PA30-B – Twin Comanche
PREFLIGHT CHECKLIST

Revision 06-01-2019

DISPATCH CHECK

1. **Weather & Notams**……..**Obtained**.
2. **Squawks**……..…Binder **reviewed**.
3. **Inspections**….Binder dates **reviewed**.
4. **Sick sacks**……..Two **in binder**.

ARRIVAL

1. Baggage Door……Opened.
2. Cabin Door……..……Cracked.
3. **Fuel Quantity**……..……**Checked**.
4. **Fuel Sample Collectors**...**Positioned**.
5. **Tiedowns, Chocks, Plugs, Covers** ……**Removed**.
6. **Oil Level**……..…**6 *to 7 Quarts***.

INTERIOR PREFLIGHT

1. Parking Brake……As Needed.
2. **Control Lock**……..……...**Removed**.
3. **Flight Controls**……..**Freed** / ……full/correct travel **Checked**.
4. **Mixture**……..……Idle **cut off**.
5. Friction lock……..Set desired.
6. **Cowl Flaps**……..……**Opened**.
7. **Alternate Static**…..**Tested** as needed.
8. Circuit Breakers…..……..……...All in.
9. Left Subpanel Switches…..…...All OFF.
10. Battery Master……ON.
11. Panel Light Rheostat….Set as desired.
12. **Landing Gear Lever**……..**Down**.
13. Gear Indications…..... **Green**, **No Red**.
14. **Flaps**……... **15 Degrees Set**.
15. Heating and Cooling **Vents**…….…**Set**.
16. **Fuel Gages**...**Compared** to visual Qty.
17. Radio Master…..……ON.
18. **EDM Voltmeter**…….**Min.12 volts**.
19. **Hobbsmeter**…..……**Recorded**.
20. **Pitot Heat/External Lights, Stall Bell**. ……**Checked** (Exit & enter cabin).
21. **Switches** ……..….All **OFF**.
22. Battery **Master**…..……..…..**OFF**.
23. **Compass Card**……..……**Installed**.
24. **Fuel Drains** (Mains/Aux)…..**Actuated**.
25. **Fuel Selector**…..……...**Set to MAINS**.
26. **Documentation**…AR(R)OW **Checked**.
27. Passenger **Brief Cards**……..**Located**.
28. Fire **Extinguisher**…**Checked** integrity.

EXTERIOR PREFLIGHT

1. Cabin **Roof** ..…**Antennas inspected**.
2. **Right Main Landing Gear**……..Rear ….**Inspected**. (Tread, inflation, hub, disk, ….pads, lines,absorber, actuator, spring, ….Microswitch, wheel well, door).
3. **Right Flap**……..**Secure**. ……Only has up/down play.
4. **Right Aileron**……..**Secure**. ……..…Free & correct travel. …….....Only has up/down play.
5. **Right Wing Tip**..**Undamaged/secured**.
6. Right **Wing Surface & Lead edge**……. ……..**Undamaged**.
7. Right **Wing** Tie Down……...…**Untied**.
8. Inspection **Panels**……....**Closed**. ……Screws flush.
9. Right **Fuel Vent**……**Clear**.
10. **Outboard Fuel Cap**……..**Secured**.
11. **Main LDG Gear**……**Front inspected**.
12. **Cowl Flaps**……,..…**Unobstructed**.
13. Crank Case Oil Breather….Inspected.
14. **Right Cowl Hardware**…...**Inspected**.
15. **Right Engine Intakes**……..….**Clear**.
16. **Propeller**……..**Inspected**.
17. **Spinner**……**Inspected**.
18. **Cabin Intakes**…….……**Clear.**
19. **Janitrol Exhaust** ……**Clear.**
20. **Heating and Vent Intake**…...…**Clear.**
21. **Inboard Fuel Cap**……..…**Secured**.
22. **Transponder Antenna**…..**Inspected**
23. **Nose Landing Gear**…….. **Inspected**. …….. Doors, Wheel Well, Microswitch, ……..Tow limits, Spring, Actuators,
24. **Left Inboard Fuel Cap, Cowl Flaps, Crank Case Oil Breather, Cowl Hardware, Engine Intakes, Propeller, Spinner, Cabin Intakes Outboard Fuel Cap**……..……**As per Right side.**
25. Left MLG **Squat switch**…. **Inspected**.
26. **Left MLG**……..…**As per Right** side.
27. **Stall Vane & Pitot Tube**…**Inspected**.
28. Left Underside, Tiedown, Fuel Drain, Fuel Vent, Wing Surface, ……Lead edge, Wingtip, Aileron, Flap ……..……...**As per Right side.**
29. **Left Fuselage**……..**Inspected**.
30. **Left Static Port**…….……**Clear**.
31. **Antennas**……..**Inspected**.
32. **Vertical Stab**ilizer…….……**Secured**.
33. **Rudder**……**Undamaged. Has play**.
34. **Tail Cone**……Screws **secure**.
35. **Tail**……..……**Untied**.
36. **Stabilator & Actuator**..……**Free** ……travel, **undamaged**. Recess ……..unobstructed.
37. **Stabilator Tab** ……**Secure** ……..……Vertical play only.
38. **Right Fuselage**…..……**Inspected**.
39. **Right Static Port**……..……...**Clear**.
40. **Windshield**……..……**Clean**? ……..(Use Pledge & diaper rags).
41. **Shock Struts**……..**Clean**? ……(Spray clean with brake cleaner.)

