

GO-NO-GO LIST

PERFORMANCE DATA

FLIGHT PROFICIENCY MANEUVERS

STANDARDS AND GRADING CRITERIA

EMERGENCY PROCEDURES

LIMITATIONS

PREFLIGHT AND NORMAL CHECKLIST

COMMUNICATIONS

C - 46
FLIGHT GUIDE

1 January 1969

COPY 73

NOTES

Battery (2) 24 V 88 AMP H? 9/0-1

24 V 36 AMP H 9/0-4

PRE-FLIGHTCOCKPIT

1. Battery Switches OFF
2. Mag switches OFF

EXTERIORLEFT WING AREA

1. Wing flap follow-up cable CONNECTED
2. Wing flap surface CHECKED
3. Wing flap actuating cylinders CHECKED
4. Fuel pump drains CHECKED
5. Boost Pump case drain CHECKED
6. Aileron trim tab NEUTRAL
7. Aileron surface CHECKED
8. Static dischargers CHECKED
- * 9. Position Light CHECKED
10. De-icing boots or leading edge CHECKED
11. Landing light CHECKED
12. Fuel & Oil Quantities visually CHECKED

OUTBOARD SIDE - LEFT ENGINE

1. Exhaust stack for security and cracks CHECKED
2. Evidence of engine oil leakage CHECKED
3. Cowl latches SECURED

LEFT PROPELLER

1. Propeller blades and cuffs CHECKED
2. De-icer Slinger ring SECURE
3. Propeller Anti-icing AS REQUIRED
(Hamilton Standard)
4. Safety pin on brush block CHECKED
(Curtiss Electric)
5. Dome safety wires CHECKED
6. Front cowl latches SECURED

INBOARD SIDE - LEFT ENGINE

- 1. Cowl latched SECURED
- 2. Exhaust stack for security and cracks CHECKED
- 3. Engine drains CHECKED

LEFT MAIN LANDING GEAR

- 1. Condition of tire and slippage mark ...CHECKED
- 2. Wheel for cracks CHECKED
- 3. Brake assembly bolts and spring clips SECURED
- 4. Security of hydraulic lines and
evidence of leakage CHECKED

LEFT NACELLE

- 1. Generator blast tubes for condition
and security CHECKED
- 2. Accessory section for general
security and oil leaks CHECKED
- 3. Cowl hold-open rods for security... CHECKED
- 4. Cowl flap actuator CHECKED
- 5. Oil coolers shutters OPEN
- 6. Oleo strut extension 3½"
- 7. Uplatch and Uplatch actuatorCHECKED
- 8. Landing gear actuator CHECKED
- 9. Telescoping downlock ENGAGED
- 10. Wheel well area for condition of
cables and fluid lines CHECKED
- 11. Crossfeed and firewall shutoff
for leaks CHECKED
- 12. Oil tank and "Y" drain CHECKED

FORWARD FUSELAGE

- 1. APU and heater exhausts CHECKED
- 2. Fire extinguisher discharge plugs ... CHECKED
- 3. All antennas CHECKED
- *4. Pitot covers REMOVED
- 5. Pitot tubes and static ports CHECKED
- 6. Pitot heat CHECKED
- 7. Ventilation and heater inlet CHECKED
- 8. Forward fuselage for condition CHECKED

FORWARD FUSELAGE (Cont'd)

- | | |
|--|---------|
| 9. Pitot mast de-icing | CHECKED |
| 10. Battery case and hydraulic drains... | CHECKED |
| 11. Forward baggage compartment door.. | SECURED |
| 12. Air-oil separator vents | CHECKED |

GROUND SERVICE COMPARTMENT

- | | |
|---|---------|
| 1. Hydraulic accumulator pressure..... | CHECKED |
| 2. Fluid lines and fittings for security
and leaks | CHECKED |
| 3. CB sphere pressure,.....
(if installed) | CHECKED |
| 4. Door | SECURED |
| 5. APU receptacle | CHECKED |

RIGHT NACELLE

Same as Left Nacelle.

RIGHT MAIN LANDING GEAR

Same as Left Main Landing Gear.

INBOARD SIDE - RIGHT ENGINE

Same as Inboard Side Left Engine

RIGHT PROPELLER

Same as Left Propeller

OUTBOARD SIDE - RIGHT ENGINE

Same as Outboard Side Left Engine

RIGHT WING AREA

Same as Left Wing Area.

AFT BAGGAGE COMPARTMENT

- | | |
|--|---------|
| 1. Long range fuel tank | CHECKED |
| 2. Aileron boost for leaks | CHECKED |
| 3. Rear spar | CHECKED |
| 4. General condition of compartment .. | CHECKED |
| 5. Baggage compartment screens
and access doors | SECURED |

TAIL WHEEL

- | | |
|--------------------------------------|---------|
| 1. Tail wheel lock | CHECKED |
| 2. Strut inflation | CHECKED |
| 3. Evidence of hydraulic leaks | CHECKED |
| 4. Canvas covers | SECURED |
| 5. Tire inflation | CHECKED |
| 6. Static ground wire | CHECKED |
| 7. Security of door brackets | CHECKED |
| 8. Tail wheel axle safety wire | CHECKED |

EMPENNAGE

- | | |
|--|---------|
| 1. Condition of de-icer boot or
leading edges | CHECKED |
| 2. Condition of control surfaces | CHECKED |
| 3. Balance weights | CHECKED |
| 4. Hinges, brackets and bushings | CHECKED |
| 5. Static dischargers | CHECKED |
| 6. Elevator spring cartridges | CHECKED |
| 6. Upper wing surfaces and fuselage | CHECKED |
| 7. Anti-collision and position lights | CHECKED |
| 8. Control locks | STOWED |

INTERIOR

- | | |
|---|---------|
| 1. Washroom | CHECKED |
| 2. Shepherds Hook | STOWED |
| 3. Cargo Door Support Stick | STOWED |
| 4. Fire Extinguisher | CHECKED |
| 5. First Aid Kits | CHECKED |
| 6. Galley | CHECKED |
| 7. Cargo and Passenger Doors | SECURED |
| 8. Emergency Flap Up Release | CHECKED |
| 9. Emergency Exits | SECURED |
| 10. Cargo Tie-Down | CHECKED |
| 11. Heater Emergency Shut-off valve | DOWN |
| 12. Warm Air "T" Valve | UP |
| 13. Auxiliary Hydraulic Fluid Level | CHECKED |
| 14. Booster System Fluid Level | CHECKED |
| 15. Hydraulic Shut-off Valves | ON |

INTERIOR (Cont'd)

- 16. Main Hydraulic Reservoir Fluid Level CHECKED
- 17. Emergency Gear Extension Crank CHECKED
- 18. Fire Axe STOWED
- 19. External Cockpit Door SECURED
- 20. Aircraft Documents and Flight Kit ON BOARD
- 21. Fire Extinguisher CHECKED
- 22. Evacuation Rope STOWED
- 23. Emergency Up-latch Release Handle DOWN
- 24. Emergency Hydraulic Handpump Handle .STOWED
- 25. Spare Fuses and Bulbs CHECKED
- 26. Brake Accumulator Pre-charge CHECKED

