

## CHAPTER 4A

### NORMAL OPERATING PROCEDURES

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## 4A.1 INTRODUCTION

Chapter 4A contains checklists and describes extended procedures for the normal operation of the airplane.

## 4A.2 AIRSPEEDS FOR NORMAL OPERATING PROCEDURES

Event	Flight mass	850 kg 1874 lb	1000 kg 2205 lb	1150 kg 2535 lb
Airspeed for take-off climb (best rate-of-climb speed $v_Y$ ) (Flaps T/O)		54 KIAS	60 KIAS	66 KIAS
Airspeed for cruise climb (Flaps UP)		60 KIAS	68 KIAS	73 KIAS
Approach speed for normal landing (Flaps LDG)		58 KIAS	63 KIAS	71 KIAS
Minimum speed during touch & go (Flaps T/O)		54 KIAS	60 KIAS	66 KIAS

## 4A.2 AIRSPEEDS FOR NORMAL OPERATING PROCEDURES

The table is amended to read:

Event \ Flight mass	850 kg 1874 lb	1000 kg 2205 lb	1150 kg 2535 lb	1200 kg 2646 lb
Airspeed for take-off climb (best rate-of-climb speed $v_Y$ ) (Flaps T/O)	54 KIAS	60 KIAS	66 KIAS	67 KIAS
Airspeed for cruise climb (Flaps UP)	60 KIAS	68 KIAS	73 KIAS	76 KIAS
Approach speed for normal landing (Flaps LDG)	58 KIAS	63 KIAS	71 KIAS	73 KIAS
Minimum speed during touch & go (Flaps T/O)	54 KIAS	60 KIAS	66 KIAS	67 KIAS

## **4A.3 CHECKLISTS FOR NORMAL OPERATING PROCEDURES**

### **4A.3.1 PRE-FLIGHT INSPECTION**

#### **I. Cabin check**

- |                                   |   |
|-----------------------------------|---|
| a) MET, NAV, Mass & CG .....      | flight planning completed   |
| b) Airplane documents .....       | complete and up-to-date   |
| c) Ignition key .....             | pulled out  |
| d) Front canopy & rear door ..... | clean, undamaged, check<br>locking mechanism function   |
| e) All electrical equipment ..... | OFF   |
| f) Circuit breakers .....         | set in (if one has been<br>pulled, check reason)  |
| g) Engine control levers .....    | check condition, freedom of<br>movement and full travel of<br>throttle, RPM and mixture<br>levers |
| h) Throttle .....                 | IDLE  |
| i) Mixture control lever .....    | LEAN  |
| j) RPM lever .....                | HIGH RPM  |
| k) Master switch (BAT) .....      | ON  |
| l) Annunciator panel .....        | check function (see 7.11)   |
| m) Fuel quantity .....            | check   |



**NOTE**

**Standard Tank:**

Depending on the type of fuel probes installed, the indicator can read a maximum of 15 US gal or 17 US gal (refer to Section 7.10 for details). When the fuel quantity indicator reads the maximum amount of fuel detectable, the correct fuel quantity must be determined with the fuel quantity measuring device. If this measurement is not carried out, the fuel quantity available for flight planning is the indicated amount.

**Long Range Tank:**

At an indication of 16 US gal the quantity of auxiliary fuel can be determined by switching the AUX FUEL QTY switch to the respective position (LH or RH). The auxiliary fuel quantity is added to the 16 US gal.

An auxiliary fuel quantity of less than 3 US gal cannot be indicated by the system. In this case the quantity must be determined by means of the fuel quantity measuring device (see Section 7.10 FUEL SYSTEM).

**CAUTION**

**Long Range Tank:**

The correct indication of the fuel quantity takes 2 minutes after actuation of the switch.

- n) Position lights, strobe lights (ACL's) . . . . . check
- o) Master switch (BAT) . . . . . OFF
- p) Check for loose items . . . . . complete
- q) Flight controls and trim . . . . . free to move and correct
- r) Baggage . . . . . stowed and secure

II. Walk-around check, visual inspection

**CAUTION**

A visual inspection means: examination for damage, cracks, delamination, excessive play, load transmission, correct attachment and general condition. In addition control surfaces should be checked for freedom of movement.

