CIVIL AIR PATROL
FLIGHT CREW
CHECKLIST

C-172R

1998 CESSNA MODEL 172R
SERIAL NUMBER 17280318
INCORPORATES STC IO-360-L2A POWERPLANT

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GOLDEN TRIANGLE COMPOSITE SQUADRON
MISSISSIPPI WING, CIVIL AIR PATROL

THE PILOT'S CHECKLIST SHOULD NOT BE USED UNTIL THE FLIGHT CREW HAS BECOME COMPLETELY FAMILIAR WITH THE AIRPLANE AND SYSTEMS. ALL NORMAL AND EMERGENCY PROCEDURE ITEMS AND COMPLETE PERFORMANCE IN THE PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.

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OPERATION LIMITS

Fuel
- Maximum Capacity (Usable) ..... 53 Gal
- Capacity Each Side (Usable) ..... 26.5 Gal

Tachometer
- Green Arc (Normal Operation) ..... 2100-2700 RPM
- Red Line (Maximum) ..... 2700 RPM

Rated Horsepower ..... 180 BHP @ SL @ 2700 RPM

Oil Quantity
- Maximum Capacity ..... 8 Qt
- Minimum for Flight ..... 6 Qt

Oil Temperature
- Green Arc (Normal Operation) ..... 100-245° F
- Red Line (Maximum) ..... 245° F

Oil Pressure
- Red Line (Minimum) ..... 20 PSI
- Green Arc (Normal Operation) ..... 50-90 PSI
- Red Line (Maximum) ..... 115 PSI

Fuel Flow
- Green Arc (Normal Operation) ..... 0-11 GPH

Suction Gauge
- Green Arc (Normal Operation) ..... 4.5-5.5 In. Hg

G Limits: 2550 Lbs (Normal Category)
- Flaps Up ..... +3.8 / -1.52 G
- Flaps Down ..... +3.0 G

G Limits: 2200 Lbs
- Flaps Up ..... +4.4 / -1.76 G
- Flaps Down ..... +3.0 G

Max Gross Weight
- Normal Category ..... 2550 Lbs
- Utility Category ..... 2100 Lbs

Maximum Baggage Weights
- Area 1 (Stations 82-108) ..... 120 Lbs
- Area 2 (Stations 108-142) ..... 50 Lbs
- Maximum Combined Total in Baggage Areas ..... 120 Lbs

AIRSPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2550 pounds.

V_{SO}	40 KIAS
V_S	48 KIAS
V_X	62 KIAS
V_Y	74 KIAS
Best Glide	70 KIAS
Best Glide 10° Flaps	70 KIAS
V_{FE} First 10° Flaps	110 KIAS
V_{FE}	85 KIAS
V_A 2550 Lbs	105 KIAS
V_A 2200 Lbs	98 KIAS
V_A 1900 Lbs	90 KIAS
V_{NO}	129 KIAS
V_{NE}	163 KIAS
Max Window Open Speed	163 KIAS
Max Demonstrated X-Wind	15 KTS

Takeoff
- Normal Climb Out ..... 75-85 KIAS
- Short Field Takeoff, Flaps 10°, Speed at 50 Feet ..... 56 KIAS

Enroute Climb, Flaps Up:
- Normal, Sea Level ..... 75-85 KIAS
- Normal, 10,000 Feet ..... 70-80 KIAS
- Best Rate-of-Climb, Sea Level ..... 74 KIAS
- Best Rate-of-Climb, 10,000 Feet ..... 72 KIAS
- Best Angle-of-Climb, Sea Level ..... 62 KIAS
- Best Angle-of-Climb, 10,000 Feet ..... 67 KIAS

Landing Approach:
- Normal Approach, Flaps Up ..... 65-75 KIAS
- Normal Approach, Flaps 30° ..... 60-70 KIAS
- Short Field Approach, Flaps 30° ..... 61 KIAS

Balked Landing:
- Maximum Power, Flaps 20° ..... 60 KIAS

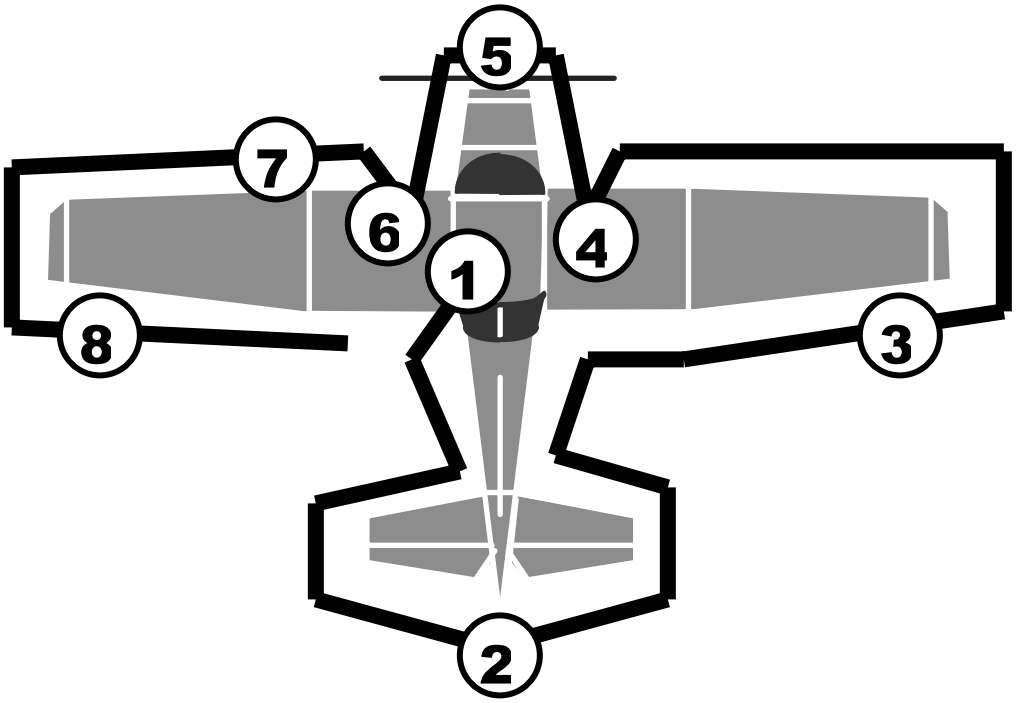
Maximum Recommended Turbulent Air Penetration Speed:
- 2550 Lbs ..... 105 KIAS
- 2200 Lbs ..... 98 KIAS
- 1900 Lbs ..... 90 KIAS

