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Date: December 18, 2000

To: Gus Aramayo

From: Edgar Lara-Curzio

c. C. Stevens
R. Parten

Subject: **Preliminary Results Transmission Mount Tests**

We finally were able to start the evaluation of the transmission mounts. As Chris probably told you, it was necessary to replace two drive controller cards in our testing machine, and just last week the representative of MTS was able to travel and fix the machine.

Enclosed you will find the preliminary results from the evaluation of the transmission mounts. To perform these tests, we designed a fixture that allowed us to apply tensile, compressive and torsional loads. The experimental setup is shown in Figure 1. The transmission mount was mounted on top of a sturdy aluminum plate, which at the same time was attached to the actuator (axial/torsional) of the test machine. The threaded stud of the transmission mount was fixed to the stationary element of the load train that is connected to the load cells.

Per your instructions, the transmission mount was subjected to a loading profile consisting of axial loading to ± 300 lbf (± 1350 N) followed by torsion by 5° while the axial load was maintained at –300 lbf. Figure 2 shows the history of the test. The test was repeated three times for reproducibility and it was found that indeed, the results were very reproducible. Figures 3 and 4 show plots of axial load versus axial displacement, and torque versus angle, respectively. Please note that the axial load versus displacement curves exhibit a hysteresis loop for tensile loads, and that the curves become stiffer for increasing tensile load. In contrast, the torsional curves are linear and exhibit effectively no hysteresis.

Please review this information and let me know if we should proceed.

Regards

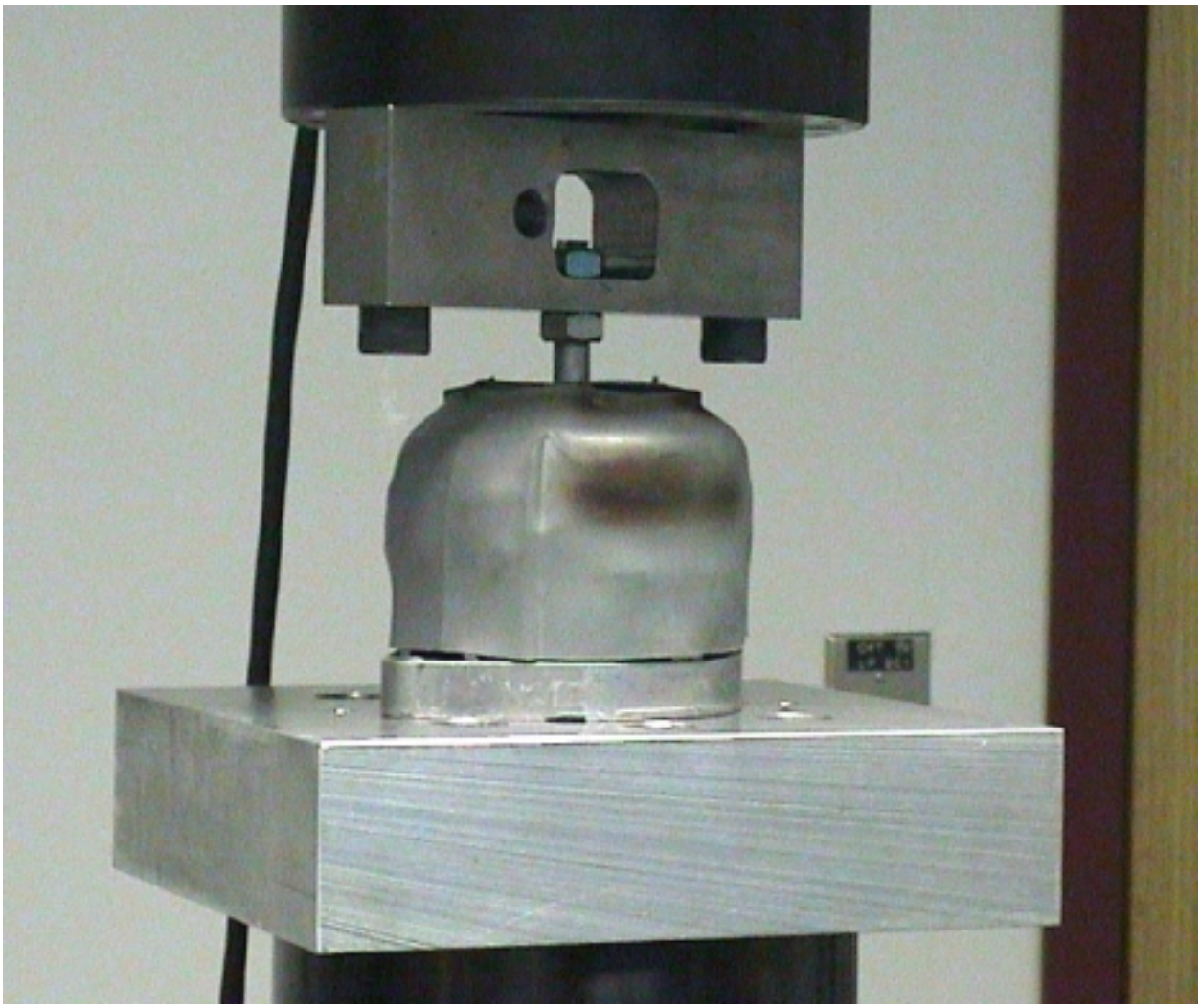

Figure 1. Experimental set-up showing the transmission mount and fixturing in axial/torsional test frame.