PREFLIGHT COMPLETION

1. Oil Cans & Shop towels in Trash Box Only
2. Wash hands after handling fuel, oil, or chemicals!)
3. **Loose Baggage**……..**Secured**.
4. **Baggage door**……..……Locked **shut**.
5. WALK AROUND …..Chocks, tiedowns, cowl plugs, towbars……Removed. Fuel and oil caps……Secured.

REFERENCE CARD

Revision 9-10-2020

PASSENGER BRIEFING

1. **Seat belt operation.**
2. **Cabin Doors & Window Operation.**
3. **No smoking.**
4. **Moving Switches & Controls** – Obtain Permission from PIC and use Positive Exchange.
5. **Passenger Illness:**
   a. Sick sack location.
   b. Informing crew early.
   c. Air vent function.
6. **Forced landing:**
   a. Seats back, glasses off.
   b. Loose Items - Stow
   c. Assume Brace position.
   d. Cushioning – Obtain.
   e. Unlatch doors only on PIC's cue.
   f. Exit 45 degrees to rear after landing.
7. **Safety Equipment Location:**
   a. Fire Extinguisher
   b. Egress Hammer
   c. Flotation Devices
   d. First Aid, Flares
8. **Unnecessary conversion** - Avoid during critical phases.
9. **Passengers assist in locating traffic.**

DEPARTURE ENGINE OUT BRIEF

WITH RUNWAY / <78KT……..…ABORT.
……POWER IDLE.
……MAX BRAKES.
78-91 KTS CONTINUE ONCE EYE LEVEL TO OBSTACLES & GEAR IN TRANSIT .....
……..MAINTAIN MAX CLIMB POWER, BLUELINE, & HDG TO SAFE ALTITUDE.
IDENTIFY……DEAD FOOT / ENGINE
VERIFY.(PF).....SUSPECT THROTTLE
FIX OR FEATHER (Determine PF or PM)…….(Crosscheck Mix Rich, Selectors Inboard, Pumps On. If No Change, Cutoff convicted Mixture. No change in performance, Feather convicted Prop.)

FLOODED START

1. **Fuel Selector**……..…..Set to least full.
3. Propeller……..……Full forward.
4. **Main Switch**……...ON.
5. **Throttle**…… Set half open.
6. **Prop Area**……..Visually clear
7. **Ignition**…….Start until engine catches.
8. **Mixture**…Slowly richen as engine fires.

AUTOPILOT CHECK

1. **GREEN RDY LIGHT**……..…Lit.
2. **PUSH MODE**……ON. "STB" Lit.
   ……Wing leveler engaged.
3. **BANK CONTROLLER**…….Check.
4. **HDG MODE**……Push.
   ……Turn Bug. Controls follow.
5. **ALT MODE**……..ON. Controls stiffen.
6. **"HDG" & "ALT"……...**Annunciated.
9. **YOKE AP DISCONNECT**….Depress.
   ……..…Controls Released.

Briefings on this page are intended to be reviewed prior to engine start.

DEPARTURE BRIEFING

WE HAVE _____GALLONS (IN EACH TANK) & ____ QTS (EACH ENGINE). I ____AM PILOT FLYING. _____ ARE PILOT MONITORING. ____ AM/ARE PIC. WE ARE DEPARTING RUNWAY_____ IT IS (LEFT/RIGHT) TRAFFIC. RUNWAY IS _____FEET LONG. (REVIEW TAXI ROUTE/ NOTAMS/ HOTSPOTS).