**CAUTION**

In low ambient temperatures the airplane must be completely cleared of ice, snow and similar accumulations. For approved de-icing fluids refer to Section 8.6 DE-ICING ON THE GROUND.

**CAUTION**

Prior to flight, remove such items as control surfaces gust lock, Pitot cover, tow bar, etc.

1. Left main landing gear:

- a) Landing gear strut ..... visual inspection
- b) Strut fairing (if installed) ..... visual inspection
- c) Wheel fairing ..... visual inspection
- d) Tire inflation pressure (2.5 bar/36 psi) ..... check
- e) Wear, tread depth of tire ..... check
- f) Tire, wheel, brake ..... visual inspection
- g) Brake line connection ..... check for leaks
- h) Slip marks ..... visual inspection
- i) Chocks ..... remove

2. Left Wing:

- a) Entire wing surface ..... visual inspection
- b) Step ..... visual inspection
- c) Air intake on lower surface ..... visual inspection
- d) Openings on lower surface ..... check for traces of fuel (if tank is full, fuel may spill over through the tank vent)
- e) Tank drain ..... drain off a small quantity, check for water and sediment
- f) Stall warning ..... check (suck on opening)
- g) Tank filler ..... visual inspection, fuel quantity must agree with indicator
- h) 2 stall strips on wing ..... visual inspection
- i) Pitot probe ..... clean, orifices open
- j) Landing/taxi light ..... visual inspection

- k) Wing tip ..... visual inspection
- l) Position light, strobe light (ACL) ..... visual inspection
- m) Mooring ..... check, clear
- n) Aileron and linkage ..... visual inspection
- o) Aileron hinges and safety pin ..... visual inspection
- p) Foreign objects in aileron paddle ..... visual inspection
- q) Flap and linkage ..... visual inspection
- r) Flap hinges and safety pin ..... visual inspection

### 3. Fuselage, left side:

- a) Canopy, left side ..... visual inspection
- b) Rear cabin door & window ..... visual inspection
- c) Fuselage skin ..... visual inspection
- d) Antennas ..... visual inspection

### 4. Empennage:

- a) Stabilizers and control surfaces ..... visual inspection
- b) Hinges ..... visual inspection
- c) Elevator trim tab ..... visual inspection, check  
locking wire
- d) Rudder trim tab ..... visual inspection
- e) Mooring on fin ..... check, clear
- f) Tail skid and lower fin ..... visual inspection
- g) Towing assembly, if fitted ..... visual inspection

**5. Fuselage, right side:**

- a) Fuselage skin ..... visual inspection
- b) Window ..... visual inspection
- c) Canopy, right side ..... visual inspection

**6. Right wing:**

- a) Flap and linkage ..... visual inspection
- b) Flap hinges and safety pin ..... visual inspection
- c) Aileron and linkage ..... visual inspection
- d) Aileron hinges and safety pin ..... visual inspection
- e) Foreign objects in aileron paddle ..... visual inspection
- f) Wing tip ..... visual inspection
- g) Position light, strobe light (ACL) ..... visual inspection
- h) Mooring ..... check, clear
- i) Entire wing surface ..... visual inspection
- j) 2 stall strips on wing ..... visual inspection
- k) Tank filler ..... visual check, fuel quantity  
must agree with indicator
- l) Openings on lower surface ..... check for traces of fuel (if  
tank is full, fuel may spill  
over through the tank vent)
- m) Tank drain ..... drain off a small quantity,  
check for water and  
sediment
- n) Step ..... visual inspection

**7. Right Main Landing Gear:**

- a) Landing gear strut ..... visual inspection
- b) Strut fairing (if installed) ..... visual inspection
- c) Wheel fairing ..... visual inspection
- d) Tire inflation pressure (2.5 bar/36 psi) ..... check
- e) Wear, tread depth of tires ..... check
- f) Tire, wheel, brake ..... visual inspection
- g) Brake line connection ..... check for leaks
- h) Slip marks ..... visual inspection
- i) Chocks ..... remove

**8. Front fuselage:**

- a) Oil level ..... check dipstick,  
min. 4 qts for VFR operation  
min. 6 qts for IFR operation
- b) Cowling ..... visual inspection
- c) 3 air intakes ..... clear
- d) Propeller ..... visual inspection;  
bladeshake: max. 3 mm  
(1/8 in); angular play of  
blade: max. 2°

**WARNING**

Never move the propeller by hand while the ignition is switched on, as it may result in serious personal injury.