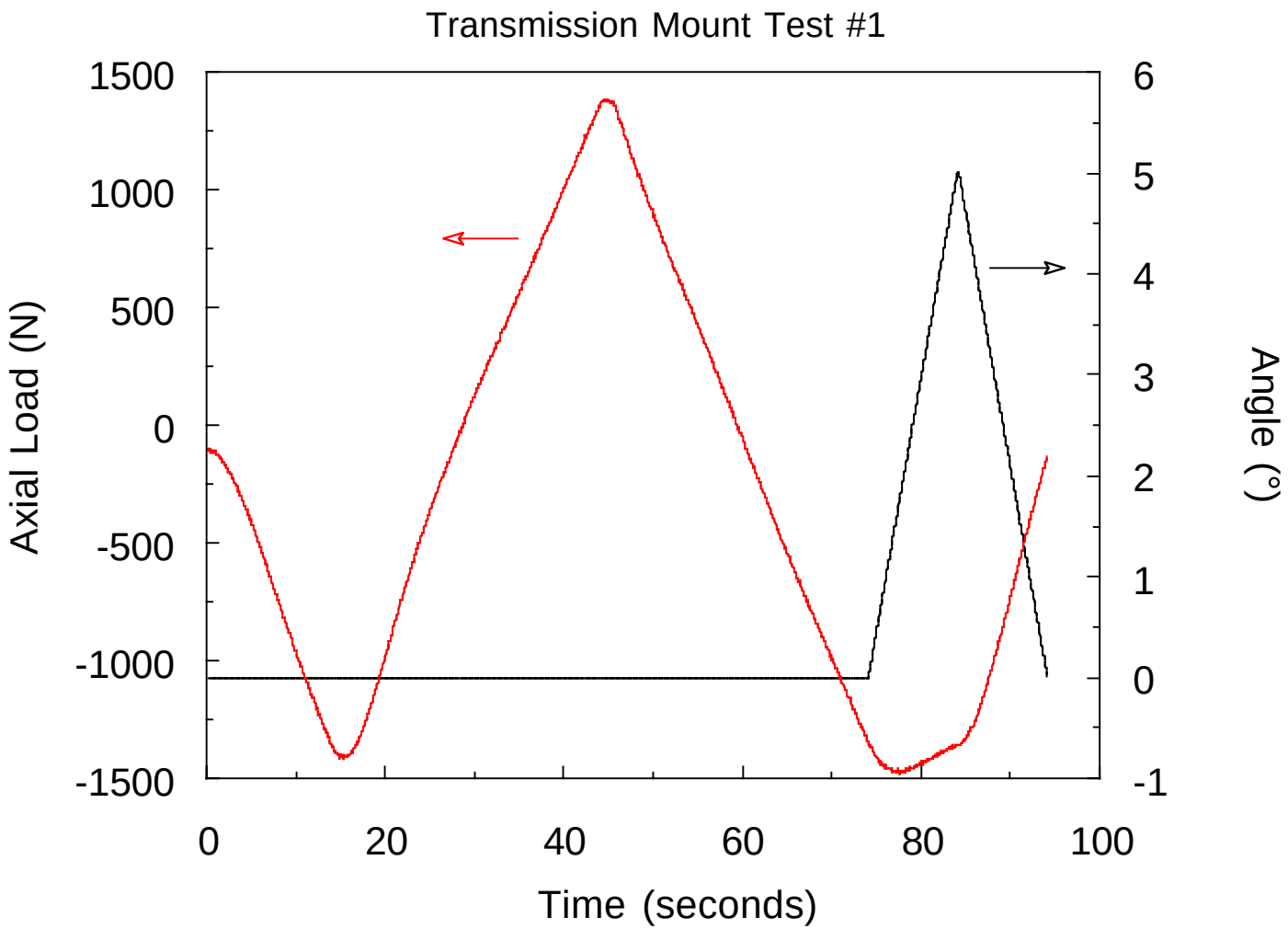

Figure 2. Loading history of test #1.

