

# **HAWK T MK 1/1A**

## **FLIGHT REFERENCE CARDS**

### **INCORPORATING**

## **AIRCREW LANDAWAY**

## **FLIGHT SERVICING SCHEDULE**

#### **Amendment Information**

Note: This is an electronic version of this publication, and not a direct duplicate of the hard copy version. The hard copy is the master copy and the only one to be used in flight and for flight planning. This electronic publication represents the extant version of the publication and is for reference only. Only change bars applicable to the current version will be shown.

#### **Issue**

Issue 6

#### **AL**

3 (Oct 17)

#### **ANA**

ANA 10

ANA 11

# HAWK T MK 1/1A



## FLIGHT REFERENCE CARDS

INCORPORATING

### AIRCREW LANDAWAY FLIGHT SERVICING SCHEDULE

#### AIRCRAFT SAFE FOR PARKING

The aircraft is safe for parking when the following are correctly inserted:

**Both ejection seat firing handle safety pins**

**Both canopy MDC firing handle safety pins**

**Both canopy MDC firing unit safety pins**

*These FRCs are only valid when used in support of a current  
MOD Release to Service*

*Prepared by Handling Squadron*

### LIST OF CARDS ISSUE 6 AT AL3

Card	AL	Card	AL	Card	AL	Card	AL
N-1	AL 3	N-31	AL 3	E-11	AL 3		
N-3	AL 3	N-33	AL 3	E-13	Issue 6		
N-5	AL 3	N-35	AL 3	E-15	AL 3		
N-7	AL 3	N-37	Issue 6	E-17	AL 3		
N-9	Issue 6	S-1	AL 3	E-19	AL 3		
N-11	AL 3	S-3	AL 1	E-21	Issue 6		
N-13	AL 3	S-5	AL 3	E-23	Issue 6		
N-15	AL 3	S-7	AL 1	E-25	AL 2		
N-17	Issue 6	S-9	AL 3				
N-19	Issue 6	S-11	AL 3				
N-21	Issue 6	E-1	AL 3				
N-23	AL 1	E-3	Issue 6				
N-25	Issue 6	E-5	AL 3				
N-27	Issue 6	E-7	AL 3				
N-29	AL 3	E-9	Issue 6				

### ANA 1- 9 INCORPORATED

ANA No	10	11					
Location	N-11	N-13 E-17					

### NOTES TO USERS

1. These Flight Reference Cards (FRC) are complementary to the Hawk T Mk 1/1A Aircrew Manual (AP 101B-4401-15). The same conventions are used, and amendment procedure is similar.

2. Checks marked \* in the cards are applicable only to weapons capable aircraft, and \*\* to the T Mk 1A variant only.

3. **Actions printed in bold face are those which should be completed from memory.**

4. *Urgency of the Need to Land.* The following terms are used to give guidance but are not intended to be precise definitions nor preclude relevant airmanship actions such as performing a low speed handling check when the integrity of the airframe is suspect.

- *Land ASAP.* Land at the nearest airfield with a runway suitable for a safe landing

- *Land as Soon as Practicable.* Land at the nearest airfield where you can land safely and expect practical assistance for your particular aircraft type

Comments and suggestions should be forwarded using a F765X to the 1 Gp Hawk STANEVAL, RAF Leeming, DL7 9PE for forwarding to OC Handling Sqn, Boscombe Down, Salisbury, SP4 0JE. (Boscombe Down [REDACTED]).

**APPROACHING THE AIRCRAFT CHECKS**Initial,  
External

1. Safe direction
2. Configuration correct, chocks in
3. Armament boards
4. MASS safe
5. Pins fitted for pylon stores, no pools of fluid
6. Extinguisher present

**INITIAL CHECKS — FRONT COCKPIT***Before entering the cockpit, check the following:*

1. Pins . . . . . Correctly fitted to ejection seat, MDC firing handles and MDC firing unit
2. Safety pin central stowage . . . . . 6 pins
3. Landing gear selector . . . . . DOWN button fully in, UP button not turned to emergency override
4. Battery switches . . . . . Off
5. \*\* MCP coolant . . . . . Off
6. \* WCP . . . . . All selectors OFF
7. \* MASS . . . . . LOCK SAFE, green flag up
8. \* Stick top . . . . . Safe
9. Oxygen selector . . . . . ON, check contents
10. PEC dust cover . . . . . Remove and stow
11. Camera/GPS/Crash pad . . . . . Secure

**EXTERNAL CHECKS**For **Weapons External Checks** see N-33 to N-34

Systematically check aircraft for signs of damage and leaks and for security of panels, doors and attachments. Check oleos for correct extension and tyres for excessive wear or cuts. Check that all covers, plugs, intake blanks and ground locks are removed. Check lifting surfaces and engine intakes are clear of ice.

Make the following specific checks:

1. Canopy, MDC and windscreen . . . . . Clean and undamaged
2. MDC external handles . . . . . Flush
3. Hydraulic fluid reservoirs. . . . . No 1 System, 4.5 - 4.6 ltrs  
No 2 System, 4.1 - 4.2 ltrs  
Refer to S-9/10 if outside limits
4. Hydraulic filter indicators (4). . . . . Buttons not protruding
5. Right main wheel bay  
No 1 flying controls  
accumulator pressure. . . . . 72 to 80 bar  
Wheelbrakes pressure gauge 82 to 90 bar
6. Left main wheel bay  
Flaps standby pressure . . . . . 203 to 211 bar  
U/C standby pressure . . . . . 223 to 231 bar  
No 2 flying controls  
accumulator pressure. . . . . 72 to 80 bar

**INITIAL CHECKS — REAR COCKPIT**

1. Pins . . . . . Correctly fitted to ejection seat, MDC firing handle and MDC firing unit
2. Command ejection selector . . . . . Down and Off
3. Ejection seat . . . . . For solo flight check apron fitted, straps and leg restraints secure, no obstructions and PEC cover fitted. For dual flight carry out **Ejection Seat Checks (N-5)**
4. Anti-g lever . . . . . As required
5. Engine start switch . . . . . ON
6. Tailplane standby trim . . . . . Cover fully down
7. Anti-skid switch . . . . . On
8. Standby UHF switch . . . . . MAIN
9. Landing gear selector . . . . . Red button in, UP and DOWN buttons both out, UP button not turned to emergency override
10. Flap selector . . . . . PUPIL
11. \* ISIS sight . . . . . OFF
12. \* WMP override switch . . . . . NORMAL
13. \* Stick top . . . . . Safe
14. Lighting switches . . . . . Off
15. UHF aerial switch . . . . . FRONT
16. Oxygen selector . . . . . ON
17. Oxygen regulator . . . . . As required
18. PEC dust cover . . . . . As required
19. F700 bag . . . . . Flap closed
20. MDC firing unit safety pin . . . . . Remove and stow
21. \* Rear Gunsight Cover . . . . . Remove

**EJECTION SEAT CHECKS****Rear,  
Ejec Seat**

1. Seat firing handle safety pin . . . . . Fitted through housing & firing handle
2. Pitch control unit . . . . . Set boarding weight
3. Manual separation handle . . . . . Locked down, safety pin removed
4. Automatic Deployment Unit:
  - a. Static line . . . . . Connected to seat
  - b. Mode . . . . . AUTO/MANUAL as required
5. BTRU static trip rod . . . . . Secured to cross beam
6. Command ejection pipe(s) . . . . . Visually confirmed not disconnected
7. Command/BTRU telescopic tubes . . . . . Visually confirmed not disconnected, pip pin fitted
8. BTRU capsule . . . . . Check operating altitude
9. MDC trip arm . . . . . Clear of obstructions
10. Ejection gun sear . . . . . Linkage connected, safety pin removed
11. Scissor shackle . . . . . Closed and flat
12. Drogue shackle . . . . . Connected to scissor shackle, minimum 1.5 threads visible, tie intact
13. Parachute container . . . . . Closed, 2 ties intact
14. Drogue gun piston . . . . . Attached to drogue withdrawal line; shear pin fitted
15. Top latch:
  - a. Indicator spigot . . . . . Flush with, or slightly protruding from, plunger
  - b. Plunger . . . . . Flush with, or slightly recessed into, housing face
16. Rocket initiator
  - a. Cable . . . . . Connected to drogue trip rod
  - b. Firing link . . . . . Connected to firing unit sear
  - c. Telescopic tube . . . . . Connected
  - d. Safety pin . . . . . Removed
17. Drogue gun static trip rod . . . . . Secured to cross beam
18. Emergency oxygen
  - a. Contents . . . . . Full
  - b. Pip pin . . . . . Fitted
  - c. Trip lever . . . . . Horizontal
  - d. Operating handle . . . . . Fully down
19. Oxygen regulator . . . . . Selector to 100% (forward)
20. Go forward mechanism . . . . . Check HPRU operates & locks
21. PSP:
  - a. Suspension strap . . . . . Routeing correct
  - b. Lowering line . . . . . Connector in spring clip
22. Combined Harness:
  - a. Straps . . . . . Secure in locks
  - b. Parachute lift webs . . . . . Inboard of retraction straps
  - c. Retention strap . . . . . In front of lift webs, in top locks
  - d. Sticker straps . . . . . Outside lap straps, in spring clips
  - e. Leg restraints . . . . . Attached to floor, routeing correct

## STRAPPING-IN CHECKS

*Immediately before entering the cockpit:*

1. MDC firing unit safety pin. . . .Remove and stow

*After entering the cockpit*

2. Rudder pedals. . . . .Lock disengaged, reach adjusted
3. Battery switches . . . . .Check each battery gives 23V minimum, then both ON
4. External lights . . . . .As required
5. ILS rain cover . . . . .Remove if applicable (replace instrument patch)
6. PEC. . . . .Insert, select AM
7. PSP. . . . .Connect
8. Leg restraint lines . . . . .Connect
9. Go forward mechanism. . . .Locked (rear)
10. Straps . . . . .Route correctly, insert into QRF, tighten
11. Oxygen hose. . . . .Connected
12. MICTEL lead . . . . .Connected and tethered
13. Go forward mechanism. . . .Check function
14. Seat Height . . . . .As required
15. \*\* Radio (G/C intercom req). .V/UHF (main) tested
16. \*\* Ground crew intercom. . .Connected if required
17. CCS amplifier . . . . .NORM
18. Intercom . . . . .Set as required
19. Parking brake . . . . .On

## CANOPY CLOSING CHECKS

*May be carried out after INTERNAL CHECKS if required*

1. \* Rear Gunsight Cover . . . .Check removed
2. Oxygen mask . . . . .On
3. Visor . . . . .Down
4. Groundcrew. . . . .Clear of aircraft
5. Canopy . . . . .Closed, safety latch engaged, arrows in line
6. Harness. . . . .Secure, correctly routed
7. PSP and leg restraint lines. .Secure, correctly routed
8. Seat firing handle . . . . .Clear of obstructions
9. Command ejection selector Confirmed Down and Off (if dual)
10. MDC firing handle and seat pins. . . . .Remove and stow
11. Command ejection selector As required
12. Rear cockpit switches . . . . .Position confirmed (if dual)

## INTERNAL CHECKS - FRONT COCKPIT

### Left Console

- |                 |                                     |  |
|-----------------|-------------------------------------|--|
| <b>Internal</b> | 1. LP cock . . . . .                | Fully ON   |
|                 | 2. Footstep lever . . . . .         | Retracted  |
|                 | 3. Anti-g lever . . . . .           | Forward  |
|                 | 4. Engine start switch . . . . .    | OFF  |
|                 | 5. Fuel pump switch . . . . .       | On   |
|                 | 6. Pitot heater switch . . . . .    | Off  |
|                 | 7. Trim indicators . . . . .        | Condition  |
|                 | 8. Tailplane standby trim . . . . . | Cover down   |
|                 | 9. Ignition switch . . . . .        | NORMAL   |
|                 | 10. Throttle . . . . .              | Full free movement, HP off,<br>relight functioning |
|                 | 11. Anti-skid switch . . . . .      | Off  |
|                 | 12. Standby UHF switch . . . . .    | MAIN   |
|                 | 13. HYD 1 and 2 gauges . . . . .    | Condition  |
|                 | 14. Brake gauges . . . . .          | Check pressures                                    |

### Left Instrument Panel

- |   |  |
|---|--|
| 15. U/C standby handle . . . . .          | Not pulled   |
| 16. Flap standby handle . . . . .         | Not pulled   |
| 17. Landing gear indicator . . . . .      | Three greens   |
| 18. Voltmeter . . . . .                   | 23 to 24 volts   |
| 19. Flap selector . . . . .               | DOWN (or to match actual flap<br>position if not down) |
| 20. Flap indicator . . . . .              | Check indication agrees with<br>flap position          |
| 21. UHF . . . . .                         | ON; set as required                                    |
| 22. * Weapon select switch . . . . .      | OFF  |
| 23. * Pylon select switches (2) . . . . . | OFF  |
| 24. * WCP busbar indicators . . . . .     | OFF  |
| 25. ** WCP Role indicator . . . . .       | White  |
| 26. * Bomb fuzing switch . . . . .        | As required  |
| 27. * Gun select switch . . . . .         | OFF  |

### Centre Instrument and Lower Panels

- |  |                            |
|--|----------------------------|
| 28. DGI . . . . .                      | Condition, flag retracted  |
| 29. CSI . . . . .                      | Condition                  |
| 30. Turn and slip indicator . . . . .  | Condition, window black    |
| 31. Tailplane trim indicator . . . . . | Condition                  |
| 32. Accelerometer . . . . .            | Reset                      |
| 33. * ISIS sight . . . . .             | Condition                  |
| 34. Main attitude indicator . . . . .  | Condition, flag showing    |
| 35. HSI . . . . .                      | Condition, 4 flags showing |



- 36. AHRS control unit . . . . . SLV, latitude set (pre MOD 2516)
- 37. \* ISIS control unit . . . . . OFF
- 38. Navigation mode selector . . Condition
- 39. ILS marker light . . . . . Test
- 40. UHF power switch . . . . . NORMAL
- 41. VSI . . . . . Zero, condition
- 42. Main altimeter . . . . . Condition, flag showing
- 43. Standby attitude indicator . . Erect, flag retracted
- 44. Standby instruments switch . NORMAL

### Right Instrument Panel

- 45. Standby altimeter . . . . . Condition
- 46. Cabin altimeter . . . . . Condition
- 47. Oxygen . . . . . OXY caption out,  
Contents over ½ full  
Confirm AM, check flow.  
Select 100%, check flow.  
Reselect AM. Press test,  
check MI functioning.
- 48. Fuel gauge . . . . . Contents
- 49. TGT gauge . . . . . Condition
- 50. RPM gauge . . . . . Zero, Condition
- 51. Rotation indicator . . . . . Black
- 52. GTS indicator . . . . . Black
- 53. CWP . . . . . Test. HYD, GEN, HYD1, FPR,  
AC1, HYD 2, (TRANS), SKID,  
AC2, OIL and AC3\*\* remain on
- 54. Lighting switches . . . . . As required
- 55. Dimmers . . . . . As required

### Right Console

- 56. CCS . . . . . As required. Set PTT to NORM.  
Check FAIL, reset NORM
- 57. VHF . . . . . On
- 58. UHF aerial switch . . . . . As required
- 59. Cabin conditioning . . . . . NORMAL
- 60. Cabin air temperature  
switch . . . . . AUTO sector, 6 o'clock approx
- 61. Ground intercom switch . . . As required
- 62. ADR status indicator . . . . . FAIL
- 63. IFF/SSR . . . . . SBY
- 64. ILS . . . . . As required
- 65. Tacan . . . . . TX/RX, X or Y as required
- 66. Radio(s) . . . . . Test as required

## ENGINE STARTING

**WARNING:** Do not select Idle before rotation indicator green

### Pre-start

1. Engine start switch  
(both cockpits) . . . . . ON
2. Anti-collision lights . . . . . As required

### Starting

Eng Start

3. Relight button . . . . . Press and release

*When GTS indicator green*

4. Engine start switch . . . . . START and release

*When rotation indicator green and RPM 15 to 20%*

5. Throttle . . . . . Idle

### During Start

6. TGT and RPM . . . . . Monitor. If TGT appears likely to exceed 570°C, set throttle to HP Off (Note 1)
7. At 45% RPM . . . . . GTS and rotation indicators black

