

**PRE EXTERIOR CHECK**

- \*1. Publications — checked.
2. Fuel and power computer — checked.
- \*3. Magneto switches — OFF.
4. Gear handle — DOWN.
5. Battery switch — ON.
6. Rotating beacon — checked.
- (N)7. Lighting systems — checked.
8. Battery switch — OFF.
9. Oxygen pressure — checked.
10. Flight controls — unlocked.
11. Trim tabs — ZERO.
- \*12. Parking brake — ON.
13. Fuel quantity switch and selectors — MAIN.

## EXTERIOR CHECK

### REAR BAGGAGE COMPARTMENT

1. Cargo—secured.
2. Fire extinguisher—checked.
3. First-aid kit—checked.
- \*4. Door—locked.

### FUSELAGE - RIGHT SIDE

1. Skin condition—checked.
2. Static ports—checked.
3. Antennas—checked.

### EMPENNAGE

1. Deicer boots, right side—checked.
- \*2. Tiedown—released.
3. Controls and trim tabs—checked.
4. Nav lights and beacon—checked.
5. Deicer boots, left side—checked.

### FUSELAGE - LEFT SIDE

1. Skin condition—checked.
2. Static ports—checked.

### LEFT WING

1. Skin condition—checked.
2. Auxiliary fuel tank sump—drained.

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3. Controls and trim tab—checked.
4. Wingtip and nav light—checked.
5. Deicer boots—checked.
6. Landing light—checked.
7. Stall warning vane—checked.
- \*8. Auxiliary fuel tank—checked.
- \*9. Pitot tube—checked.
- \*10. Tiedown—released.
- \*11. Main fuel tank—checked.

### LEFT ENGINE AND PROP

1. Cowling—secure.
- \*2. Oil quantity and cap—checked.
3. Propeller—checked.
- \*4. Oil cooler—checked.

### LEFT MAIN LANDING GEAR

- \*1. Tire—checked.
2. Brake assembly—checked.
- \*3. Strut—checked.
4. Safety switch—checked.
5. Doors and linkage—checked.
6. Fuel strainer—checked.

### LEFT CENTER WING

1. General condition—checked.
2. Fuel sumps (3)—drained.

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### NOSE SECTION

1. Air intake—clear.
2. Avionics compartment—secured.
- \*3. Tire—checked.
- \*4. Strut—checked.
5. Taxi light—checked.
6. Doors and linkage—checked.

### FUSELAGE UNDERSIDE

1. General condition—checked.
2. Antennas—checked.
3. Beacon—checked.

### RIGHT CENTER WING

1. General condition—checked.
2. Fuel sumps (3)—drained.

### RIGHT MAIN LANDING GEAR

- \*1. Tire—checked.
2. Brake assembly—checked.
- \*3. Strut—checked.
4. Doors and linkage—checked.
5. Fuel strainer—checked.

### RIGHT ENGINE AND PROP

1. Cowling—secure.
- \*2. Oil quantity and cap—checked.

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- 3. Propeller—checked.
- \*4. Oil cooler—checked.

### RIGHT WING

- 1. Skin condition—checked.
- \*2. Main fuel tank—checked.
- \*3. Auxiliary fuel tank—checked.
- \*4. Tiedown—released.
- 5. Deicer boots—checked.
- 6. Landing light—checked.
- 7. Wingtip and nav light—checked.
- 8. Controls—checked.
- 9. Auxiliary fuel tank sump—drain.

### INTERIOR CHECK

- 1. Cabin exhaust vent—as required.
- \*2. Passenger briefing—complete.

## BEFORE STARTING ENGINES

- \*1. Seats, pedals, and belts—adjusted.
2. Cabin vent control—as required.
3. Cabin light—as required.
4. Map light—as required.
5. Compass—checked.
6. Free air temp—noted.
7. Center panel instruments—checked.
- \*8. Prop levers—LOW PITCH.
- \*9. Throttles—set.
- \*10. Mixture levers—FULL RICH.
11. Friction control—checked.
12. Boost pumps—OFF.
13. Flap switch—NEUTRAL.
14. Gear handle—DOWN.
15. Landing and taxi lights—OFF.
16. Cowl flaps—OPEN.
17. Nosewheel indicator position—noted.
18. Gear crank handle—stowed.
19. Static air selector—NORMAL.
20. Oxygen valve—as required.
21. Alternator switches—OFF.
22. Pilot's flight instruments—checked.
23. Marker beacon "sens" switch—HI.
24. Marker beacon/glide slope receiver—OFF.
25. Gyrosyn compass—SLAVE.
26. Inverter switch—OFF.

