

29-10 EJECTION SEATS MAINTENANCE PROCEDURE 29-10/3 (43 work blocks) 01/12

EJECTION SEAT AND CARTRIDGES INSTALLATION (** MANDATORY **)

MANDATORY MAINTENANCE PROCEDURE

ASSOCIATED CARDS	POWER
DAP 101B-4100-6A	YES
DAP 101B-4104-1EL	
DAP 101B-4104-1EP	
DAP 101B-4104-1HA	
DAP 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	
'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 Chap. 29-10, 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 4920-99-7669635 or 4920-99-7757632	Holding the seat
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

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

Item	Reference	Application
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.**

CAUTION . . .

Post Mod. 02555 aircraft only: Care must be taken when working in the cockpit to ensure HMCS equipment and cables are not damaged.

Note . . .

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
 portion
- (a) Supply hoses Examine
 - (b) MIC/TEL lead Examine

Note . . .

Chap. 29-10, MP 29-10/3, 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 portion	Refit (<u>Chap.25-11</u>) excluding Anti-g and Main Oxygen System functional checks (see <u>Chap. 29-10, MP 29-10/3, Item 28.1</u> and <u>28.2</u>)
1.3	Canopy jettison pipeline	Look for damage
1.4	Aircraft ejection gun mounting brackets	Examine
1.5	Footspray nozzles or blanking plates (4 off)	Ensure secure
1.6	Headspray nozzles or blanking plates (4 off)	Ensure secure

Note . . .

Item 1.7 is applicable to post Mod. 02555 aircraft only.

1.7	HMCS cockpit floor cable	<ul style="list-style-type: none"> (i) Ensure connector fitted to stowage (ii) Ensure lanyard secured to floor (iii) Ensure HMCS cable and lanyard routed outboard of seat actuator/IFF lanyard and underneath seat actuator/IFF cable (<u>Chap. 29-10, MP 29-10/3, Fig. 1</u>)
1.8	Cockpit floor	Clean with vacuum cleaner

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Fig. 1. Lanyard routeing
(New illustration)

(end of work block)

AIRFRAME

2. EXAMINATION

Note . . .

Chap. 29-10, MP 29-10/3, 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 attachments and surrounding 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 Chap. 29-30, 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.**

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

3.1	Ejection seat cartridges	<ul style="list-style-type: none"> (i) Examine (ii) Ensure correct modification state for seat being installed (iii) Ensure correct number and items for seat (iv) Ensure marked with the aircraft number, installed position, installed life expiry date and lot number
3.2	Rocket pack	<ul style="list-style-type: none"> (i) Ensure serial number on identity plate is correct item for the seat and corresponds to its F6851 and LITS record (ii) Ensure marked with the installed life expiry date (iii) Examine as far as possible (iv) Ensure the firing unit screws in hand tight without restriction
3.3	Ejection gun and time-delay firing unit	Ensure the correct items for the seat

3.4	Emergency oxygen gauge	Ensure indicates FULL
3.5	Leg and arm restraint snubbing units	Operate
3.6	Leg restraint line taper plugs	(i) Insert into their housings (ii) Ensure held securely
3.7	Man portion dust cover	(i) Remove, ensuring the leg lines release (ii) Refit
3.8	Go-forward mechanism	Operate
3.9	Seat linkages	Examine
3.10	Upper harness locking plungers (LH and RH)	Ensure locking plungers are fully extended with the top of the plunger touching the top surface of the recess

Note . . .

Chap. 29-10, MP 29-10/3, Item 3.11 is applicable to pre Mod. 02198 installations only.

3.11	Ejection gun sear withdrawal safety lock 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 (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 (iii) Disengage the sear withdrawal safety lock and rotate the seat firing cross shaft to facilitate the fitting of the time delay firing unit
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WARNING . . .

DURING Chap. 29-10, MP 29-10/3, Item 3.12, 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.

3.12	Command firing connector ball bearing (3 off)	(i) Examine (ii) Ensure lubricated with grease (XG-293)
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Note . . .

Item 3.12 is applicable to post Mod. 02556 installations only.

3.13	HMCS seat cable	(i) Ensure aircraft/seat connector lanyard is connected to ejection seat lanyard P-clip (<u>Chap. 29-10, MP 29-10/3, Fig. 2</u>)
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Ensure cable P-clips correctly attached to seat and the rubber grommets are correctly positioned

- (iii) Ensure seat/man connector correctly fitted to retention clip with alignment indicator outboard and lanyard attached to ejection seat lanyard P-clip (Chap. 29-10, MP 29-10/3, Fig. 3)
- (iv) Ensure seat/man connector dust cap fitted
- (v) Ensure aircraft/seat connector correctly fitted in rear P-clip with alignment indicator positioned aft (Chap. 29-10, MP 29-10/3, Fig. 2)

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Fig. 2. Aircraft cable routeing
(New illustration)

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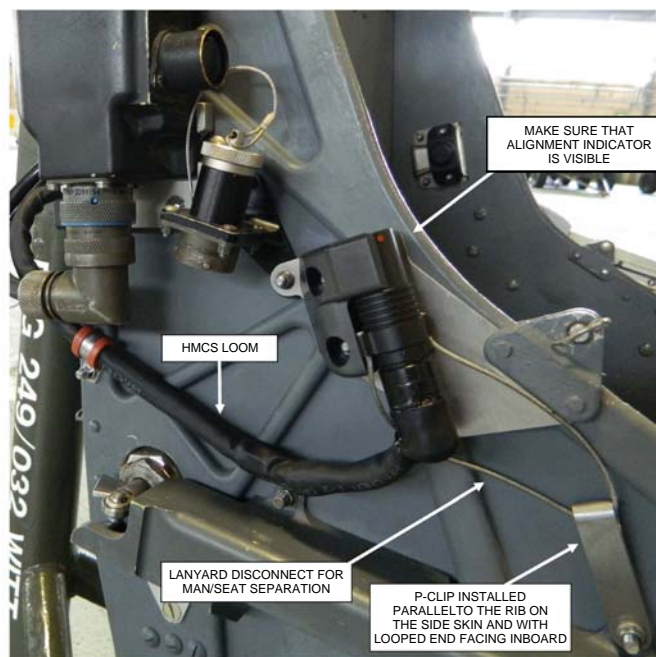


Fig. 3. Man/seat connection
(New illustration)

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WEAPONS

4. ROCKET PACK

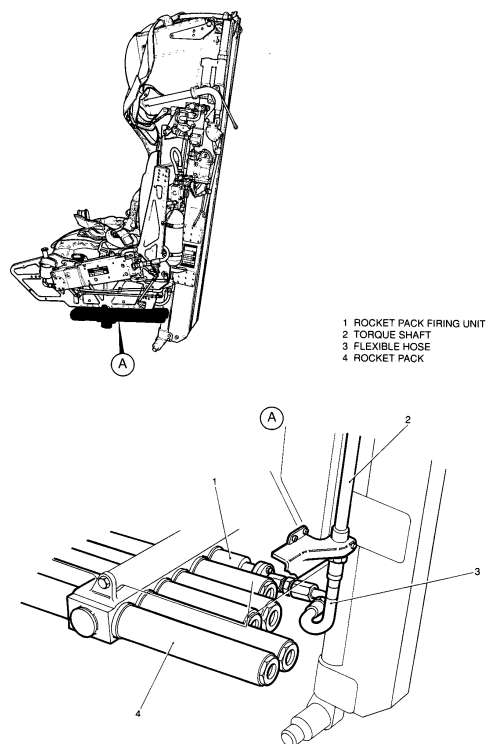
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|-----|-------------|---|
| 4.1 | Firing unit | <ul style="list-style-type: none"> (i) Ensure bay maintained (ii) Ensure firing pin not protruding |
| 4.2 | Cartridge | <ul style="list-style-type: none"> (i) Ensure the correct modification state for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

Note . . .

During Chap. 29-10, MP 29-10/3, Item 4.4, ensure the correct bolts are used when securing the rocket pack RH MBEU 60566 and LH MBEU 60565.

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|-----|---------------------------------------|---|
| 4.4 | Rocket pack | <ul style="list-style-type: none"> (i) Position under the seat pan (ii) Loosely connect remote rocket initiator flexible hose (iii) Insert the mounting bolts and ensure flexible hose routed correctly (<u>Chap. 29-10, MP 29-10/3, Fig. 4</u>) |
| 4.5 | Rocket pack mounting bolts | <ul style="list-style-type: none"> (i) Torque tighten to 10 N.m (ii) Lock with wire |
| 4.6 | Rocket pack fixed link arm | <ul style="list-style-type: none"> (i) Align with the bracket eye end (ii) Refit the clevis pin and a new split pin, ensuring the split pin is positioned outboard of the seat pan attachment bracket (<u>Chap. 29-10, MP 29-10/3, Fig. 5</u>) |
| 4.7 | Remote rocket initiator flexible hose | <ul style="list-style-type: none"> (i) Torque tighten to 21 N.m (ii) Lock with wire |

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**Fig. 4. Flexible hose route**

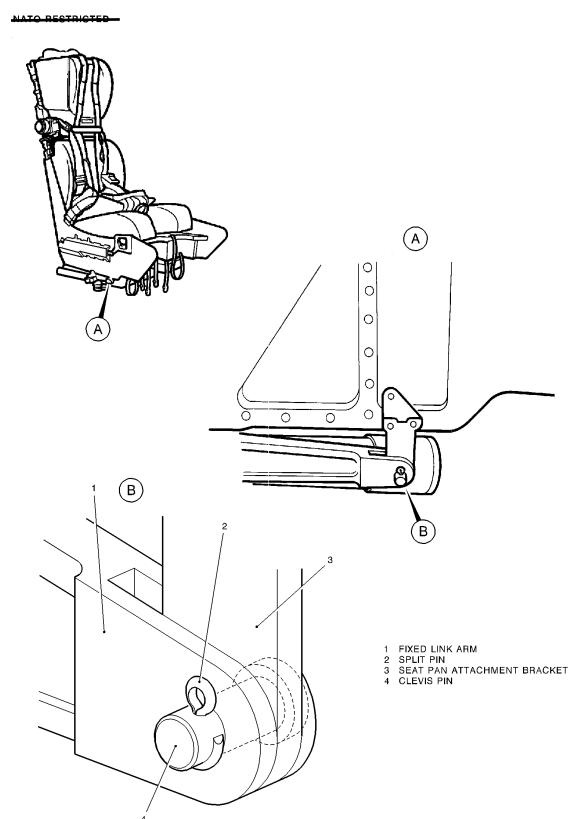


Fig. 5. Rocket pack fixed link arm attachment

(end of work block)

WEAPONS

5. DROGUE GUN

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|-----|-----------------------|--|
| 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

(ii) Insert into breech |
| 5.4 | Secondary firing unit | (i) Ensure firing pin is not protruding
(ii) Ensure shear pin is intact
(iii) Refit to breech
(iv) Torque tighten to 28 N.m
(v) Lock with wire |

(end of work block)

WEAPONS

6. REMOTE ROCKET INITIATOR

WARNING . . .

PRIOR TO CARRYING OUT THE ACTIONS DETAILED AT Chap. 29-10, MP 29-10/3, Item 6.1 TO Chap. 29-10, MP 29-10/3, Item 6.4 INCLUSIVE, ENSURE THE TELESCOPIC PIPE ASSEMBLY IS DISCONNECTED IAW Chap. 29-10, MP 29-10/2 ITEM 12.5(a).

