IT HAPPENS… WITH TOO MUCH STRESS

SOLVING PROBLEMS WITH OUR RESPONSIVE CUSTOMER SUPPORT.

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NO. 048H

CASE STUDY

12:15:4

PROJECT	*On September 1, an automotive engineer gave us information regarding a competitor's failed compression/torsion spring. One of the arms of the spring was breaking at about 16% rate.*
DEADLINE	*"Can you figure out the solution and rush 30 parts for us to start testing?"*
CHALLENGE	*The current spring's design broke at 29,000 cycles; they required 50,000 cycles. Rubbing was a major contributor to the failures, and stresses at the second torsion force were high. Rotation of the spring within the device showed that the spring was getting too tight (binding) on the inside shaft. This binding would cause the force and stress to increase beyond safe limits.*
ACTION STEPS	*After reviewing the application and design data, along with the broken spring and assembly components, we suggested a different design that increased clearances and used a slightly larger wire to minimize stress.*
RESULTS	*"I just want to thank you for all your help with this spring. We just finished cycles test and the new spring design passed 140,000 cycles. Thanks for all the support and quick response." – received Oct 14th from client.*

On all new parts submitted to Spiros, we verify that the forces agree with the physical specifications, stress safety and manufacturability to ensure production is economically feasible. When spring design failures occur, we review the spring, all design and application details and working requirements.