



NORTH STAR AVIATION MASTER CHECKLIST

G1000 Archers

PA 28-181

Revision 11

Introduction

This document has been prepared by North Star Aviation, Inc. and is being furnished to students at the flight school in accordance with 14 CFR Part 141.75(a). This book contains the required normal and emergency procedures for the safe operation of our aircraft as specified in the respective Piper Information Manuals, Lycoming Operators Manual and Service Instructions. In addition to procedures required by Piper, some NSA specific procedures have been added for reference.

Organization

This document has been divided into separate sections that outline the normal procedures and emergency procedures to the PA-28-181.

In each section, procedures surrounded by red dashed boxes are considered "Memory Items". These procedures are required to be memorized and will be evaluated periodically throughout training.

Checklist Completion

Upon Completion of a checklist the pilot flying should state "**Checklist Complete**". If a checklist is interrupted, the checklist should be restarted.

Revision Control

To allow for improvements based on safety, performance, or standardization, this document is being provided in an easily revisable format. It is the student's responsibility to ensure their copy of this document contains the most current revision(s). A record of revisions can be found on the next page that will track individual page numbers affected by each revision. Each individual page will have its revision number printed in the lower left-hand corner.

Disclaimers

This document is provided for training purposes only and is not intended to replace the required Pilot Operations Manual in each aircraft. In actual Emergency Situations, the POH should be consulted if able. No replication of this document is authorized without the express written consent of North Star Aviation, Inc.

Differences between,

LAND AS SOON AS POSSIBLE and LAND AS SOON AS PRACTICAL

In the emergency sections of this checklist, the terms land as soon as possible and land as soon as practical are used. The definitions for each are found below as they pertain to North Star Aviation Operations.

LAND AS SOON AS POSSIBLE means that continued flight is not recommended, and the pilot should land at the nearest airport where a safe landing can be made. Military bases, large airports such as class Bravo and class Charlie, or airports in foreign countries are valid options and must be considered by the pilot. If the pilot determines that they are unable to make it to the nearest airport, the pilot should consider a field, road, or any other surface the pilot determines to be a safe option.

LAND AS SOON AS PRACTICAL means that extended flight is not recommended, and the pilot should land at a nearby airport but has discretion as to which one they choose. Services provided by the airport and the nature of the emergency should be considered by the pilot when determining which airport to land at.

Record of Revisions

<u>Number</u>	<u>Date</u>	<u>Summary of changes</u>	<u>Affected pages</u>
Original	Jul 13, 2011	Original Issuance of Warrior Checklist	ALL
Original	Aug 01, 2011	Original Issuance of Seminole Checklist	ALL
Rev 1	Nov 16, 2011	First Rev. to Warrior Checklist	3,4,9,10,11,36
Rev 1	Feb 22, 2012	First Rev. to Seminole Checklist	ALL
Rev 2	Aug 02, 2012	Second Rev. to Warrior and Seminole Checklist	3, 4, 9, 10, 11, 36 3, 12, 19, 32
Rev 3	Jul 01, 2014	Third Rev. to Warrior Checklist	3, 14-36
Rev 3/4	Jan 01, 2015	Third Rev. to Seminole Checklist Fourth Rev. to Warrior Checklist	ALL
Rev 4	Jan 13, 2015	Fourth Rev. to Seminole Checklist	9, 10, 17
Rev 5	Apr 13, 2015	Fifth Rev. to Warrior Checklist	2, 9, 12, 18, 19
Rev 5	Feb 22, 2016	Addition of G1000 procedures to the Seminole checklist	ALL
Rev 6	Jan 13, 2016	Sixth Rev. to Warrior Checklist	9
Rev 7	Aug 27, 2018	Combination of Warrior, Archer, Seminole and Company Procedures into one Manual	ALL
Rev 8	Jan 8, 2019	Small formatting Changes, Updated Procedures for G1000Nxi and Fuel Injected Engines	ALL
Rev 9	Mar 1, 2021	Removal of Warrior Procedures Addition of notes to Normal Procedures and overhaul of Emergency Procedures. Addition of Quick Reference Checklist.	ALL
Rev 10	July 10, 2023	Changes	ALL
Rev 11	Dec 9, 2024	Formatting changes, updates table of contents, updated procedures on all pages to align with PA 28-181 Archer POH and NSA procedures, list of required pages removed (all are required)	ALL

TABLE OF CONTENTS

<u>Section Title</u>	<u>Page #</u>
Title page	1
Introduction	2
Record of revisions	3
Table of contents	4
Preflight checklist	5, 6
Engine starting checklist	7
Before taxi-Post flight inspection	8-10
Engine fire on start up	11
Electrical fire	11
Engine fire in flight	11
Emergency descent	11
Engine failure on takeoff	12
Engine failure in flight	12
Spin recovery	13
Low oil pressure	13
High oil pressure	13
High oil temperature	14
Loss of fuel flow	14
Fuel quantity low	14
Engine roughness	14
Alternator failure	15
Complete electrical failure Emergency	15
battery voltage	16
ADAHRS failure (ground)	16
ADAHRS failure (flight)	16
MFD failure	17
PFD failure	17
Erroneous/Loss of engine instruments	18
Comm failure	18
GPS failure	18
Loss of navigation	19
Avionics cooling fan failure	19
Pitot heat failure	19
Starter engaged	19
Power off landing	20
Open door	20
CO detector warning	20

