

## Aircraft Quick Reference

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## Emergency Quick Reference

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Engine Failure After Takeoff & In Flight 

Electrical Fire During In Flight & Engine Fire During Start 

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Flight Instrument & PFD Failure **INST & PFD**

Before Taxi Briefing

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Cold Weather Operations  
- OAT below 35 F

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## ABNORMAL

**AC DOOR OPEN**  
**FUEL IMBAL**  
**MAINT MODE ON**  
**PFD (MFD) FAN FAIL**

**AC DOOR OPEN**  
**L (R) FUEL QTY**

**AV FAN FAIL**  
**OPEN CABIN DOOR**

**ADC TOTAL FAILURE**

**AHRS TOTAL FAILURE**

**COM1 and COM2 FAILURE**

**COMPLETE ELECTRICAL FAILURE** **EMERG BATT ON**

**DUAL GPS FAILURE**

**ENGINE ROUGHNESS**

**ENGINE START USING EXTERNAL POWER**

**ERRONEOUS/LOSS OF CAS MESSAGES**

**ERRONEOUS/LOSS OF ENGINE/FUEL DISPLAYS**

**MFD FAILURE**

**PFD FAILURE**

**PITOT HEAT FAIL**

**PITOT HEAT OFF**

## EMERGENCY CHECKLIST CROSS REFERENCE

This table provides a cross-reference to the Emergency checklists in the CAE PA-28- 181 Archer TX Airplane Flight Manual. These page numbers do not refer to page numbers in this QRH.		
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## ABNORMAL CHECKLIST CROSS REFERENCE

This table provides a cross-reference to the Abnormal checklists in the CAE PA-28- 181 Archer TX Airplane Flight Manual.

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## PREFLIGHT

### INTERIOR

Airworthiness	VERIFY
Control Wheel Lock	REMOVE
Interior Lights	OFF
Panel Switches	ALL OFF
Mixture	CUTOFF
Magnetos	OFF
Battery Master	ON
Pitot Heat	ON
Pitot Heat CAS Msg	NOT SHOWN
Fuel Qty	CHECK
Fuel Selector Valve	FULLEST TANK
Exterior Lights	ON - CHECK
Pitot Heat	CHECK WARM
Stall Warning Horn	TEST
Exterior Lights	ALL DOWN
Pitot Heat	OFF
Pitot Heat CAS Msg	SHOWN
Battery Master	OFF
Trims	NEUTRAL
Static System	DRAIN
Alt Air	CLOSED
Alt Static Source	NORMAL
Flaps	DOWN

### EXTERIOR

Cabin Door	CLOSED
Baggage Door	LOCKED
R Wing Flap/Aileron	CHECK
R Wing Fuel	CHECK & DRAIN
R Wing Tiedown	DISCONNECT
R Main Tire & Strut	CHECK
Engine Oil Qty	6QTS (5 MINIMUM)
Propeller & Spinner	CHECK
Engine Inlets	CHECK
Nose Tire & Strut	CHECK
Nose Fuel Sump	DRAIN
L Main Tire & Strut	CHECK
L Wing Tiedown	DISCONNECT
L Wing Fuel	CHECK & DRAIN
Pitot Mast	CHECK CLEAR
Antennas	CHECK
Fuselage	CHECK
Stabilator/Trim Tab	CHECK
Rudder/Stabilizer	CHECK
Tail Tiedown	DISCONNECT
Flaps	UP

## BEFORE START

Preflight	COMPLETE
Seats & Seatbelts	ADJUST & LOCK
Brakes	HOLD
Overhead Switches	ALL DOWN
Emergency Battery	ARM
Circuit Breakers	CHECK IN
Bus E Volts	23.3 MINIMUM
G5 Battery Check	>20%
Throttle	OPEN 1/4 INCH
Bat & Alt	ON
Magnetos	ON
Prop Area	CLEAR

## START

### \*Read first then execute\*

Fuel Pump	ON
Mixture	SMOOTHLY to RICH <b>8 sec (Oil Temp &lt;140°) (Oil Temp &gt;140°) 5 sec</b>
Fuel Flow	STABLE
Mixture	CUTOFF
Fuel Pump	STILL ON
Starter	ENGAGE
At First Sign of Start	RELEASE STARTER MIXTURE RICH
Oil Pressure	GREEN
Throttle	1000 RPM

## BEFORE TAXI

Avionics Master	ON
Nav Light	ON
Landing Light	ON
PFD	AHRS ALIGNED
Brakes	VERIFY PRESSURE