PRE-STARTING

- * 1. Preflight Inspection COMPLETE
- * 2. Batteries and Generators ON
- 3. Seat Belt and No Smoking ON
- 4. Exterior and Landing Lights SET
- 5. Radio Master Switch ON
- 6. Circuit Breakers CHECKED
- 7. Inverters CHECKED AND OFF
- 8. Emergency Booster and Brake Valves DOWN
- 9. Wing Flaps UP
- *10. Brakes SET
- 11. Carburetor Heat COLD
- 12. Gear HandleDOWN AND LOCKED
- 13. Fuel Crossfeed OFF
- 14. Booster Control FORWARD
- 15. Firewall Shutoff Valves OPEN
- 16. Oil Cooler Doors OPEN
- 17. Trim Tabs CHECKED
- 18. Mixtures IDLE CUT OFF
- 19. Propellers FORWARD
- *20. Throttles SET
- 21. Cowl Flaps OPEN
- 22. Heaters OFF
- 23. Fuel Selectors ON

PRE-STARTING (Cont'd)

- *24. Fuel and Oil Quantities CHECKED
- 25. Static Air Selector (s) NORMAL
- 26. Gyros UNCAGED
- 27. Autopilot OFF & NORMAL
- 28. Warning Lights CHECKED
- 29. Fire Warning Test CHECKED
- *30. Master Ignition ON
- *31. Fire Guard POSTED
- *32. Anti-Collision Light ON
- *33. Start Engines
- 34. Starter Switches OFF

PRE-STARTING (THRU - FLIGHT)

- 1. Batteries and GeneratorsON
- 2. Seat Belt - No Smoking ON
- 3. Brakes SET
- 4. Throttles SET
- 5. Fuel Selectors and Quantities SET & CHECKED
- 6. Master Ignition ON
- 7. Fire Guard POSTED
- 8. Anti-Collision LightON
- 9. Start Engines
- 10. Starter Switches OFF

PRE-TAXI

- 1. Inverter ON
- 2. Fuel Selectors FRONT CHECKED & SET
ON FRONT TANK (IF FULL)
- 3. Auto-pilot BLEED
- 4. Ignition Grounding CHECKED
- 5. All Instruments CHECKED
- 6. Radios CHECKED/SET
- 7. Altimeters SET

TAXI CHECKLIST

1. Brakes CHECKED
2. Wing Flaps CHECKED AND UP
3. Flight Instruments CHECKED
4. Carburetor Heat CHECKED

ENGINE RUNUP

1. Brakes and Tailwheel SET
2. Fuel Selectors SET
3. Mixtures AUTO RICH
4. Engine Temperatures and Pressures ... CHECKED
5. Generator CHECKED
6. Propellers CHECKED
7. Feathering CHECKED
8. Power Check COMPLETED
9. Magnetos CHECKED

PRE-TAKEOFF

1. Crew Briefing COMPLETED
2. Trim Tabs SET
3. Propellers FWD/LOCKED/AUTO
4. Gyros SET
5. Temperatures and Pressures CHECKED
6. Flight Controls FREE AND EASY
7. Fuel Boosters HIGH
8. Doors and Hatches CLOSED
9. Cowl Flaps TRAIL
10. Trailwheel LOCKED

AFTER TAKEOFF

1. Gear Handle UP
2. Fuel boosters OFF
3. Seat Belt - No Smoking OFF
4. Wing Scan COMPLETED
5. Gear Handle NEUTRAL

CRUISE

- 1. Cowl Flaps CLOSED
- 2. Cruise Power SET
- 3. Mixtures AUTO-LEAN

DESCENT

- 1. All Instruments CHECKED
- 2. Magnetos (Prior To Airdrop) CHECKED
- 3. Fuel Selectors SET
- 4. Emergency Booster & Brake Valve DOWN
- 5. Landing Gear Warning Lights CHECKED

BEFORE LANDING

- 1. Auto Pilot OFF
- 2. Heaters OFF
- 3. Rudder Pedals ADJUSTED
- 4. Altimeters SET
- 5. Seat Belts - No Smoking ON
- 6. Mixtures AUTO RICH
- 7. Fuel Booster Pumps LOW
- 8. Landing Gear DOWN
- 9. Landing Gear Lights and Visual CHECKED
- 10. Hydraulic Pressure CHECKED
- 11. Brake Pressure CHECKED
- 12. Propellers 2300 RPM
- 13. Flaps AS REQUIRED

AFTER LANDING

- 1. Cowl Flaps OPEN
- 2. Propellers FORWARD
- 3. Wing Flaps UP
- 4. Fuel Boosters OFF
- 5. Trim Tabs NEUTRAL
- 6. Pitot Heat, Anti-ice/Deice OFF
- 7. Radios & Inverters AS REQUIRED

PARKING

1. Tailwheel LOCKED
2. Brakes SET
3. Mixtures IDLE CUT
4. Ignition OFF
5. Anti-Collision Light OFF
6. Radios OFF
7. Inverter OFF
8. Generators OFF
9. Fuel Selectors OFF
10. Batteries OFF
11. Log Book COMPLETED
12. Control Locks ON

LIMITATIONS

Weight Limits: A-Non Transport Category
 B- Transport Category

Basic Operating: See Operating Manual

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Maximum taxi (including 100 lbs of taxi and runup fuel	A- 48,100 B- 47,500
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Maximum Takeoff	A- 48,000 B- 47,400
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Maximum Zero Fuel	A- 47,500 B- 45,168
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Maximum Landing	A- 48,000 B- 46,800
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Center of Gravity Limits

Forward	19.7%
Rearward	29.7%

Flight Load Acceleration Limits

FLAP UP	+2.51 G
FLAPS DOWN	+2.20 G

Powerplant Limits

Takeoff (2 minutes)

<u>BHP</u>	<u>RPM</u>	<u>MP</u>	<u>P. A.</u>
2000	2700	52	Sea Level
2000	2700	51	1500 Ft.

Maximum Except Takeoff (METO)
Low BlowerA/C with Hamilton Standard Propeller

<u>BHP</u>	<u>RPM</u>	<u>MP</u>	<u>P. A.</u>
1700	2550	44	Sea Level
1700	2550	43	5500 Ft.

A/C with Curtiss Electric Propeller

<u>BHP</u>	<u>RPM</u>	<u>MP</u>	<u>P. A.</u>
1600	2400	43.2	Sea Level
1600	2400	41.5	5500 Ft.

RPM

Takeoff	2700 ± 50 RPM
High Pitch (Ham Std)	1000 - 1200 RPM
Ground Power Check	2500 RPM
Ignition Check	2320 ± 50 RPM
Max RPM Drop	100
Max Differential	40
Idling	550 ± 50 RPM
Idle Mixture Check	10 - 20 RPM (Mom inc. or $\frac{1}{4}$ in. Hg Dec)
Avoid Continuous	Below 1600

Overspeed: Any overspeeding beyond 2800 but less than 3100 for more than 30 seconds with large throttle opening or for more than 10 seconds with small throttle opening is reason for removal.