PREFLIGHT CHECKLIST

KNOWN DISCREPENCIES CHECK
RAMP OUT SHEET CHECK TACH TIME
*Note time until next event
FUEL QUANTITY CHECK
*Call line service for fuel if need (507)508-0323
OILCHECK 6-8 QUARTS

COCKPIT INSPECTION AIRCRAFT

PARKING BRAKE SET
REQUIRED DOCUMENTS VERIFY
*Airworthiness certificate should be visible to all passengers
HOBBS/TACH TIME..... VERIFY
*Must match with the ramp out sheet. If not, call dispatch (507) 508-0706
ALL SWITCHES OFF
CIRCUIT BREAKERS..... CHECK IN
MIXTURE IDLE
LEFT/RIGHT MAG SWITCHES OFF
MAG TAGS.....SECURE
BATTERY MASTER SWITCH.....ON
*Battery master should be left on as little as possible to prevent draining of the battery
INTERIOR LIGHTING (NIGHT FLIGHT).... CHECK
FUEL GAUGES CHECK
*Verify fuel tank visually
FUEL SELECTOR..... LOWEST TANK
PITOT HEATON/CAS MSG DISAPPEAR
*Limit pitot heat on the ground to no more than 3 minutes
EXTERIOR LIGHTS..... ON
*Exit aircraft to verify operation of all lights and pitot heat.

EXTERIOR LIGHTS CHECK
PITOT STATIC HEAD..... CHECK/WARM
STALL WARNING HORN..... CHECK
*If stall horn does not sound, wait 10 seconds and try again. Stall horn will not sound while the G1000 is booting up.
ALL LIGHT SWITCHES OFF
PITOT HEAT OFF/CAS MSG ILLUMINATED
BATTERY MASTER SWITCH OFF
FLAPSEXTEND 40°
FLIGHT CONTROLS CHECK
*For ease and continuity
STABILATOR AND RUDDER TRIM.....NEUTRAL
PITOT/STATIC..... DRAIN
*Do not cover holes on buttons
EMPTY SEAT BELTS FASTEN
WINDOWS/WINDSHIELD CLEAN
TOW BAR/CHOCKS..... SECURE

*Tow bar and chocks needs to be secured in its specifically designed holder or underneath the straps.
BAGGAGE DOOR.....CLOSED

RIGHT WING

WING SURFACES CHECK/CLEAN
*Ice, frost, and snow must be removed before attempting flight. If ice/frost is found on the wing, call Line Service for de-icing. (507) 508-0323
FLAPS/HINGES CHECK
*Pushrods should have some wiggle
AILERON AND HINGES CHECK
*Pushrods should have some wiggle
STATIC WICKS..... CHECK
*Flight in IFR conditions is not allowed without all nine static wicks present
WING TIP AND LIGHTS..... CHECK
LEADING EDGE..... CHECK
FUEL TANK.....CHECK QUANTITY
FUEL VENT CLEAR
FUEL TANK SUMP DRAIN
*If any contaminants are found, dump waste fuel into red containers along fence and take another sample.
TIE DOWN/CHOCK REMOVE
MAIN GEAR STRUT APROX 4.5”
*If the strut is not long enough, it requires more nitrogen the aircraft should be downed
*If a puddle is found by the landing gear it can be an indication of a hydraulic fluid leak and should be inspected by maintenance.
TIRE/BRAKEPAD/DISCCHECK
*Check for any erosion or deflation that would result in degraded braking action.
FRESH AIR INLET CLEAR
DOOR HINGES CHECK

NOSE SECTION

GENERAL CONDITIONCHECK
COWLING INTERIOR CHECK
*Using a flashlight, look for loose/broken wires, baffle seals, and any foreign material such as metal shavings or bird feathers.
WINDSHIELD.....CHECK
OIL..... CHECK QUANTITY
DIPSTICK PROPERLY SEATED & SECURE
OIL FILTER DOOR SECURE
PROP AND SPINNER CHECK
AIR INLETS..... CLEAR
NOSE GEAR STRUT APROX. 3.25”
NOSE WHEEL TIRE CHECK

CHOCKS REMOVE
GASCOLATOR DRAIN

LEFT WING

WING SURFACES..... CHECK/CLEAN
*Ice, frost, and snow must be removed before attempting flight. If ice/frost is found on the wing, call Line Service for de-icing. (507)508-0323
FRESH AIR INLET CLEAR
MAIN GEAR STRUT APROX 4.5”
*If the strut is not long enough, it requires more nitrogen the aircraft should be downed
*If a puddle is found by the landing gear it can be an indication of a hydraulic fluid leak and should be inspected by maintenance.
TIRE/BRAKEPAD/DISC..... CHECK
*Check for any erosion or deflation that would result in degraded braking action.
TIE DOWN/CHOCK REMOVE
FUEL TANK SUMP..... DRAIN
*If any contaminants are found, dump waste fuel into red containers along fence and take another sample.
FUEL VENT CLEAR
FUEL TANK...CHECK QUANTITY/SECURE CAP
LEADING EDGE..... CHECK
WING TIP AND LIGHTS CHECK
PITOT MAST..... UNOBSTRUCTED
TEMP PROBE..... CHECK
AILERON AND HINGES CHECK
*Pushrods should have some wiggle
FLAPS/HINGES..... CHECK
*Pushrods should have some wiggle
STATIC WICKS CHECK
*Flight in IFR conditions is not allowed without all nine static wicks present