### \*Taxi out of alley\*

Before Taxi Brief	<b>See E-QREF</b>
Weight Planning	FOB SYNC
Map Orientation	TRACK/NORTH UP
XPNDR	VFR
COM Frequencies	SET
Weather	OBTAIN
Instruments	CHECK
FMS/NAV/CDI	SET & ACTIVATE
Taxi Diagram	AVAILABLE
Flight Controls	FREE & CORRECT
Taxi Route/ Hotspots	OBTAIN & BRIEF
Taxi	1000 RPM or LESS



# PIPER ARCHER TX

This abbreviated checklist does not supersede any official regulations, procedures or documents

## RUNUP

Com Frequencies	SET
Landing Light	OFF
Mixture	RICH
Brakes	HOLD
Air Conditioner	OFF
Throttle	2000 RPM
Magnetos (175ea /50diff)	CHECK
Fuel Pump	CYCLE/CHECK FLOW
No Red Indications	EIS
	AMPS & VOLTS
	ANNUNCIATORS
Throttle	1000 RPM

## BEFORE TAKEOFF

Seats	UPRIGHT
Seatbelts	SECURE
Doors & Windows	LOCKED
FMS	BRIEF
Messages	CONSIDER
Fuel Qty	STATE
Fuel Selector Valve	FULLEST TANK
Flaps	0 or 25 DEGREES
Trims	NEUTRAL
Departure Brief	<b>See E-QREF</b>

### \*When entering runway\*

Air Conditioner	OFF
Overhead Switches	ALL UP

## AFTER TAKEOFF & CLIMB

Flaps	RETRACTED
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## CRUISE

Throttle	AS REQD
Fuel Pump	OFF
Landing Light	OFF
FMS	BRIEF
Mixture (XC)	LEAN

## SWITCHING FUEL TANKS

Fuel Pump	ON
Fuel Selector Valve	FULLEST TANK
Fuel Pump (Except TO/LDG)	OFF
Fuel Flow	MONITOR

## PRE-MANEUVER

Landing Light	ON
Air Cond.	AS REQD
Mixture	SET
Fuel Qty	STATE
Fuel Selector Valve	FULLEST TANK
Area	CLEAR

## DESCENT & BEFORE LANDING

Weather	OBTAIN
Overhead Switches	ALL UP
Mixture	RICH

### \*In the pattern\*

Fuel Qty	STATE
Fuel Selector Valve	FULLEST TANK
Seats	UPRIGHT
Seatbelts	SECURE
Flaps	AS REQD
Stability Call (200' AGL)	GO AROUND/CONTINUE
Autopilot (200' AGL)	OFF
Air Cond. (multiple laps)	OFF
Approach	HEELS ON FLOOR

## AFTER LANDING

### \*Run as flow, confirm at next stop\*

Flaps	UP
Fin Strobe	DOWN

## SECURING

XPNDR	VFR
Panel Switches	ALL OFF
Avionics	OFF
Emergency Battery	OFF
Exterior Lights	DOWN
Fuel Pump	OFF
Alternator	OFF
Throttle	IDLE
Mixture	CUTOFF
Magnetos (After Stop)	OFF
Interior Lights	OFF
Battery Master	OFF
Engine Times	RECORD
Aircraft	SECURED
Post-Flight Inspection	COMPLETE



## EMERGENCY LANDING

**\*If above 1500' AGL\***

Squawk	7700
Emergency	DECLARE on 121.5

**\*All altitudes\***

Seats	UPRIGHT
Seatbelts	SECURE
Panel Switches	ALL OFF
Throttle	IDLE
Mixture	CUTOFF
Magnetos	OFF
Fuel Selector	OFF

**\*Landing assured\***

Flaps	AS REQD
Bat & Alt Masters	OFF
Cabin Door	UNLATCH

## ENGINE FAILURE AFTER TAKEOFF

Airspeed	76
Best Place to Land	SELECT
Mixture	CUTOFF
Magnetos	OFF
Emergency Battery	OFF
Bat & Alt Masters	OFF
Cabin Door	UNLATCH
Land	STRAIGHT AHEAD

## ENGINE FAILURE IN FLIGHT

Airspeed	76
Fuel Selector	FULLEST/SWITCH
Fuel Pump	ON
Mixture	RICH
Alt Air	OPEN
Magnetos	CYCLE

**\*If Power Restored\***

Alt Air	CLOSE
Cruise Checklist	COMPLETE

**\*If Power NOT Restored\***

Emergency Landing	EXECUTE
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## ELECTRICAL FIRE IN FLIGHT

