

## **Two Tensioned Rope Lowers - Stretcher Bridle Attachment Considerations**

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### **Proceeding Paper:**

Rescue operations often include packaging the patient in a stretcher for extrication. Occasionally, a rescue operation will simply require four to six persons to carry the packaged patient out to the waiting ambulance for the ride to the hospital. However, circumstances sometimes dictate that the patient package be lowered or raised with the use of ropes and rigging attached to the stretcher. There are a number of different methods by which the stretcher can be rigged for a rope rescue. The choice of method is driven by such variables as terrain, length of the operation, available resources, patient condition, and risk management criteria just to name a few. This presentation seeks to address certain stretcher bridle rigging considerations for operating in the vertical environment - either free-hanging or an 80-90° cliff face.

In reviewing currently available rope rescue literature, instructional videos, as well as simply speaking to different practitioners, it is readily apparent that there are a number of different divergent schools of thought with respect to stretcher bridle rigging for vertical operations. The majority of approaches can be categorized into one of two different groups:

1. A single mainline supporting the load coupled with a separately managed belay line as a backup; both lines attached to a central focal point on the bridle.

**Or**

2. Two mainlines each supporting approximately half of the load without a separate belay line; lines are attached either to a central bridle focal point or to two separate bridle focal points near the head and foot ends of the stretcher, respectively.

A number of years ago terminology was introduced to help categorize the methods identified in the second group; these techniques have been referred to as 'Two Tensioned Rope Lowers'. It is this category of techniques that we were interested in examining more closely.

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A thorough examination of any technique involves a rigorous *Systems Analysis*. A *Systems Analysis* approach often includes the following:

1. Whiteboard Analysis
  - drawing the technique out in great detail and critically analyzing all of the key criteria
  
2. Comparative Analysis
  - comparing the pros/cons of the new technique versus your current practices
  - field trials
  
3. Failure Analysis
  - destructive testing
  - do the backups work as intended?

While this approach to a system examination is perhaps common in the rope rescue field, it may be uncommon that it is taken all of the way through the Failure Analysis stage. It is this last stage of the *Systems Analysis* that we had interest in testing with respect to certain Two Tensioned Rope Lower stretcher bridle configurations.

A convincing argument for a given technique can often be made based upon a well-delivered Comparative Analysis. A long list of 'pros' versus 'cons' can sway our decision-making towards a particular technique. However, unless that same technique can be defended in a Failure Analysis, it may contain certain inherent risks that do not warrant its adoption.

Following review of the drop testing methodology and video footage presented, the answer to the question posed in the abstract, "Would you want to take that ride?" should be apparent.

Our objectives in presenting this material are to raise awareness, share information, and perhaps offer some direction towards future testing and examination of Two Tensioned Rope Lower techniques. As rescuers, we are in the business of risk management and as such should critically examine how our techniques and decisions either mitigate or introduce risk to our rescue operations.

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