FUSELAGE/EMPENNAGE

ANTENNAS CHECK
EMPANNAGECLEAR OF ICE SNOW, FROST
FRESH AIR INLET CHECK
RUDDER CHECK
STABILATOR CHECK
ANTISERVO TAB CHECK
STATIC WICKS CHECK
*Flight in IFR conditions is not allowed without all nine static wicks. Do not grab static wicks as this can damage them.
TIE DOWN..... REMOVE AND CHECK
*Black paint should be on the bottom of the tie down. If the paint is scraped, it can be an indication of a tail strike and should be inspected by maintenance.

UNDERBELLY..... CHECK

BEFORE STARTING ENGINE CHECKLIST

FLAPSRETRACT
PARKING BRAKE SET
PASSENGER BRIEFING..... COMPLETE
*See below
DOOR..... CLOSED AND SECURE
SEATSADJUSTED AND LOCKED
SEAT BELTSFASTEN
FUEL SELECTORDESIRED TANK
CIRCUIT BREAKERS CHECK IN
AVIONICS/ELECTRICAL SWITCHES OFF
ALT AIR OFF
ALTERNATE STATIC SOURCE OFF
E-BATT ARM
E VOLTSERIFY 23.3
*If E-volts are less than 23.3, the voltage can be checked again at the end of the GROUND CHECK. E-volts must not be less than 23.3 prior to flight.
*E-Battery usage should be kept to as little as possible to avoid draining the battery.
*Verify operation of:
- PFD with no red-x's on
- Audio Panel
- Com 1
- Nav 1
- Engine Indications
- Standby Flight Instruments

***PASSENGER BRIEF**

*HOW/WHEN TO USE SEATBELTS
HOW TO OPEN/CLOSE THE DOOR
LOCATION/USE OF EMERGENCY EXITS
LOCATION/USE OF EMERGENCY EQUIPMENT
AID IN TRAFFIC SCANNING
STERILE COCKPIT FOR TAXI/TAKEOFF/LANDING*

NORMAL START CHECKLIST-COLD ENGINE

OIL TEMP BELOW 140°F
BATTERY MASTER SWITCH.....ON
ALTERNATOR SWITCH.....ON
FIN STROBE.....ON
*Strobe lights must go on before magnetos as the strobe light is your warning to others your mags are on and they should not approach the aircraft.
MAGTAGS..... OFF
MAGNETOS.....ON
THROTTLE 1/2 INCH OPEN
ELECTRIC FUEL PUMP.....ON
MIXTURE..... PRIME 3-5
..... SECONDS THEN CUT OFF
CAS/PFD MESSAGES..... CHECK
PROP AREA CLEAR
START SWITCHENGAGE
*No more than 10 sec at a time
*Wait 20 seconds between attempts
*No more than 5 start attempts allowed
MIXTURE (when engine starts) ADVANCE
*Advance mixture after the engine starts
*If engine does not start after two attempts with priming, perform flooded start procedures.
THROTTLE ADJUST 1000 RPMS
OIL PRESSURE CHECK

NORMAL START CHECKLIST-HOT ENGINE

OIL TEMP 140°F OR ABOVE
BATTERY MASTER SWITCH.....ON
ALTERNATOR SWITCH.....ON
FIN STROBE.....ON
*Strobe lights must go on before magnetos as the strobe light is your warning to others your mags are on and they should not approach the aircraft.
MAGTAGS..... OFF
MAGNETOS.....ON
THROTTLE 1/2 INCH OPEN
ELECTRIC FUEL PUMP.....ON
MIXTURE..... IDLE CUT OFF
CAS/PFD MESSAGES..... CHECK
PROP AREA CLEAR
START SWITCH ENGAGE
*No more than 10 sec at a time
*Wait 20 seconds between attempts
*No more than 5 start attempts allowed
MIXTURE (when engine starts)ADVANCE

*Advance mixture after the engine starts
*If engine does not start after two attempts with priming, perform flooded start procedures.
THROTTLE..... ADJUST 1000 RPMS
OIL PRESSURE CHECK

FLOODED START

THROTTLE..... OPEN FULL
BATT MASTER SWITCH ON
ALTR SWITCH..... ON
MAGNETOS ON
FUEL PUMP..... OFF
MIXTURE IDLE CUT-OFF
CAS/PFD MESSAGES CHECK
PROP AREA CLEAR
START SWITCH..... ENGAGE
*No more than 10 sec at a time
*Wait 20 seconds between attempts
*No more than 5 start attempts allowed
MIXTUREADVANCE
*Advance mixture after the engine starts
THROTTLE..... RETARD
OIL PRESSURE CHECK

