PILOT'S NOTES
FOR

HAWKER HUNTER

PROMULGATED BY ORDER OF CBFS DESIGNS

RESTRICTED
(FOR OFFICIAL USE ONLY)

WWW.CBFSIM.ORG

Cockpit and pre-start checks

Battery master switch	On
Wheel brakes accumulator air pressure gauge	750 lb./sq. in. min
Flood air flow switch	Auto
Cockpit pressurization switch	On
Cockpit temp. control switch	Auto
Cockpit temp. selector	As required
External stores jettison switch panel	Off
L.P cock	On
VHF Channel selectors	Off
VHF set selector switch	As required
Aileron and rudder trim indicators	Neutral
Undercarriage emergency selector	Ensure selector not pulled up.
Hood jettison handle	In
Undercarriage warning light	Out
Undercarriage position indicator	Three green
Undercarriage selector buttons	Down button in
Flaps selector lever	Up
Flaps emergency selector	Ensure selector not pulled out.
Hydraulic warning light	On.
Elevator and aileron power selector switches	Off. Magnetic indicators white.
Fuel level warning lights	Both out.
Flight and engine instruments	Condition.
Fire warning light	Out.
Cockpit altimeter	Condition
Fuel low pressure warning light	On (out if pressure in system).
Oxygen	As required
Emergency light	As required
Engine anti-icing switch	Shut
Cockpit lighting switches	As required.
Fuel gauges	Contents
Outboard drop tank "empty" indicators	Black if fuel in tanks otherwise white.
Booster-pump switches	OFF.
Booster-pump warning lights	On (Out if pressure in system).
Transfer indicators	Cross-line (if pressure in the system they will be "in-line" and contents gauges will read full).
Tank selector switches	AUTO (normally locked in AUTO)
Tank selector indicator	Point to REAR
Navigation lights switch	As required
Generator failure warning lights	Both on
Camera switch	Off
Pressure head heater	Off
Starter master switch	Off
Flying controls	Full and free movement
Parking brake	ON. Check pressure at each Wheel. If brake accumulator pressure is between 750 and 1,500 lb./sq. in. each brake needle should read accordingly).

Starting the engine

Starter master bar	On

Without delay press and release the starter button.

When the starter fires, the engine speed should build up rapidly to 1,600 r.p.m. As the engine lights up, the r.p.m. increase to idling (2,500±200) and the throttle should be closed. The j.p.t. may momentarily exceed the idling limit.

Failure to start

(i) If the starter fails to fire, check the position of the switches and press the starter button again. If three attempts prove unsuccessful have the defect investigated.

(ii) If the starter fires and the engine rotates but fails to light up, set the throttle to H.P. cock OFF position. The starter may only be fired again when the engine has stopped rotating and at least one minute must elapse before a second attempt is made. If it is suspected that an excessive amount of fuel has collected in the engine the starter should be fired with the ignition switch off and the throttle set at the H.P. cock OFF position

(iii) The starter can be fired three times at a minimum of one minute intervals but should be limited to three per forty five minutes.

Checks after starting

Fire warning light	Out
R.P.M.	2,500 ±200
J.P.T.	Max. 525°C.
Oil pressure	10 lb./sq in. (min)
Generator warning lights	Out
VHF	Frequency selected.
Rudder and aileron trimmers	Check and set neutral. Lock on.
Hydraulic pressure	2850±150 lb./sq. in. on both centre needle of triple pressure gauge and brake accumulator gauge Pressure at each wheel 1,500 lb./sq. in. Warning light out.
Elevator and aileron power control selectors	Switch each ON in turn and check the indicators-black.
Flaps	Check operation
Instruments	Correct functioning. Erect Art. Hor. Set Mk. 4F compass and compare with E2.
Fuel	Contents full. Set both booster-pump switches ON, check that each failure warning light goes out. Transfer indicator-"in-line". Tank indicator-REAR. L.P. warning light out.

Taxying

(a) Taxying is normal for nosewheel type aircraft. Fuel consumption at idling r.p.m. is about 2 galls per minute.

(b) The aircraft should not be taxied at a speed which requires excessive use of the brakes as this causes over heating of the tyres and reduces their life.