- e) Spinner including attachment screws ..... visual inspection

- f) Nose landing gear ..... visual inspection
- g) Tire and wheel ..... visual inspection
- h) Slip marks ..... visual inspection
- i) Nose landing gear strut fairing (if installed) .. visual inspection
- j) Nose landing gear tie-down (if installed) .... check, clear
- k) Wear, tread depth of tire ..... check
- l) Wheel fairing ..... visual inspection
- m) Tow bar ..... removed
- n) Tire inflation pressure (2.0 bar/29 psi) ..... check
- o) Chocks ..... remove
- p) Exhaust ..... visual inspection
- q) Forward cabin air inlets (if installed) ..... clear
- r) Winter Baffle for fresh air inlet (if installed) .. visual inspection

**WARNING**

The exhaust can cause burns when it is hot.

*Underside:*

- s) Antennas (if fitted) ..... visual inspection
- t) Gascolator ..... drain off a small quantity of fuel, check for water and sediment
- u) Venting pipes ..... check for blockage
- v) Fuselage underside ..... check for excessive contamination particularly by oil, fuel, and other fluids

#### **4A.3.2 BEFORE STARTING ENGINE**

1. Pre-flight inspection ..... complete
2. Rudder pedals ..... adjusted and locked
3. Passengers ..... instructed
4. Safety harnesses ..... all on and fastened
5. Baggage ..... check, secured
6. Rear door ..... closed and locked
7. Door lock (if installed) ..... unblocked, key removed

#### **CAUTION**

When operating the canopy, ensure that there are no obstructions between the canopy and the mating frame, for example seat belts, clothing, etc. When operating the locking handle do NOT apply undue force.

A slight downward pressure on the canopy may be required to ease handle operation.

8. Front canopy ..... Position 1 or 2 ("cooling gap")
9. Canopy lock (if installed) ..... unblocked, key removed
10. Parking brake ..... set
11. Flight controls ..... free movement
12. Trim wheel ..... T/O
13. Throttle ..... IDLE
14. RPM lever ..... HIGH RPM
15. Mixture control lever ..... LEAN
16. Friction device, throttle quadrant ..... adjusted



- 17. Alternate Air ..... CLOSED
- 18. Alternate Static Valve ..... CLOSED, if installed
- 19. Avionics master switch ..... OFF
- 20. Essential Bus switch ..... OFF, if installed

**CAUTION**

When the essential bus is switched ON, the battery will not be charged unless the essential tie relay bypass (OAM 40-126) is installed.

- 21. Master switch (BAT) ..... ON
- 22. Annunciator panel ..... test (see Section 7.11)
- 23. Fuel tank selector ..... on full tank

**WARNING**

Never move the propeller by hand while the ignition is switched on, as it may result in serious personal injury.

Never try to start the engine by hand.

**4A.3.2 BEFORE STARTING ENGINE**

*Item 2 of the checklist is amended to read:*

- 2. Rudder pedals ..... adjusted

### **4A.3.3 STARTING ENGINE**

#### **(a) Cold engine**

- |                                |  |
|--------------------------------|--|
| 1. Strobe light (ACL) .....    | ON   |
| 2. Electrical fuel pump .....  | ON, note pump noise<br>(= functional check of pump)                |
| 3. Throttle .....              | 3 cm (1.2 in) forward from<br>IDLE (measured from rear of<br>slot) |
| 4. Mixture control lever ..... | RICH for 3 - 5 sec, then<br>LEAN                                   |
| 5. Throttle .....              | 1 cm (0.4 in) forward from<br>IDLE (measured from rear of<br>slot) |

### **WARNING**

Before starting the engine the pilot must ensure that the propeller area is free, and no persons can be endangered.

### **CAUTION**

Do not overheat the starter motor. Do not operate the starter motor for more than 10 seconds. After operating the starter motor, let it cool off for 20 seconds. After 6 attempts to start the engine, let the starter cool off for half an hour.

