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PART NO. MBEU200022 & MBEU200023

EJECTION SEAT MK US16LN-1 AND US16LN-2

MAINTENANCE MANUAL

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Amendment Record and AIL/SIL Record

For Amendments, make sure in the Amendment Record that all earlier changes have been incorporated.

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Modification Record

The following record confirms that this publication incorporates all technical changes required by the modifications listed below.

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Highlights

Highlights

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1	1	To incorporate QA comments.
2	5	Incorporate customer comments.
3	6	Incorporate QA comments.



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List of Abbreviations

List of Abbreviations

ac	Alternating Current
AF	Across Flats
AGL	Above Ground Level
AIL	Advance Information Leaflet
Amdt	Amendment
amps	Ampere
approx.	Approximately
AR	As Required
assy	Assembly
Attn	Attention
barg	Bar Gauge
cc	Cubic Centimetre
Chap	Chapter
cm ²	Square Centimetre
csk	Countersunk
dc	Direct Current
deg	Degree
deg C	Degree Centigrade or Celsius
deg F	Degree Fahrenheit
dia	Diameter
ft	Feet
ft/s	Feet per Second
FWD	Forward
G	Acceleration due to Gravity
hr.	Hour
Hz	Hertz
IAS	Indicated Air Speed
in.	Inch
in ²	Square Inch
kg	Kilogram
kgf	Kilogram Force

Continued



KIAS	Knots Indicated Air Speed
lb.	Pound
lbf	Pound Force
lbf in.	Pound Force Inch
LH	Left Hand
LHS	Left Hand Side
m	Metre
max	Maximum
MBA	Martin-Baker Aircraft Company Limited
min	Minimum
Mk	Mark
ml	Millilitre
mm	Millimetre
mm ²	Square Millimetre
m/s	Metres per Second
MSDS	Material Safety Data Sheet
NATO	North Atlantic Treaty Organisation
N/A	Not Applicable
Nm	Newton Metre
No.	Number
NP	Not Procurable
para	Paragraph
Part No	Part Number
psig	Pounds per Square Inch Gauge
QA	Quality Assurance
Ref	Reference
RH	Right Hand
RHS	Right Hand Side
rpm	Revolutions per Minute
sec	Second
Sect	Section
SI	System International (d'Units)
SIL	Special Information Leaflet
spec	Specification

Continued



sq	Square
swg	Standard Wire Gauge
TBA	To be Announced
T.O.	Technical Order
UNC	Unified National Coarse
UNF	Unified National Fine
US Mil Spec	United States Military Specification
V	Volt
Vac	Volts Alternating Current
Vdc	Volts Direct Current



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List of Related Publications

List of Related Publications

Publication Number	Publication Title
MB526AMM	Ejection Seat Mk US16LN-1 & US16LN-2, Northrop T38 Talon/ NASA Aircraft, Aircraft Maintenance Manual
MB526IPC	Ejection Seat Mk US16LN-1 & US16LN-2, Northrop T38 Talon/ NASA Aircraft, Illustrated Parts Catalogue
MB503	Parachute Packing Presses, Part No MBEU170700 and Part No MBEU185750, Operation and Maintenance Instructions & Illustrated Parts Catalogue
MBSIL190	Aircraft Assisted Escape Systems (Martin-Baker) Recommended Lives of Components
MBSIL518B	Identification of Cleaning Solvents as Replacements for Ozone Depleting Solvents Banned Under the Montreal Protocol

Copies of the above publications can be ordered from:

Martin-Baker Aircraft Company Limited, Attention: Sales Department,
Higher Denham,
Uxbridge,
Middlesex, UB9 5AJ, England



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Introduction

1 Introduction

This document gives the maintenance procedures necessary for the GQ5000 Parachute Assembly. Obey the instructions in this document to make sure of the safety of personnel and the maximum satisfactory operation of the equipment.

2 Amendments

Each of the amendments is given a number. The amendment number and the date of the amendment is included on each page of the amendment. Amendments to the text have a vertical black line on the side of the page, adjacent to the amendment. After an amendment is done, make an entry in the Amendment Record.

3 Special Information Leaflets

Special Information Leaflets (SILs) give the data that is important to equipment maintenance and operation. SILs are published when they are necessary and sent to customers directly. When you receive an SIL, record the SIL in the SIL Record. Then make handwritten amendments to the document where necessary. When the information on an SIL is included in an amendment, the amendment instruction sheet tells you.

4 Advance Information Leaflets

Advance Information Leaflets (AILs) give the data about necessary changes to documents that you must do immediately. The AIL also gives the instructions on where in the document to include the AIL.

