

**DAP 101B-4104-1EP CHAPTER 29 &#160; EMERGENCY EQUIPMENT &#160; -  
PRELIMINARY MATERIAL**

NATO RESTRICTED

**DAP 101B-4104-1EP**

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**TORNADO GR MK.4 AND 4A  
AIRCRAFT  
AIRCRAFT MAINTENANCE MANUAL  
CHAPTER 29  
EMERGENCY EQUIPMENT**

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**BY COMMAND OF THE DEFENCE COUNCIL**

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## 29-10 EJECTION SEATS MAINTENANCE PROCEDURE 29-10/3 (40 work blocks) 06/09

EJECTION SEAT AND CARTRIDGES INSTALLATION [\*\*\* MANDATORY \*\*\*]

### MANDATORY MAINTENANCE PROCEDURE

ASSOCIATED CARDS	POWER
AP 101B-4100-6A	YES
AP 101B-4104-1EL	
AP 101B-4104-1EP	
AP 101B-4104-1HA	
AP 101B-4104-1LA2	
MP 07-40/1	
MP 15-13/2	
MP 24-40/1	
MP 25-11/1	
MP 29-10/6	
MP 29-30/2	
MP 80-10/18	
MP 80-10/18A	
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Note . . .

This procedure is **not** applicable if the canopy is in situ and is to remain in situ, during installation of the ejection seat. For installation of the ejection seat with the canopy in situ, refer to MP 29-10/8.

#### Equipment

Item	Reference	Application
Ejection seat servicing stand (MAGERD 7501)	MBSS 1 1730-99-4527666 or 1730-99-7922567 or 1730-99-7922568 or 4920-99-7304955 or	Holding the seat

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Item	Reference	Application
	4920-99-7669635 or 4920-99-7757632	
Ejection seat servicing stand adaptor (MAGERD 7503)	27L/6176141	Attaching seat to stand
Sling (MAGERD 2628)	P-890624-403 3940-99-6551831	Lifting the seat
Container (MAGERD 7555)	MBEU 63162 8140-99-6640158	Storing cartridges
Container	-	Storing rocket pack
First line tool kit (MAGERD 2549)	MBEU 56400-403 4920- 99-6596649	Refitting the seat
Vacuum cleaner	As available	Cleaning the cockpit
Torque wrench (2,5 N.m to 11 N.m)	As available	Torque tightening rocket pack bolts
Torque wrench (12 N.m to 68 N.m)	As available	Torque tightening firing units
Feeler gauge	As available	Clearance check between ejection gun mounting brackets and ejection gun mounting bolt locking devices
Mobile servicing platform: - height 2 m	As available	Access to aircraft
External electrical power supply source 200 V, 400 Hz, 3-phase a.c. (MAGERD 5301)	4FE/9722 or 4FE/2141397	Electrical power supplies to aircraft

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Item	Reference	Application
ADU safety pin	MBEU 77362 5340-99-2527727	Make the ADU safe on installation
ADU mode selector tool (MAGERD 5543)	MBEU 58633-403 4920-99-2558783	ADU mode selection - MAN or AUTO
Test set IFF/SSR, Type IFF-701 (MAGERD TBN)	10S/3925249	Testing the IFF
Type C-to-TNC adaptor	-	Adapting test IFF/SSR to the antenna switching unit
Splitter box (MAGERD 5358)	P-891350-403	Routeing 115 V, 400 Hz, single phase a.c. power from aircraft ground test socket to pressure controller

## Materials

Description	Specification		Application
	NATO	UK	
Loctite 222 8030-99-2251687	-	DTD 900/6003/A	The ejection gun mounting bolt locking devices
Grease (XG 293) 34B/2241797	G-395	DEF STAN 91-52	(i) Lubricating O-seals (ii) Command ejection quick disconnect

## Replacements

Item	Reference	Application
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Item	Reference	Application
O-seal	MBEU 35487 5330-99-1482268	Ejection gun primary cartridge
O-seal	MBEU 91799	Drogue gun primary cartridge
Water seal	MBEU 15869 5330-99-1057100	Ejection gun housings
Water seal	MBEU 70334 5330-99-6172576	Drogue gun barrel
Split pin	5315-12-1220984	ALIU and ADU static cables clevis pin
Split pin	5315-12-1221623	MDC trip rod clevis pin
Split pin	5315-99-9710567	Rocket pack fixed link arm clevis pin
Chromium-nickel locking wire, dia. 0,5 mm 30A/6363056	DTD 189A	Wire-locking ejection seat components

**WARNINGS . . .**

- (1) **IMPACT DAMAGE TO THE BREECH TIME DELAY FIRING UNIT (BTDFU). EXTREME CARE MUST BE TAKEN TO ENSURE THE BTDFU IS NOT DAMAGED DURING HANDLING OR MAINTENANCE. IMPACT DAMAGE TO THE BTDFU COULD CAUSE A CATASTROPHIC MALFUNCTION OF THE UNIT AND FAILURE OF THE ESCAPE SYSTEM.**
- (2) **DURING TRANSIT AND MAINTENANCE, THE FIRING UNIT MUST BE STORED IN A SUITABLE CONTAINER TO PREVENT ANY POSSIBILITY OF IMPACT DAMAGE.**
- (3) **WHEN FITTED TO THE EJECTION GUN, THE FIRING UNIT MUST BE SUITABLY PROTECTED AGAINST POSSIBLE IMPACT DAMAGE. IF THERE IS ANY SUSPICION THAT THE BTDFU HAS SUFFERED IMPACT DAMAGE, THE UNIT IS TO BE RETURNED TO THE APPROPRIATE MAINTENANCE BAY FOR INVESTIGATION.**

Note . . .

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During the ejection seat and cartridges installation, all O-seals must be examined, replaced if unserviceable and are to be lubricated with grease prior to fitting.

## AIRFRAME

### 1. PREPARATION

#### WARNING . . .

**THE PEC MICROPHONE/TELEPHONE (MIC/TEL) CONNECTOR CONTAINS BERYLLIUM/COPPER. REFER TO THE BERYLLIUM WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- |     |                         |         |
|-----|-------------------------|---------|
| 1.1 | PEC aircraft<br>portion |         |
|     | (a) Supply<br>hoses     | Examine |
|     | (b) MIC/TEL<br>lead     | Examine |

#### Note . . .

Item 1.2 is only applicable if the ejection seat/personal equipment connector (PEC) is being refitted after scheduled maintenance or replacement.

- |     |   |  |
|-----|---|--|
| 1.2 | PEC aircraft<br>portion                               | Refit (AP 101b-4104-1el Chap.25-11)<br>excluding Anti-g and Main Oxygen System<br>functional checks (see Item 27.1 and 27.2) |
| 1.3 | Canopy jettison<br>pipeline                           | Look for damage  |
| 1.4 | Aircraft ejection<br>gun mounting<br>brackets         | Examine  |
| 1.5 | Footspray<br>nozzles or<br>blanking plates<br>(4 off) | Ensure secure  |

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- |     |   |                           |
|-----|---|---------------------------|
| 1.6 | Headspray<br>nozzles or<br>blanking plates<br>(4 off) | Ensure secure             |
| 1.7 | Cockpit floor   | Clean with vacuum cleaner |

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(end of work block)

## AIRFRAME

### 2. EXAMINATION

Note . . .

Item 2.1 is a structural integrity item (Y coded) and is to be carried out by an Engineering Technician, Airframe tradesman.

- |     |  |         |
|-----|--|---------|
| 2.1 | Cockpit ejection<br>seat<br>attachments<br>and<br>surrounding<br>structure | Examine |
|-----|--|---------|

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(end of work block)

## WEAPONS

### WARNINGS . . .

- (1) **EXTREME CARE MUST BE EXERCISED WHEN MOVING EJECTION SEATS FITTED TO EJECTION SEAT MAINTENANCE STANDS. THE SEAT MUST BE IN THE VERTICAL POSITION WHEN THE SEAT STAND IS TO BE MOVED, REGARDLESS OF THE DISTANCES INVOLVED. WHEN THE EJECTION SEAT STAND IS STATIONARY, THE BRAKE MUST BE APPLIED. FULLY EQUIPPED SEATS (I.E. SAFETY EQUIPMENT FITTED) ARE NOT TO BE TILTED AND/OR ROTATED AS THE SEAT STAND MAY BECOME UNSTABLE AND TOPPLE. IF THERE IS A REQUIREMENT TO TILT AND/OR ROTATE THE SEAT, THE SAFETY EQUIPMENT (IF FITTED) IS TO BE REMOVED IAW MP 29-30/1.**
- (2) **ON PRE Mod. 02198 EJECTION SEATS, ONLY PRE MOD.02197 CARTRIDGE SETS (CARTRIDGE SET, EJECTION SEAT NO.16 MK.1, PART NO. MBEU 60008-4) ARE TO BE USED.**
- (3) **ON POST Mod. 02198 EJECTION SEATS, ONLY POST MOD.02197 CARTRIDGE SETS (CARTRIDGE SET, EJECTION SEAT NO.16 MK.2, PART NO. MBEU 115904) ARE TO BE USED.**

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Note . . .

During this procedure, before cartridges are refitted, the mating threads of all firing units/breeches are to be examined and the firing units screwed fully in to ensure there is no obstruction.

### 3. PREPARATION

- |            |   |  |
|------------|---|--|
| <b>3.1</b> | Ejection seat<br>cartridges                   | <ul style="list-style-type: none"> <li>(i) Examine</li> <li>(ii) Ensure correct modification state for seat being installed</li> <li>(iii) Ensure correct number and items for seat</li> <li>(iv) Ensure marked with the aircraft number, installed position, installed life expiry date and lot number</li> </ul> |
| <b>3.2</b> | Rocket pack                                   | <ul style="list-style-type: none"> <li>(i) Ensure the correct numbers and items for the seat</li> <li>(ii) Ensure marked with the installed life expiry date</li> <li>(iii) Examine as far as possible</li> <li>(iv) Ensure the firing unit screws in hand tight without restriction</li> </ul>                    |
| <b>3.3</b> | Ejection gun<br>and time-delay<br>firing unit | Ensure the correct items for the seat  |
| <b>3.4</b> | Emergency<br>oxygen gauge                     | Ensure indicates FULL  |
| <b>3.5</b> | Leg and arm<br>restraint<br>snubbing units    | Operate  |
| <b>3.6</b> | Leg restraint<br>line taper plugs             | <ul style="list-style-type: none"> <li>(i) Insert into their housings</li> <li>(ii) Ensure held securely</li> </ul>  |



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- |     |                           |  |
|-----|---------------------------|--|
| 3.7 | Man portion<br>dust cover | (i) Remove, ensuring the leg lines release<br><br>(ii) Refit |
| 3.8 | Go-forward<br>mechanism   | Operate  |
| 3.9 | Seat linkages             | Examine  |

Note . . .

Item 3.10 is applicable to pre Mod. 02198 installations only.

- |      |   |  |
|------|---|--|
| 3.10 | Ejection gun<br>sear withdrawal<br>safety lock<br>mechanism | (i) Rotate the sear withdrawal cross-shaft and linkage forward and engage the locking plunger fully into the recess in the shackle plunger housing<br><br>(ii) Attempt to rotate the seat firing cross shaft anti-clockwise by applying light hand pressure to the sear withdrawal lever assembly. If rotation is not possible and the ejection gun sear withdrawal safety lock is engaged, continue with item (iii). If rotation is possible and the ejection gun sear withdrawal safety lock is not engaged, the seat is to be returned to the ejection seat bay for maintenance<br><br>(iii) Disengage the sear withdrawal safety lock and rotate the seat firing cross shaft to facilitate the fitting of the time delay firing unit |
|------|---|--|

**WARNING . . .**

**DURING Item 3.11, LUBRICATION OF THE COMMAND FIRING CONNECTOR BALL BEARINGS IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- |      |   |  |
|------|---|--|
| 3.11 | Command firing<br>connector ball<br>bearing (3 off) | (i) Examine<br><br>(ii) Ensure lubricated with grease (XG-293) |
|------|---|--|

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(end of work block)

## WEAPONS

### 4. ROCKET PACK

- |     |             |  |
|-----|-------------|--|
| 4.1 | Firing unit | Remove from the rocket pack  |
| 4.2 | Cartridge   | <ul style="list-style-type: none"> <li>(i) Ensure the correct modification state for the seat being installed</li> <li>(ii) Refit</li> </ul>   |
| 4.3 | Firing unit | <ul style="list-style-type: none"> <li>(i) Ensure bay maintained</li> <li>(ii) Ensure the firing pin is not protruding</li> <li>(iii) Refit</li> <li>(iv) Torque tighten to 55 N.m</li> <li>(v) Lock with wire to the propellant tube</li> </ul> |

Note . . .

During Item 4.4, ensure the correct bolts are used when securing the rocket pack RH MBEU 60566 and LH MBEU 60565.

- |     |                            |  |
|-----|----------------------------|--|
| 4.4 | Rocket pack                | <ul style="list-style-type: none"> <li>(i) Position under the seat pan</li> <li>(ii) Insert the mounting bolts</li> </ul>  |
| 4.5 | Rocket pack mounting bolts | <ul style="list-style-type: none"> <li>(i) Torque tighten to 10 N.m</li> <li>(ii) Lock with wire</li> </ul>  |
| 4.6 | Rocket pack fixed link arm | <ul style="list-style-type: none"> <li>(i) Align with the bracket eye end</li> <li>(ii) Refit the clevis pin and a new split pin, ensuring the split pin is positioned outboard of the seat pan attachment bracket (Fig. 1)</li> </ul> |

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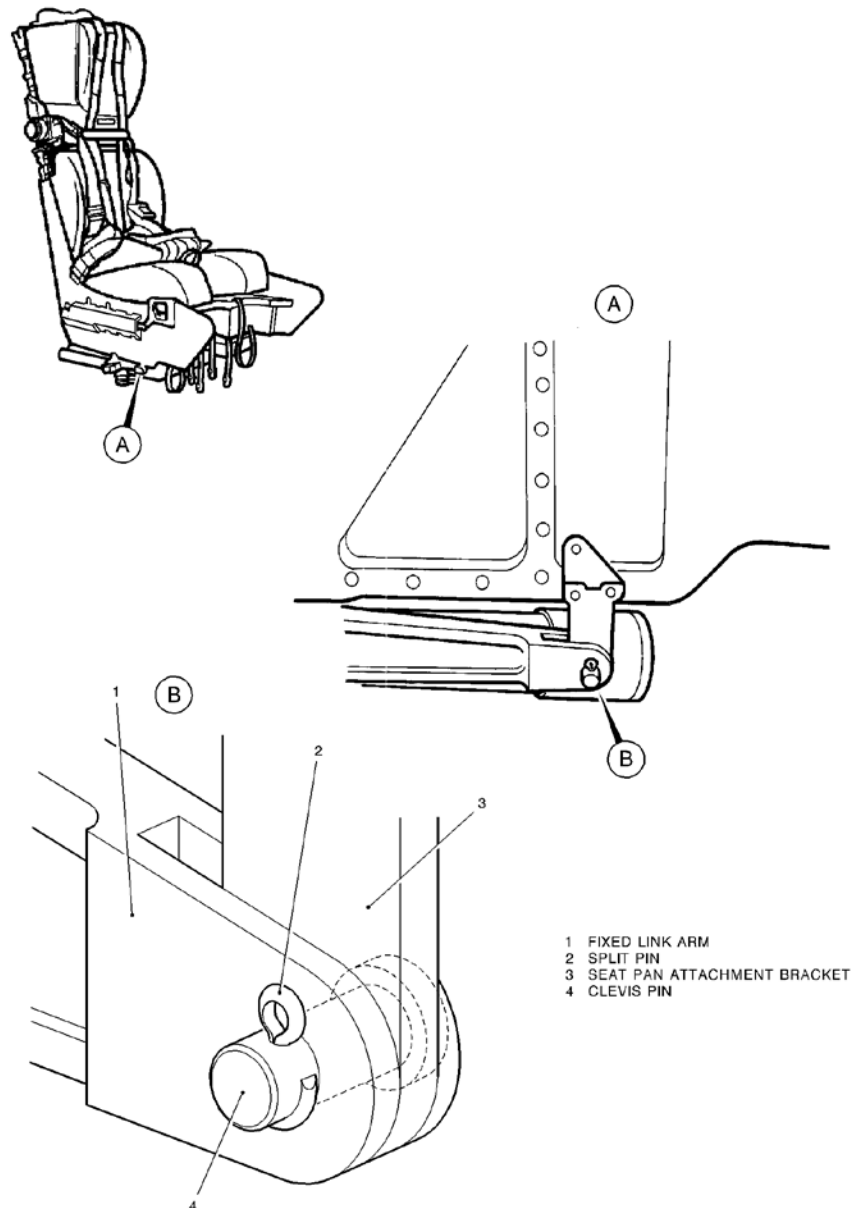
**4.7**

Remote rocket  
initiator flexible  
hose

- (i) Reconnect to firing unit
- (ii) Ensure routed correctly (Fig. 2)
- (iii) Torque tighten to between 19.2 N.m and 22.6 N.m
- (iv) Lock with wire

