

DOCUMENTATION

- 1. Weather ----- SUITABLE
- 2. Documents----- CHECK AVAILABLE
 - a) ----- AIRWORTHINESS CERTIFICATE
 - b) ----- REGISTRATION
 - c) ----- AIRPLANE FLIGHT MANUAL
 - d) ----- WEIGHT and BALANCE
 - e) ----- INSURANCE
- 3. Fuel Requirements-----COMPUTED
- 4. Weight and Balance-----COMPUTED
- 5. Performance-----COMPUTED

CABIN CHECK

- 1. Control Lock -----REMOVED
- 2. Parking Brake ----- SET
- 3. Landing Gear Handle ----- DOWN
- 4. Radio Master Switch -----OFF
- 5. Defroster -----OFF
- 6. Electrical Switches -----OFF
- 7. Circuit Breakers-----IN
- 8. Alternate Static Source ----- CLOSED
- 9. Throttles ----- CLOSED
- 10. Propellers ----- FORWARD
- 11. Mixture Controls ----- IDLE CUT-OFF
- 12. Magneto Switches -----OFF
- 13. Master Switch ----- ON
- 14. Landing Gear Lights-----3 GREEN
- 15. Fuel Quantity-----ADEQUATE + RESERVE
- 16. Master Switch -----OFF
- 17. Cowl Flaps ----- OPEN
- 18. Trim Indicators ----- NEUTRAL
- 19. Pitot/Static System----- DRAINED
- 20. Flaps ----- DOWN
- 21. Fuel Selectors ----- ON
- 22. Fire Extinguisher -----PRESSURIZED/CERTIFIED
- 23. First Aid Kit-----AVAILABLE
- 24. Cross Feeds ----- DRAINED

RIGHT WING

- 1. General Condition ----- CHECKED
- 2. Flaps -----NO DAMAGE
 - CHECK HINGES
- 3. Aileron Travel -----NO DAMAGE
 - CHECK HINGES
- 4. Wingtip-----NO DAMAGE
- 5. Navigation, strobe, and recog lights----- CHECKED
- 6. Leading Edge -----NO DAMAGE
- 7. Fuel Quantity----- VISUAL CHECK
- 8. Fuel Cap ----- SECURED
- 9. Fuel Sump Drains-----DRAINED
- 10. Fuel Vents ----- UNOBSTRUCTED
- 11. Fresh Air Inlet ----- UNOBSTRUCTED
- 12. Main Gear----- NO EXCESSIVE WEAR
- 13. Limit Switches ----- CHECKED-NO DAMAGE
- 14. Brakes ----- NO EXCESSIVE WEAR
- 15. Struts----- 3.5" EXPOSED (STATIC LOAD)
- 16. Tire Pressure/Wear----- 53PSI/CHECKED
- 17. Mooring Ring/Tie Down -----CHECKED/UNTIE

RIGHT NACELLE

- 1. General Condition ----- CHECKED
- 2. Oil Quantity-----6-8 QUARTS (PROPER GRADE)
- 3. Possible Leaks ----- CHECKED
- 4. Prop and Spinner ----- NO DAMAGE/NO LEAKS
- 5. Governor ----- NO LEAKS
- 6. Air Scoops ----- UNOBSTRUCTED
- 7. Gascolator -----DRAINED
- 8. Cowl Flaps-----NO DAMAGE
 - CHECK HINGES
- 9. Nacelle Covers ----- SECURED

NOSE SECTION

- 1. General Condition----- CHECKED
- 2. Nose Gear ----- NO FLUID LEAKS
- 3. Strut ----- 2.5" EXPOSED (STATIC LOAD)
- 4. Tire Pressure/Wear----- 31 PSI/CHECKED
- 5. Battery Drains ----- UNOBSTRUCTED
- 6. Landing Lights ----- NO DAMAGE
- 7. External Power Source Plug----- CHECKED
- 8. Brake Fluid (Nose Compartment) ----- ADEQUATE LEVEL
- 9. Forward Baggage Door----- LOCKED
- 10. Windshield ----- NO DAMAGE
----- CLEAN

LEFT NACELLE

- 1. General Condition----- CHECKED
- 2. Oil Quantity ----- 6-8 QUARTS (PROPER GRADE)
- 3. Possible Leaks----- CHECKED
- 4. Prop and Spinner----- NO DAMAGE/NO LEAKS
- 5. Governor ----- NO LEAKS
- 6. Air Scoops ----- UNOBSTRUCTED
- 7. Gascolator ----- DRAINED
- 8. Cowl Flaps ----- NO DAMAGE
----- CHECK HINGES
- 9. Nacelle Covers----- SECURED

