

CFP 146 (3)



EXPEDITOR CHECK LIST

THIS PUBLICATION IS TO BE USED
IN CONJUNCTION WITH EO 05-45B-1

Issued on the Authority of the
Commander, Training Command

August 1967
Supersedes TC-11

PRE-FLIGHT

NOTE

Pilots should refer to EO 05-45B-1, Chart 4-2A, to ensure that the aircraft All-up Weight is within limits to obtain a rate of climb of 100 fpm on single engine at take-off power.

PRE-EXTERNAL

Controls - **UNLOCKED**

Landing Gear Handle - **DOWN**

Battery - **ON**

Landing Gear Light - **ON**

Fuel - **CONTENTS**

Anti-icer - **CONTENTS** and **OPERATION**

Mixture - **ICO**

Trims - **TRAVEL** and **NEUTRAL**

Flaps - **DOWN** and **OFF**

Magnetos - **OFF**

Lights - **AS REQUIRED**

Battery - **AS REQUIRED**

EXTERNAL

LEFT WING

Mainplane - **CONDITION** and **PANELS**

Filler Caps - **SECURE (3)**

Flap and Aileron - **CONDITION** and **HINGES**

Trim Tab - **NEUTRAL**

Bonding and Static Wires - **UNDAMAGED**

Lights - **CONDITION**

De-icer Boots - **CONDITION**

Undersurfaces - **UNDAMAGED**

Landing Lights - **CONDITION**

LEFT ENGINE

Covers - **REMOVED**

Cowlings - **SECURITY** and **CONDITION**

Landing Gear Well - **CONDITION OF LINKS, TURN-**

BUCKLES, SLIDE TUBE

Landing Gear - **CHOCK** and **OLEO EXTENT**

Tire - **CONDITION, INFLATION, CREEP**

Brakes - **CONDITION OF HOSES, PUCKS,**

CONNECTIONS

Propeller - **CONDITION OF BLADES, ANTI-ICER,**

OIL SEALS

Engine - **CONDITION, INTAKES, BONDING WIRES**

CENTRE SECTION

Nose Compartment - **SECURITY OF EQUIPMENT, DOOR**

Nose Fuel Tank - **COVER SECURED**

Pitot Tubes - **CONDITION, COVERS REMOVED**

Fire Disc - **RED, PROPER POSITION**

Antenna - **CONDITION**

Oil Cooler - **COVERS REMOVED**

RIGHT WING and ENGINE

The check is the same as for the left side except that there is no trim tab on the right wing.

RIGHT FUSELAGE

Driftmeter, Recorder - **CONDITION**

Static Vent - **UNOBSTRUCTED**

Top Antennae - **CONDITION**

Fuselage - **CONDITION**

Anti-collision Light - **UNDAMAGED**

TAIL GEAR

Tail Gear - OLEO EXTENT, DOOR, TURNBUCKLES
Tire - **CONDITION, INFLATION, CREEP**
Static Wire - **GROUND CONTACT**

EMPENNAGE

De-icer Boots - **CONDITION**
Panels, etc - **IN PLACE**
Stabilizers - **CONDITION**
Trim Tabs - **NEUTRAL**
Bonding and Static Wires - **UNDAMAGED**
Lights - **CONDITION**
Tail Cone - **DRAIN CLEAR**

LEFT FUSELAGE

Static Vent - **UNOBSTRUCTED**
Lights - **CONDITION**
Fuselage - **CONDITION**

STARTING & TAXIING

NOTE: The items identified by vertical lines duplicate all items of the "Challenge Check List"

INTERNAL

Radios - **SECURE**
Baggage - **STOWED PROPERLY**
First Aid Kit - **CONDITION** and **SEAL**
Lavatory Door - **CLOSED**
Sarah - **STOWED PROPERLY**
Fire Extinguisher - **SEAL** (150 psi)
Main Door - **SECURE**
Spare Bulbs - **STOWED PROPERLY**
Emergency Maps, etc - **STOWED PROPERLY**
Safety Equipment - **STOWED PROPERLY**
Emergency Exit - **SECURE**