WIND WILL MOSTLY BE ON THE (LEFT/RIGHT) SIDE OF THE RUNWAY. WE'LL CHECK INITIAL ACCELERATION WHEN SPEED IS ALIVE AT 40 KTS. WE SHOULD THEN BE ABOUT ONE STRIPE DOWN THE RUNWAY. WE SHOULD ROTATE AT ABOUT (_____FEET OF GROUND ROLL / NEAR TAXIWAY_____) ROTATE AT_____KNOTS & PITCH FOR _____KNOTS. PASSING_____ FEET, (FLY HEADING / TURN CROSSWIND) _____. TOP OF CLIMB IS _____ FEET.

WE WILL BE CLOSED TRAFFIC (or) PRIMARY NAVIGATION WILL BE [VISUAL, LOOKING FOR _____ (LANDMARK) / (GPS TO_____ / THE _____VOR)].

IN THE EVENT OF AN EMERGENCY, ____WILL FLY THE AIRPLANE, AND _____ WILL LOCATE THE CHECKLIST, & RADIO AS NEEDED. ON CUE _____ WILL READ THE CHECKLIST BY "CHALLENGE & RESPONCE RESPONSE." IF____ CALL FOR THE PLANE WE WILL SWITCH ROLES.

Insure copilot can locate Emergency checklists.

PA30-B – Twin Comanche
OPERATING CHECKLIST
Revision 09-10-2020

Italicized Items are minimum ground repo tasks.
Bold items are checklist items to be verbalized.
(Parentheses) items provide expansion.

PRESTART — Flow & Check

1. **Door Keys**……...**Secured**.
2. **Passengers / Emergencies**....**Briefed**.
3. **Departure Procedures**……**Reviewed**.
4. **Belts**, **Harnesses**……....**Secured**.
5. **Brakes**……...**Tested / Set.**
6. ***Battery Switch***……..….***ON***.
7. ***Avionics Switch***……***ON***.
8. ***Voltmeter***……..>**12 Volts**.

Defer to AFTERSTART #8 if 12 Volts.

CRAFT……**Loaded.**
(Cleared Route & CDI, Altimeter, Frequencies, Transponder Code/Mode & Reply)

9. ***Avionics Master***……..**OFF**.
10. ***Magnetos***……..***All ON.***
11. ***Position Lights***...……..……***ON.***
12. **Anti Collision**……..……**As Needed.**
13. **Door**…..……..……....**Secured**.
14. ***Fuel Selectors***……..…...**Set Inboard**.
15. **Propellers**…..……...**Full Forward.**
16. ***Throttles***……..…….... **Set.**
(Normal Start: Open ½ Inch. HOT Start: ½ Open. Flooded: Full Open.)
17. **Mixtures**…..……..……..**RICH**.

----------**Start**----------

Reference & Flow

1. Fuel Pumps…….As Required / OFF.
(Normal Start: 5 GPH. Warm: 1-2 Sec. ……HOT/Flooded: OFF)
2. Mixtures……Cut Off.
3. Prop Areas……..…..Visually clear.
4. Ignition…….....L / R As Required.
5. Mixture (Engine catches)…...1/2 travel.

AFTER START — Flow & Check

1. ***RPM*** ……..(Cold / Warm) **1000 / 1200.**
2. ***L /R Oil Pressures***... (In 30 sec) **Green**.
3. **Left** *Alternator* ON…….Ammeter ……..…Excited / Load Checked.
4. Left Alt OFF. ***Right Alternator***……. Ammeter Excited / ***ON / Load Checked***.
5. **Vacuum**……..…**Left /Right Indicating**.
6. **Flight Instruments**……. **Checked / Set**.
7. **Headsets & Radios**…....**ON / Checked**.
8. **CRAFT**……...**Checked Set**.
9. **Autopilot**……..……..……**Tested**.
10. **Bugs**……..……....**Set**.
11. **Trims**…….....**Tested / TAKE OFF**.
12. **Fuel Selectors**…….....**Crossfeed Left**.
13. ***Mixture***..... **Lean for Taxi.**
14. **Time**……**Noted**.
15. **Parking Brake**…….……**OFF**.