LEFT WING

- 1. General Condition ----- CHECKED
- 2. Main Gear----- NO EXCESSIVE WEAR
- 3. Limit Switches ----- CHECKED-NO DAMAGE
- 4. Brakes ----- NO EXCESSIVE WEAR
- 5. Struts----- 3.5" EXPOSED (STATIC LOAD)
- 6. Tire Pressure/Wear----- 53PSI/CHECKED
- 7. Mooring Ring/Tie Down ----- CHECKED/UNTIE
- 8. Fresh Air Inlet ----- UNOBSTRUCTED
- 9. Fuel Quantity----- VISUAL CHECK
- 10. Fuel Cap ----- SECURED
- 11. Fuel Sump Drains----- DRAINED
- 12. Fuel Vents ----- UNOBSTRUCTED
- 13. Leading Edge ----- NO DAMAGE
- 14. Stall Warning Detectors ----- CHECK MOVEMENT
----- NO DAMAGE
- 15. Pitot Tube ----- REMOVE COVER
----- UNOBSTRUCTED
- 16. Wingtip----- NO DAMAGE
- 17. Navigation, strobe, and recog lights----- CHECKED
- 18. Aileron Travel ----- NO DAMAGE
----- CHECK HINGES
- 19. Flaps ----- NO DAMAGE
----- CHECK HINGES

FUSELAGE

- 1. Rear Door----- SECURED
- 2. Left Static Vents----- UNOBSTRUCTED
- 3. Dorsal Fin Air Scoop ----- UNOBSTRUCTED
- 4. Tail Fin----- NO DAMAGE
----- CHECK HINGES
- 5. Tail Tie Down ----- UNTIE
- 6. Trim Tabs ----- NO DAMAGE
----- CHECK HINGES
- 7. Rotating Beacon/Nav lights----- NO DAMAGE
- 8. Right Static Vent ----- UNOBSTRUCTED
- 9. Antennas ----- CHECKED
----- NO DAMAGE
- 10. Flaps ----- RETRACT

EXTERNAL CHECKS COMPLETE

BEFORE ENGINE START

- 1. Seats -----ADJUSTED
- 2. Seat Belts, Harness -----FASTENED
- 3. Parking Brake -----SET
- 4. Circuit Breakers-----IN
- 5. Radio Master -----OFF
- 6. Defroster -----OFF
- 7. Cowl Flaps ----- OPEN
- 8. Alternate Air -----OFF
- 9. Alternators ----- ON

COLD ENGINE START

- 1. Mixture Controls ----- IDLE CUT-OFF
- 2. Propeller Controls ----- FORWARD
- 3. Throttle Controls-----OPEN ½ INCH
- 4. Master Switch ----- ON
- 5. Electric Fuel Pump----- ON
- 6. Mixture Controls ----- RICH→FUEL FLOW→ICO

7. Start

- a) Propeller Area -----CLEAR
- b) Magneto Switches ----- ON
- c) Starter -----ENGAGE
- d) Mixture Control ----- ADVANCE
- e) Oil Pressure ----- CHECK

Repeat Steps a – e for Other Engine

- 8. Electric Fuel Pumps -----OFF

HOT ENGINE START

- 1. Mixture Controls ----- IDLE CUT-OFF
- 2. Propeller Controls ----- FORWARD
- 3. Throttle Controls-----OPEN ½ INCH
- 4. Master Switch ----- ON
- 5. Electric Fuel Pumps -----OFF

6. Start

- a) Propeller Area -----CLEAR
- b) Magneto Switches ----- ON
- c) Starter -----ENGAGE
- d) Mixture Control ----- ADVANCE
- e) Oil Pressure ----- CHECK

Repeat Steps a – e for Other Engine

FLOODED ENGINE START

- 1. Mixture Control ----- IDLE CUT-OFF
- 2. Propeller Control -----FORWARD
- 3. Throttle Control ----- FULL FORWARD
- 4. Master Switch----- ON
- 5. Propeller Area ----- CLEAR
- 6. Electric Fuel Pump ----- OFF
- 7. Magneto Switches ----- ON
- 8. Starter----- ENGAGE
- 9. When Engine Fires
 - a) Throttle -----RETARD
 - b) Mixture ----- ADVANCE SLOWLY