INTERNAL (Cont'd)

Astrodome - **SECURE**

Fire Extinguisher - **STOWED PROPERLY**

Very Pistol, Shells - **STOWED PROPERLY**

NIGHT FLYING

- Exterior Lights - **CHECK**

- Standby Compass - **LIGHT** (Spare Bulbs)

- Instrument Lighting - **CHECK**

- Map, Cabin, and Extension Lights - **CHECK**

PRE-START

Load and L-14 (T) - **CHECKED** and **CARRIED**

External/Internal Checks - **COMPLETED**

Fuel Contents/Prop Anti-icer - **CHECKED**

External Power - **ON**

Seat and Harness - **ADJUST**

Crossfeed - **OFF**

Fire Extinguisher - **SELECTED**

Parking Brakes - **RE-SET**

Oil Shut-off - **IN** (open) - **WIRED**

Oil By-Pass - **PULL-HOT** (By-Pass)

Fuel - **NOSE**

Flaps - **OPERATION, MANUAL** and **ELECTRIC:**
then **UP** and **OFF**

Cowl Gills - **OPERATION** and **OPEN**

Carburettor Heat - **COLD** and **UNLOCK**

Pitch - **FINE**

Throttle - **CRACK** ($\frac{1}{8}$)

Mixture - **RICH**

Oil Shutters - **CLOSE**

Battery and Generator - **OFF**

Circuit Breakers - **IN**

Anti-Collision Light- **ON**

Radios - **OFF**

Chocks - **IN PLACE**

Fire Guard - **STANDING BY**

START

Barometric Pressure - **NOTE**

Prime - **AS REQUIRED** (Depending on engine and OAT)

Starter Selector - **RIGHT**

Extinguisher - **RIGHT**

Starter - **DEPRESS** (8 Blades)

Ignition - **ON**

Booster - **ON**

Oil Pressure - **20** psi in **30** seconds

Suction - **CHECK**

Left Engine - **AS ABOVE** (Selecting left)

External Power - **OUT**

Battery and Generator - **ON**

Inverter - **EMERGENCY**

Compass - **ON**

Warm-Up - **700** rpm for **30** seconds then **1000** rpm until
oil temperature **40° C**

Oil By-Pass - **IN** at **40° C**

COCKPIT

Check the cockpit systematically. Start by turning **ON** all radios; then proceed from under the co-pilots seat across the floor to the left sub-panel to the pedestal and right sub-panel to the instrument panel and the roof panel.

PRE-TAXI

External Power - **DISCONNECTED**

Battery and Generator - **ON**

Inverter and Compass - **NORMAL/ON**

Starter Selector - **OFF**

Gyros - **UNCAGED**

Fuel - **REARS**

Tail Wheel - **UNLOCKED**

Chocks - **REMOVED**

TAXI

Flight Instruments - **CHECK**

PRE-RUN-UP

Parking Brake - **ON**

Magnetos - **DEAD/LIVE CHECK** at minimum rpm and then
return to **1000** rpm

Radios - **CHECKED** and **SET** for Take-off

Gyros and Suction - **CHECKED**

Fuel - **FRONTS**

Temperatures and Pressures - **WITHIN LIMITS**

Reference rpm - **CALCULATE**

ENGINE

Power - **1500** rpm

Generators - **AMMETER** and **LIGHTS**

CSU - **COARSE** (300 rpm drop)

Feathering - **DEPRESS** (200 to 300 rpm drop)

Carburettor Heat - **CHECK 10°**; then **COLD**

Mixture - **OPERATION**

Power - **1000** rpm

Right Throttle - **FBP** (reference rpm)

Magnetos - **MAXIMUM 100** rpm **DROP** (40 rpm differential)

Temperatures and Pressures - **IN GREEN**

Idle - **500** to **600** rpm and **GENERATOR LIGHT - ON**

Idle - **1000** rpm

Left Throttle - **SAME** as for **RIGHT THROTTLE**

PRE-TAKE-OFF

Harness - **ADJUSTED** (Check Passengers)