WEIGHT AND BALANCE PLANNING

		EXAMPLE				TODAY		
ITEM		**WEIGHT**	**ARM**	**MOM /1000**		**WEIGHT**	**ARM**	**MOM /1000**
BASIC EMPTY WEIGHT		1686.95	39.59	66.78		1686.95	39.59	66.78
USABLE FUEL (GAL x 6)	35	210	48.00	10.08			48.00	
PILOT / FRONT PASSENGER		430	37.00	15.91			37.00	
REAR PASSENGERS		160	73.00	11.68			73.00	
BAGGAGE AREA 1 (120 LBS MAX)		65	95.00	6.18			95.00	
BAGGAGE AREA 2 (50 LBS MAX)		0	123.00	0.00			123.00	
RAMP WEIGHT & MOMENT		2551.95	43.35	110.63				
START, TAXI, RUNUP		-7	**C.G.**	-0.30		-7	**C.G.**	-0.30
TAKEOFF WEIGHT & MOMENT		2544.95	43.35	110.33				

Directions: *Multiply each WEIGHT by the ARM to get a MOMENT (A calculator is recommended). The average ARM for each station is listed above. Add all the weights and moments to get TOTALS. Divide the TOTAL MOMENT by the TOTAL WEIGHT to find an ARM-this is your center of gravity (CG). Ensure your CG is within the published range in the STC supplement in the POH. Ensure you do not exceed the maximum gross weight as published in the POH (2550 Lbs Normal Category). The example above is within the envelope AFTER start, taxi, and runup.*

INTERIOR INSPECTION



Visually check airplane for general condition during walk-around inspection. Airplane should be parked in a normal ground attitude to ensure that fuel drain valves allow for accurate sampling. Use of the refueling steps and assist handles will simplify access to the upper wing surfaces for visual checks and refueling operations. In cold weather, remove even small accumulations of frost, ice, or snow from the wing, tail, and control surfaces. Also make sure that control surfaces contain no internal accumulations of ice or debris. Prior to flight, check that pitot heater is warm to touch within 30 seconds with battery and pitot heat switches on. If a night flight is planned, check operation of all lights and make sure a flashlight is available.

INTERIOR INSPECTION (continued)

1. Aircraft Documents—A.R.O.W.
2. Airworthiness Certificate
   Registration
   Pilot's Operating Handbook
   Weight and Balance Information
3. Airplane Weight and Balance—CHECKED.
4. CAP Flight Log/Inspection Times—CHECK
5. Parking Brake—SET
6. Control Lock—REMOVE
7. Ignition Switch—OFF
8. Electrical Equipment—OFF
9. Avionics Master Switch—OFF.

WARNING:

WHEN TURNING ON THE MASTER SWITCH, USING AN EXTERNAL POWER SOURCE, OR PULLING THE PROPELLER THROUGH BY HAND, TREAT THE PROPELLER AS IF THE IGNITION SWITCH WERE ON. DO NOT STAND, NOR ALLOW ANYONE ELSE TO STAND, WITHIN THE ARC OF THE PROPELLER, SINCE A LOOSE OR BROKEN WIRE OR A COMPONENT MALFUNCTION COULD CAUSE THE PROPELLER TO ROTATE.

10. Master Switch—ON
11. Low-Vacuum Warning Light—CHECK ON
12. Fuel Quantity Indicators—CHECK QUANTITY and ENSURE LOW FUEL ANNUNCIATORS (L LOW FUEL R) ARE EXTINGUISHED.
13. *Flaps—EXTEND
14. Avionics Master Switch—ON.
15. Avionics Cooling Fan—CHECK AUDIBLY FOR OPERATION.
16. Avionics Master Switch—OFF.
17. Annunciator Panel Switch—PLACE AND HOLD IN TST POSITION and ensure all annunciators illuminate.
18. Annunciator Panel Test Switch—RELEASE. Check that appropriate annunciators remain on.

NOTE:

When Master Switch is turned ON, some annunciators will flash for approximately 10 seconds before illuminating steadily. When panel TST switch is toggled up and held in position, all remaining lights will flash for approximately 10 seconds before illuminating steadily.

19. Static Pressure Alternate Source Valve—OFF.
20. *Aircraft Lights—CHECK OPERATION

21. Pitot Tube Cover—REMOVE. Check for pitot stoppage.
22. *Pitot Heat—ON. (Carefully check that pitot tube is warm to the touch within 30 seconds)
23. Pitot Heat—OFF.
24. Master Switch—OFF
25. Static Pressure Alternate Source Valve—OFF
26. Fuel Selector Valve—BOTH.
27. Fuel Shutoff Valve—PUSH FULL IN (ON).
28. Trim—SET FOR TAKEOFF

* During cold weather operations, these items may be left until the engine has been started to prevent unnecessary wear on a cold battery.

EXTERIOR INSPECTION

FUSELAGE

1. Survival Equipment— IN PLACE
2. Baggage Door—CHECK, lock with key.
3. Left Fuselage—CHECK CONDITION
4. Left Stabilizer/Elevator—CHECK
5. Tail Tiedown & Gust Locks—DISCONNECT & REMOVE
6. Beacon—CHECK
7. Control Surfaces—CHECK FREEDOM OF MOVEMENT AND SECURITY
8. Trim Tab—CHECK security.
9. Right Fuselage—CHECK CONDITION
10. Antennas—CHECK for security of attachment and general condition.

RIGHT WING

1. Aileron—CHECK freedom of movement and security.
2. Flap—CHECK for security and condition.
3. Leading Edge—CHECK
4. Tiedown—DISCONNECT & REMOVE
5. Wing Strut—CHECK
6. Fuel Tank Sump Quick Drain Valves (5)—DRAIN at least a cupful of fuel (using sampler cup) from each sump location to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all

contamination has been removed. If contaminants are still present, refer to WARNING below and do not fly airplane.

WARNING:

IF, AFTER REPEATED SAMPLING, EVIDENCE OF CONTAMINATION STILL EXISTS, THE AIRPLANE SHOULD NOT BE FLOWN. TANKS SHOULD BE DRAINED AND SYSTEM PURGED BY QUALIFIED MAINTENANCE PERSONNEL. ALL EVIDENCE OF CONTAMINATION MUST BE REMOVED BEFORE FURTHER FLIGHT.