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

(ii) Insert into the breech |
| 6.3 | Firing unit | (i) Ensure the firing pin is not protruding
(ii) Refit to the breech
(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 |

(end of work block)

WEAPONS

7. HARNESS POWER RETRACTION UNIT

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|------------|-------------|--|
| 7.1 | Firing unit | Remove from the breech |
| 7.2 | Cartridge | <ul style="list-style-type: none"> (i) Ensure the correct modification state for the seat being installed (ii) Insert into the breech |
| 7.3 | Firing unit | <ul style="list-style-type: none"> (i) Ensure the firing pin is not protruding (ii) Ensure the shear pin is intact (iii) Refit to the breech (iv) Torque tighten to 28 N.m (v) Lock with wire |

(end of work block)

WEAPONS**8. MANUAL SEPARATION UNIT**

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|------------|-------------------------------------|--|
| 8.1 | Manual separation firing link guard | Remove (if applicable) |
| 8.2 | Firing link | <ul style="list-style-type: none"> (i) Disconnect and separate from the sear (ii) Secure to seat pan |
| 8.3 | Firing unit | Remove from the breech |
| 8.4 | Cartridge | <ul style="list-style-type: none"> (i) Ensure the correct modification state for the seat being installed (ii) Insert into the breech |
| 8.5 | Firing unit | <ul style="list-style-type: none"> (i) Ensure the firing pin is not protruding (ii) Refit to the breech (iii) Fit the spanner and torque tighten to 28 N.m (iv) Lock with wire |
| 8.6 | Manual separation firing linkage | Reconnect to the sear using nut and bolt |

Note . . .

Sub-item 8.7(ii) is applicable to post Mod. 02556 installations only.

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|------------|-------------------------------------|---|
| 8.7 | Manual separation firing link guard | <ul style="list-style-type: none"> (i) Refit (ii) Ensure P-clip is attached parallel to seat pan rib and that the looped end faces inboard
(<u>Chap. 29-10, MP 29-10/3, Fig. 3</u>) |
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Note . . .

Item 8.8 is applicable to post Mod. 02556 installations only.

8.8	HMCS man/seat connector lanyard	Ensure correctly attached to P-clip (<u>Chap. 29-10, MP 29-10/3, Fig. 3</u>)
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(end of work block)

WEAPONS

9. SEAT PAN FIRING UNIT

9.1	Firing handle safety pin	Remove
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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 handle	Carefully remove from its housing
9.3	Safety pin	Refit to lock manual separation handle
9.4	Firing unit	Remove from breech
9.5	Cartridge	(i) Ensure the correct modification state for the seat being installed (ii) Insert into breech
9.6	Firing unit	(i) Ensure firing pin is not protruding (ii) Refit to breech (iii) Fit spanner with slot at the same side as sear and torque tighten to 28 N.m (iv) Lock with wire
9.7	Seat pan firing handle	(i) Remove safety pin (ii) Refit into its housing (iii) Refit safety pin and ensure fully inserted
9.8	Deleted	

CAUTION . . .

During Chap. 29-10, MP 29-10/3, Item 9.9, care must be taken to ensure bolt passes through sear attachment hole.

9.9	Firing link	Reconnect to sear using nut and bolt
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(end of work block)

WEAPONS

10. EJECTION GUN

10.1	Housing caps	Remove
10.2	Housings	Inspect water seal and replace if necessary

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|------|----------------------|--|
| 10.3 | Secondary cartridges | <ul style="list-style-type: none"> (i) Ensure the correct modification state for the seat being installed (ii) Refit |
| 10.4 | Housing caps | <ul style="list-style-type: none"> (i) Refit (ii) Lock with wire |

(end of work block)

WEAPONS NCO

11. VITAL CHECKS

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| 11.1 | Ejection gun housing caps | Ensure refitted correctly and locked with wire |
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(end of work block)

WEAPONS

CAUTION . . .

Post Mod. 02555 aircraft only: Care must be taken when working in the cockpit to ensure HMCS equipment and cables are not damaged.

12. EJECTION GUN INSTALLATION

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|------|--------------------------------|---------|
| 12.1 | Ejection gun mounting brackets | Examine |
|------|--------------------------------|---------|

Note . . .

During Chap. 29-10, MP 29-10/3, 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 | <ul style="list-style-type: none"> (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-Chap. 29-10, MP 29-10/3, 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-Chap. 29-10, MP 29-10/3, 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 (DAP 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 Chap. 29-10, MP 29-10/3, 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'
- short bolt Pt. No.P-720182-009 (rear seat) stamped 'R'

These bolts are NOT interchangeable.

12.4	Upper mounting bolt	<p>(i) Refit using self-locking nut</p> <p>(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</p>
		<p>Note . . .</p> <p>Sub-<u>Chap. 29-10, MP 29-10/3, Item 12.4</u> (iii) and (iv) need only be carried out where the clearance is less than 0,1 mm.</p>
		(iii) Remove the self-locking nut and retain
		<p>WARNING . . .</p> <p>IN SUB-<u>Chap. 29-10, MP 29-10/3, Item 12.4</u> (iv), LOCTITE 222 IS APPLIED TO THE UPPER MOUNTING BOLT. REFER TO THE ANAEROBIC ADHESIVES WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.</p>
		(iv) Apply Loctite (<u>DAP 101B-4100-6A , Chap.14-72</u>) to the bolt thread and refit existing self-locking nut, ensure a minimum clearance of 0,1 mm

Note . . .

Chap. 29-10, MP 29-10/3, 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 Chap. 29-10, Para. 3.4.

12.6	Command ejection flexible pipe - front	Long pipe with 90-degree angled union fit to front cockpit bulkhead and lock with wire
12.7	Command ejection flexible pipe - rear	Short pipe with 45-degree angled union fit to rear cockpit bulkhead and lock with wire

12.8	Command ejection quick- disconnect	(i) Remove blank (ii) Examine (iii) Ensure freedom of movement of spring components
12.9	Command ejection quick- disconnect static line	Reconnect to the ejection gun cross-beam forward anchorage bracket. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger
12.10	Time-delay firing unit	Ensure removed
12.11	Inner Piston	Ensure: (i) The V shaped grooves, for locating upper cross member dowel pin, are aligned with the centre of the ejection gun guide rails (<u>Chap. 29-10, MP 29-10/3, Fig. 6</u>) (ii) The centre of the breech groove is aligned with the centre of the top latch window (<u>Chap. 29- 10, MP 29-10/3, Fig. 6</u>)

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

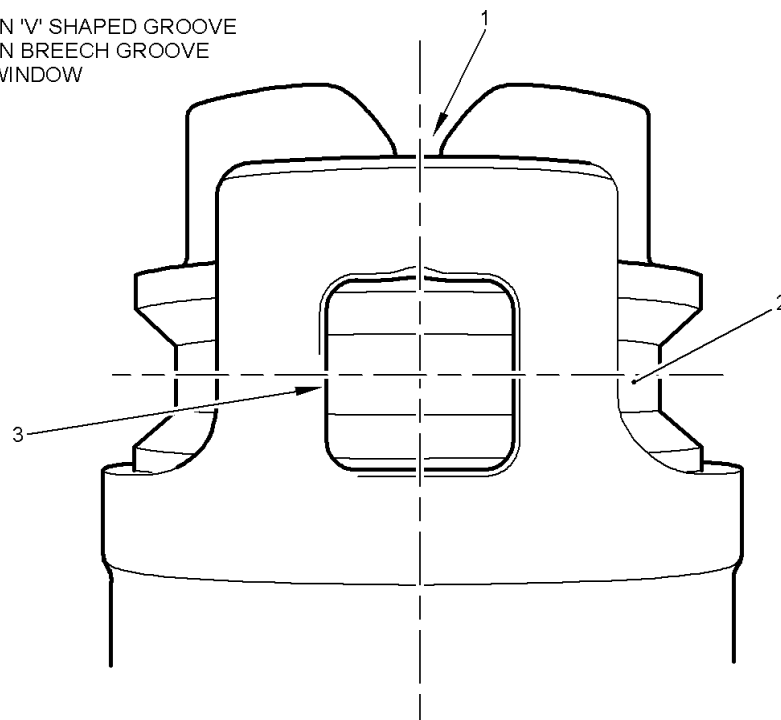


Fig. 6. Correct alignment of inner piston V shaped grooves, inner piston breech groove and outer cylinder top latch window (pre and post Mod.02198 part B)

(end of work block)

ELECTRICAL

13. RELAY BOX 318VE AND 319VE

- | | | |
|-------|--|--|
| 13.1 | Relay box 318VE and 319VE (pre Mod. 02361 aircraft) | (i) Refit (Chap.80-10)
(ii) Carry out post installation test (MP 80-10/18) |
| 13.1A | Relay box 318VE and 319VE (post Mod. 02361 aircraft) | (i) Refit (Chap.80-10)
(ii) Carry out post installation test (MP 80-10/18A) |

(end of work block)

WEAPONS NCO

14. VITAL CHECKS

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|------|---|--|
| 14.1 | Rocket pack | |
| | (a) Pack | Ensure fitted correctly and locked with wire |
| | (b) Firing unit | Ensure fitted correctly and locked with wire |
| | (c) Remote rocket initiator flexible hose | Ensure routed correctly (Chap. 29-10, MP 29-10/3, Fig. 4) and locked with wire |
| | (d) Fixed link clevis pin | (i) Ensure fitted |

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Ensure split pin is located outboard of the seat pan attachment bracket

- 14.2** Drogue gun
- (a) Drogue gun body Ensure refitted correctly
 - (b) Inlet connector Ensure reconnected correctly and locked with wire pipe
 - (c) Secondary cartridge firing unit Ensure refitted correctly and locked with wire
 - (d) Trip rod Ensure reconnected correctly with the support roller
- 14.3** 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
- 14.4** Harness power retraction unit firing unit
- Ensure refitted correctly and locked with wire
- 14.5** 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-Chap. 29-10, MP 29-10/3, 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.
- 14.6** Manual separation unit
- (a) Firing unit Ensure refitted correctly and locked with wire
 - (b) Firing link Ensure reconnected correctly
 - (c) Manual separation handle Ensure in the locked position
 - (d) Manual separation firing link guard Ensure fitted correctly
- 14.7** Emergency oxygen cylinder
- (i) Ensure refitted correctly
 - (ii) Ensure the contents gauge indicates FULL

Note . . .

Item 14.8 is applicable to post Mod. 02556 installations only.

- 14.8** HMCS seat cable
- (i) Ensure rear connector lanyard is connected to

ejection seat lanyard P-clip (Chap. 29-10, MP 29-10/3, Fig. 2)

- (ii) Ensure P-clips are correctly attached to seat and the rubber grommets are correctly positioned
- (iii) Ensure seat/man cable connector correctly fitted to retention clip with alignment indicator positioned outboard (Chap. 29-10, MP 29-10/3, Fig. 3)
- (iv) Ensure seat/man connector dust cap correctly fitted
- (v) Ensure aircraft/seat connector is correctly fitted in P-clip with alignment indicator positioned aft (Chap. 29-10, MP 29-10/3, Fig. 2)
- (vi) Ensure seat/man connector lanyard is correctly attached to P-clip and P-clip is attached parallel to seat pan rib looped end facing inboard (Chap. 29-10, MP 29-10/3, Fig. 3)

14.9	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
14.10	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
14.11	Ejection Gun	<p>Ensure:</p> <ul style="list-style-type: none"> (i) Refitted correctly (ii) The V shaped grooves, for locating upper cross member dowel pin, are aligned with the centre of the ejection gun guide rails (<u>Chap. 29-10, MP 29-10/3, Fig. 6</u>) (iii) The centre of the breech groove is aligned with the centre of the top latch window (<u>Chap. 29-10, MP 29-10/3, Fig. 6</u>) (iv) Command ejection quick-disconnect static line. Ensure reconnected to the cross-beam forward anchorage bracket. Ensure positive locking of the securing pin by attempting to withdraw the pin without depressing the plunger

(end of work block)

WEAPONS

15. EJECTION SEAT INSTALLATION

Note . . .