AFTER START CHECK

- 1. Fuel Selectors ----- X-FEED
- 2. Radio Master----- ON
- 3. Defroster -----AS NECESSARY
- 4. Auto Pilot----- OFF
- 5. Transponder-----STANDBY
- 6. Radios -----SET AND CHECK
- 7. ATIS-----OBTAIN
- 8. Altimeter----- SET
- 9. Trim ----- TEST and SET
- 10. External Lights----- AS DESIRED
- 11. HSI -----CHECK
- 12. Brakes ----- TEST

AFTER START CHECKLIST COMPLETE

RUN-UP CHECK

1. Parking Brake ----- ON
2. Area ----- CLEAR
3. Fuel Selectors ----- ON
4. Engine Gauges ----- GREEN
5. Engine Run-Up
 - a) Mixture Controls ----- FORWARD
 - b) Propeller Controls ----- FORWARD
 - c) Throttle Controls ----- 1500 RPM
 - d) Gauges ----- GREEN
 - e) Vacuum Gauge ----- 4.5 to 5.2
 - f) Propeller Controls ----- CHECK FEATHER
----- Drop up to 1000 RPM in 1 – 3 seconds
 - g) If First Flight
 - 1) Throttle Controls ----- 2000 RPM
 - 2) Propeller Controls ----- EXERCISE
 - h) Propeller Governor ----- CHECK
 - 1) Throttle Controls ----- 2000 RPM
 - 2) Propeller Controls ----- 1800 RPM
 - 3) Throttle Controls ----- 25"
 - 4) Governors ----- HOLD
 - i) Propeller Controls ----- FULL FORWARD
 - j) Throttles ----- 2000 RPM
 - k) Alternate Air Controls ----- CHECK ON → OFF
 - l) Magnetos ----- CHECK 100/175 50 DIFF
 - m) Alternators ----- CHECK EQUAL
 - n) Throttles ----- 800-1000 RPM
 - o) Mixtures ----- GROUND LEAN

RUN-UP CHECKLIST COMPLETE

PRE TAKEOFF CHECKLIST

1. Seat Backs ----- ERECT
2. Seat Belts and Harnesses ----- FASTENED
3. Empty Seat Belts ----- FASTENED
4. Fuel ----- ON
5. Alternators ----- ON
6. Clock ----- WOUND and SET
7. Engine Gauges ----- GREEN
8. Altimeters ----- SET
9. Attitude Indicator ----- SET
10. Pilot HSI ----- CHECK and SET
11. Co-Pilot DG ----- SET
12. Propellers ----- FORWARD
13. Friction Lock ----- ADJUST
14. Alternate Air ----- OFF
15. Cowl Flaps ----- SET
16. Wing Flaps ----- SET
17. Trim (Stabilator and Rudder) ----- SET
18. Controls ----- FREE and CORRECT
19. Electric Fuel Pumps ----- ON
20. Pitot Heat ----- AS REQUIRED
21. Lights ----- AS REQUIRED
22. Transponder ----- ON or ALT
23. Doors ----- LATCHED

PRE-TAKEOFF CHECKLIST COMPLETE

TAKE OFF BRIEFING

Rotation speed is _____ MPH

Computed takeoff distance is _____ feet.

Runway length is _____ feet.

Computed SE climb performance is _____ fpm.

1. In the event of engine failure below VR
 - close throttles, maximum braking.
2. In the event of engine failure at VR or after with gear down and adequate runway remaining
 - close throttles, land, and stop straight ahead.
3. If runway remaining is inadequate for stopping and if:
 - a) a positive single engine rate of climb is computed
 - maintain heading, retract landing gear, accelerate to 105 MPH and feather inoperative engine propeller. Perform engine securing procedure.
 - b) a negative rate of climb is computed
 - maneuver to the best available landing area, close both throttles and land.

This will be a (normal/short field) takeoff.

Departure runway is _____

Climb out at 105 MPH.