Fuel Pressure

Normal Operating	17 - 19
Minimum Idle	9
Fuel Pressure Warning	14
Maximum for Flight	21
High Boost (No Flow 28 Volts)	18 - 21
High Boost (No Flow 24 Volts)	16 - 18

Oil Pressure

Desired at 2000 RPM	75 \pm 5
Normal Operating	70 - 80
Minimum Cruise	60
Maximum Allowable	100
Minimum Idle	25

Oil Temperature

Desired Cruise	60 $^{\circ}$ - 75 $^{\circ}$ C
Minimum for Flight	40 $^{\circ}$ C
Maximum Allowable	100 $^{\circ}$ C

Cylinder Head Temperature

Desired	180 - 205 $^{\circ}$ C
Normal Operating	150 - 232 $^{\circ}$ C
Maximum Before Start of Takeoff Roll	170 $^{\circ}$ C

Cylinder Head Temperature (Cont'd)

Maximum Ground Operation	200°C
Minimum For Mag Check	120°C
Minimum For Taxi	100°C

Carburetor Air Temperature

Normal Operating	+15 - +32°C
Maximum with heat	+38°C
Icing range	-10 - +15°C

Engine operating limits are based on the R-2800-75-M3 engine using either Curtiss model C543S-C28-814-3C3-18 or Hamilton Standard propeller and minimum fuel grade 100/130

Fluid Servicing

Fuel	FRONT	RH	236
		LH	236
	CENTER	RH	292
		LH	292
	REAR	RH	175
		LH	175
			<hr/> 1406
Oil	1120, MIL-L6082 or LAD II	RH	39.8
		LH	39.8
			<hr/> 79.6

Normal Company service 36 each Minimum required BY FAR 121 - 25 Ea

Hydraulic	MAIN	7 Gal
	AUX	8
		<hr/> 15
A & D Models Booster System		1.92
		<hr/> 16.92
16 Anti-Icing	20.9 Gal	

System LimitationsHydraulic (MAIN) :

Normal Operating	1050 - 1350
Allowable Unloading Range	150 - 250
Time Between Cycles	90 Sec.

Booster Control System:

Normal Operating	800 - 1000
Time Between Cycles	20 Sec.

Auto Pilot Hydraulic

Desired	130 - 150
Normal Operating	115 - 150
Maximum	170
Minimum	100

Wing Flaps

Full Up to Full Down	10 - 15 Sec
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Accumulators

Desired	600 + 50 - 0
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Landing Gear Warning

15 - 18"

Vacuum

Normal Operating	4 ⁺ .25"
Minimum	3.5"
Maximum	4.5"

Directional Gyro4⁰ in 15 MinsSurface Deicing System

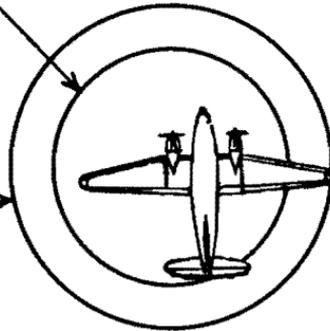
Desired	7 ⁺ .5 PSI
Normal Operating	6 - 8.5
Maximum Allowable	10.0

Electrical

Generator	28 ± .5
Generator Cut-In	26 - 27 Volts
AC Inverter	115 ± 5 Volts
" " (N67984-5)	105 - 120 Volts

Wheel Base
Turning Radius
43 Feet

Wing Tip
Turning Radius
67 Feet



Wing Span - 108 Feet
Length - 76 Feet 4 Inches

CAUTION - Do not pivot on inside wheel when turning A/C

ENGINE AND PROPELLER MALFUNCTIONS**A. Engine Fire During Starting**

If an engine fire occurs during the starting procedure:

1. KEEP ENGINE TURNING WITH STARTER.
2. MOVE MIXTURE CONTROL TO IDLE CUT-OFF.
3. TURN BOOST PUMPS OFF AND DISCONTINUE PRIMING.
4. THROTTLE - FULL OPEN.
5. IF THE FIRE IS NOT DRAWN INTO THE ENGINE, ACTUATE FIREWALL SHUT-OFF VALVE AND EXTINGUISH FIRE BY USE OF OUTSIDE CO₂ SYSTEM AND/OR AIRPLANE FIRE EXTINGUISHING SYSTEM.

B. Engine Failure During Take-Off

If an engine should fail during takeoff before reaching V_2 , the throttles must be closed and the airplane stopped. If an engine fails as V_2 is reached the pilot may elect to stop or continue the takeoff.

NOTE: V_1 and V_2 are the same for the C-46 in all weight categories.

If the takeoff is continued, initiate feathering immediately and climb out at V_2 speed until obstruction clearance altitude has been reached. Follow engine failure or fire check list.

When continued operation of an engine having any of the following conditions is considered necessary for the safety of the flight, such operations will be at the discretion of the Captain. If the engine operation is continued it is recommended that engine operation be conducted with caution and at

the minimum power consistent with requirements.

Experience dictates that prompt analysis and engine shutdown (feather) will minimize severe damage in most cases. Normally, feather or stop the engine when:

1. An extreme or abnormal engine vibration occurs.
2. An excessive or uncontrollable power loss occurs.
3. An uncontrollable rise in oil temperature occurs.
4. A sudden or uncontrollable drop in oil pressure occurs.
5. A sudden or uncontrollable drop in fuel pressure occurs.
6. A sudden or uncontrollable rise of cylinder head temperature occurs.
7. When it is known that two or more cylinders are inoperative.
8. A heavy discharge of oil is seen from the engine breather or exhaust system and/or a sudden decrease in oil quantity is indicated.
9. The cylinder head temperature cannot be kept below the upper limits.
10. An engine fire occurs.
11. A propeller becomes uncontrollable.

C. Engine Failure And/Or Fire

Immediate Action Items

1. PROPELLER FEATHER
2. MIXTURE IDLE CUT OFF
3. PROP FEATHERING AND FIRE
..... VISUALLY CHECK
(Hamilton Standard Prop. Check Feather
Button Out.)

Fire Action Items Only

1. FIREWALL SHUT OFF CLOSED
2. COWL FLAPS CLOSED
3. FIRE EXTINGUISHERS DISCHARGE

CAUTION: Do not lower landing gear with nacelle on fire.