EXTERNAL POWER START CHECKLIST

BATTERY MASTER OFF
ALTERNATOR..... OFF
MAGNETOS ON
EMERG BATT ARM
ALL ELECTRICAL SWITCHES..... OFF
EXTERNAL POWER..... APPLY
THROTTLE..... 1/2 INCH OPEN
FUEL PUMP.....ON
FIN STROBE.....ON
MIXTURE PRIME
CAS/PFD MESSAGES CHECK
PROP AREA CLEAR
STARTER..... ENGAGE
*No more than 10 sec at a time
*Wait 20 seconds between attempts
*No more than 5 start attempts allowed
MIXTURE ADVANCE
*Advance mixture after the engine starts.
THROTTLE..... ADJUST 1000 RPMS
OIL PRESSURE..... CHECK
BATTERY MASTER SWITCH ON
THROTTLE..... LOWEST POSSIBLE RPM
EXTERNAL POWER..... DISCONNECT
ALTERNATOR.....ON-CHECK AMMETER

BEFORE TAXI CHECKLIST

AVION MASTER SWITCH.....ON
E-BATTVerify ARM
MFD CHECK DATABASE CURRENCY
*Flight under IFR is not authorized when database is expired.
FUEL TOTALIZER SYNC OR MANUAL
FUEL SELECTOR..... SWITCH TANKS
*Switching should be to fullest tank
*This should be the last switching action before takeoff
MIXTURE..... LEAN
*Leaning for ground ops is done by leaning until RPM begins to decrease and enrichen to peak RPM.
CAS/PFD MESSAGES..... CHECK
MSG SOFTKEY CHECK
STANDBY INSTRUMENTS..... CHECK
LIGHTSAS REQUIRED
*PIC will consider exterior lights in accordance with 91.205 for nighttime and low visibility operations to preserve night vision
CABIN HEAT/DEFROSTAS REQUIRED
TRAFFIC..... TEST
RADIOS SET
ANNUNCIATOR TEST CHECK
STANDBY FLIGHT INSTRUMENT CHECK
ATIS/AWOS OBTAIN
ALTIMETERS SET
*If local altimeter setting not received, set field elevation.
GPS/NAV/BUGS SET
MFD AIRPORT DIAGRAM
TAXI CLEARANCE OBTAIN
*If at a towered airport, obtain IFR clearance as well.
TRANSPONDERALT/1200
TAXI BRIEF..... COMPLETE
*See below

***TAXI BRIEF**

*RUNWAY IN USE
RUNWAY LENGTH/REQUIRED
ROUTE TO RUNWAY AND RUNUP
LOCATION OF HOTSPOTS
WHO WILL BE PIC
POSITIVE EXCHANGE OF FLIGHT CONTROLS*

TAXI CHECKLIST

TAXI AREA..... CLEAR
PARKING BRAKE..... RELEASE
THROTTLEADVANCE SLOWLY
BRAKES/STEERING CHECK
INSTRUMENT COCKPIT CHECK COMPLETE

RUN UP/GROUND CHECKLIST

BRAKES.....SET/HOLD
MIXTURE FULL RICH
THROTTLE.....2000 RPM
MAGNETOS CHECK
*MAX. DROP. 175RPM, MAX. DIFF. 50RPM
*Magnetos check is done by turning one magnetos off and checking to see if all EGT's rise together. If an EGT were to rise slowly or decrease, it is possibly an indication of a bad or fouled spark plug.
*A fouled spark plug can be corrected by leaning the mixture at high rpm to burn off the excess carbon build up. Perform magnetos check again after attempting to correct for fouling.
*If EGT drops to 0 then the spark plug is bad and needs to be replaced.
*Operation on one magnetos should not exceed 10 seconds.
OIL TEMPERATURE/PRESSURECHECK
VOLTS/AMPS 28±1 VOLT
ALT AIRCHECK (APPROX. 40 RPM DROP)
*Avoid prolonged ground operation with ALT AIR "OPEN" as the air is unfiltered.
FUEL PUMP OFF...VERIFY ENGINE OPERATION
THROTTLE..... IDLE
RPM/OIL PRESSURE CHECK
*Check the engine continues to operate in the idle position in the event of a low energy go around, safe operation can be made.
THROTTLE.....1000 RPM
ALTERNATE STATIC CHECK
*Alternate static is checked by opening the alternate static port underneath the panel on the pilot side and noting an increase on the VSI. Alternate static should be closed prior to take off. If no change is noted on VSI, open the window or door and try again.
IFR CLEARANCE CONSIDER
*Consider weather and traffic for determining if a ground or airborne clearance is appropriate
TAKE OFF BRIEFING COMPLETE

IF E-VOLTS WERE LESS THAN 23.3 DURING BEFORE STARTING ENGINE CHECKLIST

E-BATT ARM
AVION MASTER SWITCHOFF
ALTR SWITCH..... OFF
BATT MASTER.....OFF
E-VOLTS..... CHECK 23.3 VOLTS
IF E VOLTS LESS THAN 23.3 VOLTS, DETERMINE CAUSE AND CORRECT THE ISSUE PRIOR TO FLIGHT
BATT/ALTERNATOR/AVIONICS SWITCHES..ON

BEFORE TAKE OFF CHECKLIST

BATTERY/ALTERNATOR/MAGS VERIFY ON
FUEL PUMP ON
FLIGHT INSTRUMENTS RE-CHECK/SET
STANBY FLIGHT INSTRUMENTS CHECK
CAS/PFD MSGS....CONSIDER ANY ILLUMIATED
ENGINE GAUGESIN LIMITS
ALT AIR.....OFF
MIXTURESET

*If density altitude on the ground is 5000 ft or greater,
lean to peak RPM.