*When RPM stabilized:*

8. Fire warnings . . . . . Out
9. RPM . . . . . 52% approximately, note reading
10. TGT . . . . . Note
11. OIL, FPR and TRANS captions . . . . . Out (Note 2)
12. Throttle . . . . . Close bleed valve
13. Hydraulics . . . . . Control response and feel normal on HYD 1 system
14. Reset HYD 2. . . . . Check pressure normal
15. Electrics . . . . . GEN and AC captions out; press RESET buttons if necessary.  
Voltmeter 27 to 29 volts
16. CWP . . . . . All captions out except SKID

**NOTE 1:** Under transient conditions 570°C may be exceeded by up to 20°C for 10 seconds

**NOTE 2:** FPR caption may flicker as booster pump is switched from Essential Services busbar to Generator busbar

## START FAILURES

### GTS

**WARNING:** Allow 3 minutes between the termination of one GTS start cycle and the commencement of the next. After three consecutive start cycles allow 20 minutes to elapse for DC motor cooling

#### No GTS Start (Switch Selection Error)

Check:

1. LP cock . . . . . ON
2. Engine start switch  
(both cockpits) . . . . . ON
3. Ignition switch . . . . . NORMAL
4. If DC motor has operated, wait 3 minutes then:
5. Relight button . . . . . Press

#### No GTS Green (within 22 seconds maximum)

1. Allow start cycle to terminate
2. Report defect

### Engine

#### No Rotation Green (within 10 seconds maximum)

1. Throttle . . . . . Confirm HP Off
2. Engine start switch . . . . . OFF
3. Report defect

#### Engine Fails to Light (within 15 seconds of selecting Idle)

1. Throttle . . . . . HP Off
2. Carry out **Dry Crank** below

#### Dry Crank

1. RPM . . . . . Below 20%
2. GTS indicator . . . . . Green (if not running allow 3 minutes since last cycle)
3. Ignition switch . . . . . ISOLATE
4. Engine start switch . . . . . START and release
5. Rotation indicator . . . . . Green

*When cycle complete:*

6. Ignition switch . . . . . NORMAL
7. Attempt further start

**AFTER START CHECKS****N-11**

- |                                    |                                   |   |
|------------------------------------|-----------------------------------|---|
|                                    | 1. Trims . . . . .                | Check trim functions, set TPI 0   |
|                                    | 2. Tailplane external position. . | Confirm alignment   |
|                                    | 3. Anti-g. . . . .                | Test  |
|                                    | 4. Airbrake. . . . .              | Test  |
|                                    | 5. Pitot heat . . . . .           | On  |
|                                    | 6. Flaps . . . . .                | Check operation. Select MID   |
|                                    | 7. Controls. . . . .              | Full, free and correct movement<br>(when worn, FCAGTs should be<br>fully inflated throughout check)   |
| <b>Fail start/<br/>After start</b> | 8. Hydraulics . . . . .           | Pressures within limits   |
|                                    | 9. Oxygen . . . . .               | Contents, connections, flow   |
|                                    | 10. Canopy . . . . .              | Locked, safety latch engaged,<br>arrows in line, canopy seal<br>inflated  |
|                                    | 11. Instruments (flight). . . . . | Altimeters test, set QFE.<br>All warning flags clear, erect,<br>synchronize compass.<br>Standby compass check,<br>DGI set, AHRS (post MOD<br>2516) check mode |
|                                    | 12. Instruments (navigation) . .  | IFF, set XMT, test,<br>SIFF, confirm BIT complete<br>ADR black,<br>ILS as required,<br>Tacan - test   |
|                                    | 13. *ISIS . . . . .               | Test. Set as required   |
|                                    | 14. **Ground crew intercom . .    | Disconnected  |

**\*\*AIM-9L Acquisition Round**

- |  |                                   |         |
|--|-----------------------------------|---------|
|  | 1. Nose protective cover. . . . . | Removed |
|--|-----------------------------------|---------|

***IR Detection Test***

- |  |                                   |  |
|--|-----------------------------------|--|
|  | 2. MCP                            |  |
|  | a. Coolant switch . . . . .       | TEST ON  |
|  | b. Test indicator . . . . .       | Red light on   |
|  | c. Missile selected indicator . . | Correct light on. If incorrect<br>press reject button once |
|  | d. Volume . . . . .               | Set as required  |
|  | 3. Growl. . . . .                 | Check  |

***If second missile check required***

- |  |                           |       |
|--|---------------------------|-------|
|  | 4. Reject button. . . . . | Press |
|  | 5. Growl. . . . .         | Check |

***After checks complete***

- |  |                                 |             |
|--|---------------------------------|-------------|
|  | 6. MCP coolant switch . . . . . | As required |
|--|---------------------------------|-------------|

**ANA 10**

**TAXYING CHECKS**

1. Brakes . . . . . Functional check
2. Instruments.... . Functional check

**BEFORE TAKE-OFF CHECKS**

1. Trims . . . . . Tailplane 0°, aileron and rudder neutral (see Note)
2. Pitot heat . . . . . On
3. Anti-skid switch . . . . . On. SKID caption out, braking normal
4. Fuel . . . . . Contents
5. Flaps . . . . . MID
6. Harness . . . . . Locked and tight.
7. Leg restraints and PSP . . . . . Connected
8. Weight . . . . . Set
9. Visor . . . . . Down
10. MDC firing handle and seat pins . . . . . Stowed
11. Central stowage . . . . . 8 Pins
12. Command ejection selector . . . . . Position confirmed (if dual)
13. External lights . . . . . As required
14. Take-off brief . . . . . Complete

**NOTE:** Underwing stores/target tow/luneberg lens/forward CG - Tailplane 1° nose up  
 Asymmetric stores - Aileron ½ and rudder ⅓ deflection toward lighter wing  
 Target tow - Rudder ⅓ deflection right

**RUNWAY CHECKS**

1. IFF . . . . . As Required
2. Lights . . . . . As Required
3. Altimeters . . . . . Within limits
4. \*MASS . . . . . UNLOCK LIVE
5. \*WCP busbar indicators. . . . . Black
6. \*\*WCP role indicator. . . . . As required
7. RPM . . . . . 104% maximum
8. TGT . . . . . 665°C maximum
9. CWP . . . . . Clear
10. Wheelbrakes. . . . . Holding

**NOTE:** New brakes may not hold at full power

**AFTER TAKE-OFF CHECKS**

1. Landing gear. . . . . Up below 200 knots  
UP button fully in
2. Flaps . . . . . Up below 200 knots
3. CWP . . . . . Clear

## PRE-DESCENT CHECKS

1. Fuel . . . . . Contents
2. Instruments . . . . . Erect and synchronised
3. Radio . . . . . Frequency set A/R
4. Altimeters . . . . . Set A/R, cross checked
5. Demist . . . . . A/R
6. Safety Altitude and safe height/altitude for descent

## APPROACH DATA

### Instrument Approach Settings

	Landing Gear	Flaps	Airspeed (knots)	RPM (%)
<i>Downwind</i>	UP	UP	230	80
<i>Base Leg</i>	DOWN	MID	160 / 150	85 to 87
<i>Glidepath</i>	DOWN	DOWN	160/150†	85 to 87
† Reducing steadily to 140 / 130 at 200 to 300 feet AGL				

### Approach Category

Aircraft category for approaches is C

### Circuit Speeds (knots)

**N-13**

	Circuit	Final Turn	Approach	Threshold
Powered Approach	190 reducing to 160 / 150†	160 / 150† reducing to 140 / 130†	140 / 130†	110 †† (Stores 115 ††)
PFL <b>ANA 11</b>	180 (Gear down / flap up 170 / 175†)	Gear down / flap up 170 / 175†		150(Min) 170 (Max) with down flap
Mid-flap Approach	190 reducing to 170 / 160†	170 / 160† reducing to 160 / 150†	160 / 150†	120 †† (Stores 125 ††)
Flapless Approach	190 reducing to 170 / 160†	170 / 160† reducing to 160 / 150†	160 / 150†	135 †† (Stores 140 ††)

† Use the higher speed if AUM is more than 5000 kg

**ANA 11**

†† Add 1 knot per 100 kg of fuel for all configurations

**BEFORE LANDING CHECKS**

1. Speed . . . . . Below 200 knots
2. Airbrake . . . . . IN, MI black
3. Landing gear . . . . . DOWN, button fully in
4. Fuel . . . . . Contents sufficient
5. Calculate threshold speed
6. Flaps . . . . . Set and indicated as required
7. Harness . . . . . Locked and tight
8. Landing gear . . . . . Three greens
9. Brakes . . . . . Check residual pressure below  
10 bars. Supply pressure normal

**Short Final**

1. Configuration . . . . . Gear DOWN, flaps A/R
2. Brakes. . . . . Toes Clear

**AFTER LANDING CHECKS**

1. \*MASS . . . . . LOCK SAFE
2. \*MASS key . . . . . Removed
3. Command ejection  
selector . . . . . Down and Off
4. Pins . . . . . Fit to seat and MDC firing  
handles
5. Pitot heat . . . . . Off
6. Anti-skid switch . . . . . Off
7. Hydraulics . . . . . All pressures normal
8. Flaps . . . . . As required
9. \*Sticktop . . . . . Safe
10. \*\*Gun select switch . . . . . OFF
11. \*Weapon select switch . . . . . OFF
12. \*Pylon switches (2) . . . . . OFF
13. \*WCP/WMP busbar  
indicators . . . . . OFF
14. \*\*MCP coolant . . . . . OFF
15. CWP . . . . . Test
16. Landing light . . . . . As required
17. Anti-collision lights . . . . . As required
18. Radio not in use . . . . . OFF
19. Cabin air temperature  
switch . . . . . Minimum 6 o'clock position
20. IFF/SSR . . . . . OFF
21. ILS . . . . . OFF
22. Tacan . . . . . OFF

**Rear Cockpit (if appropriate)**

1. \*Override weapons switch . . . . . NORMAL
2. \*Sticktop . . . . . Safe

**SHUTDOWN CHECKS - FRONT COCKPIT**

**Note:** Before shutting down the engine allow 30 seconds at Idle for RPM and TGT to stabilize. Do not switch fuel pump off until just before setting throttle to HP Off

1. Parking brake . . . . . On
2. Engine start switch . . . . . OFF
3. Fuel pump switch . . . . . Off
4. Throttle . . . . . HP Off
5. Oxygen mask . . . . . Donned
6. Visors . . . . . Down
7. Canopy . . . . . Open
8. Ejection seat . . . . . Unstrap
9. Shoulder straps . . . . . Stow on headbox

**Note:** When unstrapped, return QRF to locked position

10. LP Fuel cock . . . . . Off
11. Radio . . . . . OFF
12. \*ISIS . . . . . OFF
13. External lights . . . . . Off
14. Cockpit lighting . . . . . OFF
15. Parking brake . . . . . As required

**Note:** With the parking brake left on system pressure will dissipate with time

16. Hydraulics . . . . . Control response and feel normal on HYD 2 system
17. Battery switches . . . . . OFF
18. PEC dust cover . . . . . Fit to seat
19. Oxygen selector . . . . . OFF
20. Oxygen regulator . . . . . 100%
21. MDC firing unit safety pin . . . . . Fit
22. Seat firing handle safety pin . . . . . Confirm fitted through housing & firing handle

**SHUTDOWN CHECKS - REAR COCKPIT**

**Note:** The engine is to be shutdown prior to commencing

1. Ejection seat . . . . . Unstrap
2. Shoulder straps . . . . . Stow on headbox

**Note:** When unstrapped, return QRF to locked position

3. Engine start switch . . . . . OFF
4. Anti-skid switch . . . . . Off
5. Cockpit lighting . . . . . OFF
6. PEC dust cover . . . . . Fitted
7. Oxygen selector . . . . . OFF
8. Oxygen regulator . . . . . 100%
9. MDC firing unit safety pin . . . . . Fit
10. Seat firing handle safety pin . . . . . Confirm fitted through housing & firing handle

Before leaving the aircraft confirm the aircraft is **Safe for Parking**



**DI 0 - PLANNING DATA**

FL	Normal Climb - 1200kg			Light Climb - 500kg		
	Distance	Time	Fuel	Distance	Time	Fuel
100	10	1:36	40	8	1:24	34
200	26	3:48	86	22	3:12	73
250	34	5:00	106	29	4:12	89
300	45	6:24	126	37	5:24	106
350	59	8:24	149	48	6:54	124
400	83	11:54	182	65	9:24	147

Climb data is based on a climb from sea level, at climb speed, ISA and still wind. Tables do not include 60kg for SUTTO.

Time mm:ss.

**Cruise Data**

ML Cruise - (0.75M, 5000kgs)		
FL	Kg / min	Kg / Anm
100	18.5	2.32
200	12.2	1.59
250	10	1.32
300	8.4	1.14
350	6.7	0.93
400	6.0	0.84

LL Cruise	
300 kts	10.5 kg/min
360 kts	13.7 kg/min
420 kts	18.9 kg/min
480 kts	25.9 kg/min

**Descent Data**

FL	Instrument			Range		
	Distance	Time	Fuel	Distance	Time	Fuel
450	41	6:36	30	83	13:00	32
400	34	5:24	27	69	11:00	28
350	28	4:30	24	57	9:06	24
300	23	3:48	21	47	7:42	21
250	19	3:12	19	39	6:30	18
200	15	2:36	16	31	5:18	15
100	7	1:18	9	14	2:36	8
Tactical			Nav			
450	17	2:24	6	58	7:48	22
400	14	1:00	5	46	6:18	18
350	11	1:30	4	37	5:00	15
300	9	1:15	4	30	4:12	13
250	3	1:06	7	25	3:30	11
200	6	0:54	3	22	3:00	10
100	3	0:30	1	10	1:30	5

**RECOVERY DATA - DI 0**

1. Assume ISA & Still Air.
2. Range and endurance figures are to 200 kg at chosen altitude.
3. Range includes climb and cruise but not descent distance
4. M = Maintain altitude, † = Fuel remaining after engine start, taxi, take-off, accelerate to climb speed and climb

<b>DI 0 - Sea Level</b>						
<b>Fuel kg</b>	†1212	800	600	500	400	300
<b>Maintain Sea Level (95% R: 280 to 295kts)</b>						
<b>R: 230</b>	528 nm	317 nm	213 nm	160 nm	107 nm	54 nm
<b>E: 155-170</b>	168 min	103 min	70 min	53 min	36 min	18 min
<b>ANM/100kg</b>	51	52	53	53	53	53
<b>kg/nm</b>	1.96	1.92	1.89	1.89	1.89	1.89
<b>Climb to Optimum FL (350/0.73)</b>						
<b>FL</b>	400	400	400	350/400	350	50/100
<b>Mach</b>	0.7	0.7	0.67	0.63/0.66	0.63	0.36/0.38
<b>Range</b>	1076 nm	618 nm	382 nm	261 nm	144 nm	55 nm

Recovery  
DI 0

<b>DI 0 - FL100</b>						
<b>Fuel kg</b>	†1172	800	600	500	400	300
<b>Maintain FL100 (95% R: 275 to 295kts)</b>						
<b>R: 230</b>	649 nm	407 nm	274 nm	206 nm	138 nm	69 nm
<b>E: 155-170</b>	183 min	117 min	79min	60 min	40 min	20 min
<b>ANM/100kg</b>	64	66	67	68	68	69
<b>kg/nm</b>	1.56	1.52	1.49	1.47	1.47	1.45
<b>Climb to Optimum FL (350/0.73)</b>						
<b>FL</b>	400	400	400	400	350	150
<b>Mach</b>	0.7	0.7	0.67	0.66	0.63	0.43
<b>Range</b>	1066 nm	651 nm	416 nm	294 nm	175 nm	70 nm