Secondary Action Items (Clean Up)

1. Vacuum Crossfeed AS REQUIRED
2. Feather Switch (C.E.) NORMAL
3. Propeller Control AFT
4. Fuel Booster OFF
5. Fuel Selector and Crossfeed OFF
6. Cowl Flaps CLOSED
7. Generator OFF
8. Ignition OFF
9. Alcohol (Prop. & Carb.) OFF
10. Cabin/Cockpit Heaters SET
(Safe Operation)

D. Unfeathering Procedure

1. Maximum Airspeed 130 KNOTS
2. Throttle CLOSED
3. Propeller Control AFT
(and Fixed Pitch C.E.)
4. Fuel Selector ON
5. Firewall Shut-Off OPEN
6. Oil Quantity CHECKED
7. Oil Cooler OPEN
8. Generator ON
9. Turn Engine With Starter 16 BLADES
(12 Blades - Hamilton Standard)
10. Propeller UNFEATHER (800 RPM)
(Do not exceed 800 RPM)
11. Propeller Governor C.E. Auto
..... 1200 - 1300 RPM
(If RPM does not stabilize-feather)
12. Ignition ON

- 13. Mixture AUTO-RICH
- 14. Warm Up (Until 100° C CHT and rising)
..... 1600 RPM, MAP 20 HG

E. Runaway Propeller and Engine Overspeeding

While a runaway propeller is an infrequent occurrence, it is necessary to be familiar with the procedures involved in coping with such an emergency.

1. If the propeller overspeeds while still on the ground, close throttles immediately and stop the airplane.
2. If the propeller overspeed after the airplane is airborne, attempt to maintain below 3000 RPM by:
 - a. Closing the throttle.
 - b. Reducing airspeed as rapidly as possible.
 - c. Manipulating propeller lever.
 - d. Manual RPM decrease (C. E.)
 - e. Intermittent Feathering (Maximum of 3 attempts.)
 - f. Descending to a lower altitude.

If the above procedures does not regain RPM control, feather the propeller. If unable to feather the propeller, place mixture to idle cutoff and land as soon as practicable.

NOTE: If shut-down is required, propeller RPM should be reduced as much as possible before feathering is attempted.

SYSTEM FAILURESA. Hydraulic Failure

Whenever a hydraulic failure occurs, the following steps will be taken to preclude further loss of fluid under pressure:

1. Landing gear handle NEUTRAL
2. Wing flap selector UP
3. Aileron boost (D Model) OFF

B. Wing Flap Emergency Operation

It is possible to operate the wing flaps by using the hand pump, provided there is fluid in the system.

1. Reduce airspeed to 117 kts IAS.
2. Place wing flap selector valve to desired position.
3. Pump flaps down (or up) with hand pump until setting is reached.
4. For emergency retraction of the wing flaps, actuate the emergency flap retraction handle located at station 399 (some airplanes) or at the base of the pedestal (other airplanes) which mechanically opens the "Up Valve" ports in the wing flap control valve. The flaps will retract to approximately the 5° position as a result of slip stream action.

NOTE: Spare hydraulic fluid is provided on some airplanes in a spare tank above the hydraulic reservoir. This tank should be checked for quantity prior to takeoff. The tank should never be filled to the filler neck in order to prevent leakage at altitude.

C. Landing Gear Emergency Operation

WITH FLUID

1. Place gear selector in the "down" position.
2. Insert hydraulic pump handle and pump until the landing gear locked lights come on.

WITHOUT FLUID

1. Place gear selector in the "down" position.
2. Attempt to lower or partially lower the gear by pumping the hand pump while going through the normal gear lowering procedure.
3. If no results, then pull emergency release handle and lock in the "up" position.
4. Prior to inserting the hand crank, visually check that the landing gear has extended.
5. Insert the hand crank and turn counterclockwise until the landing gear locked lights come on and the cables line up with the indices.

NOTE: The emergency uplatch release handle incorporates a ratchet device to retain manual extension when the mechanism is used.

The uplatch release also operates three dump valves which send hydraulic fluid back to the reservoir from the main gear retracting cylinders and overboard from the tailwheel retracting cylinder.

The crank for the manual extension mechanism is stowed on the lower surface of the hatch in the pilots' compartment floor. The main landing gear will "free fall" ap-

proximately two-thirds down. The tail wheel should "free fall" to the fully extended and locked position. Crank the main landing gear down the rest of the way by using the emergency gear crank. The crank is inserted in the two holes on the left wall located below the hatch. These holes are marked LEFT and RIGHT (landing gear.)

CAUTION: NEVER INSERT OR USE CRANK UNTIL GEAR HAS EXTENDED AS FAR AS IT WILL GO.

If the tail wheel fails to release, go to the aft bulkhead of the main cabin, reach in through the access opening and pull on the up-latch cable. The tail wheel should then fall into place and lock by gravity. In the event the tail wheel fails to fall free when using this procedure open a hole as indicated on the bulkhead. Attach shepherds hook to cargo door extension rod and pull tail wheel into the down and locked position.

D. Emergency Brake Procedure

1. With a brake pressure reading of 1350 psi, there should be 4 to 6 brake applications remaining.
2. Prior to landing without hydraulic pressure, pull up the emergency brake valve handle.
3. Operate the hydraulic pump handle during landing and taxiing.

NOTE: To brakes will not operate satisfactorily with accumulator pressure below 600 pounds.

Once the brake pedals have been depressed, releasing the brake pedals will diminish the available pressure from the accumulator for subsequent brake applications.

E. Fuel System Failure

1. Engine Driven Pump

- a. In the event, of failure of an engine driven pump, place fuel booster pump switch to the HIGH position.
- b. If pressure is not obtained, immediately shut down the engine using the engine failure fire procedure.

2. Crossfeed Operation - To Cross Feed Fuel

- a. Turn booster pump to "High".
- b. Select desired fuel tank.
- c. Pull fuel cross-feed valve control.
- d. Turn off boost pump on side not being used.

F. Electrical System Failure

A generator output check should be made every 30 minutes.

1. Generator Failure

- a. If one generator fails, turn off the failed generator.
- b. If both generator fail, turn both off and start APU (If installed.)
- c. If unable to start APU, turn off all electrical equipment and switch props to FIXED PITCH.
- d. Conserve electrical energy for approach and landing, but put props in automatic before landing.

2. Over-Voltage

- a. Affected Generator OFF
- b. If a generator shows excessive amperage.
 - 1 Reduce electrical load by turning off all unnecessary electrical equipment.
 - 2 Isolate unit causing excessive load. When faulty unit has been determined, return other units to normal operation.
 - 3 Monitor electrical load.
 - 4 Maintain fire watch.

3. Accessories

In the event of loss or failure of electrical accessories, check circuit breakers and fuses on affected item.

FIRE AND SMOKE

A. Electrical Fire

1. Oxygen/Smoke Mask (If Available) ON
2. Batteries and Generator Switches OFF
3. If Fire Continues
..... USE HAND FIRE EXTINGUISHER
4. Pull All Circuit Breakers.
5. Batteries (one at a time) ON
6. To locate source of fire or smoke, restore DC and AC power and reinstate circuit breakers in order of importance, one at a time, watching for electrical overload or smoke. If source of difficulty is located, isolate that circuit.