7. Right Wheel/Brake—CHECK (29 PSI) for proper inflation and general condition (weather checks, tread depth and wear, etc…).
8. Fuel Tank—CHECK VISUALLY FOR DESIRED LEVEL
9. Fuel Filler Cap—VENT UNOBSTRUCTED & CAP SECURE

NOSE

1. Windshield—CHECK CONDITION
2. Engine Oil Dipstick/Filler Cap—CHECK oil level. Do not operate with less than five quarts. Fill to eight quarts for extended flight.
3. Engine Oil Dipstick/Filler Cap—CHECK SECURE
4. Fuel Strainer Quick Drain Valves (3) (Located on bottom of fuselage)—DRAIN at least a cupful of fuel (using sampler cup) from valve to check for water, sediment, and proper fuel grade before each flight and after each refueling. . If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed. If contaminants are still present, refer to WARNING above and do not fly airplane.
5. Engine Compartment—SECURE
6. Cowling—SECURE
7. Engine Cooling Air Inlets—CLEAR OF OBSTRUCTIONS
8. Air Filter—CHECK for restrictions by dust or other foreign matter
9. Landing/Taxi Lights—CHECK CONDITION
10. Propeller & Spinner—CHECK FOR NICKS & SECURITY
11. Alternator Belt—CHECK
12. Tow Bar—ENSURE REMOVED & STOWED
13. Nose Wheel Strut and Tire—CHECK for proper inflation (31 PSI) of strut and general condition (weather checks, tread depth and wear, etc…) of tire.
14. Left Static Source Opening—CHECK for stoppage

LEFT WING

1. Fuel Quantity—CHECK VISUALLY for desired level.
2. Fuel Filler Cap—VENT UNOBSTRUCTED & CAP SECURE
3. Fuel Tank Sump Quick Drain Valves (5)—DRAIN at least a cupful of fuel (using sampler cup) from each sump location to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed. If contaminants are still present, refer to WARNING above and do not fly airplane.
4. Main Wheel Tire—CHECK for proper inflation and general condition (weather checks, tread depth and wear, etc…).
5. Leading Edge—CHECK
6. Pitot Tube—ENSURE COVER REMOVED & CHECK CLEAR
7. Fuel Tank Vent Opening—CHECK for stoppage.
8. Stall Warning Opening—CLEAR & TEST
9. Landing/Taxi Lights—CHECK for condition and cleanliness of cover.
10. Wing Strut—CHECK
11. Wing Tie-Down—DISCONNECT & REMOVE.
12. Wingtip—CHECK
13. Aileron—CHECK freedom of movement and security.
14. Flap—CHECK for security and condition.
15. Left Wheel/Brake—CHECK (29 PSI) for proper inflation and general condition (weather checks, tread depth and wear, etc…).

BEFORE STARTING ENGINE

1. Preflight Inspection—COMPLETE
2. Passenger Briefing—COMPLETE.
3. Seats and Seat Belts—ADJUST and LOCK. Ensure inertia reel locking.
4. Fuel Selector Valve—BOTH
5. Fuel Shutoff Valve—ON (Push Full In).
6. Avionics Master Switch—OFF

CAUTION:

THE AVIONICS MASTER SWITCH MUST BE OFF DURING ENGINE START TO PREVENT POSSIBLE DAMAGE TO AVIONICS.

7. Autopilot—OFF
8. Electrical Equipment—OFF
9. Brakes—TEST and HOLD.
10. Cabin Doors—AS REQUIRED
11. Circuit Breakers—CHECK IN
12. Avionics Circuit Breakers—CHECK IN.
13. Avionics Power Switch—OFF
14. Cabin Doors—OPEN FOR ENGINE START
15. Alternate Static Source—CHECK
16. Passenger/Mission Brief—COMPLETE
17. Flight Controls—FREE AND CORRECT

STARTING ENGINE WITH BATTERY

NOTE:

For operation with APU, start cart, or other ground support equipment refer to POH or Cessna published checklist.

1. Alternate Air—OFF
2. Throttle—OPEN ¼ INCH.
3. Mixture—IDLE CUT OFF.
4. Propeller Area—CLEAR.
5. Master Switch—ON.
6. Beacon—ON
7. Auxiliary Fuel Pump Switch—ON.

NOTE:

If engine is warm, omit priming (Step 9) procedure below.

8. Mixture—ADVANCE to obtain 3-5 GPH fuel flow, then return to IDLE CUT OFF position.
9. Ignition Switch—START (release when engine starts).
10. Mixture—ADVANCE smoothly to RICH when engine fires.

NOTE:

If engine floods, turn off auxiliary fuel pump, place mixture in IDLE CUT OFF, open throttle ½ to full, and crank engine. When engine fires, advance mixture to full RICH and retard throttle promptly.

11. Throttle—1000 RPM
12. Oil Pressure—CHECK (50-90 PSI)
13. Auxiliary Fuel Pump—OFF.
14. Engine Instruments and Ammeter—CHECK

BEFORE TAXI

1. Flaps—RETRACT
2. Navigation Lights—ON AS REQUIRED.
3. Avionics Master Switch—ON.
4. Intercom—ON
5. Avionics—CHECK AND SET
6. Flight Instruments—SET
7. C.A.P. Radio—SET
8. ATIS—OBTAIN
9. IFR Clearance or VFR Squawk—OBTAIN
10. Taxi Clearance—OBTAIN
11. Transponder—SET & STANDBY
12. Flight Instruments—CHECK
13. Starting Time—NOTE

TAXI

1. Mixture—LEAN FOR TAXI AS REQUIRED
2. Flight Controls—POSITION FOR WIND
3. Brakes—TEST
4. Airspeed—ZERO
5. Altimeter—CHECK (within 75 ft of field elevation)
6. Magnetic Compass—CHECK
7. Directional Gyro—CHECK
8. VOR Receivers—TEST
9. Takeoff Briefing—COMPLETE

BEFORE TAKEOFF (RUN-UP)

1. Parking Brake—SET.
2. Passenger Seat Backs—MOST UPRIGHT POSITION.
3. Seats and Seat Belts—CHECK SECURE.
4. Cabin Doors—CLOSED AND LOCKED.
5. Flight Controls—FREE AND CORRECT.
6. Flight Instruments—CHECK AND SET.
7. Elevator Trim—SET for takeoff.
8. Fuel Quantity—CHECK.
9. Fuel Selector Valve—RECHECK BOTH.
10. Mixture—RICH
11. Throttle—1800 RPM.
12. Magnetos—CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos).
13. Alternate Air—CHECK (slight RPM drop)
14. Suction Gauge—CHECK (4.5-5.5 In. Hg)
15. Oil Pressure—CHECK (50-90 PSI)
16. Oil Temperature—GREEN ARC (100-245° F)
17. Engine Instruments and Ammeter—CHECK
18. Mixture—LEAN IF REQUIRED (High Density Altitude >3000 feet)
19. Annunciator Panel—ENSURE NO LIGHTS ARE ILLUMINATED.
20. Throttle—IDLE CHECK
21. Throttle—1000 RPM.
22. Throttle Friction Lock—ADJUST if required.
23. Autopilot—OFF.
24. Radios and Avionics—SET.
25. Navigation Equipment—SET FOR EMERGENCY APPROACH
26. NAV/GPS Switch—SET
27. Wing Flaps—SET for takeoff (0°-10°)
28. Pitot Heat—AS REQUIRED
29. Panel Lighting Rheostat—AS REQUIRED
30. Doors and Windows—CLOSED AND LOCKED
31. Transponder—SQUAWK ALTITUDE ENCODING
32. Landing Light—ON AS REQUIRED
33. Strobe Lights—ON
34. Takeoff Clearance/Advisory Call—ENSURE
35. Brakes—RELEASE
36. Time—RECORD

NORMAL TAKEOFF

1. Wing Flaps—0°-10°.
2. Throttle—FULL OPEN.
3. Engine Instruments—CHECK
4. Mixture—RICH (above 3000 feet, lean to obtain maximum RPM).
5. Elevator Control—LIFT NOSE WHEEL at 55 KIAS
6. Climb Speed—70-80 KIAS.

