

SAFETY INFORMATION

1/23

PIA Informational Advisory & Survey

Rubber Band Failures Cause Hard Canopy Openings

Below is an Informational Advisory released by the Parachute Industry Association (PIA) about the failure of rubber retainer bands of various sizes. This information is collated from reports of failed or broken rubber bands, whilst canopies laid packed and dormant during the off season. The Advisory provides sizes of those rubber bands affected, and guidance and information which may prove useful.

The PIA Technical committee will initiate a long-term evaluation of rubber retainer bands to determine the extent of the issue and to develop workable solutions. Some retainer bands have an unknown shelf/service life.

The PIA Technical committee are also requesting information via a survey on page 4 of this SI, requesting field data on rubber bands failure.

14 December 2023

Jeff Montgomery
Head of Safety, Training & Competitions

Pete Sizer
Chairman Riggers' Subcommittee

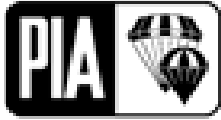
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PIA Informational Advisory

To: Skydivers - Pilots - Riggers – Worldwide Sport & Military

Date: 28 November 2023

Subject: Rubber Band Failures Cause Hard Canopy Openings

Equipment: Rubber Retainer Bands – Various Sizes

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### **Introduction**

“Retainer bands” perform a vital function during parachute deployment. They provide a systematic release of each suspension line bight from the deployment device to help ensure that the parachute’s deployment is orderly and properly sequenced.

Retainer bands that fail during parachute deployment may adversely affect the opening and the structural integrity of the parachute, as well as the physical well-being of the parachutist, who may be exposed to a fatally hard canopy opening.

### **Background**

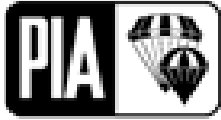
Riggers and jumpers have been reporting a high number of retainer band failures during inspection/repacks of main canopies. In some cases, many of the retainer bands had failed while the main canopies laid packed and dormant in their containers during the off-season. Parachutes that are not frequently opened or used, such as pilot emergency parachutes, may have an increased risk due to storage environment and infrequent use. (Typical retainer band sizes affected; 1¼” x ⅜”, 2” x ⅜” and 2” x ⅝”, but there may be others.)

The age of retainer bands, including *tubular retainer bands*, plays a significant role in their performance characteristics. Older bands may become brittle and often fail during installation. Storage conditions (temperature, humidity and UV light) also play a key role regarding the useful service life of rubber retainer bands. Various manufacturers use different manufacturing and curing processes that have an effect on the properties of retainer bands. Manufacturers who apply talcum to their bands report better longevity and performance.

### **Advisory**

Skydivers should inspect their main parachute retainer bands if not recently packed. Most sport reserve parachutes do not use this type of rubber retainer band; however, consult your rigger if unsure.

Pilot emergency parachute systems are highly vulnerable to this problem and should be inspected and repacked. Replace rubber bands used to close reserve canopy diaphragms or



freebags, or to control other parts of the deployment sequence at least every six (6) months, regardless of appearance or condition.

The only remaining U.S. manufacturer of rubber bands used in our industry states that “the curing process continues throughout the bands’ lifetime,” so characteristics such as strength, elasticity, and durability change over time. As such, they have established a two (2) year shelf life on their retainer bands.

The following guidance will also prove useful:

1. Never store parachutes in aircraft or vehicles due to excessive heat or cold.
2. The use of talcum powder may extend the rubber bands’ useful life and help to prevent them sticking together during storage and use.
3. Proper storage is important; keep bands in a cool, dark location inside airtight containers. Record the band’s date of manufacture on the container for future reference.
4. Store bands at least six (6) feet away from electrical sources to prevent devulcanization.
5. When ordering large quantities of retainer bands, consider their 2-year useful lifetime from date of manufacture.
6. Closely monitor retainer band condition at each repack and please report abnormalities to PIA (using the *Survey Form* below). Your input is greatly appreciated!

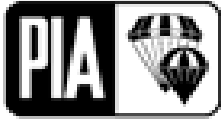
The PIA Technical Committee will initiate a long-term evaluation of rubber retainer bands to determine the extent of the issue and to develop workable solutions. Some retainer bands have an unknown shelf/service life. Contact the manufacturer of your specific brand if you encounter product failure. Remove from service and immediately destroy all substandard retainer bands.

Please direct any questions regarding this advisory to the PIA Technical Committee.

***Parachute Industry Association - Technical Committee***

T.K. DONLE – Chair ([technicalchair@pia.com](mailto:technicalchair@pia.com))

Betsy Hoats – Vice-Chair ([b.hoats@gmail.com](mailto:b.hoats@gmail.com))



## **PIA Survey – Rubber Retainer Bands (RBs)**

PIA is gathering field data on retainer band (RB) failures. Please fill-out this quick survey by writing-in or circling the best response and return it to the PIA Technical Committee ([technicalchair@pia.com](mailto:technicalchair@pia.com)). Thank you for your input.

1Q. Manufacturer(s) of your RBs?

1A.

2Q. Which Alliance-made RBs do you use, MIL-SPEC-version (darker color) or non-Mil-Spec?

2A.

3Q. When you opened your packed main container for inspection at the beginning of your jump season, did you discover any broken RBs?

3A. Yes / No Q. How many failed? \_\_\_\_\_ Q. How long was it packed? \_\_\_\_\_

4Q. During your last post-jump inspection, did you discover any broken main RBs?

4A. Yes / No Q. How many failed? \_\_\_\_\_

5Q. Do the RBs tend to fail during installation, packing or jumping? (Circle all that apply)

6Q. Do you “pre-stretch” your RBs before installation?

6A. Yes / No

7Q. Describe condition of the rubber of failed RBs? (Dry-rot, tacky, brittle, no stretch, look normal)

7A.

8Q. Life Cycle – How many jumps do you normally get out of them? List a range. (i.e.; 3-5 jumps)

8A. \_\_\_\_-\_\_\_\_ jumps

9Q. Advertised Shelf Life. – How long do they last after purchase?

9A.

10Q. What are the typical environmental conditions in your region – temperature and humidity range, local area contamination? (Dust, dirt, sand, salt air mist, chemicals, other)

10A.

11Q. Suspension line type and weight?

11A.

12Q. When you pack, what is the typical length of each “line bight” past the RB?

12A.

13Q. What effects do different suspension line types, mass, volumes have on the RB?

13A.

14Q. Pilot emergency rigs – did your rigger discover any failed RBs? If so, describe.

14A.

~~~ End of Survey ~~~