**CAUTION**

The use of an external pre-heater and external power source is recommended whenever possible, in particular at ambient temperatures below 0 °C (32 °F), to reduce wear and abuse to the engine and electrical system. Pre-heat will thaw the oil trapped in the oil cooler, which can be congealed in extremely cold temperatures. After a warm-up period of approximately 2 to 5 minutes (depending on the ambient temperature) at 1500 RPM, the engine is ready for take-off if it accelerates smoothly and the oil pressure is normal and steady.

- 6. Ignition switch ..... START .

*when engine fires:*

- 7. Mixture control lever ..... rapidly move to RICH
- 8. Oil pressure ..... green sector within 15 sec
- 9. Electrical fuel pump ..... OFF

**WARNING**

If the oil pressure has not moved into the green sector within 15 seconds after starting, SWITCH OFF ENGINE and investigate problem.

10. Master switch (ALT) ..... ON
11. Ammeter ..... check
12. Fuel pressure ..... check (14 psi to 35 psi)
13. Annunciator panel ..... check

**(b) Warm engine**

1. Strobe light (ACL) ..... ON
2. Electrical fuel pump ..... ON, note pump noise  
(= functional check of pump)
3. Throttle ..... 3 cm (1.2 in) forward from  
IDLE (measured from rear of  
slot)
4. Mixture control lever ..... RICH for 1 - 3 sec, then  
LEAN

**WARNING**

Before starting the engine the pilot must ensure that the propeller area is free and no persons can be endangered.

**CAUTION**

Do not overheat the starter motor. Do not operate the starter motor for more than 10 seconds. After operating the starter motor, let it cool off for 20 seconds. After 6 attempts to start the engine, let the starter cool off for half an hour.

5. Ignition switch ..... START

when engine fires:

6. Mixture control lever ..... rapidly move to RICH
7. Oil pressure ..... green sector within 15 sec

**WARNING**

If the oil pressure has not moved into the green sector within 15 seconds after starting, SWITCH OFF ENGINE and investigate problem.

8. Electrical fuel pump ..... OFF
9. Master switch (ALT) ..... ON
10. Ammeter ..... check
11. Fuel pressure ..... check (14 psi to 35 psi)
12. Annunciator panel ..... check

(c) Engine will not start after injection ("flooded engine")

1. Strobe light (ACL) ..... ON
2. Electrical fuel pump ..... OFF
3. Mixture control lever ..... LEAN, fully aft
4. Throttle ..... at mid position

**WARNING**

Before starting the engine the pilot must ensure that the propeller area is free and no persons can be endangered.

**CAUTION**

Do not overheat the starter motor. Do not operate the starter motor for more than 10 seconds. After operating the starter motor, let it cool off for 20 seconds. After 6 attempts to start the engine, let the starter cool off for half an hour.

5. Ignition switch ..... START
6. Throttle ..... pull back towards IDLE  
when engine fires

*when engine fires:*

7. Mixture control lever ..... rapidly move to RICH
8. Oil pressure ..... green sector within 15 sec

**WARNING**

If the oil pressure has not moved into the green sector within 15 seconds after starting, SWITCH OFF ENGINE and investigate problem.

9. Master switch (ALT) ..... ON
10. Ammeter ..... check
11. Fuel pressure ..... check (14 psi to 35 psi)
12. Annunciator panel ..... check



**4A.3.4 BEFORE TAXIING**

- |  |  |
|--|--|
| 1. Avionics master switch .....                    | ON   |
| 2. Electrical equipment .....                      | ON as required   |
| 3. Flaps .....                                     | UP - T/O - LDG - T/O<br>(indicator and visual check)   |
| 4. Flight instruments and avionics .....           | set, test function, as<br>required   |
| 5. Flood light .....                               | ON, test function, as<br>required  |
| 6. Ammeter .....                                   | check, if required increase<br>RPM   |
| 7. Fuel tank selector .....                        | change tanks, confirm that<br>engine also runs on other<br>tank (at least 1 minute at<br>1500 RPM) |
| 8. Pitot heating .....                             | ON, test function;<br>ammeter must show rise   |
| 9. Pitot heating .....                             | OFF  |
| 10. Strobe lights (ACL's) .....                    | check ON, as required  |
| 11. Position lights, landing and taxi lights ..... | ON, as required  |

**CAUTION**

When taxiing at close range to other aircraft, or during night flight in clouds, fog or haze, the strobe lights should be switched OFF. The position lights must always be switched ON during night flight.