SHORT FIELD TAKEOFF

1. Wing Flaps—10°.
2. Brakes—APPLY.
3. Throttle—FULL OPEN.
4. Engine Instruments—CHECK
5. Mixture—RICH (above 3000 feet density altitude, lean to obtain maximum RPM).
6. Brakes—RELEASE.
7. Elevator Control—SLIGHTLY TAIL LOW.
8. Climb Speed—57 KIAS (until all obstacles are cleared).
9. Flaps—RETRACT.

SOFT FIELD TAKEOFF

1. Wing Flaps—10°.
2. Elevator—NOSE HIGH
3. Throttle—FULL OPEN.
4. Engine Instruments—CHECK.
5. Mixture—RICH (above 3000 feet density altitude, lean to obtain maximum RPM).
6. Airborne—LEVEL OFF IN GROUND EFFECT
7. Climb—70-80 KIAS
8. Flaps—RETRACT

CLIMB

1. Airspeed—70-85 KIAS

NOTE:

If a maximum performance climb is necessary, use speeds shown in the Rate of Climb chart in the POH Section 5 of the FAA Approved Flight Manual.

2. Throttle—FULL OPEN.
3. Engine Instruments—CHECK
4. Mixture—RICH (during climb, lean only in accordance with STC Supplement to Flight Manual).
5. Flaps—CHECK FULL UP

LEVEL OFF/CRUISE

1. Fuel Quantity—CHECK
2. Power—SET 2100-2700 RPM (no more than 75% is recommended).
   Normal cruising is performed at 55-75% power
3. Elevator trim—ADJUST.
4. Mixture—LEAN AS REQUIRED

CRUISE FUEL CONSUMPTION

Conditions: 2550 Lbs, Recommended Lean Mixture (50° Rich of Peak EGT)
NO MORE THAN 75% POWER IS RECOMMENDED.

Press. Alt Feet	RPM	20° C Below Standard Temp		Standard Temperature		20° C Above Standard Temp	
		% BHP	GPH	% BHP	GPH	% BHP	GPH
2000	2550	---	---	76	10.2	72	9.6
	2500	77	10.3	72	9.6	68	9.1
	2400	69	9.2	64	8.7	61	8.3
	2300	61	8.3	58	7.9	55	7.6
	2200	55	7.5	52	7.2	49	6.9
	2100	49	6.8	46	6.6	43	6.3
4000	2600	---	---	76	10.2	72	9.6
	2500	73	9.7	68	9.2	65	8.7
	2400	65	8.8	62	8.3	58	8.0
	2300	58	8.0	55	7.6	52	7.3
	2200	52	7.3	49	6.9	47	6.6
	2100	46	6.6	44	6.3	41	6.1
6000	2650	---	---	76	10.1	72	9.6
	2600	77	10.3	72	9.6	68	9.1
	2500	69	9.3	65	8.8	62	8.4
	2400	62	8.4	59	8.0	56	7.6
	2300	56	7.7	53	7.3	50	7.0
	2200	50	7.0	47	6.7	44	6.4
8000	2700	---	---	76	10.1	71	9.5
	2600	73	9.8	69	9.2	65	8.7
	2500	66	8.8	62	8.4	59	8.0
	2400	59	8.1	56	7.7	53	7.3
	2300	53	7.4	50	7.0	47	6.7
	2200	47	6.7	45	6.4	42	6.1
10000	2700	77	10.2	72	9.6	68	9.1
	2600	69	9.3	65	8.8	62	8.4
	2500	63	8.5	59	8.1	56	7.7
	2400	57	7.8	53	7.4	50	7.0
	2300	51	7.1	48	6.8	45	6.5
12000	2700	69	9.3	65	8.8	62	8.4
	2600	66	8.9	62	8.4	59	8.0
	2500	60	8.2	56	7.7	53	7.4
	2400	54	7.5	51	7.1	48	6.7
	2300	48	6.8	45	6.5	42	6.2

APPROACH TO FIELD / DESCENT

1. Throttle—REDUCE AS DESIRED
2. Mixture—ADJUST (rich) AS NECESSARY for smooth operation (full rich for idle power).
3. Alternate Air—ON (if conditions are present for icing to exist)
4. Fuel Quantity—CHECK
5. Fuel Selector Valve—BOTH.
6. Flight Instruments—AS REQUIRED
7. Altimeter—SET
8. Transponder—AS REQUIRED

BEFORE LANDING

1. Pilot and Passenger Seat Backs—MOST UPRIGHT POSITION.
2. Seats and Seat Belts—SECURED and LOCKED.
3. Fuel—CHECK
4. Fuel Selector Valve—BOTH.
5. Mixture—RICH.
6. Alternate Air—ON (if conditions are present for icing to exist)
7. Autopilot—OFF.
8. Landing/Taxi Lights—ON AS REQUIRED

GO AROUND (BALKED LANDING)

1. Throttle—FULL OPEN.
2. Alternate Air—OFF (if pulled to on)
3. Wing Flaps—RETRACT TO 20°.
4. Climb Speed—60 KIAS
5. Wing Flaps—10° (until obstacles are cleared).
6. Wing Flaps—RETRACT after reaching a safe altitude and 65 KIAS.

NORMAL LANDING

1. Mixture—RICH
2. Airspeed—65-75 KIAS (flaps up).
3. Wing Flaps—AS DESIRED (0°-10° below 110 KIAS, 10°-30° below 85 KIAS).
4. Airspeed—60-70 KIAS (flaps down)
5. Touchdown—MAIN WHEELS FIRST.
6. Landing Roll—LOWER NOSE WHEEL GENTLY.
7. Braking—MINIMUM REQUIRED.

SHORT FIELD LANDING

1. Mixture—RICH
2. Airspeed—65-75 KIAS (flaps up).
3. Wing Flaps—FULL DOWN (30°).
4. Airspeed—61 KIAS (until flare).
5. Power—REDUCE to idle after clearing obstacle.
6. Touchdown—MAIN WHEELS FIRST.
7. Brakes—APPLY HEAVILY.
8. Wing Flaps—RETRACT.