<b>DI 0 - FL200</b>						
<b>Fuel kg</b>	†1126	800	600	500	400	300
<b>Maintain FL200 (95% R: 255 to 290kts)</b>						
<b>R: 210</b>	787 nm	517 nm	348 nm	262 nm	175 nm	88 nm
<b>E: 155-170</b>	188 min	127 min	86 min	65 min	44 min	22 min
<b>ANM/100kg</b>	81	84	85	86	87	88
<b>kg/nm</b>	1.24	1.19	1.18	1.16	1.15	1.14
<b>Climb to Optimum FL (350/0.73)</b>						
<b>FL</b>	400	400	400	400	350	250
<b>Mach</b>	0.7	0.7	0.67	0.66	0.63	0.51
<b>Range</b>	1050 nm	686 nm	450 nm	329 nm	207 nm	91 nm

RECOVERY DATA - DI 0 - *continued*

DI 0 - FL300						
Fuel kg	†1086	800	600	500	400	300
Maintain FL300 (95% R: 0.68 to 0.71)						
R: 0.6	934 nm	642 nm	433 nm	326 nm	219 nm	110 nm
E: 160-180	184 min	129 min	88 min	67 min	45 min	23 min
ANM/100kg	100	103	106	107	108	109
kg/nm	1	.97	.94	.93	.93	.92
Climb to Optimum FL (350/0.73)						
FL	400	400	400	400	350/400	350
Mach	0.7	0.7	0.67	0.66	0.63/0.65	0.63
Range	1031 nm	711 nm	476 nm	354 nm	231 nm	111 nm

DI 0 - FL350						
Fuel kg	†1062	800	600	500	400	300
Maintain FL350 (95% R: 0.72 to 0.73)						
R: 0.65	995 nm	705 nm	476 nm	359 nm	241 nm	121 nm
E: 170-185	179 min	129 min	88	67 min	45 min	23 min
ANM/100kg	109	113	116	117	119	120
kg/nm	.92	.88	.86	.85	.84	.83
Climb to Optimum FL (350/0.73)						
FL	400	400	400	400	400	M
Mach	0.7	0.7	0.67	0.66	0.65	0.63
Range	1016 nm	722 nm	487 nm	366 nm	242 nm	121 nm

DI 0 - FL400						
Fuel kg	†1029	800	600	500	400	300
Maintain FL400 (95% R: 0.74 to 0.76)						
R: 0.65-0.7	992 nm	734 nm	499 nm	378 nm	254 nm	128 nm
E: N/A	Descend to FL300 to FL350					
ANM/100kg	110	115	120	122	125	127
kg/nm	.91	.87	.83	.82	.80	.79
Climb to Optimum FL (350/0.73)						
FL	Maintain FL400					
Mach	0.7	0.7	0.67	0.66	0.65	0.65
Range	992 nm	734 nm	499 nm	378 nm	254 nm	128 nm

**RECOVERY DATA - DI 0 - continued**

<b>DI 0 - FL450</b>						
<b>Fuel kg</b>	†939	<b>800</b>	600	500	400	300
<b>Maintain FL450 (95% R: 0.75 to 0.76)</b>						
<b>R: 0.7</b>	899 nm	744 nm	509 nm	387 nm	261 nm	132 nm
<b>E: N/A</b>	<b>Descend to FL300 to FL350</b>					
<b>ANM/100kg</b>	109	114	121	124	127	131
<b>kg/nm</b>	.92	.88	.87	.81	.79	.76
<b>Climb to Optimum FL (350/0.73)</b>						
<b>FL</b>	<b>Maintain FL450</b>					
<b>Mach</b>	0.7	0.7	0.7	0.7	0.7	0.7
<b>Range</b>	899 nm	744 nm	509 nm	387 nm	261 nm	132 nm

**Endurance - Clean**

Sea level	15.5 minutes/100 kg at 700 kg remaining
20,000 ft	18.5 minutes/100 kg at 700 kg remaining
30,000 to 35,000 ft	18.5 minutes/100 kg at 700 kg remaining
From low level with less than 600kg do not climb above 10,000 ft	

**DI 5 - PLANNING DATA**

FL	Normal Climb - 1200kg			Light Climb - 500kg		
	Distance	Time	Fuel	Distance	Time	Fuel
100	9	1:42	42	8	1:30	36
200	23	4:00	89	20	3:24	75
250	32	5:00	109	26	4:24	91
300	42	7:00	131	35	5:48	109
350	58	9:00	158	47	6:36	129
400	89	14:00	202	66	9:42	156

Climb data is based on a climb from sea level, at climb speed, ISA and still wind. Tables do not include 60Kg for SUTTO, Time mm:ss.

**Cruise Data**

ML Cruise - (0.70M, 5000kgs)		
FL	Kg / min	Kg / Anm
100	17.2	2.31
200	11.3	1.58
250	9.3	1.32
300	7.9	1.15
350	7.1	1.06
400	7.0	1.05

LL Cruise	
300 kts	11.4 kg/min
360 kts	15.1 kg/min
420 kts	20.8 kg/min
480 kts	28.5 kg/min

**Descent Data**

FL	Instrument			Range		
	Distance	Time	Fuel	Distance	Time	Fuel
400	33	5:15	26	63	10:00	26
350	27	4:24	23	52	8:12	22
300	22	3:42	21	43	7:00	19
250	18	3:06	18	36	6:00	17
200	15	2:36	16	29	4:54	14
100	7	1:18	9	13	2:24	7
	Tactical			Nav		
400	16	2:12	6	42	5:42	18
350	12	1:42	5	34	4:42	14
300	10	1:24	4	27	3:54	12
250	8	1:06	3	23	3:12	10
200	6	0:54	3	19	2:42	8
100	3	0:30	1	9	1:24	4

**RECOVERY DATA - DI 5**

1. Assume ISA & Still Air.
2. Range and endurance figures are to 200 kg at chosen altitude.
3. Range includes climb but not descent distance
4. M = Maintain altitude, † = Fuel remaining after engine start, taxi, take-off, accelerate to climb speed and climb

<b>DI 5 - Sea Level</b>						
<b>Fuel kg</b>	†1212	800	600	500	400	300
<b>Maintain Sea Level (95% R: 270 to 290kts)</b>						
<b>R: 230</b>	490 nm	294 nm	197 nm	149 nm	99 nm	50 nm
<b>E: 155-170</b>	156 min	96 min	65 min	49 min	33 min	17 min
<b>ANM/100kg</b>	47	48	49	49	49	50
<b>kg/nm</b>	2.13	2.08	2.04	2.04	2.04	2.00
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	300	M/50
<b>Mach</b>	0.64	0.64	0.63	0.63	0.63	0.35
<b>Range</b>	941 nm	540 nm	337 nm	233 nm	128 nm	50 nm

Recovery  
DI 5

<b>DI 5 - FL100</b>						
<b>Fuel kg</b>	†1170	800	600	500	400	300
<b>Maintain FL100 (95% R: 255 to 290kts)</b>						
<b>R: 210</b>	594 nm	374 nm	251 nm	189 nm	127 nm	64 nm
<b>E: 155-170</b>	171 min	116 min	79min	60 min	40 min	20 min
<b>ANM/100kg</b>	59	61	62	62	63	63
<b>kg/nm</b>	1.69	1.64	1.61	1.61	1.59	1.59
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	350	M/150
<b>Mach</b>	0.64	0.64	0.63	0.63	0.63	0.37/0.43
<b>Range</b>	917 nm	601 nm	397 nm	292 nm	186 nm	82 nm

<b>DI 5 - FL200</b>						
<b>Fuel kg</b>	†1123	800	600	500	400	300
<b>Maintain FL200 (95% R: 260 to 280kts)</b>						
<b>R: 230</b>	710 nm	469 nm	316 nm	238 nm	159 nm	80 nm
<b>E: 155-175</b>	171 min	116 min	79 min	60 min	40 min	20 min
<b>ANM/100kg</b>	74	76	77	78	79	80
<b>kg/nm</b>	1.35	1.32	1.30	1.28	1.27	1.25
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	350	250/300
<b>Mach</b>	0.64	0.64	0.63	0.63	0.63	0.53/0.58
<b>Range</b>	917 nm	601 nm	397 nm	292 nm	186 nm	82 nm

**RECOVERY DATA - DI 5 - continued**

<b>DI 5 - FL300</b>						
<b>Fuel kg</b>	†1081	<b>800</b>	600	500	400	300
<b>Maintain FL300 (95% R: 0.67 to 0.7)</b>						
<b>R: 0.6</b>	841 nm	581 nm	391 nm	295 nm	198 nm	99 nm
<b>E: 165-185</b>	165 min	116 min	79 min	60 min	40 min	20 min
<b>ANM/100kg</b>	91	94	96	97	98	99
<b>kg/nm</b>	1.10	1.06	1.04	1.03	1.02	1.01
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	350	M/350
<b>Mach</b>	0.64	0.64	0.63	0.63	0.63	0.58/0.63
<b>Range</b>	898 nm	622 nm	418 nm	313 nm	207 nm	99 nm

<b>DI 5 - FL350</b>						
<b>Fuel kg</b>	†1054	<b>800</b>	600	500	400	300
<b>Maintain FL350 (95% R: 0.7 to 0.72)</b>						
<b>R: 0.63</b>	883 nm	632 nm	428 nm	323 nm	217 nm	109 nm
<b>E: N/A</b>	<b>Descend to FL200 to FL350</b>					
<b>ANM/100kg</b>	96	101	104	106	107	108
<b>kg/nm</b>	1.04	.99	0.96	.94	.93	.93
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	<b>Maintain FL350</b>					
<b>Mach</b>	0.64	0.64	0.63	0.63	0.63	0.63
<b>Range</b>	883 nm	632 nm	428 nm	323 nm	217 nm	109 nm

<b>DI 5 - FL400</b>						
<b>Fuel kg</b>	†1009	<b>800</b>	600	500	400	300
<b>Maintain FL400 (95% R: 0.73 to 0.75)</b>						
<b>R: 0.67</b>	848 nm	642 nm	437 nm	331 nm	223 nm	113 nm
<b>E: N/A</b>	<b>Descend to FL200 to FL300</b>					
<b>ANM/100kg</b>	97	101	105	107	109	111
<b>kg/nm</b>	1.03	1	.95	.93	.92	.90
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	<b>Maintain FL400</b>					
<b>Mach</b>	0.7	0.69	0.68	0.67	0.67	0.66
<b>Range</b>	848 nm	642 nm	437 nm	331 nm	223 nm	113 nm

**Endurance - DI 5**

Sea level                      15.5 minutes/100 kg at 700 kg remaining  
 20,000 ft                      18.5 minutes/100 kg at 700 kg remaining  
 30,000 to 35,000 ft        18.5 minutes/100 kg at 700 kg remaining  
 From low level with less than 600kg do not climb above 10,000 ft

**DI 10 - PLANNING DATA**

FL	Normal Climb - 1200kg			Light Climb - 500kg		
	Distance	Time	Fuel	Distance	Time	Fuel
100	10	1:54	47	8	1:36	40
200	26	4:30	100	22	3:48	54
250	36	6:00	123	30	5:00	103
300	49	8:00	149	40	6:36	124
350	68	11:00	182	54	8:48	148
400	114	18:30	248	79	12:42	183

Climb data is based on a climb from sea level, at climb speed, ISA and still wind. Tables do not include 60 Kg for SUTTO, Time mm:ss.

**Cruise Data**

ML Cruise - (0.70M, 5000kgs)		
FL	Kg / min	Kg / Anm
100	15.8	2.28
200	10.6	1.59
250	8.8	1.35
300	7.6	1.19
350	6.1	0.98
400	5.8	0.93

LL Cruise	
300 kts	12.4 kg/min
360 kts	16.6 kg/min
420 kts	22.6 kg/min
480 kts	31.1 kg/min

Recovery  
DI 10

**Descent Data**

FL	Instrument			Range		
	Distance	Time	Fuel	Distance	Time	Fuel
400	32	5:12	25	59	9:15	24
350	26	4:18	22	48	7:42	21
300	21	3:36	20	40	6:30	18
250	18	3:00	18	33	5:36	16
200	14	2:30	15	<b>26</b>	4:30	15
100	7	1:18	8	12	2:12	6
Tactical				Nav		
400	15	2:06	15	39	5:18	16
350	12	1:42	12	31	4:18	13
300	9	1:18	9	25	3:36	11
250	7	1:06	7	21	3:00	9
200	6	0:54	6	18	2:30	7
100	3	0:30	3	8	1:18	4



**RECOVERY DATA - DI 10**

1. Assume ISA & Still Air.
2. Range and endurance figures are to 200 kg at chosen altitude.
3. Range includes climb but not descent distance
4. M = Maintain altitude, † = Fuel remaining after engine start, taxi, take-off, accelerate to climb speed and climb

<b>DI 10 - Sea Level</b>						
<b>Fuel kg</b>	†1212	<b>800</b>	600	500	400	300
<b>Maintain Sea Level (95% R: 260 to 280kts)</b>						
<b>R: 220</b>	460 nm	276 nm	186 nm	140 nm	93 nm	47 nm
<b>E: 155-175</b>	148 min	91 min	62 min	47 min	31 min	16 min
<b>ANM/100kg</b>	44	45	46	46	46	47
<b>kg/nm</b>	2.27	2.22	2.17	2.17	2.17	2.13
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	250/300	M/50
<b>Mach</b>	0.63	0.63	0.62	0.62	0.51/0.57	0.33/0.35
<b>Range</b>	849 nm	485 nm	300 nm	205 nm	112 nm	47 nm

<b>DI 10 - FL100</b>						
<b>Fuel kg</b>	†1165	<b>800</b>	600	500	400	300
<b>Maintain FL100 (95% R: 250 to 280kts)</b>						
<b>R: 210</b>	552 nm	349 nm	235 nm	177 nm	118 nm	60 nm
<b>E: 155-175</b>	157 min	101 min	69 min	52 min	35 min	18 min
<b>ANM/100kg</b>	55	56	57	58	59	59
<b>kg/nm</b>	1.82	1.79	1.75	1.72	1.69	1.69
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	300	M
<b>Mach</b>	0.63	0.63	0.62	0.62	0.57	0.36
<b>Range</b>	839 nm	515 nm	329 nm	265 nm	139 nm	60 nm

<b>DI 10 - FL200</b>						
<b>Fuel kg</b>	†1112	<b>800</b>	600	500	400	300
<b>Maintain FL200 (95% R: 250 to 280kts)</b>						
<b>R: 210</b>	648 nm	433 nm	292 nm	220 nm	148 nm	74 nm
<b>E: 160-175</b>	158 min	108 min	74 min	56 min	38 min	19 min
<b>ANM/100kg</b>	68	70	71	72	73	74
<b>kg/nm</b>	1.47	1.43	1.41	1.39	1.37	1.35
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	350	250
<b>Mach</b>	0.63	0.63	0.62	0.62	0.62	0.51
<b>Range</b>	822 nm	544 nm	359 nm	264 nm	167 nm	75 nm

**RECOVERY DATA - DI 10 - continued**

<b>DI 10 - FL300</b>						
<b>Fuel kg</b>	†1062	800	600	500	400	300
<b>Maintain FL300 (95% R: 0.66 to 0.68)</b>						
<b>R: 0.58</b>	761 nm	537 nm	362 nm	273 nm	183 nm	92 nm
<b>E: 165-185</b>	151 min	108 min	73 min	55 min	37 min	19 min
<b>ANM/100kg</b>	84	87	88	89	90	91
<b>kg/nm</b>	1.19	1.15	1.14	1.12	1.11	1.09
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	350	M
<b>Mach</b>	0.63	0.63	0.62	0.62	0.62	0.57
<b>Range</b>	800 nm	565 nm	380 nm	285 nm	188 nm	92 nm

<b>DI 10 - FL350</b>						
<b>Fuel kg</b>	†1029	800	600	500	400	300
<b>Maintain FL350 (95% R: 0.68 to 0.71)</b>						
<b>R: 0.62</b>	781 nm	575 nm	390 nm	294 nm	198 nm	100 nm
<b>E: N/A</b>	<b>Descend to FL200 to FL300</b>					
<b>ANM/100kg</b>	88	91	94	96	97	99
<b>kg/nm</b>	1.14	1.09	1.06	1.04	1.03	1.01
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	Maintain FL350					
<b>Mach</b>	0.63	0.63	0.62	0.62	0.62	0.61
<b>Range</b>	781 nm	575 nm	390 nm	294 nm	198 nm	100 nm

<b>DI 10 - FL400</b>						
<b>Fuel kg</b>	†962	800	600	500	400	300
<b>Maintain FL400 (95% R: 0.72 to 0.74)</b>						
<b>R: 0.66</b>	726 nm	581 nm	396 nm	300 nm	202 nm	102 nm
<b>E: N/A</b>	<b>Descend to FL200 to FL300</b>					
<b>ANM/100kg</b>	88	91	95	97	99	-
<b>kg/nm</b>	1.14	1.09	1.05	1.03	1.01	
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	Maintain FL400					
<b>Mach</b>	0.68	0.67	0.66	0.65	0.65	0.64
<b>Range</b>	726 nm	581 nm	396 nm	300 nm	202 nm	102 nm

**Endurance - DI 10**

Sea level	14.7 minutes/100 kg at 700 kg remaining
20,000 ft	17.3 minutes/100 kg at 700 kg remaining
30,000 to 35,000 ft	17.2 minutes/100 kg at 700 kg remaining
From low level with less than 600kg	do not climb above 10,000 ft

**DI 15 - PLANNING DATA**

FL	Normal Climb - 1200kg			Light Climb - 500kg		
	Distance	Time	Fuel	Distance	Time	Fuel
100	11	2:06	52	10	1:48	45
200	31	5:18	115	26	4:24	97
250	43	7:06	144	36	5:54	121
300	59	9:36	178	48	7:54	147
350	85	13:42	222	66	10:48	178
400	180	29:00	354	104	16:48	231

Climb data is based on a climb from sea level, at climb speed, ISA and still wind. Tables do not include 60 Kg for SUTTO, Time mm:ss.

