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**Component  
Maintenance Manual**  
**No. BAGU-4**  
**Lap Belt "BAGU 4000" - series**

# **Component Maintenance Manual**

## **with Instruction Manual**

### **No. BAGU - 4**

#### **Lap Belt Assembly "BAGU 4000" - series**

in combination with

#### **Shoulder Harness Assembly "SCHUGU 2000" - series**

and

#### **Crotch Strap Assembly "BOGU 1000" - series**

Maintenance procedures to be performed by the manufacturer or a manufacturer-approved repair station are not given in this manual.



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### LIST OF REVISIONS

All changes of this document will be noted in the following table.

New or changed passages will be marked by a vertical black line on the right side of the new or changed page. Date of revision and new revision-no. is shown at the bottom of each side.

Because of the limited number of pages any change of this document will cause a reissue of the complete CMM.

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## **A. Instruction**

### **1. Introduction**

The instructions in this manual give the data necessary to guarantee a safe use of the belts and provide all recommended maintenance information to keep the belts in a serviceable condition.

It is recommended to test the function of the belts and the condition of webbing and metal parts while the belts are installed but before usage.

A lap belt "BAGU 4000" - series could be used as a "stand-alone" pelvic safety-belt and is specially designed to restrain a human body (seat occupant) during all flight attitudes and landings. It can be used even in combination with a shoulder harness "SCHUGU 2000" - series and a crotch strap "BOGU 1000" - series.

Therefore this documentation also contains data and description of shoulder harness and crotch strap models, which could be used in combination with a lap belt "BAGU 4000" - series.

### **2. Description: General Remarks**

All of the straps are made from polyester or nylon webbing, the lap belt straps are sewn-on to leather pads.

The locking-ends of the belts straps are fitted with sewn-in connectors. All belts are fitted with sewn-in end-fittings or loops ("open endings") to mount the belts directly to the seat or aircraft structure.

Identification labels are located (sewn-on) on each lap belt half, shoulder strap and crotch strap near the end-fitting on the outer side of each strap.

For metal fittings the service time / lifetime is not limited except those parts being damaged or showing corrosion.

**The webbing material is limited to a max. service time / lifetime (incl. storage time!) of 12 years after date of manufacturing. After that period the webbing material has to be replaced at GADRINGER-GURTE or a GADRINGER-GURTE approved repair station.**



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### **3. Description: Lap Belt "BAGU 4000" - series**

#### **Designation:**

Model: BAGU 4000

Part-No.s: BAGU 44( )()  
BAGU 45( )()

**Lifetime (webbing material only!): max. 12 years after date of manufacturing (incl. storage time)**

"BAGU 4000" - series is a lap belt to restrain a seat occupant during all flight attitudes and landings.

Each variant of this type of lap belt consists of one left-hand-strap and one right-hand-strap which will come together in one common attachment point.

#### **Following variants of "BAGU 4000" - series are available:**

##### P/N 44( )():

Belt with sewn-in connector to close the lap belt and adjuster in each strap for adjusting the length of the belt. This variant could be supplied without or looped-in end-fittings to mount or to loop-in the belt either to the seat or airframe or an end-fitting.

Lengthen-direction: backwards/downwards  
Weight: 0,70 kg

##### P/N 45( )():

Belt with sewn-in connector to close the lap belt and adjuster in each strap for adjusting the length of the belt. On the outer ending of the straps are sewn-in end-fittings or loops with a 3-bar-glide to mount or to loop-in the belt either to the seat or airframe or an end-fitting.

Lengthen-direction: forwards/upwards  
Weight: 0,70 kg



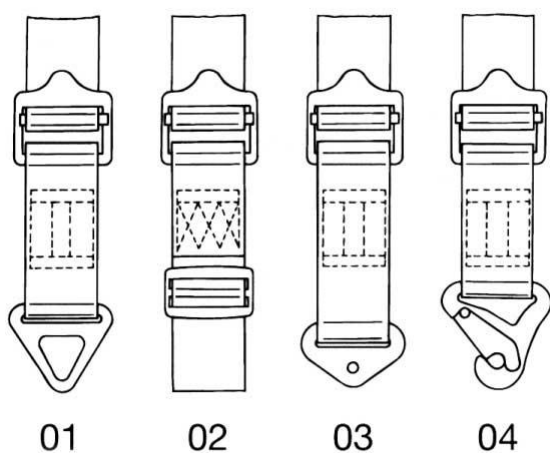
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### Available end-fittings for "BAGU 4000" – series

In all P/N variants of "BAGU 4000" - series the kind of used end-fitting is marked by the last two digits of the open bracket.