Doors and Windows - **CLOSED**

Trims - **SET** (rudder, aileron - neutral, elevator ½ unit nose down)

Tension - **ADJUST** (3)

Temperatures and Pressures - **CHECKED** (within limits)

Mixture - **RICH** (forward)

Carburettor Heat - **SET**

Pitch - **FINE** (forward)

Fuel - **FRONTS** (contents, selection)

Crossfeed - **OFF**

Primer - **OFF**

Flaps - **SET**

Cowl Gills - **TRAIL**

Oil Shutters - **SET**

Oil By-pass - **IN**

Gyros - **SET, UNCAGED**

PRE-TAKE-OFF (Cont'd)

Switches - **ON (9)** (Inverter, compass, 4 mags, battery, 2 generators)

Pitot Heat - **ON**

Anti-collision Light - **ON**

Feathering Circuit Breaker - **ON**

De-icer Boots - **OFF**

Controls - **FREEDOM** and **PROPER MOVEMENT**

Tail Wheel - **LOCKED** (on runway)

Take-off Briefing - **SOP** plus specifics for situation

IN-FLIGHT

DURING FLIGHT - FUEL AND ENGINE INSTRUMENTS

SHALL BE MONITORED CONTINUOUSLY

(Carburettor Heat +5/10° C)

POST TAKE-OFF

Landing Gear - **UP, LIGHT OUT**

Flaps - **UP**

Landing Lights - **UP** and **OFF**

Power - **33½'' MP/2200 rpm** (95K)

Temperatures and Pressures - **IN GREEN**

Power - **28'' MP/2000 rpm** at applicable altitude

CLIMB AND LEVEL-OFF

Airspeed - **105K** to **500** feet or minimum circling
and then **500** fpm

PRE-STALL

Fuel - **FRONTS** (ample)

Landing Gear - **UP**

Flaps - **UP**

Cowls - **AS REQUIRED**

Mixture - **RICH**

Carburettor Heat - **SET**

Pitch - **2000** rpm

Altitude - **SUFFICIENT**

Loose Articles - **STOWED**

Locality - **SUITABLE** (area, cloud, horizon)

Look-out - **OTHER AIRCRAFT**

PRE-LANDING

Harness - **SECURE** (Crew, passengers)

Fuel - **FRONTS** (ample)

Mixture - **RICH**

Carburettor Heat - **SET**

Landing Gear - **DOWN** (when required)

Brakes - **CHECK**

Landing Briefing - **SOP** plus specifics for situation

FINAL

Landing Gear Selector - **DOWN**

Light - **GREEN**

POST-FLIGHT

POST-LANDING

Tail Wheel - UNLOCKED
Flaps - UP
Gills - OPEN
Pitch - FINE
Switches - UNNECESSARY OFF (Pitot)
Radios - UNNECESSARY OFF

SHUT-DOWN

Tail Wheel - ALIGN, LOCK
Parking Brakes - SET
Magnetos - CHECK (ground at idle)
Oil Dilution - SOP
Power - 1000 rpm
Flaps - DOWN
Right Mixture - ICO
Right Throttle - OPEN
Suction - CHECK
Left Mixture - ICO
Left Throttle - OPEN

POST-SHUT-DOWN

Radios - OFF
Gyros - CAGED
All Switches - OFF
Fuel - OFF
Controls - LOCKED
Door - CLOSED
Pitot Covers - ON
Tail Wheel - ALIGNED and LOCKED
Chocks - IN PLACE

NOTE

NON-CRITICAL EMERGENCIES

YOU HAVE TIME TO CONSULT THE CHECK LIST FOR REMEDIAL ACTION.