Emergency Battery	ARM
Bat & Alt Masters	OFF
Vents	OPEN
Heater/Defroster	OFF
Fire	EXTINGUISH
Emergency Descent	IF NEEDED

**\*Land as soon as possible\***

## ENGINE FIRE DURING

Starter	HOLD
Fuel Pump	OFF
Mixture	CUTOFF
Throttle	OPEN
Fuel Selector	OFF

**\*If fire continues\***

Aircraft	ABANDON
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**\*If fire extinguished\***

Starter	RELEASE
Securing Checklist	COMPLETE

## ENGINE FIRE IN FLIGHT

Mixture	CUTOFF
Throttle	CLOSE
Fuel Selector	OFF
Fuel Pump	OFF
Heater & Defroster	OFF
Airspeed	PITCH FOR Vno

**\*If fire extinguished\***

Emergency Landing	EXECUTE
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## WING FIRE

Exterior Lights	ALL OFF
Pitot Heat	OFF

**\*Sideslip to keep flames away from fuel\***

## ALTERNATOR FAILURE

Alternator	OFF
Alt & Field Breakers	IN / RESET
Alternator	ON

**\*If alternator still failed\***

Alternator	OFF
Non Ess Bus Breaker	PULL
Lighting Bus Breaker	PULL
Avionics Master	OFF

Fuel Pump	OFF
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Land	WHEN PRACTICAL
------	----------------

**\*To ensure 30 Min Battery Life\***

Pitot Heat	14 mins max
Com Radio	3 mins max
Fuel Pump	2 mins max



# PIPER ARCHER TX

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## LOST COMMUNICATIONS

Radio	VERIFY FREQ
Volume/Squelch	ADJUST
Push To Talk	VERIFY TX
Comms	CYCLE COM/FREQ

**\*If Comms not re-established\***

Squawk	7600
Land	WHEN PRACTICAL

**\*Recall light gun signals\***

## OPEN DOOR IN FLIGHT

Airspeed	UNDER 87 KIAS
Cabin Vents	CLOSE
Storm Window	OPEN
Side Latch	CLOSE
Upper Latch	CLOSE

## FLIGHT INSTRUMENT FAILURE

**\*If after FAF & VMC\***

Land	WHEN PRACTICAL
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**\*If after FAF & IMC\***

Missed Approach	CONSIDER
State Aoud	CONTINUE OR GOING MISSED

**\*If executing Missed, continue to below\***

**\*If prior to FAF\***

Circuit breakers	CHECK IN
Vac Pressure (if installed)	CHECK
Instrument Crosscheck	COMPLETE

**\*If function not restored\***

Assistance	CONSIDER
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**ATC NOTIFY**

Instrument Crosscheck	CONTINUE
Approach	CONSIDER

## PFD FAILURE

Reversionary Mode	PRESS
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**\*When Able\***

Circuit Breakers	CHECK IN
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**\*If function not restored\***

Assistance	CONSIDER
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**ATC NOTIFY**

Instrument Crosscheck	CONTINUE
Approach	CONSIDER

## BEFORE TAXI BRIEF

**\*SAFETY\***

### SEATBELTS

Location, function, & when to wear

### AIR VENTS

Location, function, motion sickness

### FIRE

Fire extinguisher location and use

### EMERGENCY

Follow my instructions. Exit procedures

### TALKING

Sterile cockpit & exchange of controls

### YOUR QUESTIONS

questions from passengers

### \*FUEL SELECTOR\*

The fuel selector is located here (point) The positions are:

Right Tank	Pointing Forward
Left Tank	Pointing Up
Off	Pointing Aft

The only time we will use the "OFF" position is in an emergency. To turn off, lift the middle pin, then turn the fuel selector to the rear. **I will not pull the pin during normal tank switches.**

## DEPARTURE BRIEF

### ABORTED TAKEOFF

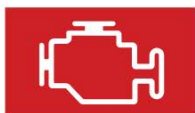
Abort takeoff for any fires, red annunciators or loss of directional control.

### ENGINE FAILURE BELOW 1000 AGL

Pitch for VG and land on remaining runway or within 30 degrees of heading.

### ENGINE FAILURE ABOVE 1000 AGL OR TURNED CROSSWIND

Pitch for VG and return to land on runway, taxiway, or suitable off-field site.