Chap. 29-10, MP 29-10/3, 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.

15.1	Ejection seat	Ensure a safety pin is fully inserted in seat pan firing handle
15.2	Canopy jettison system	Ensure a safety pin is fitted in canopy jettison initiator unit
15.3	Miniature detonating cord (MDC) system	Ensure a safety pin is fitted in each MDC cord initiator unit

15.4	Command ejection controller	Ensure set to REAR
15.5	MDC trip rod	Examine MDC cross-shaft trip rod lever (P721143-001) for signs of cracking using a suitable light source, mirror and x10 magnifier
15.6	Cockpit	Look for loose articles
15.7	Leg and arm restraint floor anchorage brackets	Examine
15.8	PEC static line anchorage bracket	Examine
15.9	Seat stabilizing brackets	Examine
15.10	Head spray connections	Examine
15.11	PEC	
	(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	Reconnect to floor anchorage. Ensure routed correctly (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

CAUTION . . .

To prevent the possibility of damaging the front face of the top latch window housing it is essential the handwheel is fully screwed in.

15.12	Ejection seat	
		(i) Fit the lifting sling
		(ii) Ensure the handwheel is screwed in fully
		(iii) Raise to position above the guide rails
		(iv) Examine seat actuator and ensure actuator cable is routed correctly

(end of work block)

WEAPONS NCO**15A. VITAL CHECK**

15A.1	Handwheel	Ensure fully screwed in
-------	-----------	-------------------------

(end of work block)

WEAPONS

15B. EJECTION SEAT INSTALLATION

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 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.
- (3) Post Mod. 02555 aircraft only: To prevent damage to the HMCS cockpit floor cable and pull-off lanyard, ensure the connector is fitted to the stowage and the cable and lanyard will not be trapped when the ejection seat is lowered into position.

15B.1 Lower slippers Engage in the guide rails and lower seat, engaging each set of slippers in turn

15B.2 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 (Chap. 29-10, MP 29-10/3, Fig. 7 or 7A)

15B.3 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.

15B.4 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 (Chap. 29-10, MP 29-10/3, Fig. 8 or 8A) and (Chap. 29-10, MP 29-10/3, Fig. 9 and 10)

15B.5 Deleted

15B.6 Lifting sling Remove

~~NATO RESTRICTED~~

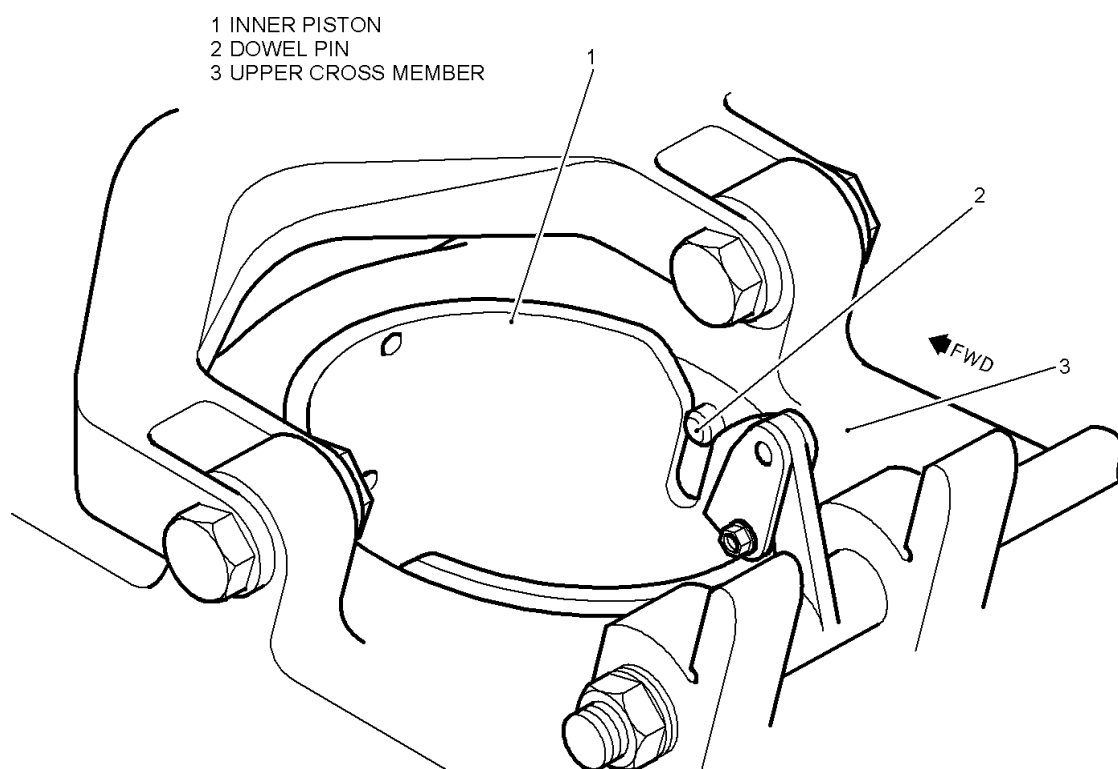


Fig. 7. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (pre Mod.02198 part B)

~~NATO RESTRICTED~~

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

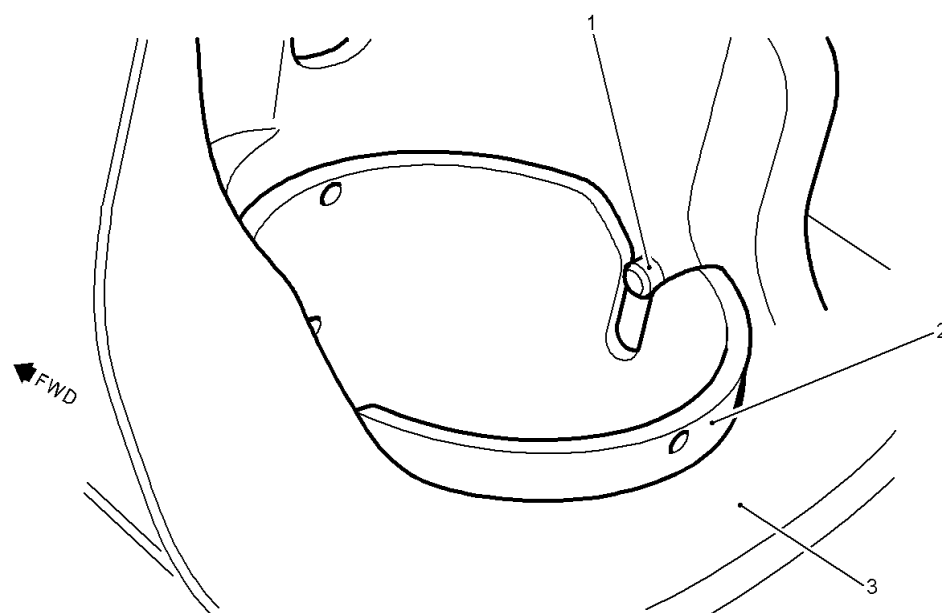


Fig. 7A. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (post Mod.02198 part B)

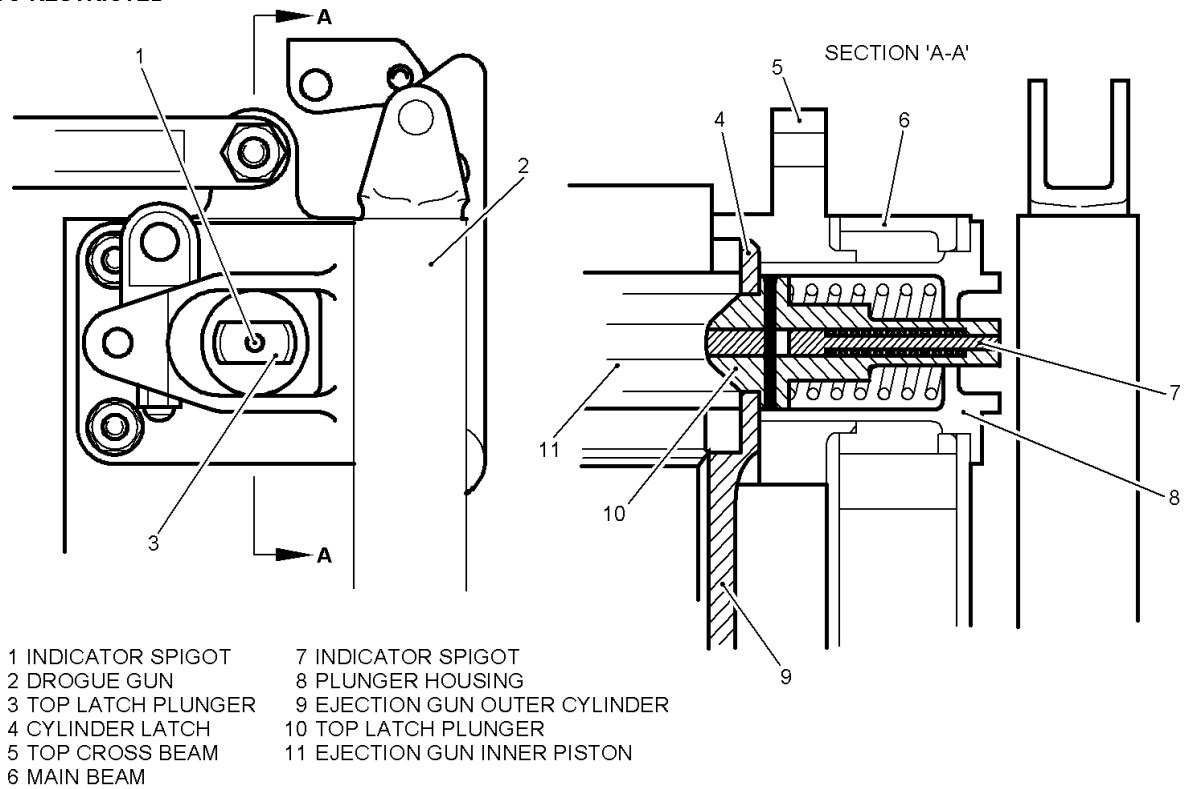
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Fig. 8. Correct engagement of the top latch (pre Mod.02198 part B)