Available end-fittings are to be found in the following figure:



**01:** triangle up to 8mm Ø

**02:** loop (open ending)

**03:** end fitting with 8 or 10mm bore

**04:** snap hook up to 10mm bore

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#### **4. Description: Shoulder Harness "SCHUGU 2000" - series**

**Designation:**

Model: SCHUGU 2000

Part-No.: SCHUGU 21( )(  
 SCHUGU 22( )(  
 SCHUGU 23( )(  
 SCHUGU 24( )(  
 )

**Lifetime (webbing material only!): max. 12 years after date of manufacturing (incl. storage time)**

"SCHUGU 2000" - series is a shoulder harness which could be used on the lap belt "BAGU 4000" - series to restrain a seat occupant during all flight attitudes and landings.

Each variant of this type of shoulder harness consists of one left-hand- and one right-hand-strap which are used as separate single straps or converges behind the neck of the seat occupant.

**Following variants of "SCHUGU 2000" - series are available:**

P/N 21( )(  
 ):

Belt with sewn-in connector to connect the shoulder harness straps with the lap belt, an adjuster in each strap for adjusting the length of the belt and a sewn-in end-fitting to mount the belt either to the seat or airframe.

Furthermore this variant is equipped with a sewn-in 3-bar-glide, what enables an additional possibility for adjusting the length.

Lengthen-direction: downwards  
 Weight: 0,50 kg

P/N 22( )(  
 ):

Belt with sewn-in connector to connect the shoulder harness straps with the lap belt, an adjuster in each strap for adjusting the length of the belt and a sewn-in end-fitting to mount the belt either to the seat or airframe.

Lengthen-direction: downwards  
 Weight: 0,40 kg



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P/N 23( ) ( ):

Belt with sewn-in connector to connect the shoulder harness straps with the lap belt, an adjuster in each strap for adjusting the length of the belt and a loop with a 3-bar-glide to mount the belt either to the seat or airframe or to loop-in an end-fitting.

Lengthen-direction: downwards  
Weight: 0,45 kg

P/N 24( ) ( ):

Belt with sewn-in connector to connect the shoulder harness straps with the lap belt and an adjuster in each strap for adjusting the length of the belt. The two straps of this harness-variant converges behind the neck of the seat occupant in a "V-" or a "Y"-shape. Kind of shape is marked by the 3<sup>rd</sup> digit of the Model-No.

Lengthen-direction: downwards  
Weight: 0,40 kg

The kind of used end-fitting is marked by the last two digits of the Part-No. in all variants.  
Available end-fittings are to be found in section "3. Description: Lap Belt "BAGU 4000" - series".



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## 5. Description: Crotch Strap "BOGU 1000" - series

### Designation:

Model: BOGU 1000

Part-No.: BOGU 10( )()  
 BOGU 12( )()

**Lifetime (webbing material only!): max. 12 years after date of manufacturing (incl. storage time)**

"BOGU 1000" - series is an additional crotch strap which could be used on the lap belt "BAGU 4000" - series to give the seat occupant another possibility to position the attachment point of all straps in the center of the body.

### **Following variants of "BOGU 1000" - series are available:**

#### P/N11( )():

Belt with sewn-in connector to connect the crotch strap with the lap belt, an adjuster for adjusting the length of the belt and a sewn-in end-fitting to mount the belt either to the seat or airframe.

Lengthen-direction: upwards  
 Weight: 0,20 kg

#### P/N 12( )():

Belt with sewn-in connector to connect the crotch strap with the lap belt, an adjuster for adjusting the length of the belt and a loop with a 3-bar-glide to mount the belt either to the seat or airframe or to loop-in an end-fitting.

Lengthen-direction: upwards  
 Weight: 0,20 kg

The kind of used end-fitting is marked by the last two digits of the Part-No. in both variants. Available end-fittings are to be found in section "3. Description: Lap Belt "BAGU 4000" - series".



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## 6. Installation Instructions

The belts are supplied in a condition "ready to be installed".