**Cruise Data**

ML Cruise - (0.65M, 5000kgs)		
FL	Kg / min	Kg / Anm
100	17.1	2.47
200	11.4	1.71
250	9.4	1.44
300	8.3	1.30
350	7.6	1.22
400	7.6	1.22

LL Cruise	
300 kts	13.3 kg/min
360 kts	18.1 kg/min
420 kts	24.5 kg/min
480 kts	34.0 kg/min

**Descent Data**

FL	Instrument			Range		
	Distance	Time	Fuel	Distance	Time	Fuel
400	31	5:00	25	54	8:30	22
350	25	4:12	22	44	7:06	19
300	21	3:30	20	36	6:00	17
250	18	3:00	18	30	5:06	15
200	14	2:30	15	24	4:12	12
100	7	1:18	8	11	2:00	6
Tactical			Nav			
400	15	2:06	5	36	4:54	14
350	12	1:42	4	29	4:00	12
300	9	1:18	4	24	3:24	10
250	7	1:06	3	20	2:54	9
200	6	0:54	3	18	2:24	7
100	3	0:30	1	7	1:12	4

**RECOVERY DATA - DI 15**

1. Assume ISA & Still Air.
2. Range and endurance figures are to 200 kg at chosen altitude.
3. Range includes climb but not descent distance
4. M = Maintain altitude, † = Fuel remaining after engine start, taxi, take-off, accelerate to climb speed and climb

<b>DI 15 - Sea Level</b>						
<b>Fuel kg</b>	†1212	800	600	500	400	300
<b>Maintain Sea Level (95% R: 255 to 275kts)</b>						
<b>R: 220</b>	430 nm	259 nm	174 nm	131 nm	88 nm	44 nm
<b>E: 160-180</b>	139min	85 min	58 min	44 min	29 min	15 min
<b>ANM/100kg</b>	41	42	43	43	43	44
<b>kg/nm</b>	2.44	2.38	2.33	2.33	2.33	2.27
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	300	150	M
<b>Mach</b>	0.63	0.62	0.61	0.57	0.41	0.32
<b>Range</b>	756 nm	428 nm	261 nm	178 nm	98 nm	44 nm

<b>DI 15 - FL100</b>						
<b>Fuel kg</b>	†1159	800	600	500	400	300
<b>Maintain FL100 (95% R: 245 to 270kts)</b>						
<b>R: 210</b>	5102 nm	324 nm	218 nm	165 nm	110 nm	55 nm
<b>E: 160-180</b>	145 min	94 min	64 min	48 min	33 min	16 min
<b>ANM/100kg</b>	51	52	53	54	55	55
<b>kg/nm</b>	1.96	1.92	1.89	1.85	1.82	1.82
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	300/350	300	M
<b>Mach</b>	0.63	0.62	0.61	0.57/0.61	0.56	0.36
<b>Range</b>	744 nm	457 nm	290 nm	204 nm	122 nm	55 nm

<b>DI 15 - FL200</b>						
<b>Fuel kg</b>	†1097	800	600	500	400	300
<b>Maintain FL200 (95% R: 250 to 280kts)</b>						
<b>R: 215</b>	588 nm	399 nm	269 nm	203 nm	136 nm	68 nm
<b>E: 160-180</b>	143 min	99 min	68 min	51 min	35 min	18 min
<b>ANM/100kg</b>	63	64	66	66	67	68
<b>kg/nm</b>	1.59	1.56	1.52	1.52	1.49	1.47
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	300	M/250
<b>Mach</b>	0.63	0.62	0.61	0.61	0.56	0.44/0.51
<b>Range</b>	725 nm	486 nm	320 nm	234 nm	149 nm	68 nm

Recovery  
DI 15

**RECOVERY DATA - DI 15 - continued**

<b>DI 15 - FL300</b>						
<b>Fuel kg</b>	†1034	<b>800</b>	600	500	400	300
<b>Maintain FL300 (95% R: 0.65 to 0.67)</b>						
<b>R: 0.57</b>	676 nm	493 nm	333 nm	251 nm	168 nm	85 nm
<b>E: 170-190</b>	133 min	99 min	67 min	51 min	34 min	17 min
<b>ANM/100kg</b>	77	79	81	82	83	84
<b>kg/nm</b>	1.30	1.27	1.24	1.22	1.20	1.19
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	350	350	350	350	M/350	M
<b>Mach</b>	0.63	0.62	0.61	0.61	0.56/0.61	0.56
<b>Range</b>	696 nm	507 nm	341 nm	255 nm	168 nm	85 nm

<b>DI 15 - FL350</b>						
<b>Fuel kg</b>	†989	<b>800</b>	600	500	400	300
<b>Maintain FL350 (95% R: 0.68 to 0.71)</b>						
<b>R: 0.61</b>	670 nm	517 nm	350 nm	265 nm	178 nm	90 nm
<b>E: N/A</b>	<b>Descend to FL250 to FL300</b>					
<b>ANM/100kg</b>	80	82	85	86	88	89
<b>kg/nm</b>	1.25	1.22	1/18	1.16	1.14	1.12
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	<b>Maintain FL350</b>					
<b>Mach</b>	0.63	0.61	0.61	0.61	0.61	0.60
<b>Range</b>	670 nm	517 nm	350 nm	265 nm	178 nm	90 nm

<b>DI 15 - FL400</b>						
<b>Fuel kg</b>	†854	<b>800</b>	600	500	400	300
<b>Maintain FL400 (95% R: 0.72 to 0.73)</b>						
<b>R: 0.64</b>	561 nm	436 nm	352 nm	267 nm	180 nm	91 nm
<b>E: N/A</b>	<b>Descend to FL200 to FL300</b>					
<b>ANM/100kg</b>	80	82	84	86	88	90
<b>kg/nm</b>	1.25	1.22	1.19	1.16	1.14	1.11
<b>Climb to Optimum FL (300/0.65)</b>						
<b>FL</b>	<b>Maintain FL400</b>					
<b>Mach</b>	0.66	0.65	0.64	0.64	0.64	0.63
<b>Range</b>	561 nm	436 nm	352 nm	267 nm	180 nm	91 nm

**Endurance - DI 15**

Sea level	13.7 minutes/100 kg at 700 kg remaining
20,000 ft	15.8 minutes/100 kg at 700 kg remaining
30,000 to 35,000 ft	15.8 minutes/100 kg at 700 kg remaining
From low level with less than 600kg	do not climb above 10,000 ft

## LIMITATIONS

**NOTE:** The following limitations are taken from the MOD (AFD) Release document, which should be consulted for the latest release standard

### Airframe

#### BASIC AIRCRAFT WITH OR WITHOUT GUNPOD

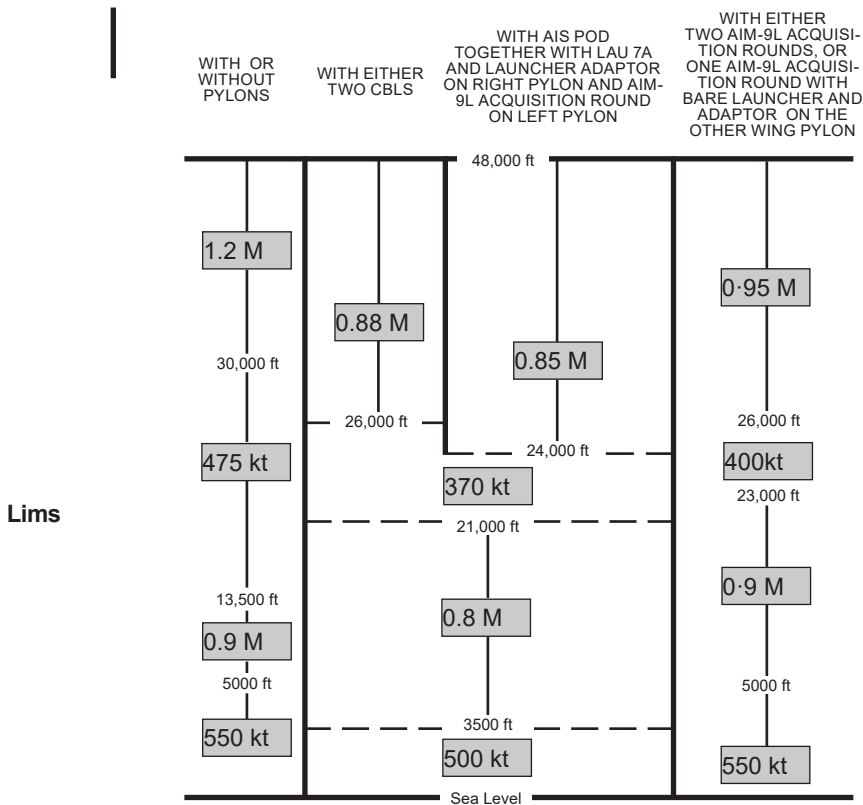
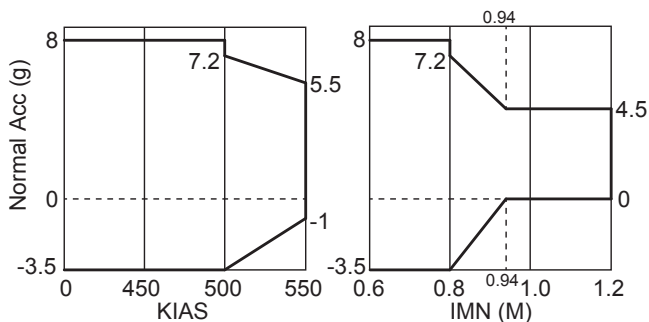


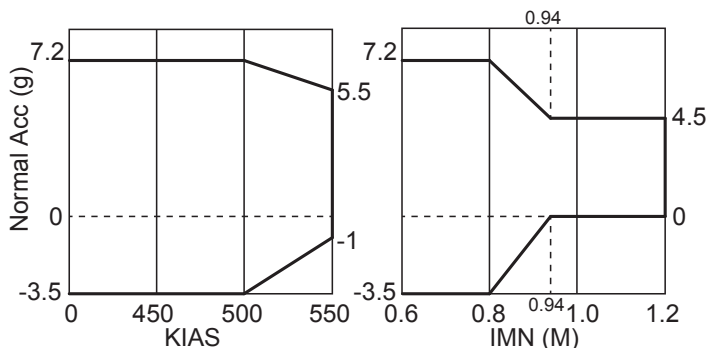
Fig 1 Airspeed, Mach Number and Altitude Limits

Landing gear (locked down or cycling) 200 knots maximum  
 Flaps (extended or cycling) 200 knots maximum

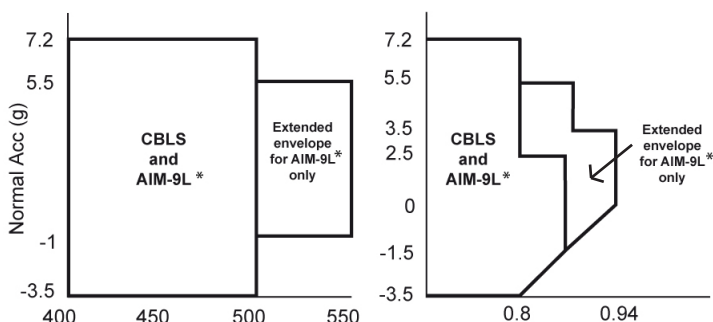
**LIMITATIONS - continued**



**BASIC AIRCRAFT NORMAL ACCELERATION LIMITS**



**GUNPOD AND/OR BARE PYLON NORMAL ACCELERATION LIMITS**



\*AIM-9L ACQUISITION ROUND, AIS POD or CBLS NORMAL ACCELERATION LIMITS

*Fig 2 Normal Acceleration Limits (Flaps Up)*

**LIMITATIONS - continued****Normal Acceleration with Airbrake Extended**

Above 0.9M . . . . . +1.0g nominal  
 Below 0.9M. . . . . +7.2g (subject to overall limits  
 of Fig 2)

**Normal Acceleration with Flaps Extended**

Up to 200 knots . . . . . Zero to +2.5g

**Zero and Negative g Manoeuvres**

Flight at zero or negative g conditions is not to exceed 30 seconds. A minimum interval of 10 seconds must be allowed between successive periods of zero or negative normal acceleration. The interval is to be allowed from either the restoration of positive g or the extinguishing of the CWP FUEL and OIL captions, whichever is the latter

**Banner Target on Tow**

Maximum speed  
 (except in emergency) . . . . . 250 knots

Manoeuvres:

- Angle of bank . . . . . 45° maximum
- Acceleration . . . . . +1.5g maximum  
 . . . . . +0.5g minimum
- Gentle rolling manoeuvres only

**Weight**

Maximum for take-off . . . . . 5700 kg

Maximum normal for landing . . 5000 kg

For braked landing above 4500 kg, the wheelbrake restrictions must be observed

**Arresting Gear Trampling Speeds**

Cable Type \ Condition	Single or Multiple Aircraft		Single Aircraft
	Tensioned or unsupported	Tied down Bowspring High/Low	Supported †
RHAG	Any speed	Any speed	Any speed
PUAG	Any speed	-	Any speed



† Succeeding aircraft must not trample these cables until cable bounce has ceased



**LIMITATIONS - continued**

Standby Pressure Instrument Allowance +100 feet

**Crosswind**

Take-off and landing. . . . . 30 knots

Take-off and landing with asymmetric stores on downwind wing:

AIM-9L Acquisition Round. . . . . 15 knots

**Engine**

Power Condition	RPM (%)	TGT (°C)	Time Limit
During Starting (Max)		570 (Note 3)	Unrestricted
During Re-lighting (Max)		585 (Note3)	Unrestricted
Idle (Nominal) (Bleed Valve Closed)	55.0 at ISA (Note 1)	450	Unrestricted
Maximum Continuous	99.3	615	Unrestricted
Maximum Power	104.0	665 (Note 2)	30 minutes per flight
Transient	-	685	20 sec per transient

**NOTE 1:** This is a nominal figure and varies slightly depending upon loading, air off-take and ambient conditions

**NOTE 2:** The TGT limiter is set to 660 ±5°C

**NOTE 3:** Under transient conditions the starting and relighting max TGTs may be exceeded by up to 20°C for 10 seconds

**Fuel**

NATO Code	UK Desig	UK Specification	US Desig
APPROVED FUELS			
F-34	Avtur/FSII	91-87 Excluding Annex C	JP - 8
F-40	Avtag/FSII	91-88 Issue 4	JP - 4
F-44	Avcat/FSII	91-86 Issue 6	JP - 5
ALTERNATIVE FUELS			
F-35	Avtur	91-91 Excluding Annex D	JET A-1
F-24	Avtur/FSII	91-91 Excluding Annex D	JET A with Additives
	Avtur		JET A
			JET B