SEATS/BELTSADJUSTED/FASTENED
FLAPSSET
TRIMSET
CONTROLS FREE AND CORRECT
DOOR LATCHED
LANDING LIGHTON
PITOT HEATAS REQUIRED
*Limit pitot heat on the ground to no more than 3
minutes.
TRANSPONDER CODE/ALT VERIFY
DEPARTURE BREIFING..... COMPLETE
*Initial heading/altitude/departure out of pattern
TAKE OFF CLEARANCE OBTAIN
TIME OFF NOTE
FINAL APPROACH AREACLEAR

CLIMB CHECK—ABOVE 1000’ AGL

FLAPSVERIFY RETRACTED
CRUISE CLIMB AIRSPEED 87KIAS
*Climbs should be done at cruise climb as it results in
better forward speed and increased visibility over the
nose during the climb.
DEPARTURE AREA CLEAR

CRUISE CHECKLIST

CRUISE POWER SET
MIXTURE.....AS REQUIRED
*Mixture should be leaned anytime above density
altitude 5000 ft to best performance/100°F rich of
peak. Once mixture is set, monitor EGT gauges for any
changes.
LANDING LIGHTOFF
FUEL PUMPOFF
APPROACH & LANDING CHECKLIST.CONSIDER
*Complete at earliest applicable time

PRE-MANUEVER CHECKLIST

MIXTURESET
ELECTRIC FUEL PUMP..... ON
FUEL FULLEST TANK
ALL LIGHTS ON
ALTITUDE MIN. SAFE
CLEARING TURNS.....COMPLETE
*Performed by two 90° turns or one 180° turn to look
for traffic, obstacles, and to become more visible to
other traffic. Proper scanning technique is to break the
area into sections and look in each section for 5-7
seconds.
RADIO CALLCOMPLETE

POST MANUEVER CHECKLIST

LANDING LIGHT OFF
FUEL FULLEST TANK
ELECTRIC FUEL PUMP OFF
ENGINE GAUGESCHECK
APPROACH & LANDING CHECKLIST.CONSIDER
*Complete at earliest applicable time

APPROACH AND LANDING CHECKLIST

WEATHEROBTAIN
INSTRUMENTS..... SET
RADIOS..... SET
*If on a filed flight plan verify ETA hasn’t changed. If so,
advise ATC of new ETA.
ENVIRONMENT BRIEF
*Runway of intended use, pattern entry, or approach brief
SEATS/BELTS..... ADJUSTED/FASTENED
FUEL PUMP ON
FUEL SELECTORPROPER TANK
FLAPS..... SET
ALT AIR AS REQUIRED
MIXTURE FULL RICH
LANDING LIGHTAS REQUIRED
PARKING BRAKE VERIFY OFF
TOE BREAKS..... DEPRESS TO CHECK

GO AROUND CHECKLIST

MIXTURE/THROTTLE..... FULL
CONTROL WHEEL BACK PRESSURE TO
... OBTAIN A POSITIVE RATE OF CLIMB
FLAPS..... RETRACT INCREMENTALLY
RADIO CALL CTAF/CENTER FREQUENCY

AFTER LANDING CHECKLIST

RADIO CALL.....REPORT CLEAR
FLAPS..... RETRACT
ALT AIR.....OFF
ELECTRIC FUEL PUMP.....OFF
STROBE LIGHTFIN
LANDING LIGHTAS REQUIRED
*Lights should be kept at a minimum at all times on
the ground to protect night vision. Additional lights
will be used if required for night or low visibility
operations or as preferred by PIC.
PITOT HEAT OFF
MIXTURE..... TAXI LEAN
*Leaning for ground operations is done by leaning
until RPM begins to decrease and enrichen to peak
RPM.
FLIGHT PLAN CLOSED
TRANSPONDER ALT/1200
TAXI CLEARANCE OBTAIN
TAXI BRIEF COMPLETE

ENGINE SHUTDOWN

PARK BRAKESET
FLAPS RETRACT
FUEL PUMPOFF
EMERG BATT SWITCHOFF
AVION MASTER.....OFF
VENT FAN.....OFF
ELECTRICAL SWITCHES.....OFF
ALTR SWITCHOFF
THROTTLE CLOSED
MIXTURE IDLE CUT-OFF
MAGNETOS.....OFF
INTERIOR/EXTERIOR LIGHTSOFF
BATT MASTR SWITCH.....OFF
STANDBY INSTRUMENT...VERIFY SHUTDOWN
*Do not push any buttons on the standby instrument
as this will cause it to remain on. Verify that the
instrument indicates it is in the shutdown process.
MAG-TAGS SECURE
PARKING BRAKE..... RELEASE

POST FLIGHT INSPECTION

HOBBS/TACH RECORD
*Send a photo of the tach and hobbs to dispatch at
(507)508-0706
CABIN INTERIOR..... CLEAN
MIXTURE..... CUT OFF
MASTER SWITCHES OFF