# ENGINE START – FLOODED ENGINE

## WARNING

An external inspection must be performed prior to using the Flooded Engine Start procedure and clearance from the CAE Fleet Department received. Ensure an external fire guard is present to observe the start for any smoke or evidence of fire during the start.

**THROTTLE (open slowly).....FULL OPEN**

Keep the throttle fully open to allow any excess fuel to evaporate into the intake manifold. Wait 2 minutes with the throttle fully open before cranking engine.

**BATT MASTR switch.....ON**

**ALTR switch.....ON**

**FUEL PUMP switch.....OFF**

**LEFT MAG switch.....ON**

**FIN STROBE switch.....ON**

**MIXTURE.....IDLE CUT-OFF**

**CAS messages.....CHECK**

**PFD annunciations.....CHECK**

**PROP AREA.....CLEAR**

**START switch.....ENGAGE (10 sec. Max)**

*When the Engine Starts:*

**MIXTURE.....INCREASE FOR SMOOTH RUNNING**

**THROTTLE.....SET (1000 RPM)**

**RIGHT MAG switch.....ON**

**OIL PRESSURE.....CHECK**

**VOLTS & AMPS.....CHECK**

## CAUTION

Do not pump the throttle

## NOTE

The starter manufacturer recommends starter cranking periods be limited to 10 seconds with a 20 second rest period between cranking periods. Maximum of 6 start periods are allowed. If start is not achieved on sixth attempt allow starter to cool for 30 minutes before attempting additional starts.





## ENGINE START USING EXTERNAL POWER

ALL ELECTRICAL EQUIPMENT.....	OFF
BATT MASTR switch.....	OFF
ALTR switch.....	OFF
LEFT MAG switch.....	ON
EMERG BATT switch.....	Verify ARM
EXTERNAL POWER.....	APPLY
MIXTURE.....	FULL RICH
THROTTLE.....	1/4 INCH OPEN
FUEL PUMP switch.....	ON
CAS messages.....	CHECK
PFD annunciations.....	CHECK
PROPELLER AREA.....	CLEAR
START switch.....	ENGAGE (10 sec. Max)

*MAXIMUM 3 ATTEMPTS WITH 2-MINUTE COOLING PERIOD IN BETWEEN ATTEMPTS*

***When the Engine Starts:***

RIGHT MAG switch.....	ON
FUEL PUMP switch.....	OFF
THROTTLE.....	SET (1000 RPM)
OIL PRESSURE.....	CHECK
BATT MASTR switch.....	ON
EXTERNAL POWER.....	DISCONNECT
ALTR switch.....	ON
VOLTS & AMPS.....	CHECK

### CAUTION

Do not pump the throttle  
Do not attempt flight if there is no indication of alternator output

### NOTE

The EMERG BATT switch may remain ON while using external power. The emergency bus does not receive power from the external power source due to a relay in the circuit.  
The starter manufacturer recommends starter cranking periods be limited to 10 seconds with a 20 second rest period between cranking periods. Maximum of 6 start periods are allowed. If start is not achieved on sixth attempt allow starter to cool for 30 minutes before attempting additional starts.



## AIR CONDITIONING DOOR OPEN

Indication: Master caution, Double Chime, PDF

**AC DOOR OPEN**

Caution: This alert is only triggered if the air conditioning door is open during an in-flight engine failure

AIR CONDITIONER.....OFF

GO TO..... POWER-OFF LANDING

## FUEL QUANTITY CAUTION ALERT

**ONLY ONE ALERT IS ILLUMINATED**

FUEL PUMP switch..... ON

OTHER TANK.....SELECT

FUEL PUMP switch.....OFF

FUEL REMAINING..... EVALUATE

**LAND AS SOON AS PRACTICAL**

**BOTH ALERTS ARE ILLUMINATED**

FUEL PUMP switch..... ON

FUEL SELECTOR..... FULLEST TANK

FUEL PUMP switch..... VERIFY ON

FUEL REMAINING..... CHECK and MONITOR

**LAND AS SOON AS POSSIBLE**



**ALT FAIL**

**INST & PFD  
FAIL**



# PITOT HEAT FAILURE ALERT

Indication: Master caution, Double Chime, PFD

**PITOT HEAT FAIL**

----- Failure Occurs On The Ground -----

IFR Operations Are Required

Terminate Flight Preparations..... DO NOT FLY THE AIRPLANE

At end of flight..... COMPLETE DISCREPANCY REPORT

IFR Operations Are Not Required

FLIGHT..... CONTINUE

At end of flight..... COMPLETE DISCREPANCY REPORT

----- Failure Occurs In-Flight -----

Operating in IMC Conditions

ATC..... ADVISE

Vectors to Nearest VFR conditions.....REQUEST

ICING CONDITIONS.....AVOID

ALTITUDE..... ADJUST (IF POSSIBLE)