**NOTE:** For a full list of fuel limitations refer to the RTS

**Oil**

The following engine oil is approved: OX27, NATO Code 0-156



**Weapons External Checks - *continued*****\*\*AIM-9L Acquisition Round**

Pylon ERU . . . . .	Unarmed (green)
Pylon ERU safety pins . . . . .	Remove
Missile . . . . .	Secure, clean, undamaged
1. Nose protective cover . . . . .	Remove, check head clean, replace
2. GGG exhaust . . . . .	No carbon
3. Umbilical cord . . . . .	Connected
4. Detent hold-down pin . . . . .	Fitted, secure
5. LAU 7A detent wrench safety pin. . . . .	Removed
Coolant. . . . .	Cover open, contents sufficient, cover closed

**\*\*AIS Pod**

Pylon ERU . . . . .	Unarmed (green)
Pylon ERU safety pins . . . . .	Remove
Pod . . . . .	Secure, clean, undamaged
1. Umbilical cord . . . . .	Connected
2. Detent hold-down pin . . . . .	Fitted, secure
3. LAU 7A detent wrench safety pin. . . . .	Removed

**After Flight****\*\*AIM-9L Acquisition Round:**

Nose protective cover. . . . .	Fitted
Pylon ERU safety pins . . . . .	Fitted

**\*\*AIS Pod**

Pylon ERU safety pins . . . . .	Fitted
---------------------------------	--------

## HAVEQUICK II PROCEDURES

Power up post-Mod 1015 select:

MAIN, MANUAL

Frequency display to 220.000

Preset channel 20, PRESET, check single beep

Open access cover

Press PRESET button, check single beep is heard

Close access cover

### HQ II Training Frequency (FMT) Load

Manual/Preset . . . . . PRESET

Channel Selector . . . . . Chan 20 (Beep)

Frequency Selectors . . . . . 220.075

Preset Button (Red) . . . . . Press and release (Beep)

Manual/Preset . . . . . MANUAL

Channel Selector . . . . . Chan 20

Frequency Selectors . . . . . Enter first training frequency

Tone Button . . . . . Press and release (Beep)

Repeat last 3 steps with decreasing channels until all 16 frequencies loaded (Chan 5 contains last frequency).

### NATO Training Frequencies (FMT)

FMT	FMT 3	FMT 1	FMT 2	FMT 4
<b>Country</b>	<b>UK,GE, DE,SL, RO,BU</b>	<b>NO,FR, PO,GR, ES,LA,LI</b>	<b>IT,SP,BE, NL, LU,TU</b>	<b>CZ, HU, POL</b>
<b>20</b>	<b>252.725</b>	261.050	252.925	252.100
<b>19</b>	<b>374.125</b>	379.325	374.425	373.800
<b>18</b>	<b>265.875</b>	269.350	264.550	257.500
<b>17</b>	<b>315.875</b>	316.550	308.550	310.000
<b>16</b>	<b>284.950</b>	291.250	283.875	280.325
<b>15</b>	<b>357.150</b>	359.350	344.925	355.675
<b>14</b>	<b>342.575</b>	338.950	337.025	344.525
<b>13</b>	<b>363.275</b>	373.875	357.325	363.700
<b>12</b>	<b>387.850</b>	399.450	386.800	399.775
<b>11</b>	<b>379.225</b>	386.550	379.725	378.025
<b>10</b>	<b>292.200</b>	306.500	292.425	291.175
<b>9</b>	<b>298.575</b>	310.900	300.725	298.275
<b>8</b>	<b>248.275</b>	253.000	245.725	246.775
<b>7</b>	<b>336.025</b>	328.400	312.925	335.475
<b>6</b>	<b>240.875</b>	241.450	235.100	240.525
<b>5</b>	<b>270.025</b>	283.850	270.175	267.325

If FMT already loaded, start with **MWOD & OPDAY Load** drill (N-37):

*Intentionally Blank*

**MWOD & OPDAY Load**

Manual/Preset . . . . . PRESET  
 Channel Selector . . . . . Chan 20 (Beep)  
 Frequency Selectors . . . . . 220.025  
 Preset Button (Red) . . . . . Press and release (Beep)  
 Manual/Preset . . . . . MANUAL  
 Channel Selector . . . . . Chan 20  
 Frequency Selectors . . . . . Set first MWOD segment  
 Tone Button . . . . . Press and release (Beep)  
 Repeat last 3 steps with decreasing channel numbers until:  
 Channel Selector . . . . . Chan 14  
 Frequency Selectors . . . . . Date tag 3dd.000 (dd = today's  
 date)  
 Tone Button . . . . . Press and release (Double  
 Beep)  
 Channel Selector . . . . . Chan 1  
 Tone Button . . . . . Press and release (Beep)  
 Manual/Preset . . . . . PRESET  
 Channel Selector . . . . . Chan 20 (Beep)  
 Frequency Selectors . . . . . 220.000  
 Preset Button (Red) . . . . . Press and release (Beep)

**TRAINING WODS**

Odd Numbered days		Even Numbered days	
SEG	Frequency	SEG	Frequency
1	300.050	1	300.025
2	386.600	2	339.425
3	280.375	3	386.600
4	339.425	4	280.375
5	309.500	5	263.325
6	263.325	6	309.500
Date Tag	01	Date Tag	02

**TOD Acquisition**

Frequency Selectors . . . . . Set TOD distribution frequency  
 100 MHz Selector . . . . . Select T then release  
 TOD transmission . . . . . Tone indicates reception

**Arbitrary Clock Start**

100 MHz Selector . . . . . Select T and hold  
 Tone button . . . . . Press and release  
 100 MHz Selector . . . . . Release

### **TOD Send**

Frequency/Net number . . . . . Set as required  
Tone Button . . . . . Press, tone indicates  
transmission

### **Fault Tones**

Constant Tone . . . . . MWOD or TOD absent  
Pulsed Tone . . . . . Invalid net number

### **Net Number Selection**

Manual/Preset . . . . . MANUAL  
Frequency Selectors . . . . . Set A+ net no (eg A00.925)

### **Return to Operate Drill**

If radio becomes unresponsive, carry out **Return to Operate Drill**.

Manual/Preset . . . . . PRESET  
Channel Selector . . . . . Chan 20  
Frequency Selectors . . . . . 220.000  
Preset Button (Red) . . . . . Press and release (Beep)

# AIRCREW LANDAWAY FLIGHT SERVICING SCHEDULE

## IMPORTANT

Hazard and maintenance information is to be complied with throughout the work detailed in this schedule. If any problems or faults are encountered while under-taking any servicing, advice/assistance is to be sought from a qualified Hawk tradesman.

## WARNING

That which if not observed may result in loss of aircraft and/or death or injury

## CAUTION

That which if not observed may result in damage to aircraft or  
its equipment

## NOTE

That which is essential to emphasize

## COCKPIT

### Both Cockpits (B), Front (F), Rear (R)

	(B) Oxygen regulators . . . . .	100%, Off	A/F, T/R
	(B) Alt, AI & HSI. . . . .	Velcro secure and stowed	All
	(R) WMP NORMAL/OVERRIDE switch . . . . .	NORMAL	A/F, T/R
	(B) Stby Inst NORMAL/BATT switch . . . . .	NORMAL	A/F, T/R
	(B) Accelerometer. . . . .	Check. Ensure no overstress (+9/-4.5g) Reset	A/F, T/R
	(B) Oxygen shut-off valve. . . . .	Set OFF	A/F, T/R
<b>Servicing</b>	(R) Canopy torque shaft mounting bracket. . . . .	Check for cracks	All
	(B) Cockpit floor . . . . .	Clean and dry	All
	(B) ISIS combining glass . . . . .	Ensure clean and no damage	All
	(B) Sight head roll test covers .	Ensure secure	A/F, T/R
	(F) Batteries . . . . .	Check voltage (25V min)	B/F
	(F) Target towing release unit . .	Operate (if fitted)	B/F, T/R
	(B) Gunsight heads. . . . .	No discolouration of desiccant	B/F
	(B) Emergency internal lighting. .	Check operation if night flying	B/F, T/R
	(F) MASS . . . . .	Ensure SAFE. Remove and stow key	A/F, T/R



**COCKPIT - continued**

(F) WCP switches . . . . .	Ensure OFF	A/F, T/R
(F) MCP AAM select switch . . . . .	Ensure OFF	A/F, T/R
(F) MCP coolant switch . . . . .	Ensure OFF	A/F, T/R
(B) Engine Start master Switch . . . . .	Ensure OFF	All
(B) Battery Master switches . . . . .	OFF	A/F, T/R
(F) UHF Normal/Battery switch . . . . .	OFF	A/F, T/R
(F) ADR . . . . .	Check status	A/F, T/R
(F) Internal lighting . . . . .	Check operation if night flying	B/F, T/R
(F) External lights . . . . .	Operate	B/F, T/R
(F) Brakes . . . . .	Off with wheels chocked	All

**Note:** If parking brake pressure is required see Annex F

**Ejection Seats (Both Cockpits)**

Ejection seat safety pins . . . . .	Ensure fitted correctly	All
Leg restraint lines . . . . .	check stowed on the instrument panel	All
Ejection seat go forward strap . . . . .	Look for damage	A/F
Parachute harness . . . . .	Extend and stow shoulder straps. Check for damage and contamination. Ensure sticker straps connected	All
Negative g straps . . . . .	Place on seat cushion	All
QRFLocked position . . . . .	A/F, T/R	
Go-forward system . . . . .	Check function	A/F
PSP Check for damage and contamination. Ensure connected to seat harness and lowering line connected to sticker clip		All
Scissor shackle . . . . .	Check safety tie intact	B/F, T/R
Seat top flap safety ties . . . . .	Check intact	All
Emergency oxygen cylinders . . . . .	Pointer in green sector/FULL	All
PEC dust cover . . . . .	Fit	All
Rear seat apron . . . . .	Check secure/stow	All
Seat pan . . . . .	Raise seat fully	A/F, T/R

**Canopy**

Canopy transparencies . . . . .	Check clean and no damage	All
Canopy Seal . . . . .	Check Integrity	All
Front windscreen . . . . .	Check clean and no damage	All

**COCKPIT - continued**

MDC safety pins . . . . .	Check 4 fitted correctly	All
MDC . . . . .	Check for damage and security	A/F, T/R
MDC twin detonator unit (x2) . .	Check for damage	All
External MDC firing handle (x2). . . . .	Ensure flush	All

**EXTERNAL**

**1. Forward Fuselage**

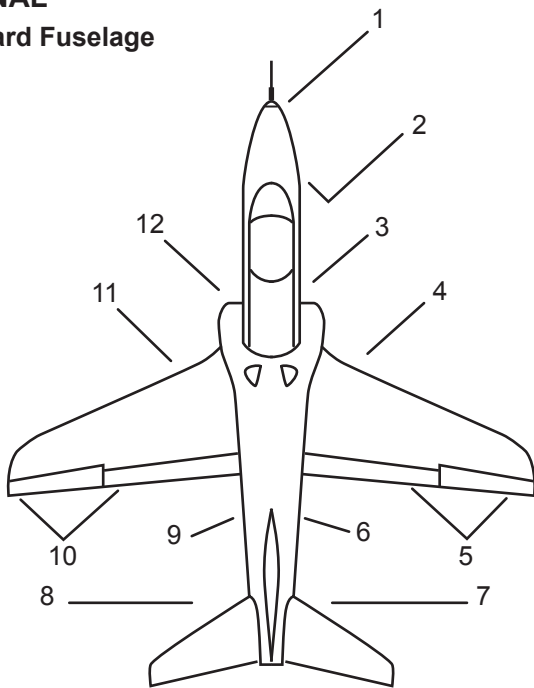


Figure 1: Walk Round Route

**NOTE:** Aircraft external areas include all probes, aerials, intakes, exhaust ducts, pylons and pod tank (if fitted)

Cockpit drain valves . . . . .	Depress plunger to drain	A/F
Low cycle fatigue counter (if fitted) . . . . .	Record readings	A/F
Landing lamp window . . . . .	Look for damage	A/F, T/R
Fatigue meter . . . . .	Record readings	All
Pitot probe . . . . .	Look for damage, blockage and alignment	All

Serv  
cont..

**EXTERNAL - continued****2. Nose Undercarriage**

Nose U/C doors . . . . .	Look for damage	A/F, T/R
Nose U/C door mechanism . . .	Check secure & mechanically locked	A/F, T/R
Nose U/C compartment . . . . .	Look for damage and leaks	All
Nose U/C unit . . . . .	Look for damage and leaks	All
Shock Absorber . . . . .	Extension normal. Black line on fork below red sector on pivot bracket	All
Nosewheel assembly . . . . .	Look for damage Check pressure 8.6 bar (+0.7/ -0 bar) Check witness marks align	B/F A/F, T/R
Oxygen system. . . . .	Replenish A/R	All

**3. Starboard Forward Fuselage**

Engine air intake and LP compressor . . . . .	Look for damage	All
---	-----------------	-----

**4. Starboard Main Landing Gear Bay**

Main undercarriage unit . . . . .	Look for damage and leaks	All
Shock absorber . . . . .	Extension normal Clean inner strut	All A/F
Mainwheel assembly . . . . .	Look for damage & wear. Check hub alignment marks	All
. . . . .	Check tyre pressure 10.5 (+0.7/-0) bar	B/F
Brake unit . . . . .	Look for damage and leaks. Check pad wear, brakes ON	A/F, T/R
Leg fairing doors. . . . .	Look for damage	A/F, T/R
Uplock spigot . . . . .	Clean	B/F, T/R
Wheel brake accumulator . . . .	Check 82 to 90 bar	B/F, T/R
Hyd 1 accumulator . . . . .	Check 72 to 80 bar	B/F, T/R
Undercarriage Compartment . . . . .	Look for damage & leaks	All

**EXTERNAL - continued****4. Starboard Main Landing Gear Bay- continued**

Main U/C retraction jack

indicator pin . . . . .	Ensure protruding	A/F, T/R
Inner door . . . . .	Look for damage	A/F, T/R
Inertia switch . . . . .	Ensure not operated	A/F, T/R
Fire extinguisher . . . . .	Check pin not protruding	All

**5. Starboard Wing**

CBLS no.100 Mk 3 . . . . .	Look for damage	A/F, T/R
LAU-7A launcher . . . . .	Look for damage	A/F, T/R
Launcher adaptor . . . . .	Look for damage	A/F, T/R
AIM-9L Acquisition Round . . . . .	Look for damage	All
Nitrogen receiver . . . . .	Check pressure	All
Flap hinge fairings . . . . .	Look for cracks	A/F, T/R
Flap shroud panels . . . . .	Check for delamination	A/F, T/R

**6. Starboard Centre Fuselage**

Hyd 1 reservoir . . . . .	Check nitrogen pressure (Annex B) Check contents 4.5 to 4.6L	B/F  A/F, B/F
Hyd 1 flying control filter indicator . . . . .	Check flush	A/F, T/R
Hyd 1 return filter indicator . . . . .	Check flush	A/F, T/R
Upper strobe light . . . . .	Free from moisture	A/F, T/R
Radar enhancement pod . . . . .	Look for damage	A/F, T/R
Air producer drain . . . . .	Ensure clear	A/F
Gun blast suppressor . . . . .	Look for damage	A/F, B/F
Air producer oil tank . . . . .	Check contents	A/F, T/R
Dry drain outlets (2) . . . . .	Ensure no leaks	A/F, T/R
Fuel drain outlet . . . . .	Ensure clear	A/F, T/R

**7. Starboard Rear Fuselage**

Lower strobe light . . . . .	Free from contamination and moisture	A/F, T/R
Tailplane deflector plates . . . . .	Look for damage	A/F, T/R
Jet pipe . . . . .	Using a torch, check for damage and cracks to jet pipe, turbine and exhaust cone	A/F, T/R
Airbrake . . . . .	Look for damage	A/F, T/R

Serv  
cont..