- |                    |                       |
|--------------------|-----------------------|
| 12. Idle RPM ..... | check, 600 to 800 RPM |
|--------------------|-----------------------|

**4A.3.5 TAXIING**

1. Parking brake ..... release
2. Brakes ..... test on moving off
3. Flight instrumentation and avionics  
(particularly directional gyro and  
turn and bank indicator) ..... check for correct indications

**CAUTION**

When taxiing on a poor surface select the lowest possible RPM to avoid damage to the propeller from stones or similar items.

**CAUTION**

Following extended operation on the ground, or at high ambient temperatures, the following indications of fuel vapor lock may appear:

- arbitrary changes in idle RPM and fuel flow
- slow reaction of the engine to operation of throttle
- engine will not run with throttle in IDLE position

*Remedy:*

1. For about 1 to 2 minutes, or until the engine settles, run at a speed of 1800 to 2000 RPM. Oil and cylinder head temperatures must stay within limits.
2. Pull throttle back to IDLE to confirm smooth running.
3. Set throttle to 1200 RPM and mixture for taxiing, i.e., use mixture control lever to set the maximum RPM attainable.
4. Immediately before the take-off run set the mixture for take-off, apply full throttle and hold this position for 10 seconds.

**NOTE**

Vapor lock can be avoided if the engine is run at speeds of 1800 RPM or more. This results in lower fuel temperatures.

**4A.3.6 BEFORE TAKE-OFF**

**CAUTION**

Before take-off, the engine must run on each tank for at least 1 minute at 1500 RPM.

1. Position airplane into wind if possible
2. Parking brake ..... set
3. Safety harnesses ..... on and fastened
4. Rear door ..... check closed and locked
5. Front canopy ..... closed and locked

**CAUTION**

When operating the canopy, ensure that there are no obstructions in between the canopy and the mating frame, for example seat belts, clothing, etc. When operating the locking handle do NOT apply undue force.

A slight downward pressure on the canopy may be required to ease handle operation.

6. Door warning light (DOOR or DOORS) .... check
7. Fuel tank selector ..... fullest tank
8. Engine instruments ..... in green sector
9. Circuit breakers ..... pressed in

**4A.3.6 BEFORE TAKE-OFF**

*The following items are added to the existing checklist:*

- | 18A. Circuit breaker ..... check in
- | 18B. Voltmeter ..... check in green range

- 10. Fuel pressure indicator ..... check (approx. 15 - 25 psi)
- 11. Electrical fuel pump ..... ON
- 12. Mixture control lever ..... RICH (below 5000 ft)

### NOTE

At a density altitude of 5000 ft or above or at high ambient temperatures a fully rich mixture can cause rough running of the engine or a loss of performance. The mixture should be set for smooth running of the engine.

- 13. Flaps ..... check T/O
- 14. Trim ..... check T/O
- 15. Flight controls ..... free movement, correct sense
- 16. Throttle ..... 2000 RPM
- 17. RPM lever ..... pull back until a drop of 250 to 500 RPM is reached - HIGH RPM; cycle 3 times
- 18. Magneto check ..... L - BOTH - R - BOTH  
Max. RPM drop . . . 175 RPM  
Max. difference . . . 50 RPM  
If the electronic ignition control unit is installed, the ignition status light must illuminate and extinguish after approximately 20 to 30 sec

**CAUTION**

The lack of an RPM drop suggests a faulty grounding or incorrect ignition timing. In case of doubt the magneto check can be repeated with a leaner mixture, in order to confirm a problem. Even when running on only one magneto the engine should not run unduly roughly.

- 19. Throttle ..... IDLE
- 20. Parking brake ..... release
- 21. Alternate Air ..... check CLOSED
- 22. Landing light ..... ON as required
- 23. Pitot heating ..... ON as required

**4A.3.7 TAKE-OFF**

*Item 7 of the checklist is amended to read:*

- 7. Airspeed ..... 67 KIAS (1200 kg, 2646 lb)  
66 KIAS (1150 kg, 2535 lb)  
60 KIAS (below 1000 kg, 2205 lb)



### 4A.3.7 TAKE-OFF

#### Normal take-off procedure

1. Transponder ..... ON/ALT
2. RPM lever ..... check HIGH RPM
3. Throttle ..... MAX PWR (not abruptly)

### **WARNING**

The proper performance of the engine at full throttle should be checked early in the take-off procedure, so that the take-off can be abandoned if necessary.