SOFT FIELD LANDING

1. Mixture—RICH
2. Airspeed—65—75 KIAS (flaps up).
3. Wing Flaps—FULL DOWN (30°).
4. Airspeed—__ KIAS (until flare).
5. Touchdown—MAIN WHEELS FIRST.
6. Elevator—NOSE HIGH
7. Flaps—RETRACT

AFTER LANDING

1. Flaps—UP
2. Transponder—STANDBY
3. Landing Light—OFF/TAXI
4. Strobe Lights—OFF
5. Pitot Heat—OFF
6. Trim—SET FOR TAKEOFF
7. Mixture—LEAN FOR TAXI
8. Flight Controls—POSITION FOR WIND

ENGINE SHUTDOWN / SECURING AIRCRAFT

1. Parking Brake—SET.
2. Radios—CHECK 121.5 MHz
3. Avionics Master—OFF
4. Electrical Equipment—OFF.
5. Autopilot—OFF.
6. Magneto Grounding—CHECK
7. Mixture—IDLE CUT OFF (pulled full out).
8. Propeller—CHECK STOPPED
9. Ignition Switch—OFF.
10. Ignition Key—REMOVE.
11. Master Switch—OFF.
12. Time—NOTE
13. Fuel Selector Valve—LEFT or RIGHT to prevent cross feeding.
14. Control Lock—INSTALL.
15. Air & Heat Vents—CLOSED
16. Wheel Chocks—INSERT
17. Tie Downs—SECURE
18. Pitot Tube Cover—INSTALL
19. Leading Edges—CLEAN AND DEBUG
20. C.A.P. Aircraft Forms—COMPLETE
21. Personal Gear—REMOVED
22. Cabin Doors & Windows—LOCKED
23. Aircraft—INSPECT FOR DAMAGE
24. Flight Plan—CLOSE
25. Mission Debriefing—AS REQUIRED

WARNING: THIS CHECKLIST WAS COMPILED FROM MANY SOURCES, TO INCLUDE MANUFACTURERS' CHECKLISTS AND MILITARY CHECKLISTS WHERE THEY ARE OPERATING SIMILAR EQUIPMENT (T-41A-D, AC-150). **NO GUARANATEE OR LIABILITY, EXPRESS OR IMPLIED, WILL BE DERIVED FROM THIS CHECKLIST.** USE OF THIS FILE DENOTES CONSENT AND FOREKNOWLEDGE OF THIS WARNING. THIS CHECKLIST WAS DEVELOPED FOR ONE PARTICULAR AIRCRAFT AND ITS SUITABILITY FOR OTHERS MUST BE DETERMINED BY THE INDIVIDUAL OPERATOR. SIGNIFICANTLY, ALL SPEEDS LISTED IN THIS CHECKLIST ARE MILES PER HOUR INDICATED. ADDITIONALLY, THIS CHECKLIST CONTAINS PERSONAL TECHNIQUES WHICH MAY OR MAY NOT BE ADVISABLE FOR YOUR OPERATION. BEFORE OPERATING AN AIRCRAFT USING ANY TECHNIQUE, ENSURE YOU KNOW THE FULL EFFECTS OF THAT TECHNIQUE. CONSULT YOUR PILOT'S OPERATING HANDBOOK (POH) FOR INFORMATION APPLICABLE TO YOUR PARTICULAR AIRCRAFT. MODIFICATIONS TO THIS CHECKLIST MUST BE MADE AS REQUIRED. COPIES AND MODIFICATIONS OF THIS PRODUCT MAY BE MADE BY ANY MEANS SO LONG AS APPROPRIATE CREDIT IS GIVEN.

EMERGENCY PROCEDURES

Introduction: This section provides checklist procedures for coping with emergencies that may occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. Enroute weather emergencies can be minimized or eliminated by careful flight planning and good judgment when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem.

Always Remember: FLY THE AIRPLANE, then handle the emergency. Also, generally trim for best glide at 68 KIAS, wing flaps up. If power is available, this airspeed will provide altitude.

Emergency Communications—Transmit MAYDAY on 121.5 MHz or current facility frequency. Squawk 7700. Notify controlling agency of intentions. When time permits, relay the following information:

1. Call Sign/Aircraft Type/Tail Number
2. Emergency or Precautionary Situation
3. Position
4. Souls on Board
5. Type of Malfunction
6. Estimated Landing Time
7. Fuel on Board (in minutes)
8. Intentions/Assistance Requested

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff:
- Wing Flaps Up.....……...70 KIAS
- Wing Flaps Down.....……...65 KIAS

Maneuvering Speed:
- 2550 Lbs.....……105 KIAS
- 2200 Lbs.....……98 KIAS
- 1900…….……90 KIAS

Maximum Glide.....……..68 KIAS
Precautionary Landing with Engine Power……...65 KIAS
Landing Without Engine Power
- Wing Flaps Up.....……...70 KIAS
- Wing Flaps Down.....……..65 KIAS

Procedures in the Operational Checklists portion of this section shown in **bold-faced type** are immediate-action items that should be COMMITTTED TO MEMORY.

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF
Throttle—IDLE
Brakes—APPLY
Wing Flaps—RETRACT
Mixture—IDLE CUT OFF
Ignition Switch—OFF
Master Switch—OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF
Airspeed— 70 KIAS (flaps up)
65 KISAS (flaps down)
Mixture—IDLE CUT OFF
Fuel Shutoff Valve—OFF (Pull Full Out)
Ignition Switch—OFF
Wing Flaps—AS REQUIRED
Master Switch—OFF
Cabin Door—UNLATCH
Land—STRAIGHT AHEAD

ENGINE FAILURE DURING FLIGHT (Restart Procedures)
Airspeed—68 KIAS
Alternate Air—ON (pull control full out)
Fuel Shutoff Valve—ON (push full in)
Fuel Selector Valve—BOTH
Auxiliary Fuel Pump—ON
Mixture—RICH (if restart has not occurred)
Ignition Switch—BOTH (or START if propeller is stopped)

EMERGENCY LANDING WITHOUT ENGINE POWER
Passenger Seat Backs—MOST UPRIGHT POSITION
Seats and Seat Belts—SECURE
Airspeed— 70 KIAS (flaps up)
65 KIAS (flaps down)
Mixture—IDLE CUT OFF
Fuel Shutoff Valve—OFF (Pull Full Out)
Ignition Switch—OFF

Wing Flaps—AS REQUIRED (30° recommended)
Master Switch—OFF (when landing is assured)
Cabin Door—UNLATCH PRIOR TO TOUCHDOWN
Touchdown—SLIGHTLY TAIL LOW
Brakes—APPLY HEAVILY