B. Cabin/Cockpit Heater Fire

1. Oxygen/Smoke Mask ON
2. Cockpit Windows CLOSED
3. All Heater Switches OFF
4. Nose Air Inlet Valve CLOSED
5. Heater Fuel Shut-Off Valve CLOSED
6. Discharge Heater Extinguisher Hold Switch
for 5 Seconds.
7. If necessary, proceed with Smoke Evacuation
Procedure.
8. Investigate Heater Compartment for Fire.

C. Cabin/Cargo Compartment Fire

1. Oxygen and Smoke MaskON
2. Use Fire Extinguisher to Combat the Fire.
3. If necessary, proceed with Smoke Evacuation
Procedure.

NOTE: All fires, regardless of size or location,
must be reported to the Company SOM.

D. Smoke Evacuation Procedure

1. Airspeed BELOW 130 Kts IAS
2. Oxygen or Smoke Mask (If Available) ON
3. Overwing Emergency Exits OPEN
Open both overwing emergency exits if possible.
4. Cockpit Door OPEN
5. Cockpit Side Windows PARTIALLY OPEN
Do not open cockpit side windows unless the
emergency exit(s) are open.

In the event exhaust gases are detected in the flight
compartment (cockpit door closed, cockpit side
windows closed,) visually check both overwing emer-
gency exits. If an exit is open or missing, don oxygen
masks are partially open both cockpit side windows.
Land as soon as practicable.

EMERGENCY LANDING AND CREW/PASSENGER EVACUATION

A. Landing With One Main Gear Retracted

Complete all items in paragraph A, then proceed as follows:

1. The Captain may elect to make a belly landing. If not, the following procedures will apply:
 - a. Secure cabin and cockpit equipment.
 - b. On final approach turn off generator switches.
 - c. Land slightly faster than usual using full flaps.
 - d. After touchdown, hold wing up as long as possible with aileron. Hold heading with rudder.
 - e. Close firewall shut off valves.
 - f. After aircraft comes to a complete stop, discharge engine fire extinguishers and turn off batteries.
 - g. Evacuate aircraft as rapidly as possible.

B. Belly Landing

1. Landing on the runway is preferred to landing off the runway.
2. Use full flaps.
3. Apply procedures outlined for landing with one main gear retracted.

C. Crew Duties After Emergency Landing

1. Captain - Secure cockpit.
2. First Officer - leave flaps full down, leave by the quickest cabin exit with hand fire extinguisher and fire axe, and combat minor fires.
3. Cabin Crew - Assist passengers in evacuating by quickest available exit.

D. Best Evacuation Routes

1. If one main gear is up - Use any exit on gear up side if no fire exits.
2. If a belly landing has been made, use the following exits.
 - a. Main cargo door.
 - b. Emergency exits over wing if no fire exits.
 - c. Cockpit emergency escape door.
3. If both main gear are down - Use the following exits.
 - a. Main cargo door.
 - b. Emergency exits over wing.
 - c. Cockpit emergency escape door.

NOTE: Ditching ropes are available for use at all emergency exits.

Signals:

One Finger: METO Power (1700 BHP HAM.)
(1600 BHP C. E.)

Two Fingers: Climb Power

STANDARDS AND GRADING CRITERIA

Steep Turns	Angle of bank	$\pm 10^{\circ}$
	Airspeed	± 10 Kts
	Altitude	± 100 Ft
	Roll out	$\pm 10^{\circ}$
Slow Flight	Airspeed	± 5 Kts
	Altitude	± 50 Ft
	Heading	$\pm 5^{\circ}$
Approach to Stalls	Altitude	± 50 Ft
		± 100 Ft
	Heading	$\pm 5^{\circ}$
Normal Turns and Holding	Angle of bank	$\pm 5^{\circ}$
	Airspeed	± 5 Kts
	Altitude	± 50 Ft
Level Flight	Altitude	± 50 Ft
	Heading	$\pm 5^{\circ}$
Tracking	Altitude	± 50 Ft
	Track	$\pm 5^{\circ}$
	Localizer	$\pm 2^{\circ}$
Instrument approaches (including rapid descent and pullup)	Airspeed	+ 5 Kts
	Glide path	Within 50 Ft
	Altitude	± 50 Ft
		(except at minimum: + 50 - 0 Ft)

Tailwheel locked.
Release barakes,
apply take off
Power.

At 50-60 Knots
tail starts to
rise.

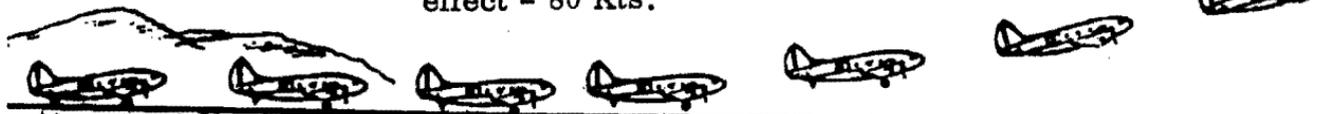
Vmc in ground
effect - 80 Kts.

Fly off at V2
(88 Knots in
Ground Effect)

Positive rate of
climb - Gear up.
Maintain V2 (92 Kts.
out of ground effect)

When Gear is up, reduce to
METO (RPM 2550, MAP 44.0).
If clear of obstacles, accelerate
to 111 knots and maintain until 500 ft.
or obstruction clearance altitude.
Then reduce to RPM 2400 - MAP 43.2

Arrive at
1000 Ft. with
airspeed 122
Kts., then re-
duce power to
RPM 2300 MAP
36.5. Climb
checklist.

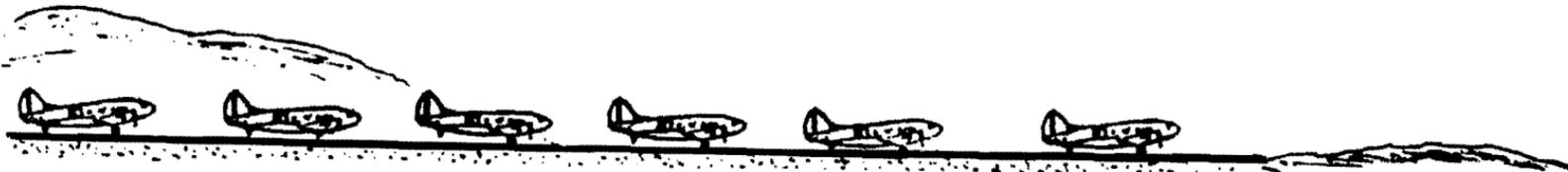


NORMAL TAKEOFF

Engine Failure
Prior to V₂
(88 Knots)

NORMAL
TAKEOFF
PROCEDURE

Close throttles and
return tail to run-
way as speed permits.
Brake as required.



REJECTED TAKEOFF

NORMAL TAKEOFF
PROCEDURE

After V2
Engine Fails

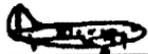
Continue takeoff,
maintain V2 and
when a positive climb
is established, Gear
up.

Identify and
feather failed
engine. Apply
appropriate
Emergency
procedure.