TAXI — Flow & Check

1. **Oil Stains**……(Pivot) **Checked**.
2. **Turn Coordinator**……**Actuates.**
3. **Fuel Selectors…….. Crossfeed Right**
4. **Flight Controls**……**Free.**

(R Recog /Landing = Taxi/Flight/LNDG)
(L Landing = Take Off & Landing Only)

At Runup Spot:

5. **Motion Lights**……**OFF.**
6. **Nose wheel**……...**Straight**.
7. **Parking Brake**…….……..…..**Set**.
8. **Doors**……..……**Secured**.
9. **Mixture**……..... **Rich.**
10. **Oil Temp**……..…….....……..….**Green.**
(Warm oil at 1500)

RUNUP & BEFORE TAKE OFF — Flow & Check

(Runup power 2000 RPM)

1. **Crossfeed**……**Removed.**
2. **Prop Cycles** ……**Smooth Travel.**
……..**MP/RPM varies**.
Oil Pressure Changes.
No Spray.
3. **Governor Check…….RPM Corrects.**
(Prop18-1900 RPM, MP +1 / -2 inch)
4 **Alternate Airs**……**Checked / In.**
5. **Magneto Checks**…..(L/Both, R/Both.)
……...<**175 RPM drop/50 between.**
6. **Magnetos**……**Up / ON**.
7. **Engine Instruments**...**Normal Range.**
8. **Idle RPM**…….…… **Steady**.
9. **Throttles**……..**1200 RPM.**
10. **Breakers**……..... **In & cool.**
11. **Brake**……..……**Released**.

----------**Before Take Off**----------

12. **Trim**…….……**TAKE OFF**.
13. **Flaps** (0 to 15. As Needed)……..…**Set**.
14. **Cowl Flaps**……..……**Open**.
15. **Mixtures & Propellers**…….**Forward**.
16. **Fuel Selectors**.....……..……**Set Inboard.**
17. **Departure Brief**……..…**As Needed.**
(Speeds, Courses, Altitudes, Emergency, Take Off & Climb Flows)

VR / Redline.……..…….**80** KIAS.
VSSE……84 KIAS.
Initial Climb / Blueline……..**93** KIAS.
VY- **Gear RETRACTED**…..**113** KIAS.

----------**Final Items**----------

19. **Autopilot**……..……**Disengaged.**
20. **Doors**……**Latched**.
21. **Fuel Pumps**……..……**ON**.
22. **Motion Lights** (BCN / L/R LNDG)..**ON**.
23. **Pitot Heat**……..…..**Set** (As Required.)

TAKE OFF — Reference & Flow

1. **"Approach & Departure**…..... **Clear**."
2. Max Power – (Set / Check MP/Fuel Flow, Oil Temp & Press, 8x EGT). "**2700 RPM, Engine Instruments Green."**
3. **"Brakes**…..…….…… **Released**"
4. **"40 kts** (Speed alive by 2nd Centerline Stripe.)…… **Continue / Stop**."
5. **"VMC/VR**……..……**Rotate**."

CLMB — Flow & Check

1. **Landing Gear**...(+ROC/VY) **Retracted**.
2. **Flaps** …….. (300 AGL) **Retracted**.
3. **Cruise Climb** ……..(1000 AGL) **Set.**
4. **Power**……**(** ≥25"MP as needed) **Set**.
5. **RPM**…….…… **2500.**

Exiting Pattern:

6. **Fuel Pumps** ……..…… **OFF**
7. **Fuel Pressures** ……..…… **Checked**.
8. **Timer** …….…… **Started**.
9. **Cowl Flaps**……..…. **Set.** As needed. (Close prior level off)

CRUISE — Flow & Check

Density Altitude	MP & RPM	% BHP	100F ROP Best Power GPH/TAS
2,000	24.5 /2400 23 /2300	75 65	20.0/160kt 17.7/150kt
4,000	23.7 /2400 22.0 /2300	75 65	20.0/165kt 17.7/153kt
6,000	23.1/2400 21.5 /2300	75 65	20.0/165kt 17.7/155kt
8,000	21.0 /2300	65	17.7/157kt
10,000	20.0 /2400	65	17.7/160kt

1. **Power, RPM, Mixture**..(Per Chart) **Set**.
2. **Trim / Lights**……**Set** (As Needed)
3. **Indications**……**Verified**. (Monitor)
4. **Fuel Tanks**……**Selected.**
5. **Cowl Flaps**……..……**Closed**.
6. **Mixtures**.....(Max CHT 400 F) **Reset.** (Set EGT 100F ROP time permitting.)
7. **Trend Data**…....(TOC +5 min) **Noted.**

DESCENT — Flow & Check

1. **Weather / Altimeter**….**Checked / Set.**
2. **Radio**……..……..…**Set**.
3. **CDI** ……..……..……**Selected**.
4. **Lights**…..……..……..**ON** (As needed.)
5. **Brakes**……....(Resistance) **Checked**.
6. **Indications**……**CHT +250F / +15" MP.**
7. **Belts**, **Harnesses, Loose Items**…….. ……..……**Secure**.
8. **Mixtures.**……..……..**Set** (As Needed.)
9. **Autopilot**…..……...**Mode verified**.
10. **Cowl Flaps**……..……..…**Closed**.

