

442.

## Lifting Paratrooper weld failure

A UK inspection body has recently been informed of a car attachment pin weld failure on a Lifting Paratrooper made by Hrubetz in 1979. Fortunately the failure occurred during the dismantling of the ride. However, the exact events that lead to the component failure are still not known.

It appears that the weld around the plate that holds the attachment bolt to the car frame failed and allowed the bolt to come away from the car frame. (See figure 1)

The failure could be due to a variety of factors such as:

- Poor manufacturing welds
- Over stressing of the weld due to over tightening of the securing bolt
- Weld fatigue due to age
- Severe impact during take down procedure

In this case the operator has opted to replace all 10 car attachment bolts. (See figure 2)

The IB involved is recommending its clients take the following action before their ride is next operated:

- Remove all cars and visually check the area for indications
- If operators are unsure they should have this done by an ADIPS registered NDT inspection body
- If it is not already, this weld should be added to the ride NDT schedule and checked annually with MPI. The defect criteria would be no cracks
- Should any defects be found all car attachment bolts should be replaced immediately

### *Potential further action*

Consideration should be given to the addition of a secondary chain or wire rope between the car and dropper to remove this single point of failure. While this will not be as strong as the bolt, should the bolt fail the secondary only needs to stop the car sliding forward and out of the tube on the bottom of the dropper until the ride stops. (See figure 3)



Figure 1



Figure 1



Figure 1



Figure 2



Figure 2



General image of component when assembled

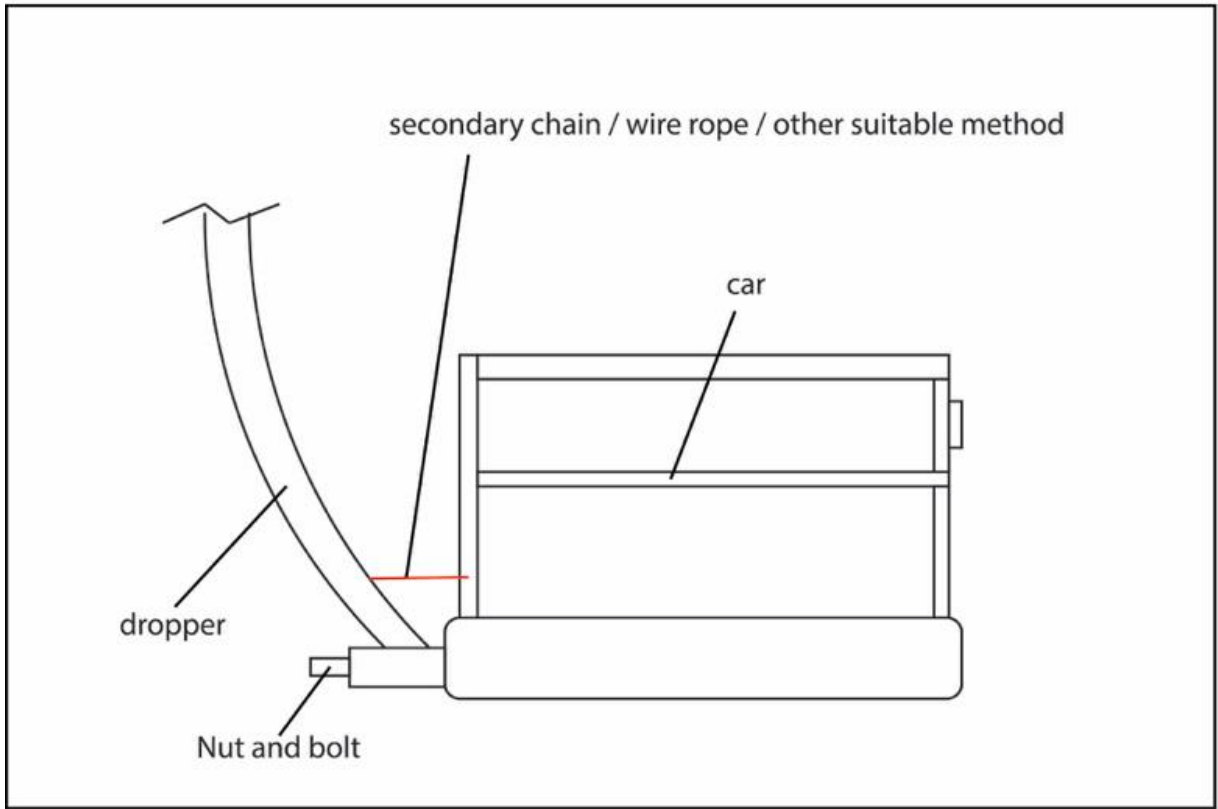


Figure 3