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### **Rivet Tensile Test Video Transcript**

- 0:05 I'm Paul Johnson with Dexter Precision. I'm going to demonstrate a tensile test on a rivet using our DS50 servo press.
- 0:13 The rivet was previously peened using the same machine in our rivet peening video. The rivet is used in a ball bearing that is part of the ram air turbine on a airplane.
- 0:23 The ram air turbine provide power in case of an emergency. In this case, the simple rivet is part of a complex system that has to be extremely reliable. This testing is being done as part of the bearing's qualification.
- 0:36 Here's the tensile test fixture and this is the rivet test sample. It has three parts. There's the upper half, the lower half, and the rivet that holds it all together.
- 0:47 It was assembled in our rivet peening video.
- 0:50 The sample is placed into a counter bore in the test fixture. This holds the upper half of the sample in place.
- 0:57 A nut is threaded onto the lower half of the sample.
- 1:04 This push plate has three pins that push on the nut. This puts tension in the rivet.
- 1:12 A ball and cone account for any misalignment.
- 1:18 Let's run the test. The machine is slowly pressing on the test fixture and applying tension in the rivet. You can see the force versus position being plotted on the display. Soon the rivet will break and the nut will drop onto the machine base.

- 1:36 Let's watch that again. You can see the ram pushing on the ball and causing the push plate and nut to move downward. The machine plots force versus position as it runs. It also displays force, position, speed, and time.
- 1:51 The data is saved in a comma separated value file that can be downloaded through USB or Ethernet.
- 1:57 I'm using a spreadsheet to open the file. You can use any spreadsheet that can import a .csv file. The servo press appears as removable disk.
- 2:07 Navigate to the export data folder. Data files are stored in sequential folders that are automatically created by the machine. The data files are also created sequentially. Open the file.
- 2:21 And import the data.
- 2:24 The data is in three columns; time in seconds, position in millimeters, and force in Newtons.
- 2:30 I'll select the position and force columns and insert a chart, XY, lines only. Here we can see the force versus position data from the press operation.
- 2:41 Thanks for watching. Our machines can perform a a variety of assembly and test operations. For more information check us out at [dexterprecision.com](http://dexterprecision.com)