



# A Reason to Replace Old Parachutes

## 20-year expiration date

Recently I've received more than the usual number of inquiries from pilots asking me to explain to them why their parachute rigger won't pack their parachute anymore. They usually tell me they store it carefully and it looks brand new followed by, "Is this a plot by the manufacturers to sell more parachutes?" I've covered this before, but I've decided to cover how we came to the 20-year decision in more detail.

Fortunately, the vast majority of riggers will not pack a pilot emergency parachute after it and the harness/container holding it reach their 20th birthday. To put things in perspective, we're also not the same person we were 20 years ago. Fortunately *we* do not have to be replaced after 20 years as the manufacturers recommend. Like our parachutes, we too must take care of ourselves so our lifetime warranty doesn't expire early. We all know we should minimize our exposure to the sun, eat healthy, and all that good stuff. Well, our parachutes are the same. Even with the best of tender loving care, they should be replaced after 20 years.

Here, in a nutshell, is why the parachute industry came to that decision. When I was chairman of the Parachute Industry Association's rigging committee, we had gathered a significant amount of information on why some parachutes were ripping apart while doing nondestructive 40-pound pull tests on the fabric. The technical standard procedures at the time (TS-108) called for a 40-pound pull test. Remember, parachutes are a petroleum-based product and weaken over time, no matter how diligently you take care of your expensive cushion. What was alarming to me and other riggers was the areas that failed were invisible to the eye. This probably is one of the reasons drug manufacturers put a shelf life on medications. They too weaken and lose their strength over time. The areas



Photo 1



Photo 2



Photo 3

I had chosen and that failed the nondestructive pull tests were areas that I had selected at random. Most ripped and came apart with a pull as little as 10-15 pounds. The material shouldn't have failed until close to 80 pounds. I was curious, so I pull-tested all around the area that had failed to see if there were other weak areas. This is where the mystery broadened. These other areas passed the 40-pound pull tests. This was puzzling.

Before I go on, let me show and explain to you how pull tests are performed. First I mark the area to be tested (see Photo 1) as stated in TS-108 and clamp modified vise grips to that area. The vise grips have rubber jaws to prevent damage to the material. One vise grip is anchored, in my case, to my packing table so it cannot move. On the end of the other vise grip, a calibrated fish-type scale is attached (see Photo 2). The scale is slowly pulled until it reaches 40 pounds, then I count to three. Next, I slowly release the pressure and remove the vise grips. I then inspect the area and stamp or write the date on it, along with the word "passed" (see Photo 3). I use a stamp to mark the area. Some riggers mark the area with a pen. Whatever method your rigger uses, the area tested must be identified with the type of test, the date the test was performed, and the results. The rigger must also annotate your packing date card, explaining the work performed.

Was I the only person having this problem? Did I do something wrong? Did I improperly clamp the modified vise grips to the material causing the problem? I brought this problem up to the members of my rigging committee and discovered other riggers had experienced the same problem. Fortunately they also had kept records, and a pattern soon became evident. When I compared the records I had kept with those of other riggers, a common denominator appeared. The notes we kept showed the age of the parachutes and the pounds or kilograms they had failed at. These findings were the reason we recommended a 20-year service life. All of these parachutes generally had one thing in common—they were all older parachutes. What became clearly apparent was all but a few of those tested, which may have had other issues, were about 25 years of age and older.

We put our heads together with the manufacturers, and most everyone agreed that we had a problem. Not all agreed on how to deal with it. Many European countries and other countries around the world already had a service life on their parachutes. They had a 15-year mandatory service life imposed on their pilot emergency parachutes by the equivalent of our FAA. They felt then, and still do, that a pilot emergency parachute should be removed from service in 15 years. Remember, this includes the harness and container also.

My committee and the Parachute Industry Association's technical committee felt removing a parachute after 15 years was on the low side and 25 years was on the high side. Based on our findings, we then came up with and recommended a 20-year service life on the parachute and the harness/container holding it. The vast majority of professional riggers agreed and will not go beyond this, even though the FAA feels a rigger can determine the serviceability of a parachute. Remember the areas that typically fail often look like new and may be invisible to the naked eye. Riggers doing pull tests may have missed the defective areas by a few inches. This could give you a false sense of security that your 25-year or older parachute is in airworthy condition. I'll be the first to say that it probably is, but I'm not that kind of a gambler. Are you? The 20-year service life is a good number—something that you and I can live with.

The parachute industry now has a new technical standard (TS-108) for doing pull tests. Material has changed for the better over the years, and each manufacturer now sets its own pull-test requirements based on the material used in the construction of its parachutes. The procedures for doing the tests are the same, but the manufacturers may want the person performing them to use 30 pounds, not 40. The

manufacturers now prescribe what they feel is best for their product. However, no matter how careful you are with your parachute, or how good the material appears, over time it will weaken. The care or lack of care you give your parachute may speed the aging process. I consider UV exposure the worst of the problems. Try to keep your parachute out of the sun as much as possible.

If there is a problem with your geriatric parachute and it fails when you need it the most—causing serious injury or death—lawyers will smell the blood a mile away and will have a field day, especially with all the information that is available today.

When I receive an old parachute and refuse to service it, I always explain to my customer that it's still legal to have it packed, no matter what its age, if you can find someone to pack it, but I won't. Unlike other countries, we do not have laws carved in stone that govern the service life of a pilot emergency parachute. It's left up to you and your rigger. All I can say is, "I wouldn't want to be standing under you after you've pulled your rip cord."

Before I service a parachute and before it leaves my shop I ask myself this question: Would I put that parachute on my back and jump with it? If I'm not willing to do that, then it won't get packed by me. I encourage you to make sure your rigger would also be willing to do that.

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