossible (See POH Section 5)
Sudden application of power during one engine inoperative operation can make control of the airplane more difficult.

CAUTION

A ONE ENGINE INOPERATIVE GO-AROUND SHOULD BE AVOIDED IF AT ALL POSSIBLE

ONE ENGINE INOPERATIVE GO-AROUND

MIXTURE (Operating Engine) ..... FULL RICH
PROPELLER (Operating Engine) ..... FULL INCREASE
THROTTLES .....SMOOTHLY ADVANCE TO TAKEOFF POWER
FLAPS ..... RETRACT INCREMENTALLY
GEAR ..... UP
Establish Bank ..... 2° to 3° INTO OPERATING ENGINE
Airspeed ..... ATTAIN AND MAINTAIN AT LEAST 88KIAS
Rudder Trim ..... TOWARD OPERATING ENGINE TO APPROXIMATELY ½ TRAPEZIOD ON SLIP INDICATOR
COWL FLAP (Operating Engine) ..... AS REQUIRED

WARNING

Under some conditions of loading and density altitude, aircraft single engine climb performance and obstacle clearance may make a one engine inoperative go-around impossible (See POH Section 5)
Sudden application of power during one engine inoperative operation can make control of the airplane more difficult.

WARNING

The propeller on the inoperative engine MUST be feathered, the LANDING GEAR retracted and the WING FLAPS retracted for continued flight

WARNING

Autopilot coupled go-around is not authorized during single engine operations

CAUTION

A ONE ENGINE INOPERATIVE GO-AROUND SHOULD BE AVOIDED IF AT ALL POSSIBLE

AIRSTARTING PROCEDURE

UNFEATHERING WITH ACCUMULATOR

NOTE

With the propeller unfeathering system installed, the propeller will usually windmill automatically when the propeller control is moved forward

FUEL Selector (Inoperative Engine) ..... ON
MAG LEFT/RIGHT Switches (Inoperative Engine) ..... ON
FUEL PUMP (Inoperative Engine) ..... ON
THROTTLE (Inoperative Engine) ..... OPEN ¼ inch
PROPELLER (Inoperative Engine) ..... FULL INCREASE
MIXTURE (Inoperative Engine) ..... ADVANCE
(after propeller rotation)
THROTTLE ..... REDUCE
(Until engine is warm)
ALTR ..... ON (after start)
FUEL PUMP ..... AS REQUIRED (after restart)

NOTE

Starter assist is required if the propeller is stationary (not rotating) within 5-7 seconds after propeller control has been moved forward.

When propeller unfeathering occurs, it may be necessary to retard the prop control slightly so as to not overspeed the prop.

If restart is not successful:

MIXTURE (Inoperative Engine) ..... CUT-OFF

Proceed to Engine Securing Procedure

UNFEATHERING WITH STARTER

FUEL Selector (Inoperative Engine) ..... ON
MAG LEFT/RIGHT Switches (Inoperative Engine) ..... ON
FUEL PUMP (Inoperative Engine) ..... ON
THROTTLE (Inoperative Engine) ..... OPEN ¼ inch
PROPELLER (Inoperative Engine) ..... INCREASE (to cruise setting)
MIXTURE (Inoperative Engine) ..... FULL RICH
ENG START (Inoperative Engine) ..... ENGAGE UNTIL PROP WINDMILLS

NOTE

The ENG START switch should be engaged as soon as possible after advancing the mixture to minimize the possibility of flooding the engine.

THROTTLE ..... REDUCE (Until engine is warm)
ALTR ..... ON (after start)
FUEL PUMP ..... AS REQUIRED (after restart)

If restart is not successful:

MIXTURE (Inoperative Engine) ..... CUT-OFF

Proceed to Engine Securing Procedure

FIRE

ENGINE FIRE DURING START

If engine has not started:

MIXTURE ..... CUT-OFF
THROTTLE ..... FULL OPEN
ENG START ..... CONTINUE to CRANK ENGINE

If engine has already started and is running, continue operating to try pulling the fire into the engine

If fire continues:

FUEL Selectors ..... OFF
FUEL PUMPS ..... OFF
MIXTURES ..... CUT-OFF
THROTTTLES ..... FULL OPEN
AIRPLANE ..... EVACUATE
External Fire Extinguisher ..... USE

NOTE
If fire continues, shut down both engines and evacuate.

ENGINE FIRE DURING FLIGHT

FUEL Selector (Affected Engine) ..... OFF
THROTTLE (Affected Engine) ..... CLOSE
PROPELLER (Affected Engine) ..... FEATHER
MIXTURE (Affected Engine) ..... CUT-OFF
COWL FLAP (Affected Engine) ..... OPEN
Affected Engine ..... COMPLETE Engine Securing Procedure

If fire persists:

Airspeed ..... INCREASE in an attempt to blow the fire out

Land as soon as possible