TAKE OFF BRIEFING COMPLETE

TAKEOFF CHECKLIST

1. Taxi to Runway Centerline-----HOLD BRAKES
2. HSI -----CHECKED and SET
3. Time Off-----NOTE
4. Mixtures -----RICH
5. Propeller-----FORWARD
6. Throttle -----2000 RPM
-----CHECK GAUGES
7. Brakes -----RELEASE
8. Throttle Controls ----- FULL FORWARD
9. Air Speed ----- CALL ALIVE
----- CALL 60
10. Rotate (normal takeoff)-----80
11. Lift Off (normal takeoff)-----85
12. Accelerate ----- Vx 90 or Vy 105 MPH
13. Gear-----UP
-----No more Runway and Positive Rate

TAKE OFF CHECKLIST COMPLETE

CLIMB CHECK (500' AGL)

1. Climb Power-----25"/2500RPM
----- Vy105 MPH/Cruise 120MPH
2. Gear-----UP
3. Flaps -----UP
4. Landing Lights -----OFF
5. Cowl Flaps----- AS REQUIRED
6. Fuel Pumps-----OFF ABOVE 1000 AGL
7. Engine Instruments-----MONITOR

CLIMB CHECK COMPLETE

CRUISE CHECK

1. Power Set (MP/RPM)-----ACCORDING TO TABLE
2. Mixture----- LEAN AS NECESSARY
3. Cowl Flaps----- AS REQUIRED
4. Engine Instruments-----MONITOR
5. HSI -----CHECK

CRUISE CHECK COMPLETE

DESCENT CHECK

- 1. Check Gear Horn----- 14" MP
- 2. Manifold Pressure----- SET
- 3. Mixture----- RICH
- 4. Cowl Flaps----- CLOSED
- 5. ATIS-----OBTAIN
- 6. Altimeter----- SET

DESCENT CHECK COMPLETE

APPROACH CHECK

- 1. Power----- SET
- 2. Mixture----- RICH
- 3. Seatbelts/Backs----- FASTENED and ERECT
- 4. Fuel Pumps----- ON
- 5. Pitot Heat----- AS REQUIRED
- 6. Anti-Collision Lights----- ON
- 7. Cowl Flaps----- AS REQUIRED
- 8. Fuel Selectors----- ON
- 9. Auto Pilot----- OFF
- 10. Flaps----- AS REQUIRED

APPROACH CHECK COMPLETE

APPROACH SPEEDS

Downwind	10°		115 MPH
Base	25°		110 MPH
Turn Final	25°		110 MPH
Final Approach	25°	Blue Line	105 MPH
Landing Assured	40°		95 MPH
Flaps Extended	10°		160 MPH
	25°		140 MPH
	40°		125 MPH
Gear Extended			150 MPH
Gear Retracted			125 MPH

PRE LANDING CHECK

- 1. Fuel Selectors-----ON and QTY
- 2. Undercarriage----- 3 GREEN
----- ONE IN THE MIRROR
- 3. 2nd Pilot----- VERIFY
Undercarriage----- 3 GREEN
----- ONE IN THE MIRROR
- 4. Brakes-----CHECK
----- PRESS and OFF
- 5. Mixtures-----RICH
- 6. Fuel Pumps----- ON
- 7. Landing Light----- ON

PRE-LANDING CHECK COMPLETE

FINAL CHECK (GUMPS)

- 1. **G**as (Fuel Selectors)----- ON
- 2. **U**ndercarriage----- 3 GREEN
----- ONE IN THE MIRROR
- 3. **M**ixture-----RICH
- 4. **P**rops-----HIGH
- 5. **S**witches
 - a) **F**UEL PUMPS----- ON
 - b) **L**ANDING LIGHTS----- ON

FINAL CHECK COMPLETE

GO-AROUND

- 1. Mixture-----RICH
- 2. Props----- FINE
- 3. Throttles----- FULL FORWARD
- 4. Pitch Up----- VSI Positive RATE
- 5. Flaps----- 25° IMMEDIATELY
- 6. Gear----- UP
- 7. Remaining Flaps-----RETRACT PAST OBSTACLE
-----and POSITIVE RATE
- 8. Cowl Flaps-----AS NEEDED

GO-AROUND CHECKLIST COMPLETE

AFTER LANDING CHECK (PAST HOLD SHORT LINE)	
1. Time Down-----	NOTE
2. Wing Flaps-----	UP
3. Cowl Flaps-----	OPEN
4. Transponder-----	STANDBY
5. Fuel Pumps-----	OFF
6. Lights-----	OFF (except Beacon)
7. Pitot Heat-----	OFF
8. Ground or UNICOM-----	CONTACT
AFTER LANDING CHECK COMPLETE	