A rough engine, sluggish RPM increase, or failure to reach take-off RPM ( $2680 \pm 20$  RPM) are reasons for abandoning the take-off. If the engine oil is cold, an oil pressure in the yellow sector is permissible.

4. Elevator ..... neutral
5. Rudder ..... maintain direction

### **NOTE**

In strong crosswinds steering can be augmented by use of the toe brakes. It should be noted, however, that this method increases the take-off roll, and should not generally be used.

6. Nose wheel lift-off ..... at  $v_R = 59$  KIAS
7. Airspeed ..... 66 KIAS (1150 kg, 2535 lb)  
60 KIAS (below 1000 kg,  
2205 lb)

above a safe height:

- 8. RPM lever ..... 2400 RPM
- 9. Electrical fuel pump ..... OFF
- 10. Landing light ..... OFF

**4A.3.8 CLIMB**

**Procedure for best rate of climb**

- 1. Flaps ..... T/O
- 2. Airspeed ..... 66 KIAS (1150 kg, 2535 lb)  
60 KIAS (1000 kg, 2205 lb)  
54 KIAS (850 kg, 1874 lb)
- 3. RPM lever ..... 2400 RPM
- 4. Throttle ..... MAX PWR
- 5. Mixture control lever ..... RICH, above 5000 ft hold  
EGT constant
- 6. Engine instruments ..... in green sector
- 7. Trim ..... as required
- 8. Electrical fuel pump ..... ON at high altitudes

**CAUTION**

Operation at high altitudes with the electrical fuel pump OFF may cause vapor bubbles, resulting in intermittent low fuel pressure indications, sometimes followed by high fuel flow indications.

**4A.3.8 CLIMB**

Procedure for best rate of climb

*Item 2 of the checklist is amended to read:*

- 2. Airspeed ..... 67 KIAS (1200 kg, 2646 lb)  
66 KIAS (1150 kg, 2535 lb)  
60 KIAS (1000 kg, 2205 lb)  
54 KIAS (850 kg, 1874 lb)

Cruise climb

*Item 2 of the checklist is amended to read:*

- 2. Airspeed ..... 76 KIAS (1200 kg, 2646 lb)  
73 KIAS (1150 kg, 2535 lb)  
68 KIAS (1000 kg, 2205 lb)  
60 KIAS (850 kg, 1874 lb)

Cruise climb

- |                                |                            |
|--------------------------------|----------------------------|
| 1. Flaps .....                 | UP                         |
| 2. Airspeed .....              | 73 KIAS (1150 kg, 2535 lb) |
|                                | 68 KIAS (1000 kg, 2205 lb) |
|                                | 60 KIAS (850 kg, 1874 lb)  |
| 3. RPM lever .....             | 2400 RPM                   |
| 4. Throttle .....              | MAX PWR                    |
| 5. Mixture control lever ..... | RICH, above 5000 ft hold   |
|                                | EGT constant               |
| 6. Engine instruments .....    | in green sector            |
| 7. Trim .....                  | as required                |
| 8. Electrical fuel pump .....  | ON at high altitudes       |

**CAUTION**

Operation at high altitudes with the electrical fuel pump OFF may cause vapor bubbles, resulting in intermittent low fuel pressure indications, sometimes followed by high fuel flow indications.

**4A.3.9 CRUISE**

1. Flaps ..... UP
2. Throttle ..... set performance according to table
3. RPM lever ..... 1800 - 2400 RPM

**NOTE**

Favorable combinations of manifold pressure and RPM are given in Chapter 5.

**NOTE**

To optimize engine life the cylinder head temperature (CHT) should lie between 150 °F and 400 °F in continuous operation, and not rise above 435 °F in fast cruise.

**NOTE**

The oil temperature in continuous operation should lie between 165 °F and 220 °F. If possible, the oil temperature should not remain under 180 °F for long periods, so as to avoid accumulation of condensation water.