Climb at V2 (92 Knots)
until clear of obstacles,
then accelerate to 111 Kts
and reduce to METO (RPM
2550 MAP 44.0)

Maintain 111 Knots
(best rate of climb)
until 500 feet, or
obstruction clearance
altitude.

Maintain
circling
minimums
if return-
ing for
landing.



TAKEOFF WITH ENGINE FAILURE AFTER V2

Tail wheel locked,
Flaps $\frac{1}{4}$, hold brakes
and apply power to
MAP 30". Release
brakes and advance
throttles to take-
off power.

Fly off between
55-60 Knots.

Maintain tail
low attitude,

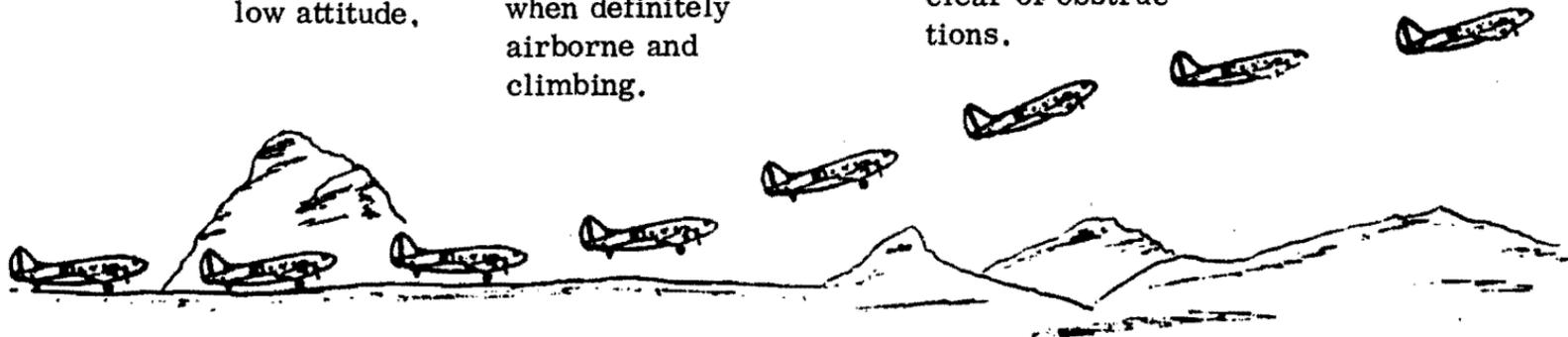
Retract the gear
when definitely
airborne and
climbing.

Accelerate to V2,
retract the flaps
and continue climb
at V2 until clear of
obstacles. Accel-
erate to 111 Knots
and reduce to METO
power. Observe 2-
minute takeoff power
limits.

Climb at METO
(111 Knots) until
clear of obstruc-
tions.

When clear of
obstructions,
reduce power to
RPM 2400, MAP
43.2 Maintain

111. Arrive at 1000
Ft. with airspeed
122 knots, then
reduce power to
RPM 2300, MAP
36.5. Climb
checklist.



MINIMUM RUN TAKEOFF (MAXIMUM PERFORMANCE)

STEEP TURNS

Mixtures: Rich
 RPM: 2000
 Airspeed: 130 Kts.

APPROACHES TO STALL

Cruise: GEAR UP
 FLAPS UP
 MAP 12
 RPM 2300
 Mixture Auto Rich

Approach: Landing:

Gear:	Down	Down
Flaps:	1/4	Full Down
MAP:	12"	12"
RPM:	2300	2300
Mixture:	Auto Rich	Auto Rich

NOTE: Use LOW Boost because of possible fuel starvation

APPROXIMATE STALL SPEEDS IAS POWER OFF

<u>Weight</u>	<u>0</u>	<u>1/4</u>	<u>1/2</u>	<u>FULL</u>
48000	72	70	67	62
45000	68	66	64	60
40000	66	64	62	57
35000	64	61	58	53

SLOW FLIGHT 80 Knots 35000 Lbs.

Clean	2300 RPM	18 MAP
Gear Down	2300	22
Gear Down Flaps 1/4	2300	25
Gear Down Flaps Full	2300	32

Cruising Configuration

RPM 2300, MAP 12,
Flaps up, Gear up.



Maintain heading
and altitude.

When onset of the initial buffet
is felt, lower nose to horizon,
level the wings, and simultaneously
command maximum power.



Regain any lost altitude
at 84 Knots (V_{mc}.)

Accelerate to
100 Knots.



When onset of the initial
buffet is felt, lower nose
to horizon, simultaneously
command maximum power.

Approach Configuration

RPM 2300, MAP 12,
Flaps $\frac{1}{4}$, Gear down.

APPROACHES TO STALLS

Regain any lost
altitude at 84 Kts.



Rate of descent arrested, Flaps up,
positive rate of climb, Gear up.

Accelerate to
100 Kts.



Landing Configuration

When onset of the initial buffet is felt, lower nose to horizon, simultaneously command maximum power, and while accelerating retract flaps to $\frac{1}{4}$.

Regain any lost altitude at 84 knots.



RPM 2300, MAP 12,
Flaps full down,
Gear down.

Rate of descent arrested,
Flaps up and positive rate
of climb, Gear up.

Accelerate
to 100 Kts.

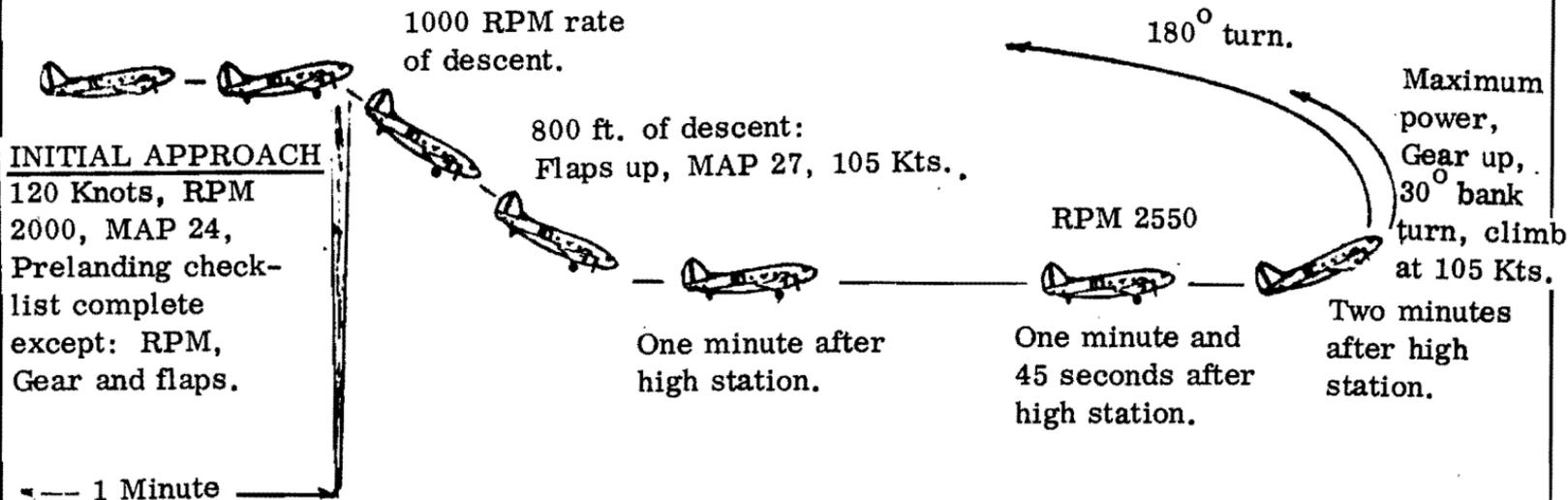
NOTE: Maximum power will not be used during training. Climb power will be used instead. (If a full stall is encountered, maximum power will be used for recovery.) At least one approach to a stall will be done while in a turn.