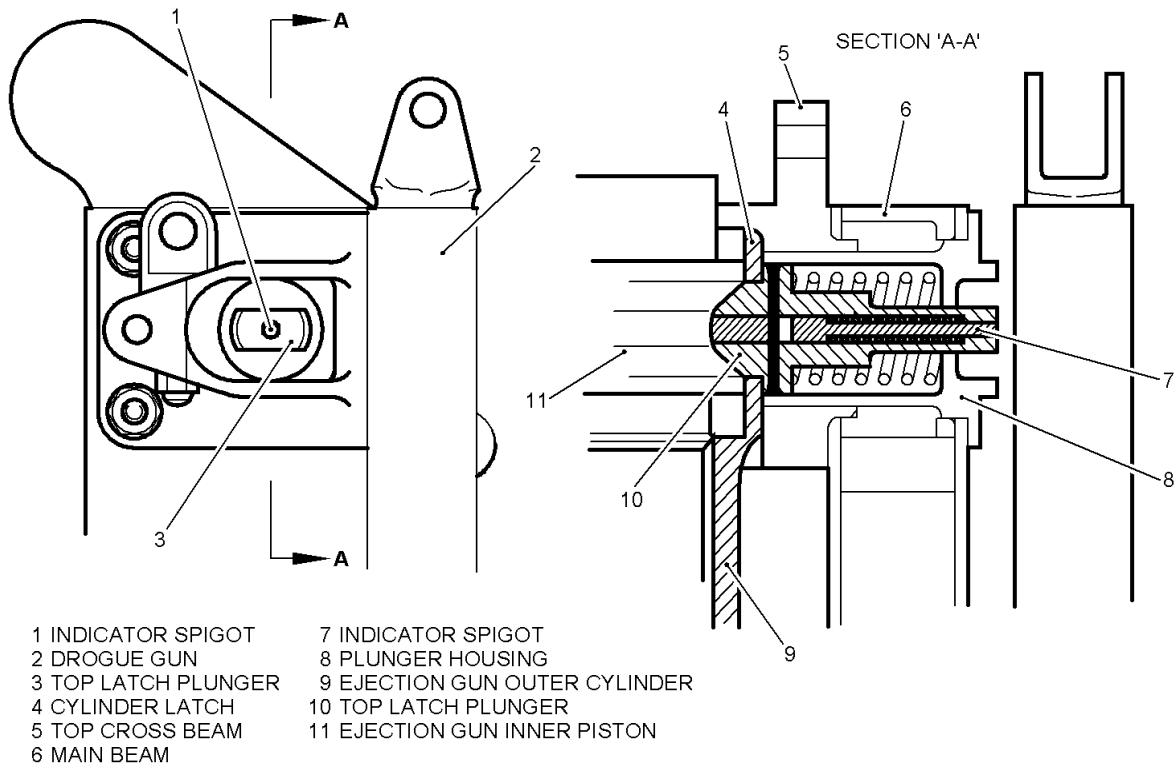
~~NATO RESTRICTED~~

Fig. 8A. Correct engagement of the top latch (post Mod.02198 part B)

~~NATO RESTRICTED~~



Fig. 9. Correct engagement of the top latch-plunger view (pre and post Mod.02198 part B)

NATO RESTRICTED

Fig. 10. Correct engagement of the top latch-spigot view (pre and post Mod.02198 part B)

(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.

- | | | |
|-------------|----------------------------------|---|
| 16.1 | Top Latch | <ul style="list-style-type: none"> (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 (Chap. 29-10, MP 29-10/3, Fig. 8 or 8A) and (Chap. 29-10, MP 29-10/3, Fig. 9 and 10) |
| 16.2 | 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 (Chap. 29-10, MP 29-10/3, Fig. 7 or 7A) |

(end of work block)

WEAPONS

17. SEAT STRUCTURE CONNECTION

- | | | |
|-------------|---------------------|-------------|
| 17.1 | Drogue gun trip rod | (i) Examine |
|-------------|---------------------|-------------|

- (ii) Reconnect to the trip rod attachment bracket
- (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

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) Check the roller for freedom of movement by rotating the roller slowly under finger pressure
- (ii) Reconnect to the cross-shaft
- (iii) Ensure the roller is just touching the tongue of the lever attached to the cockpit cross-shaft
- (iv) Ensure clevis pins (1), washers (2) and split pins (3) are orientated as shown (Chap. 29-10, MP 29-10/3, Fig. 11)

17.4

Deleted.

17.5

Aircraft

Ensure electrically safe. (Check circuit-breakers 122 and 165 tripped)

Note . . .

When carrying out Chap. 29-10, MP 29-10/3, 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 actuator/IFF socket connector (2MG front seat, 4MG rear seat)

- (i) Remove from its stowage
- (ii) Examine
- (iii) Reconnect to the mating plug connector

Note . . .

Item 17.7 is only applicable when fitting pre Mod. 02556 ejection seats to post Mod. 02555 installations.

17.7

HMCS cockpit floor cable

Ensure stowed

Note . . .

Item 17.8 is only applicable when fitting post Mod. 02556 ejection seats to post Mod. 02555 installations.

17.8	HMCS cockpit floor cable	<ul style="list-style-type: none"> (i) Ensure HMCS cockpit floor cable and lanyard are routed outboard of seat actuator/IFF lanyard and underneath seat actuator/IFF cable (<u>Chap. 29-10, MP 29-10/3, Fig. 1</u>) (ii) Ensure HMCS cockpit floor cable and seat cable connector indicator marks are aligned (iii) Ensure HMCS cockpit floor and seat cable connector are correctly connected and red witness mark not visible (iv) Route HMCS cockpit floor cable inboard of the rocket pack 2 outer tubes (<u>Chap. 29-10, MP 29-10/3, Fig. 12</u>)
17.9	PEC aircraft portion	Reconnect to seat portion
17.10	Arm and leg restraint lines	<ul style="list-style-type: none"> (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

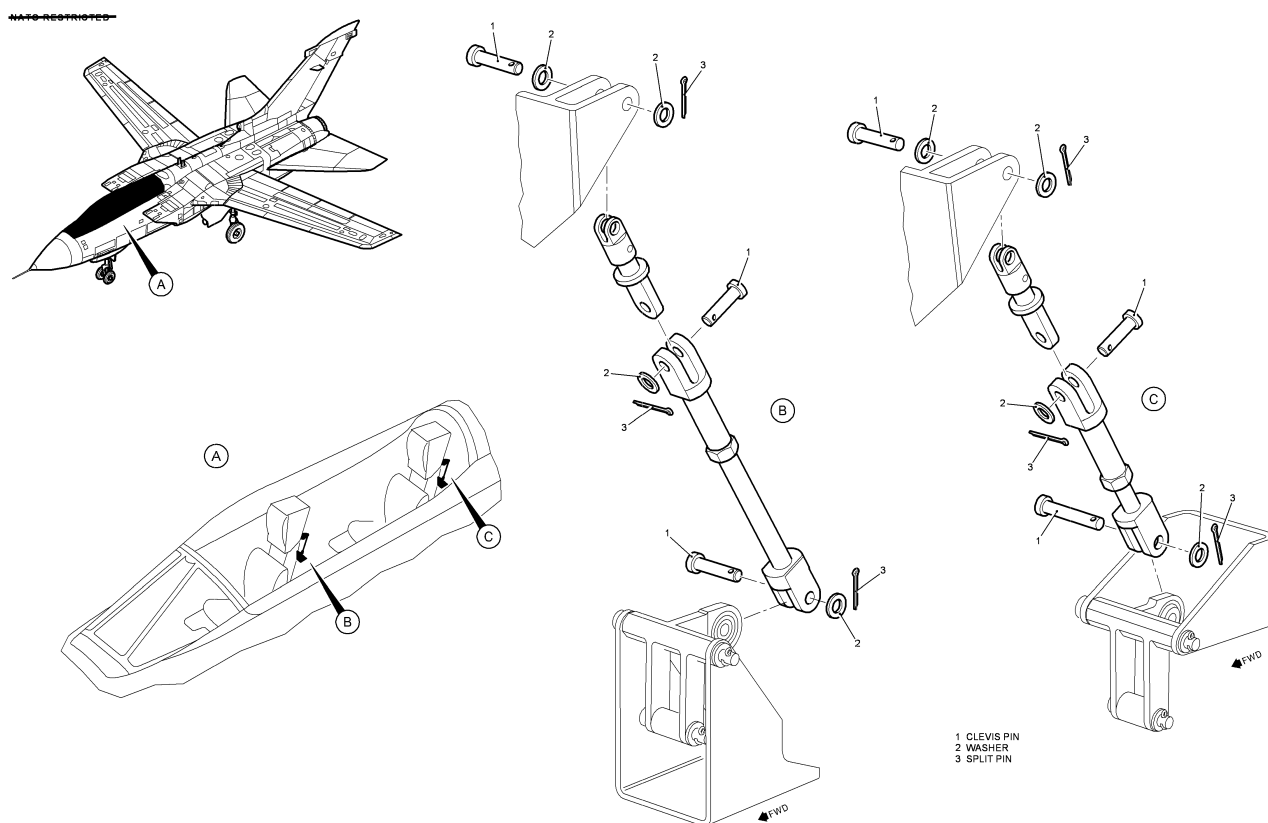


Fig. 11. MDC Trip Rods
(New illustration)

~~NATO RESTRICTED~~



Fig. 12. Aircraft cable routeing
(New illustration)

(end of work block)

WEAPONS

18. BAROSTATIC TIME-RELEASE UNIT

- | | | |
|-------------|-------------|---|
| 18.1 | Breech | Remove from firing body |
| 18.2 | Cartridge | <ul style="list-style-type: none"> (i) Ensure the correct modification state for the seat being installed (ii) Insert into breech |
| 18.3 | Firing body | Ensure the firing pin is not protruding |
| 18.4 | Breech | <ul style="list-style-type: none"> (i) Insert into firing body (ii) Torque tighten to 28 N.m (iii) Lock with wire |

(end of work block)

WEAPONS

19. EJECTION GUN

WARNING . . .

DURING Chap. 29-10, MP 29-10/3, 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 | <ul style="list-style-type: none"> (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 |
|-------------|-------------------|---|

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.

CAUTIONS . . .

- (1) During Chap. 29-10, MP 29-10/3, 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 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.**

- | | | |
|-------------|------------------------|--|
| 19.2 | Time delay firing unit | <ul style="list-style-type: none"> (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 28 N.m

(iv) Lock with wire

Note . . .

Chap. 29-10, MP 29-10/3, 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 . . .

Chap. 29-10, MP 29-10/3, Item 19.4 is applicable to post Mod. 02198 installations only.

19.4

Time-delay firing
unit gas supply
flexible hose

- (i) Remove pins
- (ii) Connect to the gas adaptor on top of the time-delay firing unit
- (iii) 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
- (iv) Without depressing the release plunger, ensure the quick release pins are correctly locked and free to move
- (v) If any of the above criteria cannot be met, remove the quick release pins (2 off) and disconnect the gas pipe from the BTDFU
- (vi) Holding the gas pipe (MBEU 116671) rotate the connecting block (MBEU 111476) on the pipe to ease the repositioning of the quick release pins
- (vii) Refit the gas pipe to the BTDFU, refit the quick release pins (2 off) and repeat the checks at 19.4 (iii) and (iv)

(end of work block)

WEAPONS

20. DROGUE GUN

20.1 Barrel Inspect water seal and replace if necessary

WARNING . . .

DURING Chap. 29-10, MP 29-10/3, 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

		Ensure the correct modification state for the seat being installed
		(ii) Fit new O-seal lubricated with grease (XG-293)
		(iii) Insert into the barrel
20.3	Firing body	Ensure the firing pin is not protruding
20.4	Barrel	(i) Remove shear pin (ii) Screw into body (iii) Torque tighten to 18 N.m (iv) Turn piston inside barrel so that piston fork end groove faces fore and aft as near as possible. 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
(end of work block)		

WEAPONS

21. SAFETY EQUIPMENT

21.1	Safety equipment	Refit (<u>Chap. 29-30, MP 29-30/2</u>)
(end of work block)		

WEAPONS

22. PROCEDURE

22.1	Head spray connections	Reconnect
22.2	Command ejection quick-disconnect	Reconnect to sequencing manifold ensuring red line on sequencing manifold is not visible when viewed from the horizontal
(end of work block)		

WEAPONS NCO

23. VITAL CHECKS

23.1	Ejection seats	Ensure the safety pin is fully inserted in each seat pan firing handle
23.2	Canopy jettison system	Ensure the safety pin is fitted in the canopy jettison initiator unit
23.3	MDC	Ensure a safety pin is fitted in each MDC initiator unit
23.4	Command ejection controller	Ensure set to REAR
(end of work block)		

ELECTRICAL**24. EXTERNAL POWER SUPPLY**

24.1	External a.c. power supply	Connect and switch ON (<u>Chap.55-40</u>)
24.2	Circuit-breaker (CB) 122	Set (<u>Chap.55-50</u>)

(end of work block)

WEAPONS NCO**25. VITAL CHECK****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.