PRECAUTIONARY LANDING WITH ENGINE POWER
Passenger Seat Backs—MOST UPRIGHT POSITION
Seats and Seat Belts—SECURE
Airspeed—65 KIAS
Wing Flaps—20°
Selected Field—FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
Avionics Master Switch and Electrical Switches—OFF
Wing Flaps—AS REQUIRED (30° recommended)
Airspeed—65 KIAS
Master Switch—OFF
Doors—UNLATCH PRIOR TO TOUCHDOWN
Touchdown—SLIGHTLY TAIL LOW
Ignition Switch—OFF
Brakes—APPLY HEAVILY

DITCHING
Radio—TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700
Heavy Objects (in baggage area)—SECURE OR JETTISON (if possible)
Passenger Seat Backs—MOST UPRIGHT POSITION
Seats and Seat Belts—SECURE
Wing Flaps--20 ° to 30 °
Power—ESTRABLISH 300 FT/MIN DESCENT AT 55 KIAS

Note:

If no power is available, approach at 70 KIAS with flaps up or at 65 KIAS with 10° flaps

Approach—High Winds, Heavy Seas—INTO THE WIND
—Light Winds, Heavy Swells—PARALLEL TO SWELLS
Cabin Doors—UNLATCH
Touchdown—LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
Face—CUSHION at touchdown with folded coat
ELT—ACTIVATE
Airplane—EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened
Life Vests and Raft—INFLATE WHEN CLEAR OF AIRPLANE

FIRES

DURING START ON GROUND
Cranking—CONTINUE to get a start which would suck the flames and accumulated fuel into the engine
IF ENGINE STARTS:
Power—1800 RPM for a few minutes
Engine—SHUT DOWN and inspect for damage
IF ENGINE FAILS TO START:
Throttle—FULL OPEN
Mixture—IDLE CUT OFF
Cranking—CONTINUE
Fuel Shutoff Valve—OFF (pull full out)
Auxiliary Fuel Pump—OFF
Fire Extinguisher—ACTIVATE
Engine—SECURE

a. Master Switch—OFF
b. Ignition Switch—OFF

Parking Brake—RELEASE
Airplane—EVACUATE
Fire—EXTINGUISH using fire extinguisher, wool blanket, or dirt
Fire Damage—INSPECT, repair damage or replace damaged components or wiring before conducting another flight

ENGINE FIRE IN FLIGHT
Mixture—IDLE CUT OFF
Fuel Shutoff Valve—PULL OUT (OFF)
Auxiliary Fuel Pump Switch—OFF
Master Switch—OFF
Cabin Heat and Air—OFF (except overhead vents)
Airspeed—100 KIAS (if fire is not extinguished, increase glide speed to find an airspeed – within limitations – which will provide and incombustible mixture)
Forced Landing—EXECUTE (as described in Emergency Landing Without Engine Power)

ELECTRICAL FIRE IN FLIGHT
Master Switch—OFF
Vents, Cabin Air, Heat—CLOSED
Fire Extinguisher—ACTIVATE
Avionics Master Switch—OFF
All Other Switches (except ignition switch)—OFF

WARNING:

AFTER DISCHARGING FIRE EXTINGUISHER AND ASCERTAINING THAT FIRE HAS BEEN EXTINGUISHED, VENTILATE THE CABIN.

Vents / Cabin Air / Heat—OPEN when it is ascertained that fire is completely extinguished
If fire has been extinguished and electrical power is necessary for continuance of flight to nearest suitable airport or landing area:

Master Switch—ON
Circuit Breakers—CHECK for faulty circuit, do not reset
Radio Switches—OFF
Avionics Master Switch—ON
Radio / Electrical Switches—ON one at a time, with delay after each until short circuit is localized

CABIN FIRE
Master Switch—OFF
Vents / Cabin Air / Heat—CLOSED (to avoid drafts)
Fire Extinguisher—ACTIVATE

WARNING:

AFTER DISCHARGING FIRE EXTINGUISHER AND ASCERTAINING THAT FIRE HAS BEEN EXTINGUISHED, VENTILATE THE CABIN.

Vents / Cabin Air / Heat—OPEN when it is ascertained that fire is completely extinguished
Land the airplane as soon as possible and inspect for damage

WING FIRE
Landing / Taxi Light Switches—OFF
Navigation Light Switch—OFF
Strobe Light Switch—OFF
Pitot Heat Switch—OFF

NOTE:

Perform a sideslip to keep the flames away from the fuel leak and cabin. Land as soon as possible using flaps only as required for final approach and touchdown.

ICING

INADVERTENT ICING ENCOUNTER
Turn pitot heat switch to ON.
Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.
Pull cabin heat control full out and open defroster outlets to obtain maximum windshield defroster airflow. Adjust cabin air control to get maximum defroster heat and airflow.
Open the throttle to increase engine speed and minimize ice buildup on the propeller blades.
Watch for signs of induction icing and apply alternate air as required. An unexplained loss in engine speed could be caused by induction system ice or air intake filter ice. Lean the mixture for maximum RPM if alternate air is used continuously.
Plan a landing at the nearest airport. With and extremely rapid ice buildup select a suitable off-airport landing site.
With an ice accumulation of ¼ inch or more on the wing leading edges, be prepared for significantly higher stall speed.
Leave wing flaps retracted. With a sever ice buildup on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness.
Open the window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach.
Perform the landing approach using a forward slip, if necessary, for improved visibility.
Approach at 65 to 75 KIAS depending upon the amount of the accumulation.
Perform a landing in a level attitude.

STATIC SOURCE BLOCKAGE
(Erroneous Instrument Reading Suspected)
Static Pressure Alternate Source Valve—PULL ON
Airspeed—CONSULT appropriate calibration tables in POH Section 5

LANDING WITH A FLAT MAIN TIRE
Approach—NORMAL
Wing Flaps—30°
Touchdown—GOOD MAIN TIRE FIRST, hold airplane off flat tire as long as possible with aileron control
Directional Control—MAINTAIN using brake on good wheel as required

LANDING WITH A FLAT NOSE TIRE
Approach—NORMAL
Flaps—AS REQUIRED
Touchdown—ON MAINS, hold nosewheel off the ground as long as possible
When nosewheel touches down, maintain full up elevator as airplane slows to stop

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

AMMETER SHOWS EXCESSIVE RATE OF CHARGE
(Full Scale Deflection)
Alternator—OFF

CAUTION:
WITH THE ALTERNATOR SIDE OF THE MASTER SWITCH OFF, COMPASS DEVIATIONS OF AS MUCH AS 25° MAY OCCUR.

Nonessential Electrical Equipment—OFF
Flight—TERMINATE as soon as practical

LOW VOLTAGE ANNUNCIATOR (VOLTS) ILLUMINATES DURING FLIGHT
(Ammeter Indicates Discharge)

NOTE
Illumination of "VOLTS" on the annunciator panel may occur during low RPM conditions with an electrical load on the system such as a low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has not occurred to deactivate the alternator system.