### **CAUTION:**

**ELIGIBILITY OF THE BELTS FOR BEING INSTALLED IN A GLIDER OR AN AIRCRAFT MUST BE CONFIRMED BY THE MANUFACTURER OF THE GLIDER / AIRCRAFT OR WITH AN APPROVED STC (SUPPLEMENTAL TYPE CERTIFICATE) FROM EASA OR NATIONAL AIRWORTHINESS AUTHORITY (NON-EU COUNTRIES).**

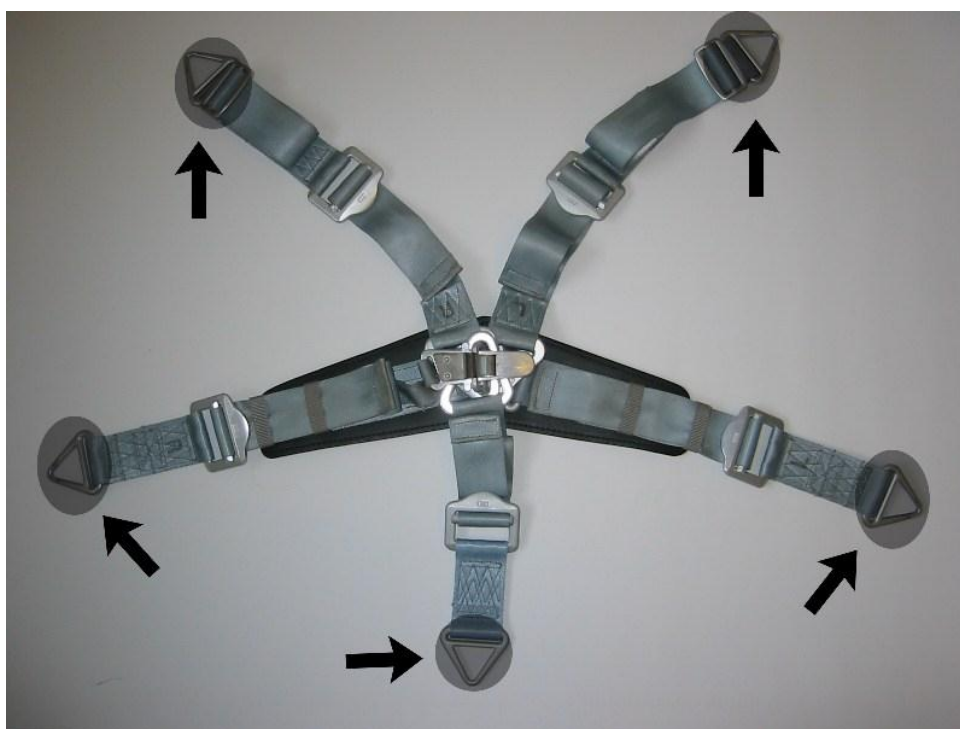
For installing the belts pay attention to the marking on the lap belt and shoulder harness:

"L" - left side

"R" - right side

Relating to the seating position in flight direction the "R"-marked belt has to be installed on the right side, the "L"-marked belt has to be installed on the left side of the seat occupant.