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27. Copilot's flight instruments—checked.
28. Engine instruments—checked.
29. Right panel circuit breakers—checked.
30. Copilot's audio panel—set.
31. Right panel radios—OFF.
32. Right subpanel circuit breakers—checked.
33. Radio and instrument light rheostats—as required.
34. Copilot's air handle—as required.
35. Left panel radios—OFF.
36. Pilot's audio panel—set.
37. Light switches—OFF.
38. Heat/blower switch—OFF.
39. Pitot heat—OFF.
40. Alternator circuit breakers—checked.
41. Prop anti-ice—OFF.
42. Suction gage—checked.
43. Alternator field circuit breaker—checked.
44. Left subpanel heat and air control handles—as required.

**\*STARTING ENGINES**

1. Battery switch—ON.
- (N)2. Nav lights—ON.
3. Warning and indicator lights (9)—TESTE
4. Fuel quantity gage—checked.
- (I)5. Prop anti-ice gage—checked.

**\*NO.1 ENGINE START**

1. Boost pump—as required.
2. Props—clear.
3. Ignition switch—START.
4. Throttle 800 to 1000 rpm—set.
5. Oil pressure—checked.
6. Alternator—ON, checked.

**\*NO.2 ENGINE START**

1. Boost pump—as required.
2. Prop—clear.
3. Ignition switch—START.
4. Throttle 800 to 1000 rpm—set.
5. Oil pressure—checked.
6. L alternator—OFF.
7. R alternator—ON, checked.
8. L alternator—ON.



**\*BEFORE TAXIING**

1. Inverter—STANDBY checked; set on MAIN.
2. Radios—ON.
3. Voltage regulator selector—switched; ammeter checked.
4. Suction gages—checked.
5. Radios—checked.
6. Taxi clearance—checked.
7. Clock—set.
8. Altimeter—set.
9. Fuel quantity switch and selectors—AUXILIARY.
10. Chocks—removed.
11. Parking brake—released.

**\*TAXIING**

1. Brakes—checked.
2. Flight instruments—checked.

# ENGINE RUNUP

- \*1. Nose wheel—centered.
  - \*2. Parking brake—set.
  - \*3. Fuel quantity switch and selectors—MAIN.
  - ★ \*4. Mags groundout—checked.
  5. Throttles 1200 rpm—set.
  6. Flaps—checked.
  - \*7. Engine instruments—checked.
  - ★ \*8. Mags—checked.
  - ★ 9. Prop governors—checked.
  - ★ 10. Prop feathering—checked.
  - \*11. Throttles 1200 rpm—set.
  - (I) 12. Pitot heat—checked.
  - (I) 13. Deicer system—checked.
- and after*

\*BEFORE TAKEOFF

1. Prop levers—LOW PITCH.
2. Mixture levers—FULL RICH.
3. Flaps—as required.
4. Trim—set.
5. Cowl flaps—OPEN.
6. Fuel quantity switch and selectors—MAIN.
7. Flight and engine instruments—checked.
8. Flight controls—checked.
- (I) 9. Nav radios—set.
10. Takeoff clearance—as required.
11. Windows and door—secured.
12. Beacon—ON.

LINE UP

1200 Transponder

~~1200 RPM~~

- (I) 1. Pitot heat—as required.
2. Transponder—as required.
3. Gyro heading—checked.

LOW

## AFTER TAKEOFF

1. Gear—UP.
2. Flaps—UP.
- (N)3. Landing and taxi lights—OFF.
4. Climb power—set.
5. Mixture—set.
6. Cowl flaps—as required.

## CRUISE

1. Cowl flaps—as required.
2. Cruise power—set.
3. Mixture—set.
4. Fuel quantity switch and selectors—as required.

## DESCENT

1. Mixture levers—set.
2. Throttles—adjusted.
3. Cowl flaps—as required.

## MAX DESCENT

1. Mixture levers—FULL RICH.
2. Prop levers—LOW PITCH.
3. Throttles—IDLE.
4. Gear—UP.
5. Flaps—UP.
6. Cowl flaps—CLOSED.
7. Airspeed— $V_{mo}$ .