Note . . .

Sub-item 25.1(ii) is applicable to post Mod. 02556 installations only.

25.1	Seat pan actuator	<ul style="list-style-type: none"> (i) Operate over the complete range, ensuring the aircraft portion PEC remains connected with the seat pan in the highest position (ii) Ensure HMCS cockpit floor cable remains connected to HMCS seat cable with the seat pan in the highest position
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(end of work block)

ELECTRICAL**26. EXTERNAL POWER SUPPLY**

26.1	External a.c. power supply	Switch OFF (<u>Chap.55-40</u>)
-------------	-------------------------------	----------------------------------

(end of work block)

WEAPONS NCO**27. VITAL CHECKS**

27.1	Seat sequencing system telescopic pipes	<ul style="list-style-type: none"> (i) Ensure reconnected correctly (ii) Ensure the securing pin has been refitted
27.2	BTRU	
	(a) Firing unit	Ensure refitted correctly and locked with wire
	(b) Trip rod	<ul style="list-style-type: none"> (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

27.3**Ejection gun time-delay firing unit****(a) Unit**

Ensure refitted correctly and locked with wire

Note . . .

Chap. 29-10, MP 29-10/3, Item 27.3 (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 . . .

Chap. 29-10, MP 29-10/3, Item 27.4 is applicable to post Mod. 02198 installations only.

27.4**Time-delay firing unit gas supply flexible hose**

- (i) Ensure connected correctly
- (ii) 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

27.5**Drogue gun****(a) Piston**

Ensure piston fork-end groove faces, as near as possible, 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

27.6**Remote rocket initiator telescopic pipe**

- (i) Ensure reconnected correctly
- (ii) Ensure securing pin has been refitted

27.7**MDC trip rod**

- (i) Ensure reconnected correctly
- (ii) Check the roller for freedom of movement by rotating the roller slowly under finger pressure
- (iii) Ensure roller is just touching tongue of lever

attached to cockpit cross-shaft

27.8

PEC

- (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.

27.9

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 Chap. 29-10, MP 29-10/3, Item 27.10, 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.

27.10

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

Ensure correctly reconnected to its mating plug connector

Note . . .

Item 27.11 is applicable to post Mod. 02556 installations only.

27.11

HMCS cockpit floor and seat cables

- (i) Ensure HMCS cockpit floor cable and lanyard are routed outboard of seat actuator/IFF lanyard and underneath seat actuator/IFF cable (Chap. 29-10, MP 29-10/3, Fig. 1)
- (ii) Ensure HMCS cockpit floor cable and seat cable connector indicator marks are aligned
- (iii) Ensure correctly connected and red witness marks are not visible
- (iv) Ensure HMCS cockpit floor cable is routed inboard of the rocket pack 2 outer tubes (Chap. 29-10, MP 29-10/3, Fig. 12)

27.12

Command ejection quick-disconnect

- (i) Ensure reconnected to seat manifold
- (ii) Ensure red line on seat manifold is not visible when viewed from the horizontal
- (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

27.13	Parachute container	Ensure refitted correctly
27.14	Parachute withdrawal line lock	Ensure correctly located above the release mechanism
27.15	Drogue withdrawal shackle bolt	Ensure refitted correctly in the shackle
27.16	Shackle safety tie	Ensure routed correctly and intact
27.17	Drogue withdrawal line	(i) Ensure routed correctly (ii) Ensure reconnected to the drogue gun piston
27.18	Headspray connections	Ensure connected correctly
27.19	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
27.20	PSP release connectors	Ensure routed and reconnected correctly
27.21	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.

27.22	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
27.23	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

(end of work block)

AIRFRAME

28. PEC SEAT PORTION

- 28.1** Main oxygen system functional test Carry out (MP 25-11/1)

Note . . .

Chap. 29-10, MP 29-10/3, Item 28.2 is only applicable if the ejection seat/PEC is being refitted after scheduled maintenance or replacement.

- 28.2** Anti-G system functional test Carry out (MP 24-40/1)

(end of work block)

AVIONIC

29. PEC SEAT PORTION

- 29.1** MIC/TEL system (pre Mod. 02500) Carry out an inter-cockpit check (MP 60-40/1)
- 29.1A** MIC/TEL system post (Mod. 02500) Carry out an inter-cockpit check (MP 60-40A/1)

(end of work block)

AVIONIC

Note . . .

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

30. PREPARATION - IFF INTEGRITY TEST

Note . . .

Operation 30.1 is applicable only to aircraft fitted with the Mk.10 IFF system.

- 30.1** 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 30.2 is applicable only to aircraft fitted with the Mk.12 IFF system.

30.2	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
30.3	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 . . .

Operations 30.4, 30.5 and 30.6 are applicable only to aircraft fitted with the Mk.10 IFF system.

30.4	Radome assembly and radar skirt	Open and secure (<u>Chap.15-11</u>)
30.5	Antenna switching unit	Disconnect the lower antenna connector from the antenna switching unit LOWER SK-B
30.6	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
30.7	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)

Note . . .

Operation 30.8 is applicable only to aircraft fitted with the Mk.10 IFF system.

30.8	IFF-701 test set SLEW key	Select the required configuration as MK10+LOB
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Note . . .

Operation 30.9 is applicable only to aircraft fitted with the Mk.12 IFF system.

30.9	IFF-701 test set SLEW key	Select the required configuration as MK12-M4
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(end of work block)

ELECTRICAL

Note . . .

Block 31. is applicable only to pre Mod. 02383 aircraft.

31. PREPARATION

31.1	CB 165	Ensure set (<u>Chap.55-50</u>)
31.2	External a.c. power supply	Connect and switch ON (<u>Chap.55-40</u>)

(end of work block)

AVIONIC

Note . . .

Block 32. is applicable only to aircraft fitted with the Mk.10 IFF system.

32. PROCEDURE

32.1	Antenna test switch (nose landing gear compartment)	Set to LOWER
32.2	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
32.3	IFF-701 test set SEL key	Select the MODE 1,2 REPLY TEST
32.4	IFF-701 test set MODE 1,2 REPLY TEST screen	Ensure the MODE 1 code reply is not preceded by the letters EM
32.5	CB 170	Trip (<u>Chap.55-50</u>)
32.6	IFF-701 test set MODE 1,2 REPLY TEST screen	Ensure the MODE 1 code reply is preceded by the letters EM
32.7	CB 170	Set (<u>Chap.55-50</u>)
32.8	IFF-701 test set MODE 1,2 REPLY	Ensure the MODE 1 code reply is not preceded by the letters EM

	TEST screen	
32.9	IFF-701 test set RUN/STOP key	Press to end MODE 1,2 REPLY TEST
32.10	IFF-701 test set POWER key	Press to power down test set
32.11	Transponder MASTER switch	Set to OFF
32.12	IFF-701 test set coax cable	Disconnect from the test set antenna socket and the antenna switching unit lower antenna socket (23 SKB)
32.13	Antenna switching unit	Reconnect the lower antenna to socket 23 SKB
32.14	Radome assembly and radar skirt	Close (Chap.15-11)
32.15	Antenna test switch	Set to FLIGHT

(end of work block)

AVIONIC

Note . . .

Block [33](#) is applicable only to aircraft fitted with the Mk.12 IFF system.

33. PROCEDURE

33.1	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
33.2	IFF-701 test set SEL key	Press to select MODE 1, 2 REPLY TEST
33.3	IFF-701 test set RUN/STOP key	Press to initiate MODE 1, 2 REPLY TEST and ensure MODE 1 code reading is correct
33.4	CB 170	Trip (Chap.55-50)
33.5	Radome assembly and radar maxi skirt	Open (Chap.15-11)
33.6	Connectors 23SKB and 23SKC	Locate (zone 12) and disconnect, fit 50Ω termination lead to 23SKC
33.7	IFF-701 test set	Connect coaxial cable between test set ANTENNA connector and 23SKb (stowage point)
33.8	Transponder MASTER switch	Set to STBY
33.9	CB 170	Set (Chap.55-50)
33.10	IFF-701 test set	Press and ensure the MODE 1 code reply is

	RUN/STOP key	suffixed by the letters EM
33.11	IFF-701 test set RUN/STOP key	Press to end MODE 1, 2 REPLY TEST
33.12	IFF-701 test set	Disconnect coaxial cable between test set ANTENNA connector and 23SKb
33.13	Connector 23SKC	Remove the 50Ω termination and reconnect to to 23SKc at the aircraft stowage point
33.14	Connectors 23SKB	Reconnect to 23SKb at the aircraft stowage point
33.15	Radome assembly and radar maxi skirt	Close (Chap.15-11)
33.16	IFF-701 test set POWER key	Press to power down test set
33.17	Transponder MASTER switch	Set to OFF

(end of work block)

ELECTRICAL

Note . . .

Block [34.](#) is applicable only to pre [Mod. 02383](#) aircraft.

34. COMPLETION

34.1	External a.c. power supply	Switch OFF and disconnect (Chap.55-40)
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(end of work block)

AVIONIC

Note . . .

Block [35.](#) is applicable only to post [Mod. 02383](#) aircraft.

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

35.1	IFF inhibit/enable switch	Set to 'ENABLE'
35.2	Access door R122	Open and secure (MP 07-40/1)
35.3	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
35.4	RAPID TAKE OFF panel IGNITION switch	Set to FLIGHT

35.5	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

(end of work block)

ELECTRICAL

Note . . .

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

36. PREPARATION

36.1	CB 322	Ensure tripped (<u>Chap.55-50</u>)
36.2	CB 3, 165, 170 and 355	Ensure set (<u>Chap.55-50</u>)
36.3	External a.c. power supply	Connect and switch ON (<u>Chap.55-40</u>)

(end of work block)

AVIONIC

Note . . .

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

37. PROCEDURE

37.1	Transponder	Disconnect aerial connectors 48SKD (J2) and 48SKE (J3)
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CAUTION . . .