4. Mixture ..... set in accordance with 4A.3.10 MIXTURE ADJUSTMENT

- 5. Trim ..... as required
- 6. Fuel tank selector ..... as required  
 (max. difference 10 US gal  
 with Standard Tank, 8 US  
 gal with Long Range-Tank)
- 7. Electrical fuel pump ..... ON at high altitudes

**CAUTION**

Operation at high altitudes with the electrical fuel pump OFF may cause vapor bubbles, resulting in intermittent low fuel pressure indications, sometimes followed by high fuel flow indications.

**NOTE**

While switching from one tank to the other, the electrical fuel pump should be switched ON.

#### 4A.3.10 MIXTURE ADJUSTMENT

#### **CAUTION**

1. The maximum permissible cylinder head temperature (500 °F) must never be exceeded.
2. The mixture control lever should always be moved slowly.
3. Before selecting a higher power setting the mixture control lever should, on each occasion, be moved slowly to fully RICH.
4. Care should always be taken that the cylinders do not cool down too quickly. The cooling rate should not exceed 50 °F per minute.

#### Best Economy Mixture

The best economy mixture setting may only be used up to a power setting of 75 %. In order to obtain the lowest specific fuel consumption at a particular power setting proceed as follows: Slowly pull the mixture control lever back towards LEAN until the engine starts to run roughly. Then push the mixture control lever forward just far enough to restore smooth running. At the same time the exhaust gas temperature (EGT) should reach a maximum.

The exact value of EGT can be obtained by pressing the far left button on the engine instrument unit VM 1000. In the "lean" mode one bar represents 10 °F.

Best Power Mixture

The mixture can be set for maximum performance at all power settings. The mixture should first be set as for 'best economy'. The mixture should then be enriched until the exhaust gas temperature is approximately 100 °F lower.

This mixture setting produces the maximum performance for a given manifold pressure and is mainly used for high power settings (approximately 75 %).



**4A.3.11 DESCENT**

1. Mixture control lever ..... adjust as required for the altitude, operate slowly
2. RPM lever ..... 1800 - 2400 RPM
3. Throttle ..... as required
4. Electrical fuel pump ..... ON at high altitudes

**CAUTION**

When reducing power, the change in cylinder head temperature should not exceed 50 °F per minute. This is normally guaranteed by the 'self adapting inlet'. An excessive cooling rate may occur however, when the engine is very hot and the throttle is reduced abruptly in a fast descent. This will be indicated by a flashing cylinder head temperature indication.

**CAUTION**

Operation at high altitudes with the electrical fuel pump OFF may cause vapor bubbles, resulting in intermittent low fuel pressure indications, sometimes followed by high fuel flow indications.

**4A.3.12 LANDING APPROACH**

1. Fuel selector ..... fullest tank
2. Electrical fuel pump ..... ON
3. Safety harnesses ..... fastened
4. Airspeed ..... reduce to operate flaps  
(108 KIAS)
5. Flaps ..... T/O
6. Trim ..... as required
7. Landing light ..... as required

*before landing:*

8. Mixture control lever ..... RICH
9. RPM lever ..... HIGH RPM
10. Throttle ..... as required
11. Airspeed ..... reduce to operate flaps  
(91 KIAS)
12. Flaps ..... LDG

- 13. Approach speed ..... 71 KIAS (1150 kg, 2535 lb)  
67 KIAS (1092 kg, 2407 lb)  
63 KIAS (1000 kg, 2205 lb)  
58 KIAS (850 kg, 1874 lb)

**CAUTION**

In conditions such as (e.g.) strong wind, danger of wind shear or turbulence a higher approach speed should be selected.

**NOTE**

In case of airplanes with a maximum landing mass of 1092 kg (2407 lb), a landing with a higher mass constitutes an abnormal operating procedure. Refer to Sections 2.7 and 4B.6.

**4A.3.12 LANDING APPROACH**

*Item 13 of the checklist and the NOTE are amended to read:*

- 13. Approach speed ..... 73 KIAS (1200 kg, 2646 lb)  
71 KIAS (1150 kg, 2535 lb)  
67 KIAS (1092 kg, 2407 lb)  
63 KIAS (1000 kg, 2205 lb)  
58 KIAS (850 kg, 1874 lb)

**NOTE**

In case of airplanes with a maximum landing mass less than the maximum permitted flight mass, a landing with a higher mass constitutes an abnormal operating procedure. Refer to Sections 2.7 and 4B.6.