**EXTERNAL - continued****7. Starboard Rear Fuselage- continued**

Oil tank . . . . .	Ensure level between '2 Pints' and Full. Replen if required	A/F, T/R
--------------------	---	----------

**8. Port Rear Fuselage**

Towed target release unit . . . . .	If fitted, check for damage	A/F, T/R
Tailplane deflector plates . . . . .	Look for damage	A/F, T/R

**9. Port Centre Fuselage**

Hyd 2 reservoir . . . . .	Check Nitrogen pressure	B/F
. . . . .	Check contents	A/F, B/F
Emergency accumulator . . . . .	Check pressure	A/F, B/F
Hyd 2 flying control filter indicator . . . . .	Check flush	A/F, T/R
Hyd 2 filter indicator . . . . .	Check flush	A/F, T/R

**10. Port Wing**

CBLS no 100 MK 3 . . . . .	Check for damage	A/F, T/R
LAU-7A launcher . . . . .	Look for damage	A/F, T/R
Launcher adaptor . . . . .	Look for damage	A/F, T/R
AIM-9L Acquisition Round . . . . .	Look for damage	All
Nitrogen receiver . . . . .	Check pressure	All
Flap shroud panels . . . . .	Check for delamination	A/F, T/R
Flap hinge fairings . . . . .	Look for cracks	A/F, T/R

**11. Port Main Landing Gear Bay**

Flap Emergency Cylinder . . . . .	Check 207 bar (+/- 3.4 bar)	B/F, T/R
U/C Emergency Cylinder . . . . .	Check 227 bar (+/- 3.4 bar)	B/F, T/R
Hyd 2 accumulator . . . . .	Check pressure	B/F, T/R
Main undercarriage unit . . . . .	Look for damage and leaks	All
Shock absorber . . . . .	Extension normal	All
. . . . .	Clean inner strut	A/F
Inertia switch . . . . .	Ensure not operated	A/F, T/R
Throttle teleflex control conduit . . . . .	Look for damage	A/F, T/R

**EXTERNAL - continued****Port Main Landing Gear Bay - continued**

Undercarriage

Compartment . . . . .	Look for damage and leaks	All
Inner door . . . . .	Look for damage	A/F, T/R
Uplock spigot . . . . .	Clean	B/F, T/R
Leg fairing doors . . . . .	Look for damage	A/F, T/R
Brake unit . . . . .	Look for damage and leaks. Check pad wear, brakes ON	A/F, T/R
Mainwheel assembly . . . . .	Look for damage & wear. Check wheel hub alignment witness marks.	All
. . . . .	Check tyre pressure 10.5 (+0.7/-0) bar	B/F

**12. Port Forward Fuselage**

Engine air intake and

LP compressor . . . . .	Look for damage	All
-------------------------	-----------------	-----

Serv  
cont..

## ANNEXES

### Annex A - Pressure Refuelling

**WARNING:** Aircraft are not to be refuelled within 30mins of GTS Start

Battery master switch . . . . .	ON
Fuel . . . . .	Note contents
Battery master switch . . . . .	OFF
Front cockpit throttle . . . . .	HP OFF
Refueller . . . . .	Ensure earthed, bond to aircraft. Note contents and set delivery meter to zero.
Refuelling panel . . . . .	Open access door and close fasteners on panel to prevent damage from refuelling hose. Connect refuelling hose to aircraft.
Refuelling switch . . . . .	REFUEL

**CAUTION:** Refuelling is to be stopped if excessive fuel discharges through either the relief valve on the port fuselage side or the fuel vent on the tail cone. Refuelling pressure is not to exceed 3.45 bar(50psi). Refuelling flow rate is not to exceed 680 l/min (150gal/min).

Refueller . . . . .	Start delivery
Pre Mod 2010 ensure air vents from relief valve	
Post Mod 2010 ensure NO air vents from relief valve	
Ensure air vents from tail cone vent	

*When complete*

Refueller . . . . .	Stop delivery. Ensure Refuelling Indicator Lamp extinguished.
Refuelling switch . . . . .	OFF
Refuelling panel . . . . .	Disconnect refuelling hose from aircraft. Ensure cap correctly fitted/locked. Close panel
Refueller . . . . .	Disconnect bonding lead. Note contents and delivery meter reading.
Battery master switch . . . . .	ON
Fuel . . . . .	Note contents
Battery master switch . . . . .	OFF

**ANNEXES - continued****Annex B - Hyd 1 & 2 Fluid Contents and Nitrogen Pressure Check**

Ensure U/C & flaps down and airbrake in

Dissipate hydraulic pressure by operating control column

Release brake pressures

HYDRAULIC RESERVOIR INFLATION AND CHARGING DATA						
	-26°C to 0°C		0°C to 30°C		+30°C to +60°C	
	Pressure Bar +/- 0.1 PSI +/- 1.5	Volume +/- 0.1L	Pressure Bar +/- 0.1 PSI +/- 1.5	Volume +/- 0.1L	Pressure Bar +/- 0.1 PSI +/- 1.5	Volume +/- 0.1L
Hyd 2	2.2 32	4.1	2.7 39	4.2	3.2 48	4.3
Hyd 1	2.7 39	4.3	3.3 48	4.6	4.0 58	4.8
Wheel-brakes accumulator charged to 207 bar (see below)						
Hyd 1	2.2 32	3.5	2.7 39	3.7	3.3 48	4.0

**Annex C - 'Popped' Hyd Filter Procedure**

If the Hyd 1 Front/Rear or Hyd 2 Front/Rear filter indicators are 'popped', proceed as follows:

Check F700 Section 1 SNOWS

If the filter has 'popped' within 5 hrs, seek engineering advice. If this is the first pop or it is greater than 5 hrs from the previous pop, reset the indicator, raise a SNOW for the pop.

Example - "Hyd 1 Rear filter indicator popped - RESET"

Record flying hours and Aircrew Accept. If in doubt seek engineering advice

**Annex D - ADR Status Check**

Ignition switch. . . . . Isolate

Engine Start Master

switches. . . . . On in both front and rear  
cockpits

Battery switches. . . . . ON

Front cockpit Engine

Start Master switch . . . . . START and release

ADR Indicator. . . . . Black

Allow ADR to run for 20 - 30 seconds, indicator should remain black

Battery switches. . . . . OFF

Check time delay of 6 - 10 seconds before ADR returns to fail

Engine Start Master

switches. . . . . OFF

Ignition switch. . . . . NORMAL

Serv  
cont..



**ANNEXES - continued****Annex E - Aircraft Minimum States**

SYSTEM	B/F	T/R	A/F
GTS	No requirement for aircrew to replenish		
ENGINE OIL	N/A	4.5	6.5
HYD 1 SYSTEM	4.5 (+/- 0.1L)	4.5	4.6*
HYD 2 SYSTEM	4.2 (+/- 0.1L)	4.1	4.2
OXYGEN #	6+	4+	7+

\* Ensure brake pressure released, flaps down and airbrake in

# Maximum Oxygen regulator delivery pressure 1800 psi

**Annex F - Additional Information**

To pump up brake pressure use hand pump located behind access panel on the starboard side of the air intake.

If the airbrake is down it will retract as soon as hand pumping of the brake system starts.

**Annex G - Parking Overnight**

Engine air intake blanks . . . . . Fit on A/F, remove on B/F

Jet pipe blanks . . . . . Fit on A/F, remove on B/F

U/C Ground Locks . . . . . Fit on A/F, remove on B/F

Weapon Pins . . . . . Fit on A/F, remove on B/F

**Note:** With the parking brake left on system pressure will dissipate with time, therefore ensure the aircraft is chocked.

**Annex H - RAFAT Aircraft**

Carry out the following additional checks to RAFAT aircraft

Smoke master switch . . . . . OFF All

Smoke selected indicator . . . . . Out All

Tailcone assembly . . . . . Check for damage  
and leaks All

Engine Life Computer . . . . . Carry out Self  
Test (AMM) All

**ANNEXES - continued****Annex J - Completing F705 (Hawk)**

1. Ensure TDM for previous AF and Sheet No recorded
2. Line 6 Enter servicing type and strike through 'T'
3. Line 7 Enter TDM for start time
4. Line 8 & 9 Sign both Man A & Man B blocks
5. Lines 15 - 21 Sign for spare slots as required
6. Line 23 For BF and TR enter validity of servicing
7. Line 25 Enter last SNOW from F707A

		(a)			
		Name	Sig		
1	After Flight Declaration	Accepted Faults			Score Z through boxes 1 to 5 in column if B/F  Local Time
2		Signature	J Bloggs	J Bloggs	
3		TDM	1015 / 18 / 08		
4		Smoke Used	W	B	
5	Armament Clearance				
6	Flight Servicing		B/F / TR / AF	T/A	A/F, B/F, T/R as reqd
7	Commenced TDM		1030 / 18 / 08		Time started
8	Man A	J Bloggs	J Bloggs	Sign for Man A & Man B	
9	Man B	J Bloggs	J Bloggs		
10	Avionics				Score Z through boxes 10 to 12 in column for servicing
11	Electrical				
12	Weapons				
13	Oxygen	/8		Oxy contents in 1/8s	
14	Pannier	F/R		Signature lines 13 to 21	
15	1. Spare				
16	2. Spare				
17	3. Spare				
18	4. Spare				
19	5. Spare				
20	6. Spare				
21	7. Spare				
22	Flight Servicing Co-ordinator		J Bloggs	J Bloggs	A/F 72 hrs, B/F & T/R 12 hrs
23	Valid until TDM		2230 / 18 / 08		
24	Final Arming				Score Z Through boxes 24 to 31 in column if A/F
25	Last SNOW				
26	MOD Form 700C Co-ordinator		J Bloggs	J Bloggs	
27	Co-ordinated TDM		1045 / 18 / 08		
28	Flying Requirement				
29	Aircrew Acceptance Certificate	Aircrew Accepted Faults			
30		Signature	J Bloggs	J Bloggs	
31		TDM	1230 / 18 / 08		

Serv cont..

ANNEXES - *continued*

Situation	Servicing	Validity
After landing - Next Flight within 12 hrs	T/R	12 hrs
After Landing - next Flight outside 12 hrs	A/F	72 hrs
Within 12 hrs of next flight	B/F	12 hrs

The aircraft must have a valid A/F and B/F or a T/R to fly. The A/F is invalid on landing unless a T/R is carried out. The A/F is invalid if the aircraft does not fly before the expiry of a T/R.

**F705 (Hawk) reverse - Fuel Certificate**

Record fuel state as per example

1	Refuel/Defuel/Check		Delete inapplicable activity
	Fuel Remaining	750	Fuel remaining on A/C gauges
	Total put in/ Taken out	600kg	
	Total in A/C	1350kg	
	Metered Put in/ Source Taken Out*	580	Bowser Reading
	Discrepancy	20kg   3%	Limits 3% or 40kg
	Type:		
	Signature		
	TDM 10451808		

Strike through and sign for apron F/R

**F705(SSC) - Supplementary Servicing Certificate**

Ensure that the carried forward details are entered correctly.  
Sign for each check detailed on the F705(SSR)

**F726HSSR(Hawk) - Hydraulic System Supplementary Record**

Record any hydraulic accumulator 'top-ups'.

**F725C - Flying Log and Fatigue Data Sheet**

Ensure A/C no, Sheet No and Brought Forward Readings recorded from previous F725

Ensure sortie details are accurately recorded.

Ensure Fatigue Meter readings entered are sensible and count forward from previous readings.

**F706B - Fuel Uplifts not Containing FSII or Lubricity Additive**

Record any uplifts that do not contain FSII

E-2	EMERG GROUND EGRESS, RUNWAY			
E-3	SURGE, IMMEDIATE RELIGHT			T6NL
E-4	ASSISTED & UNASSISTED RELIGHT			
E-5	ENGINE FIRE			FIRE
E-6	AIR PROD FIRE, GND EMERG S'DOWN			START
E-7	ENGINE FAILURE	T6NL	ECA	E OHT
E-8	SMOKE OR FUMES, OXYGEN			CPR
E-9	DIFFICULTY BREATHING			OXY
E-10	GENERATOR			GEN
E-11	HYDRAULICS	HYD	HYD 1	HYD 2
E-12	HYDRAULICS		HYD 1	HYD 2
E-13	JETPIPE, OIL		JPOHT	OIL
E-14	FUEL	F.PR	FUEL	TRANS
E-15	INVERTER	AC 1	AC 2	AC 3
E-16	ANTI-SKID, RUNWAY			SKID
E-17	FORCED LANDING			
E-18	EJECTION			
E-19	MDC, JETTISONING			
E-20	LANDING GEAR			
E-21	LANDING GEAR			
E-22	LANDING WITH GEAR UNSAFE			
E-23	FLAPS, AIRBRAKE			
E-24	TRIM			
E-25	COMMUNICATIONS			
E-26	LOW SPEED HANDLING CHECK			

**EMERGENCY GROUND EGRESS**

**WARNING 1:** If the decision to eject is made, canopy must be closed and locked

**WARNING 2:** The manual separation handle must not be used for ground egressing

*If necessary*

1. Eject

*Otherwise:*

1. Throttle ..... HP Off
2. Seat firing handle  
safety pin ..... Insert correctly
3. Canopy ..... Open/Operate MDC (E-19)
4. Unstrap completely:
  - a. QRF ..... Release
  - b. PEC & PSP ..... Disconnect
  - c. Leg restraints ..... Pull through/release garters
5. Aircraft ..... Vacate & move clear upwind

**ABORT**

1. Throttle ..... Idle
2. Brakes ..... Apply
3. Flaps ..... Down
4. Control column. .... Fully back below 100 knots
5. Throttle ..... Consider HP Off

**BARRIER ENGAGEMENT**

1. Throttle ..... HP Off
2. Head. .... Duck before engagement
3. Brakes ..... Release before entering barrier

*When aircraft stopped:*

4. Continue with **GROUND EMERGENCY ENGINE SHUTDOWN**

**OVERRUN / RUNWAY DEPARTURE**

*Consider the following options:*

1. Eject

*Or:*

1. Throttle ..... HP Off

*When aircraft stopped.*

2. Continue with **GROUND EMERGENCY ENGINE SHUTDOWN**

*Or:*

1. Landing Gear Emergency Retraction

**Note 1:** If emergency (maximum) braking has been used, the aircraft should not be taxied

**Note 2:** The aircraft is cleared to enter Mk 6 and Type A barriers, and cleared to enter Mk 12a and Type B barriers set to the light aircraft setting

**ENGINE SURGE with or without T6NL**

*Rapid increase in TGT and/or unusual engine noise, possible loss of thrust and/or stagnating RPM*

1. Throttle ..... Idle
2. TGT ..... Monitor

**Note:** TGT may take up to 6 seconds to stabilise

*If idle TGT > 450°C:*

3. Carry out **IMMEDIATE RELIGHT** (below)

*If idle TGT < 450°C:*

*If T6NL illuminated during surge or (685°C exceeded):*

3. Prove engine to minimum RPM required
4. Land ASAP

*If T6NL did not illuminate during surge (685°C not exceeded)*

3. Prove engine and use normally

**IMMEDIATE RELIGHT**

1. Throttle ..... HP Off
2. Relight button..... Press and hold
3. Throttle ..... Idle (against idle stop)
4. Relight button..... Release
5. Rotation MI ..... If not Green, press and hold  
Relight button
6. Airbrake..... In

*If no relight within 30 seconds or if 585°C TGT is likely to be exceeded (Note 1):*

7. Throttle ..... HP Off

**Note 1:** Under transient conditions 585°C may be exceeded by up to 20°C for 10 seconds

**Note 2:** If practicable, wait 30 seconds for engine to drain before attempting another relight

*If engine relights normally:*

7. Carry out **POST RELIGHT** (below)

**POST RELIGHT**

1. Throttle ..... Prove engine surge free to minimum RPM required
2. Electrics ..... Reset
3. Hyd 2 Reset button..... Reset with RPM above 76%
4. Eng Start ..... Off for 5 secs min, then On
5. GTS MI ..... Confirm Black