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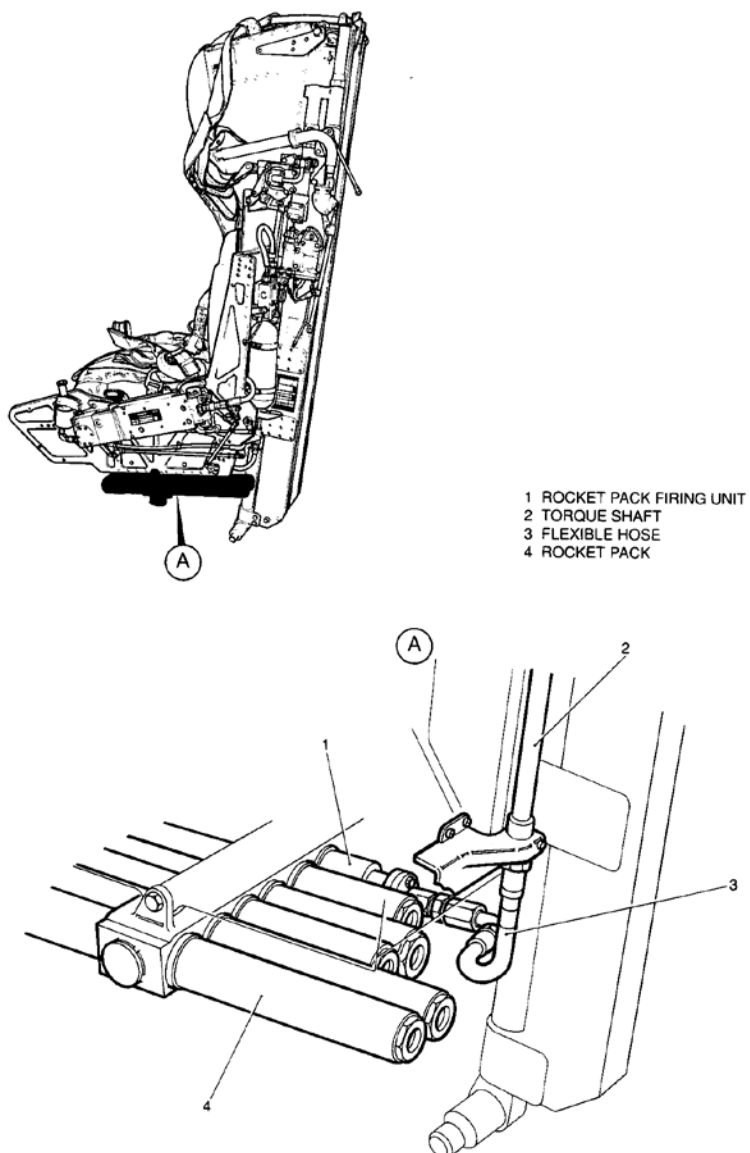
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**Fig. 1. Rocket pack fixed link arm attachment**

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**Fig. 2. Flexible hose route**

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(end of work block)

## WEAPONS

### 5. DROGUE GUN

- |     |                       |  |
|-----|-----------------------|--|
| 5.1 | Barrel                | Remove (if fitted)   |
| 5.2 | Secondary firing unit | Remove   |
| 5.3 | Secondary cartridge   | (i) Ensure the correct modification state for the seat being installed<br>(ii) Insert into breech  |
| 5.4 | Secondary firing unit | (i) Ensure firing pin is not protruding<br>(ii) Ensure shear pin is intact<br>(iii) Refit to breech<br>(iv) Torque tighten to 28 N.m<br>(v) Lock with wire |

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(end of work block)

## WEAPONS

### 6. REMOTE ROCKET INITIATOR

#### WARNING . . .

**PRIOR TO CARRYING OUT THE ACTIONS DETAILED AT Item 6.1 TO Item 6.4 INCLUSIVE, ENSURE THE TELESCOPIC PIPE ASSEMBLY IS DISCONNECTED IAW, MP 29-10/2 ITEM 14.5(a).**

- |     |             |  |
|-----|-------------|--|
| 6.1 | Firing unit | Remove from the breech   |
| 6.2 | Cartridge   | (i) Ensure the correct modification state for the seat being installed |

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- |     |                          |   |
|-----|--------------------------|---|
|     |                          | (ii) Insert into the breech   |
| 6.3 | Firing unit              | (i) Ensure the firing pin is not protruding<br>(ii) Refit to the breech<br>(iii) Torque tighten to 28 N.m |
| 6.4 | Firing unit              | Lock with wire  |
| 6.5 | Firing link              | Ease the sear and reconnect   |
| 6.6 | Telescopic pipe assembly | Connect and fit the securing pin  |

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(end of work block)

## WEAPONS

### 7. HARNESS POWER RETRACTION UNIT

- |     |             |  |
|-----|-------------|--|
| 7.1 | Firing unit | Remove from the breech   |
| 7.2 | Cartridge   | (i) Ensure the correct modification state for the seat being installed<br>(ii) Insert into the breech  |
| 7.3 | Firing unit | (i) Ensure the firing pin is not protruding<br>(ii) Ensure the shear pin is intact<br>(iii) Refit to the breech<br>(iv) Torque tighten to 28 N.m<br>(v) Lock with wire |

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(end of work block)

## WEAPONS

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## 8. MANUAL SEPARATION UNIT

- |             |                                   |   |
|-------------|-----------------------------------|---|
| <b>8.1</b>  | Firing link                       | Disconnect from the sear  |
| <b>8.2</b>  | Seat pan firing handle linkage    | Ensure disconnected from the firing unit sear   |
| <b>8.3</b>  | Seat pan firing handle safety pin | Remove  |
| <b>8.4</b>  | Manual separation handle          | Raise to separate the linkage from the sear   |
| <b>8.5</b>  | Firing unit                       | Remove from the breech  |
| <b>8.6</b>  | Cartridge                         | <ul style="list-style-type: none"> <li>(i) Ensure the correct modification state for the seat being installed</li> <li>(ii) Insert into the breech</li> </ul>   |
| <b>8.7</b>  | Firing unit                       | <ul style="list-style-type: none"> <li>(i) Ensure the firing pin is not protruding</li> <li>(ii) Refit to the breech</li> <li>(iii) Fit the spanner with the slot at the same side as the sear hole and torque tighten to 28 N.m</li> </ul> |
| <b>8.8</b>  | Firing unit                       | Lock with wire  |
| <b>8.9</b>  | Manual separation handle          | Pull rearwards on the connecting link, at the same time ease the handle into the locked position  |
| <b>8.10</b> | Seat pan firing handle safety pin | Refit and ensure fully inserted   |
| <b>8.11</b> | Manual separation firing linkage  | Reconnect to the sear using nut and bolt  |
| <b>8.12</b> | Manual                            | Refit   |



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separation firing  
link guard

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(end of work block)

## WEAPONS

### 9. SEAT PAN FIRING UNIT

- |     |                             |        |
|-----|-----------------------------|--------|
| 9.1 | Firing handle<br>safety pin | Remove |
|-----|-----------------------------|--------|

#### CAUTION . . .

**To avoid distorting the firing handle linkage, the firing handle is to be removed from its housing prior to fitting the seat pan firing unit.**

- |     |                             |   |
|-----|-----------------------------|---|
| 9.2 | Seat pan firing<br>handle   | Carefully remove from its housing   |
| 9.3 | Firing unit                 | Remove from breech  |
| 9.4 | Cartridge                   | <ul style="list-style-type: none"> <li>(i) Ensure the correct modification state for the seat being installed</li> <li>(ii) Insert into breech</li> </ul>   |
| 9.5 | Firing unit                 | <ul style="list-style-type: none"> <li>(i) Ensure firing pin is not protruding</li> <li>(ii) Refit to breech</li> <li>(iii) Fit spanner with slot at the same side as sear and torque tighten to 28 N.m</li> <li>(iv) Lock with wire</li> </ul> |
| 9.6 | Seat pan firing<br>handle   | Refit into its housing  |
| 9.7 | Firing handle<br>safety pin | Refit and ensure fully inserted   |

#### CAUTION . . .

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**During Item 9.8, care must be taken to ensure bolt passes through sear attachment hole.**

<b>9.8</b>	Firing link	Reconnect to sear using nut and bolt
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(end of work block)

### WEAPONS

#### 10. EJECTION GUN

<b>10.1</b>	Housing caps	Remove
-------------	--------------	--------

<b>10.2</b>	Housings	Inspect water seal and replace if necessary
-------------	----------	---

<b>10.3</b>	Secondary cartridges	(i) Ensure the correct modification state for the seat being installed
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(ii) Refit

<b>10.4</b>	Housing caps	(i) Refit
		(ii) Lock with wire

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(end of work block)

### WEAPONS NCO

#### 11. VITAL CHECKS

<b>11.1</b>	Ejection gun housing caps	Ensure refitted correctly and locked with wire
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(end of work block)

### WEAPONS

#### 12. EJECTION GUN INSTALLATION

<b>12.1</b>	Ejection gun mounting	Examine
-------------	-----------------------	---------

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brackets

Note . . .

During Item 12.2, if difficulty is experienced in aligning the upper bracket, the bolts securing it may be loosened, the mounting bolts fitted and the bracket bolts retightened and torque tighten to 5 N.m.

**12.2** Ejection gun Locate in mounting brackets

**12.3** Lower mounting bolt

- (i) Refit using self-locking nut
- (ii) Using a feeler gauge, check a clearance of 0,1 mm exists between outer face of lower bracket and self-locking nut

Note . . .

Sub-Item 12.3 (iii) and (iv) need only be carried out where the clearance is less than 0,1 mm.

(iii) Remove self-locking nut and retain

**WARNING . . .**

**IN SUB-Item 12.3 (iv),  
LOCTITE 222 IS APPLIED  
TO THE LOWER  
MOUNTING BOLT. REFER  
TO THE ANAEROBIC  
ADHESIVES WARNING IN  
THE PRELIMINARY PAGES  
OF THIS PUBLICATION.**

(iv) Apply Loctite (AP 101B-4100-6A , Chap.14-72) to bolt thread and refit existing self-locking nut, ensure a minimum clearance of 0,1 mm

**CAUTION . . .**

During Item 12.4, ensure the correct bolts are used when securing the ejection gun upper mounting bracket. These are:

- long bolt Pt. No.P-720182-007 (front seat) stamped 'F'

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- **short bolt Pt. No.P-720182-009 (rear seat) stamped 'R'**

**These bolts are NOT interchangeable.**

**12.4**

Upper mounting  
bolt

- (i) Refit using self-locking nut
- (ii) Using a feeler gauge, check a clearance of 0,1 mm exists between the outer face of the upper bracket and the self-locking nut

Note . . .

Sub-Item 12.4 (iii) and (iv)  
need only be carried out  
where the clearance is less  
than 0,1 mm.

- (iii) Remove the self-locking nut and retain

**WARNING . . .**

**IN SUB-Item 12.4 (iv),  
LOCTITE 222 IS APPLIED  
TO THE UPPER  
MOUNTING BOLT. REFER  
TO THE ANAEROBIC  
ADHESIVES WARNING IN  
THE PRELIMINARY PAGES  
OF THIS PUBLICATION.**

- (iv) Apply Loctite (AP 101B-4100-6A ,  
Chap.14-72) to the bolt thread and refit  
existing self-locking nut, ensure a  
minimum clearance of 0,1 mm

Note . . .

Item 12.5 is only applicable if the command ejection flexible pipe has not been removed for bay maintenance.

**12.5**

Command  
ejection flexible  
pipe

Examine

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## Notes . . .

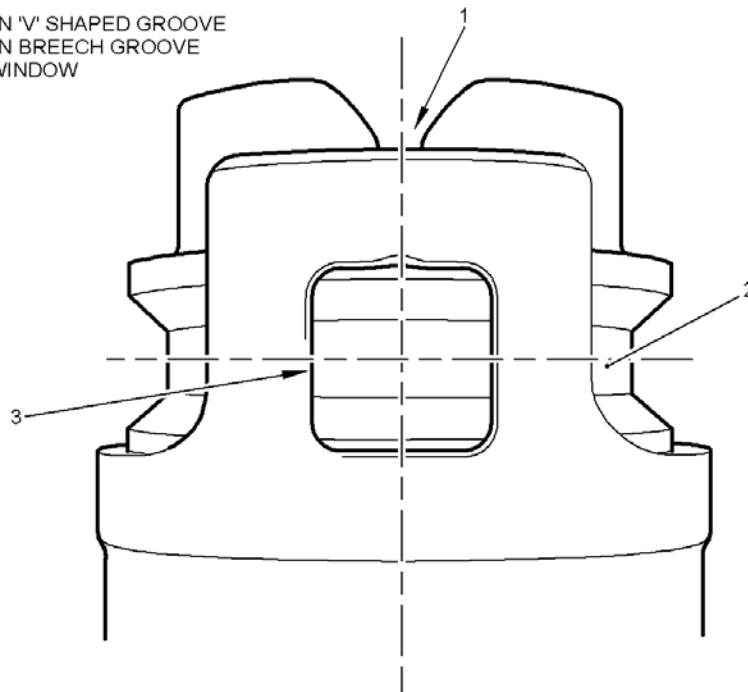
- (1) Operations 12.6 and 12.7 are only applicable if the command ejection flexible pipe has been removed for bay maintenance.
- (2) If pipe assemblies MBEU60035 (front cockpit) and MBEU60042 (rear cockpit) are of Aeroquip manufacture (Chap. 29-00), fit in accordance with Para. 3.4.

<b>12.6</b>	Command ejection flexible pipe - front	Long pipe with 90-degree angled union fit to front cockpit bulkhead and lock with wire
<b>12.7</b>	Command ejection flexible pipe - rear	Short pipe with 45-degree angled union fit to rear cockpit bulkhead and lock with wire
<b>12.8</b>	Command ejection quick-disconnect	<ol style="list-style-type: none"> <li>(i) Remove blank</li> <li>(ii) Examine</li> <li>(iii) Ensure freedom of movement of spring components</li> </ol>
<b>12.9</b>	Command ejection quick-disconnect static line	Reconnect to the ejection gun cross-beam. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger
<b>12.10</b>	Time-delay firing unit	Ensure removed
<b>12.11</b>	Inner Piston	Ensure: <ol style="list-style-type: none"> <li>(i) The V shaped grooves, for locating upper cross member dowel pin, are aligned with the centre of the ejection gun guide rails (Fig. 3)</li> <li>(ii) The centre of the breech groove is aligned with the centre of the top latch window (Fig. 3)</li> </ol>

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~~NATO RESTRICTED~~

- 1 INNER PISTON 'V' SHAPED GROOVE
- 2 INNER PISTON BREECH GROOVE
- 3 TOP LATCH WINDOW



**Fig. 3. Correct alignment of inner piston V shaped grooves, inner piston breech groove and outer cylinder top latch window (pre and post Mod.02198 part B)**  
(New illustration)

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(end of work block)

### ELECTRICAL

#### 13. RELAY BOX 318VE AND 319VE

- |              |  |  |
|--------------|--|--|
| <b>13.1</b>  | Relay box<br>318VE and<br>319VE (pre<br>Mod. 02361<br>aircraft)  | <ul style="list-style-type: none"> <li>(i) Refit (AP 101b-4104-1la2 Chap.80-10)</li> <li>(ii) Carry out post installation test (AP 101b-4104-1la2 MP 80-10/18)</li> </ul>  |
| <b>13.1A</b> | Relay box<br>318VE and<br>319VE (post<br>Mod. 02361<br>aircraft) | <ul style="list-style-type: none"> <li>(i) Refit (AP 101b-4104-1la2 Chap.80-10)</li> <li>(ii) Carry out post installation test (AP 101b-4104-1la2 MP 80-10/18A)</li> </ul> |

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(end of work block)

### WEAPONS NCO

#### 14. VITAL CHECKS

- |             |   |   |
|-------------|---|---|
| <b>14.1</b> | Rocket pack                                     |   |
|             | (a) Pack  | Ensure fitted correctly and locked with wire  |
|             | (b) Firing unit                                 | Ensure fitted correctly and locked with wire  |
|             | (c) Remote<br>rocket initiator<br>flexible hose | Ensure routed correctly (Fig. 2) and locked<br>with wire  |
|             | (d) Fixed link<br>clevis pin                    | <ul style="list-style-type: none"> <li>(i) Ensure fitted</li> <li>(ii) Ensure split pin is located outboard of<br/>the seat pan attachment bracket</li> </ul> |
| <b>14.2</b> | Drogue gun                                      |   |
|             | (a) Drogue gun<br>body                          | Ensure refitted correctly   |

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- |             |   |  |
|-------------|---|--|
|             | (b) Inlet connector pipe                  | Ensure reconnected correctly and locked with wire    |
|             | (c) Secondary cartridge firing unit       | Ensure refitted correctly and locked with wire       |
|             | (d) Trip rod                              | Ensure reconnected correctly with the support roller |
| <b>14.3</b> | Remote rocket initiator                   |  |
|             | (a) Initiator unit                        | Ensure refitted correctly                            |
|             | (b) Firing unit                           | Ensure refitted correctly and locked with wire       |
|             | (c) Firing link                           | Ensure refitted correctly                            |
| <b>14.4</b> | Harness power retraction unit firing unit | Ensure refitted correctly and locked with wire       |
| <b>14.5</b> | Seat pan firing unit                      |  |
|             | (a) Safety pin                            | Ensure refitted and fully inserted                   |
|             | (b) Firing unit                           | Ensure refitted correctly and locked with wire       |

**CAUTION . . .**

**During sub-Item 14.5 (c), care must be taken to ensure the seat pan firing unit sear is correctly oriented, and the firing link/sear attachment bolt has passed correctly through the sear bolt hole.**

- |             |                        |  |
|-------------|------------------------|--|
|             | (c) Firing link        | Ensure reconnected correctly.                  |
| <b>14.6</b> | Manual separation unit |  |
|             | (a) Firing unit        | Ensure refitted correctly and locked with wire |
|             | (b) Firing link        | Ensure reconnected correctly                   |



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- |              |   |  |
|--------------|---|--|
|              | (c) Manual separation handle            | Ensure in the locked position  |
|              | (d) Manual separation firing link guard | Ensure fitted correctly  |
| <b>14.7</b>  | Emergency oxygen cylinder               | (i) Ensure refitted correctly<br>(ii) Ensure the contents gauge indicates FULL   |
| <b>14.8</b>  | Command ejection flexible pipe - front  | Ensure the long pipe with a 90-degree angled union is fitted to the front cockpit bulkhead and locked with wire  |
| <b>14.9</b>  | Command ejection flexible pipe - rear   | Ensure the short pipe with a 45-degree angled union is fitted to the rear cockpit bulkhead and locked with wire  |
| <b>14.10</b> | Ejection Gun                            | Ensure:<br>(i) Refitted correctly<br>(ii) The V shaped grooves, for locating upper cross member dowel pin, are aligned with the centre of the ejection gun guide rails (Fig. 3)<br>(iii) The centre of the breech groove is aligned with the centre of the top latch window (Fig. 3)<br>(iv) Command ejection quick-disconnect static line. Ensure reconnected to the cross-beam. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger |

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(end of work block)

## WEAPONS

### 15. EJECTION SEAT INSTALLATION

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Note . . .