ENGINE SHUTDOWN	
1. Parking Brake-----	SET
2. Radio Master-----	OFF
3. Defroster-----	OFF
4. Magnetos – Left Engine-----	CHECK
5. Magnetos – Right Engine-----	CHECK
6. Throttles-----	IDLE
7. Mixture-----	IDLE CUT-OFF
8. Magneto Switches-----	OFF
9. Beacon-----	OFF
10. Master Switch-----	OFF
11. Alternators-----	OFF
12. Parking Brake-----	OFF
13. Controls-----	SECURE
14. Aircraft-----	TIEDOWN
SHUTDOWN COMPLETE	

**Power Setting Table – Lycoming
Model IO-360-C Series
200 HP Engine**

Press Alt Feet	Std. Alt Temp °C / °F	110 HP - 55% Rated RPM and MAN. PRESS.			
		2100	2200	2300	2400
SL	15 / 59	22.9	22.0	21.0	20.4
1,000	13 / 55	22.7	21.8	20.8	20.2
2,000	11 / 52	22.4	21.5	20.6	20.0
3,000	9 / 48	22.2	21.3	20.4	19.8
4,000	7 / 45	21.9	21.1	20.2	19.5
5,000	5 / 41	21.7	20.8	20.0	19.3
6,000	3 / 38	21.4	20.6	19.8	19.1
7,000	1 / 34	21.2	20.4	19.6	18.9
8,000	-1 / 31	21.0	20.1	19.4	18.7
9,000	-3 / 27	FT	19.9	19.2	18.5
10,000	-5 / 23		19.7	19.0	18.3
11,000	-7 / 19		FT	18.7	18.1
12,000	-9 / 16			FT	17.8
13,000	-11 / 12				17.6
14,000	-13 / 9				FT

To maintain constant power, correct manifold pressure approximately 0.16" Hg for each 10° F variation in inlet air temperature from standard altitude temperature. Add manifold pressure for air temperatures above standard; subtract for temperatures below standard.

**Power Setting Table – Lycoming
Model IO-360-C Series
200 HP Engine**

130 HP - 65% Rated RPM and MAN. PRESS.				150 HP - 75% Rated RPM and MAN. PRESS.		Press Alt Feet
2100	2200	2300	2400	2300	2400	
25.9	24.8	23.8	22.9	26.5	25.5	SL
25.6	24.5	23.5	22.7	26.2	25.2	1,000
25.4	24.3	23.3	22.5	25.9	25.0	2,000
25.1	24.0	23.0	22.2	25.7	24.7	3,000
24.8	23.8	22.8	22.0	FT	24.4	4,000
FT	23.6	22.6	21.7		FT	5,000
	FT	22.3	21.5			6,000
		22.1	21.3			7,000
		FT	21.0			8,000
			FT			9,000
						10,000
						11,000
						12,000
						13,000
						14,000

To maintain constant power, correct manifold pressure approximately 0.16" Hg for each 10° F variation in inlet air temperature from standard altitude temperature. Add manifold pressure for air temperatures above standard; subtract for temperatures below standard.

SPEEDS

Vne	Never Exceed	217 MPH
Vno	Max Normal operating	190 MPH
Va - 4200 lbs	Maneuvering Speed	146 MPH
Va - 2743 lbs	Maneuvering Speed	133 MPH
Vfe ^{10°}	Flaps Extended	160 MPH
Vfe ^{25°}	Flaps Extended	140 MPH
Vfe ^{40°}	Flaps Extended	125 MPH
Vle	Landing Gear Extended	150 MPH
Vlo - extending	Landing Gear Operating	150 MPH
Vlo - retracting	Landing Gear Operating	125 MPH
Vy	Best Rate	105 MPH
Vyse	Best Rate Single Engine	105 MPH
Vx	Best Angle	90 MPH
Vxse	Best Angle Single Engine	93 MPH
Vmc	Minimum Control Speed	80 MPH
Vs	Stall Clean	76 MPH
Vso	Stall Landing Configuration	69 MPH
	Approach Speed	110 MPH
	Max. Demo. X-wind	15 MPH