*If the T6NL illuminated or 685°C was exceeded or engine damage is suspected:*

6. Land ..... ASAP

*If the T6NL did not illuminate or 685°C was not exceeded:*

6. Land ..... As soon as practicable

**ASSISTED RELIGHT**

1. Speed. . . . . 165 to 250 knots

*If GTS Black:*

2. Altitude . . . . . Below FL 200
3. Throttle. . . . . HP Off
4. Eng Start switches. . . . . Both On
5. Ignition . . . . . Normal
6. Relight button. . . . . Press and release
7. Continue with GTS Green (below)

*If GTS Green:*

2. RPM. . . . . Below 20%
3. Eng Start . . . . . Start and release
4. Throttle. . . . . Idle (against idle stop)
5. Rotation MI. . . . . If not Green, press and hold  
Relight button

*If no relight within 45 seconds from selecting Start  
or if 585°C TGT is likely to be exceeded (Note 1):*

6. Throttle. . . . . HP Off

**Note 1:** Under transient conditions 585°C may be exceeded by up to 20°C for 10 seconds

**Note 2:** If practicable, wait 30 seconds for engine to drain before attempting another relight

*If engine relights normally:*

6. Carry out **POST RELIGHT** (E-3)

**UNASSISTED RELIGHT**

1. Altitude . . . . . Below FL 250
2. Speed. . . . . 275 knots (250 minimum)
3. RPM. . . . . 15% minimum
4. Throttle. . . . . HP Off
5. Eng Start switches. . . . . Both ON
6. Ignition . . . . . Normal
7. Relight button. . . . . Press and hold
8. Throttle. . . . . Idle (against idle stop)
9. Relight button. . . . . Release
10. Rotation MI. . . . . If not Green, press and hold  
Relight button

*If no relight within 30 seconds or if 585°C TGT is likely to be exceeded (Note 1):*

11. Throttle. . . . . HP Off

**Note 1:** Under transient conditions 585°C may be exceeded by up to 20°C for 10 seconds

**Note 2:** If practicable, wait 30 seconds for engine to drain before attempting another relight

*If engine relights normally:*

11. Carry out **POST RELIGHT** (E-3)

## ENGINE BAY FIRE IN FLIGHT



1. Throttle . . . . . Minimum practicable / Idle
2. Check for further signs of fire

*If fire is confirmed:*

3. Throttle . . . . . HP Off
4. Fuel Pump . . . . . Off
5. LP Cock . . . . . Off
6. Speed . . . . . Reduce to minimum practicable (ideal < 250kts)
7. Extinguisher button . . . . Press
8. Oxygen . . . . . 100%
9. Mask . . . . . Toggle down
10. Cabin conditioning . . . . Off

*If **FIRE** remains on after 45 seconds or if evidence of fire:*

11. Eject

*If **FIRE** goes out:*

11. Consider **FORCED LANDING** (E-17)  
or **PREMEDITATED EJECTION** (E-18)

*If fire is not confirmed (**FIRE** on or off):*

3. Land . . . . . ASAP, using minimum practicable RPM
4. If use of power illuminates **FIRE**, check frequently that caption goes out on throttling back

## ENGINE BAY FIRE ON THE GROUND



1. Throttle . . . . . HP Off
2. Fuel Pump . . . . . Off
3. LP Cock . . . . . Off
4. Extinguisher button . . . . Press
5. Batteries . . . . . Off
6. Carry out **EMERGENCY GROUND EGRESS** (E-2)

Relight  
Fire

E-5



**AIR PRODUCER BAY FIRE - IN FLIGHT****START**

1. Eng Start . . . . . Off
2. Speed . . . . . 150 kts
3. Height . . . . . Above 5000ft AGL
4. Check for confirmatory signs of fire
5. Flap . . . . . Select Mid if required
6. Monitor tailplane control

*If tailplane control is lost:*

7. Eject

*If **START** remains on:*

7. Land after 20 minutes

*If **START** goes out:*

7. Land after 10 minutes

**AIR PRODUCER BAY FIRE ON THE GROUND****START**

1. Eng Start . . . . . Off
2. Throttle . . . . . HP Off
3. Fuel Pump . . . . . Off
4. LP Cock . . . . . Off
5. Batteries . . . . . Off
6. Carry out EMERGENCY GROUND EGRESS (E-2)

**GROUND EMERGENCY ENGINE SHUTDOWN**

*Any of the following:*

**T6NL** **E OHT** **HYD** **JPOHT** **OIL** **ECA** **HYD 1** **HYD 2**

**or Symptoms of Mechanical failure**

1. Throttle . . . . . HP Off
2. Fuel pump switch . . . . . Off
3. LP Cock . . . . . Off
4. Batteries . . . . . Off

**Note 1:** Hyd captions may be associated with a fire risk

**Note 2:** If signs of fire carry out **EMERG GROUND EGRESS (E-2)**

## ENGINE SEIZURE / MECHANICAL FAILURE

**WARNING:** Do not attempt to relight a seized engine

1. Throttle ..... **HP Off**
2. Fuel Pump ..... **Off**
3. LP Cock ..... **Off**
4. Speed ..... Below 300kts/0.6 Mach (If no windmilling Hyd 1 pressure)
5. Consider **FORCED LANDING** (E-17)  
or **PREMEDITATED EJECTION** (E-18)

## ENGINE LP COOLING AIR OVERHEAT

**E OHT** (Pre MOD 2010 aircraft)

*In flight:*

1. Throttle ..... **Minimum practicable**
2. Land ..... **ASAP**

**Note:** Post MOD 2010 aircraft, spurious warning - ignore

## T6NL OVERLIMIT/CONTROL AMPLIFIER FAILURE

**T6NL** and/or **ECA**

1. Throttle ..... **Set approx 80% RPM**
2. TGT ..... **Monitor**

*If TGT does not respond normally (approx 400°C) and/or T6NL caption remains illuminated:*

3. Throttle ..... **Idle**
4. TGT ..... **Monitor**

*If TGT more than 450°C :*

5. Carry out **IMMEDIATE RELIGHT** (E-3)

*If TGT less than 450°C :*

5. Throttle ..... Prove engine to minimum RPM required (see WARNING)
6. Land ..... **ASAP**

*If TGT responds normally (approx 400°C):*

3. Throttle ..... Prove engine to minimum RPM required (see WARNING)
4. Land ..... **As soon as practicable**

**WARNING 1:** Use gentle throttle movements

**WARNING 2:** Max 95% RPM (90% above 20,000ft)

**WARNING 3:** Min 70% RPM until committed to land if ECA caption remains illuminated

Start  
Engine  
E-7

**SMOKE OR FUMES**

1. **Oxygen** ..... **100%**
2. **Mask** ..... **Toggle down**
3. **Defective equipment** .... **Off**

*If smoke or fumes remain*

4. **Altitude** ..... **Below FL 350**
5. **Cabin conditioning** ..... **Off**
6. **Cabin altitude** ..... **Below 25,000ft**
7. **Land** ..... **ASAP**

*If smoke or fumes remain and present a danger*

8. **Speed** ..... **Reduce to minimum practicable**
9. **MDC** ..... **Operate (E-19)**

**SUSPECTED HYPOXIA AND/OR CONTAMINATED OXYGEN SUPPLY**

1. **Connections and mask seal** ..... **Check**

*If symptoms persist or oxygen supply is not restored*

2. **Emergency oxygen ring** . **Pull**
3. **Main oxygen supply** . . . . **Off**
4. **Cabin altitude** ..... **Below 10,000ft**
5. **Land** ..... **As soon as practicable**

**Note 1:** When emergency oxygen is operated, no cockpit indications show the system is operating or the contents remaining

**Note 2:** Disconnect main oxygen hose when supply is exhausted

**Note 3:** If PEC is adjusted, ensure leg restraints are reconnected

**CPR**

**CABIN ALTITUDE ABOVE 25,000FT**

1. **Mask** ..... **Toggle down**
2. **Cabin conditioning** ..... **Flood**
3. **Cabin altitude** ..... **Below 25,000ft**

**OXY** or **MI CONTINUOUS WHITE OR BLACK**  
or **DIFFICULTY BREATHING IN**

1. Connections and mask seal . . . . . Check
2. Oxygen selector . . . . . Confirm On
3. Oxygen contents . . . . . Check

*If oxygen contents are above zero:*

4. Oxygen regulator . . . . . 100%

*If oxygen contents are zero, breathing is restricted or supply is not restored:*

5. Emergency oxygen ring . Pull (if required)
6. Cabin altitude . . . . . Below 10,000ft
7. Land . . . . . As soon as practicable

*When emergency oxygen is exhausted:*

8. Main oxygen hose . . . . . Disconnect

*If breathing normal:*

5. Oxygen contents and MI . Monitor
6. Continue sortie

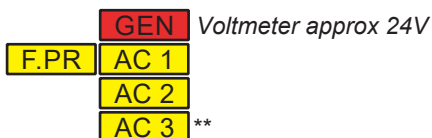
**DIFFICULTY BREATHING OUT**

1. Mask . . . . . Lift off face
2. Oxy Test button . . . . . Press

*If difficulty persists:*

3. Breathe in through mask and exhale with mask away from face
4. Cabin altitude . . . . . Below 10,000ft

Fumes  
CPR  
Oxygen  
E-9

**GENERATOR FAILURE**

<b>GEN</b>	Voltmeter 27 to 29V
1. Spurious warning	
2. Monitor voltmeter	

- DC Reset button. . . . . Press. *If successful go to*  
**Successful Reset**
- Negative g . . . . . Avoid
- Throttle . . . . . Avoid high power settings

*If no reset:*

- Stby Inst switch . . . . . Batt
- UHF power switch . . . . . Batt
- In turn, switch Batt 1 & 2 Off then On. *If voltage increases with one switch Off, leave that switch Off*
- DC Reset button. . . . . Press. *If successful go to*  
**Successful Reset**

*If no reset:*

- Electrics . . . . . Load shed (below); monitor voltage
- Consider descent to VMC below cloud

*Before voltage drops to 21V:*

*If range acceptable with landing gear and flaps lowered:*

- Landing gear and Flaps . Lower

*If range critical with landing gear and flaps lowered:*

- Cockpit Emery Lights . . As required
- Batteries . . . . . Off until required

**Successful Reset**

- AC . . . . . Reset if required

*If **F.PR** illuminated after 10 seconds:*

- Fuel Pump . . . . . Off then On

**LOAD SHEDDING**

Consider turning off:

- Pitot heater
- Landing lamp
- External lights
- Internal lights
- Out of use radio
- IFF/SSR
- GVRs
- The stronger battery

**CAUTION:** With both Batt 1 & 2 off, all essential electrical services lost, including:

- |                 |  |
|-----------------|--|
| Relighting      | VHF radio                                |
| ECA monitoring  | Standby UHF                              |
| Pitot heater    | IFF/SSR                                  |
| CWP indications | Flap & L/G normal selection & indication |
| Fuel gauging    |  |
| Anti-skid       |  |
| Trims           | Airbrake selection                       |

## TOTAL HYDRAULIC FAILURE

**HYD**

**HYD 1**

- Both Hyd gauges below 45 bar

**HYD 2**

1. Eject

## HYD 1 FAILURE

**HYD 1**

- Hyd 1 gauge below 45 bar

1. Airbrake. . . . . In
2. Hyd pressures . . . . . Monitor
3. Airbrake . . . . . Do not use
4. Speed . . . . . Avoid high speeds
5. Landing gear & Flaps . . . . . Select normal DOWN then lower on standby system
6. Land . . . . . ASAP

*After landing:*

7. Throttle . . . . . HP Off
8. Brakes . . . . . Single gentle application, avoiding anti-skid operation

## HYD 2 FAILURE

**HYD 2**

- Hyd 2 gauge below 113 bar  
or cycling between 160 to 210 bar

1. Airbrake. . . . . In
2. Hyd pressures . . . . . Monitor

*If RAT is not operating (Hyd 2 pressure below 103 bar):*

3. Airbrake . . . . . Do not use
4. Speed . . . . . Avoid high speeds
5. Land . . . . . ASAP

*If RAT operating (Hyd 2 pressure cycling between 160-210 bar) and **HYD 2** is illuminated at all power settings:*

3. Airbrake . . . . . Use only if necessary
4. HYD 2 pressure . . . . . Monitor
5. Land . . . . . ASAP

*If RAT operating (Hyd 2 pressure cycling between 160-210 bar) and **HYD 2** only illuminates below 76% (uncommanded RAT):*

3. Hyd 2 Reset . . . . . Press to reset RAT
4. Hyd 2 pressure . . . . . Check correct operation
5. Continue sortie

## HYD 1 AND HYD 2 FAILURE

**HYD 1** - Hyd 1 pressure below 45 bar

**HYD 2** - Hyd 2 pressure cycling between 160 to 210 bar

1. Airbrake. . . . . **In**
2. Hyd pressures . . . . . **Monitor**
3. Airbrake . . . . . Do not use
4. Speed. . . . . Below 300kts/0.6M
5. Landing gear & Flaps. . . . . Select normal DOWN then  
lower on standby system
6. Land . . . . . ASAP, threshold speed 125 kts

*After landing:*

7. Throttle. . . . . HP Off
8. Brakes . . . . . Single gentle application,  
avoiding anti-skid operation

## **HYD 1** WHEN LANDING GEAR SELECTED UP

1. Landing gear. . . . . **Down**
2. Speed. . . . . Below 200kts

*If **HYD 1** remains illuminated:*

3. Carry out **HYD 1 FAILURE** (E-11)
4. Land . . . . . ASAP

**Note 1:** Selecting landing gear DOWN immediately may prevent loss of fluid from the system

**Note 2:** Do not reselect landing gear UP

## UNDEMANDED FLAP LOWERING

*Flaps lower without being selected from either cockpit*

1. Flap . . . . . **Down**
2. Speed. . . . . Below 200kts

**Note 1:** Do not select flap UP

**Note 2:** **HYD 1** may illuminate. Selecting flap down immediately reduces possible loss of hydraulic fluid and may cause **HYD 1** to go out

**JET PIPE BAY OVERHEAT****JPOHT**

1. Throttle ..... **Minimum practicable**
2. Land ..... **ASAP**

**OIL PRESSURE LOW****OIL**

1. Throttle ..... **Smoothly set between 78 - 87%**
2. RPM ..... Monitor and maintain with  
smooth, progressive throttle  
movements
3. Maintain 1g nominal
4. Land ..... **ASAP**

**WARNING 1:** Loss of oil pressure will result eventually in engine seizure

**WARNING 2:** Bearing loads increase as altitude reduces

**WARNING 3:** Increasing vibration is indicative of early failure

**WARNING 4:** The optimum RPM range to prolong engine life is 80-85%



**LOW FUEL PRESSURE****F.PR**

**WARNING:** There may be a fuel leak and consequently a fire risk

1. Throttle . . . . . **Minimum practicable**
2. Negative g . . . . . **Avoid**
3. Fuel Pump . . . . . Confirm On
4. Fuel contents . . . . . Monitor
5. Land . . . . . ASAP

**LOW FUEL CONTENTS****FUEL**

**WARNING:** If more than 160kg indicated, assume only 160kg useable

1. Throttle . . . . . **Minimum practicable**
2. Fuel contents . . . . . Check

*If more than 160kg indicated and **F.PR** and **TRANS** captions out:*

3. Apply negative g then positive g

*If warning persists:*

4. Land . . . . . ASAP

**LOW FUEL TRANSFER PRESSURE****TRANS**

1. Altitude . . . . . Below 25,000ft
2. Negative g . . . . . Avoid
3. Throttle . . . . . Avoid high power settings
4. Land . . . . . As soon as practicable