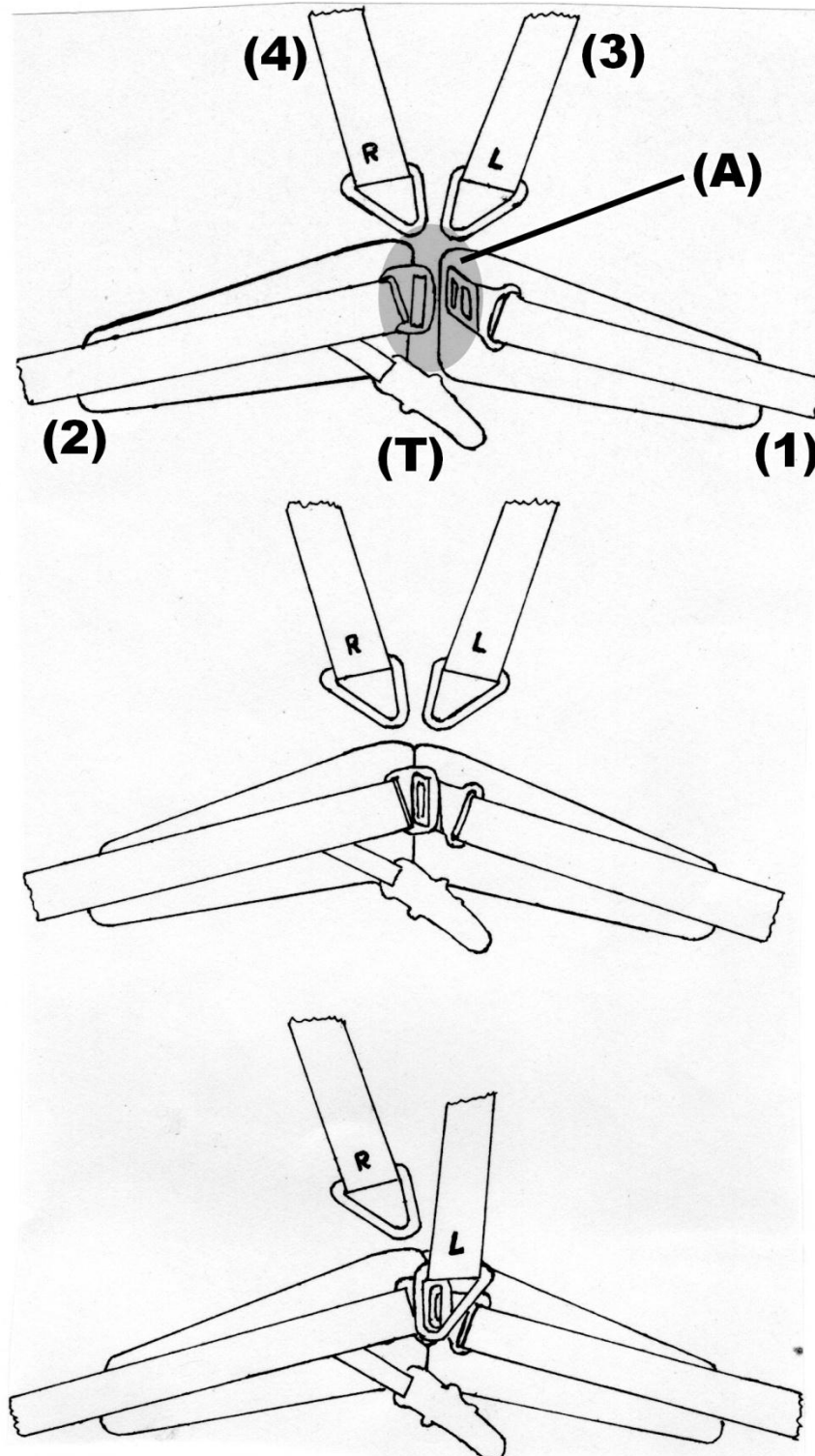
Belts with sewn-in end-fittings must be mounted by fixing the end-fittings (see markings on picture below either to the seat or airframe, belts without end-fittings (loops / open endings) must be looped either to the seat, airframe or in an end-fittings mounted to the seat or airframe.





## 7. Operation

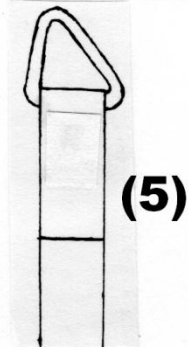
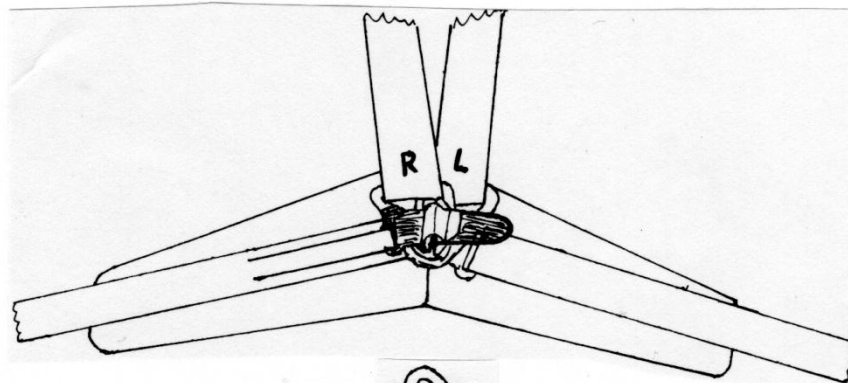
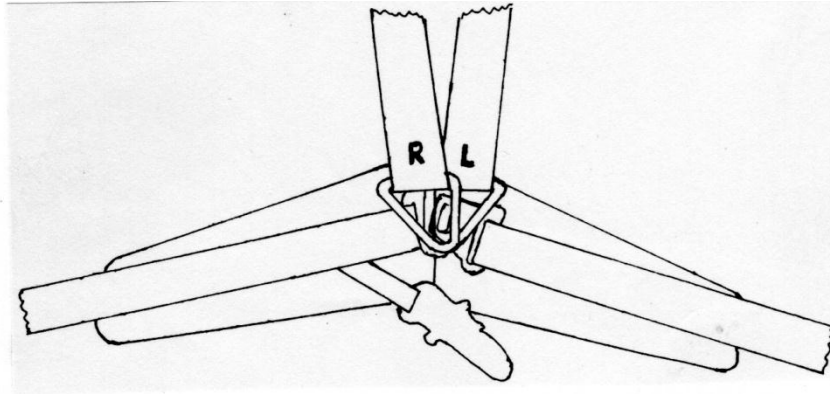
All parts of the belts come together at a common attachment point (A).