* Instructor/Check Pilot will assign time for simulated high station passage.

30 sec prior to high station.

Gear: Down RPM 2300, Flaps full down, MAP 18.
Slow to cross station at 105 knots.

If engine fails, shallow bank to 15° and maintain V2 (92 K) and continue climb if possible.



CANYON APPROACH (RAPID DESCENT AND PULL UP)

Before landing checklist

Complete - Gear Down,

Flaps Full Down.

Minimum approach speed

- Vmc.

Gross Wt. Vs % Stall Speed (IAS)

	Full Flaps					Zero Flaps	
	Vso	1.05 Vso	1.1 Vso	1.2 Vso	1.3 Vso	Vso	1.3 Vso
48000	62	65	69	75	81	72	94
45000	60	63	66	72	78	68	89
40000	57	60	63	69	74	66	86
35000	53	56	59	64	69	64	84



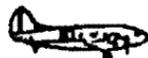
1.3 Vso



1.3 Vso



1.2 Vso



1.1 Vso



Brakes as required.
Flaps up when desired.

NORMAL LANDING

Before landing checklist complete. Gear down, Flaps (optional)

Gross Wt. Vs % Stall Speed (IAS)

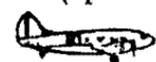
	Full Flaps					Zero Flaps	
	1.05	1.1	1.2	1.3	1.3		
	Vso	Vso	Vso	Vso	Vso	Vso	
48000	62	65	69	75	81	72	94
45000	60	63	66	72	78	68	89
40000	57	60	63	69	74	66	86
35000	53	56	59	64	69	64	84



1.3 Vso
Vmc (minimum)



Landing Assured,
Flaps Full Down,
(optional.)



1.3 Vso

1.2 Vso

1.1 Vso



After touchdown,
lower tail to
runway.

Brakes as required.
Flaps up if desired.

SINGLE ENGINE LANDING

Before Landing Checklist
 Complete - Flaps Full Down
 Gear Down. Minimum approach
 speed - V_{mc}

Gross Wt. Vs % Stall Speed (IAS)

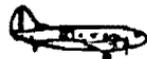
	Full Flaps					Zero Flaps	
	V_{so}	1.05 V_{so}	1.1 V_{so}	1.2 V_{so}	1.3 V_{so}	V_{so}	1.3 V_{so}
48000	62	65	69	75	81	72	94
45000	60	63	66	72	78	68	89
40000	57	60	63	69	74	66	86
35000	53	56	59	64	69	64	84



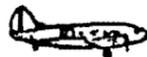
1.3 V_{so}



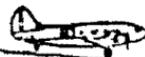
1.2 V_{so}



1.1 V_{so}



1.05



After touchdown,
 lower tail to
 runway.

Brakes as required
 Retract flaps if
 required.

After landing
 check when at
 taxi speed.

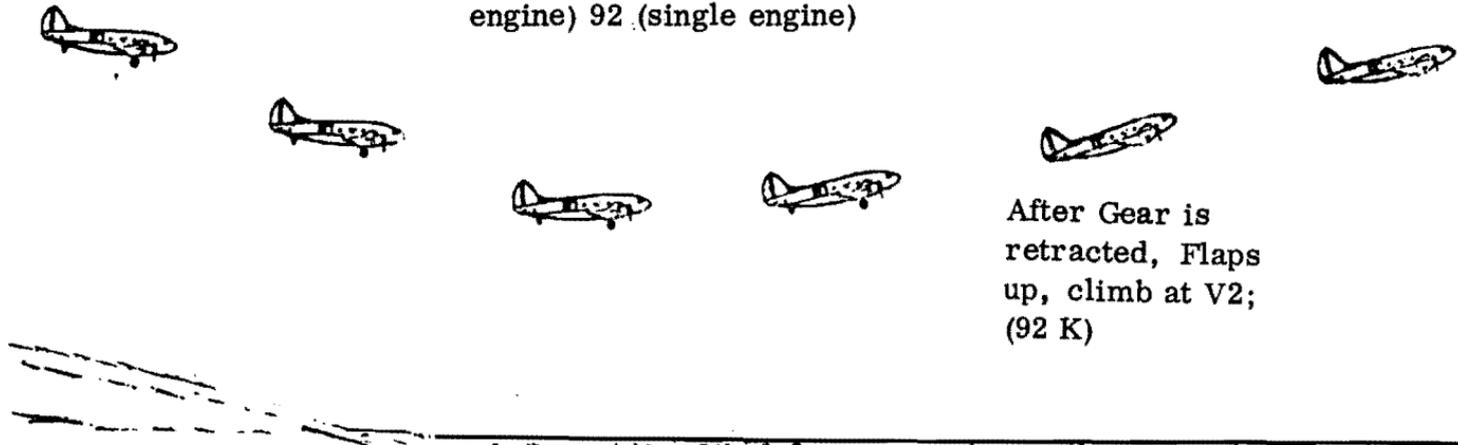
MINIMUM RUN LANDING (MAXIMUM PERFORMANCE)

--- NORMAL APPROACH ---

BALKED LANDING:
Apply Maximum power.
Flaps $\frac{1}{4}$.

Proceed as during
normal takeoff or
takeoff with engine
failure.

Rate of descent arrested, Gear Up.
Balked landing Climb 84 Kts (two
engine) 92 (single engine)



After Gear is
retracted, Flaps
up, climb at V2;
(92 K)

BALKED LANDING

Gear Down
Flaps $\frac{1}{4}$
RPM 2300
115 KIAS

Slow to
105 Kts.

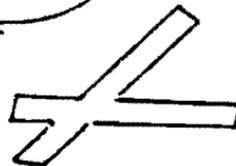
105 Knots

Pre-landing
Checklist
Complete
down to gear.
120 Knots.