EMERGENCY LANDING GEAR EXTENSION

Airspeed - **BELOW 110K**

Landing Gear Circuit Breakers - **RE-SET**

Generators - **ON/LIGHTS**

Recycle gear, and if Landing Gear still does not lower:

- Landing Gear Circuit Breaker - **OUT** (left sub-panel)
- Landing Gear - **DOWN**
- Clutch Pedal - **COVER OFF, DEPRESS**
- **AFTER** the landing gear drops to **TRAIL, CONTINUE to DEPRESS CLUTCH** and **ENGAGE CRANK**
- Crank - **OUT** (away from pilot)
- **ROTATE** (forward at top of stroke)
- When no longer possible to rotate crank:
 - Clutch Pedal - **RELEASE**
 - Landing Gear Light - **GREEN, ON**
 - Clutch Teeth - **ENGAGED**
 - If teeth **NOT ENGAGED**, move handle so that teeth engage in **NEXT AVAILABLE POSITION**
- Clutch Cover - **ON**

EMERGENCY FLAP EXTENSION

Selector - **OFF**

Crank • **IN** (towards pilot)

- **ROTATE** (forward at top of stroke)

EMERGENCIES

ELECTRICAL FAILURE

Ensure Generator Switches - **ON** (Check Failure Lights)

IF ONE FAILURE LIGHT ON

- Select failed generator switch **OFF**
- Reduce electrical load to **LESS THAN 100** amps
- **WAIT 1 MINUTE**, then **RESET CIRCUIT BREAKER**
- Select failed generator switch **ON** and check failure light
- If light still **ON**, select failed generator switch **OFF**
- If light **OUT**, return electrical load to **NORMAL**

IF BOTH FAILURE LIGHTS ON

- Reduce electrical load to minimum
- Select both generator switches **OFF**
- **WAIT 1 MINUTE**, then **RESET CIRCUIT BREAKERS**
- Select **ONE** generator **ON**. If light **ON**, select generator **OFF**
- Repeat operation for second generator
- If **NEITHER** generator operative, leave **BOTH SWITCHES OFF** and keep electrical load to minimum

IF ONE AMMETER READS ZERO, but failure light **NOT ON**

- Reduce electrical load to minimum
- Select generator switch **OFF**
- **WAIT 1 MINUTE**, then **RESET CIRCUIT BREAKER**
- Select generator switch **ON** and check ammeter
- If ammeter still reads **ZERO**, select generator **OFF**
- If ammeter indication proper, return electrical load to **NORMAL**

COMPLETE ELECTRICAL FAILURE (no power available)

- Ensure battery and generator switches **ON**
- Select battery and generator switches **OFF**
- **WAIT 1 MINUTE**, then **RESET BOTH CIRCUIT BRKRS**
- Select both generator switches **ON**

NOTE: LEAVE BATTERY SWITCH IN **OFF** POSITION

EMERGENCY LANDING

Alerting Action - **CREW**

- **PASSENGERS**

- **MAYDAY** (transmit)

Security- **BAGGAGE/EQUIPMENT**

- **JETTISON UNNEEDED EQUIPMENT**

Approach Speed - **NORMAL**

Landing Gear - **PILOT'S DISCRETION**

Fuel - **OFF**

Magneto - **OFF** (throwbar)

Flaps - **DOWN**

Battery/Generator - **OFF**

Cabin Door - **UNLATCHED** (do not jettison)

DITCHING

Alerting Action - **CREW**

- **PASSENGERS**

- **MAYDAY** (transmit)

Security - **BAGGAGE/EQUIPMENT**

- **JETTISON UNNEEDED EQUIPMENT**

Approach Speed - **NORMAL**

Landing Gear - **UP**

Flaps - **½ DOWN**

Lighting - **AS REQUIRED**

Touch-down - **LOWEST SPEED**

- **NOSE HIGH**

- **ALONG WAVES**

- **PARALLEL SWELL**

Captain to rear to supervise disembarkment

NOTES

NOTE

CRITICAL EMERGENCIES REQUIRE IMMEDIATE ACTION

ENGINE FAILURE

BEFORE AIRBORNE

Power - **OFF**

Brakes - **AS REQUIRED**

Mixture - **ICO**

Switches - **OFF**

Fuel - **OFF**

NOTE: Landing gear will not retract when weight is on gear.