Checks before take-off

Tailplane trim	Clean a/c	Neutral
	With 38° flap and/or inboard Stores	1° Nose-up
	With 38° flap and outboard Stores	½° Nose-up
Rudder and aileron trim		Neutral, lock on.
Fuel		Contents Booster-pump switches ON. Warning lights out. Transfer indicators in-line Tank selector switches AUTO. Indicators at REAR. L.P. warning light out. Drop tank indicators black (if fuel in outboard tanks)
Flap		Up (38° with stores)
Instruments		Check and set.
Oxygen		As required
Harness		Tight and locked.
Hood		SHUT.
Hydraulics		Pressure 3,000 lb./sq. in. Flying controls in power. At 4,500 r.p.m. apply full aileron and elevator and ensure that the magnetic indicators remain black. Warning light out.

Take-off

(a) Align the aircraft and roll forward a few yards to straighten the nosewheel. Apply the brakes with rudder bar central and open the throttle smoothly. If the brakes do not hold at 6,800 r.p.m. they should be considered unserviceable and the aircraft should not be flown.
Release the brakes and open the throttle fully, checking the engine operation.

(b) In cross wind conditions, gentle braking is necessary to keep straight until the rudder becomes effective.

(c) Ease the nosewheel off at about 125 knots and hold it just off the runway, taking care not to achieve an excessively nose-up attitude. At normal loads the aircraft will unstick at 150 knots.

(d) When comfortably airborne apply the brakes and raise the undercarriage holding the brakes on until the undercarriage is locked up. There is no noticeable change of trim as the undercarriage retracts but the nosewheel locks up with a distinct thud. It may be necessary to climb quite steeply initially as retraction must be complete before 250 knots is reached.

(e) Until experience is gained the lightness of the flying controls may lead to over-controlling in both pitch and roll.

(f) *When carrying stores*

Using 38° flap the nosewheel can be eased off at 125 knots and the aircraft flown off at 145-150 knots. When safely airborne immediately raise the undercarriage and then the flaps, 1 notch at a time retrimming after each selection; delay in raising the flaps will result in an increasing nose-down change of trim as speed increases.

Climbing

NOTE.-If pressure has been set OFF for take-off, set it ON at 5,000ft.

Best rate of climb

(i) Climb at full throttle at 0.85M. Speed should be allowed to increase to the recommended figure during the initial climb to 5,000 feet.

(ii) Below 20,000 feet the rate of climb is not greatly affected by variation in speed, provided that it is maintained between 400 knots and 0.9M.

(iii) Above 20,000 feet it is important to keep to the recommended speed; above 30,000 feet the rate of climb will fall off quickly if speed is reduced below 0.85M.

Normal climb

If maximum rate of climb is not essential set 7,800 r.p.m. using the same speed as above.

CIRCUIT PROCEDURE AND LANDING

Circuit procedure

NOTE-460 lb. (60 gallons) of fuel should be allowed for a circuit, landing and possible overshoot

---

(a) *Circuit speed*

With the undercarriage lowered fully, 6,500 r.p.m. and 38° flap (four notches) give a comfortable speed of about 180 knots. To reduce speed for joining the circuit, flap, within the limitations, can be used successfully to augment the airbrake. Do not select more than one hydraulic service at a time and allow the cycle of each hydraulic operation to be completed before the next service is operated. The undercarriage should only be selected down with the wings laterally level.

(b) *Checks before landing*

Airbrake	IN, indicator black
Undercarriage	Down below 250 knots Three green lights
Brakes	Pressure, operation, off Main supply 3,000±150lb./sq. in. At each wheel 1,500 lb./sq. in.
Flaps	As required Fully down on finals
Fuel	Contents Booster-pumps ON
Harness	Tight and locked

(c) *Final approach*

(i) Turn across wind at 160 knots aiming to lower full flap on the final stages. Steep approaches are not recommended.

(ii) To ensure most rapid engine response maintain at least 4,500 r.p.m. until finally committed to a landing. Under conditions of high wind or gustiness it is more comfortable if the speeds below are increased by 5 knots.

(iii)The recommended speeds, in knots, at the runway threshold:-

At normal landing weight

No ammunition, 800 lb. or less fuel remaining 130

At maximum landing weight	
No ammunition, 1,800 lb. fuel remaining	135
Full ammunition, 1,100 lb fuel remaining	135

Landing

(a) As the touch-down point is approached, the rate of descent should be checked and the aircraft flown gently on to the ground at about 5-10 knots less than the runway threshold speeds. Holding off may result in an excessive nose-up attitude with the subsequent danger of dropping a wing; if the latter occurs, corrective aileron may be effective in raising the wing, but will cause the aircraft to yaw markedly in the direction of the down-going wing. The nosewheel can be held off at speeds down to about 70 knots, but the shortest run is achieved by putting the nosewheel firmly on to the runway and applying the brakes.