ENGINE FAILURE

**ENGINE FAILURE AT TAKE OFF
RUNWAY INADEQUATE OR BELOW 1000 FT**

1. Minimum Control Speed----- 80 MPH
2. Blue Line Speed----- 105 MPH
3. Direction and Airspeed----- ABOVE 90 MPH
4. Mixture----- FORWARD
5. Prop----- FORWARD
6. Throttle----- FORWARD
7. Flap----- RETRACT
8. Gear----- RETRACT
9. Identify----- DEAD FOOT = DEAD ENGINE
10. Verify----- RETARD THROTTLE
11. Propeller of Dead Engine----- FEATHER
12. Mixture of Dead Engine----- IDLE CUT OFF
- 13. Call for Checklist**
 - a) Bank----- 5° TO GOOD ENGINE
 - b) Trim----- AS REQUIRED
 - c) Fuel Pump of Dead Engine----- OFF
 - d) Magnetos of Dead Engine----- OFF
 - e) Cowl Flaps of Dead Engine----- CLOSE
 - f) Cowl Flaps of Good Engine----- AS NEEDED
 - g) Alternator of Dead Engine----- OFF
 - h) Electrical Load----- REDUCE
 - i) Fuel to Dead Engine----- OFF
 - j) Fuel to Good Engine----- ON
 - k) Fuel Pump of Good Engine----- OFF

ENGINE FAILURE

**ENGINE FAILURE BELOW 105 MPH
ADEQUATE RUNWAY TO STOP**

1. Throttles----- CLOSED
2. Brakes----- MAX

**ENGINE FAILURE BELOW 105 MPH
INADEQUATE RUNWAY TO STOP**

1. Throttles----- CLOSED
2. Brakes----- MAX
3. Battery----- OFF
4. Alternators----- OFF
5. Fuels----- OFF
6. Turn To Avoid Obstacles

**ENGINE FAILURE ABOVE 105 MPH
ADEQUATE RUNWAY TO STOP**

1. Gear----- DOWN
2. Throttles----- CLOSED
3. Land Straight Ahead

ENGINE FAILURE

**ENGINE FAILURE IN CRUISE
AT OR ABOVE 1000 FT**

1. Minimum Control Speed ----- 80 MPH
2. Blue Line Speed ----- 105 MPH
3. Direction and Airspeed ----- ABOVE 90 MPH
4. Mixture ----- FORWARD
5. Prop ----- FORWARD
6. Throttle ----- FORWARD
7. Flap ----- RETRACT
8. Gear ----- RETRACT
9. Electric Fuel Pumps ----- ON
10. Identify ----- DEAD FOOT = DEAD ENGINE
11. Verify ----- RETARD THROTTLE
- 12. Cause Check**
 - a) Alternate Air ----- ON
 - b) Fuel ----- ON
 - c) Mixture ----- RICH
 - d) Magnetos ----- CYCLE
- 13. If No Restart**
 - a) Propeller of Dead Engine ----- FEATHER
 - b) Mixture of Dead Engine ----- IDLE CUT OFF
- 14. Call for Checklist**
 - a) Bank ----- 5° TO GOOD ENGINE
 - b) Trim ----- AS REQUIRED
 - c) Fuel Pump of Dead Engine ----- OFF
 - d) Magnetos of Dead Engine ----- OFF
 - e) Cowl Flaps of Dead Engine ----- CLOSE
 - f) Cowl Flaps of Good Engine ----- AS NEEDED
 - g) Alternator of Dead Engine ----- OFF
 - h) Electrical Load ----- REDUCE
 - i) Fuel to Dead Engine ----- OFF
 - j) Fuel to Good Engine ----- ON or CROSSFEED
 - k) Fuel Pump of Good Engine ----- OFF

FIRE

**ENGINE FIRE ON GROUND
IF ENGINE NOT STARTED**

1. Mixtures ----- ICO
 2. Throttles ----- OPEN
 3. Starter Flaming Eng ----- CRANK
- This is an attempt to pull the fire into the engine
If engine has started, continue operating to try pulling the fire into the engine.