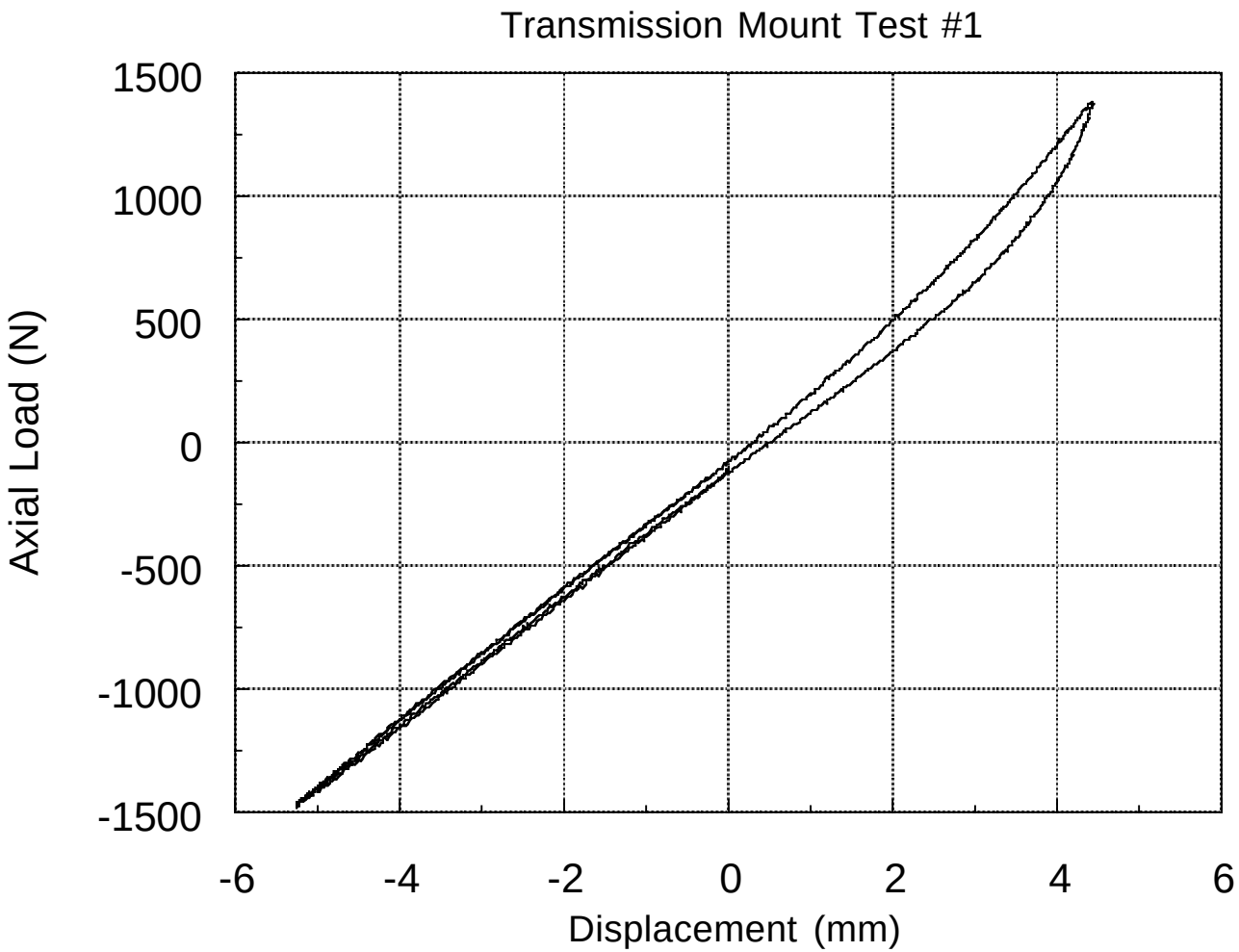

Figure 3. Axial load versus axial displacement for test #1.