(b) *Braking*

NOTE.-The effectiveness of the braking system is greaty decreased on very wet or icy runways. If wind conditions are favourable it may be advantageous to use aerodynamic braking.

When the nosewheel has been lowered on to the runway the brakes can be used continuously and the maxeret units will prevent wheel locking; however, to prolong the efficiency and life of the brakes braking should be judicious according to length of landing run available. The landing can be cut to less than half normal by using continuous full brake once the aircraft is firmly on the ground, but this procedure causes rapid brake and tyre wear and should not normally be used. The aircraft must be firmly on the ground before applying the brakes. If it is allowed to touch down with the brakes on, the maxeret units will not operate and the wheels will lock; however, if once having started turning the wheels should stop because of skid or bounce, they will not lock unless the skid or bounce continues for more than 4 seconds. After a landing involving heavy braking, ten minutes should elapse before the next landing. If the intervening period of taxying has also required prolonged use of the brakes, twenty minutes should elapse before the next landing. Observe the same precautions in brake tests. On wet runways the landing run may be decreased by lowering the nosewheel on to the runway, applying the brakes and pulling the control column right back. The brakes must be in use while the back pressure is applied.

(c) *Cross-wind landing*

For cross-wind landings the "crab" technique should be used. In light winds no difficulty should be experenced in touching down but in strong cross-winds full rudder may be required to correct the crabbing. The rudder has a delayed reaction which will require anticipation. The secondary effect of full rudder is to produce a marked roll which must be counteracted with aileron. When the crabbing has been corrected the aircraft should be flown gently on to the ground and the nosewheel then lowered on immediately, thus reducing the tendency for the cross-wind to lift the into-wind wing. Care should be taken to centralize the rudder before applying brake. If the cross-wind is gusting strongly the approach speed should be increased by 5 knots.

Instrument approach

The following are the recommended airspeed, power and flap settings for an instrument approach with the under-carriage lowered:-

	R.P.M.	Flaps	Airspeed knots
Downwind	6,500	30°	170/180
Base leg	6,500	30°	170/180
Glide path	6,500	Full	150/160

Going round again

Open the throttle smoothly to the power required, raise the undercarriage, and at a safe height raise the flaps and retrim as necessary.