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

37.2	IFF-701 test set	Connect the direct connect cable from RF I/O socket directly to J3 on the transponder
37.3	50 Ω dummy load	Connect to J2 on the transponder
37.4	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)
37.5	IFF-701 test set SLEW key	Set the required configuration as MK12S-M4
37.6	TCDU:	
	(a) MASTER	Set to STBY

	switch	
	(b) Alphanumeric displays	Ensure SELF TEST displayed, followed by TEST PASS displayed for 5s on completion of PBIT
	(c) MASTER switch	Set to NORM
	(d) MODE 1 CODE	Set to 7300
	(e) MODE 2 CODE	Take note of the preset MODE 2 code, then set it to 7777
37.7	CB 170	Trip (Chap.55-50)
37.8	TCDU:	
	Alphanumeric display	Ensure EMER EMER displayed
37.9	IFF-701 test set SEL key	Select MODE 1, 2 REPLY TEST
37.10	IFF-701 test set RUN/STOP key	Press and ensure MODE 1 code of 7300 EM and MODE 2 code of 7777 EM displayed
37.11	IFF-701 test set SEL key	Select ATCRBS REPLY TEST
37.12	IFF-701 test set RUN/STOP key	Press and ensure MODE 3/A code of 7700 EM displayed
37.13	CB 170	Set (Chap.55-50)
37.14	TCDU:	
	(a) Alphanumeric display	Ensure EMER EMER no longer displayed
	(b) MODE 2 CODE	Reset MODE 2 code to that noted at Step 37.6(e)
	(c) MASTER switch	Set to PULL OFF position
37.15	IFF-701 test set POWER key	Press to power down test set
37.16	IFF-701 test set	Disconnect direct connect cable from RF I/O socket
37.17	Transponder	<ul style="list-style-type: none"> (i) Disconnect direct cable from J3 (ii) Disconnect 50Ω dummy load from J2 (iii) Connect aerial connectors 48SKD (J2) and 48SKE (J3)

(end of work block)

AVIONIC

Note . . .

Block [38](#), is applicable only to post [Mod. 02383](#) aircraft.

38. COMPLETION

38.1 RAPID TAKE OFF Set to OFF

panel IGNITION
Switch

38.2 External a.c. power supply Switch OFF and disconnect ([Chap.55-40](#))

38.3 Access door R122 Close and secure ([MP 07-40/1](#))

(end of work block)

WEAPONS SNCO

39. INDEPENDENT CHECKS

39.1 Seat installation Carry out independent checks ([Chap. 29-10, MP 29-10/6](#))

(end of work block)

AIRFRAME

40. COMPLETION

40.1 Canopy Fit ([MP 15-13/2](#))

(end of work block)

WEAPONS

41. MAINTENANCE DOCUMENTATION

Note . . .

Post Mod. 02198 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 [Chap.10-30](#).

41.1 Maintenance documentation Complete

(end of work block)
(END OF MP)

~~NATO RESTRICTED~~



Fig 1. Lanyard routeing

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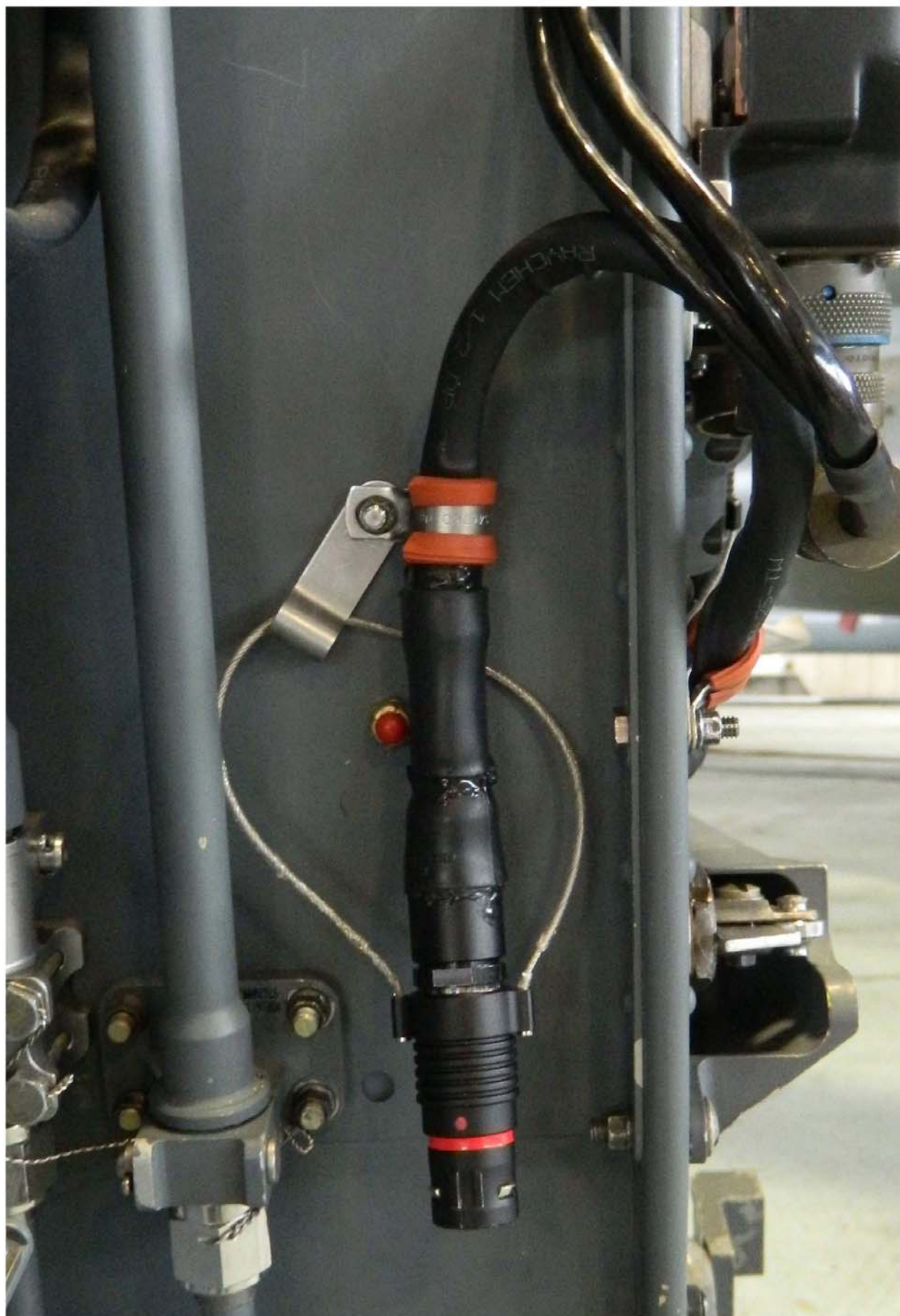