IF FIRE CONTINUES

1. Fuel Selectors ----- OFF
2. Mixture ----- ICO
3. Fire ----- EXTINGUISH
4. Cabin ----- EVACUATE

**ENGINE FIRE IN FLIGHT
AFFECTED ENGINE SHUTDOWN**

5. Fuel ----- OFF
6. Throttle ----- CLOSED
7. Prop ----- FEATHER
8. Mixture ----- ICO
9. Cowl Flap ----- OPEN
10. Heater ----- OFF
11. Defroster ----- OFF
12. If Terrain Permits ----- LAND ASAP
- 13. Call For Checklist**
 - a) Power Good Eng ----- AS REQ'D
 - b) Trim ----- 3-5° TO GOOD ENG
 - c) Pump Inop Eng ----- OFF
 - d) Mags Inop Eng ----- OFF
 - e) Alt Inop Eng ----- OFF
 - f) Electrical Load ----- CHECK
 - g) CALL ATC
 - h) X-FEED IF NECY
 - i) LAND ASAP

RESTARTS

RESTART ENGINE

1. Mixture ----- AS REQUIRED
2. Fuel Boost Pump ----- ON
3. Fuel Selector ----- CROSSFEED
4. Magnetos ----- SELECT L or R ONLY
5. Alternate Air ----- ON

UNFEATHERING (AIR START) PROCEDURE

1. Fuel Selectors ----- ON
 2. Fuel Pump on Dead Engine ----- OFF
 3. Throttle ----- OPEN ¼ INCH
 4. Prop ----- FORWARD to CRUSE RPM
 5. Mixture ----- RICH
 6. Magneto Switch ----- ON
 7. Starter ----- ENGAGE, PROP WINDMILLS
 8. Throttle ----- RETARD, ENGINE WARM
- NOTE If engine does not start, prime with pump for 3 sec.

FUEL MANAGEMENT

NORMAL OPERATION

USING FUEL FROM THE OPERATING ENGINES TANK

1. Fuel Selector Operating Engine ----- ON
 2. Fuel Selector Inop. Engine ----- OFF
 3. Fuel Pumps ----- OFF
- NOTE In case of engine driven fuel pump failure, electric fuel pump on operating engine side must be ON

X-FEED OPERATION

WHEN USING FUEL FROM THE DEAD ENGINES TANK

1. Fuel Selector Operating Engine ----- X-FEED
 2. Fuel Selector Inop. Engine ----- OFF
 3. Fuel Pumps ----- OFF
- NOTE In case of engine driven fuel pump failure, electric fuel pump on operating engine side must be ON

LANDING OPERATION

1. Fuel Selector Operating Engine ----- ON
2. Fuel Selector Inop. Engine ----- OFF
3. Fuel Pump Operating Engine ----- ON

LANDING GEAR

LANDING GEAR UNSAFE WARNINGS

1. Red light indicates gear is in transit.
2. Recycle the gear if the red light continues to illuminate.
3. Red light will illuminate when the gear warning horn sounds.
4. The gear warning horn sounds when
 - a) The manifold pressure drops to 14" hg in either engine or both and the gear is in the up position
 - b) The gear selector is set in the up position when the airplane is on the ground.

EMERGENCY GEAR EXTENSION

1. Circuit Breakers ----- CHECK IN
 2. Master Switch ----- ON
 3. Alternators ----- ON
 4. Navigation Lights ----- OFF (DAYTIME)
 5. To extend gear
 - a) Airspeed ----- REDUCE TO 100 MPH
 - b) Gear Selector Switch ----- DOWN and LOCKED
 - c) Emergency Extension Knob ----- PULL OUT
 - d) Landing Gear Indicator Lights ----- CHECK 3 GREEN
- NOTE: LEAVE EMERGENCY GEAR EXTENSION KNOB OUT!

GEAR UP LANDING

1. Approach ----- NORMAL AIRSPEED
2. Flaps ----- UP
3. Throttles ----- CLOSE BEFORE TOUCHDOWN
4. Master Switch ----- OFF
5. Magnetos ----- OFF
6. Fuel Selectors ----- OFF
7. Fuel Pumps ----- OFF
8. Ignition ----- OFF
9. Contact Surface ----- MINIMUM AIRSPEED,
----- SLIGHTLY TAIL LOW

ELECTRICAL

BOTH OVERVOLTAGE LIGHTS ILLUMINATE

1. Electrical Load -----TURN OFF ALL
2. Master Switch ----- ON
3. Alternators -----OFF
 - a) Alternators -----ON, ONE AT A TIME
 - b) Determine the alternator with the least output -----
----- leave its switch ON
4. Electrical Equipment-----MAX 50 AMPS
5. If both alternators show approximately equal output (less than 50 AMPS each
 - a) Both Alternators ----- TURN ON
 - b) Electrical Equipment -----TURN ON AS REQUIRED
 - c) Resume normal operation