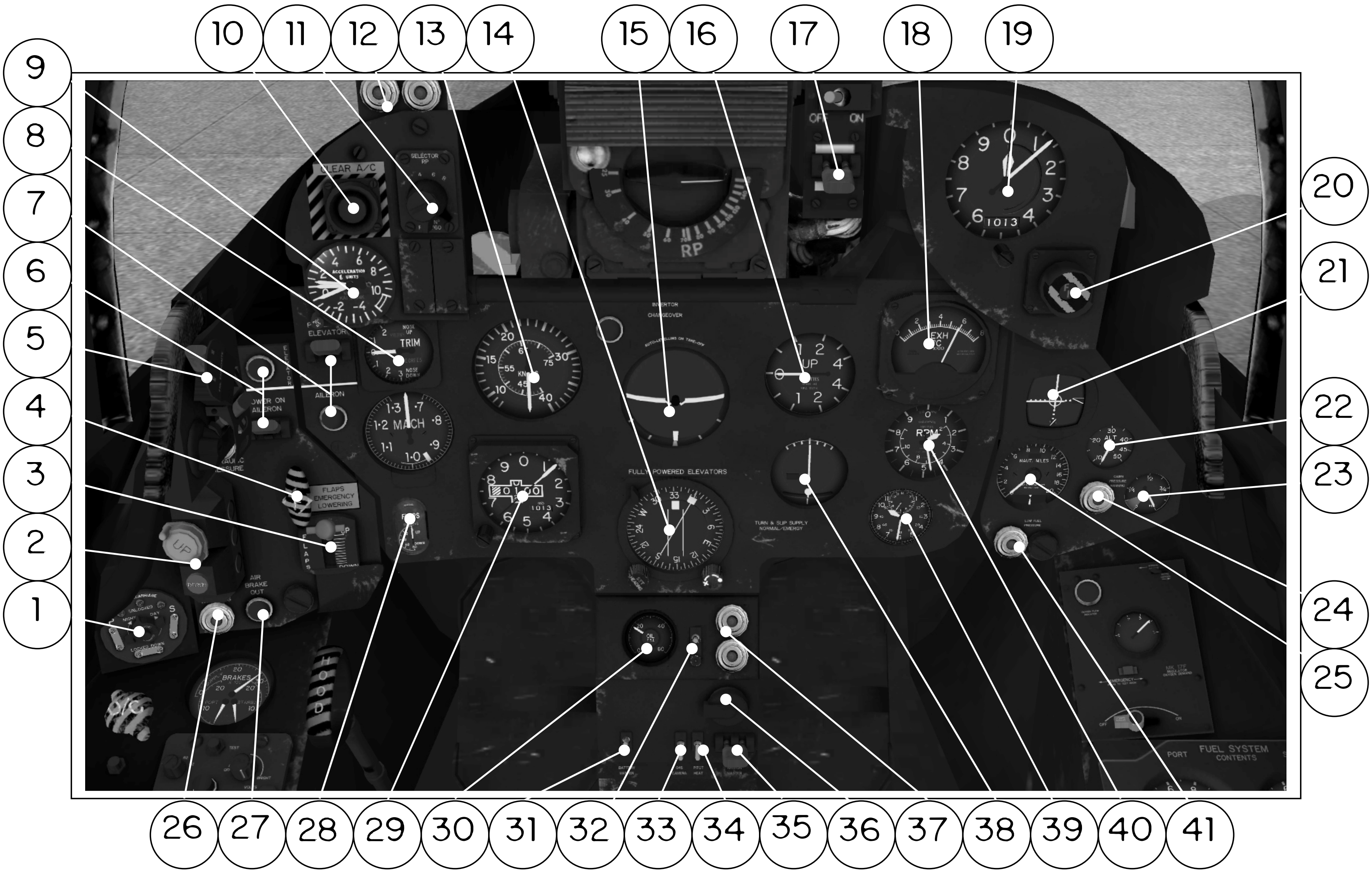
Checks after landing

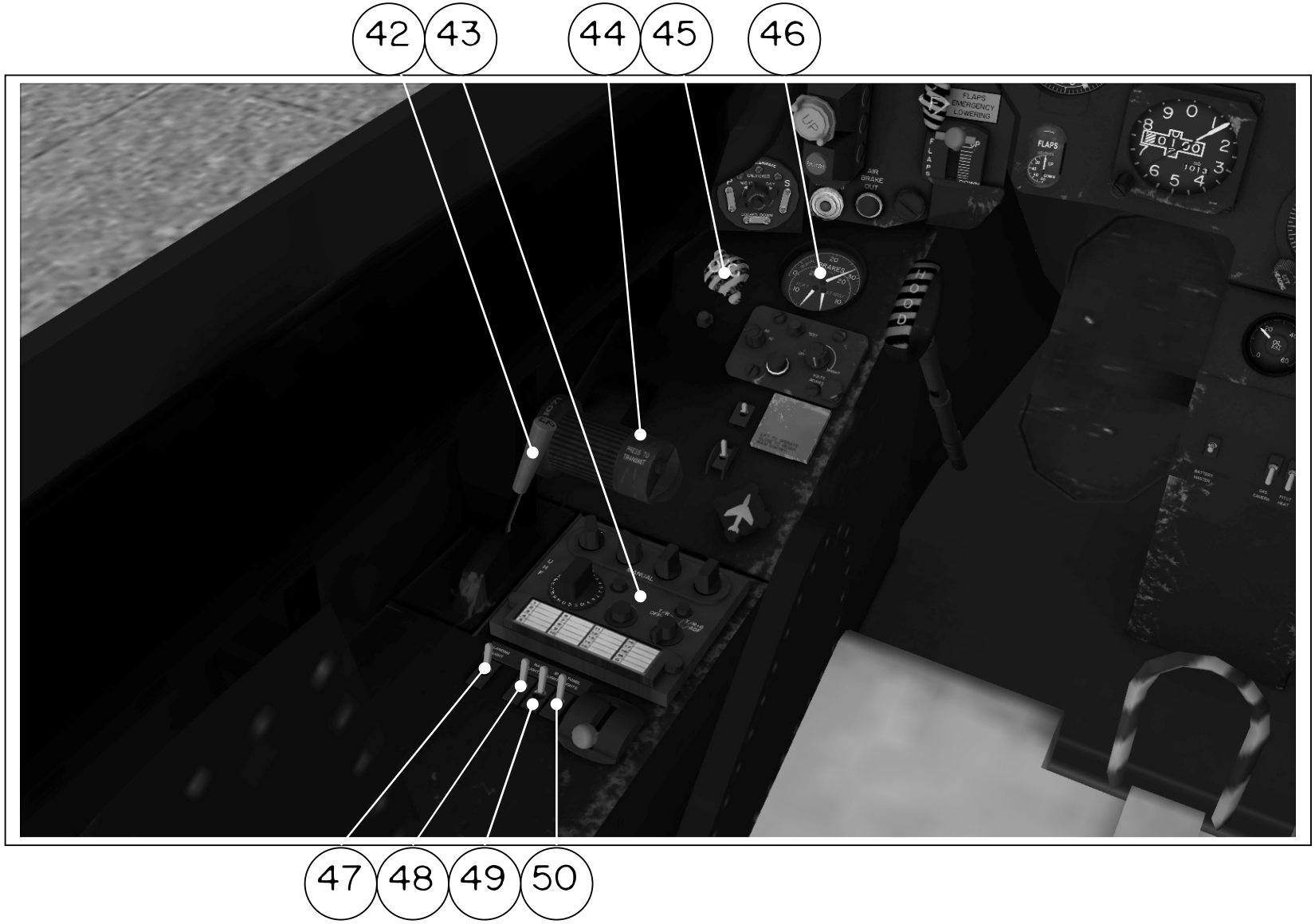
Brake pressure	Sufficient
Flaps	Up
Cockpit pressure	Off
Camera master switch	Off
Both booster-pumps	OFF
Tailplane	Set to neutral