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## **Fastening and loosing the belts**

All belts have to be visual checked before flight for damaged parts and correct functioning.

Fasten and loose the belts and straps as follows:

- 1) In the seated position, grasp left portion of the lap belt (1) with one hand and position it over the center of the body. Use the other hand to bring over the eyelet of the right portion of the lap belt (2) and place it over the slotted metal bracket of the left portion of the lap belt (1).
- 2) Grasp the shoulder straps from behind, lay left (3) and right (4) strap over the left and right shoulder and bring the connectors over the eyelet of right lap belt portion (2) on the slotted metal bracket of the left lap belt portion (1). Insert the "tongue" (T) into the slotted metal bracket of the left lap belt portion (1) to close the belt-system.
- 3) Adjust the length of the belt straps by pulling on the free end of webbing at each adjuster so that the common attachment point (A) takes up a central position and that the lap belt passes over the pelvis.
- 4) As far as available bring the connector of the crotch strap (5) over the other connectors on the slotted metal bracket of the left lap belt portion (1). Insert the "tongue" (T) into the slotted metal bracket of the left lap belt portion (1) to close the lap belt. Adjust by pulling on the free end of webbing at the adjuster.
- 5) Tighten belts by pulling on the free end of webbing at the adjusters. Loosen belts by pulling on the pull tabs on the adjusters.



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## **B. Component Maintenance**

### **1. Disassembly**

**CAUTION:**

**BELTS MAY NOT BE DISASSEMBLED.**

**FURTHER REPAIR OF THE BELTS MAY ONLY BE CARRIED OUT BY GADRINGER-GURTE OR A GADRINGER-GURTE APPROVED REPAIR STATION.**

**GADRINGER-GURTE GMBH IS NOT RESPONSIBLE FOR DAMAGE OR MALFUNCTIONS RESULTING FROM ANY UNAUTHORIZED ATTEMPT TO REPAIR OR DISASSEMBLE OF THE BELT-SYSTEM.**



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## 2. Cleaning

To clean the belts remove dirt and unwanted oil and grease. This helps the belts to last longer and prevents corrosion of the metal parts.

Hand-wash of the dirt parts is recommended to clean the webbing with fresh water and a mild soap (household dishwasher liquid soap, household laundry detergent). Do not keep the complete belts under water. The metal fittings are to be cleaned with a lint-free cloth moistened with isopropyl alcohol.

**Do not use water and soap for cleaning the metal parts !**

**BELTS SHALL NOT BE MACHINE-WASHED, BECAUSE THE WEBBING WILL SHRINK  
AND ITS PERFORMANCE CHARACTERISTICS WILL CHANGE.**

All belts are to be dried either in the open air or in well ventilated locations, keeping away from direct sunlight.





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### **3. Check**

For metal fittings the service time / lifetime is not limited except those parts being damaged or showing corrosion.

**The webbing material is limited to a max. service time / lifetime (incl. storage time!) of 12 years after date of manufacturing. After that period the webbing material has to be replaced at GADRINGER-GURTE or a GADRINGER-GURTE approved repair station.**

Avoid irregular conditions of use to prevent failures of the belts and make the equipment more reliable.