When you receive an AIL, record the AIL in the AIL Record. When the information on an AIL is included in an amendment, the amendment instruction sheet tells you to remove the AIL.

5 Highlights

TBA.

6 Modifications

The modifications to the equipment are shown in the Modification Record.

7 List of Abbreviations

The List of Abbreviations is an alphabetical list of the abbreviations used in Martin-Baker ejection seat manuals. Abbreviations are the same for singular and plural.

8 List of Effective Pages

The List of Effective Pages (LOP) lets you make sure that the publication is complete and up-to-date. The list identifies each page of the publication in sequence and gives the information that follows for each page:

- The document identifier
- The page number
- The issue date
- The effectivity
- The issue number.



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9 Related Publications

The Related Publications contain instructions and Illustrated Parts Catalogues (IPCs) for related equipment.

10 Notes to Document Recipients

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SECTION 1

Chapter 1

Parachute and Harness Assembly – Description

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Description

1 General

The parachute and harness assembly (Fig 1) has the parts that follow:

- A GQ5000 aeroconical canopy with a 21 ft (6,5 m) inflated diameter
- An auxiliary parachute with a 22 in. (559 mm) inflated diameter
- A parachute container
- Canopy penetrators
- Four harness lift webs.



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2 Detailed description

2.1 Parachute

The parachute has a canopy made of 20 multi-coloured Nylon gores, 20 rigging lines and two steering lines. The gores are made of seven panels of Nylon material and one panel of Polyester net. The Polyester panels control the rate of inflation of the canopy. Water pockets on each second gore make sure that the canopy closes quickly in water. Taschengurts at the bottom of each gore make sure of fast and satisfactory inflation of the canopy.

The canopy has two Le Moigne slots operated by the steering lines to give the control of direction and forward speed. These slots are 180 degrees apart in gores six and 16.

The steering lines have top and bottom parts. The top parts are attached to the rings of the Le Moigne slots and are also attached to the bottom parts which have handles. The bottom parts and the handles are held between the harness lift webs until the parachute canopy inflates. When the canopy inflates, the front and rear harness lift webs come apart and give access to the handles. The steering and rigging lines are stowed in a rigging line tray. The rigging lines are connected to the harness lift webs by four rigging line links.

2.2 Auxiliary parachute

The auxiliary parachute makes sure that the parachute container does not hit the aircrew after the main canopy is inflated. The rigging lines of the auxiliary parachute are connected to a bracket in the parachute container.

A break-tie connects the apex of the auxiliary parachute to the apex of the canopy. The break-tie does not break while the parachutes deploy. The break-tie breaks as the parachute container moves away from the canopy after the parachutes deploy.

2.3 Parachute container

The parachute container and the lid are made from a high-strength alloy. The lid is attached to the parachute container by two clamp-blocks and two hinge-plates. A rubber seal seals the lid to the parachute container.

Two bolts attach the parachute container to the top of the ejection gun and beams assembly. Each bolt is held in a bracket on the parachute container. Two shear-screws attach the brackets to the parachute container. The two clamp-blocks that attach the lid to the parachute container are attached to the bottom ends of the two brackets.

The harness lift webs extend from the lid at the bottom of the parachute container. When the parachute assembly is installed, the harness lift webs go from the bottom of the parachute container to the top of the headpad. Then attach to the front of the headpad with hook and loop tape.

2.4 Canopy penetrators

A canopy penetrator is attached to each side of the parachute container. The length of the penetrators on the front seat is 12.35 in. (313,7 mm). The length of the penetrators on the rear seat is 9.37 in. (238 mm). Each penetrator on the front seat is vertical. Each penetrator on the rear seat points a small distance aft. Each penetrator has a hard steel tip that has a protective cap.

2.5 Harness lift webs

Each harness lift web is made of two lengths of webbing connected by hook and loop tape. A retention-strap keeps the lift webs together until the parachute is deployed. This strap is connected to the LH lift web and installed to a loop on the RH lift web. Each pair of harness lift webs has the parts that follow:



