



# AUSTRALIAN PARACHUTE FEDERATION

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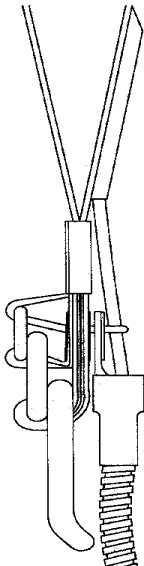
## APF SERVICE BULLETIN No APF010801-B\* Issued 23<sup>rd</sup> January 2009

**SUBJECT: 3-RING INSPECTION AND MAINTENANCE**

**STATUS:**      **Part A – Inspection -                    Mandatory**  
                  **Part B – Maintenance -                    Recommended**

**IDENTIFICATION:** All 3-ring release systems.

### BACKGROUND:



In order that 3-ring risers achieve the optimum strength and ease of release under load they should conform to certain criteria.

Following a serious incident where a parachutist was physically unable to pull the cutaway release cable the APF investigated the geometry and construction of the risers concerned.

It was found that the difficulty in cutting away was probably due to excessive forces generated at the locking loop as a result of a poorly constructed 3-ring riser whose geometry did not conform to the criteria listed below. In that case the two smaller rings did not have metal to metal contact.

Also previously reported were instances where the wrong type of rings (RW-2) were used as harness rings in order to construct a mini-ring system. This failed because these rings are intended to be the middle ring of a 3-ring system and so are weaker than a harness ring.

In 1998 the Relative Workshop (now United Parachute Technologies) began a detailed re-evaluation of the engineering specifications necessary to properly construct a 3-ring release. Their findings are published in the “3-Ring Release Construction Manual – August 1998 Specifications”.

This contains full size drawings of the three main types of 3-ring release:

- Type-17 Mini 3-Ring Riser Construction
- Type-8 Mini 3-Ring Riser Construction
- Type-8 Standard 3-Ring Riser Construction

*(Excerpts from this 20 pg manual are available from the APF Office for comparison of specific 3-ring construction tolerances. The entire manual is available from UPT.)*

### Part A - INSPECTION:

While 3-ring risers may be constructed of different materials the following points define the proper criteria for a correctly built 3-ring riser when attached to the harness ring and put under moderate tension.

- The rings should overlap each other and maintain metal to metal contact between each other.
- The rings should be aligned in parallel planes.
- The smallest ring should not be pulled snug against the grommet by the locking loop which should be long enough to give it some play.

- The locking loop should go straight through the riser grommet on its way to the cable housing end fitting.
- It should be checked that NO suspended load is supported by the cable housing and locking loop due to the cable housing being incorrectly positioned in the harness or being too short.

## **Part B - MAINTENANCE**

### **Disassembly**

Each month the 3-ring release should be operated on the ground by pulling the cables out.

While it is disassembled closely inspect the system, vigorously flex the webbing near each ring to remove any 'set', rotate the rings and check for bends and elongation and check around the riser grommet for webbing failure.

Check the white locking loop for any wear.

Check the inside of the Bendix release cable housing for gravel or other obstructions and feel for any dents where the housing runs through the rig. Check the hand tacking which secures the housing to the rig.

Clean and lubricate the cables with a light oil such as '3-in-1'. Put some drops on a cloth and firmly wipe the cables a few times, a THIN, invisible film should remain – too much will attract dirt and grit.

### **Reassembly**

Do not reverse the risers. Line check if necessary.

Ensure each ring passes through **only** one other ring...

...and that the locking loop passes through **only** the small ring.

Do not kink the cables or twist the locking loop during assembly.

### **APF POLICY:**

**Qualified Personnel:** To be carried out by a Packer 'B' or higher rating. If there is any doubt the assembly should be checked and evaluated by a Rigger.

### **Inspection:**

3-rings which do not conform to the inspection criteria above or which are questionable shall be grounded prior to being inspected by an APF Rigger who will decide whether the 3-rings:

- are acceptable,
- will be acceptable following modification or repair,
- cannot be modified or repaired and must be replaced.

### **Maintenance:**

Carefully inspect the 3-ring prior to each jump.

Conduct the maintenance and reassembly of the 3-ring each month following the recommended procedures.

Immediate inspection should be carried out if the rig has been subjected to some abuse such as being dragged, a water landing or exposure to a lot of dust or sand.

### **Recording:**

Inspection to be noted on reserve packing card and marked on inside of front riser with APF010801-B using a fine tip paint pen so it will be visible even if the risers are black.

**AUTHORITY:** APF Director Rigging

**EFFECTIVE DATE:** 23<sup>rd</sup> January 2009

**DISTRIBUTION:** To all APF Packers and Riggers  
To all APF members via the APF web site

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