Item 15.1 and 15.4 inclusive are applicable only if one ejection seat is already installed or if the canopy jettison or MDC systems are armed.

<b>15.1</b>	Ejection seat	Ensure a safety pin is fully inserted in seat pan firing handle
<b>15.2</b>	Canopy jettison system	Ensure a safety pin is fitted in canopy jettison initiator unit
<b>15.3</b>	Miniature detonating cord (MDC) system	Ensure a safety pin is fitted in each MDC cord initiator unit
<b>15.4</b>	Command ejection controller	Ensure set to REAR
<b>15.5</b>	Cockpit	Look for loose articles
<b>15.6</b>	Leg and arm restraint floor anchorage brackets	Examine
<b>15.7</b>	PEC static line anchorage bracket	Examine
<b>15.8</b>	Seat stabilizing brackets	Examine
<b>15.9</b>	Head spray connections	Examine
<b>15.10</b>	PEC	
	(a) Aircraft portion	Remove protective cover
	(b) Supply hoses	Examine
	(c) MIC/TEL lead	Examine

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- |                  |  |
|------------------|--|
| (d) Static line  | Examine  |
| (e) Oxygen valve | Operate and ensure freedom of movement   |
| (f) Static line  | Reconnect to floor anchorage. Ensure routed correctly (AP 101b-4104-1el Chap.25-11). Ensure Quick release pin (QRP) is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised lock button protruding). Without touching anodised lock button, take up free play in lock lever and attempt to withdraw pin. The pin must be securely retained |

15.11

Ejection seat

- (i) Ensure the handwheel is screwed in fully
- (ii) Fit the lifting sling
- (iii) Raise to position above the guide rails

**CAUTIONS . . .**

- (1) To prevent damage to the seat pan actuator/IFF socket connector (2MG front seat, 4MG rear seat) pull-off lanyard, ensure it will not be trapped when the ejection seat is lowered into position.
- (2) During lowering of seat, ensure that the dowel pin, on the right hand inside face of the main beam upper cross member, locates in the V shaped groove of the inner piston of the ejection gun.

15.12

Lower slippers

Engage in the guide rails and lower seat, engaging each set of slippers in turn

15.13

Ejection Gun  
Inner Piston

Ensure protruding through the upper cross member and the dowel pin on the right hand inside face of the upper cross member is located in the V shaped groove of the inner piston (Fig. 4 or 4A)

15.14

Handwheel

Remove from the top latch plunger

**WARNING . . .**

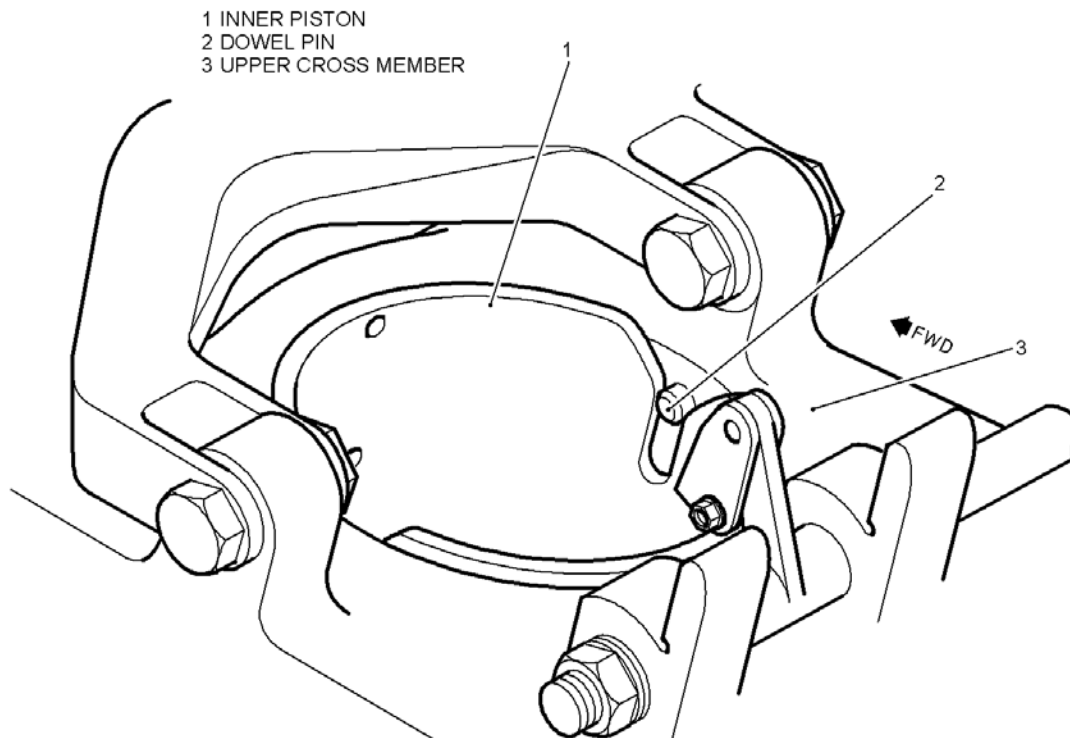
**FAILURE TO ENSURE CORRECT ENGAGEMENT OF THE TOP LATCH PLUNGER COULD, DURING CERTAIN MANOEUVRES, RESULT IN THE SEAT AND OCCUPANT MOVING UP THE GUIDE RAILS WITH POSSIBLE FATAL RESULTS.**

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- |              |               |   |
|--------------|---------------|---|
| <b>15.15</b> | Top Latch     | <ul style="list-style-type: none"><li>(i) Ensure the indicator spigot is flush with, or slightly protruding from the face of the top latch plunger</li><li>(ii) Ensure the top latch plunger is flush with, or slightly below, the plunger housing face (Fig. 5 or 5A) and (Fig. 6 and 7)</li></ul> |
| <b>15.16</b> | Ejection Seat | Ensure positively locked by attempting to raise   |
| <b>15.17</b> | Lifting sling | Remove  |

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~~NATO RESTRICTED~~

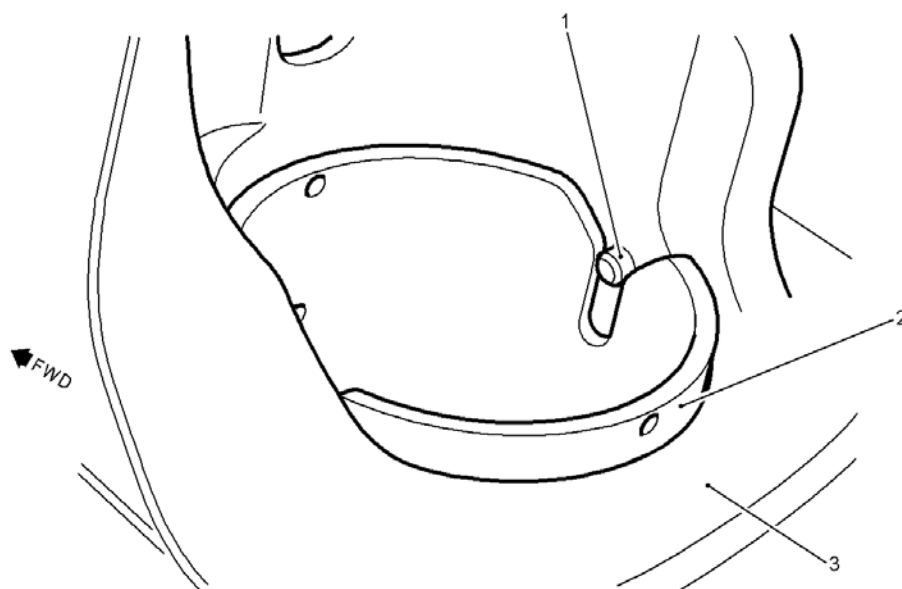


**Fig. 4. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (pre Mod.02198 part B)**  
(New illustration)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

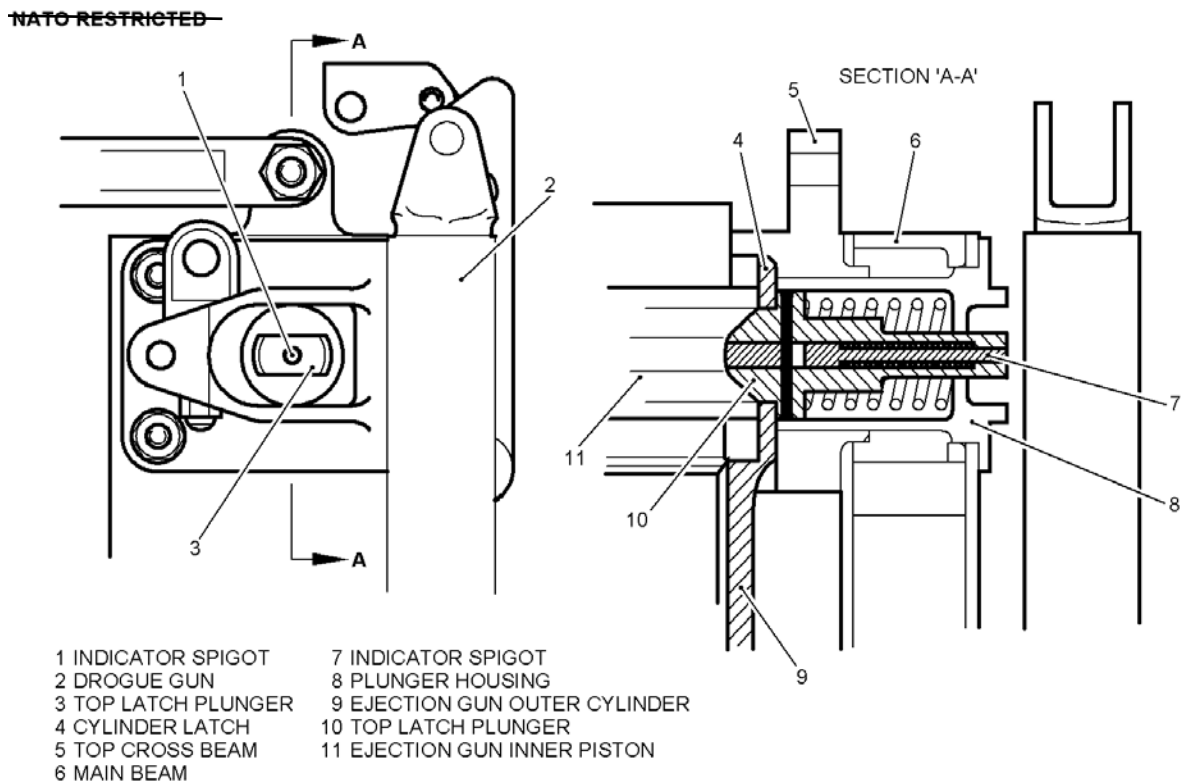
~~NATO RESTRICTED~~

- 1 DOWEL PIN
- 2 INNER PISTON
- 3 UPPER CROSS MEMBER



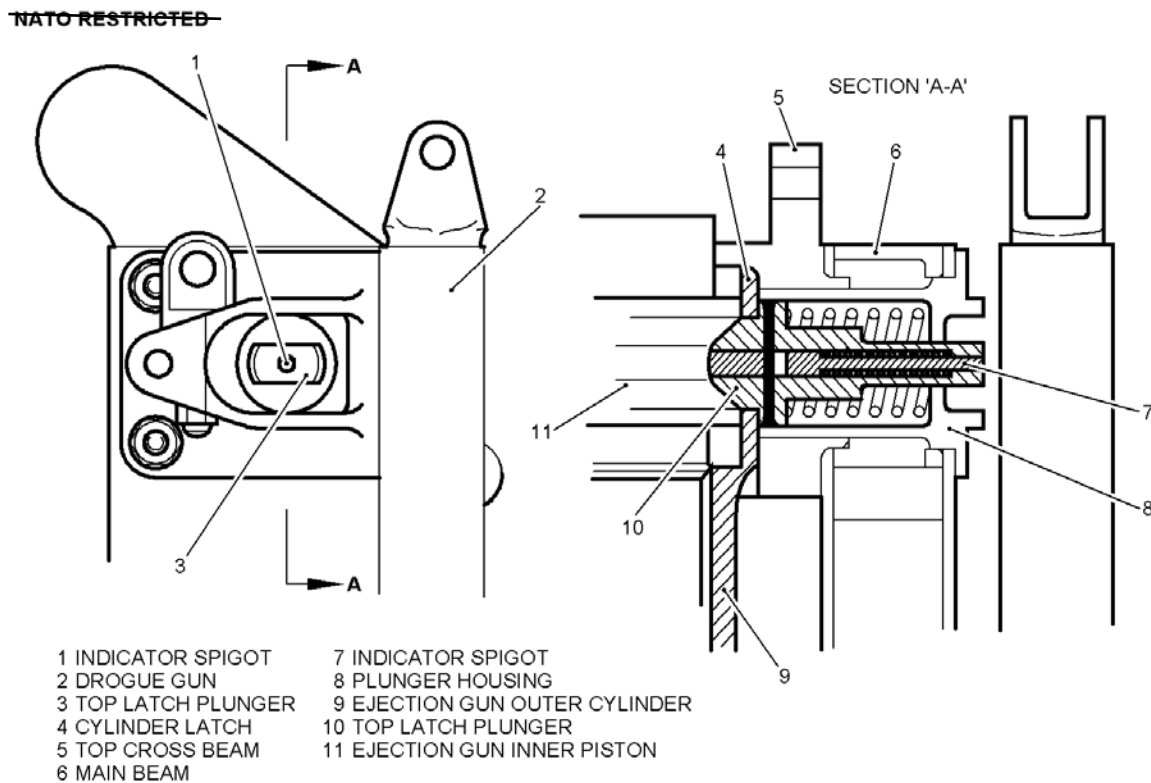
**Fig. 4A. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (post Mod.02198 part B)**  
(New illustration)

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**Fig. 5. Correct engagement of the top latch (pre Mod.02198 part B)**  
(New illustration)

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**Fig. 5A. Correct engagement of the top latch (post Mod.02198 part B)**  
(New illustration)



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**Fig. 6. Correct engagement of the top latch-plunger view (pre and post Mod.02198 part B)**  
*(New illustration)*

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**Fig. 7. Correct engagement of the top latch-spigot view (pre and post Mod.02198 part B)**  
*(New illustration)*

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(end of work block)

## WEAPONS NCO

### 16. VITAL CHECKS

#### WARNING . . .

**FAILURE TO ENSURE CORRECT ENGAGEMENT OF THE TOP LATCH PLUNGER COULD, DURING CERTAIN MANOEUVRES, RESULT IN THE SEAT AND OCCUPANT MOVING UP THE GUIDE RAILS WITH POSSIBLE FATAL RESULTS.**

- |             |                              |  |
|-------------|------------------------------|--|
| <b>16.1</b> | Top Latch                    | <ul style="list-style-type: none"> <li>(i) Ensure the indicator spigot is flush with, or slightly protruding from the face of the top latch plunger</li> <li>(ii) Ensure the top latch plunger is flush with, or slightly below, the plunger housing face (Fig. 5 or 5A) and (Fig. 6 and 7)</li> </ul> |
| <b>16.2</b> | Ejection Gun<br>Inner Piston | Ensure protruding through the upper cross member and the dowel pin on the right hand inside face of the upper cross member is located in the V shaped groove of the inner piston (Fig. 4 or 4A)  |

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(end of work block)

## WEAPONS

### 17. SEAT STRUCTURE CONNECTION

- |             |                     |  |
|-------------|---------------------|--|
| <b>17.1</b> | Drogue gun trip rod | <ul style="list-style-type: none"> <li>(i) Examine</li> <li>(ii) Reconnect to the trip rod attachment bracket</li> <li>(iii) Check orientation of connections: yellow pin head, white anchorage lug, yellow trip rod, white anchorage lug</li> <li>(iv) Ensure positive locking of the securing</li> </ul> |
|-------------|---------------------|--|

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pin by attempting to withdraw the pin without depressing the plunger

- 17.2** Barostatic time-release unit trip rod
- (i) Examine
  - (ii) Reconnect to the trip rod attachment bracket rear anchorage point
  - (iii) Check orientation of connections: yellow pin head, white anchorage lug, yellow trip rod, white anchorage lug
  - (iv) Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger

#### CAUTION . . .

**The MDC trip rod is assembled with a shear pin which is designed to fail just after the MDC has been fired. The condition of this shear pin is critical to the correct functioning of the escape system and, because of this, the trip rod must be replaced at the slightest suspicion of damage.**

- 17.3** MDC trip rod
- (i) Examine MDC cross-shaft trip rod lever (P721143-001) for signs of cracking using a suitable light source, mirror and x10 magnifier
  - (ii) Reconnect to the cross-shaft
  - (iii) Ensure the roller is just touching the tongue of the lever attached to the cockpit cross-shaft
- 17.4** Head spray connections Reconnect
- 17.5** Aircraft Ensure electrically safe. (Check circuit-breakers 122 and 165 tripped)

#### Note . . .

When carrying out Item 17.6, socket connector 2MG/4MG is correctly reconnected when a contrasting colour stripe under the coupling ring is visible. The contrasting colour stripe is only visible when the fully mated condition is achieved.