MAGNETOS..... OFF
WINDOW..... CLOSED
DOOR CLOSED
RIGHT WING CONDITIONCHECK
*Check for signs of birdstrike
*If there is a birdstrike the aircraft must be downed right
away
*A kit is located behind the pilot seat and must be filled
out and accompanied by a safety report
CHOCKS INSERT
NOSE SECTION CONDITIONCHECK
*Check for signs of prop-strike
PROP BLANKET ON
ENGINE BLANKET..... ON
*Blankets will be used when average ambient
temperature is below 40° F / 4° C
LEFT WING CONDITIONCHECK
*Check for signs of birdstrike
FUSELAGE/EMPANNAGECHECK
*Check for signs of tailstrike
TIE DOWN AS NECESSARY
DISCREPENCIES/SQUAWKS.....REPORT

ENGINE FIRE ON START UP

Indications

Smoke/flames coming out of engine compartment

Actions to Take

Start Switch Continue Cranking
Mixture Idle Cut Off
Throttle Full Open
Fuel Pump Off
Fuel Selector Off
Aircraft Evacuate
Fire Extinguisher Use
The fire extinguisher uses halon which will remove the oxygen from the area to put out the fire.

ENGINE FIRE IN FLIGHT

Indications

Smoke, Smell, Heat in the Cabin, High CHT/EGT/Oil Temperatures

Fuel Selector Off
Throttle Closed
Mixture Idle Cut Off
Fuel Pump Off
Heat/Defrost Off
If Fire Persists, begin Emergency Descent (page 11) and prepare for Power Off Landing (page 20)

ELECTRICAL FIRE

Indications

Smoke/Heat coming from panel, burning rubber smell

Actions to Take

Emergency Battery Verify Arm
Battery Master Off
Alternator Off
Vents Open
Heater/Defroster Off
Fire Extinguish
Emergency Descent As Needed
The fire extinguisher uses halon which will remove the oxygen from the area to put out the fire.

LAND AS SOON AS POSSIBLE

EMERGENCY DESCENT

Actions to Take

Throttle Idle
Flaps As needed
Airspeed no flaps 125KTS
..... with flaps 102KTS
Bank Up to 45°

*When deciding configuration to use consider the scenario at hand:

Flaps will be down when losing the most altitude is desired and flaps up when gaining the most airspeed is desired. If landing area is away from you, consider flying straight towards it.

ENGINE FAILURE – TAKEOFF

Indications

Sudden Quiet, Low RPM, Loss of Performance, Engine Sputtering

Actions to Take

If sufficient runway remains for a complete stop:

Airspeed Safe airspeed
Land Straight ahead
Brakes As required

If insufficient runway remains:

Airspeed Safe airspeed
Flaps As required
Turns Shallow turns only

If sufficient altitude has been gained to attempt a restart:

Airspeed 76kts
Fuel selector Switch
Fuel pump On
Mixture Rich
Alt air Open
Land Power off if not regained

ENGINE FAILURE – FLIGHT

Indications

Quiet, propeller no longer spinning, engine sputtering, drop in RPM, fuel flow, and EGTs

Actions to Take

Airspeed Vg (76kts)
Landing Area Locate
Restart Attempt
Fuel Selector Switch Tanks
Fuel Pump On
Mixture Full Rich
Alternate Air Open
Left Magneto Off, Then On
Right Magneto Off, Then On
Mayday Announce
Secure Refer to

Engine Secure Checklist

If Power is not restored, prepare for Power Off Landing (page 20)

Engine Failures, while rare, most commonly occur because of fuel flow interruption and can be fixed by turning on the fuel pump and switching to a fuel tank with fuel.

Make sure the fuel selector is fully on the tank of intended use.

Engine failure can happen from too lean or too rich mixture. Try adjusting the throttle and mixture levers settings.

When power is restored

ALT AIR OFF
FUEL PUMP OFF

*If any of those actions caused engine failure, switch back ON.

SPIN RECOVERY

Indications

Reduced airspeed, rapid rotation, altimeter rapidly descending, turn coordinator full deflection.

Actions to Take

RUDDER FULL OPPOSITE TO DIRECTION OF ROTATION

CONTROL WHEEL FULL FORWARD while NEUTRALIZING AILERONS

THROTTLE IDLE

RUDDER NEUTRAL WHEN ROTATION STOPS

CONTROL WHEEL BACK PRESSURE TO RECOVERY FROM DIVE

If rotation has not stopped, quickly move the yolk forward then back. Once Rotation has stopped, Neutralize the rudder.

Once airflow is established over the wings and airspeed is increasing, slowly pull back on the yolk to begin climb.