ON TAKE-OFF BELOW V2

Power - **AS REQUIRED** for control, then **OFF**

Landing Gear - **AS REQUIRED**

Mixture - **ICO**

Switches - **OFF**

Fuel - **OFF**

ON TAKE-OFF ABOVE V2

Control - **DIRECTION/MAINTAIN 90K**

Power - **2300 rpm/36" MP**

Drag - Landing Gear - **UP**

- Flaps - **UP**

- Throttle - **CLOSE** (Dead)

- **FEATHER**

- Gills - **CLOSE** (Dead)

Trim - **ROUGH** (Rudder)

Climb - **95K/33½" MP/2200 rpm** (monitor temperature/pressure)

Dead Engine - **SHUT DOWN**

- Mixture - **ICO**

- Fuel - **OFF**

- Magneto Switches - **OFF**

- Generator - **OFF**

CRITICAL EMERGENCIES

IN FLIGHT

Control - **DIRECTION/110K**

Power - **2200 rpm/33½" MP**

Drag - Landing Gear - **UP**

- Flaps - **UP**

- Throttle - **CLOSE** (Dead)

Trim - **ROUGH** (Rudder)

FMS - Fuel - **CHECK PRESSURE**

- Mixture - **RICH**

- Carburettor Heat - **HOT** (Slowly)

- Switches - **ON**

If situation unsolved

FEATHER

Dead Engine - **SHUT DOWN**

- Mixture - **ICO**

- Fuel - **OFF**

- Magneto Switches - **OFF**

- Generator - **OFF**

- Propeller Anti-icer - **OFF**

FIRES

ENGINE FIRE ON THE GROUND

Throttles - **CLOSED**

Mixtures - **ICO**

Fuel - **OFF**

Switches - **OFF**

Fight Fire with Ground Equipment

If Necessary - Use Engine Extinguishers

EVACUATE THE AIRCRAFT

ENGINE FIRE IN FLIGHT

Throttle - **CLOSED**

Propeller - **FEATHER**

Mixture - **ICO**

Fuel - **OFF**

Oil Shut-off - **CLOSED** (when fitted)

Cowl Gills - **CLOSED**

Propeller Antifixer - **OFF**

Switches - **OFF**

Fire Extinguisher - **SELECT**, when propeller stops - **DISCHARGE**

Set up aircraft for asymmetric flight

ELECTRICAL FIRE (Source Unknown)

Battery/Generator Switches - **OFF**

Electrical and Radio Equipment - **OFF**

Battery - **ON - CHECK**

Generator - **ON - CHECK**

Reselect other services individually - **CHECK**

- When faulty service is located, use extinguisher

- Do not use the faulty service for the remainder of the flight

Land as soon as possible

RUNAWAY PROPELLER

Control - Turn **UP** and **AWAY** from the affected propeller until rpm is under control

Power - **OFF** (throttle of affected engine closed)

Drag - **FEATHER** affected propeller

- After the propeller feathers **SHUT DOWN** engine

- If unable to feather, reduce airspeed and altitude to keep rpm below **2200**

NOTES

OPERATING DATA

Maximum Take-off Weight - 9300 lbs

Maximum Landing Weight - 9000 lbs

Oil Specifications 3-GP-320

Fuel Specifications

- Normal 80/87

- Limited 91/98 - 100/130

- Emergency 115/145

NOTE:

For fuels other than normal, operate at 1900 rpm or higher at 280/296 BHP (See Cruise Control Chart)