APPROACH TO LAND — Flow & Check

1. **Fuel Pumps**……..……..**ON**.
2. **Fuel Selectors**……..……..**Inboard.**
3. **Mixtures.**.……..……..……**RICH**.
4. **Landing Gear** ……..…VLE 129kts …….(Recommend 110-120kts) **DOWN**.

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5. **Propeller**…….... (At VFE) **2500 RPM.** (Final - Full Forward)
6. **Flaps**……...VFE 107kts **As Needed.** ……(Recommend ≤87 kts +15 degrees)
7. **Autopilot**……..……**OFF**.
8. Recommended Approach 90-105 KIAS.

SPEEDS — Quick Reference

1. Short Approach - Flaps 0 .....87 KIAS.
2. Short Approach - Flaps 15.....85 KIAS.
3. Short Approach - Flaps 27…….. .....78 (Calm Short field) - 83 KIAS.
4. VX / VY…....78 / 97 KIAS.

AFTERLANDING — Flow & Check

1. **Flaps**……..…….... **Retracted.**
2. **Mixtures**……..……..**Lean for taxi**.
3. **Fuel Pumps**…..……..……..**OFF**.
4. **Landing Light**……..……**OFF.**
5. **Pitot Heat**……..……..……**OFF**.
6. **Cowl Flaps**……..……....**Open**.

SHUT DOWN — Flow & Check

1. **Taxi Light & Anti Col**……..……**OFF**.
2. **ELT**……..……..……(121.5) **Quiet**.

----------**Reference & Do**----------

3. **ALL Avionics Units**……..…..**OFF**.
4. **Brake**…..…..…..**Set** IF Required.
5. **Magnetos**……..**Idle Ground Tested.** L then R Eng: L OFF, R OFF/ON, L ON
6. **Power**……**1000 RPM.**
7. **Mixtures**……..**Cut off**.
8. **Magnetos**……..……**OFF**.
9. **Hobbs/Tach**…..…..**Noted**.
10. **Master Switch** ……..……...**OFF**.
11. **Fuel Selectors**…..…..…..…… **OFF**.

POST FLIGHT — Reference & Flow

1. Flight Plan……..CLOSED.
2. Squawks……..Record.
3. Control Lock……..…..Installed.
4. Trash……..Removed.
5. Towbar……..Secured.
6. Cowl plugs……..……..Install.
7. Pitot cover……..Install.
8. Cabin cover……..Install.
9. Tiedowns……..Secure.
10. Tire condition……..Verify.
11. Bugs……..Washed off.
12. Doors……..Latch cabin & cargo.

EMERGENCY PROCEDURES

PA30-B **Revision 09-10-2020**

ENGINE PROBLEMS

ENGINE FAILURE DURING TAKEOFF

1. **Below 78 KT**
   Throttles……..**Idle.**
   Brakes…..……**Max**.
2. **Between 78 and 91 KT – Abort or Continue as Briefed.**
3. **91 KT Attained, Gear in Transit, Eye Level to the Obstacles:**
   Wing Flaps……..……..……**UP.**
   Airspeed……...**Maintain 91.**
4. **Procedures**……**Next.**

ENGINE POWER LOSS: CLIMB / FLIGHT

1. **Speed**.….**91 kts Climb / ≥ 91 kts level**.
2. **Inoperative Engine:**
   Dead Foot…….…….…… **Identify**.
   Dead Throttle. ……. **Verify.**
3. **Aileron / Rudder**……..
   ……**5 Degrees Bank & 1/2 Ball**
   ……**toward Operating Engine.**
4. **Max Engine Power**…….**As Needed.**
5. **Procedures**……**Next.**

ASYMETRIC VMC THREAT

1. **RETARD POWER / PITCH FOR 91 KT.**
2. **≥ 91 KT POWER AS NEEDED.**

POWER LOSS / ENGINE ROUGHNESS TROUBLESHOOT

1 **Fuel Selector**……**Switch to Fullest.**
2. **Crossfeed** ……..…..**As Required.**
3. **Electric Fuel Pump**……**ON.**
4. **Magnetos**
   a. **Power Loss**……**ON.**
   b. **Roughness**……..**L / R / Both.**

(Divert at reduced power if single magneto smooths operation.)