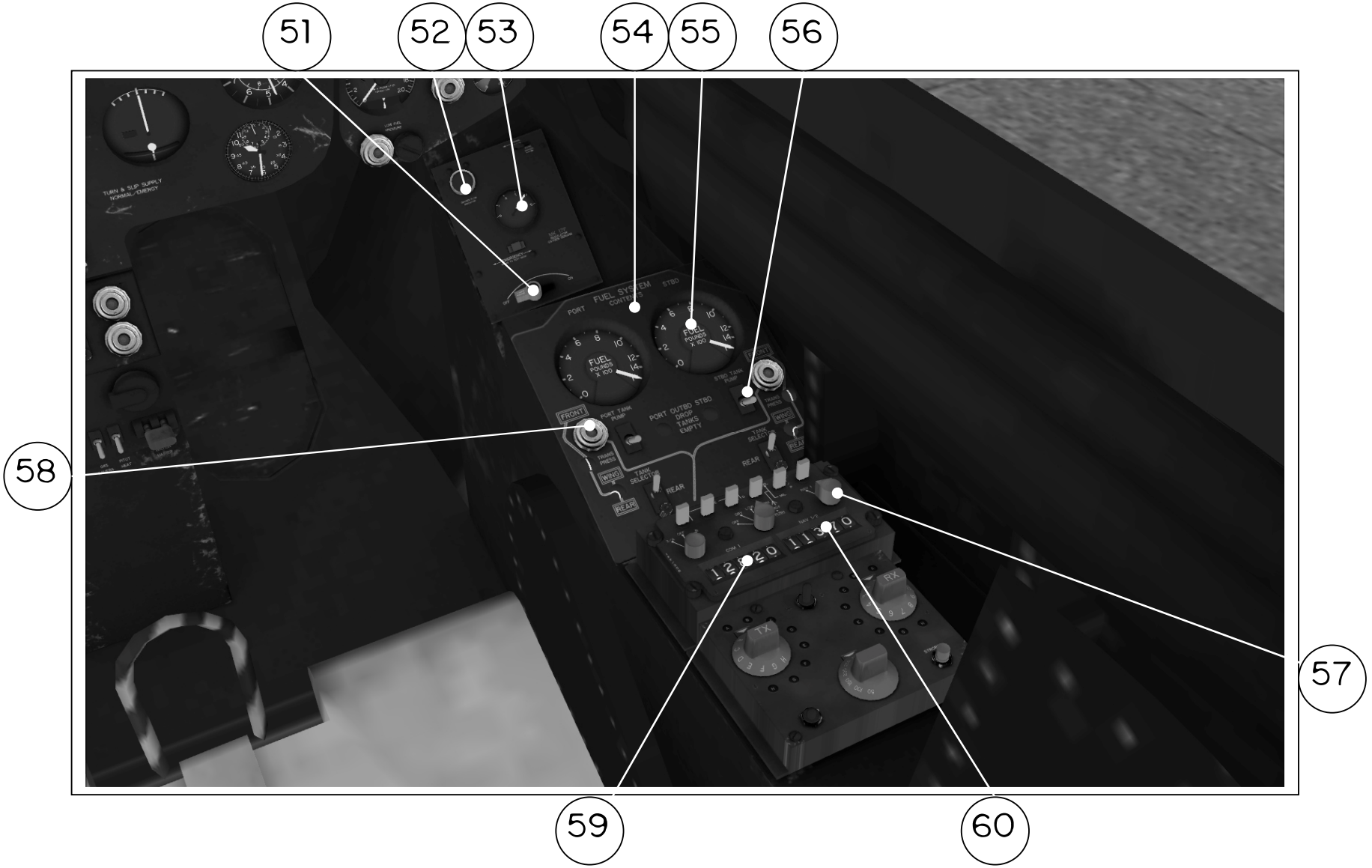
Stopping the engine

Close the throttle.
When the r.p.m. have stabilised at 2,500 (min) then:-

Flying control switches	Both OFF
All electrics	Off
Battery master switch	Switch off
L.P. cock	OFF when engine stops rotating
Ejection seat	Replace both safety pins before leaving the cockpit


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
CLEAR A/C
SELECTOR RP
OFF ON
ELEVATOR
AILERON
TRIM
MACH
FLAPS EMERGENCY LOWERING
AIR BRAKE OUT
BRAKES
HOOD
INVERTOR CHANGEOVER
FULLY POWERED ELEVATORS
TURN & SLIP SUPPLY NORMAL/EMERGY
UP
EXH
RPM
NAUT. MILES
ALT
PORT
FUEL SYSTEM CONTENTS


42
43
44
45
46
47
48
49
50
FLAPS EMERGENCY LOWERING
FLAPS
AIR BRAKE OUT
PRESS TO TRANSMIT


51
52
53
54
55
56
58
57
59
60
FUEL SYSTEM CONTROLS
PORT
STBD
FUEL POUNDS X 100
PORT TANK PUMP
STBD TANK PUMP
PORT OUTBD STBD DROP TANKS EMPTY
FRONT
REAR
TANK SELECTOR
TRANS PRESS
WING
TURN & SLIP SUPPLY NORMAL-EMERGY

1. Undercarriage indicator.
2. Undercarriage controls.
3. Flap selector.
4. Emergency flap selector.
5. Braking parachute control (some models only).
6. Aileron power switch and indicator.
7. Elevator power switch and indicator.
8. Tailplane trim gauge.
9. G.Meter.
10. Stores emergency jettison switch.
11. Control column hide switch.
12. Bingo fuel lights (some models only).
13. ASI.
14. HSI.
15. Artificial horizon.
16. VSI
17. Gunsight reticule switch.
18. Exhaust gas temperature.
19. Standby altimeter.
20. Fire indicator and extinguisher switch.
21. ILS indicator (Slaved to Nav 1).
22. Cabin altitude.
23. Oxygen contents.
24. Cabin pressure warning indicator.
25. DME. (Slaved to Nav 2).
26. Hydraulic pressure warning indicator.
27. Airbrake indicator.
28. Flap indicator.
29. Altimeter.
30. Oil pressure.
31. Battery master switch.
32. Not used.
33. Camera switch.
34. Pitot heat.
35. Generator switch.
36. Starter switch.
37. Generator warning indicators.
38. Turn & slip.
39. Clock.
40. RPM
41. Fuel pressure warning indicator.
42. L.P. cock
43. Transponder.
44. Throttle.
45. Emergency gear selector.
46. Brake pressure.
47. Landing light switch.
48. Nav light switch.
49. Ident light switch.
50. Panel light switch.
51. Oxygen supply switch.
52. Oxygen flow indicator.
53. Oxygen pressure.
54. Fuel panel.
55. Fuel contents.
56. Fuel booster pump switch.
57. Nav 1/2 changeover switch.
58. Fuel pressure warning switch.
59. Comm frequency.
60. Nav frequency.