ONE OVERVOLTAGE LIGHTS ILLUMINATE

1. Electrical Load -----TURN OFF ALL
2. Master Switch ----- ON
3. Alternator associated with light -----OFF
4. Alternator associated with light ----- ON
5. If More Than 50 Amps -----OFF
6. Electrical Equipment----- NO MORE THAN 50 AMPS

LOSS OF OUTPUT FROM ONE ALTERNATOR

1. Electrical Load -----REDUCE TO 50 AMPS
2. Circuit Breakers----- CHECK
----- RESET IF TRIPPED
3. Cycle Inop. Alternator Switch----- OFF→ON
4. If alternator fails to reset
 - a) Alternator -----OFF
 - b) Electrical Load----- REDUCE

Warning Compass error may exceed 10° with both alternators inoperative.

ELECTRICAL – VACUUM – PITOT/STATIC

ALTERNATOR OFF LINE DUE TO WEAK BATTERY

- OR -

EXCESSIVE RESTART CRANKING

1. Circuit Breakers -----CHECK
----- RESET IF TRIPPED
2. Electrical Load----- REDUCE
3. Alternator Switch (operating one)----- ON
4. Master Switch----- OFF for a SHORT TIME
5. Master Switch----- ON
6. If no output indicated on the ammeter
 - a) Master Switch (longer period) ----- OFF
 - b) Master Switch ----- ON
7. If Power is established
 - a) Electrical Load----- REDUCE
----- Not to exceed 50 amps

Warning Compass error may exceed 10° with both alternators inoperative.

**VACUUM SYSTEM FAILURES
(LOWER THAN 4.5 Hg)**

1. Propellers -----INCREASE TO 2700RPM
2. Altitude-----DESCEND TO MAINTAIN 4.5 Hg

PITOT STATIC SYSTEM MALFUNCTION

1. Pitot Heat ----- ON
2. Alternate Static Source -----OPEN
3. Static Drain -----CHECK

ENGINE ITEMS

**ENGINE FAILURE WITH REAR
CABIN CARGO DOOR REMOVED**

1. Minimum Control Airspeed-----81MPH
2. If an engine failure occurs below 81MPH
 - a) Power----- reduce as necessary on the operating engine
 - b) Directional Control----- MAINTAIN

IN FLIGHT – ENGINE SHUTDOWN

1. Fuel Affected Engine -----OFF
2. Throttle----- CLOSED
3. Prop ----- FEATHER
4. Mixture ----- ICO
5. Cowl Flap ----- CLOSED
6. Gear -----UP
7. Flaps -----UP
8. Airspeed ----- 150MPH
9. if airport unattainable ----- Select and aim for landing area
10. Declare and emergency ----- 7700

PROPELLER OVERSPEED

1. Throttle-----CLOSE
 2. Airspeed ----- 105MPH
 3. Propeller-----BACK TO LOW RPM
 4. Slowly increase throttle until propeller governor is engaged.
 5. Slowly increase propeller and throttle to the desired power setting.
 6. Continue at reduced speed and power and land ASAP.
- NOTE If throttle is retarded below 15-20 Hg. Of M.P. at speeds above 105 MPH, the propeller may over-speed again upon reapplying power.

If this occurs follow the same procedure above.

OTHER

OPEN DOOR

1. Slow Airspeed ----- 100MPH
2. Cabin Vents ----- CLOSE
3. Storm Window -----OPEN
4. Upper Latch Open ----- LATCH
5. Side Latch Open ----- PULL ARMREST
6. Side Latch ----- LATCH
7. Upper Latch ----- LATCH

SPIN RECOVERY

1. Throttles ----- RETARD BOTH TO IDLE
2. Rudder-----FULL OPPOSITE TO DIRECTION OF SPIN
3. Yoke----- DECREASE BACK PRESSURE
----- FULL FWD IF NOSE DOESN'T DROP
4. Ailerons----- NEUTRAL
5. Rudder----- NEUTRALIZE WHEN ROTATION STOPS
6. Yoke-----SMOOTH BACK PRESSURE
----- DURING RECOVERY FROM DIVE

EMERGENCY DECENT

1. FLAPS ----- 40°
2. GEAR ----- DOWN
3. COWL FLAPS -----CLOSED
4. AIRSPEED -----125 MPH
PERFORM TURNS 30° EACH DIRECTION