5. **Mixture**
   a. **Power Loss**……**Full Rich.**
   b. **Roughness**……..…...**Adjust.**
6. **Alternate Air**……**ON.**
7. **Engine Gages**……**Check.**
8. **If Power Restored:**
   a. **Pump**……..**OFF.**
   b. **Alternate Air** ……**OFF.**
9. **Procedure:**
   a. **If Engine Inop**……...
      INOP ENGINE FEATHER & SECURE
   b. **Roughness Persists**……**Prepare**
      ENGINE POWER LOSS: CLIMB / FLIGHT

HIGH OIL TEMP OR CHT

1. **Cowl Flaps**……..…….……**Open.**
2. **Mixture**……..…..…**Enrich.**
3. **Power**……..**Reduce.**
4. **Speed**……..…..……..**> 113 kts.**
5. **Divert**……..……**As soon as Possible.**
6. **Prepare**……..
   ENGINE POWER LOSS: CLIMB / FLIGHT

LOSS OF OIL PRESSURE

1. **Divert**……..……**As soon as Possible.**
2. **Prepare**……..
   ENGINE POWER LOSS: CLIMB / FLIGHT

LOSS OF FUEL PRESSURE

1. **Fuel Selector**……..…**Switch to Fullest.**
2. **Electric Fuel Pump**……..…..…**ON.**
3. **Mixture**……..…..…**Enrich.**
4. **If Pressure Not Restored**…**Pump OFF.**
5. **Divert**……..……**As soon as Possible.**
6. **Prepare**……..
   ENGINE POWER LOSS: CLIMB / FLIGHT

INOP ENGINE FEATHER & SECURE

1. **Mixture**……..…….**Cut Off.**
2. **Propellor**……..…..**Feather.**
3. **Fuel Selector**……..…..**OFF.**
4. **Fuel Pump**……**OFF.**
5. **Magneto Switch**……..……**OFF.**
6. **Generator**……..……**OFF.**
7. **Cowl Flap**……**Closed.**
8. **Land Soonest Practical Suitable Airport.**

LANDING BOTH ENGINES INOPERATIVE

1. **Best Landing Site**……...**Identify.**
2. **VG**….**96 kt** (Range)**/ 78 kt** (Endurance).
3. **Propellers**……..…..**Feather.**
4. **Transponder**……..……..**7700.**
5. **Radio / Mayday Call**……..…..**121.5.**
6. **Throttles**……**Closed.**
7. **Fuel Selectors**……..…..**OFF.**
8. **Mixtures**……**Cut Off.**
9. **Magnetos**……..…..**OFF.**
10. **Belts & Harnesses**…..……..…**Secured.**
11. **Doors**……..…**Block Open As Needed.**
12. **Wing Flaps**……**UP if landing Gear up, ……otherwise as required.**
13. **Landing Gear - Lower just before touch down if landing zone is NOT soft, rough, short, or ditching.**
14. **Master Switch**……**OFF.**

SINGLE ENGINE CROSSFEED OPS

(Emergency & Level Flight Only)

1. **Inop Engine Fuel Selector**……
   ……..……..**MAIN or AUX.**
2. **Operating Side Selector**…**Crossfeed.**
   (Do Not Crossfeed Both Engines)
3. **Before Landing**
   a. **Operating Side**……..…..**MAIN.**
   b. **Inoperative Side**……..…..**OFF.**
4. **Operative Side Fuel Pump**….**ON.**

AIR START

1. **Magnetos**……..……**ON**.
2. **Mixture**……**Rich.**
3. **Fuel Selector**……..……**ON.**
4. **Electric Fuel Pump…..**……**ON.**
5. **Throttle**……..…..**1/4 in. Open.**
6. **Propeller**……**Forward.**
7. **Starter**……..……**Engage.**
8. **Engine Catches**……**Throttle Set.**
9. **Oil Pressure**……..**Check.**
10. **Propeller / Mixture**……**Set.**
11. **Electric Fuel Pump** ……..….**OFF.**
12. **Alternator**……..…..**ON.**
13. **Cowl Flap**…….……**As Needed.**

SINGLE ENGINE APPROACH

1. **Speed**……..**91 kt**
2. **Configuration**…….**Field Made**
   a. **Landing Gear…..Down.**
   b. **Wingflaps…….15 Degrees**

SINGLE ENGINE GO AROUND

1. **Speed**……**91 kts Climb / ≥91 kts**.
2. **Max Engine Power**…….**As Needed.**
3. **Aileron / Rudder**……..
   ……**5 Degrees Bank & 1/2 Ball**
   ……**toward Operating Engine.**
4. **Landing Gear / Wing Flaps**….**Retract**.