- 17.6** Seat pan
- (i)

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	actuator/IFF socket connector (2MG front seat, 4MG rear seat)	Remove from its stowage (ii) Examine (iii) Reconnect to the mating plug connector
<b>17.7</b>	PEC aircraft portion	Reconnect to seat portion
<b>17.8</b>	Arm and leg restraint lines	(i) Remove QRP from leg restraint line securing brackets  (ii) Reconnect to floor anchorage. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised lock button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin. The pin must be securely retained  (iii) Ensure arm restraint line is secured to floor anchorage with long side of link uppermost and point facing forward  (iv) Ensure roller is positioned to rear of floor anchorage  (v) Ensure link rotates freely to a vertical position when arm restraint system is manually tensioned

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(end of work block)

## WEAPONS

### 18. BAROSTATIC TIME-RELEASE UNIT

<b>18.1</b>	Breech	Remove from firing body
<b>18.2</b>	Cartridge	(i) Ensure the correct modification state for the seat being installed  (ii) Insert into breech
<b>18.3</b>	Firing body	Ensure the firing pin is not protruding

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- 18.4**                      Breech
- (i) Insert into firing body
  - (ii) Torque tighten to 28 N.m
  - (iii) Lock with wire

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(end of work block)

## WEAPONS

### 19.      EJECTION GUN

#### WARNING . . .

**DURING Item 19.1, LUBRICATION OF THE PRIMARY CARTRIDGE O-SEAL IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- 19.1**                      Primary cartridge
- (i) Ensure the correct modification state for the seat being installed
  - (ii) Fit new O-seal lubricated with grease (XG-293)
  - (iii) Insert into breech

#### CAUTIONS . . .

- (1) During Item 19.2, care must be taken during the fitment of the time-delay firing unit to ensure the foil identification label is not damaged by the breech dowel pins, causing pieces of the label to fall onto the primary cartridge. Damaged labels must be replaced.
- (2) When screwing the BTDFU into the ejection gun, the drogue shackle link must be rotated forward to prevent the BTDFU rubbing against the link and eroding protective finish.
- (3) Post Mod.02198 Part B; When the final torque tightening load is applied tot the BTDFU, ensure the gas adaptor on top of the BTDFU is positioned such that it does not foul against the ejection seat upper cross member/gas shackle.

#### Note . . .

It should be noted that the foil identification labels referred to in the following caution were removed under log modification 4326 and replaced with the details engraved onto the BTDFU. However some BTDFUs with foil identification labels may still remain in circulation.

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- 19.2** Time delay firing unit
- (i) Ensure the firing pin is not protruding
  - (ii) Insert into breech past the dowel pins
  - (iii) Pre Mod.02198 Part B - tighten; Post Mod.02198 Part B - torque load to 250 lbf/in
  - (iv) Lock with wire

Note . . .

Item 19.3 is applicable to pre Mod. 02198 installations only.

- 19.3** Sear withdrawal cross-shaft and linkage
- (i) Rotate forward and engage locking plunger fully into recess in shackle plunger housing
  - (ii) Attempt to rotate seat firing cross shaft anti-clockwise by applying light hand pressure to sear withdrawal lever assembly. If rotation **is not** possible and ejection gun sear withdrawal safety lock **is** engaged, continue with operation (iii). If rotation **is** possible and ejection gun safety lock **is not** engaged, the seat is to be removed and returned to seat bay for maintenance
  - (iii) Connect linkage to sear using a nut and bolt

Note . . .

Item 19.4 is applicable to post Mod. 02198 installations only.

- 19.4** Time-delay firing unit gas supply flexible hose
- (i) Connect to the gas adaptor on top of the time-delay firing unit
  - (ii) Fit the quick-release pins (2 off) to secure the hose to the time-delay firing unit. Ensure the ends of the quick release pins (2 off) are not in contact with the castellations of the BTDFU
  - (iii)

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Without depressing the release plunger, ensure the quick release pins are correctly locked and free to move

- (iv) If any of the above criteria cannot be met, remove the quick release pins (2 off) and disconnect the gas pipe from the BTDFU
- (v) Holding the gas pipe (MBEU 116671) rotate the connecting block (MBEU 111476) on the pipe to ease the repositioning of the quick release pins
- (vi) Refit the gas pipe to the BTDFU, refit the quick release pins (2 off) and repeat the checks at 19.4 (ii) and (iii)

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(end of work block)

## WEAPONS

### 20. DROGUE GUN

20.1	Barrel	Inspect water seal and replace if necessary
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#### WARNING . . .

**DURING Item 20.2, LUBRICATION OF THE PRIMARY CARTRIDGE O-SEAL IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

20.2	Primary cartridge	<ul style="list-style-type: none"> <li>(i) Ensure the correct modification state for the seat being installed</li> <li>(ii) Fit new O-seal lubricated with grease (XG-293)</li> <li>(iii) Insert into the barrel</li> </ul>
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20.3	Firing body	Ensure the firing pin is not protruding
------	-------------	---

20.4	Barrel	<ul style="list-style-type: none"> <li>(i) Remove shear pin</li> <li>(ii) Screw into body</li> <li>(iii)</li> </ul>
------	--------	---



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Torque tighten to 18 N.m

- (iv) Turn piston inside barrel so that piston fork end groove faces fore and aft. Align hole in piston with nearest shear pin hole in barrel. Unscrew the barrel sufficiently to allow fitment of special shear pin
- (v) Fit special shear pin with head inboard, splay pin legs to lock pin
- (vi) Torque tighten to 18 N.m and lock with wire

<b>20.5</b>	Command ejection quick-disconnect	Reconnect to sequencing manifold ensuring that red line on sequencing manifold is not visible when viewed from the horizontal
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(end of work block)

### WEAPONS

#### 21. SAFETY EQUIPMENT

<b>21.1</b>	Safety equipment	Refit (MP 29-30/2)
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(end of work block)

### WEAPONS NCO

#### 22. VITAL CHECKS

<b>22.1</b>	Ejection seats	Ensure the safety pin is fully inserted in each seat pan firing handle
<b>22.2</b>	Canopy jettison system	Ensure the safety pin is fitted in the canopy jettison initiator unit
<b>22.3</b>	MDC	Ensure a safety pin is fitted in each MDC initiator unit
<b>22.4</b>	Command ejection controller	Ensure set to REAR

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(end of work block)

## **ELECTRICAL**

### **23. EXTERNAL POWER SUPPLY**

- |             |                               |  |
|-------------|-------------------------------|--|
| <b>23.1</b> | External a.c.<br>power supply | Connect and switch ON (AP 101B-4104-1HA<br>Chap.55-40) |
| <b>23.2</b> | Circuit-breaker<br>122        | Set (AP 101B-4104-1HA Chap.55-50)                      |

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(end of work block)

## **WEAPONS NCO**

### **24. VITAL CHECKS**

#### **CAUTION . . .**

**Prolonged operation of the motor will cause overheating; the seat pan actuator must not be operated for more than 1 min in 8 min.**

- |             |                      |  |
|-------------|----------------------|--|
| <b>24.1</b> | Seat pan<br>actuator | Operate over the complete range, ensuring<br>the aircraft portion PEC remains connected<br>with the seat pan in the highest position |
|-------------|----------------------|--|

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(end of work block)

## **ELECTRICAL**

### **25. EXTERNAL POWER SUPPLY**

- |             |                               |  |
|-------------|-------------------------------|--|
| <b>25.1</b> | External a.c.<br>power supply | Switch OFF (AP 101B-4104-1HA Chap.55-<br>40) |
|-------------|-------------------------------|--|

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(end of work block)

## **WEAPONS NCO**

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

## 26. VITAL CHECKS

- 26.1**                      Seat  
sequencing system      (i) Ensure reconnected correctly  
telescopic pipes      (ii) Ensure the securing pin has been refitted

### 26.2 BTRU

- (a) Firing unit      Ensure refitted correctly and locked with wire
- (b) Trip rod
- (i) Ensure reconnected to cross-beam rear anchorage point with trip rod (yellow) located between attachment bracket lugs (white) and securing pin (yellow head) positively located through attachment bracket and trip rod
- (ii) Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger

### 26.3 Ejection gun time-delay firing unit

- (a) Unit                      Ensure refitted correctly and locked with wire

Note . . .

Item 26.3 (b) is applicable to pre Mod. 02198 installations only.

- (b) Sear  
withdrawal cross-shaft and linkage
- (i) Ensure the linkage is correctly connected to sear
- (ii) Ensure the locking plunger is fully engaged in recess in shackle plunger housing

Note . . .

Item 26.4 is applicable to post Mod. 02198 installations only.

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- |             |   |   |
|-------------|---|---|
| <b>26.4</b> | Time-delay firing unit gas supply flexible hose | <ul style="list-style-type: none"><li>(i) Ensure connected correctly</li><li>(ii) Ensure the ends of the quick release pins (2 off) are not in contact with the castellations of the BTDFU</li><li>(iii) Without depressing the release plunger, ensure the quick release pins are correctly locked and free to move</li></ul>  |
| <b>26.5</b> |   |   |
|             | Drogue gun                                      |   |
|             | (a) Piston                                      | Ensure piston fork-end groove faces fore and aft  |
|             | (b) Special shear pin                           | Ensure fitted head inboard and ends splayed   |
|             | (c) Barrel                                      | Ensure refitted correctly and locked with wire  |
|             | (d) Trip rod                                    | <ul style="list-style-type: none"><li>(i) Ensure reconnected to cross beam anchorage point with trip rod (yellow) located between attachment bracket lugs (white) and securing pin (yellow head) positively located through attachment bracket and trip rod</li><li>(ii) Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger</li><li>(iii) Ensure remote rocket initiator static line has been reconnected</li></ul> |
| <b>26.6</b> |   |   |
|             | Remote rocket initiator telescopic pipe         | <ul style="list-style-type: none"><li>(i) Ensure reconnected correctly</li><li>(ii) Ensure securing pin has been refitted</li></ul>   |
| <b>26.7</b> |   |   |
|             | MDC trip rod                                    | <ul style="list-style-type: none"><li>(i) Ensure reconnected correctly</li><li>(ii) Ensure roller is just touching tongue of lever attached to cockpit cross-shaft</li></ul>  |
| <b>26.8</b> |   |   |
|             | PEC   |   |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- |                      |   |
|----------------------|---|
| (a) Aircraft portion | Ensure reconnected correctly  |
| (b) Static line      | Ensure reconnected and routed correctly to floor anchorage brackets. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin, the pin must be securely retained. |

**26.9**

Leg and arm restraint lines

- |       |  |
|-------|--|
| (i)   | Ensure reconnected and routed correctly to floor anchorage brackets. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin, the pin must be securely retained |
| (ii)  | Ensure arm restraint line is secured to floor anchorage with long side of link uppermost and point facing forward  |
| (iii) | Ensure roller is positioned to rear of floor anchorage   |
| (iv)  | Ensure link rotates freely to a vertical position when arm restraint system is manually tensioned  |

## Note . . .

When carrying out Item 26.10, socket connector 2MG/4MG is correctly reconnected when a contrasting colour stripe under the coupling ring is visible. The contrasting colour stripe is only visible when the fully mated condition is achieved.

**26.10**

Seat pan actuator/IFF socket connector (2MG front seat, 4MG rear seat)

Ensure correctly reconnected to its mating plug connector

**26.11**

Command ejection quick-

- |     |                                     |
|-----|-------------------------------------|
| (i) | Ensure reconnected to seat manifold |
|-----|-------------------------------------|

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

	disconnect	<ul style="list-style-type: none"> <li>(ii) Ensure red line on seat manifold is not visible when viewed from the horizontal</li> <li>(iii) Ensure static line is reconnected to cross-beam forward anchorage point. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger</li> </ul>
<b>26.12</b>	Parachute container	Ensure refitted correctly
<b>26.13</b>	Parachute withdrawal line lock	Ensure correctly located above the release mechanism
<b>26.14</b>	Drogue withdrawal shackle bolt	Ensure refitted correctly in the shackle
<b>26.15</b>	Shackle safety tie	Ensure routed correctly and intact
<b>26.16</b>	Drogue withdrawal line	<ul style="list-style-type: none"> <li>(i) Ensure routed correctly</li> <li>(ii) Ensure reconnected to the drogue gun piston</li> </ul>
<b>26.17</b>	Headspray connections	Ensure connected correctly
<b>26.18</b>	Harness assembly	
	(a) Upper harness	Ensure refitted correctly and held by the seat locks
	(b) Lap straps	Ensure refitted correctly and held by the seat locks
	(c) Negative-g strap	Ensure refitted correctly and held by the seat locks
<b>26.19</b>	PSP release connectors	Ensure routed and reconnected correctly

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

**26.20**                      Sticker straps      Ensure routed and reconnected correctly

**WARNING . . .**

**AUTOMATIC LIFERAFT INFLATION UNIT (ALIU) BATTERY STATIC LINE CONNECTIONS ARE ONLY APPLICABLE WHEN FITTING TEMPERATE, TROPICAL, DESERT SUMMER, DESERT WINTER AND JUNGLE VARIANT PSPs.**

- 26.21**                      PSP
- (a) ALIU battery static line      Ensure the static line is correctly reconnected to the seat pan anchor bracket with the clevis pin fitted from inboard to outboard and secured with split pin
  - (b) Lowering line arrowhead connector      Ensure reconnected to sticker clip
  - (c) ADU operating static line      Ensure the static line is correctly reconnected to the seat pan anchor bracket with the clevis pin fitted from inboard to outboard and secured with split pin
  - (d) ADU mode selector      Ensure set to AUTO
  - (e) ADU safety pin      Ensure removed
  - (f) Right hand side PSP D-ring      Ensure secure by applying a gentle pull upwards
- 26.22**                      Maintenance documentation      Enter as follows:
- (i) Certified vital checks satisfactorily completed
  - (ii) Record the following information in respect of all ejection seat cartridges:
    - (a) Maker/filler
    - (b) Lot No.
    - (c) Date of manufacture
    - (d) Date of renewal

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

(end of work block)

## AIRFRAME

### 27. PEC SEAT PORTION

<b>27.1</b>	Main oxygen system functional test	Carry out (AP 101b-4104-1el MP 25-11/1)
-------------	------------------------------------	---

Note . . .

Item 27.2 is only applicable if the ejection seat/PEC is being refitted after scheduled maintenance or replacement.

<b>27.2</b>	Anti-G system functional test	Carry out (AP 101b-4104-1ek MP 24-40/1)
-------------	-------------------------------	---

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(end of work block)

## AVIONIC

### 28. PEC SEAT PORTION

<b>28.1</b>	MIC/TEL system	Carry out an inter-cockpit check (AP 101B-4104-1JA MP 60-40/1)
-------------	----------------	--

---

(end of work block)

## AVIONIC

Note . . .

Block 29. is applicable only to pre Mod. 02383 aircraft.

### 29. PREPARATION - IFF INTEGRITY TEST

Note . . .

Operation 29.1 is applicable only to aircraft fitted with the Mk.10 IFF system.



'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

**29.1**

## Transponder:

- |                           |                   |
|---------------------------|-------------------|
| (a) MASTER switch         | Ensure set to OFF |
| (b) MODE 1 code selectors | Set to 0000       |
| (c) MIL/CIV switch        | Set to MIL        |

Note . . .

Operation 29.2 is applicable only to aircraft fitted with the Mk.12 IFF system.