**Note 1:** Maximum power may be limited at high altitude

**Note 2:** **FUEL** may illuminate with fuel contents indicating > 160kg

**HIGH FUEL CONSUMPTION**

**WARNING:** There may be a fuel leak and consequently a fire risk

*If fuel discharge from main vent can be confirmed:*

1. Apply negative then positive g

*If venting continues:*

2. Land . . . . . ASAP

*If venting stops:*

2. Land . . . . . As soon as practicable

*If fuel discharge from main vent cannot be confirmed:*

1. Land . . . . . ASAP

**DOUBLE INVERTER FAILURE****AC 1** & **AC 2**

1. AC 1 Reset button . . . . . Press

*If no AC 1 reset:*

2. AC 2 Reset button . . . . . Press

*If either reset successful:*

3. Land . . . . . As soon as practicable

**Note:** Do not attempt further resets

*If **AC 1** & **AC 2** remain illuminated:*

3. Repeat resetting procedure after a few minutes (max 3 resets)
4. Land . . . . . As soon as practicable

**CAUTION:** If both inverters remain off line the following flight instruments are unusable:

Main AI  
HSI  
AHRS  
Main Altimeters

**SINGLE INVERTER FAILURE****AC 1** or **AC 2** or \*\* **AC 3**

1. Appropriate Reset button . . . Press

*If unsuccessful:*

2. Repeat resetting procedure after a few minutes (max 3 resets)

**SKID ANTI-SKID FAILURE or  
LOSS OF BRAKING / UNEXPLAINED VIBRATION /  
DIRECTIONAL SWING AT ANYTIME**

1. Brakes . . . . . Release
2. Anti-Skid . . . . . Off
3. Brakes . . . . . Reapply

*If dual:*

4. Other cockpit brakes . . . . Consider use

*If unsuccessful:*

5. Parking brake . . . . . Gentle application

**WARNING:** With Anti-Skid On, a tyre burst on landing can cause rapid and uncontrollable directional change

**Note:** If foot motor failure is suspected, gentle application of the parking brake may offer symmetric braking but without anti-skid protection

**RESIDUAL BRAKE PRESSURE > 10 BAR**

**WARNING:** With Anti-Skid On, a tyre burst on landing can cause rapid and uncontrollable directional change

*If unable to ascertain aircraft mod state, action the pre-mod drill.*

*Pre-mod 1863 aircraft:*

1. Anti-Skid . . . . . Off

**Note 1:** With Anti-Skid Off, a tyre burst can cause a directional change which is controllable with opposite brake

*Post-mod 1863 aircraft:*

1. Anti-Skid . . . . . Leave On

**Note 2:** Anticipate a swing towards the high brake pressure after the touchdown protection system allows the brake pressure to rise

**FORCED LANDING**

- |               |                                  |   |
|---------------|----------------------------------|---|
|               | 1. Glide . . . . .               | 180 knots clean<br>(0.65M above FL200)  |
| <b>ANA 11</b> |                                  | <b>170/175</b> 165/170 knots gear down<br>(Use the higher speed if more than 1000kg fuel remaining or more than 500kg with external stores) <b>5000 kg AUM)</b> |
|               | 2. Airbrake . . . . .            | In  |
|               | 3. External stores . . . . .     | Jettison (E-19)   |
|               | 4. Hyd 1 & 2 pressures . . . . . | Monitor   |
|               | 5. UHF power switch . . . . .    | Batt  |
|               | 6. Stby Inst switch . . . . .    | Batt  |
|               | 7. IFF/SSR . . . . .             | Squawk 7700   |
|               | 8. Electrics . . . . .           | Load shed as appropriate (E-10)   |

**Approach and Landing**

- |                        |        |
|------------------------|--------|
| 1. Throttle . . . . .  | HP Off |
| 2. Fuel Pump . . . . . | Off    |
| 3. LP Cock . . . . .   | Off    |
| 4. Eng Start . . . . . | Off    |

*When appropriate:*

- |                           |   |
|---------------------------|---|
| 5. Landing gear . . . . . | Select normal DOWN then lower on standby system |
| 6. Harness . . . . .      | Locked and tight                                |

*When appropriate:*

- |                             |   |
|-----------------------------|---|
| 7. Flaps . . . . .          | Select normal DOWN then lower on standby system |
| 8. Approach speed . . . . . | 150 knots minimum                               |

## PREMEDITATED EJECTION

**WARNING:** To avoid possible seat collision, simultaneous or near simultaneous ejections should be avoided

*If time and conditions permit:*

1. Consider . . . . . Area of parachute landing and area of aircraft impact
2. Other occupant . . . . . Warn
3. Height . . . . . Ideally between 2000ft and 9000ft AGL
4. Airspeed . . . . . Ideally 250 knots
5. Transponder . . . . . Squawk 7700
6. Harness . . . . . Locked and tight, leg restraints and PSP lowering line connected
7. Oxygen mask . . . . . Tight
8. Visors . . . . . Down
9. Aircraft . . . . . Trim as required. Consider the use of aileron trim (max ½). Aim towards selected impact area
9. Radio . . . . . Call as required
10. Throttle . . . . . Idle
11. Eyes . . . . . Tightly closed
12. Ejection position . . . . . Assume
13. Seat firing handle . . . . . Pull. Use command eject system if practicable

## FAILURE TO EJECT

1. **Seat pin . . . . . Ensure removed**
2. **Seat firing handle . . . . . Pull again**

*If this fails:*

3. PSP lowering line and side connectors . . . . . Disconnect
4. PEC . . . . . Disconnect
5. Leg restraints . . . . . Pull through/release garters
6. MDC . . . . . Operate (E-19)
7. Aircraft . . . . . Trim fully forward and invert
8. Control column . . . . . Release
9. Manual separation handle . . . . . Operate (with seat firing handle pulled fully upwards)

## AUTOMATIC SEAT SEPARATION SYSTEM FAILS AFTER EJECTION

1. Seat firing handle . . . . . Ensure fully pulled
2. Manual separation handle . . . . . Operate

## MDC OPERATION

**WARNING:** Do not enter barrier after MDC has been operated

1. Other occupant . . . . . Warn
2. Visors . . . . . Down
3. Seating posture . . . . . Erect
4. MDC firing handle . . . . . Grasp
5. Eyes . . . . . Closed tightly
6. MDC firing handle . . . . . Pull

## JETTISONING EXTERNAL STORES

**WARNING 1:** Jettison on or near the ground may result in ricochet damage

**WARNING 2:** Jettison above 400 knots may result in pylon damage

1. Landing gear and Flaps . . . UP
2. Aircraft . . . . . Maintain straight and level
3. MASS . . . . . Live, (busbars indicate Black)

## CBLS

1. WCP or WMP  
Jettison button . . . . . Press (maximum 3 seconds)

## SIDEWINDER

1. Throttle . . . . . Minimum practicable
2. MCP jettison button . . . . . Press
3. After jettison of missiles carry out breakaway manoeuvre

**Note:** Acquisition Sidewinder missiles cannot be jettisoned

**GEAR SELECTED UP BUT FAILS TO RETRACT**

1. Speed . . . . . **Below 200 knots**
2. Hyd 1 pressure . . . . . **Check**

*If Hyd 1 pressure low:*

3. Landing gear . . . . . **Down**
4. Carry out **HYD 1 FAILURE (E-11)**

*If Hyd 1 pressure normal:*

*With 3 greens showing:*

3. Check selection in other cockpit

*With one red indication and if visual inspection confirms gear is up:*

3. Select **DOWN**, check 3 greens
4. Reselect **UP**, check gear indicates **UP**

*In all other cases:*

3. Select **DOWN** (ensure button fully in), check 3 greens
4. Make no further **UP** selection

**GEAR UP SELECTOR CANNOT BE DEPRESSED**

1. Speed . . . . . **Below 200 knots**
2. Attempt further **UP** selection

*If fault persists:*

3. Select **DOWN**. . . . . **Button fully in, 3 greens**
4. Make no further **UP** selection

**GEAR SELECTED DOWN BUT ONLY PARTIALLY EXTENDS**

1. Speed . . . . . **Below 200 knots**
2. Hyd 1 pressure . . . . . **Check**

*If Hyd 1 pressure low:*

3. Carry out **HYD 1 FAILURE (E-11)**

*If Hyd 1 pressure normal:*

3. Obtain visual check if possible

*With mainwheel red and 2 green indications:*

4. Select **UP**
5. While applying prolonged negative g, select **DOWN**
6. After **DOWN** selection apply positive g

*If unsuccessful:*

7. Make further selections (allow 10 secs between selections)

*If still unsuccessful:*

8. See **LANDING WITH GEAR UNSAFE (E-22)**

*With any other combination of indications:*

4. Select **UP**
5. Make further selections varying g and speed

*If unsuccessful:*

6. See **LANDING WITH GEAR UNSAFE (E-22)**

## GEAR SELECTED DOWN BUT FAILS TO MOVE

*Gear indicates 3 x UP*

1. **Speed** . . . . . **Below 200 knots**
2. **Hyd 1 pressure** . . . . . **Check**

*If Hyd 1 pressure low:*

3. Carry out **HYD 1 FAILURE** (E-11)

*If Hyd 1 pressure normal:*

3. Check selection in rear cockpit
4. Make further selections (allow 10 seconds between selections)

*If gear still fails to extend (even partially):*

5. Carry out **GEAR STANDBY - LOWERING** (below)

## GEAR STANDBY - LOWERING

**WARNING:** Standby lowering may cause a Hyd 1 failure

1. Airbrake . . . . . Confirm In
2. Landing gear . . . . . Select normal DOWN
3. U/C standby handle . . . . . Press central button and pull handle




**CAUTION 1:** Gear cannot subsequently be retracted

**CAUTION 2:** Gear / Airbrake interconnect does not function



## LANDING WITH GEAR UNSAFE

1. \*Release explosive stores in safe area
2. \*Retain CBLs
3. UHF power switch . . . . . Batt
4. Harness . . . . . Locked and tight
5. Arrestor cable . . . . . Removed if possible

GEAR POSITION	RECOMMENDED ACTIONS
 <p>Nosewheel UP/unsafe Both main wheels DOWN</p>	<p><b>Caution:</b> If arrestor cable in place, do not cross cable with nose lowered</p> <ol style="list-style-type: none"> <li>1. Make normal powered approach</li> </ol> <p><i>After touchdown:</i></p> <ol style="list-style-type: none"> <li>2. Throttle . . . . . HP Off</li> <li>3. Lower nose onto runway by 70kts</li> <li>4. Do not use wheelbrakes until nose is on the ground</li> <li>5. Use brakes to keep straight</li> </ol>
 <p>Nose wheel DOWN One main wheel unsafe</p>	<p><b>Caution:</b> If arrestor cable in place, do not touch down before cable</p> <ol style="list-style-type: none"> <li>1. Choose runway with maximum clear area in direction of anticipated swing</li> <li>2. Anti-Skid . . . . . Off</li> <li>3. Make normal powered approach</li> </ol> <p><i>After touchdown:</i></p> <ol style="list-style-type: none"> <li>4. Lower nosewheel</li> <li>5. Throttle . . . . . HP Off</li> <li>6. Hold wings level as long as possible</li> <li>7. Use brakes to keep straight after wing drops</li> </ol>
 <p>All gear UP</p> <p>All gear unsafe</p>	<p><b>Caution:</b> If arrestor cable in place, do not touch down before cable</p> <ol style="list-style-type: none"> <li>1. Carry out low speed handling check (E-26) at safe height with Down flap selected</li> <li>2. Make normal powered approach (with Mid flap if Down flap causes handling difficulties)</li> </ol> <p><i>After touchdown:</i></p> <ol style="list-style-type: none"> <li>3. Throttle . . . . . HP Off</li> <li>4. Batteries . . . . . Off</li> </ol>
<p>All other configurations</p>	<p>Attempt to obtain one of the above configurations. If this is not possible - Eject</p>

## FLAPS FAIL TO OPERATE

1. Speed . . . . . **Below 200 knots**
2. Hyd 1 pressure . . . . . **Check**

*If Hyd 1 pressure low:*

3. Carry out **HYD 1 FAILURE** (E-11)

*If Hyd 1 pressure normal:*

3. Check selection in rear cockpit
4. Make further selections from both cockpits
5. If flaps still fail to operate, consider **FLAPS - STANDBY LOWERING** (below)

## FLAPS - STANDBY LOWERING

**WARNING:** Standby lowering may cause a Hyd 1 failure

1. Speed . . . . . Below 200 knots
2. Flaps . . . . . Select normal Down
3. Flaps standby handle . . . . . Press central button and pull handle

**Caution:** Flaps cannot subsequently be raised

## AIRBRAKE FAILS TO OPERATE

1. Hyd 1 pressure . . . . . **Check**

*If Hyd 1 pressure low:*

2. Carry out **HYD 1 FAILURE** (E-11)

*If Hyd 1 pressure normal:*

2. Make further selections from both cockpits

*If airbrake is stuck out:*

3. Speed . . . . . Below 200 knots
4. Landing gear . . . . . DOWN then UP

## AIRBRAKE / LANDING GEAR INTERCONNECT FAILURE

*Airbrake known to be out with landing gear DOWN:*

1. Speed . . . . . Below 200 knots
2. Landing gear . . . . . UP
3. Airbrake . . . . . In, confirm MI Black
4. Landing gear . . . . . DOWN

### Landing Drill If Airbrake Remains Extended:

1. Make a shallower than normal approach to the runway
2. Do not flare
3. Lower the nosewheel immediately after touchdown

## MAIN TAILPLANE TRIM FAILURE

*Main tailplane trim inoperative or runs away*

1. **Standby tailplane trim cover** . . . . . **Lift**
2. Use standby tailplane trim

## RUDDER OR AILERON TRIM FAILURE

*Rudder or aileron trim inoperative or runs away*

*With runaway rudder trim:*

1. Speed . . . . . Below 200 knots
2. Flap . . . . . Select Mid if required

**Note 1:** With runaway aileron trim, no control authority is lost

**Note 2:** With runaway rudder trim, loads proportional to IAS

**LOSS OF INTERCOM OR RADIO RECEPTION**

1. Helmet and PEC connections . . . . . Check
2. Aerial selection . . . . . Check

**Note:** If PEC adjusted, reconnect leg restraints

*If service not restored:*

3. Amplifier selector . . . . . FAIL

*If UHF or intercom not restored:*

4. Amplifier selector . . . . . NORM
5. UHF power switch . . . . . Batt

*If unable to restore UHF:*

6. UHF power switch . . . . . Norm
7. Use alternative radio

*If UHF, VHF and standby UHF are all lost:*

8. IFF/SSR . . . . . Squawk 7600
9. Transmit blind
10. Listen out on ILS ident
11. Carry out loss of communications procedure

**MICROPHONE FAILURE**

1. Helmet and PEC connections . . . . . Check
2. IFF/SSR . . . . . Squawk 7600
3. Carry out speechless procedure (Use TONE button on main UHF radio)

**FAILURE TO TRANSMIT**

*If metallic click on PTT but no carrier wave heard with intercom normal:*

1. Use alternative radio

*If no metallic click or carrier wave heard:*

1. Alt PTT . . . . . Select and use

*If fault remains:*

2. Carry out **MICROPHONE FAILURE** (above)

## LOW SPEED HANDLING CHECK

**CAUTION:** Do not decrease airspeed to less than threshold speed or a speed at which half aileron or half rudder deflection is required to maintain balanced flight. This is the minimum control speed (MCS)

1. Radio . . . . . Distress call. Consider agency, intentions, airborne inspection
2. Setup . . . . . Consider height (ideally 5000ft AGL) vs remaining VMC
3. Position. . . . . Consider proximity to airfield and habitation

Explore handling in pitch and bank after each of the following steps. Note AOB limit and MCS if applicable.

4. Speed . . . . . Decrease slowly to downwind speed. Use height to regain speed/control if necessary
5. Airspeed . . . . . Below 200 kts
6. Landing gear . . . . . DOWN, confirm 3 greens
7. Flaps. . . . . MID
8. Flaps. . . . . DOWN

Fly a suitable approach profile to not less than threshold speed, or MCS plus 10 kts, and within the AOB limits tested.

**NOTE 1:** If handling problems encountered due to deceleration, note MCS and fly approach at MCS plus 10 kts. Do not touchdown at less than MCS.

**NOTE 2:** If handling problems encountered due to flap selection, reverse selection.

**NOTE 3:** If control cannot be regained - **EJECT**