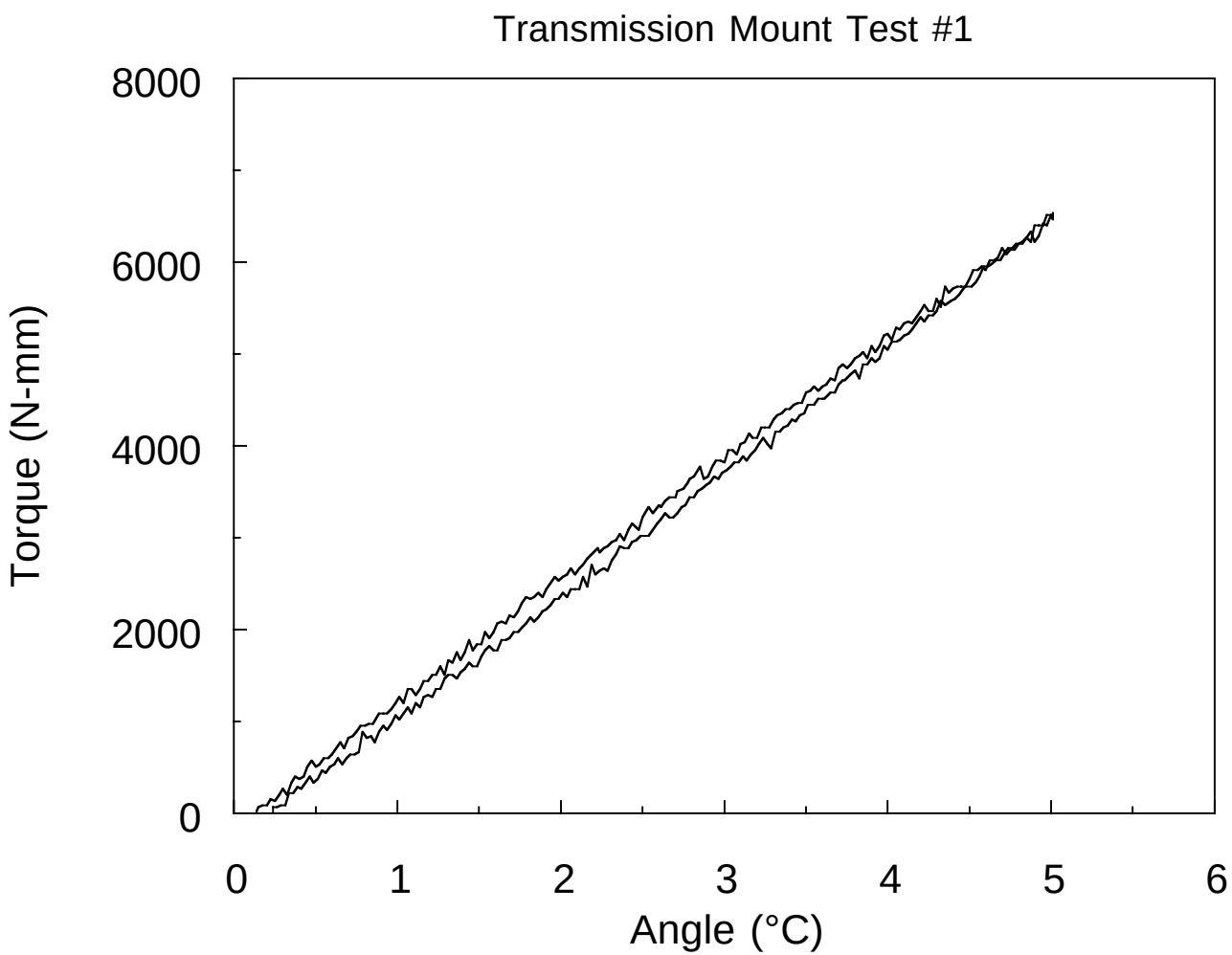

Figure 4. Torque versus angle for Test #1.