FIRES

ENGINE FIRE DURING START

1. **Starter**……**Continue Cranking**.
2. **Mixture**……**Idle Cut-Off.**
3. **Throttle**……...**Full Open.**
4. **Fuel Pump**……..……**OFF**.
5. **Fuel Selector**……..……**OFF.**
6. **If Fire Continues**
   a. **Master Switch**……..……..**OFF**.
   b. **Evacuate & extinguish.**

ELECTRICAL FIRE / CABIN SMOKE

1. **Master Switch**..…..……**OFF**.
2. **Vents**……..**Open.**
3. **Door**……..…**Crack /Vent as needed.**
4. **Cabin Heat**……**OFF**.
5. **Extinguisher**……**Activate**.
6. **Land As Soon As Possible:**
   Flaps - Retracted…… **Speed - 87 KT.**
   Manual Gear Extension…...**Perform.**
   .

AIRBORNE ENGINE FIRE

Corresponding Engine:

1. **Throttle**……..……**CLOSED.**
2. **Mixture**……..……..**OFF**.
3. **Fuel Selector**……**OFF**.
4. **Fuel Pump**……..……**OFF**.
5. **Next Procedure**…**Engine Power Loss**

WING FIRE

1. ***Pitot Heat and Lights***……...***OFF***.
2. ***Slip***…*Keep flames off fuel tank and tail.*
3. ***Dive***……*Suffocate Fire.*
   ……*(Altitude Permitting).*
4. ***Land***……..……..….*As soon as possible.*

PORTABLE ELECTRIC DEVICE FIRE

1. ***Water***……...***Pour on device if able.***
2. ***Device***….***Isolate in containment bag.***
3. ***Fire Extinguisher***…..…***Use as needed.***

INVOLUNTARY SPIN

1. **Throttle**……..……**Idle**.
2. **Ailerons**……**Neutral**.
3. **Rudder**..…..**Full & opposite rotation**.
2. **Control Wheel**…**Briskly full forward.**
3. Rudder…. Neutral when rotation stops.
6. Flaps…….Retracted.
7. Control Wheel…….…….
   ……..As required to regain level flight.

SYSTEM FAILURES

DOOR OPEN IN FLIGHT

1. **FLY THE PLANE**.
2. **CRM / Autopilot**……..…**As Needed.**
3. **Speed**……..….Slow to **87** Kts.
4. **Storm Window**……..……...**Open**.
1. **Slip Airplane**……..…..**Door into wind.**
2. Latch……..Secure.
3. Unable to Close..... Land 10 KT faster.

AIRSPEED INDICATOR FAILURE

1. *Pitot Heat*……*ON.*
2. ***GPS Ground Speed***….***Cross check****.*
3. ***Alternate Static***……..***Pull.***

VACUUM SUCTION BELOW 4.8”

1. **RPM……..Increase.**
2. **Altitude……Descend.**
3. **GPS**……..**Cross check** for **track.**
4. **Turn Coordinator……...Cross check.**

STATIC SYSTEM FAILURE

1. ***Alternate Air***…….……...***Pull.***
2. ***GPS***…...***Cross check*** *Alt, GS, VS info.*

SINGLE BRAKE FAILURE - LANDING

(Aircraft pulling to side at application, not decelerating)

1. *Rudder……..Heavy opposite to yaw.*
2. ***Brakes***……..***Pump***.
3. ***Wing Flaps***…… ***Retract***.
4. ***Stabilator***……..***Full back***.

FLAT MAIN TIRE – LANDING

(Aircraft pulling to side without brakes applied)

1. ***Aileron & Rudder***…… ***Opposite yaw***.
2. ***Brake***…….…..…….. ***Gradual increase***
   ……..……...*opposite yaw.*

STABILATOR FAILURE

1. ***Trim***…….……*VREF.*
2. ***Power***
   a. ***For 500 FPM*** *descent.*
   b. *Carry into the landing flare.*
3. ***Flare***……...***With trim.***

PROPELLOR GOVERNOR FAILURE

1. **Propeller**……..…**Decrease RPM.**
2. **Throttle and Airspeed**……..
   ……..…….**Reduce to hold 2700 RPM**.
3. **Propeller**…….**Feather if needed.**

ELECTRICAL

EXCESSIVE DISCHARGE

1. Ammeter……....Shows Discharge.
2. Power ……..……...+1200 RPM.
3. Procedure……..ALTERNATOR FAILURE

ELECTRICAL EQUIPMENT FAILURE

CB Popped…**Only reset Once if urgent after 3-5 minute cool down.**

ALTERNATOR FAILURE

1. L / R Press to Test….Check Ammeter.
2. If Ammeter Shows Discharge
   a. Defective side Alt CB……Checked.
   b. Load…..……..…..Reduce.
3. Tripped Alternator CB / Volt Regulator
   ……Do not reset except in emergency.
4. Master Switch…….OFF 6 Seconds / ON. (To reset Overvoltage Regulator)
5. Alternator Switch……Reset.