TO MAINTAIN AN OAT OF MORE THAN 10°C

LOSS OF AIRSPEED Indications..... CONSIDER

**LAND AS SOON AS POSSIBLE**

Operating in VMC Conditions

FLIGHT..... CONTINUE

At end of flight..... COMPLETE DISCREPANCY REPORT

## NOTE

If operating in IMC at temperatures above +10 degrees Celsius, the possibility of pitot system icing is minimal and continued IMC operations are at the discretion of the Pilot In Command.



# PITOT OFF ALERT

Indication: Master caution, Double Chime, PFD **PITOT HEAT OFF**

## ----- Failure Occurs On The Ground -----

IFR Operations Are Required

PITOT HEAT switch..... ON PRIOR TO TAKEOFF

IFR Operations Are Not Required

PITOT HEAT switch..... ON.....

PITOT OFF and PITOT FAIL annunciations..... OFF.....

PITOT HEAT switch..... OFF.....

PITOT HEAT annunciation..... ON.....

## ----- Failure Occurs In-Flight -----

Preparing to Enter IMC Conditions

PITOT HEAT switch (during all IFR operations)..... ON.....

PITOT HEAT FAIL and PITOT HEAT OFF annunciations..... OFF.....

Only Operating in VMC Conditions

PITOT HEAT switch (during all VFR operations)..... OFF.....



## AC Door Open Annunciation

Indication: Single Chime, MFD **AC DOOR OPEN**

----- Failure Occurs On The Ground -----

### NOTE

This annunciation normally appears only when the air conditioner is operating on the ground and is for pilot awareness only. Per normal procedures, the air conditioner is turned off during takeoff and departure and this annunciation should disappear at that time.

----- Failure Occurs In-Flight -----

ANNUNCIATION APPEAR.....CONTINUE FLIGHT  
At end of flight..... COMPLETE DISCREPANCY REPORT

## Fuel Imbalance Annunciation

Indication: Single Chime, MFD **FUEL IMBAL**

FUEL PUMP switch.....ON  
FULLEST FUEL TANK..... SELECT  
FUEL PUMP switch.....OFF

## Maintenance Mode On Annunciation

Indication: Single Chime, MFD **MAINT MODE ON**

CREW AWARENESS ONLY.....NO ACTION REQUIRED  
At end of flight..... COMPLETE DISCREPANCY REPORT

## PFD Fan Fail or MFD FanFail

Indication: Single Chime, MFD **PFD FAN FAIL** **MFD FAN FAIL**

CREW AWARENESS ONLY.....NO ACTION REQUIRED  
Possibility of PFD or MFD Overheat Failure..... CONSIDER  
At end of flight..... COMPLETE DISCREPANCY REPORT



## Complete Electrical Failure

Indication: Single Chime, MFD Cause:  
emergency battery in use

**EMERG BATT ON**

**EMERG BATT** switch.....VERIFY SET TO ARM  
Standby Flight Instrument.....VERIFY OPERATIONAL  
Aircraft Control.....USE PFD AND STANDBY INSTRUMENT  
**BATT MASTR** switch.....OFF.....  
**ALTR** switch.....OFF

### **On the Ground:**

LANDING LIGHT.....INOPERATIVE

*Approximately 30 minutes of electrical power is available*

**LAND AS SOON AS POSSIBLE**

### **NOTE**

The VOLTS indication on the EIS window automatically changes to the emergency bus voltage (E VOLTS) when operating exclusively on the emergency bus.

### **NOTE**

Cooling air for MFD, GIA1 and the transponder will be lost when operating exclusively on the emergency bus as indicated by the MFD FAN FAIL and AV FAN FAIL advisory CAS messages.