Fig. 2. Aircraft cable routing

~~NATO RESTRICTED~~

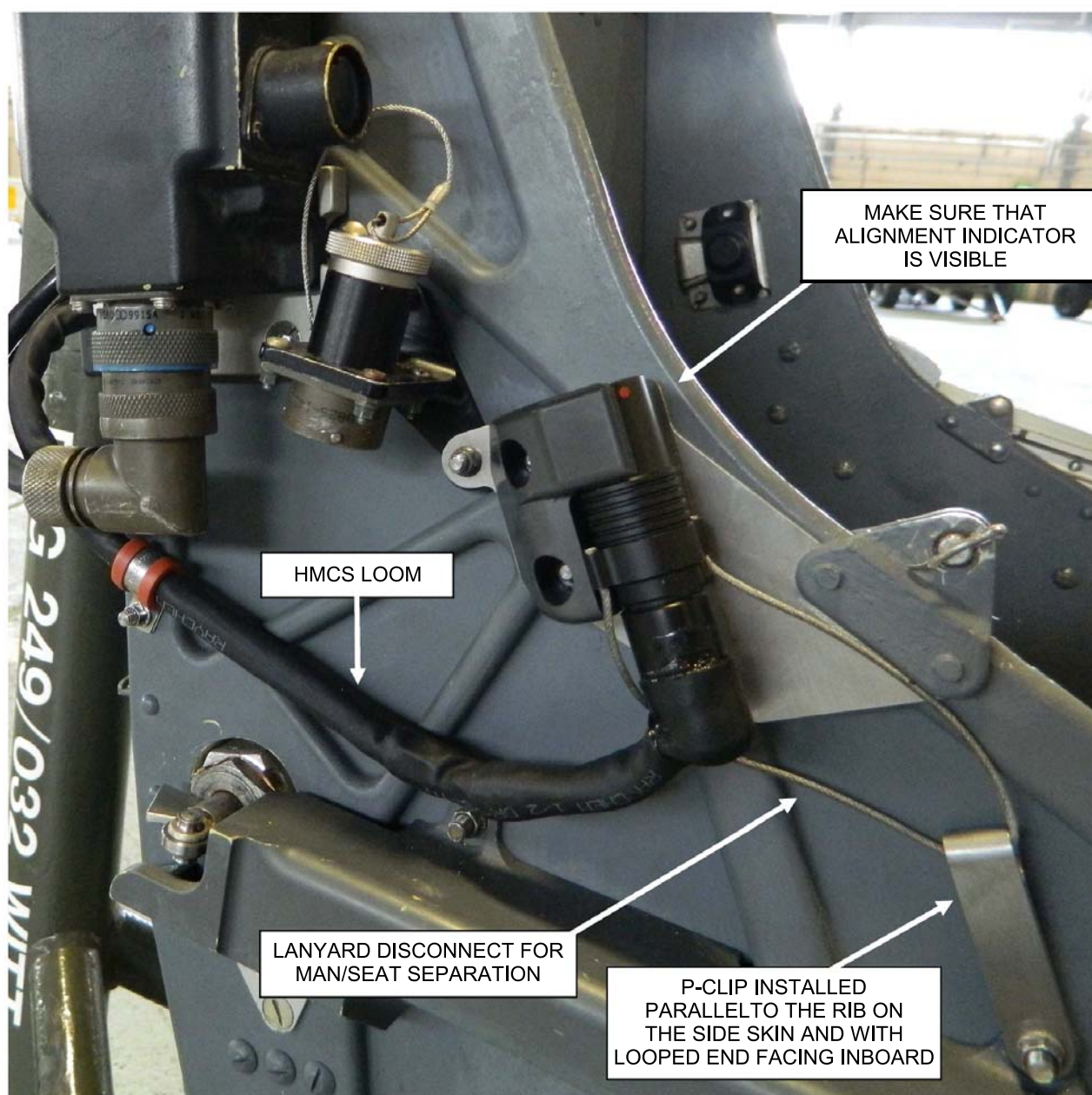


Fig. 3. Man/seat connection

~~NATO RESTRICTED~~

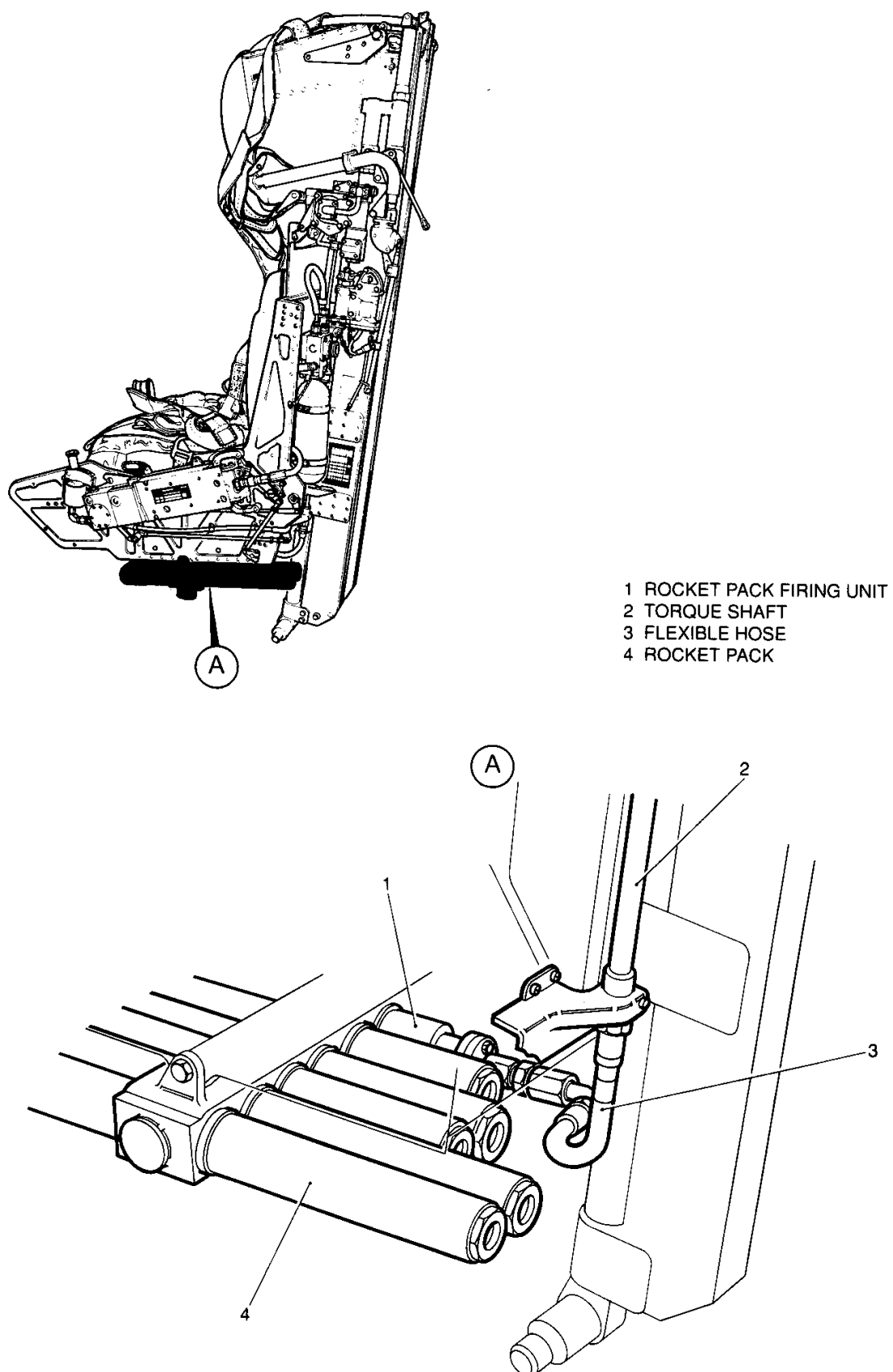


Fig. 4. Flexible hose route

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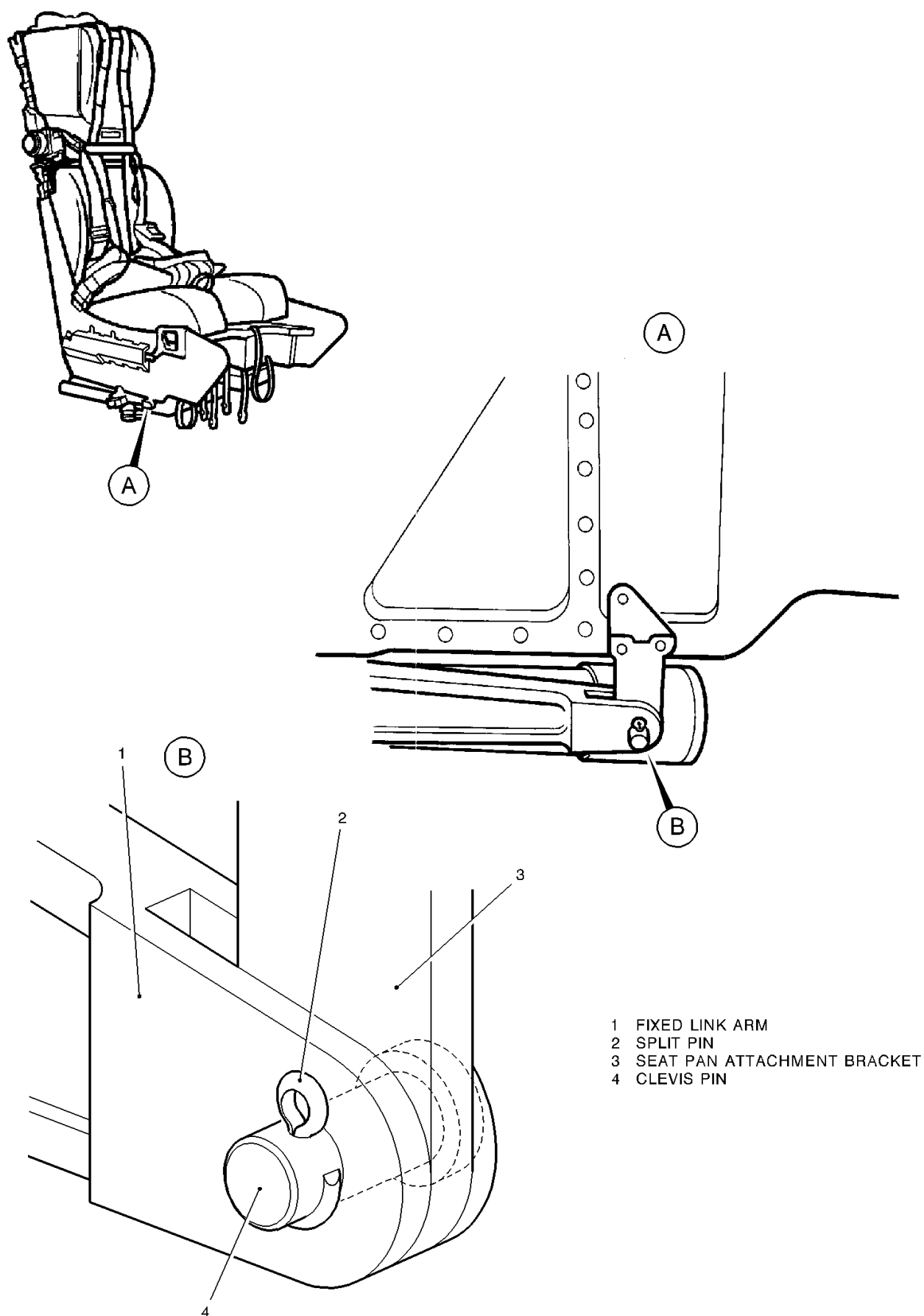


Fig. 5. Rocket pack fixed link arm attachment

~~NATO RESTRICTED~~

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

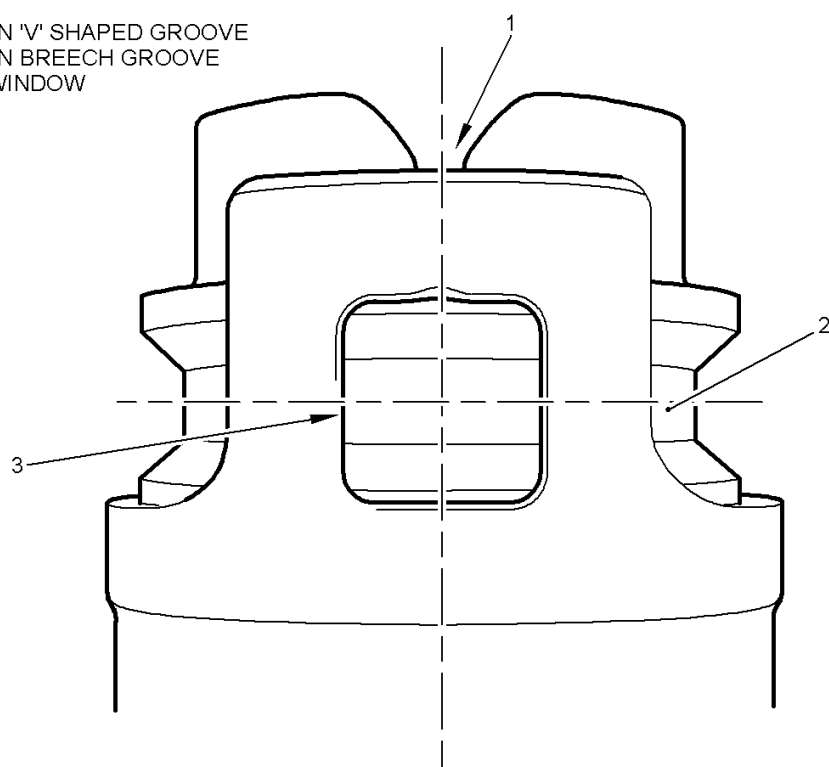


Fig. 6. Correct alignment of inner piston V shaped grooves, inner piston breech groove and outer cylinder top latch window (pre and po

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

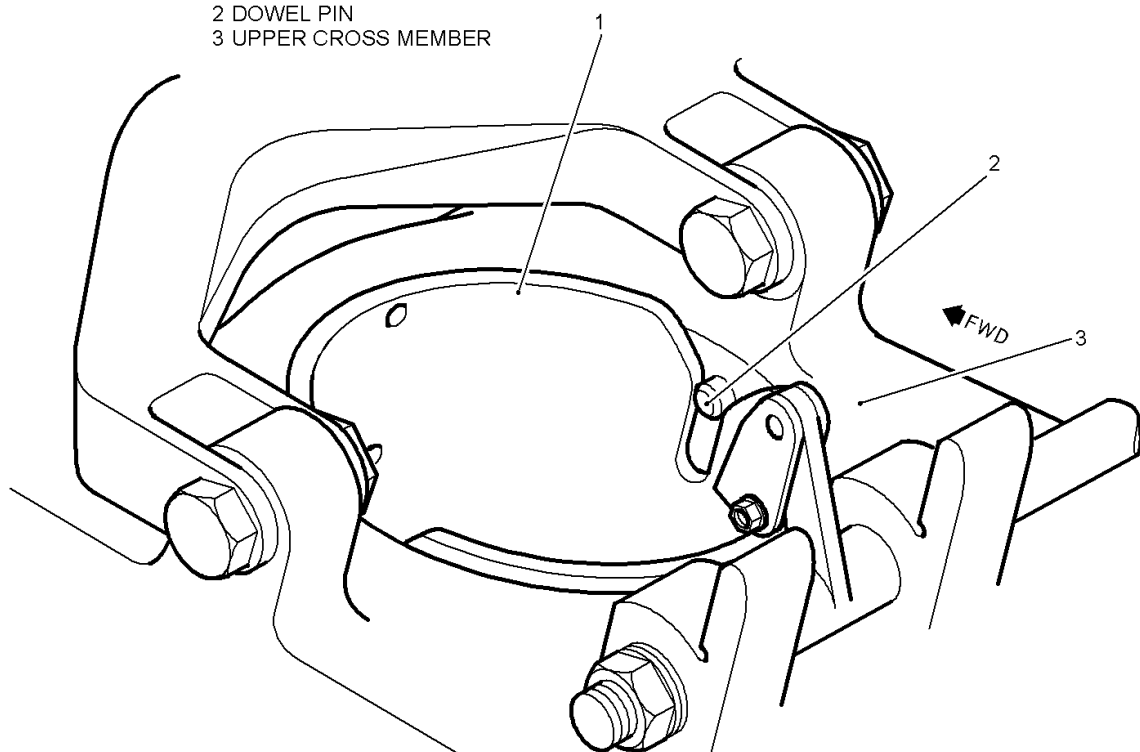


Fig. 7. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (pre Mod.0)