INTENTIONAL SPINS ARE NOT ALLOWED

LOW OIL PRESSURE

Indications

Flashing Red Oil Pressure,
Triple Chime

Actions to Take

Throttle Minimum required

If high oil temp, LAND AS SOON AS POSSIBLE

If normal oil temp, LAND AS SOON AS PRACTICAL

PREPARE FOR POWER OFF LANDING

Low oil pressure can be an indication of a loss of oil in the engine which can lead to engine failure and severe engine damage. If engine stoppage occurs, proceed with power off landing (page 11)

HIGH OIL PRESSURE

Indications

Flashing Red Oil Pressure,
Triple Chime

Actions to Take

Throttle Minimum required

LAND AS SOON AS PRACTICAL

Prepare for power off landing (page 11)

HIGH OIL TEMPERATURE

Indications

Flashing Red Oil Temperature,
Triple Chime

Actions to Take

Throttle Minimum Required

Mixture Full Rich

Airspeed INCREASE IF PRACTICAL

**LAND AS SOON AS POSSIBLE,
PREPARE FOR POWER OFF LANDING**

Engine Gauges Monitor

High oil temperature can be caused by low oil levels. If accompanied by low oil pressure, prepare for engine failure (page 12) and power off landing (page 11)

LOSS OF FUEL FLOW

Indications

Low GPH on Fuel Flow Meter

Actions to Take

If caused by fuel depletion in one tank

Fuel Pump On

Fuel Selector Switch to Fullest Tank

Fuel Pump Off

If cause by engine driven fuel pump failure:

Throttle Closed

Fuel pump On

Throttle/Mixture As Required

Loss of fuel flow is commonly caused by either fuel depletion or failure of engine driven fuel pump. If fuel flow is not restored, this indicates a leak in the fuel system and the electric fuel pump should be turned off.

FUEL QUANTITY LOW

Indications

L FUEL QTY / **R FUEL QTY** or

L FUEL QTY / **R FUEL QTY** CAS

Message, Triple/Double Chime

Actions to Take

Fuel Quantity Check

Fuel Selector Fullest Tank

LAND AS SOON AS POSSIBLE

Avoid forward slips towards low quantity tank as it decreases time to fuel starvation.

ENGINE ROUGHNESS

Indications

Engine sputtering, unusual noises, vibrations, RPM fluctuations

Actions to Take

Alternate Air Open 1 min

IF ENGINE ROUGHNESS CONTINUES

Mixture Adjust for smoothness

Alternate Air Closed

Fuel Pump On

Fuel Selector Switch Tanks

Engine Indications Check

Left Magneto Off, then On

Right Magneto Off, then On

LAND AS SOON AS PRACTICAL

PREPARE FOR POWER-OFF LANDING

If at any time the engine begins to run smoothly, maintain settings that provide maximum smoothness.

ALTERNATOR FAILURE

Indications

ALT FAIL Red CAS Message,
Alt Amps reads 0, Triple Chime

Actions to Take

Alternator Switch Off
ALTR Circuit Breaker Reset if Out
(Row 1, Col 13)
ALT FIELD Circuit Breaker Reset
(Row 2, Col 13)

*After pulling a circuit breaker, wait 10 seconds for a cool off period before pushing circuit breaker back in. Do not reset the circuit breaker a second time.

ALTR Switch ON

If alternator still failed:

ALTR Switch Off
electrical load reduce by pulling
following circuit breakers
NON ESS BUS (Row1, Col 1)
LIGHTING BUS (Row1, Col 2)
AVION MASTR SWITCH Off

The Battery is now the only primary source of electrical power. To ensure 30 minutes of battery life, limit the following:

Battery discharge to 13 Amps
Pitot Heat to 14 minutes
Com Radio to 3 minutes
Fuel Pump to 2 minutes

LAND AS SOON AS POSSIBLE

COMPLETE ELECTRICAL FAILURE

Indications

EMERG BATT ON CAS Message E-Volts shows on Engine Display **PFD FAN FAIL** and **AV FAN FAIL** CAS Messages will also appear

Actions to Take

EMERG BATT Switch Verify ARM
Standby Instruments Verify On Aircraft control Use PFD and standby instrument
BATT MASTR Off
ALTR Switch Off

LAND AS SOON AS POSSIBLE

Use the PFD and Standby Instruments for control of the aircraft and exit IMC immediately and land as soon as possible. The emergency battery is the only source of power for the aircraft. When the emergency battery dies, the only electrical equipment available will be the standby flight instruments. Standby instruments do not provide navigation information.

Emergency Battery Voltage

Indications

Master warning, triple chime, Flashing Red E Volts Indication

Actions to Take

LAND AS SOON AS POSSIBLE

ADAHRS FAILURE (On ground)

Indications

Sky/Ground presentation removed, course pointer straight up, yellow-X and amber text on Airspeed, Altitude, VSI, and Heading Indications.

Actions to Take

Consider any system messages

ADAHRS Circuit Breaker RESET
(Row 2, Col 8)

Avoid flight in IFR conditions

*After pulling a circuit breaker, wait 10 seconds for a cool off period before pushing circuit breaker back in. Do not reset the circuit breaker a second time.

ADAHRS FAILURE (In flight)

Indications

Sky/Ground presentation removed, course pointer straight up, yellow-X and amber text on Airspeed, Altitude, VSI, and Heading Indications.

Actions to Take

Standby Instrument
..... Verify no failure indications
Attitude and heading
..... Use standby instrument

Consider any system messages

ADAHRS Circuit Breaker RESET
(Row 2, Col 8)

Avoid flight in IFR conditions

*After pulling a circuit breaker, wait 10 seconds for a cool off period before pushing circuit breaker back in. Do not reset the circuit breaker a second time.

MFD FAILURE

Indications

MFD screen turns black

Actions to Take

Display BackupPush
Avionics Brightness Knob..... Rotate
Display BrightnessCheck
Com1/Nav1 Tune and Activate

Exit IFR Conditions as soon as practical

PFD should automatically go to revisionary mode after MFD Failure. COM 2, and NAV 2 are inoperative with MFD failure.