### **NOTE**

The following equipment is operative while on the emergency bus:

- PFD reversionary mode
- Engine instruments
- Comm and Nav 1
- Standby Instrument
- Audio Panel
- Avionics Lighting and Dimming



**ALT FAIL**

**INST & PFD  
FAIL**



## PFD FAILURE

*Indication: PFD display goes blank*

Standby Instrument.....VERIFY OPERATIONAL  
Aircraft Control.....USE STANDBY INSTRUMENT  
DISPLAY BACKUP button on audio panel..... PUSH  
Aircraft Control (Standby Instrument and MFD).....USE  
COM 2.....ACTIVATE, TUNE AS NECESSARY  
NAV 2.....ACTIVATE, TUNE AS NECESSARY  
COM2/MIC (on audio panel).....SELECT  
DME (NAV2 in DME tuning window).....SELECT  
IFR conditions..... EXIT ASAP and/or AVOID

### NOTE

The autopilot reverts to its dedicated sensors to hold wings level and altitude constant. The autopilot should be disconnected to change wings level and/or altitude conditions. The autopilot can be reengaged in wings level and altitude hold if desired.

If PFD failure occurs while operating on NAV 1 DME, the NAV 1 DME information will continue to be available. If the pilot subsequently selects NAV 2 DME, NAV 1 DME cannot be re-selected.

If the PFD fails, the MFD will remain in normal mode. Pushing the DISPLAY BACKUP button on the audio panel allows the MFD to display AHRS and ADC information but lose the EIS page and certain map functions. The following features will become inoperative if there is a complete loss of PFD functionality:

- Com 1 (red x'd but 121.5 MHz remains available)
- Nav 1
- GPS 1
- Traffic

### Additional Considerations

Attitude, heading, airspeed and altitude indications are available on the standby instrument and on the MFD after the DISPLAY BACKUP button is pressed. It is the

**pilot's responsibility to compare these parameters to verify accuracy.** GPS and VOR2 navigation as well as flight planning are available via the inset map on the MFD. Weather products (if installed) that were displayed on the MFD prior to the PFD failure will still be presented on the inset map on the MFD in reversionary mode.



## MFD FAILURE

*Indication: MFD display goes blank*

**DISPLAY BACKUP** button (on audio panel)..... PUSH  
IFR conditions..... Exit ASAP and/or Avoid

### NOTE

The PFD should automatically revert to the reversionary mode display.

The following features will become inoperative if there is a complete loss of MFD functionality:

- Com 2 (red X'd but 121.5 MHz remains available)
- Nav 2
- GPS 2
- GDL 69 (Garmin Datalink - XM)
- DME
- ADF

### NOTE

Although the PFD should automatically go to reversionary mode display after an MFD failure, pressing the DISPLAY BACKUP button ensures that the PFD reverts. Without automatic or manual reversion of the PFD display, all engine parameters on the EIS window would be lost.



**ALT FAIL**

**INST & PFD  
FAIL**





## AHRS TOTAL FAILURE

*Indication: Sky/Ground presentation removed, course pointer straight up, red-X's and amber text on all AHRS parameters*

### ----- Failure Occurs On The Ground -----

System Messages (MSG soft key).....	CONSIDER
AHRS circuit breaker (Row 2,Col. 8).....	RESET
<b>If AHRS data is still invalid:</b>	
Flight in IFR and Icing Conditions.....	AVOID

#### NOTE

For partial AHRS failures, a red-x and amber text will appear over the affected parameter(s).

### ----- Failure Occurs In-Flight -----

Standby Instrument.....	VERIFY NO FAILURE INDICATIONS
Attitude and Heading.....	USE STANDBY INSTRUMENT

#### NOTE

The autopilot will no longer function in heading mode but will function properly during GPS or VOR navigation. Although the course pointer will point upwards at all times, the autopilot will fly the course set via the CRS knob and obey the CDI indications.

Course (using CRS knob on PFD).....	SET.....
System Messages (MSG soft key).....	CONSIDER
AHRS circuit breaker (Row 2,Col. 8).....	RESET
<b>If AHRS data is still invalid:</b>	
Flight in IFR Conditions.....	AVOID



## ADC TOTAL FAILURE

Indication: Red-X's and amber text on all ADC parameters

### ----- Failure Occurs On The Ground -----

System Messages (MSG soft key)..... CONSIDER

ADC circuit breaker (Row 2,Col. 7)..... RESET

*ADC data is still invalid*

Flight in IFR and Icing Conditions..... AVOID

### ----- Failure Occurs In-Flight -----

Standby Instrument..... VERIFY NO FAILURE INDICATIONS

Airspeed, Altitude & Vertical Speed..... USE STANDBY  
INSTRUMENT

System Messages (MSG soft key)..... CONSIDER

ADC circuit breaker (Row 2,Col. 7)..... RESET

### NOTE

During failure of ADC, TAS will be inoperative.

During an ADC failure, simultaneous use of ALT and VS on the autopilot is not available.