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

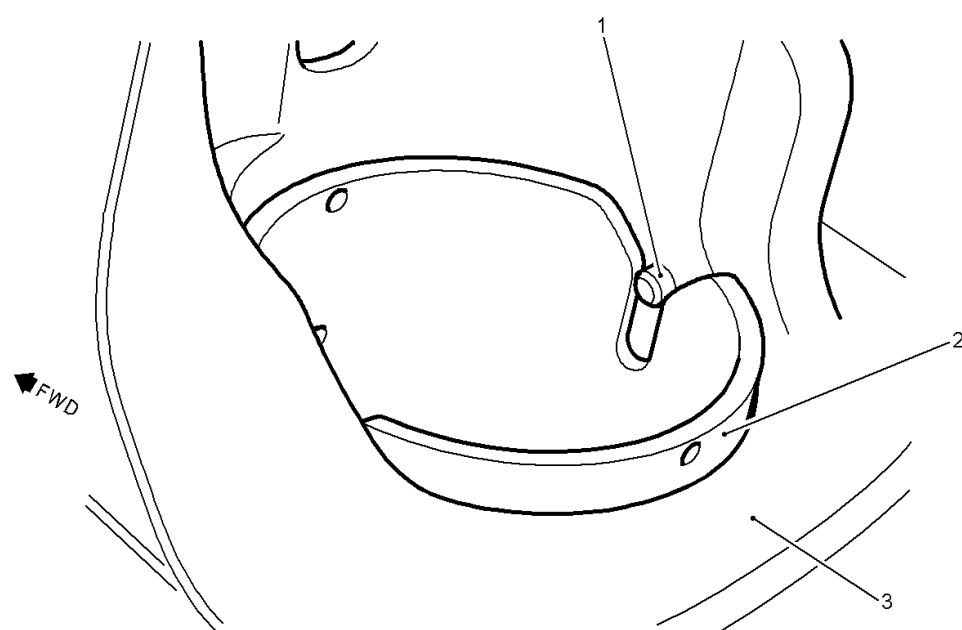


Fig. 7A. Correct protrusion of inner piston through upper cross members and correct location of dowel pin in V shaped groove (post Mo

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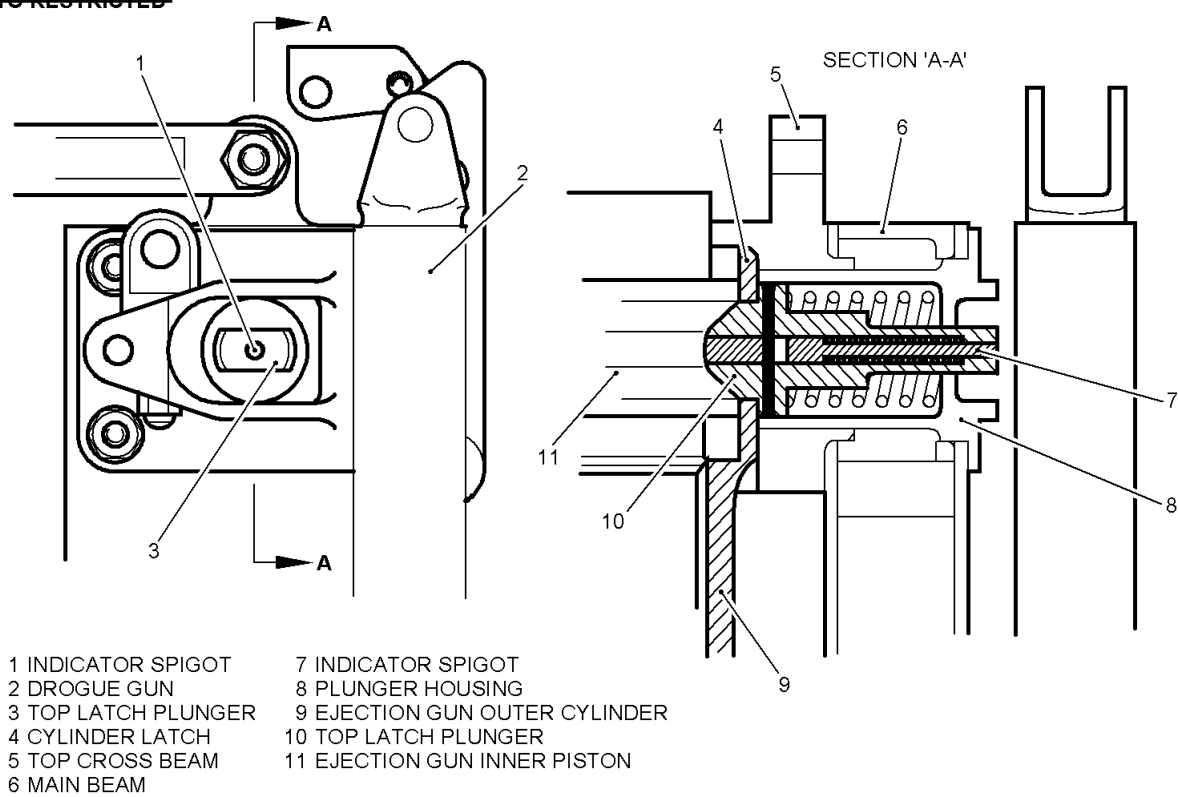


Fig. 8. Correct engagement of the top latch (pre Mod.02198 part B)

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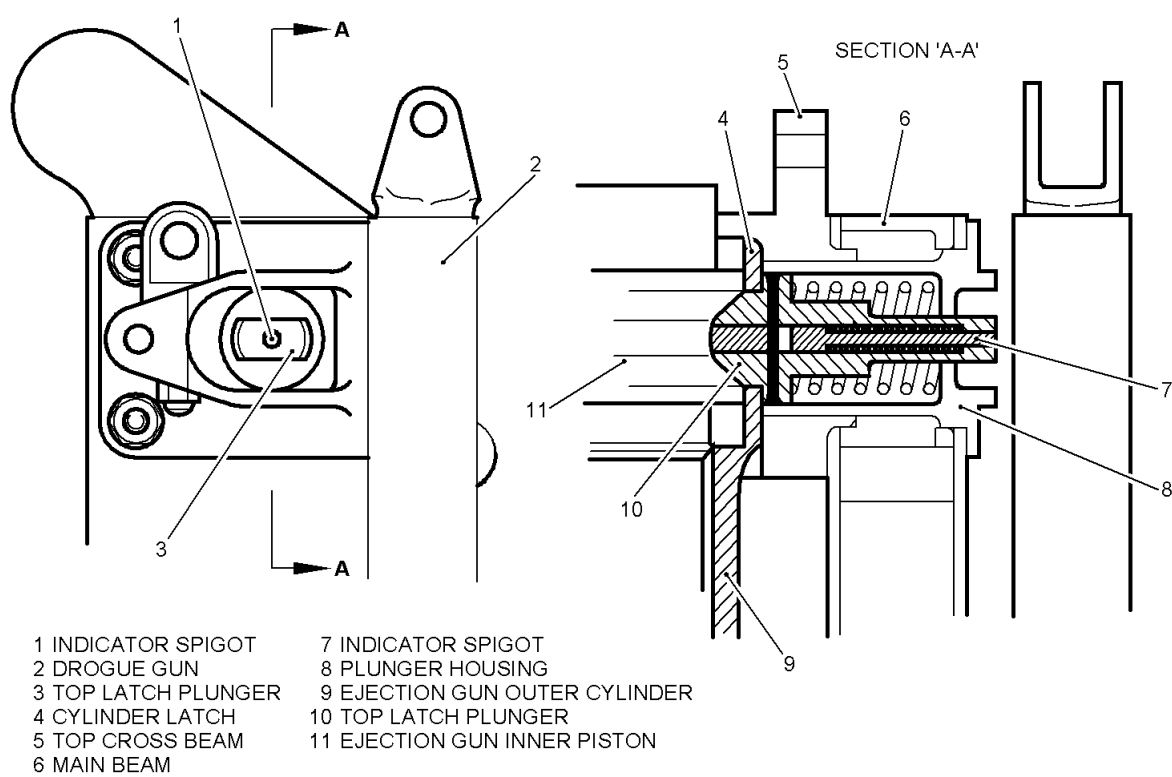


Fig. 8A. Correct engagement of the top latch (post Mod.02198 part B)

~~NATO RESTRICTED~~



Fig. 9. Correct engagement of the top latch-plunger view (pre and post Mod.02198 part B)

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Fig. 10. Correct engagement of the top latch-spigot view (pre and post Mod.02198 part B)

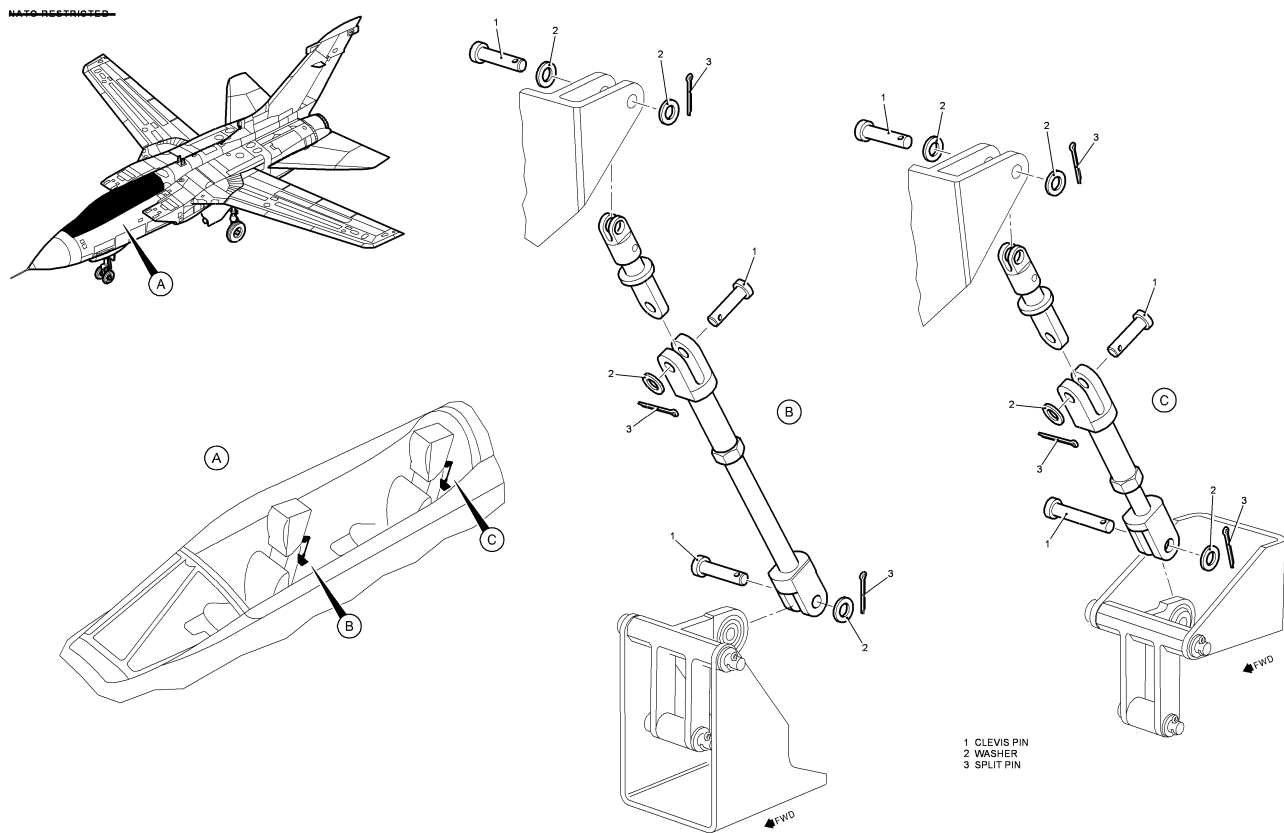


Fig. 11. MDC Trip Rods

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Fig. 12. Aircraft cable routeing