



## Product Service Bulletin

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**Identification:** After-market Tandem Main Risers constructed with obsolete RW2 rings. All sport tandem main risers produced with RW2 rings, or equivalent sized rings, are affected regardless of the hardware manufacturer, the date of manufacture, the material type or the forging process used. This PSB does not affect “solo” main risers that use RW2 rings.

Figure-1



The largest ring on the riser, located at the base of each main riser.

**Background:** Recent reports of “bent rings” on tandem main risers are of great concern. At least one after-market manufacturer of obsolete and unapproved tandem risers is using RW2 rings or similar rings, which were discontinued for tandem use in 1996 due to “bent ring” issues. These rings pass a proof load of 500 lbs. and begin to distort at 2500 lbs.

Two (2) sets of tandem risers were recently discovered with bent rings. This pair bent after one (1) jump; a second pair had approximately 30 jumps.



Figure-2

Early generation tandem main canopies produced a lower opening shock and took longer to open. As newer canopies were introduced for tandem use, the combination of materials, line types and advanced planform designs created new opening shock dynamics that were occasionally bending the RW2 rings in common use at that time. The Relative Workshop (now United Parachute Technologies) and Strong Enterprises experienced bent RW2 rings during the mid 1990's. As a result, both companies redesigned their 3-Ring systems with stronger rings and updated riser/ring geometry to handle the higher loads that can occur during tandem jumping. All U.S. tandem system manufacturers have been using the stronger RW11 ring since 1998, which passes a proof load of 920 lbs. and begins to distort at 5700 lbs. RW11 ring is twice as strong as the obsolete RW2 ring.

It should be noted that the RW2 rings themselves are not defective. They simply do not stand up to the rigors of tandem jumping due to the higher tandem weight limits (500 lbs) and the potential for higher airspeeds and harder openings.

A FAA master rigger/DPRE initially suspected the cause of the ring damage was a condition known as “Flip-Thru,” which is caused by improper alignment of the 3-Rings during the packing process. This DPRE has since rescinded his statement following further review of the facts.



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It is important to understand the potential consequences of a main riser that fails to perform properly. A bent riser ring could sufficiently alter proper geometry of the 3-Ring system making it less effective in absorbing high load forces during a hard opening. Probable outcomes could be failure of the webbing securing the small riser ring, or failure of the riser locking loop. The worst scenario would be excessive force placed on the locking loop, which could pull the cutaway cable into the riser grommet, thus locking up the release system preventing a breakaway, possibly resulting in a main/reserve entanglement.

**Compliance:** **MANDATORY** – REPLACE BEFORE THE NEXT JUMP.

If you are currently using after-market tandem risers, which were not produced by the original tandem system manufacturer, or do not know if your risers are after-market parts, then inspect all main tandem risers in either scenario.

RW2 rings (or similar size rings) have a cross-section thickness of less than 5mm (0.197"). Risers with these dimensions should be permanently grounded for tandem use.

Use a digital caliper to accurately measure the cross-section thickness of the ring. Refer to *Figure-3* below for proper caliper/ring interface while measuring. The riser should be disconnected from the harness base ring to accurately obtain a measurement.



Figure-3

Cross-section Thickness  
RW2 Ring: 4.75mm (0.187")  
RW11 Ring: 5.74mm (0.226")

Inner Diameter  
RW2 Ring: 32.9mm (1.30")  
RW11 Ring: 31.0mm (1.22")



Figure-4

The inner diameter ring dimensions are also provided (*Figure-4*) as further verification of the ring type.

**Notice:** U.S. tandem system manufacturers do not authorize the use of after-market components, to include all non-TSO'd main components, with the exception of main canopies. The main risers are proprietary components specifically designed by each tandem system manufacturer to be compatible with their MARD and RSL systems.

**Contacts:** PIA Technical Committee ([technicalchair@pia.com](mailto:technicalchair@pia.com)) & U.S. Tandem Manufacturers

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