**29.2**

## Transponder:

- |                            |                   |
|----------------------------|-------------------|
| (a) MASTER switch          | Ensure set to OFF |
| (b) M-1/OUT switch         | Set to M-1        |
| (c) M-2/OUT switch         | Set to M-2        |
| (d) M-3A/OUT switch        | Set to M-3A       |
| (e) M-C/OUT switch         | Set to M-C        |
| (f) MODE 1 code selectors  | Set to 00         |
| (g) MODE 3A code selectors | Set to 0000       |

**29.3**

IFF-701 test set Carry out self test as follows:

- |                   |                                     |
|-------------------|-------------------------------------|
| (a) POWER key     | Press                               |
| (b) SELF TEST key | Press to enter the self test screen |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- |                       |  |
|-----------------------|--|
| (c) ANTENNA connector | Terminate with 50 ohm connector  |
| (d) RUN/STOP key      | Press to initiate self test and ensure when completed, the GREEN LED is illuminated and check the display to verify that all modules have passed |

Note . . .

Operations 29.4, 29.5 and 29.6 are applicable only to aircraft fitted with the Mk.10 IFF system.

- |             |                                 |  |
|-------------|---------------------------------|--|
| <b>29.4</b> | Radome assembly and radar skirt | Open and secure (AP 101B-4104-1EA2 Chap.15-11)   |
| <b>29.5</b> | Antenna switching unit          | Disconnect the lower antenna connector from the antenna switching unit LOWER SK-B                      |
| <b>29.6</b> | IFF-701 test set coax cable     | Connect to the test set RF I/O socket and the antenna switching unit lower antenna socket LOWER SK-B   |
| <b>29.7</b> | IFF-701 test set AUTO TEST key  | Press to display the 1st line test screen (will show the results of the last AUTO TEST on the display) |

Note . . .

Operation 29.8 is applicable only to aircraft fitted with the Mk.10 IFF system.

- |             |                           |   |
|-------------|---------------------------|---|
| <b>29.8</b> | IFF-701 test set SLEW key | Select the required configuration as MK10+LOB |
|-------------|---------------------------|---|

Note . . .

Operation 29.9 is applicable only to aircraft fitted with the Mk.12 IFF system.

- |             |                           |  |
|-------------|---------------------------|--|
| <b>29.9</b> | IFF-701 test set SLEW key | Select the required configuration as MK12-M4 |
|-------------|---------------------------|--|

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(end of work block)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

## ELECTRICAL

Note . . .

Block 30. is applicable only to pre Mod. 02383 aircraft.

### 30. PREPARATION

- |             |                               |  |
|-------------|-------------------------------|--|
| <b>30.1</b> | Circuit-breaker<br>165        | Ensure set (AP 101B-4104-1HA Chap.55-50)               |
| <b>30.2</b> | External a.c.<br>power supply | Connect and switch ON (AP 101B-4104-1HA<br>Chap.55-40) |

---

(end of work block)

## AVIONIC

Note . . .

Block 31. is applicable only to aircraft fitted with the Mk.10 IFF system.

### 31. PROCEDURE

- |             |  |  |
|-------------|--|--|
| <b>31.1</b> | Antenna test<br>switch (nose<br>landing gear<br>compartment) | Set to LOWER   |
| <b>31.2</b> | Transponder:<br><br>(a) MASTER<br>switch                     | <br><br>(i) Set to SBY and allow 2 min warm-up<br>period<br><br>(ii) Set to N<br><br>(b) TEST lamp Press and ensure lit<br><br>(c) TEST switch Press and ensure the TEST lamp is lit |
| <b>31.3</b> | IFF-701 test set<br>SEL key                                  | Select the MODE 1,2 REPLY TEST   |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

31.4	IFF-701 test set MODE 1,2 REPLY TEST screen	Ensure the MODE 1 code reply is not preceded by the letters EM
31.5	Circuit-breaker 170	Trip (AP 101B-4104-1HA Chap.55-50)
31.6	IFF-701 test set MODE 1,2 REPLY TEST screen	Ensure the MODE 1 code reply is preceded by the letters EM
31.7	Circuit-breaker 170	Set (AP 101B-4104-1HA Chap.55-50)
31.8	IFF-701 test set MODE 1,2 REPLY TEST screen	Ensure the MODE 1 code reply is not preceded by the letters EM
31.9	IFF-701 test set RUN/STOP key	Press to end MODE 1,2 REPLY TEST
31.10	IFF-701 test set POWER key	Press to power down test set
31.11	Transponder MASTER switch	Set to OFF
31.12	IFF-701 test set coax cable	Disconnect from the test set antenna socket and the antenna switching unit lower antenna socket (23 SKB)
31.13	Antenna switching unit	Reconnect the lower antenna to socket 23 SKB
31.14	Radome assembly and radar skirt	Close (AP 101B-4104-1EA2 Chap.15-11)
31.15	Antenna test switch	Set to FLIGHT

---

(end of work block)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

## AVIONIC

Note . . .

Block 32. is applicable only to aircraft fitted with the Mk.12 IFF system.

### 32. PROCEDURE

- |             |                                      |  |
|-------------|--------------------------------------|--|
| <b>32.1</b> | Transponder:                         |  |
|             | (a) MASTER switch                    | (i) Set to SBY and allow 3 min warm-up period<br><br>(ii) Set to N                 |
|             | (b) TEST push button                 | Press and ensure the FAULT indicator is not white                                  |
| <b>32.2</b> | IFF-701 test set SEL key             | Press to select MODE 1, 2 REPLY TEST   |
| <b>32.3</b> | IFF-701 test set RUN/STOP key        | Press to initiate MODE 1, 2 REPLY TEST and ensure MODE 1 code reading is correct   |
| <b>32.4</b> | Circuit-breaker 170                  | Trip (AP 101B-4104-1HA Chap.55-50)   |
| <b>32.5</b> | Radome assembly and radar maxi skirt | Open (AP 101B-4104-1EA2 Chap.15-11)  |
| <b>32.6</b> | Connectors 23SKB and 23SKC           | Locate (zone 12) and disconnect, fit 50Ω termination lead to 23SKC                 |
| <b>32.7</b> | IFF-701 test set                     | Connect coaxial cable between test set ANTENNA connector and 23SKb (stowage point) |
| <b>32.8</b> | Transponder MASTER switch            | Set to STBY  |
| <b>32.9</b> | Circuit-breaker 170                  | Set (AP 101B-4104-1HA Chap.55-50)  |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

32.10	IFF-701 test set RUN/STOP key	Press and ensure the MODE 1 code reply is suffixed by the letters EM
32.11	IFF-701 test set RUN/STOP key	Press to end MODE 1, 2 REPLY TEST
32.12	IFF-701 test set	Disconnect coaxial cable between test set ANTENNA connector and 23SKb
32.13	Connector 23SKC	Remove the 50Ω termination and reconnect to to 23SKc at the aircraft stowage point
32.14	Connectors 23SKB	Reconnect to 23SKb at the aircraft stowage point
32.15	Radome assembly and radar maxi skirt	Close (AP 101B-4104-1EA2 Chap.15-11)
32.16	IFF-701 test set POWER key	Press to power down test set
32.17	Transponder MASTER switch	Set to OFF

---

(end of work block)

## ELECTRICAL

Note . . .

Block 33. is applicable only to pre Mod. 02383 aircraft.

## 33. COMPLETION

33.1	External a.c. power supply	Switch OFF and disconnect (AP 101B-4104- 1HA Chap.55-40)
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(end of work block)

## AVIONIC

Note . . .

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Block 34. is applicable only to post Mod. 02383 aircraft.

### **34. PREPARATION - SUCCESSOR IDENTIFICATION FRIEND OR FOE (SIFF) INTEGRITY TEST**

- |             |   |   |
|-------------|---|---|
| <b>34.1</b> | IFF<br>inhibit/enable<br>switch                               | Set to 'ENABLE'   |
| <b>34.2</b> | Access door<br>R122   | Open and secure (AP 101B-4104-1CD MP<br>07-40/1)  |
| <b>34.3</b> | Transponder<br>control and<br>display unit<br>(TCDU):         |   |
|             | (a) Mode<br>enable switches<br>M1, M2, M3/A,<br>MC, MS and M5 | Set to OUT position   |
|             | (b) MASTER<br>switch  | Ensure in the PULL OFF position   |
| <b>34.4</b> | RAPID TAKE<br>OFF panel<br>IGNITION<br>switch                 | Set to FLIGHT   |
| <b>34.5</b> | IFF-701 test set  | Carry out self test as follows:   |
|             | (a) POWER key   | Press   |
|             | (b) SELF TEST<br>key  | Press to enter the self test screen   |
|             | (c) ANTENNA<br>connector                                      | Terminate with 50 ohm connector   |
|             | (d) RUN/STOP<br>key   | Press to initiate self test and ensure when<br>completed, the GREEN LED is illuminated<br>and check the display to verify that all<br>modules have passed |

---

(end of work block)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

## ELECTRICAL

Note . . .

Block 35. is applicable only to post Mod. 02383 aircraft.

### 35. PREPARATION

- |      |                                     |   |
|------|-------------------------------------|---|
| 35.1 | Circuit-breaker 322                 | Ensure tripped (AP 101B-4104-1HA Chap.55-50)        |
| 35.2 | Circuit-breaker 3, 165, 170 and 355 | Ensure set (AP 101B-4104-1HA Chap.55-50)            |
| 35.3 | External a.c. power supply          | Connect and switch ON (AP 101B-4104-1HA Chap.55-40) |

---

(end of work block)

## AVIONIC

Note . . .

Block 36. is applicable only to post Mod. 02383 aircraft.

### 36. PROCEDURE

- |      |             |  |
|------|-------------|--|
| 36.1 | Transponder | Disconnect aerial connectors 48SKD (J2) and 48SKE (J3) |
|------|-------------|--|

### CAUTION . . .

**To prevent damage to IFF-701 test set, do not connect the transponder to the ANTENNA connector when set for direct connect.**

- |      |                        |   |
|------|------------------------|---|
| 36.2 | IFF-701 test set       | Connect the direct connect cable from RF I/O socket directly to J3 on the transponder |
| 36.3 | 50 $\Omega$ dummy load | Connect to J2 on the transponder  |



'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- |              |                                      |  |
|--------------|--------------------------------------|--|
| <b>36.4</b>  | IFF-701 test set<br>AUTO TEST<br>key | Press to display the 1st line test screen (will show the results of the last AUTO TEST on the display) |
| <b>36.5</b>  | IFF-701 test set<br>SLEW key         | Set the required configuration as MK12S-M4   |
| <b>36.6</b>  | TCDU:                                |  |
|              | (a) MASTER<br>switch                 | Set to STBY  |
|              | (b)<br>Alphanumeric<br>displays      | Ensure SELF TEST displayed, followed by TEST PASS displayed for 5s on completion of PBIT               |
|              | (c) MASTER<br>switch                 | Set to NORM  |
| <b>36.7</b>  | Circuit-breaker<br>170               | Trip (AP 101B-4104-1HA Chap.55-50)   |
| <b>36.8</b>  | TCDU:                                |  |
|              | Alphanumeric<br>display              | Ensure EMER EMER displayed   |
| <b>36.9</b>  | IFF-701 test set<br>SEL key          | Select MODE 1, 2 REPLY TEST  |
| <b>36.10</b> | IFF-701 test set<br>RUN/STOP key     | Press and ensure MODE 1 code of 7300 EM and MODE 2 code of 7777 EM displayed                           |
| <b>36.11</b> | IFF-701 test set<br>SEL key          | Select ATCRBS REPLY TEST   |
| <b>36.12</b> | IFF-701 test set<br>RUN/STOP key     | Press and ensure MODE 3/A code of 7700 EM displayed  |
| <b>36.13</b> | Circuit-breaker<br>170               | Set (AP 101B-4104-1HA Chap.55-50)  |
| <b>36.14</b> | TCDU:                                |  |
|              | (a)<br>Alphanumeric<br>display       | Ensure EMER EMER no longer displayed   |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- |       |                            |  |
|-------|----------------------------|--|
|       | (b) MASTER switch          | Set to PULL OFF position   |
| 36.15 | IFF-701 test set POWER key | Press to power down test set   |
| 36.16 | IFF-701 test set           | Disconnect direct connect cable from RF I/O socket   |
| 36.17 | Transponder                | (i) Disconnect direct cable from J3<br>(ii) Disconnect 50Ω dummy load from J2<br>(iii) Connect aerial connectors 48SKD (J2) and 48SKE (J3) |

---

(end of work block)

### AVIONIC

Note . . .

Block 37. is applicable only to post Mod. 02383 aircraft.

### 37. COMPLETION

- |      |                                      |   |
|------|--------------------------------------|---|
| 37.1 | RAPID TAKE OFF panel IGNITION Switch | Set to OFF  |
| 37.2 | External a.c. power supply           | Switch OFF and disconnect (AP 101B-4104-1HA Chap.55-40) |
| 37.3 | Access door R122                     | Close and secure (AP 101B-4104-1CD MP 07-40/1)          |

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(end of work block)

### WEAPONS SNCO

### 38. INDEPENDENT CHECKS

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

**38.1**                      Seat installation    Carry out independent checks (MP 29-10/6)

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(end of work block)

## AIRFRAME

### 39.      COMPLETION

**39.1**                      Canopy                      Fit (AP 101B-4104-1EA2 MP 15-13/2)

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(end of work block)

## WEAPONS

### 40.      MAINTENANCE DOCUMENTATION

Note . . .

Post Mod. 02198B only - Due to the increase in weight of the post Mod.02198B seat, following initial installation of the post Mod.02198B seat(s), the mass and moment information of the aircraft is to be updated accordingly iaw para.12 Mod.02198B Lflt and AP 101B-4104-1CG Chap.10-30.

**40.1**                      Maintenance                      Complete  
documentation

---

(end of work block)  
(END OF MP)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

## 29-10 EJECTION SEATS MAINTENANCE PROCEDURE 29-10/3A (30 work blocks) 06/09

EJECTION SEAT AND CARTRIDGES - REINSTALLATION POST REMOVAL FOR ACCESS [\*\*\* MANDATORY \*\*\*]

### MANDATORY MAINTENANCE PROCEDURE

THIS PROCEDURE IS TO BE USED ONLY WHEN THE SEAT(S) ARE REINSTALLED FOLLOWING REMOVAL FOR ACCESS.

ASSOCIATED CARDS	POWER
AP 101B-4100-6A	YES
AP 101B-4104-1EL	
AP 101B-4104-1EP	
AP 101B-4104-1HA	
AP 101B-4104-1LA2	
MP 07-40/1	
MP 15-13/2	
MP 24-40/1	
MP 25-11/1	
MP 29-10/6	
MP 29-30/2	

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Note . . .

This procedure is **not** applicable if the canopy is in situ and is to remain in situ, during installation of the ejection seat. For installation of the ejection seat with the canopy in situ, refer to MP 29-10/8.

#### Equipment

Item	Reference	Application
Ejection seat servicing stand (MAGERD 7501)	MBSS 1 1730-99-4527666 1730-99-7922567 1730-99-7922568	Holding the seat

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Item	Reference	Application
	4920-99-7304955 4920-99-7669635 4920-99-7757632	
Ejection seat servicing stand adaptor (MAGERD 7503)	27L/6176141	Attaching seat to stand
Sling (MAGERD 2628)	P-890624-403 3940-99-6551831	Lifting the seat
Container (MAGERD 7555)	MBEU 63162 8140-99-6640158	Storing cartridges
Container	-	Storing rocket pack
First line tool kit (MAGERD 2549)	MBEU 56400-403 4920-99-6596649	Refitting the seat
Vacuum cleaner	As available	Cleaning the cockpit
Torque wrench (2,5 N.m to 11 N.m)	As available	Torque tightening rocket pack bolts
Torque wrench (12 N.m to 68 N.m)	As available	Torque tightening firing units
Feeler gauge	As available	Clearance check between ejection gun mounting brackets and ejection gun mounting bolt locking devices
Mobile servicing platform: - height 2 m	As available	Access to aircraft
External electrical power supply source 200 V, 400 Hz, 3-phase a.c. (MAGERD 5301)	4FE/9722 or 4FE/2141397	Electrical power supplies to aircraft

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Item	Reference	Application
Test set IFF/SSR, Type IFF-701 (MAGERD TBN)	10S/3925249	Testing the IFF
Type C-to-TNC adaptor	-	Adapting test IFF/SSR to the antenna switching unit
Splitter box (MAGERD 5358)	P-891350-403	Routeing 115 V, 400 Hz, single phase a.c. power from aircraft ground test socket to pressure controller

#### Materials

Description	Specification		Application
	NATO	UK	
Loctite 222 8030-99-2251687	-	DTD 900/6003/A	The ejection gun mounting bolt locking devices
Grease (XG 293) 34B/2241797	G-395	DEF STAN 91-52	(i) Lubricating O-seals (ii) Command ejection quick disconnect

#### Replacements

Item	Reference	Application
O-seal	MBEU 35487 5330-99-1482268	Ejection gun primary cartridge
O-seal	MBEU 91799	Drogue gun primary

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Item	Reference	Application
		cartridge
Water seal	MBEU 15869 5330-99-1057100	Ejection gun secondary cartridges.
Water seal	MBEU 70334 5330-99-6172576	Drogue gun barrel
Chromium-nickel locking wire, dia. 0,5 mm	DTD 189A 30A/6363056	Wire-locking ejection seat components
Split pin	5315-12-1220984	ALIU and ADU static cables clevis pin
Split pin	5315-12-1221623	MDC trip rod clevis pin
Split pin	5315-99-9710567	Rocket pack fixed link arm clevis pin

#### WARNINGS . . .

- (1) **IMPACT DAMAGE TO THE BREECH TIME DELAY FIRING UNIT (BTDFU). EXTREME CARE MUST BE TAKEN TO ENSURE THE BTDFU IS NOT DAMAGED DURING HANDLING OR MAINTENANCE. IMPACT DAMAGE TO THE BTDFU COULD CAUSE A CATASTROPHIC MALFUNCTION OF THE UNIT AND FAILURE OF THE ESCAPE SYSTEM.**
- (2) **DURING TRANSIT AND MAINTENANCE, THE FIRING UNIT MUST BE STORED IN A SUITABLE CONTAINER TO PREVENT ANY POSSIBILITY OF IMPACT DAMAGE.**
- (3) **WHEN FITTED TO THE EJECTION GUN, THE FIRING UNIT MUST BE SUITABLY PROTECTED AGAINST POSSIBLE IMPACT DAMAGE. IF IT IS SUSPECTED THE BTDFU HAS SUFFERED IMPACT DAMAGE, THE UNIT IS TO BE RETURNED TO THE APPROPRIATE MAINTENANCE BAY FOR INVESTIGATION.**

#### Notes . . .

- (1) This procedure is only to be used if the seat has been removed for access iaw MP 29-10/2A and no components have been replaced. The seat must not have been disarmed other than that required to remove the seat from the cockpit, i.e.
  - ejection gun primary cartridge
  - drogue gun primary cartridge

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- BTRU cartridge

If components have been replaced or further disarming performed, the installation procedure at MP 29-10/3 is to be used.