**4A.3.13 GO-AROUND**

*Item 2 of the checklist is amended to read:*

- 2. Airspeed ..... 67 KIAS (1200 kg, 2646 lb)  
66 KIAS (1150 kg, 2535 lb)  
60 KIAS (1000 kg, 2205 lb)  
54 KIAS (850 kg, 1874 lb)

*above a safe height.*

*Item 5 of the checklist is amended to read:*

- 5. Airspeed ..... 76 KIAS (1200 kg, 2646 lb)  
73 KIAS (1150 kg, 2535 lb)  
68 KIAS (1000 kg, 2205 lb)  
60 KIAS (850 kg, 1874 lb)

**4A.3.13 GO-AROUND**

- |                   |                            |
|-------------------|----------------------------|
| 1. Throttle ..... | MAX PWR                    |
| 2. Airspeed ..... | 66 KIAS (1150 kg, 2535 lb) |
|                   | 60 KIAS (1000 kg, 2205 lb) |
|                   | 54 KIAS (850 kg, 1874 lb)  |
| 3. Flaps .....    | T/O                        |

*above a safe height:*

- |                               |                            |
|-------------------------------|----------------------------|
| 4. RPM lever .....            | 2400 RPM                   |
| 5. Airspeed .....             | 73 KIAS (1150 kg, 2535 lb) |
|                               | 68 KIAS (1000 kg, 2205 lb) |
|                               | 60 KIAS (850 kg, 1874 lb)  |
| 6. Flaps .....                | UP                         |
| 7. Electrical fuel pump ..... | OFF                        |

**4A.3.14 AFTER LANDING**

- |                               |             |
|-------------------------------|-------------|
| 1. Throttle .....             | IDLE        |
| 2. Brakes .....               | as required |
| 3. Electrical fuel pump ..... | OFF         |
| 4. Transponder .....          | OFF / SBY   |
| 5. Pitot heating .....        | OFF         |
| 6. Avionics .....             | as required |
| 7. Lights .....               | as required |
| 8. Flaps .....                | UP          |

**4A.3.15 ENGINE SHUT-DOWN**

1. Parking brake ..... set
2. Engine instruments ..... check
3. Avionics master switch ..... OFF
4. All electrical equipment ..... OFF
5. Throttle ..... 1000 RPM
6. Ignition check ..... OFF until RPM drops  
noticeably, then immediately  
BOTH again
7. Mixture control lever ..... LEAN - shut engine off
8. Ignition switch ..... OFF
9. Master switch ..... OFF

**4A.3.16 POST-FLIGHT INSPECTION**

- |                                 |  |
|---------------------------------|--|
| 1. Ignition switch .....        | OFF, remove key                              |
| 2. Master switch .....          | ON   |
| 3. Avionics master switch ..... | ON   |
| 4. ELT .....                    | check activated:<br>listen on 121.5 MHz      |
| 5. Avionics master switch ..... | OFF  |
| 6. Master switch .....          | OFF  |
| 7. Parking brake .....          | release, use chocks                          |
| 8. Airplane .....               | moor, if unsupervised for<br>extended period |

**NOTE**

If the airplane is not operated for more than 5 days, the long-term parking procedure should be applied. If the airplane is not operated for more than 30 days, the storage procedure should be applied. Both procedures are described in the Airplane Maintenance Manual (Doc. No. 6.02.01) in Chapter 10.



**4A.3.17 FLIGHT IN RAIN**

**NOTE**

Performance deteriorates in rain; this applies particularly to the take-off distance and to the maximum horizontal speed. The effect on the flight characteristics is minimal. Flight through very heavy rain should be avoided because of the associated visibility problems.

**4A.3.18 REFUELING**

**CAUTION**

Before refueling, the airplane must be connected to electrical ground. Grounding points: unpainted areas (latches) on steps, left and right.

**4A.3.19 FLIGHT AT HIGH ALTITUDE**

At high altitudes the provision of oxygen for the occupants is necessary. Legal requirements for the provision of oxygen should be adhered to.

Also see Section 2.11 OPERATING ALTITUDE.