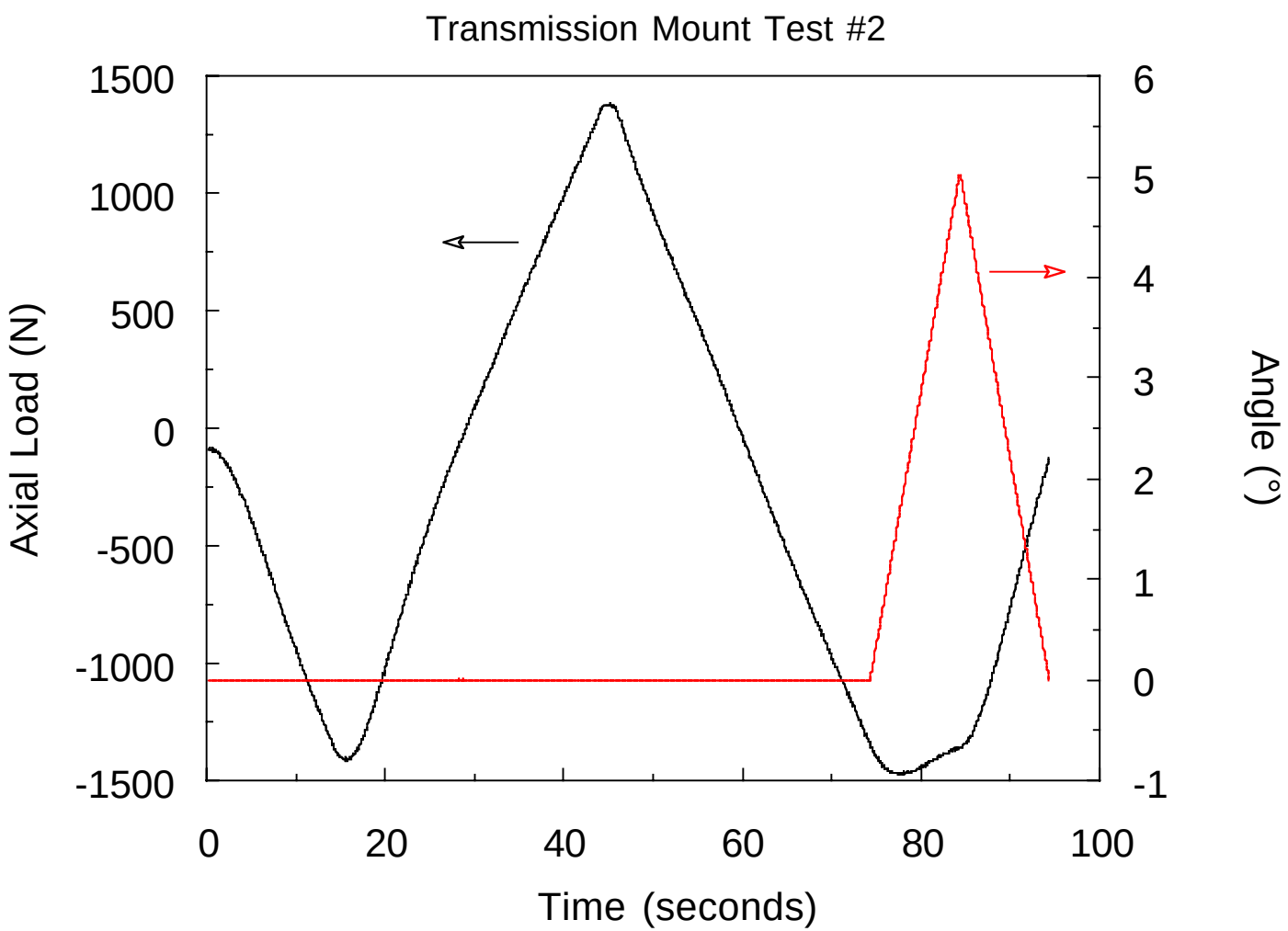

Figure 5. Loading history of test #2.

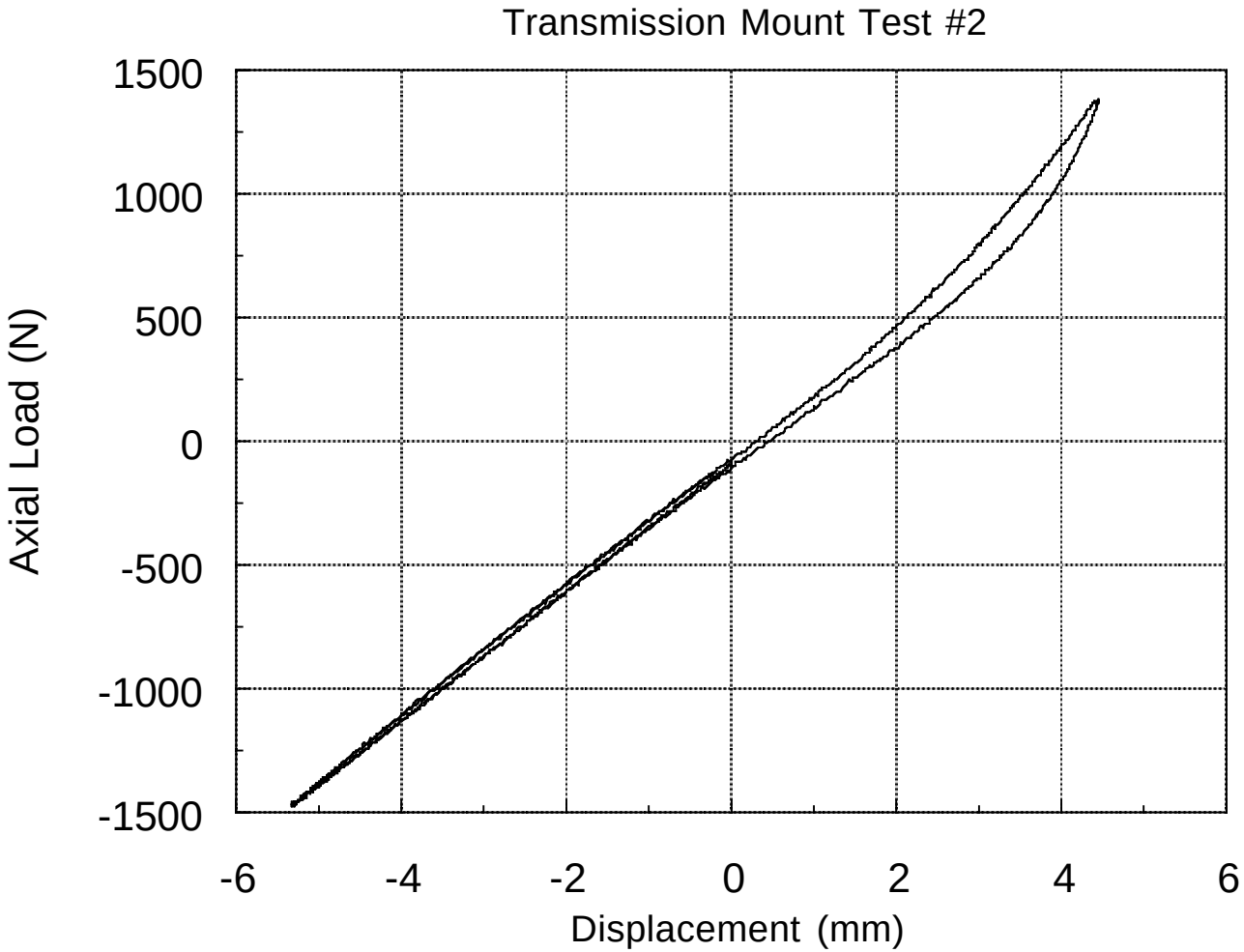

Figure 6. Axial load versus axial displacement for test #2.