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### BEFORE LANDING

1. Props 2500 rpm—set.
2. Mixture—set.
3. Fuel quantity switch and selectors—MAIN.
4. Brake handle—IN.
5. Gear—DOWN and checked.

### LANDING CHECK

- (N) 1. Landing lights—as required.
2. Gear—rechecked DOWN.
3. Prop levers—LOW PITCH.

### GO-AROUND

1. Throttles—Max allowable.
2. Gear—UP
3. Flaps—UP.
- (N) 4. Landing lights—OFF.
5. Cowl flaps—as required.
6. Climb power—set.

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### AFTER LANDING

- (N) 1. Landing and taxi lights—as required.
2. Cowl flaps—OPEN.
3. Pitot heat—OFF.
4. Beacon—OFF.
5. Flaps—UP.
6. Transponder—OFF.
7. Radios—as required.
8. Heater blower—as required.

### ENGINE SHUTDOWN

1. Nosewheel—centered.
2. Parking brakes—set.
3. Mags groundout—checked.
4. Throttles 1000 to 1200 rpm—set.
5. Radios—OFF.
6. Heater/blower—OFF.
7. Anti-ice switch—OFF.
8. Inverters—OFF.
9. Alternators—OFF.
10. Mixture levers—IDLE CUTOFF.
11. MAGS—OFF.
- (N) 12. Lighting systems—OFF.
13. Battery switch—OFF.

### BEFORE LEAVING AIRCRAFT

1. Parking brakes—as required.
2. Flight controls—locked.
3. Form 2408—completed.
4. Windows and doors—CLOSED.
5. Aircraft—secured.

NOTE

The urgency of certain emergencies requires immediate and instinctive action by the pilot. The most important single consideration is aircraft control. All procedures are subordinate to this requirement.

## ENGINE FAILURE

### DURING TAKEOFF RUN (ABORT)

1. Throttles—CLOSED.
2. Braking—as required.

### AFTER TAKEOFF BELOW 100 KNOTS (SUFFICIENT RUNWAY)

1. Throttles—CLOSED.
2. Complete normal landing.

### AFTER TAKEOFF BELOW 100 KNOTS (INSUFFICIENT RUNWAY)

1. Throttles—CLOSED.
2. Flaps—as required.
3. Land—straight ahead.

DURING TAKEOFF (TAKEOFF CONTINUED)

1. Dead engine—identify.
2. Throttle (dead engine)—CLOSED.
3. Prop lever (dead engine)—FEATHER.
4. Gear—UP.
5. Flaps—UP.
6. Power—as required.
7. Airspeed—102 KNOTS IAS.

DURING FLIGHT

1. Power—as required.
2. Dead engine—identify.
3. Throttle (dead engine)—CLOSED.
4. Prop lever (dead engine)—FEATHER.
5. Gear—UP.
6. Flaps—UP.
7. Power—as required.
8. Cowl flaps—as required.
9. Fuel quantity switch and selectors—as required.
10. Alternator (dead engine)—OFF.

DURING FINAL APPROACH

1. Prop levers—LOW PITCH.
2. Throttles—as required.
3. Gear—RECHECK DOWN.
4. Flaps—as required.



## ENGINE RESTART DURING FLIGHT

1. Fuel quantity switch and selector—MAIN.
2. Mixture lever—set.
3. Throttle—set.
4. Prop lever—LOW PITCH until prop windmills, then to detent.
5. Ignition switch (no windmill)—START.
6. Warmup—15" Hg. 2000 RPM
7. Alternator—ON.
8. Cowl flaps—as required.

## LANDING WITH ONE ENGINE INOPERATIVE

1. Prop 2500 rpm—set.
2. Mixture—set.
3. Fuel quantity switch and selectors—MAIN.
4. Brake handle—IN.
5. Gear—DOWN, when landing assured.

## LANDING CHECK

- (N) 1. Landing lights—as required.
2. Gear—rechecked DOWN.
3. Prop lever—LOW PITCH.

## SINGLE ENGINE GO-AROUND

1. Throttle—maximum controllable.
2. Gear—UP.
3. Flaps—UP.
- (N)4. Landing lights—OFF.
5. Cowl flaps—as required.
6. Climb power—set.