Avionics Master Switch—OFF
Alternator Circuit Breaker—CHECK IN
Master Switch—OFF (both sides)
Master Switch—ON
Low Voltage Annunciator—CHECK OFF
Avionics Master Switch—ON
If low voltage light illuminates again:
Alternator—OFF

CAUTION:
WITH THE ALTERNATOR SIDE OF THE MASTER SWITCH OFF, COMPASS DEVIATIONS OF AS MUCH AS 25° MAY OCCUR.

Nonessential Radio and Electrical Equipment—OFF
Flight—TERMINATE as soon as practical

VACUUM SYSTEM FAILURE
Left Vacuum or Right Vacuum Annunciator Light (L VAC R) illuminates
CAUTION
IF VACUUM IS NOT WITHIN NORMAL OPERATING LIMITS, A FAILURE HAS OCCURRED IN THE VACUUM SYSTEM AND PARTIAL PANEL PROCEDURES MAY BE REQUIRED FOR CONTINUED FLIGHT.
Suction Gauge—CHECK to ensure vacuum within normal operating limits

AMPLIFIED EMERGENCY PROCEDURES

ROUGH ENGINE OPERATION OR LOSS OF POWER
Induction System Icing
A gradual loss of RPM and eventual engine roughness may result from the formation of ice at the inlet to the fuel injector or on the air filter. To clear the ice, apply full throttle and pull the alternate air control knob (heated air) full out until the engine runs smoothly; then return the alternate air control to the full in position and readjust the throttle. If conditions require the continued use of alternate air in cruise flight, use the full amount of alternate air to prevent ice from forming and lean the mixture for the smoothest engine operation.

FIRE DURING ENGINE START

1. Cranking—CONTINUE, to get a start which would suck flames and accumulated fuel through the carburetor and into the engine
2. If Engine Starts, Power—1800 RPM for a few minutes
3. Engine—SHUTDOWN and inspect for damage
4. If Engine Fails To Start, THROTTLE—FULL OPEN
5. Mixture—FULL LEAN
6. Cranking—CONTINUE
7. Fire Extinguisher—OBTAIN (have ground attendants obtain if not installed)
8. Engine—SECURE
9. Master Switch—OFF
10. Ignition Switch—OFF
11. Fuel Selector Valve—OFF
12. Fire—EXTINGUISH using fire extinguisher, wool blanket, or dirt

EMERGENCY ENGINE SHUTDOWN ON THE GROUND

1. **MIXTURE—FULL LEAN**
2. **FUEL SELECTOR VALVE—OFF**
3. **IGNITION SWITCH—OFF**
4. **MASTER SWITCH—OFF**

FORCED LANDING OR ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. **GLIDE—ESTABLISH (78 MPH/70 NO FLAP)**
2. **MIXTURE—FULL LEAN**
3. **FUEL SELECTOR VALVE—OFF**
4. **IGNITION SWITCH—OFF**
5. **FLAPS—AS REQUIRED, 30° RECOMMENDED**
6. **MASTER SWITCH—OFF**
7. Passenger Seat Backs—MOST UPRIGHT POSITION
8. Seats, Seat Belts, Shoulder Harnesses—SECURE
9. Doors—UNLATCH PRIOR TO TOUCHDOWN
10. Touchdown—SLIGHTLY TAIL LOW
11. Brakes—APPLY HEAVILY

OIL SYSTEM MALFUNCTION

1. Throttle—AS REQUIRED. If possible, adjust the throttle to maintain the oil pressure within normal limits
2. Mixture—RICH. This will aid in engine cooling

PARTIAL ENGINE FAILURE DURING FLIGHT

1. Alternate Air--ON
2. Mixture—RICH
3. Fuel Selector Valve—ON
4. Primer—IN AND LOCKED
5. Ignition Switch—AS REQUIRED
6. Master Switch—ON
7. Mixture—ADJUST TO MAINTAIN SMOOTH ENGINE OPERATION

ENGINE RESTART DURING FLIGHT

1. Glide—ESTABLISH (68 KIAS)
2. Alternate Air—ON (pull control full out)
3. Mixture—RICH
4. Throttle—IN HALFWAY
5. Fuel Selector Valve—ON
6. Primer—IN AND LOCKED
7. Ignition Switch—AS REQUIRED
8. Master Switch—ON
9. Ignition Switch—START, if the propeller has stopped
10. Mixture—ADJUST TO MAINTAIN SMOOTH ENGINE OPERATION
11. If Restart Is Unsuccessful—Refer to Forced Landing

ENGINE FIRE DURING FLIGHT

1. **MIXTURE—FULL LEAN**
2. **FUEL SELECTOR VALVE—OFF**
3. **IGNITION SWITCH—OFF**
4. **GLIDE—ESTABLISH (78 MPH)**
5. **FLAPS—AS REQUIRED**
6. **MASTER SWITCH—OFF**
7. Refer to Smoke and Fume Elimination If Applicable

8. Airspeed—DIVE TO EXTINGUISH AS REQUIRED
9. Refer to Forced Landing

FUEL LEAK

1. Mixture—FULL LEAN
2. Fuel Selector Valve—OFF
3. Ignition Switch—OFF
4. Master Switch—OFF

THROTTLE LINKAGE FAILURE

1. If the throttle linkage fails inflight, the engine may remain at the failure power setting, may increase to full throttle, or it may increase to full throttle when commanded without the ability to reduce power. Use the power available and flaps required to safely land the aircraft. If the engine is running near full power, initiate a climb in order to lower flaps below the white arc. Full flaps may be required to prevent engine overspeed. If the throttle fails near idle and straight and level flight cannot be maintained, use no flaps and fly at 78 MPH to set up for a forced landing.