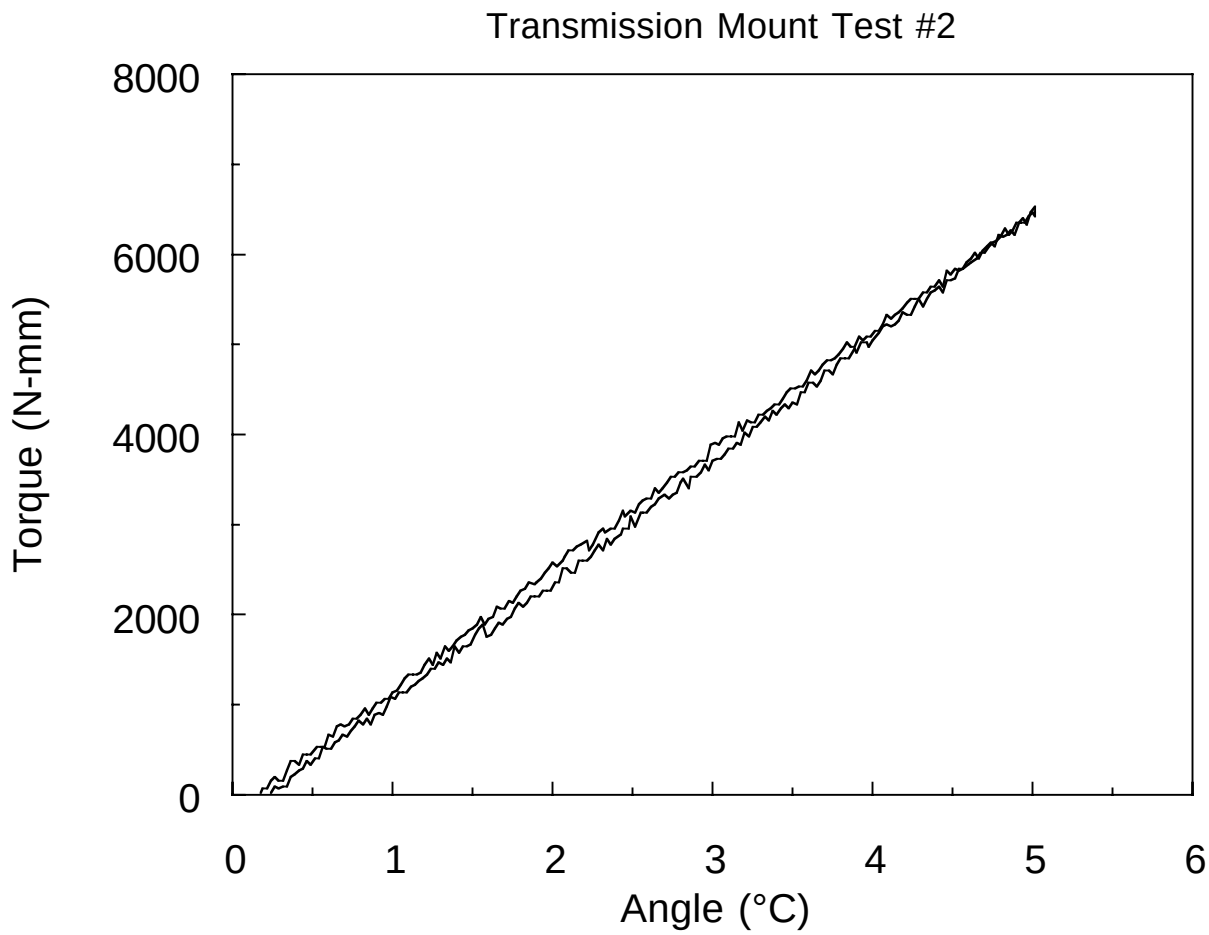

Figure 7. Torque versus angle for Test #2.