ENGINE OPERATING LIMITS

Condition	Airspeed	RPM	MP in	Mixture	CHT °C	OIL		Fuel Pressure psi	Suction in	De-ice psi	Carb Mix °C
						Temp °C	Pressure psi				
* Maximum Power (1 min)	-	2300	36	Rich	** 260						
Maximum Continuous	-	2200	33.5	Rich	Minimum Normal Maximum	Minimum Normal Maximum	Minimum Normal Maximum	Minimum Normal Maximum	3.75 3.75-4.6 4.6	Minimum Normal Maximum	Cautionary Normal Maximum
Normal Climb	105K or 500 fpm	2000	28	Rich	120°C 150-232°C 260°C	40 60-70 85	50 70-90 90	2.25 3-5 5			-3 to -10 +5 to +10 +15
Maximum Range	125K	1700	as required	Lean							
Maximum Endurance	95K	1700	as required	Lean							

* In emergency, Maximum Power may be used as long as necessary.

** For extended emergency operation, 232°C.

CRUISE CONTROL CHART

Altitude	Standard Temperature	1700	1800	1900	2000
Sea Level	15°C	30.5	30.5	30.5	30.5
2000'	11°C	29.5	29.5	29.5	29.5
4000'	7°C	29.0	29.0	29.0	29.0
6000'	3°C	28.0	28.0	28.0	28.0
8000'	-1°C	26.5	27.0	27.5	27.5
10000'	-5°C	24.8	25.5	25.5	26.5
Limiting BHP		253	268	283	298
GPH (approx)		33	35	37.5	40

NOTES: 1. Do not exceed listed manifold pressures.

2. If carburettor heat is left at **COLD** decrease the MP listed by **.5"** for every **10°C** the carburettor air temperature is below standard for the cruising altitude.

Fuel Capacities

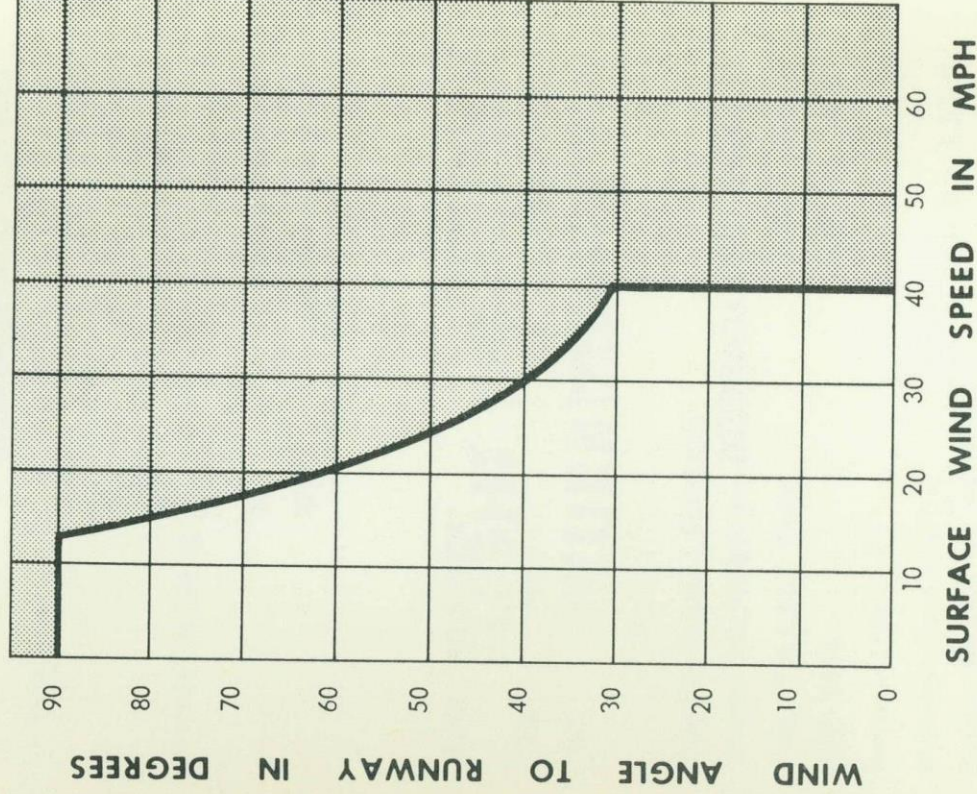
NOSE TANK	10ths	MAIN TANK
6 Gallons	1/10	6 Gallons
13 Gallons	2/10	12 Gallons
20 Gallons	3/10	18 Gallons
26 Gallons	4/10	25 Gallons
33 Gallons	5/10	31 Gallons
40 Gallons	6/10	37 Gallons
46 Gallons	7/10	44 Gallons
53 Gallons	8/10	50 Gallons
60 Gallons	9/10	56 Gallons
67 Gallons	10/10	63 Gallons