PRECAUTIONARY LANDING WITH POWER

1. Passenger Seat Backs—MOST UPRIGHT POSITION
2. Seats, Seat Belts, Shoulder Harnesses—SECURE
3. Wing Flaps—20°
4. Airspeed—75 MPH
5. Selected Field—FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
6. Avionics Power Switch And Electrical Switches—OFF
7. Wing Flaps—30° on final approach
8. Airspeed—75 MPH
9. Master Switch—OFF
10. Doors—UNLATCH PRIOR TO TOUCHDOWN
11. Touchdown—SLIGHTLY TAIL LOW
12. Ignition Switch—OFF

Brakes—APPLY HEAVILY

DITCHING

1. Radio—TRANSMIT MAYDAY ON 121.5—GIVE LOCATION AND INTENTIONS; SQUAWK 7700
2. Heavy Objects (in baggage area)—SECURE OR JETTISON
3. Passenger Seat Backs—MOST UPRIGHT POSITION
4. Seats, Seat Belts, Shoulder Harnesses—SECURE
5. Wing Flaps—20°—30°
6. Power—ESTABLISH 300 FT/MIN DESCENT (NOTE: if no power is available, approach at 78 MPH with flaps up or 70 MPH with 10° degrees flaps)
7. Approach—High Winds, Heavy Seas—INTO THE WIND
8. Light Winds, Heavy Swells—PARALLEL TO THE SWELLS
9. Cabin Doors—UNLATCH
10. Touchdown—LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
11. Face—CUSHION at touchdown with folded coat
12. Airplane—EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors con be opened
13. Life Vests and Raft—INFLATE

ELECTRICAL FIRE/HIGH AMMETER

1. **MASTER SWITCH—OFF**
2. Refer to Smoke and Fume Elimination If Applicable
3. Fire Extinguisher—ACTIVATE if available—WARNING: After Discharging An Extinguisher within a closed cabin, ventilate the cabin. DO NOT ATTEMPT TO LOCALIZE THE FIRE UNLESS ESSENTIAL FOR FLIGHT (e.g., Instrument Conditions)

NEGATIVE AMMETER READING AND/OR LOW VOLTAGE LIGHT ILLUMINATES

NOTE: Illumination of the low-voltage light may occur during low RPM conditions with an electrical load on the system such as during a low-RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has no occurred to de-activate the alternator system.

1. Avionics Power Switch—OFF
2. Alternator Circuit Breaker—CHECK IN
3. Master Switch—OFF (both sides)
4. Master Switch—ON
5. Low Voltage Light—CHECK OFF
6. Avionics Power Switch—ON
7. Ammeter—CHECK

If low voltage light illuminates again:
1. Alternator—OFF
2. Electrical Load—REDUCE NONESSENTIAL
3. Flight—TERMINATE as soon as practical

SMOKE AND FUME ELIMINATION

1. Cabin Heat Knob—IN
2. Cabin Air Knob—IN
3. Upper Air Vents—OPEN
4. Windows—AS REQUIRED. NOTE: If necessary, the window(s) may be opened to assist in clearing the smoke or fumes from the cabin.

STRUCTURAL DAMAGE OR CONTROLLABILITY CHECK

CAUTION: DO NOT RESET THE FLAPS IF SIGNIFICANT STRUCTURAL DAMAGE IS LOCATED IN THE WINGS

1. Climb to at least 1,500' above the terrain, if practical, at a controllable airspeed
2. Simulate a landing approach and determine the airspeed at which the aircraft becomes difficult to control—the minimum controllable airspeed
3. Plan to fly a straight-in approach. Fly the normal final approach airspeed for your flap setting, or 6 to 12 MPH above minimum controllable airspeed, whichever is higher
4. Plan to touch down at no less than minimum controllable airspeed. Do not begin to reduce final approach airspeed until the aircraft is very close to the runway.

ASYMMETRICAL FLAPS

1. If an asymmetrical flap condition occurs, use aileron and rudder as necessary to maintain aircraft control. Do not attempt to correct the situation by reversing the flaps. Perform a controllability check and land as soon as conditions permit.

CAUTION: FURTHER MOVEMENT OF THE FLAPS MAY CAUSE FLAP BUCKLING AND AILERON DAMAGE

PITOT STATIC MALFUNCTION

1. If icing is suspected, turn on the pitot heat. NOTE: other blockages might be "burned out" of the pitot tube but this should only be attempted if the possibility of a wing fire is better than no airspeed indication (*i.e.,* hard IMC)
2. Static Pressure Alternate Source Valve—PULL ON
3. If the airspeed indicator is unreliable, fly known power settings and pitch pictures
4. Fly a pattern, maintaining 2400 RPM on downwind and 1800 on base and final. Reduce the power to idle in the roundout
5. Do not exceed 20° degrees of bank, and if a stall warning indication occurs prior to the roundout, GO AROUND

INADVERTENT ICING ENCOUNTER

1. Pitot Heat Switch—ON
2. Course—Turn Back or Change Altitude to obtain an outside air temperature that is less conducive to icing
3. Cabin Heat and Defroster Outlets—ON FULL
4. Throttle—INCREASE
5. Carburetor Air Filter Ice—WATCH FOR SIGNS and apply carburetor heat as required, an unexplained loss of engine speed could be caused by carburetor ice or air intake filter ice. Lean the mixture for maximum RPM if carburetor heat is used continuously
6. Landing—PLAN at the nearest airport
7. Ice Accumulation 1/4 inch or more—PREPARE TO LAND AT SIGNIFICANTLY HIGHER STALL SPEED
8. Wing Flaps—LEAVE RETRACTED due to a severe ice build-up on the horizontal tail the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness
9. Window—OPEN AND SCRAPE WINSHIELD if practical to remove ice to increase visibility in the landing approach
10. Approach—FOWARD SLIP if necessary for improved visibility
11. Approach—90 to 99 MPH depending on the amount of accumulation
12. Landing—PERFORM AT LEVEL ATTITUDE

DEPARTING A PREPARED SURFACE

1. Mixture—FULL LEAN
2. Fuel Selector Valve—OFF
3. Ignition Switch—OFF
4. Master Switch—OFF

ABORT

1. THROTTLE—IDLE
2. BRAKES—AS REQUIRED

LANDING WITH A FLAT TIRE

NOTE: If a flat tire or tread separation occurs during takeoff and conditions do not permit an abort, land as soon as conditions permit

1. Main Gear: Land on the side of the runway corresponding to the good tire. Hold blown tire off runway as long as possible. Maintain directional control with differential braking and nosewheel steering.
2. Nose Gear: Land in the center of the runway and hold the nosewheel off the ground as long as possible.
3. Stop the aircraft and accomplish a normal engine shutdown. Call for maintenance.

BRAKE FAILURE

1. If an inoperative brake is suspected, land on the side of the runway corresponding to the inoperative brake
2. Use a combination of nosewheel steering and the good brake to maintain directional control
3. If both brakes are inoperative, land in the center of the runway
4. Stop the aircraft on the runway. Shut down the aircraft and call for maintenance.

INADVERDENT SPIN RECOVERY

1. Throttle—IDLE
2. Rudder—FULL OPPOSITE DIRECTION OF SPIN
3. Ailerons—NEUTRAL
4. Elevator—NOSE DOWN
5. Rudder—NEUTRAL WHEN SPINNING STOPS AND RECOVER FROM DIVE

ADDITIONAL PROBLEMS

Amplified Procedures are in Section 3, page 3-11 of the Manufacturer's Information Manual. You may also wish to reference the Civil Air Patrol Aircrew Aid / Inflight Guide.

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