- (2) During the ejection seat and cartridges installation, all O-seals must be examined, replaced if unserviceable and are to be lubricated with grease prior to fitting.

---

## AIRFRAME

### 1. PREPARATION

#### WARNING . . .

**THE PEC MICROPHONE/TELEPHONE (MIC/TEL) CONNECTOR CONTAINS BERYLLIUM/COPPER. REFER TO THE BERYLLIUM WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- |            |   |                            |
|------------|---|----------------------------|
| <b>1.1</b> | PEC aircraft<br>portion                               |                            |
|            | (a) Supply<br>hoses                                   | Examine                    |
|            | (b) MIC/TEL<br>lead                                   | Examine                    |
| <b>1.2</b> | Canopy jettison<br>pipeline                           | Look for damage            |
| <b>1.3</b> | Aircraft ejection<br>gun mounting<br>brackets         | Examine as far as possible |
| <b>1.4</b> | Footspray<br>nozzles or<br>blanking plates<br>(4 off) | Ensure secure              |
| <b>1.5</b> | Headspray<br>nozzles or<br>blanking plates<br>(4 off) | Ensure secure              |



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1.6 Cockpit floor Clean with vacuum cleaner

(end of work block)

## AIRFRAME

### 2. EXAMINATION

Note . . .

Item 2.1 is a structural integrity item (Y coded) and is to be carried out by an Engineering Technician Airframe tradesman.

2.1 Cockpit ejection seat  
Examine seat attachments and surrounding structure

(end of work block)

## WEAPONS

### WARNINGS . . .

- (1) EXTREME CARE MUST BE EXERCISED WHEN MOVING EJECTION SEATS FITTED TO EJECTION SEAT MAINTENANCE STANDS. THE SEAT MUST BE IN THE FULLY UPRIGHT POSITION WHEN THE SEAT STAND IS TO BE MOVED, REGARDLESS OF DISTANCES INVOLVED.
- (2) WHEN THE EJECTION SEAT STAND IS STATIONARY, THE BRAKE MUST BE APPLIED.
- (3) FULLY EQUIPPED SEATS (I.E. SAFETY EQUIPMENT FITTED) ARE NOT TO BE TILTED AND/OR ROTATED AS THE SEAT STAND MAY BECOME UNSTABLE AND TOPPLE. IF THERE IS A REQUIREMENT TO TILT AND/OR ROTATE THE SEAT, THE SAFETY EQUIPMENT (IF FITTED) IS TO BE REMOVED IAW MP 29-30/1.
- (4) ON PRE Mod. 02198 EJECTION SEATS, ONLY PRE MOD.02197 CARTRIDGE SETS (CARTRIDGE SET, EJECTION SEAT NO.16 MK.1, PART NO. MBEU 60008-4) ARE TO BE USED.
- (5) ON POST Mod. 02198 EJECTION SEATS, ONLY POST MOD.02197 CARTRIDGE SETS (CARTRIDGE SET, EJECTION SEAT NO.16 MK.2, PART NO. MBEU 115904) ARE TO BE USED.

Note . . .

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During this procedure, before cartridges are refitted, the mating threads of all firing units/breeches are to be examined and the firing units screwed fully in to ensure that there is no obstruction.

### 3. PREPARATION

- |            |   |   |
|------------|---|---|
| <b>3.1</b> | Ejection seat<br>cartridges to be<br>fitted | <ul style="list-style-type: none"> <li>(i) Examine</li> <li>(ii) Ensure correct modification standard for seat being installed</li> <li>(iii) Ensure correct number and items for seat</li> <li>(iv) Ensure marked with the aircraft number, installed position, installed life expiry date and lot number</li> </ul> |
| <b>3.2</b> | Emergency<br>oxygen gauge                   | Ensure indicates 'FULL'   |
| <b>3.3</b> | Leg and arm<br>restraint<br>snubbing units  | Operate   |
| <b>3.4</b> | Leg restraint<br>line taper plugs           | <ul style="list-style-type: none"> <li>(i) Insert into their housings</li> <li>(ii) Ensure held securely</li> </ul>   |
| <b>3.5</b> | Man portion<br>dust cover                   | <ul style="list-style-type: none"> <li>(i) Remove, ensuring the leg lines release</li> <li>(ii) Refit</li> </ul>  |
| <b>3.6</b> | Go-forward<br>mechanism                     | Operate   |
| <b>3.7</b> | Seat linkages                               | Examine   |

Note . . .

Item 3.8 is applicable to pre Mod. 02198 installations only.

- |            |  |   |
|------------|--|---|
| <b>3.8</b> | Ejection gun<br>sear withdrawal<br>safety lock | <ul style="list-style-type: none"> <li>(i) Rotate the sear withdrawal cross-shaft and linkage forward and engage the</li> </ul> |
|------------|--|---|

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- |           |  |
|-----------|--|
| mechanism | locking plunger fully into the recess in the shackle plunger housing   |
| (ii)      | Attempt to rotate the seat firing cross shaft anti-clockwise by applying light hand pressure to the sear withdrawal lever assembly. If rotation is not possible and the ejection gun sear withdrawal safety lock is engaged, continue with Item (iii). If rotation is possible and the ejection gun sear withdrawal safety lock is not engaged, the seat is to be returned to the seat bay for maintenance |
| (iii)     | Disengage the sear withdrawal safety lock and rotate the seat firing cross shaft to facilitate the fitting of the time delay firing unit   |

#### WARNING . . .

**DURING Item 3.9, LUBRICATION OF THE COMMAND FIRING CONNECTOR BALL BEARINGS IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- |     |   |   |
|-----|---|---|
| 3.9 | Command firing connector ball bearing (3 off) | (i) Examine                                 |
|     |   | (ii) Ensure lubricated with grease (XG-293) |

---

(end of work block)

### WEAPONS

#### 4. EJECTION GUN INSTALLATION

- |     |                                   |   |
|-----|-----------------------------------|---|
| 4.1 | Command ejection quick-disconnect | (i) Remove blank                                      |
|     |                                   | (ii) Examine  |
|     |                                   | (iii) Ensure freedom of movement of spring components |
| 4.2 | Time delay firing unit            | Ensure removed  |
| 4.3 | Inner piston                      | (i)   |

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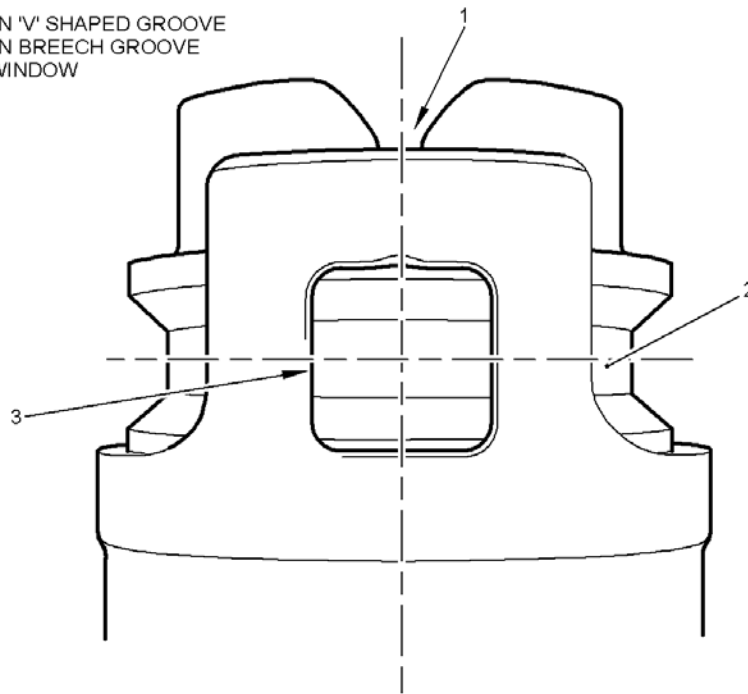
The 'V' shaped grooves, for locating upper cross member dowel pin, are aligned with the centre of the ejection gun guide rails (Fig. 1)

- (ii) The centre of the breech groove is aligned with the centre of the top latch window (Fig. 1)

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~~NATO RESTRICTED~~

- 1 INNER PISTON 'V' SHAPED GROOVE
- 2 INNER PISTON BREECH GROOVE
- 3 TOP LATCH WINDOW



**Fig. 1. Correct alignment of the inner piston V shaped grooves, inner piston breech groove and the outer cylinder top latch window (pre and post Mod.02198 Part B)**  
(New illustration)

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(end of work block)

## WEAPONS

### 5. EJECTION SEAT INSTALLATION

Note . . .

Item 5.1 through 5.4 inclusive are applicable only if one ejection seat is already installed or if the canopy jettison or MDC systems are armed.

5.1	Ejection seat	Ensure a safety pin is fully inserted in seat pan firing handle
5.2	Canopy jettison system	Ensure a safety pin is fitted in canopy jettison initiator unit
5.3	Miniature detonating cord (MDC) system	Ensure a safety pin is fitted in each MDC cord initiator unit
5.4	Command ejection controller	Ensure set to REAR
5.5	Cockpit	Look for loose articles
5.6	Leg and arm restraint floor anchorage brackets	Examine
5.7	PEC static line anchorage bracket	Examine
5.8	Seat stabilizing brackets	Examine
5.9	Head spray connections	Examine
5.10	PEC	

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- |                      |  |
|----------------------|--|
| (a) Aircraft portion | Remove protective cover  |
| (b) Supply hoses     | Examine  |
| (c) MIC/TEL lead     | Examine  |
| (d) Static line      | Examine  |
| (e) Oxygen valve     | Operate and ensure freedom of movement   |
| (f) Static line      | <ul style="list-style-type: none"> <li>○ Reconnect to floor anchorage</li> <li>○ Ensure routed correctly (AP 101b-4104-1el Chap.25-11)</li> <li>○ Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised lock button protruding)</li> <li>○ Without touching anodised lock button, take up free play in lock lever and attempt to withdraw pin. The pin must be securely retained</li> </ul> |

5.11

Ejection seat

- (i) Ensure the handwheel is screwed in fully
- (ii) Fit the lifting sling
- (iii) Raise to position above the guide rails

**CAUTIONS . . .**

- (1) To prevent damage to the seat pan actuator/IFF socket connector (2MG front seat, 4MG rear seat) pull-off lanyard, ensure it will not be trapped when the ejection seat is lowered into position.
- (2) During lowering of the seat, ensure the dowel pin, on the right inside face of the main beam upper cross member, locates in the 'V' shaped groove of the inner piston of the ejection gun.

5.12

Lower slippers

Engage in the guide rails and lower seat, engaging each set of slippers in turn

5.13

Ejection gun inner piston

Ensure protruding through the upper cross member and that the dowel pin on the right inside face of the upper cross member is

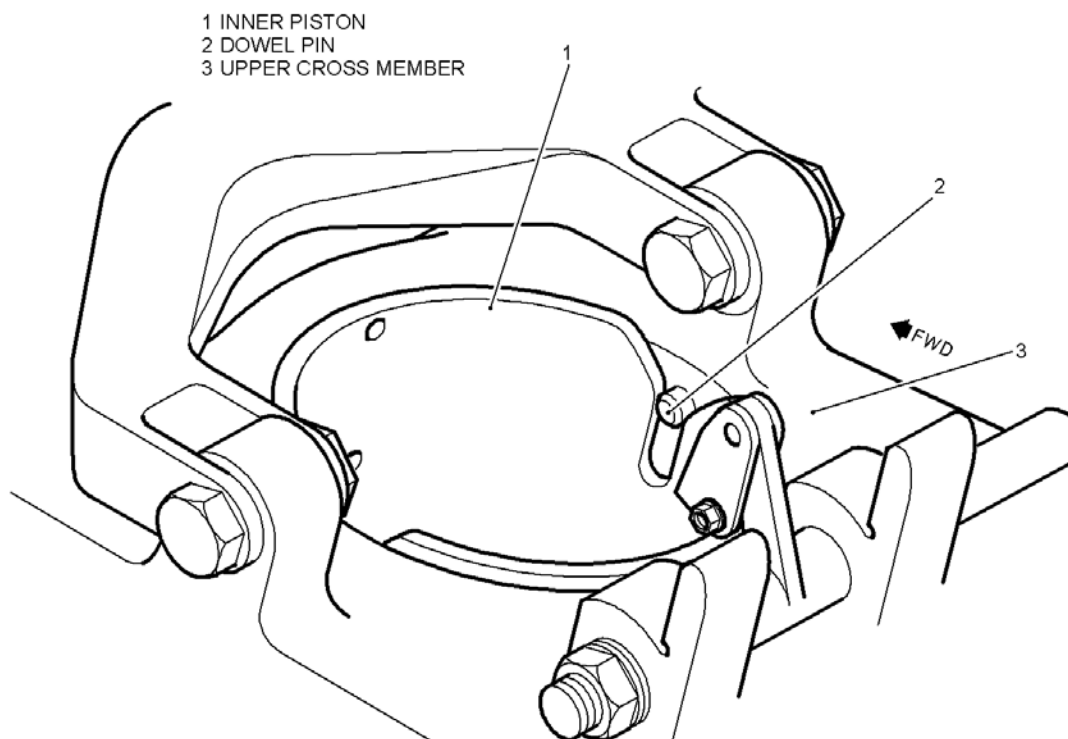
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located in the V shaped groove of the inner piston (Fig. 2 and Fig. 2A)



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**NATO RESTRICTED**

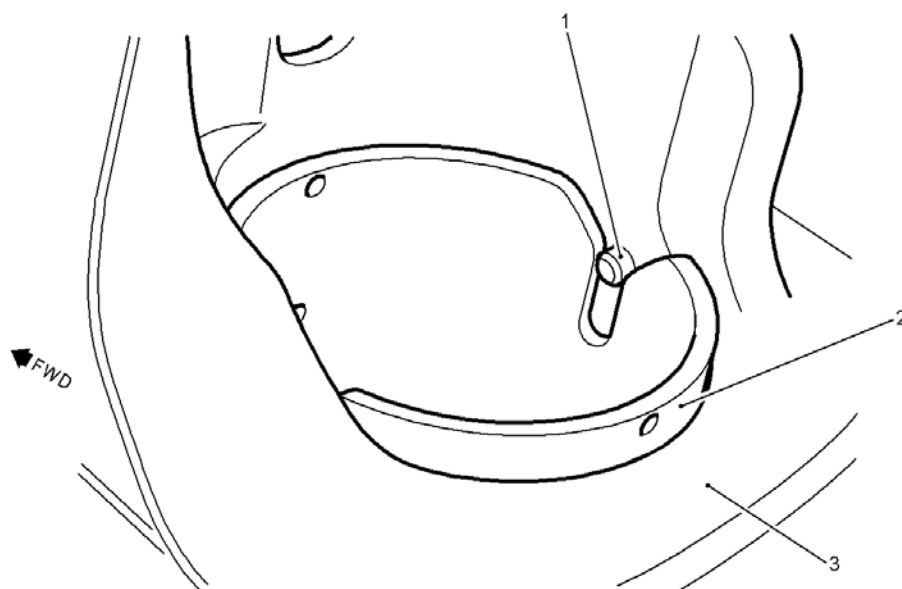


**Fig. 2. Correct protrusion of the inner piston through the upper cross member and the correct location of the dowel pin in the V shaped groove (pre Mod. 02198 Part B)**  
(New illustration)

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~~NATO RESTRICTED~~

- 1 DOWEL PIN
- 2 INNER PISTON
- 3 UPPER CROSS MEMBER



**Fig. 2A. Correct protrusion of the inner piston through the upper cross member and the correct location of the dowel pin in the V shaped groove (post Mod. 02198 Part B)**  
(New illustration)

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5.14 Handwheel Remove from the top latch plunger