Auxiliary

1/10	2 Gallons	6/10	12 Gallons
2/10	4 Gallons	7/10	14 Gallons
3/10	6 Gallons	8/10	16 Gallons
4/10	8 Gallons	9/10	18 Gallons
5/10	10 Gallons	10/10	21 Gallons

CROSSWIND COMPONENT GRAPH

Aircraft is not to be flown if the surface wind exceeds 40 mph in any direction.



NOTE: For a crosswind take-off or landing fly within the graph limits and use "lift-off" and "touchdown" airspeeds that are 5K higher than normal.

AIRSPEED

AIRSPEED POSITION ERROR

Correction - +4K

AIRSPEED LIMITS(Maximum)

Smooth Air - 220K
Rough Air - 175K
Lower Flaps - 100K
Lower Landing Gear - 110K
Lower Landing Lights - 95K
Landing Lights Extended - 105K

STALLING SPEEDS

Landing Gear and Flaps UP
Landing Gear and Flaps DOWN

POWER ON IDLE

75K 80K
70K 75K

RECOMMENDED AIRSPEEDS

Climbing - 105K
Gliding - 95K

SINGLE ENGINE SPEEDS

Safety Speed - 90K
Climbing - 95K
Minimum Trim - 90K
Maximum Range - 110K

LANDING PROCEDURE

- Downwind - 20''MP/1800 rpm/105K
- Normal Landing
 - Base - 95K
 - Final - 90K
 - Button - 85K
 - Flap - as required
- Flapless Landing
 - Base - 95K
 - Final - 95K
 - Button - 90K
- Minimum Run Landing
 - Base - 95K
 - Final - 80K
 - Button - 75K
 - 2000 rpm downwind

FLIGHT THROUGH TURBULENCE

- Equipment/Baggage - SECURED
- Harness - SECURED (crew/passengers)
- Fuel - FULLEST TANK
- RPM - 2000
- Airspeed - 130K
- Instruments/Gyros - SET
- Propeller Anti-icer - AS REQUIRED
- Lights - ON (if lightning)
- Radios - UNNECESSARY OFF
- If heavy precipitation CLOSE cowls

SIMULATED SINGLE ENGINE

Retarding the throttle to idle shall be the only method of simulating sudden engine failure.

Below **1000** ft AGL • **12''MP** and rpm equivalent to that of the live engine simulates feathered engine

Above **1000** ft AGL • RPM to minimum and **1''MP** for each **100** rpm simulates feathered engine

NOTE: Ensure temperatures and pressures remain within limits. Warm up **1500** rpm/**15''MP**

FUEL

FUEL MANAGEMENT

ALWAYS take-off and land on **FRONTS**. Avoid running the tanks dry.

All Seats Occupied

- REARS
- FRONTS (to $\frac{1}{4}$)
- NOSE
- FRONTS

Pilot's Seats Occupied

- NOSE
- REARS
- FRONTS

Navigation Flights

(3N and 3NM)

- REARS
- NOSE
- FRONTS

FUEL TRANSFER

To crossfeed fuel from **LEFT** mainplane tank to **RIGHT** engine.

Suction Crossfeed - **ON**

Right Fuel Tank - **OFF**

Wobble Pump - **PUMP** (to maintain 3 psi)

To crossfeed **RIGHT** tank to **LEFT** engine use same procedure, except

Left Fuel Tank - **OFF**

NOTE: If one engine has failed crossfeed with caution because there is a fire hazard.