PFD FAILURE

Indications

PFD screen turns black

Actions to Take

Standby Instrument Verify On
Aircraft control Use
Standby Instrument
Display Backup..... Push
(Button Out)

Aircraft control Use MFD
and Standby Instrument
Avionics Brightness Knob Rotate
Display Brightness..... Check
Com2/Nav2 Tune and Activate

Exit IFR conditions as soon as

possible. If the PFD Fails, the MFD will remain in normal mode until the display backup is pushed. COM 1 and NAV 1 are inoperative with complete PFD failure. The engine and map pages are unavailable in revisionary mode.

If revisionary mode is not working properly, on the AUX System Setup Page on the MFD, program DTX, TRX, and XTX on the custom fields. This will provide course guidance information in the form of Desired Track (DTX), Current Track (TRX), and Cross Track (XTX) (distance from course).

ERRONEOUS/LOSS OF ENGINE

INSTRUMENTS

Indications

Yellow X over affected engine or fuel display

Actions to Take

GEA Circuit Breaker Reset
(Row 2, Col 3)

*After pulling a circuit breaker, wait 10 seconds for a cool off period before pushing circuit breaker back in. Do not reset the circuit breaker a second time.

Set power based on throttle lever position, engine sound, and speed. Monitor other indications to determine the health of the engine.

All Engine, Electrical, and Fuel Indications are now invalid.

LAND AS SOON AS PRACTICAL

COMM FAILURE

Indications

Inability to communicate/receive on Com 1 and Com 2

Actions to Take

Audio Panel Volume Check
Audio Panel Squelch Check
Headset Volume Check
Headset Jacks Check/Try Other

If Coms Still Failed

Audio Panel Circuit Breaker Pull
(Row 2, Col 9)

When power is lost to the audio panel, a fail safe communications path becomes available between the pilots headset/microphone and COM1.

Exit and avoid IFR conditions as soon as practical.

GPS FAILURE

Indications

Amber DR on HSI and Amber DR on moving map display.

Actions to Take

Navigation Use alternate source (VOR, ILS, LOC, Pilotage/Dead Reckoning) If no alternate source of navigation is available, DR (dead reckoning mode uses heading, airspeed, and last known position and can be used for 20 minutes.

LOSS OF NAVIGATION

Indications

Amber VOR,
VAPP, GPS, BC,
LOC or GS
flashing on PFD

Actions to Take

NAV Frequency..... Check
NAV source Identify
Navigation.....Use alternate source
(VOR, ILS, LOC, GPS
Pilotage/Dead Reckoning)
Missed approach EXECUTE

PITOT HEAT FAILURE

Indications

PITOT HEAT FAIL CAS Message,
Double Chime

Actions to Take

Pitot Heat Switch Off
Pitot Heat Circuit Breaker Reset
(Row 2, Col 2)

*After pulling a circuit breaker, wait 10 seconds for a cool off period before pushing circuit breaker back in. Do not reset the circuit breaker a second time.

Pitot Heat Switch On

Exit and avoid IFR conditions

STARTER ENGAGED

Indications

START ENGD CAS Message

Actions to Take

If on the ground:

Throttle Reduce
Engine Start Circuit Breaker Pull
(Row 1, Col 10)

Engine Shutdown

If in flight:

THROTTLE Reduce
ENG START Circuit Breaker..... Pull
(Row 1, Col. 10)

LAND AS SOON AS POSSIBLE

POWER OFF LANDING

Actions to Take

Airspeed 76KIAS
Landing Pattern 1000 AGL

When Committed to Land

Airspeed 66KIAS
Flaps As Desired
Throttle Closed
Mixture..... Idle Cut-Off
Magnetos Off
Emergency Battery..... Off
Battery Master..... Off
Alternator Off
Fuel Selector Off

*To shut off the fuel selector you will need to depress the stop pin and move the selector until it is facing rearward.

Seatbelts..... Tighten
Door Unlatch/Open

Once a suitable field has been found, excess altitude can be lost by establishing a spiral pattern around the field of intended landing. Altitude can also be lost with flaps, forward slip, or widening your pattern.

OPEN DOOR

To close the door in flight:

Airspeed..... Less than 87KIAS
Cabin Vents Closed
Storm Window..... Open
Door..... Attempt to Close
If unable to get door to latch,

LAND AS SOON AS PRACTICAL

CO Detector Warning

Indications

CO LVL HIGH CAS Message, Triple Chime

Actions to Take

If CO Detector warning or caution activates in flight:

CO RST SOFTKEY Push
*Button can be found on the engine display page of the MFD.

If the Warning or Caution continues:

Heater/Defroster..... Shut
Off Fresh Air Vent..... Open

LAND AS SOON AS POSSIBLE

AVIONICS COOLING FAN FAILURE

Indications

AV FAN FAIL and/or **PFD FAN FAIL** and/or
MFD FAN FAIL CAS Messages

Actions to Take

Battery Master..... Verify On
Alternator..... Verify On

*If messages are displayed on the ground, do not fly.

*If a message is displayed while in flight, it is permissible to continue the flight.