*ADC data is still invalid*

Flight in IFR Conditions..... AVOID



## ERRONEOUS OR LOSS OF ENGINE AND FUEL DISPLAYS

*Indication: Red-X's over affected engine parameter or fuel display*

### NOTE

Erroneous indications may be determined by comparing a display with other system information.

- Set power based on throttle lever position, engine sound and speed.
- Monitor other indications to determine the health of the engine.
- Use known power settings from the POH power setting tables for approximate fuel flow values.
- Use other system information, such as annunciator messages, fuel totalizer quantity and flow, to safely complete the flight.

***Indications for any of the following are invalid:***

ALL ENGINE PARAMETERS

VOLTS

ALTR AMPS

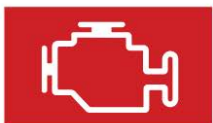
BATT AMPS

FUEL QTY

GEA circuit breaker (Row 2,Col. 3).....RESET

***All GEA parameters are still unavailable:***

**LAND AS SOON AS PRACTICAL**



ERRONEOUS OR LOSS OF WARNING / CAUTION CAS MESSAGES
<p><i>Red-X is shown on the CAS message window indicating complete failure Indication: CAS message present when not expected</i></p> <p><i>CAS message not present when expected <b>Red-X</b></i></p> <p><b>over CAS Message Box</b></p> <p>Pay special attention to all engine and airframe related parameters. The Master Warning and Master Caution indicators will not function, therefore</p> <p>→ CAS messages indicating a failure of a particular system can go undetected.</p> <p>→ <b>LAND AS SOON AS PRACTICAL</b></p>
<b>NOTE</b>
Refer to the Introductions Section, CAS Annunciations for information on Warning, Caution and Advisory messages that may be inoperative.
<p><b>CAS Message appears that is not expected</b></p> <p>Treat the condition as if it exists: GO TO..... Appropriate Abnormal or Emergency Checklist</p> <p><b>Abnormal condition exists, no CAS message activated</b></p> <p>Use other available information to confirm condition exists: GO TO..... Appropriate Abnormal or Emergency Checklist</p> <p><b>If it cannot be determined that the condition does not exist</b></p> <p>Treat the condition as if it exists: GO TO..... Appropriate Abnormal or Emergency Checklist</p> <p style="text-align: center;"><b>LAND AS SOON AS PRACTICAL</b></p>
<b>NOTE</b>
CAS messages are inhibited for many parameters on the EIS Display of the MFD. The Master Warning and Master Caution indicators and associated chimes are still activated whenever any indicated parameter enters the red or amber color bands.
<b>AFTER LANDING..... COMPLETE DISCREPANCY REPORT</b>



ALT

## COM1 AND COM2 FAILURE

*Indication: Inability to communicate/receive on COM1 and COM2 (Red X)*

HEADSET JACKS.....	VERIFY GOOD CONNECTION
AUDIO PANEL COM/MIC buttons.....	CHECK
RECEIVER VOLUME.....	CHECK
MICROPHONE button.....	PRESS, OBSERVE TX ON FREQUENCY DISPLAY
TRANSPONDER.....	SET 7600
IFR conditions.....	Exit ASAP and/or Avoid

### NOTE

If power is lost to the audio panel a fail-safe communications path becomes available between the pilot's headset/microphone and COM1.

### NOTE

A hand-held microphone is located in the pocket behind the pilot's seat. Activating the SPKR button on the audio panel allow reception of incoming transmissions on the cabin speaker.



## DUAL GPS FAILURE

*Indication: Amber "DR" annunciation on the HSI, Amber "DR" superimposed over the airplane symbol on the moving map.*

NAVIGATION.....USE ALTERNATE SOURCE  
(ILS, LOC, VOR, DME, ADF)

**Alternate sources of navigation are not available**

NAVIGATION.....USE DEAD RECKONING (DR) MODE

### WARNING

Information normally derived from GPS turns amber and becomes more inaccurate over time. Amber CDI disappears after 20 minutes.  
TAWS (terrain awareness and warning system) is inoperative.

**Alternate sources of navigation are available**

Alternate Navigation Sources.....USE AVAILABLE SOURCE(S)

### NOTE

DR mode is active when the airplane is greater than 30 NM from the destination airport in flight plan. Use the airplane symbol and magenta course line on the MAP display and the amber CDI on the HSI.  
DR mode uses heading, airspeed and last known GPS position to estimate the airplanes current position.  
All maps with an airplane symbol show a ghosted airplane and a "DR" label. Traffic Information System (TIS) and Traffic Advisory System (TAS) are not dependent on GPS information. The position of displayed traffic relative to the airplane symbol on the map is still accurate.

