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Rivet Peening Video Transcript

- 0:05 I'm Paul Johnson with Dexter Precision. I'm going to demonstrate rivet peening using our DS50 servo press. This machine has a five kilonewton capacity and a two hundred millimeter stroke.
- 0:16 I'm going to show the rivet, the peening tools, and examples of the peening operation.
- 0:21 The rivet I'm peening goes into a ball bearing. The bearing is used in the ram air turbine of an airplane. The ram air turbine is used to provide power in an emergency.
- 0:31 In this case the simple rivet is part of a safety system that needs to be extremely reliable. The rivets I'm peening will be used as tensile test samples to qualify the bearing for its application.
- 0:42 The tensile tests can be seen in our rivet tensile test video. Let's get started.
- 0:47 Here's the rivet. It's made of carbon steel, about one and a half millimeters in diameter and sixteen millimeters long. The rivet is inserted into the lower test fixture which is a steel cylinder with an external thread.
- 1:04 It is then inserted into the upper test fixture which is an other steel cylinder. This one is designed to fit inside a counter bore.
- 1:13 This is the peening tool. It's a piece of hardened steel that fits in the servo press ram. It has a flat ground on one end. There's a spring on it that preloads the test parts together.
- 1:26 This is the peening. It's another piece of hardened steel with a bore that holds the test parts. It mounts on the servo press base.

- 1:38 I'll load the program. You can learn about writing programs by watching our servo press programming video.
- 1:51 I'll place the test assembly into the peening fixture and then press the start buttons topeen the rivet.
- 1:59 Here's a closeup.
- 2:05 You see the the live data on the screen as the press runs. The controller plots force versus position. There are live meters showing force, position, speed, and time. The servo press can acquire data as it runs. The data is stored in comma separated value file that can be downloaded using USB or Ethernet.
- 2:27 You can review the data using any spreadsheet that can import a .csv file.
- 2:32 The servo press appears as a removable disk. Navigate to the export data folder. Data files are stored in sequential folders that are automatically created by the machine. Data files are also created sequentially. Open the file and import the data.
- 2:49 The data is in three columns, time in seconds, position in millimeters, and force in Newtons. 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 peening operation.
- 3:09 Thanks for watching. You can also watch us use the same servo press to test the rivet in our rivet tensile test video. For more information check us out at dexterprecision.com.