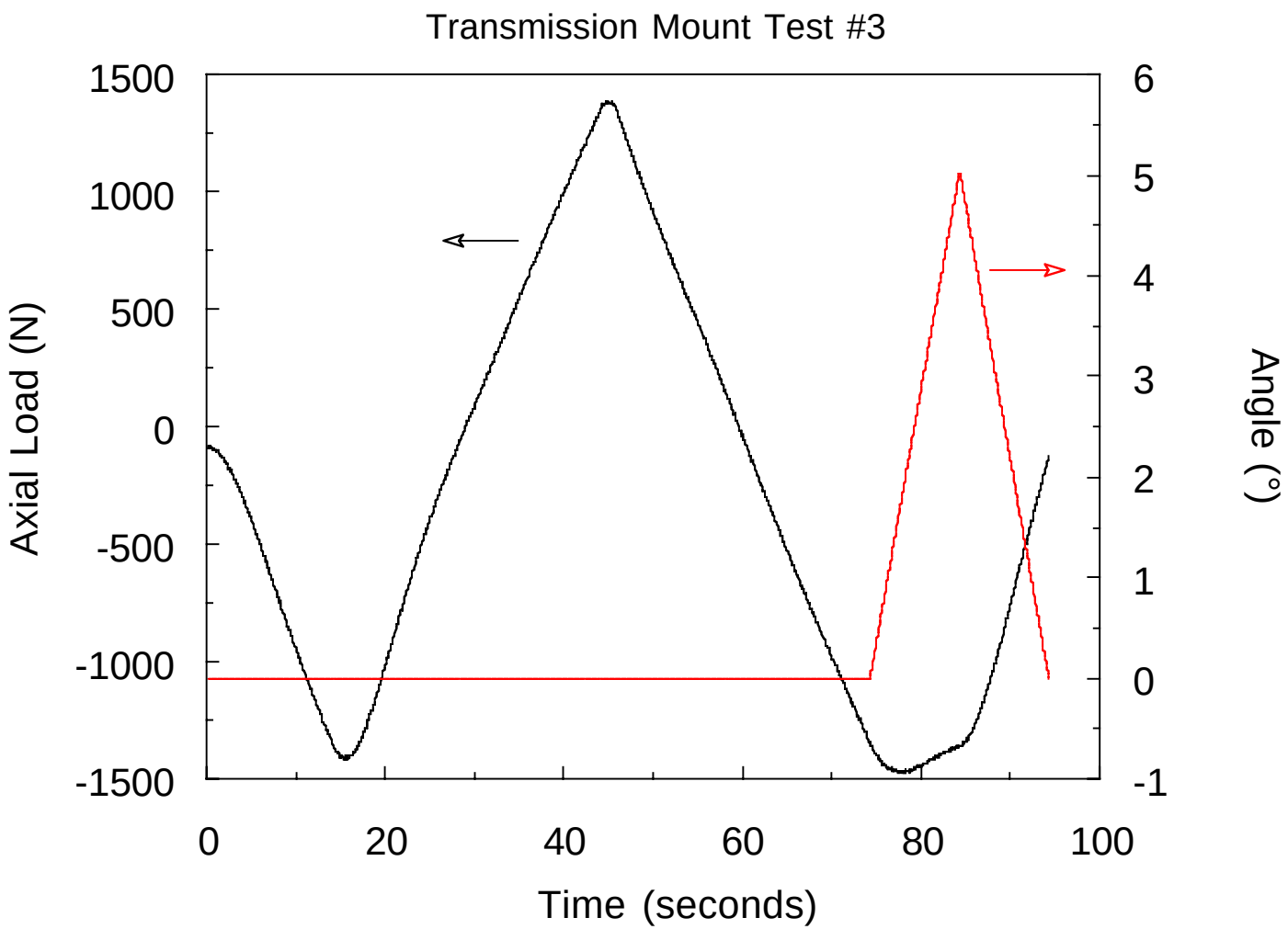

Figure 8. Loading history of test #3.