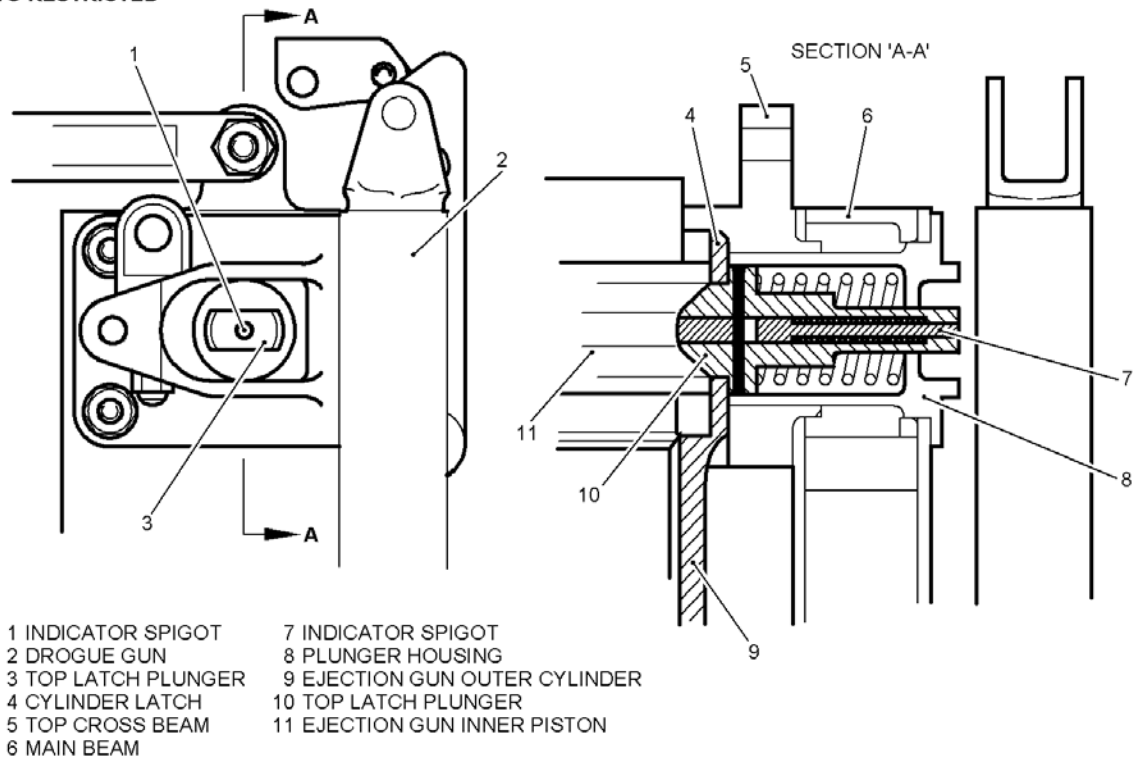
**WARNING . . .**

**FAILURE TO ENSURE CORRECT ENGAGEMENT OF THE TOP LATCH PLUNGER COULD, DURING CERTAIN MANOEUVRES, RESULT IN THE SEAT AND OCCUPANT MOVING UP THE GUIDE RAILS WITH POSSIBLE FATAL RESULTS.**

- 5.15 Top latch
- (i) Ensure the indicator spigot is flush with, or slightly protruding from the face of the top latch plunger
  - (ii) Ensure the top latch plunger is flush with, or slightly below, the plunger housing face (Fig. 3, Fig. 3A, Fig. 4 and Fig. 5)

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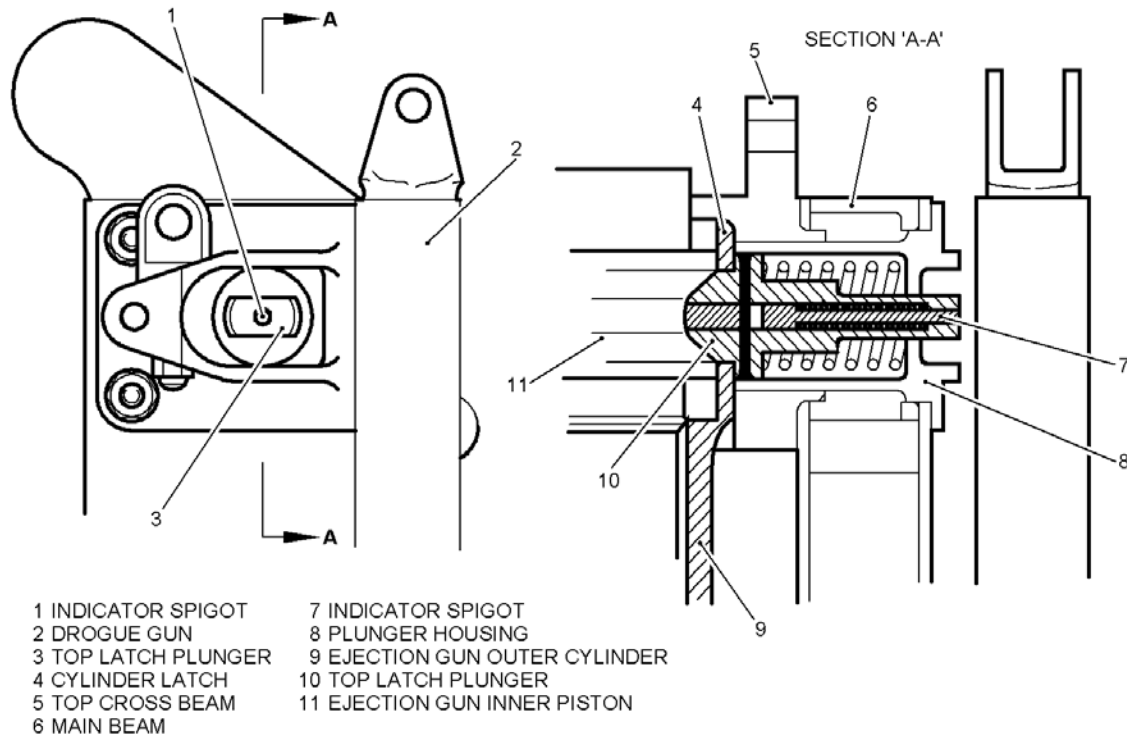
**NATO RESTRICTED**



**Fig. 3. Correct engagement of the top latch (pre Mod.02198 Part B)**  
(New illustration)

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**Fig. 3A. Correct engagement of the top latch (post Mod.02198 Part B)**  
(New illustration)

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**Fig. 4. Correct engagement of the top latch-plunger view (pre and post Mod.02198 Part B)**  
(New illustration)

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**Fig. 5. Correct engagement of the top latch-spigot view (pre and post Mod.02198 Part B)**  
(New illustration)

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5.16	Ejection seat	Ensure positively locked by attempting to raise
5.17	Lifting sling	Remove

---

(end of work block)

### WEAPONS NCO

## 6. VITAL CHECKS

### WARNING . . .

**FAILURE TO ENSURE CORRECT ENGAGEMENT OF THE TOP LATCH PLUNGER COULD, DURING CERTAIN MANOEUVRES, RESULT IN THE SEAT AND OCCUPANT MOVING UP THE GUIDE RAILS WITH POSSIBLE FATAL RESULTS.**

6.1	Top latch	<ul style="list-style-type: none"> <li>(i) Ensure the indicator spigot is flush with, or slightly protruding from the face of the top latch plunger</li> <li>(ii) Ensure the top latch plunger is flush with, or slightly below, the plunger housing face (Fig. 3, Fig. 3A, Fig. 4 and Fig. 5)</li> </ul>
6.2	Ejection gun inner piston	Ensure protruding through the upper cross member and the dowel pin on the right inside face of the upper cross member is located in the V shaped groove of the inner piston (Fig. 2 and Fig. 2A)

---

(end of work block)

### WEAPONS

## 7. SEAT STRUCTURE CONNECTION

7.1	Drogue gun trip rod	<ul style="list-style-type: none"> <li>(i) Examine</li> <li>(ii) Reconnect to the trip rod attachment bracket</li> </ul>
-----	---------------------	--



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(iii) Check orientation of connections:

- yellow pin head, white anchorage lug
- yellow trip rod, white anchorage lug

(iv) Ensure positive locking of the security pin by attempting to withdraw the pin without depressing the plunger

## 7.2

Barostatic time-release unit trip rod

(i) Examine

(ii) Reconnect to the trip rod attachment bracket rear anchorage point

(iii) Check orientation of connections:

- yellow pin head, white anchorage lug
- yellow trip rod, white anchorage lug

(iv) Ensure positive locking of the security pin by attempting to withdraw the pin without depressing the plunger

## CAUTION . . .

**The MDC trip rod is assembled with a shear pin which is designed to fail just after the MDC has been fired. The condition of this shear pin is critical to the correct functioning of the escape system and, because of this, the trip rod must be replaced at the slightest suspicion of damage.**

## 7.3

MDC trip rod

(i) Examine MDC cross-shaft trip rod lever (P721143-001) for signs of cracking using a suitable light source, mirror and x10 magnifier

(ii) Reconnect to the cross-shaft

(iii) Ensure that the roller is just touching the tongue of the lever attached to the cockpit cross-shaft

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- |            |                        |   |
|------------|------------------------|---|
| <b>7.4</b> | Head spray connections | Reconnect   |
| <b>7.5</b> | Aircraft               | Ensure electrically safe (Check circuit-breakers 122 and 165 tripped) |

Note . . .

When carrying out Item 7.6, socket connector 2MG/4MG is correctly connected when a contrasting colour stripe under the coupling ring is visible. The contrasting colour stripe is only visible when the fully mated condition is achieved.

- |            |  |  |
|------------|--|--|
| <b>7.6</b> | Seat pan actuator/IFF socket connector (2MG front seat, 4MG rear seat) | Remove from its stowage, examine and reconnect to the mating plug connector  |
| <b>7.7</b> | PEC aircraft portion   | Reconnect to seat portion  |
| <b>7.8</b> | Arm and leg restraint lines  | <ul style="list-style-type: none"> <li>(i) Remove QRP from leg restraint line securing brackets</li> <li>(ii) Reconnect to floor anchorage. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised lock button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin. The pin must be securely retained</li> <li>(iii) Ensure arm restraint line is secured to floor anchorage with long side of link uppermost and point facing forward</li> <li>(iv) Ensure roller is positioned to rear of floor anchorage</li> <li>(v) Ensure link rotates freely to a vertical position when arm restraint system is manually tensioned</li> </ul> |

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(end of work block)

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## WEAPONS

### 8. BAROSTATIC TIME-RELEASE UNIT

- |     |             |  |
|-----|-------------|--|
| 8.1 | Breech      | Remove from firing body  |
| 8.2 | Cartridge   | <ul style="list-style-type: none"><li>(i) Ensure the correct modification state for the seat being installed</li><li>(ii) Insert into breech</li></ul> |
| 8.3 | Firing body | Ensure the firing pin is not protruding  |
| 8.4 | Breech      | <ul style="list-style-type: none"><li>(i) Insert into firing body</li><li>(ii) Torque tighten to 28 N.m</li><li>(iii) Lock with wire</li></ul>         |

---

(end of work block)

## WEAPONS

### 9. EJECTION GUN

#### WARNING . . .

**DURING Item 9.1, LUBRICATION OF THE PRIMARY CARTRIDGE O-SEAL IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

- |     |                   |   |
|-----|-------------------|---|
| 9.1 | Primary cartridge | <ul style="list-style-type: none"><li>(i) Ensure the correct modification state for the seat being installed</li><li>(ii) Fit new O-seal lubricated with grease (XG-293)</li><li>(iii) Insert into breech</li></ul> |
|-----|-------------------|---|

Note . . .

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It should be noted that the foil identification labels referred to in the following caution were removed under log modification 4326 and replaced with the details engraved onto the BTDFU. However some BTDFUs with foil identification labels may still remain in circulation.

#### CAUTIONS . . .

- (1) During Item 9.2, care must be taken during the fitment of the time-delay firing unit to ensure the foil identification label is not damaged by the breech dowel pins, causing pieces of the label to fall onto the primary cartridge. Damaged labels must be replaced.
- (2) Post Mod.02198 Part B; When the final torque tightening load is applied to the BTDFU, ensure the gas adaptor on top of the BTDFU is positioned such that it does not foul against the ejection seat upper cross member/gas shackle.

#### 9.2

Time delay  
firing unit

- (i) Ensure the firing pin is not protruding
- (ii) Insert into breech past the dowel pins
- (iii) Pre Mod.02198 Part B - tighten; Post Mod.02198 Part B - torque load to 250 lbf/in.
- (iv) Lock with wire

#### Note . . .

Item 9.3 is applicable to pre Mod. 02198 installations only.

#### 9.3

Sear withdrawal  
cross-shaft and  
linkage

- (i) Rotate forward and engage locking plunger fully into recess in shackle plunger housing
- (ii) Attempt to rotate seat firing cross shaft anti-clockwise by applying light hand pressure to sear withdrawal lever assembly. If rotation **is not** possible and ejection gun sear withdrawal safety lock **is** engaged, continue with operation (iii). If rotation **is** possible and ejection gun safety lock **is not** engaged, the seat is to be removed and returned to seat bay for maintenance
- (iii) Connect linkage to sear using nut and bolt

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Note . . .

Item 9.4 is applicable to post Mod. 02198 installations only.

#### 9.4

Time-delay  
firing unit gas  
supply flexible  
hose

- (i) Connect to the gas adaptor on top of the time-delay firing unit
- (ii) Fit the quick-release pins (2 off) to secure the hose to the time-delay firing unit. Ensure the ends of the quick release pins (2 off) are not in contact with the castellations of the BTDFU
- (iii) Without depressing the release plunger, ensure the quick release pins are correctly locked and free to move
- (iv) If any of the above criteria cannot be met, remove the quick release pins (2 off) and disconnect the gas pipe from the BTDFU
- (v) Holding the gas pipe (MBEU 116671) rotate the connecting block (MBEU 111476) on the pipe to ease the repositioning of the quick release pins
- (vi) Refit the gas pipe to the BTDFU, refit the quick release pins (2 off) and repeat the checks at 9.4 (ii) and (iii)

---

(end of work block)

### WEAPONS

#### 10. DROGUE GUN

##### 10.1

Barrel

Inspect water seal and replace if necessary

#### WARNING . . .

**DURING Item 10.2, LUBRICATION OF THE PRIMARY CARTRIDGE O-SEAL IS CARRIED OUT BY USING GREASE (XG-293). REFER TO THE OILS AND LUBRICANTS WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.**

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- |             |                                   |  |
|-------------|-----------------------------------|--|
| <b>10.2</b> | Primary cartridge                 | <ul style="list-style-type: none"> <li>(i) Ensure the correct modification state for the seat being installed</li> <li>(ii) Fit new O-seal lubricated with grease (XG-293)</li> <li>(iii) Insert into the barrel</li> </ul>  |
| <b>10.3</b> | Firing body                       | Ensure the firing pin is not protruding  |
| <b>10.4</b> | Barrel                            | <ul style="list-style-type: none"> <li>(i) Remove shear pin</li> <li>(ii) Screw into body</li> <li>(iii) Torque tighten to 18 N.m</li> <li>(iv) Turn piston inside barrel so that piston fork end groove faces fore and aft. Align hole in piston with nearest shear pin hole in barrel. Unscrew the barrel sufficiently to allow fitment of special shear pin</li> <li>(v) Fit special shear pin with head inboard, splay pin legs to lock pin</li> <li>(vi) Torque tighten to 18 N.m and lock with wire</li> </ul> |
| <b>10.5</b> | Command ejection quick-disconnect | Reconnect to sequencing manifold ensuring that red line on sequencing manifold is not visible when viewed from the horizontal  |

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(end of work block)

## WEAPONS

### 11. SAFETY EQUIPMENT - INSTALLATION

- |             |                        |  |
|-------------|------------------------|--|
| <b>11.1</b> | Drogue withdrawal line | <ul style="list-style-type: none"> <li>(i) Reconnect to the drogue gun piston</li> <li>(ii) Lock the bolt with wire</li> </ul> |
| <b>11.2</b> | Harness                | Leave ready for occupant   |

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(end of work block)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

### WEAPONS NCO

#### 12. VITAL CHECKS

- |      |                             |  |
|------|-----------------------------|--|
| 12.1 | Ejection seats              | Ensure the safety pin is fully inserted in each seat pan firing handle |
| 12.2 | Canopy jettison system      | Ensure the safety pin is fitted in the canopy jettison initiator unit  |
| 12.3 | MDC                         | Ensure a safety pin is fitted in each MDC initiator unit               |
| 12.4 | Command ejection controller | Ensure set to REAR   |

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(end of work block)

### ELECTRICAL

#### 13. EXTERNAL POWER SUPPLY

- |      |                            |   |
|------|----------------------------|---|
| 13.1 | External a.c. power supply | Connect and switch ON (AP 101B-4104-1HA Chap.55-40) |
| 13.2 | Circuit-breaker 122.       | Set (AP 101B-4104-1HA Chap.55-50)                   |

---

(end of work block)

### WEAPONS NCO

#### 14. VITAL CHECKS

##### CAUTION . . .

**Prolonged operation of the motor will cause overheating; the seat pan actuator must not be operated for more than 1 min in 8 min.**

- |      |          |   |
|------|----------|---|
| 14.1 | Seat pan | Operate over the complete range, ensuring |
|------|----------|---|

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

actuator

the aircraft portion PEC remains connected with the seat pan in the highest position

---

(end of work block)

## ELECTRICAL

### 15. EXTERNAL POWER SUPPLY

15.1	External a.c. power supply	Switch OFF (AP 101B-4104-1HA Chap.55-40)
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(end of work block)

## WEAPONS NCO

### 16. VITAL CHECKS

16.1 BTRU

(a) Firing unit      Ensure refitted correctly and locked with wire

(b) Trip rod

- (i) Ensure reconnected to cross-beam rear anchorage point with trip rod (yellow) located between attachment bracket lugs (white) and securing pin (yellow head) positively located through attachment bracket and trip rod
- (ii) Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger

16.2 Ejection gun time-delay firing unit

(a) Unit      Ensure refitted correctly and locked with wire

Note . . .