MISSED APPROACH

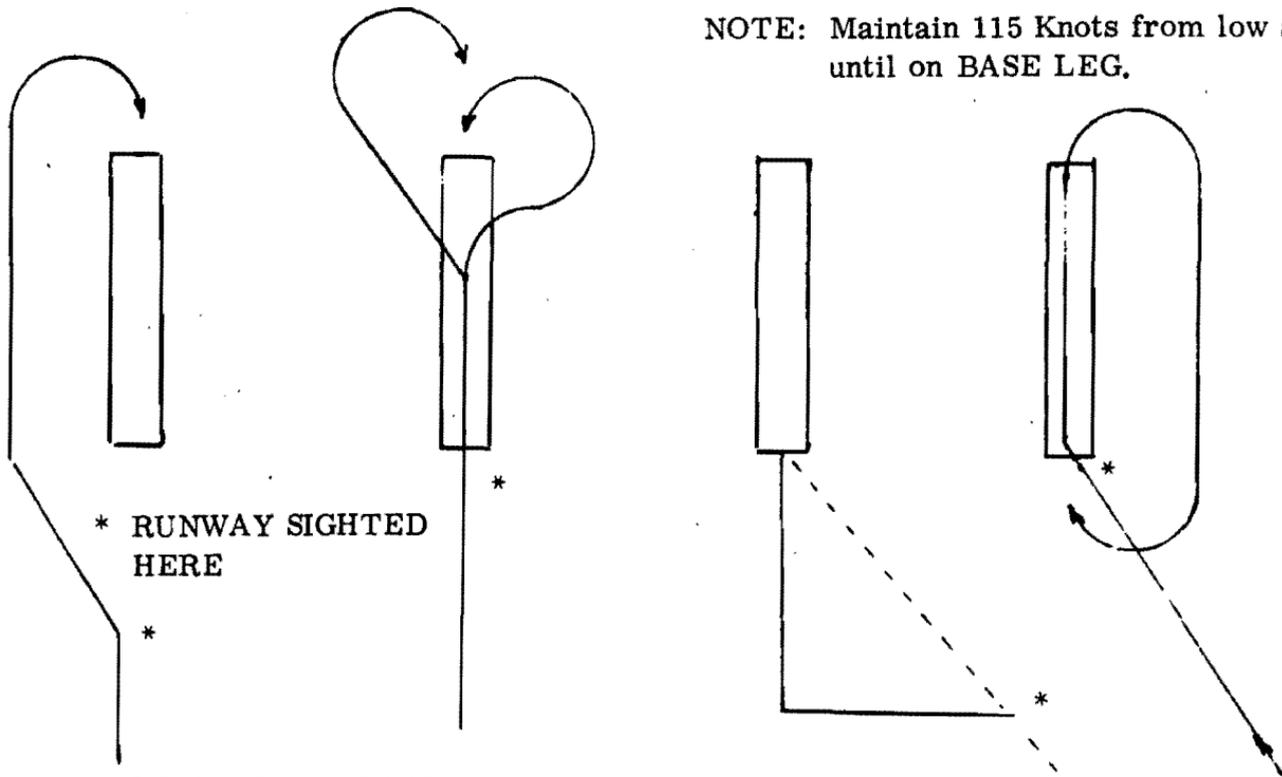
Meto Power Flaps
up, positive
rate of climb -
Gear up 111
KIAS

LANDING ASSURED:
Final flap setting,
recheck gear down,
slow to approach speed
(1.3 V_{so})



VOR AND ADF APPROACHES

NOTE: Maintain 115 Knots from low station until on BASE LEG.



* RUNWAY SIGHTED
HERE

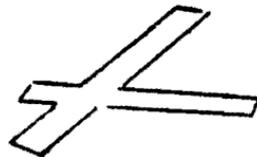
CIRCLING AND LOW VISIBILITY APPROACHES

Pre-landing Checklist
Gear down, flaps $\frac{1}{4}$,
RPM 2300, 115 KIAS.

105 KIAS

105 KIAS

LANDING ASSURED
Final flap setting;
recheck gear down
slow to approach
speed (1.3 V_{so})



GCA AND ILS APPROACHES

PERFORMANCE DATA

<u>ABBREVIATION</u>	<u>IAS (Kts)</u>	<u>REMARKS</u>
Vne	234	Never Exceed
Vno	191	Normal Operating
Va	130	Design Maneuvering
Vb	130	Max Gust Intensity
Vle	130	Landing Gear Op.
Vfe	117	Flap Extension
Vy	111	Best Rate S. E.
Vx	92	Best Angle S. E.
V2	92	Out of Ground Eff.
V2 (V1)	88	In Ground Effect.
Vmc	84	Out of Ground Eff.
Vmc	80	In Ground Effect
	122	Normal Climb
	139	Normal Cruise
	120	Holding
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPROXIMATE STALLING SPEEDS

INDICATED AIRSPEED

 V_s

GROSS WT	0 FLAP	$\frac{1}{4}$ FLAP	$\frac{1}{2}$ FLAP	FULL FLAP
LBS	Kts	Kts	Kts	Kts
48000	72	70	67	62
45000	68	66	64	60
40000	66	64	62	57
35000	64	61	58	53

GROSS WT. V_s % STALL SPEED-IASFULL FLAP

GROSS WT	V_{so}	1.05 V_{so}	1.1 V_{so}	1.2 V_{so}	1.3 V_{so}
48000	62	65	69	75	81
45000	60	63	66	72	78
40000	57	60	63	69	74
35000	53	56	59	64	69

GROSS WT. V_s % STALL SPEED-IASZERO FLAP

GROSS WT	V_{so}	1.3 V_{so}
48000	72	98
45000	68	94
40000	66	88
35000	64	82

CLIMB POWER

R-2800-75M3

1280 BHP AUTO-RICH - 131 GPH per engine

<u>Alt.</u>	<u>RPM</u>	<u>MAP</u>	<u>Stand. Temp.</u>
1,000	2300	36.5	13
2,000	2300	36.0	11
3,000	2300	36.0	9
4,000	2300	35.5	7
5,000	2300	35.0	5
6,000	2300	34.5	3
7,000	2300	34.5	1
8,000	2300	34.0	-1
9,000	2300	34.0	-3
10,000	2300	33.5	-5
11,000	2300	33.0	-7

STANDARD CRUISE

880 BHP - AUTO LEAN - 67 GPH per engine

<u>Alt.</u>	<u>RPM</u>	<u>MAP</u>	<u>True Air Speed</u>		<u>Stand. Temp. °C</u>
			<u>47000 (G. R. Wt)</u>	<u>35000</u>	
2,000	1800	33.2	154	164	11
3,000	1800	32.8			9
4,000	1800	32.6	157	167	7
5,000	1800	32.4			5
6,000	1800	32.2	158	168	3
7,000	1800	31.9			1
8,000	1810	31.5	161	172	-1
9,000	1850	30.6			-3
10,000	1870	30.0	160	174	-5
11,000	1900	29.2			-7
12,000	1940	28.5	163	178	-9

NOTE: INCREASE MAP .5" Hg. for each 10° CAT above standard.

DECREASE MAP .5" Hg. for each 10° CAT below standard.