## LANDING WITH BOTH ENGINES INOPERATIVE

1. Brake handle—IN.
2. Prop levers—FEATHER.
3. Gear—DOWN and checked.
- (N)4. Landing light—as required.

## CHIP DETECTOR WARNING LIGHT

1. Engine instruments—monitor.
2. Land as soon as practicable.

## PROPELLER FAILURE

1. Airspeed—reduce (increase pitch).
2. Throttles—reduce power.
3. Prop lever (faulty prop)—retard to detent.

### NOTE

If after moving prop lever through full range of travel, control is not regained, shut down the engine and feather the prop. If the propeller fails to feather, restart the engine and use maximum power without exceeding rpm limits, maintain 100 to 110 knots IAS and land as soon as practicable.

## FIRE

### ENGINE/NACELLE FIRE ON GROUND

1. Mixture levers—IDLE CUTOFF.
2. Throttles—CLOSED.
3. Mags—OFF.
4. Fuel selectors—OFF.
5. Abandon aircraft and use fire extinguisher.

### ENGINE FIRE IN FLIGHT

1. Fuel selector—OFF.
2. Mixture lever—IDLE CUTOFF.
3. Prop lever—FEATHER.

### FUSELAGE FIRE

1. Battery switch—OFF.
2. Fight the fire.
3. Air shutoff controls—OFF.

## FUEL SYSTEM EMERGENCIES

### FLUCTUATING FUEL PRESSURE

1. Mixture lever—FULL RICH.
2. Boost pump—ON.
3. Mixture lever—set.

### FUEL PRESSURE DROP (FUEL LEAK)

1. Fuel selector—OFF.
2. Mixture lever—IDLE CUTOFF.
3. Prop lever—FEATHER.
4. Gear—UP.
5. Flaps—UP.
6. Power—as required.
7. Cowl flaps—as required.
8. Fuel quantity switch and selector (live engine)—as required.
9. Alternator—OFF.

## ELECTRICAL SYSTEM FAILURE

### MAIN INVERTER FAILURE

1. Inverter switch—STANDBY INVERTER.
2. Inverter circuit breakers—reset.

### STANDBY INVERTER FAILURE

1. Inverter switch—MAIN.
2. Inverter circuit breakers—reset.
3. Inverter light on—inverter switch OFF.

### ALTERNATOR OVERVOLTAGE

1. Voltage regulator switch—change position.
2. Overvoltage light—checked.
3. Overvoltage light on—alternator field circuit breaker OUT.

## LANDING AND DITCHING

### LANDING WITH ENGINE (S) INOPERATIVE

(See "Engine Failure" section.)

#### EMERGENCY DESCENT

1. Prop levers—LOW PITCH.
2. Throttles—CLOSED.
3. Gear—UP.
4. Flaps—UP.
5. Airspeed— $V_d$ .

#### LANDING GEAR SYSTEM FAILURE

1. Gear relay circuit breaker—checked.
2. Indicator bulbs—checked.
3. Nose gear indicator—checked.
4. Gear motor circuit breaker—checked.
5. Gear handle—recycle.
6. Gear position—checked (fly-by).

#### EMERGENCY GEAR EXTENSION

1. Gear handle—DOWN.
2. Gear motor circuit breaker—OUT.
3. Gear crank—turn COUNTERCLOCKWISE.

#### GEAR UP LANDING

1. Gear motor circuit breaker—IN.
2. Gear handle—UP.

3. Seatbelts—SECURE.
4. Passengers—CHECKED.
5. Heater—OFF.
6. Approach—NORMAL.
7. Flaps (before touchdown)—DOWN.
8. Throttles—CLOSED when runway assured.
9. Mixture levers—IDLE CUTOFF.
10. Prop levers—FEATHER.

**LANDING WITH MAIN GEAR DOWN AND NOSE  
GEAR UP OR UNLOCKED**

1. Heater—OFF.
2. Before landing checks—completed.
3. Throttles—CLOSED when runway assured.
4. Mixture levers—IDLE CUTOFF.
5. Props—FEATHER.
6. Brakes—DO NOT USE.

**LANDING WITH ONE MAIN GEAR UP OR UNLOCKED**

1. Heater—OFF.
2. Before landing checks—completed.
3. Touchdown—on good gear.
4. Throttles—CLOSED.
5. Mixture levers—IDLE CUTOFF.
6. Prop levers—FEATHER.
7. Brakes—as required.