**Indication: Loss of Integrity (LOI) is displayed:**

NAVIGATION.....CROSSCHECK / USE OTHER SOURCES

### NOTE

LOI is active when GPS integrity is insufficient for the current phase of flight. All information derived from GPS or DR is removed from the displays.  
The airplane symbol is removed from all maps. The map will remain centered at the last known position.  
"NO GPS POSITION" is shown in the center of the map.  
TAWS (terrain awareness and warning system) and TAS are inoperative.



## AVIONICS COOLING FAN FAILURES

Indication: CAS Advisory, Single Chime **AV FAN FAIL** and/or **PFD FAN FAIL**  
and/or **MFD FAN FAIL**

----- *Failure Occurs On The Ground* -----

FLIGHT PREPARATIONS.....TERMINATE

Do not fly the airplane until the issue(s) is (are) resolved.

----- *Failure Occurs In-Flight* -----

FLIGHT SCHOOL BASE AIRPORT..... RETURN  
AFTER LANDING..... COMPLETE DISCREPANCY REPORT

Do not fly the airplane until the issue(s) is (are) resolved.

## OPEN CABIN DOOR

*To close the door in flight:*

AIRSPEED..... REDUCE TO 87 KIAS MAXIMUM

CABIN VENTS.....CLOSE

STORM WINDOW..... OPEN

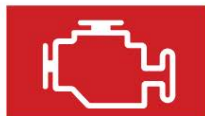
UPPER LATCH (if open)..... REDUCE TO 87 KIAS MAXIMUM

Side Latch (if open).....PULL ON ARM REST & CLOSE LATCH

Both Latches Open.....CLOSE SIDE THEN UPPER LATCH

### NOTE

If both upper and side latches are open, the door will trail slightly open and airspeeds will be reduced slightly.



## ENGINE ROUGHNESS

MIXTURE.....ADJUST FOR MAXIMUM SMOOTHNESS

FUEL PUMP switch.....ON.....

FUEL SELECTOR.....SWITCH TANKS

ENGINE indicators.....CHECK

LEFT/RIGHT MAG switches (individually select).....OFF then ON

*If operation is satisfactory on either MAG alone:*

Satisfactory MAGNETO.....CONTINUE OPERATION

POWER.....REDUCE

MIXTURE.....FULL RICH

**LAND AT NEAREST SUITABLE AIRPORT**



ALT



# Cold Weather Operations - OAT below 35 F

**Do not leave the master on for extended periods while preflighting and if temperature is below 20 degrees omit dropping flaps and checking lights before start.**

## **Preflight:**

- Pull the Propeller through 20 times to circulate oil.  
CHECK MAGNETOS OFF/KEYS OUT (Cessna)
- Do not extend flaps until after the aircraft starts (Cessna)

## **Starting:**

If an airplane is very cold or has not started in a few days...

- Increase Prime-time
  - Priming and then pulling the prop through a few full rotations also helps get the oil moving before using the starter.
- Use minimal RPMs to start the engine(LESS THAN 1000RPM) and limit yourself to low RPM settings (~1400RPMS for Lycoming/Continental or 2500RPMS for CRUZ) on ground.

## **In-flight:**

- No power idle descents.
- Use higher RPM descents
- If power idle descents are necessary...clear the engine with short gentle bursts of power periodically during the descent and keep the length of time you spend at idle to a minimum (practice it from 3,000ft instead of 5,000ft etc).



# Leaning Procedures

## Taxi

- lean until the onset of engine roughness - then slightly enrich until smooth. Set to full rich before Take-Off.

## Cruise

- As a general rule of thumb, lean the mixture less than but close to a temperature of 1425 EGT.
- If engine roughness occurs before peak EGT, the EGT corresponding to the onset of engine roughness should be used as the peak reference value.
  - Enrich ~100 degrees cooler from this value to operate rich-of-peak.
- If you need to climb, enrich the mixture before adding power if at or above 75% power (~2500 RPM or greater), then lean again at your new altitude.

**Maneuvers** - Set the mixture to full rich for maneuvering per the pre-maneuver checklist unless operating at about 4000 feet density altitude.

# Pivotal Altitude

Groundspeed		Approximate Pivotal Altitude
Knots	MPH	
87	100	670
91	105	735
96	110	810
100	115	885
104	120	960
109	125	1050
113	130	1130