All belts have to be checked before flight by means of visual checks in order to identify damaged or worn parts and parts that show signs of near failure.

If any part of a belt is found defective, or if the strength or serviceability appears to be suspect, the belt has to be returned to GADRINGER-GURTE or a GADRINGER-GURTE approved repair station for a repair. All belts will remain in service until defects are noticed on the occasion of inspections or if the maximum lifetime would be reached.

#### **Procedures:**

##### **A. General**

Make sure the belts are clean and do not contain dirt, oil or grease, other unwanted particles or substances.

##### **B. Webbing**

Slight wear of the webbing is permitted. However, excessive web wear that has progressed to cut or worn edges must be replaced.

Examine and replace webbing if any of the following are observed:

- Cut or worn edges
- Damaged stitching
- Broken fabric threads
- Excessive chafe marks
- Excessive wears

Examine labels for legibility.

##### **C. Fittings**

Examine fitting for:

- Burrs, nicks, or scratches
- Dents
- Corrosion





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## Inspection for Continued Airworthiness

### A. General

Inspection of the belts is governed by a Gadringer-Gurte inspection and servicing schedule. The belts may remain in service until defects are found upon inspection or if the maximum lifetime would be reached.

#### **Periodic Inspection**

As a minimum, GADRINGER-GURTE recommends a yearly periodic-inspection of the belts. The continued use is subject to the routine inspection interval of the airframe by conducting a functional inspection check of the belts. The service life is subject to the periodic inspection while in service and depends on the service environment in which it is used and the degree of use over the installation period. This subsequently places the responsibility for the continued airworthiness of the belts on the installer/operator since the flight times, usage, and operating environment will vary by operator. If the belts are no longer usable based on the inspection for continued airworthiness, it must be discarded or returned to GADRINGER-GURTE or a GADRINGER-GURTE approved repair station for repair.

Following unscheduled maintenance procedure could be used for metal parts:

- (1) Use an abrasive cloth to remove minor nicks and scratches from aluminum parts.
- (2) Use crocus cloth to remove minor nicks and scratches from steel parts.
- (3) Clean the parts when the repair is complete.

### B. Inspection Intervals

- Annual periodic inspection concurrently with the airworthiness inspection of the airframe.
- When the equipment has sustained damage or whenever malfunctions occur.
- When for the equipment any special reason occurs.
- **When the equipment has been over-stressed or if over-stress is suspected.**  
Visual inspection of the restraint will not always reveal the extent of the damage caused by over-stress / crash impact / severe loading conditions. **In order to ensure that the original design performance and structural integrity is maintained, the user should remove and replace all restraints within the aircraft after over-stress / crash impact / severe loading conditions have occurred.**  
(see B.4. Repair)

### C. Inspection Responsibility

Inspection of the belts for continued Airworthiness must only be performed by GADRINGER-GURTE or by organizations specially approved by the aviation authorities.

Periodic-inspection of the belts for continued Airworthiness must only be performed by approved maintenance organizations or in accordance with EASA Part M, Annex VIII "Pilot / Owner Maintenance".

All other inspection or repairs of the restraint for continued Airworthiness must only be performed by GADRINGER-GURTE or a GADRINGER-GURTE approved repair station.



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#### 4. Repair

**CAUTION:**

**BELTS MAY NOT BE DISASSEMBLED.**

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**GADRINGER-GURTE IS NOT RESPONSIBLE FOR DAMAGE OR MALFUNCTIONS RESULTING FROM ANY UNAUTHORIZED ATTEMPT TO REPAIR OR DISASSEMBLE OF THE BELT-SYSTEM.**

**CAUTION:**

**1. REPLACEMENT OF DAMAGED METAL PARTS ON THE BELTS IS NOT PERMITTED.**

**2. REPAIR OF DAMAGED WEBBING AND/OR STITCHING ON THE BELTS IS NOT PERMITTED.**



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## 5. Storage

All belts must be protected from dust, moisture, direct sunlight, other contamination and chemicals. Sealing of the belts in plastic foil etc. must be carried out under low humidity conditions.

New belts which have been stored shall be subject to an inspection prior to their installation in an aircraft.

**Storage time is considered to be lifetime and does not extend the max. lifetime of the webbing material of 12 years after date of manufacturing.**