Item 16.2 (b) is applicable to pre Mod. 02198 installations only.



'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

(b) Sear  
withdrawal  
cross-shaft and  
linkage

- (i) Ensure linkage is correctly connected to sear
- (ii) Ensure locking plunger is fully engaged in recess in shackle plunger housing

Note . . .

Item 16.3 is applicable to post Mod. 02198 installations only.

### 16.3

Time-delay  
firing unit gas  
supply flexible  
hose

- (i) Ensure connected correctly. Ensure the ends of the quick release pins (2 off) are not in contact with the castellations of the BTDFU
- (ii) Without depressing the release plunger, ensure the quick release pins are correctly locked and free to move

### 16.4

Drogue gun

- (a) Piston      Ensure piston fork-end groove faces fore and aft
- (b) Special shear pin      Ensure fitted head inboard and ends splayed
- (c) Barrel      Ensure refitted correctly and locked with wire
- (d) Trip rod
  - (i) Ensure reconnected to cross beam anchorage point with trip rod (yellow) located between attachment bracket lugs (white) and securing pin (yellow head) positively located through attachment bracket and trip rod
  - (ii) Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger
  - (iii) Ensure remote rocket initiator static line has been reconnected

### 16.5

MDC trip rod

- (i) Ensure connected correctly
- (ii)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Ensure roller is just touching tongue of lever attached to cockpit cross-shaft

**16.6****PEC**

(a) Aircraft portion

Ensure connected correctly

(b) Static line

Ensure connected and routed correctly to floor anchorage brackets. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin, the pin must be securely retained

**16.7**

Leg and arm restraint lines

- (i) Ensure connected and routed correctly to floor anchorage brackets. Ensure QRP is correctly locked (lock lever at nominal 90 degrees to axis of pin and anodised button is protruding). Without touching the anodised lock button, take up free play in lock lever and attempt to withdraw pin, the pin must be securely retained
- (ii) Ensure arm restraint line is secured to floor anchorage with long side of link uppermost and point facing forward
- (iii) Ensure roller is positioned to rear of floor anchorage
- (iv) Ensure link rotates freely to a vertical position when arm restraint system is manually tensioned

**Note . . .**

When carrying out Item 16.8, socket connector 2MG/4MG is correctly connected when a contrasting colour stripe under the coupling ring is visible. The contrasting colour stripe is only visible when the fully mated condition is achieved.

**16.8**

Seat pan actuator/IFF socket connector (2MG front

Ensure correctly reconnected to its mating plug connector

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

seat, 4MG rear  
seat)

**16.9**

Command  
ejection quick-  
disconnect

- (i) Ensure connected to seat manifold
- (ii) Ensure red line on seat manifold is not visible when viewed from the horizontal
- (iii) Ensure static line is connected to cross-beam forward anchorage point. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger

**16.10**

Drogue  
withdrawal line

- (i) Ensure routed correctly
- (ii) Ensure connected to the drogue gun piston

**16.11**

Headspray  
connections

Ensure connected correctly

**16.12**

Maintenance  
documentation

Enter as follows:

- Certified vital checks satisfactorily completed

---

(end of work block)

## AIRFRAME

### 17. PEC SEAT PORTION

**17.1**

Main oxygen  
system  
functional test

Carry out (AP 101b-4104-1el MP 25-11/1)

---

(end of work block)

## AVIONIC

### 18. PEC SEAT PORTION

**18.1**

MIC/TEL system Carry out an inter-cockpit check (AP 101B-

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

4104-1JA MP 60-40/1)

(end of work block)

## AVIONIC

Note . . .

Block 19 is applicable only to pre Mod. 02383 aircraft.

### 19. PREPARATION - IFF INTEGRITY TEST

Note . . .

Item 19.1 is applicable only to aircraft fitted with the Mk.10 IFF system.

#### 19.1

Transponder:

- |                           |                   |
|---------------------------|-------------------|
| (a) MASTER switch         | Ensure set to OFF |
| (b) MODE 1 code selectors | Set to 0000       |
| (c) MIL/CIV switch        | Set to MIL        |

Note . . .

Item 19.2 is applicable only to aircraft fitted with the Mk.12 IFF system.

#### 19.2

Transponder:

- |                    |                   |
|--------------------|-------------------|
| (a) MASTER switch  | Ensure set to OFF |
| (b) M-1/OUT switch | Set to M-1        |
| (c) M-2/OUT switch | Set to M-2        |
| (d) M-3A/OUT       | Set to M-3A       |

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

switch

(e) M-C/OUT switch Set to M-C

(f) MODE 1 code selectors Set to 00

(g) MODE 3A code selectors Set to 0000

**19.3** IFF-701 test set Carry out self test as follows:

(a) POWER key Press

(b) SELF TEST key Press to enter the self test screen

(c) ANTENNA connector Terminate with 50 ohm connector

(d) RUN/STOP key Press to initiate self test and ensure when completed, the GREEN LED is illuminated and check the display to verify that all modules have passed

Note . . .

Item 19.4 through Item 19.6 are applicable only to aircraft fitted with the Mk.10 IFF system.

**19.4** Radome assembly and radar skirt Open and secure (AP 101B-4104-1EA2 Chap.15-11)

**19.5** Antenna switching unit Disconnect the lower antenna connector from the antenna switching unit LOWER SK-B

**19.6** IFF-701 test set coax cable Connect to the test set RF I/O socket and the antenna switching unit lower antenna socket LOWER SK-B

**19.7** IFF-701 test set AUTO TEST key Press to display the 1st line test screen (will show the results of the last AUTO TEST on the display)

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Note . . .

Item 19.8 is applicable only to aircraft fitted with the Mk.10 IFF system.

<b>19.8</b>	IFF-701 test set SLEW key	Select the required configuration as MK10+LOB
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Note . . .

Item 19.9 is applicable only to aircraft fitted with the Mk.12 IFF system

<b>19.9</b>	IFF-701 test set SLEW key	Select the required configuration as MK12- M4
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(end of work block)

## ELECTRICAL

Note . . .

Block 20 is applicable only to pre Mod. 02383 aircraft.

### 20. PREPARATION

<b>20.1</b>	Circuit-breaker 165	Ensure set (AP 101B-4104-1HA Chap.55-50)
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<b>20.2</b>	External a.c. power supply	Connect and switch ON (AP 101B-4104-1HA Chap.55-40)
-------------	-------------------------------	--

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(end of work block)

## AVIONIC

Note . . .

Block 21 is applicable only to aircraft fitted with the Mk.10 IFF system.

### 21. PROCEDURE

<b>21.1</b>	Antenna test	Set to LOWER
-------------	--------------	--------------

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

switch (nose  
landing gear  
compartment)

**21.2**

Transponder:

(a) MASTER  
switch

(i) Set to SBY and allow 2 min warm-up  
period

(ii) Set to N

(b) TEST lamp Press and ensure lit

(c) TEST switch Press and ensure the TEST lamp is lit

**21.3**

IFF-701 test set  
SEL key

Select the MODE 1,2 REPLY TEST

**21.4**

IFF-701 test set  
MODE 1,2  
REPLY TEST  
screen

Ensure the MODE 1 code reply is not  
preceded by the letters EM

**21.5**

Circuit-breaker  
170

Trip (AP 101B-4104-1HA Chap.55-50)

**21.6**

IFF-701 test set  
MODE 1,2  
REPLY TEST  
screen

Ensure the MODE 1 code reply is preceded  
by the letters EM

**21.7**

Circuit-breaker  
170

Set (AP 101B-4104-1HA Chap.55-50)

**21.8**

IFF-701 test set  
MODE 1,2  
REPLY TEST  
screen

Ensure the MODE 1 code reply is not  
preceded by the letters EM

**21.9**

IFF-701 test set  
RUN/STOP key

Press to end MODE 1,2 REPLY TEST

**21.10**

IFF-701 test set  
POWER key

Press to power down test set

**21.11**

Transponder  
MASTER switch

Set to OFF

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

<b>21.12</b>	IFF-701 test set coax cable	Disconnect from the test set antenna socket and the antenna switching unit lower antenna socket (23 SKB)
<b>21.13</b>	Antenna switching unit	Reconnect the lower antenna to socket 23 SKB
<b>21.14</b>	Radome assembly and radar skirt	Close (AP 101B-4104-1EA2 Chap.15-11)
<b>21.15</b>	Antenna test switch	Set to FLIGHT

---

(end of work block)

## AVIONIC

Note . . .

Block 22 is applicable only to aircraft fitted with the Mk.12 IFF system.

## 22. PROCEDURE

<b>22.1</b>	Transponder:	
	(a) MASTER switch	(i) Set to SBY and allow 3 min warm-up period
		(ii) Set to N
	(b) TEST push button	Press and ensure the FAULT indicator is not white
<b>22.2</b>	IFF-701 test set SEL key	Press to select MODE 1, 2 REPLY TEST
<b>22.3</b>	IFF-701 test set RUN/STOP key	Press to initiate MODE 1, 2 REPLY TEST and ensure MODE 1 code reading is correct
<b>22.4</b>	Circuit-breaker 170	Trip (AP 101B-4104-1HA Chap.55-50)
<b>22.5</b>	Radome	Open (AP 101B-4104-1EA2 Chap.15-11)



'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

	assembly and radar maxi skirt	
<b>22.6</b>	Connectors 23SKB and 23SKC	Locate (zone 12) and disconnect, fit 50Ω termination lead to 23SKC
<b>22.7</b>	IFF-701 test set	Connect coaxial cable between test set ANTENNA connector and 23SKb (stowage point)
<b>22.8</b>	Transponder MASTER switch	Set to STBY
<b>22.9</b>	Circuit-breaker 170	Set (AP 101B-4104-1HA Chap.55-50)
<b>22.10</b>	IFF-701 test set RUN/STOP key	Press and ensure the MODE 1 code reply is suffixed by the letters EM
<b>22.11</b>	IFF-701 test set RUN/STOP key	Press to end MODE 1, 2 REPLY TEST
<b>22.12</b>	IFF-701 test set	Disconnect coaxial cable between test set ANTENNA connector and 23SKb
<b>22.13</b>	Connector 23SKC	Remove the 50Ω termination and reconnect to to 23SKc at the aircraft stowage point
<b>22.14</b>	Connectors 23SKB	Reconnect to 23SKb at the aircraft stowage point
<b>22.15</b>	Radome assembly and radar maxi skirt	Close (AP 101B-4104-1EA2 Chap.15-11)
<b>22.16</b>	IFF-701 test set POWER key	Press to power down test set
<b>22.17</b>	Transponder MASTER switch	Set to 'OFF'

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(end of work block)

### ELECTRICAL

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

Note . . .

Block 23 is applicable only to pre Mod. 02383 aircraft.

### 23. COMPLETION

<b>23.1</b>	External a.c. power supply	Switch OFF and disconnect (AP 101B-4104-1HA Chap.55-40)
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(end of work block)

### AVIONIC

Note . . .

Block 24 is applicable only to post Mod. 02383 aircraft.

### 24. PREPARATION - SUCCESSOR IDENTIFICATION FRIEND OR FOE (SIFF) INTEGRITY TEST

<b>24.1</b>	IFF inhibit/enable switch	Set to 'ENABLE'
<b>24.2</b>	Access door R124	Open and secure (AP 101B-4104-1CD MP 07-40/1)
<b>24.3</b>	Transponder control and display unit (TCDU):	
	(a) Mode enable switches M1, M2, M3/A, MC, MS and M5	Set to OUT position
	(b) MASTER switch	Ensure in the PULL OFF position
<b>24.4</b>	RAPID TAKE OFF panel IGNITION switch	Set to FLIGHT
<b>24.5</b>	IFF-701 test set	Carry out self test as follows:

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- (a) POWER key Press
- (b) SELF TEST key Press to enter the self test screen
- (c) ANTENNA connector Terminate with 50 ohm connector
- (d) RUN/STOP key Press to initiate self test and ensure when completed, the GREEN LED is illuminated and check the display to verify that all modules have passed

---

(end of work block)

## ELECTRICAL

Note . . .

Block 25 is applicable only to post Mod. 02383 aircraft.

### 25. PREPARATION

- 25.1 Circuit-breaker 325 Ensure tripped (AP 101B-4104-1HA Chap.55-50)
- 25.2 Circuit-breaker 3, 165, 170 and 355 Ensure set (AP 101B-4104-1HA Chap.55-50)
- 25.3 External a.c. power supply Connect and switch ON (AP 101B-4104-1HA Chap.55-40)

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(end of work block)

## AVIONIC

Note . . .

Block 26 is applicable only to post Mod. 02383 aircraft.

### 26. PROCEDURE

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

**26.1** Transponder Disconnect aerial connectors 48SKD (J2) and 48SKE (J3)

**CAUTION . . .**

**To prevent damage to IFF-701 test set, do not connect the transponder to the ANTENNA connector when set for direct connect.**

**26.2** IFF-701 test set Connect the direct connect cable from RF I/O socket directly to J3 on the transponder

**26.3** 50  $\Omega$  dummy load Connect to J2 on the transponder

**26.4** IFF-701 test set AUTO TEST key Press to display the 1st line test screen (will show the results of the last AUTO TEST on the display)

**26.5** IFF-701 test set SLEW key Set the required configuration as MK12S-M4

**26.6** TCDU:

(a) MASTER switch Set to STBY

(b) Alphanumeric displays Ensure SELF TEST displayed, followed by TEST PASS displayed for 5s on completion of PBIT

(c) MASTER switch Set to NORM

**26.7** Circuit-breaker 170 Trip (AP 101B-4104-1HA Chap.55-50)

**26.8** TCDU:

Alphanumeric display Ensure EMER EMER displayed

**26.9** IFF-701 test set SEL key Select MODE 1, 2 REPLY TEST

**26.10** IFF-701 test set RUN/STOP key Press and ensure MODE 1 code of 7300 EM and MODE 2 code of 7777 EM displayed

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

- |              |                                  |   |
|--------------|----------------------------------|---|
| <b>26.11</b> | IFF-701 test set<br>SEL key      | Select ATCRBS REPLY TEST  |
| <b>26.12</b> | IFF-701 test set<br>RUN/STOP key | Press and ensure MODE 3/A code of 7700<br>EM displayed  |
| <b>26.13</b> | Circuit-breaker<br>170           | Set (AP 101B-4104-1HA Chap.55-50)   |
| <b>26.14</b> | TCDU:                            |   |
|              | (a)<br>Alphanumeric<br>display   | Ensure EMER EMER no longer displayed  |
|              | (b) MASTER<br>switch             | Set to PULL OFF position  |
| <b>26.15</b> | IFF-701 test set<br>POWER key    | Press to power down test set  |
| <b>26.16</b> | IFF-701 test set                 | Disconnect direct connect cable from RF I/O<br>socket   |
| <b>26.17</b> | Transponder                      | (i) Disconnect direct cable from J3<br>(ii) Disconnect 50Ω dummy load from J2<br>(iii) Connect aerial connectors 48SKD (J2)<br>and 48SKE (J3) |

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(end of work block)

## AVIONIC

Note . . .

Block 27 is applicable only to post Mod. 02383 aircraft.

## 27. COMPLETION

- |             |                                     |            |
|-------------|-------------------------------------|------------|
| <b>27.1</b> | RAPID TAKE<br>OFF panel<br>IGNITION | Set to OFF |
|-------------|-------------------------------------|------------|

'HAZARD AND MAINTENANCE INFORMATION' (AP 101B-4104-5A2) is to be complied with throughout the work detailed on this card

**Switch**

- |             |                               |   |
|-------------|-------------------------------|---|
| <b>27.2</b> | External a.c.<br>power supply | Switch OFF and disconnect (AP 101B-4104-1HA Chap.55-40) |
| <b>27.3</b> | Access door<br>R127           | Close and secure (AP 101B-4104-1CD MP 07-40/1)          |

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(end of work block)

**WEAPONS SNCO****28. INDEPENDENT CHECKS**

- |             |                   |   |
|-------------|-------------------|---|
| <b>28.1</b> | Seat installation | Carry out independent checks (MP 29-10/6) |
|-------------|-------------------|---|

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(end of work block)

**AIRFRAME****29. COMPLETION**

- |             |        |                                    |
|-------------|--------|------------------------------------|
| <b>29.1</b> | Canopy | Fit (AP 101B-4104-1EA2 MP 15-13/2) |
|-------------|--------|------------------------------------|

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(end of work block)

**WEAPONS****30. MAINTENANCE DOCUMENTATION**

- |             |                              |          |
|-------------|------------------------------|----------|
| <b>30.1</b> | Maintenance<br>documentation | Complete |
|-------------|------------------------------|----------|

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(end of work block)  
(END OF MP)