

Shock Cords

[Shock Cords.doc](#)

Identification, Dating, Damage and Wear, and Storage Life

Identification:

Shock cords, aka shock rings, are assigned their part number based on their diameter as measured in 1/16ths of an inch. A 1080 cord is 10/16 or 5/8 in diameter.

The second set of numbers like 80 indicates the diameter of the ring in a perfect circle in 1/8ths. A 1080 cord is 10/16 or 5/8 in diameter with a circular diameter of 80/8 or 10 inches.

A 1280HD cord is 12/16 or ¾ diameter and it is a Heavy Duty cord as compared to the straight 1280 cords. This means they are built to the high end of the specification range. There is also Cold Weather version of these cords. The cold weather cords are intended for very cold environments as you would have in Canada or Alaska. North Dakota can get very cold in the winter, but they are not likely to see -40 degrees for extended periods.

Several years ago, Univair sought PMA approval for many of the commonly sold shock cords. To satisfy PMA requirements for approval, Piper part numbers were used. Most of our PMA'd cords begin with U31322. Not all shock cords are covered under PMA approval. They are however all manufactured to a military specification, MIL spec.

Dating:

Shock cords are made from a continuous winding of a rubber band. They are made in accordance to MIL-C-5651D. The military specifications also requires that a color code woven into the outer cotton braid to give an indication of the manufacture. The code consists of colored yarns consisting three colored segments using five colors. Two of the colored segments are the same color and these indicate the year, while a single colored segment indicates the quarter of the year in which the bungee ring was manufactured. All bungee ring braided coverings are whipped with natural color whipping thread except for the HD rings which are whipped with a brown color whipping thread.

Year Colors	Year of Mfgr.
Two black strands	A year ending in 0 or 5
Two green strands	A year ending in 1 or 6
Two red strands	A year ending in 2 or 7
Two blue strands	A year ending in 3 or 8
Two yellow strands	A year ending in 4 or 9

Quarter Marking	Quarter
One red strand	January thru March
One blue strand	April thru June
One green strand	July thru September
One yellow strand	October thru December

Damage and Wear:

Damaged or worn bungee rings are pretty easy to spot. If the bungee has been overstressed - because of a very hard landing or overloading - the rubber strands will break. When this happens, the cotton braid will neck down and look thinner at the point where the strands are broken. If the bungee rings have weathered and deteriorated because of exposure to sunlight, dirt or chemicals, they will lose strength.

A loss of bungee strength is also easy to identify. It depends on how they are used, but in some airplanes a soft bungee will cause the main landing gear wheel track to widen and the airplane will look like it is squatting. If only one bungee has lost its strength or been damaged, the wing tip on the damaged-bungee side will be closer to the ground than the wing tip on the other side.

Storage Life:

There is no specified shelf life. SBC sent us correspondence in 2000 stating:

There is no prescribed limit on shelf life. As long as the Superior Rings are kept in a controlled environment with low relative humidity and out of UV light, they should keep for periods longer than we could reasonably record data. An excessively dry condition of storage can eventually cause dry-rot of the rubber core. Conversely, an excessively damp condition can cause rot of the cover material. We have had rings in the field in place on an aircraft last greater than 20 years. It is therefore reasonable to assume that non-extreme conditions in a warehouse should yield a shelf life more than sufficient to inventory our product until resale.

Advisory Circular, AC 43.13-1B, 9-4 (a) states:

- a. Old aircraft landing gear that employs a rubber shock (bungee) cord for shock absorption must be inspected for age, fraying of the braided sheath, narrowing, (necking) of the cord, and wear at points of contact with the structure and stretch. If the age of the shock cord is near 5 years or more, it is *advisable* to replace it with a new cord. A cord that shows other defects should be replaced, regardless of age.