BOTH ALTERNATORS READ ZERO

1. Electrical Load……...Reduce.
2. Volt Regulator Switch…….……AUX.
3. Volt Regulator CB……..Reset if urgent.

One or Both Alternator Restored….
Restore elect. load as needed.

Otherwise if not restored:

1. Volt Regulator Switch…….…MAIN.
2. Alternator CBs……..…..Pull/OFF.
3. Electrical Load…Reduce/Minimize.
   a. Divert
   b. Wing Flaps…….Retracted.
   c. Speed ……..……87 KT.
   d. Landing Gear……
      ……..Use Manual Gear Extension.

BATTERY OVERHCARGE

1. **Ammeter**…….**Excess Charge >10 ……..min after departure.**
2. **Alternator CB**……..……**Pull.**
3. **Procedure……. ALTERNATOR FAILURE Both Alternators Read Zero**

COMMUNICATIONS FAILURE

1. *Radios……..…..….Check Volume.*
2. *PTT……...Test Pilot/Copilot.*
3. *Audio Panel…….……..Check. ……...Transmitter, Receiver.*
4. *Intercom……..Check. ……. Muting, Crew Isolation.*
5. *Nav Audio……..……..Select if IFR. ……...Monitor nearest VOR.*
6. *Headset Jacks……..……..Swap.*
7. *CB Panel……....Check.*
8. *Radios…….Transmit in Blind.*
9. *Squawk…… 7600.*

WEATHER

INADVERTANT ICING

1. ***Heading***.....***Turn around***.
2. ***Altitude***……..……..……...***Change***.
3. ***Alternate Air***……..……..…...***ON.***
4. ***Pitot Heat***……..……..***ON.***
5. ***Demisting & Heating***…..…… ***Max.***
6. ***RPM****…****High. Cycle*** *to max @ intervals.*
7. *Stall speed……....Expect increase.*

INDUCTION SYSTEM ICING

Drop in fuel flow / engine roughness:

1. **Alternate Air**…….……**ON.**
2. **Throttle**……..……**Full open.**
3. **Mixture**……....**Adjust for best power.**

LANDING GEAR FAILURE MANUAL EXTENSION

Master Switch ……...……Checked ON.
Landing Gear CB……..…...Check / Reset.

LANDING GEAR OPERATES – NO GREEN GEAR LOCKED LIGHT

1. Nav Lights……..…Check OFF.
2. Gear Light……...Replace.

LANDING GEAR FAILS TO OPERATE – NO MANUAL GEAR EXTENSION

1. Airspeed…….……87 KT.
2. Landing Gear Switch…….Down.
3. Motor Release Arm……Disengage ……and push forward full travel. (May need seat back & foot pressure.)
4. Landing Gear……Allow to fall.
5. Gear Extension Handle……...Unstowe.
6. If Left slot not clear:
   Insert into Right socket, Engage slot. Twist CW to secure.
7. When Left slot clear,
   Extension handle…….Insert/Secure
   Rotate handle full forward to engage safety lock.
7. Gear Down Locked Light…….....Green.
8. **Motor**….**Don't re-engage in flight. Avoid crosswind landings and high speed taxi turns.**

IF GEAR STILL SUSPECTED UNSAFE

1. *Airplane……...Yaw/slip.*
2. *Low Pass……...Perform.*
   …..Obtain ground observation of gear.

NOSE LANDING GEAR UP OR PARTIALLY EXTENDED

1. *Flaps……..15.*
2. *Speed…….……..78 KT.*
3. *Seats, Belts, Harnesses…….Secure.*
   SHORT FINAL
4. *Master..……..OFF.*
5. *Mixture…….……...Idle Cut-off.*
   AFTER TOUCH DOWN
6. *Elevator Back Pressure…..Hold full aft.*
7. *Braking…….…...Minimize.*

MAIN LANDING GEAR UP OR PARTIALLY EXTENDED

1. *Landing Gear……Retract. Set UP.*
2. *Flaps……..……...15.*
3. *Speed……..78 KT.*
4. *Seats, Belts, Harnesses…..…...Secure.*
   SHORT FINAL
5. *Master..…….……OFF.*
6. *Mixture……..…….….Idle Cut-OFF.*
7. *Landing……Grass surface preferred.*

Bold Items are 1WA Memory Items.
Italicized items are suggested by 1World Aero, and are not specified by Piper AFM.