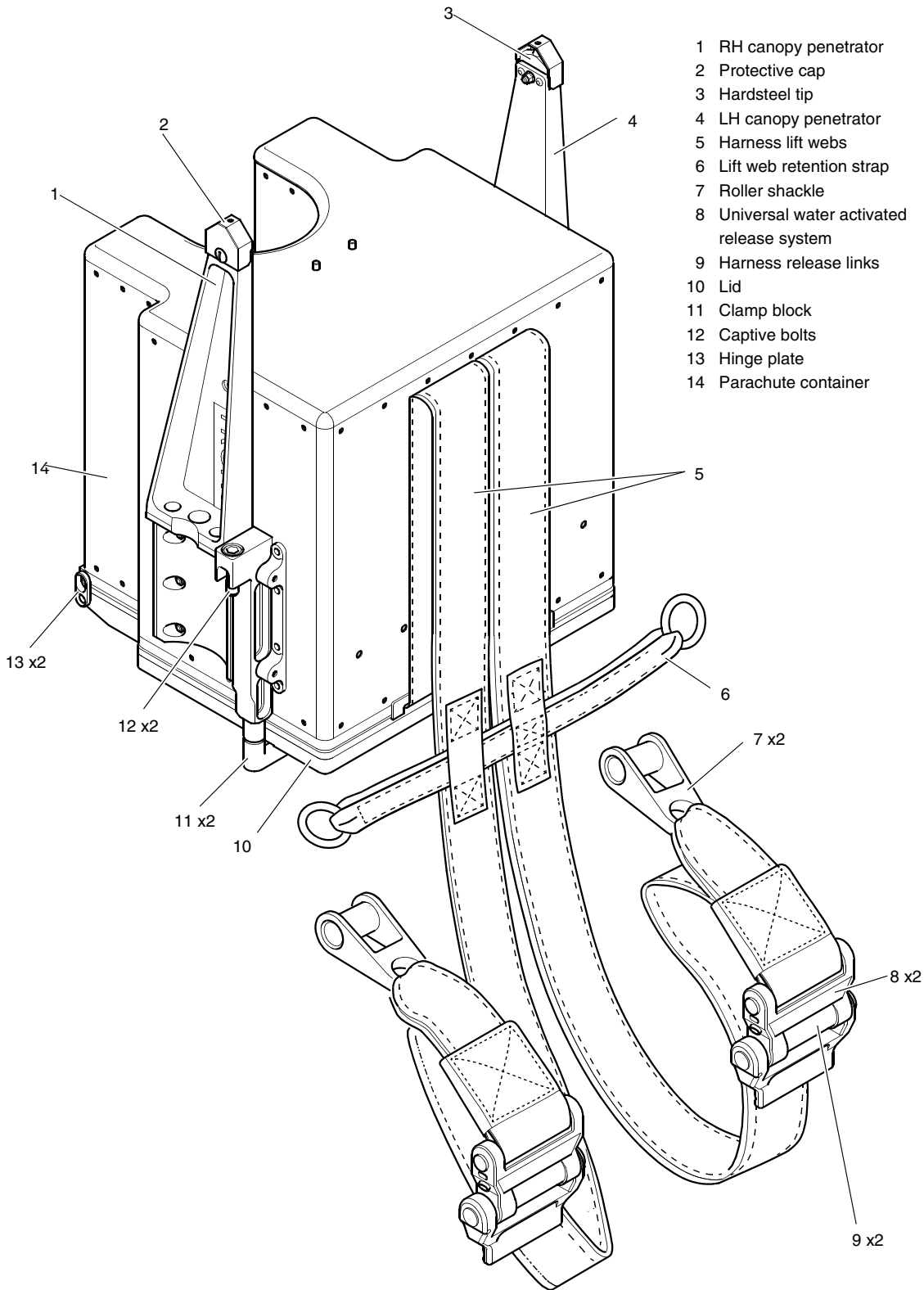
- A harness reel roller shackle. The Harness Power Retraction Unit (HPRU) webbing straps go through these and are installed in the upper harness locks.
- A torso harness release assembly. This assembly consists of a Universal Water Activated Release System (UWARS) and a harness release link.
- Steering line connection points. These points are installed between the two lengths of webbing.

3 Function

During the ejection sequence, the initial movement of the HeadBox Deployment Unit (HBDU) telescopic piston shears the four shear-screws. Thus the parachute container is released from the two brackets that attach it to the guns and beams assembly. The HBDU pistons continue to extend and push the parachute container away from the seat. The lid clamp-blocks stay with the seat, thus the lid opens on the hinge-brackets. The harness lift webs tighten and pull the rigging lines from the rigging line tray. The parachute canopy and the auxiliary parachute follow the rigging lines.

When the parachutes inflate:

- The break-tie that connects the apex of the auxiliary parachute to the apex of the parachute canopy breaks. This lets the parachute container make a safe descent on the auxiliary parachute.
- The seat locks are unlocked and the aircrew is lifted from the seat by the main canopy
- The front harness lift webs are disconnected from the rear harness lift webs. Thus the aircrew gets access to the handles of the steering lines.



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Fig 1 Parachute and Harness Assembly



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