**LANDING WITH NOSE GEAR DOWN, MAIN GEAR  
UP OR UNLOCKED**

1. Gear handle—UP.
2. Follow gear-up procedure.

**LANDING WITH FLAT TIRE**

1. Land—on side of runway, favoring good tire.
2. Brake—on good wheel only.
3. Flat nose tire—use light braking.

**DITCHING**

1. Radio—distress procedure.
2. Passengers—alerted.
3. Seatbelts—SECURE.
4. Gear—UP.
5. Flaps—DOWN.
6. Heater—OFF.

**BEFORE IMPACT**

7. Throttles—CLOSED.
8. Mixture levers—IDLE CUTOFF.

## 42 INSTRUMENT COCKPIT CHECK

1. MAGNETIC COMPASS: Current deviation card aboard. Bowl full of fluid and free of bubbles. Card swinging freely. Check accuracy with a known heading.
2. SUCTION GAUGE: In the green arc after starting engines. Poppets retracted.
3. AIRSPEED INDICATORS: Should indicate approximately zero during taxiing. Note type of calibration (mph or knots).
4. ATTITUDE INDICATORS: Miniature aircraft set to manufacturer's reference mark. Horizon bar erect to horizontal position and does not precess more than  $5^{\circ}$  during turns.
5. ALTIMETERS: Set to field elevation and K-factor noted.
6. TURN-AND-SLIP-INDICATOR: Turn needle free and deflected in the direction of taxi turns. Ball free in the race and race full of fluid.
7. HEADING INDICATORS: Card should turn freely and indicate turns in the proper direction without excessive precession and agree with the magnetic compass or a known heading.
8. VERTICAL SPEED INDICATOR: Needle should indicate a zero rate reading while on the ground.

# TAKEOFF AND LANDING DATA CARD

## TAKEOFF DATA

TAKEOFF POWER: MP Full RPM 2625  
 ROTATION SPEED 70-8025 KN  
 TAKEOFF SPEED 8025 KN  
 MINIMUM CONTROL SPEED ( $V_{MC}$ ) 101 KN  
 TAKEOFF GROUND RUN \_\_\_\_\_ FT  
 TAKEOFF OVER \_\_\_\_\_ FT OBSTACLE \_\_\_\_\_ FT  
 CLIMB POWER: MP 25 RPM 2500  
 INITIAL CLIMB AIRSPEED 130 KN  
 SINGLE ENGINE CLIMB SPEED \_\_\_\_\_ KN

## LANDING IMMEDIATELY AFTER TAKEOFF

FINAL APPROACH SPEED \_\_\_\_\_ KN  
 TOUCHDOWN SPEED \_\_\_\_\_ KN  
 LANDING GROUND ROLL \_\_\_\_\_ FT

## LANDING DATA

FINAL APPROACH SPEED 90 kts KN  
 TOUCHDOWN SPEED \_\_\_\_\_ KN  
 LANDING GROUND ROLL \_\_\_\_\_ FT

## CONDITIONS

ALTITUDE: PRESSURE \_\_\_\_\_ DENSITY \_\_\_\_\_  
 WIND \_\_\_\_\_ TEMPERATURE \_\_\_\_\_ °C  
 RUNWAY LENGTH \_\_\_\_\_ FT. HEADING \_\_\_\_\_  
 GROSS WT:(TAKEOFF) \_\_\_\_\_ LAND \_\_\_\_\_

# TM 55-1510-208-CL

REMARKS: Recommended maximum wind limitations:

90° crosswind - - - - - 15 knots.  
 60° crosswind - - - - - 25 knots.  
 30° crosswind - - - - - 30 knots.  
 Maximum wind - no crosswind - 40 knots.  
 Maximum gust spread - - - - - 15 knots.

Recommended power settings:

	<u>RPM</u>	<u>MP</u>	<u>Mixture</u>	<u>IAS</u>
Takeoff	Full	Max	Note 1	---
Climb	2500	25	Note 1	130K
Cruise (65%)	*2300	*23	Note 2	
Slow Cruise	2300	---	Note 2	130K
Descent				
Cruise	2300	---	Note 3	Cruise
Slow Cruise	2300	---	Note 3	130K
Final Approach	2500	---	Note 3	IFR 110K VFR 90K

1. Full rich below 5000 feet.

11 psi from 5000 to 10,000 feet.

9 psi from 10,000 to 15,000 feet.

\*2. Manifold pressure and rpm indicated are approximate. Power computer or performance charts should be consulted for exact settings. One psi should be added to all fuel pressures shown on computer.

3. Above 5000 feet—mixture at best power setting before reducing throttles for descent. Below 5000 feet—mixture full rich.