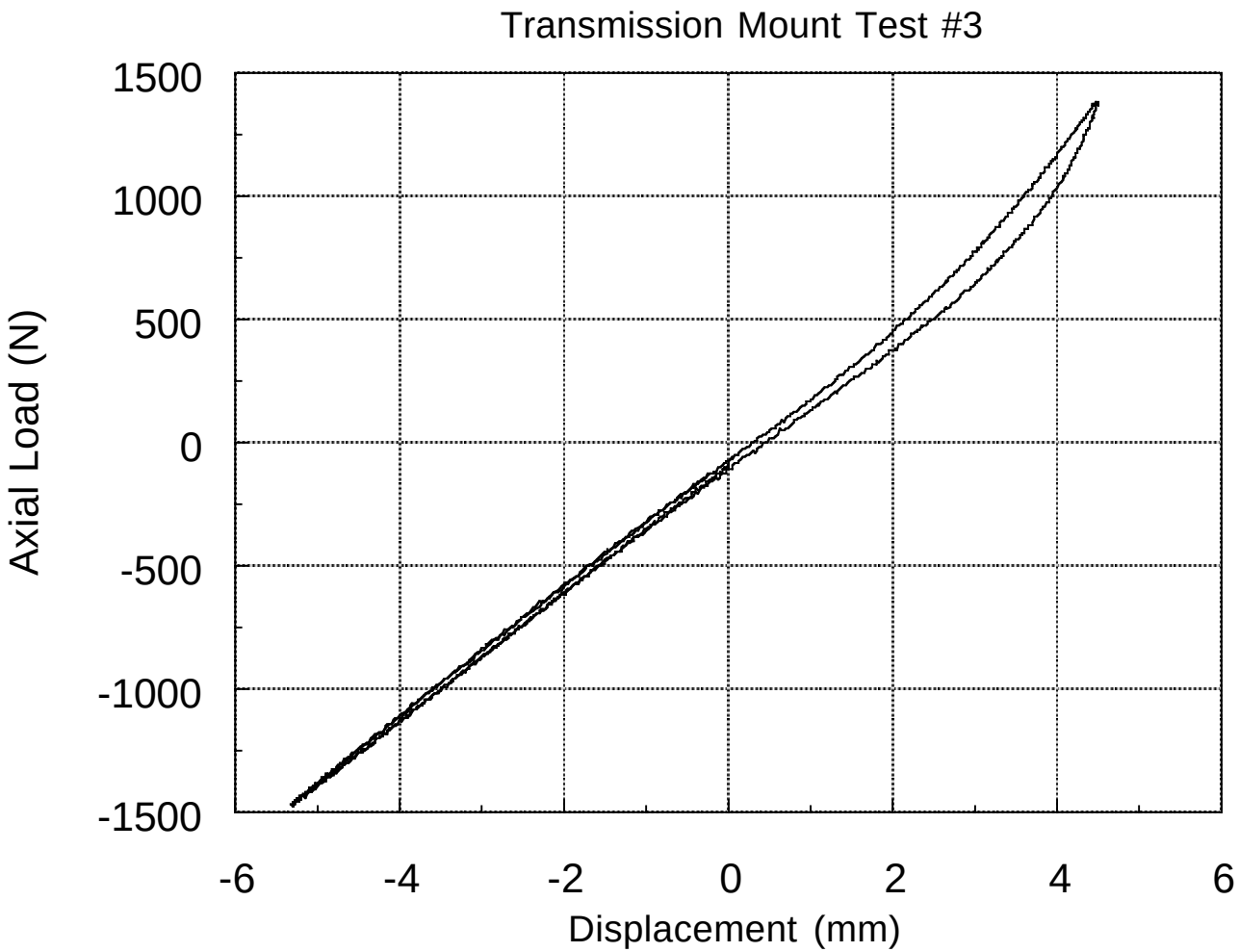

Figure 9. Axial load versus axial displacement for test #3.

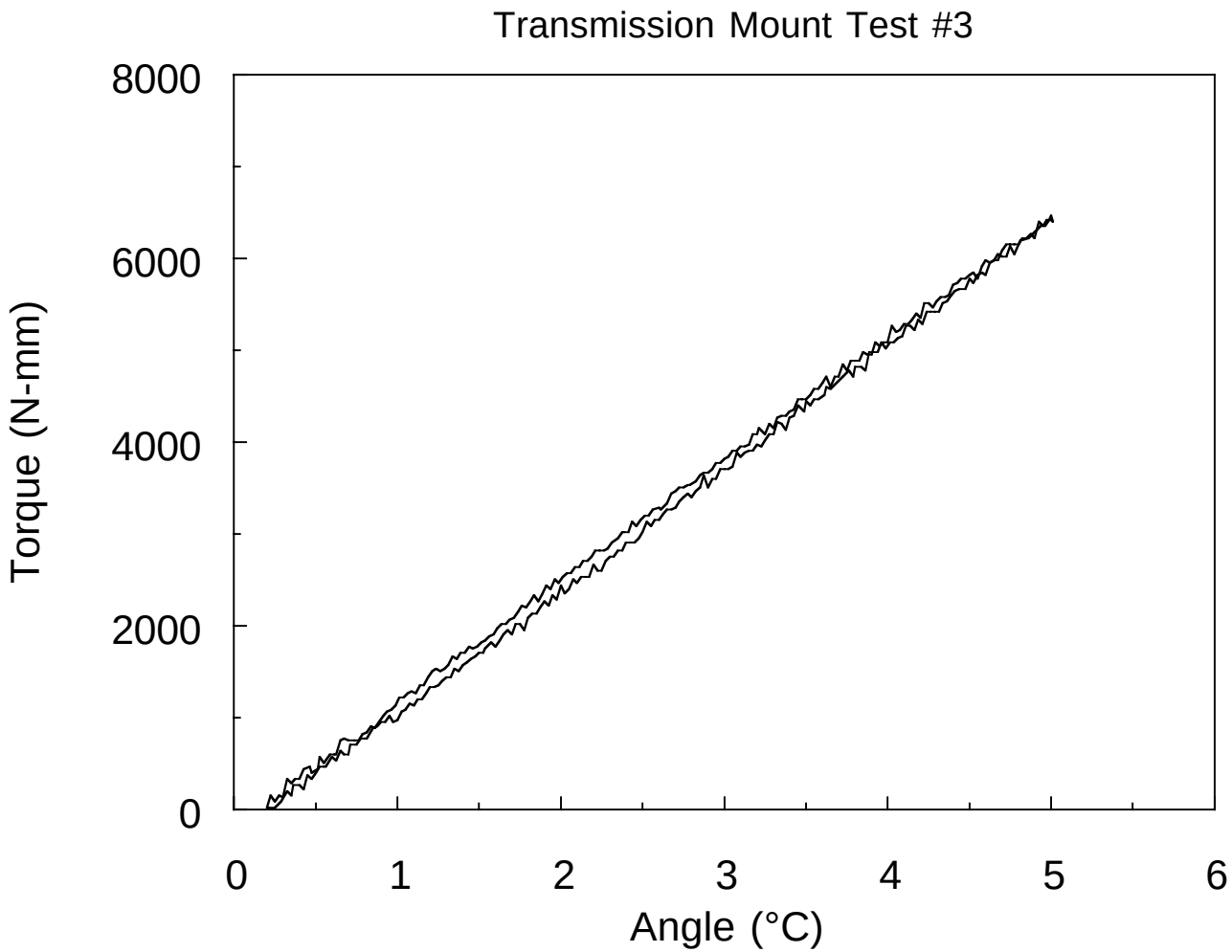

Figure 10. Torque versus angle for Test #3.