MAINTENANCE FLIGHT TEST

FEATHERING IN FLIGHT

Winter/Summer Switch - **AS REQUIRED** (below 0°C Winter)

Generators - **BOTH CHARGING**

Throttle - **CLOSED**

Pitch - **FULL COARSE**

Mixture - **ICO**

Magnetos - **OFF**

Feathering Button - **DEPRESS**

Fuel - **OFF**

Crossfeed - **OFF**

Generator - **OFF**

UNFEATHERING IN FLIGHT

Winter/Summer Switch - **SUMMER** (regardless of OAT)

Pitch - **FULL COARSE**

Throttle - **CLOSED**

Mixture - **ICO**

*If propeller has been feathered more than 2 minutes rotate the engine two revolutions with the starter

Magnetos - **ON**

Generator - **CHARGING** (Live engine)

Fuel - **ON**

Feathering Button - **DEPRESS UNTIL 400 to 600 rpm**

Mixture - **RICH**

Generator - **ON**

Warm Up - **1500 rpm/15" MP**

COLD WEATHER OPERATION

EXTERNAL CHECK - Ensure that snow, ice and frost have been removed from the aircraft surfaces. De-icer fluid may be used, but precaution must be taken because of the fire hazard. Check controls for movement and all vents for freedom from ice. Ensure that each propeller is pulled through five complete revolutions by hand.

INTERNAL CHECK - All de-icer and anti-icer equipment must be checked before flight. An additional supply of anti-icer fluid should be carried in the aircraft.

STARTING - If the engine fires irregularly, close the throttle and run on prime. Cowl flaps are to be open at all times on the ground.

WARM-UP - Use carburettor heat to improve vaporization and prevent backfiring. Do not idle above **1000 rpm** until the oil temperature reaches **40°C**. No electrical equipment should be used until the generators are supplying current.

TAXIING - Use caution when applying brakes on slush, ice or hard snow. Use carburettor heat as required.

RUN-UP - Move the feathering dilution switch to "Winter" if the OAT is 0°C or below. Move the pitch levers through at least three complete cycles.

TAKE-OFF - When ambient temperature is below:

- (a) standard **ICAN**, decrease the manifold pressure by 1" for each 10°C that the temperature is below that standard, or
- (b) -20°C use carburettor heat to maintain $+5^{\circ}$ to $+10^{\circ}\text{C}$ carburettor mixture temperature and **36" MP** during take-off.

After take-off from slushy or wet runways, leave the landing gear down for a few seconds longer to remove slush before retracting, and then cycle through another lowering and retraction.

IN-FLIGHT - Maintain the carburettor heat temperature at $+5$ to $+10^{\circ}\text{C}$. Exercise the pitch levers through their full range every half hour. Maintain oil temperatures at the upper limits. Oil by-pass controls are to be **IN** during flight.

DESCENT and LANDING - Maintain the CHT above 120°C during the descent, approach and landing. Adjust the carburettor heat as required for landing.

OIL DILUTION

- Oil temperature **40°C** or below before dilution
- Winter/Summer switch as applicable
- **1400** rpm
- Oil dilution switches - **ON**
- Hold switches on for length of time as indicated in the table below
- During the dilution period, the CSUs and feathering mechanisms should both be exercised through three cycles
- Continue to oil dilute while shutting-down
- Oil By-pass - **PULL/HOT**

DILUTE IN ACCORDANCE WITH THE FOLLOWING TABLE

Boil-off periods to remain as specified in current EO 05-45B-1

Starting Temperature Expected	Dilution Period	Boil-off Period
Above 0°C	No Dilution	Normally no Boil-off.
0°C to -10°C	1 Minute	If full oil required,
-10°C to -20°C	2 Minutes	boil-off 8 min for each
-20°C to -30°C	3 Minutes	minute dilution before
-30°C to -40°C	4 Minutes	topping up oil tanks.

Add one minute dilution
for each additional 5°C
below -40°C



Prepared by
Central Flying School

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