

The ANSYS model was loaded using the forces from the ADAMS analysis. At each hole where a load was applied, the nodes in the area where loads were applied were constrained to move together. The analysis was solved using the ANSYS PCG solver.

Creep test fixture. The creep test fixture was constructed from a 710 receiver fitted to a barrel that had been cut off just beyond the chamber. The gun was fitted with a standard 710 action in which the firing pin tip had been replaced with a threaded rod long enough to protrude from the barrel. A five inch long die spring with a spring constant of 45 lbs/in was slipped over the threaded rod, and a washer and nut were used to compress the spring to 3.89 inches. The resultant load was 50 pounds, roughly twice the standard load. The complete creep fixture may be seen in Figure 1.

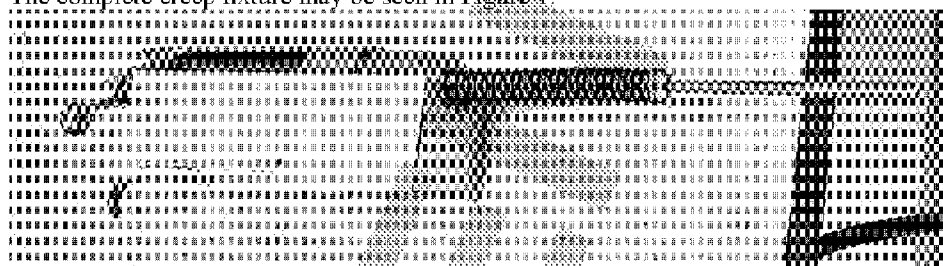


Figure 1. Creep Test Fixture.

The flat front of the receiver was placed upon a granite table and the distance from the back face of the receiver to the back face of the firing pin head was measured. Figure 2 shows the setup used to measure firing pin protrusion. Figure 3 shows the two locations used for measurement.

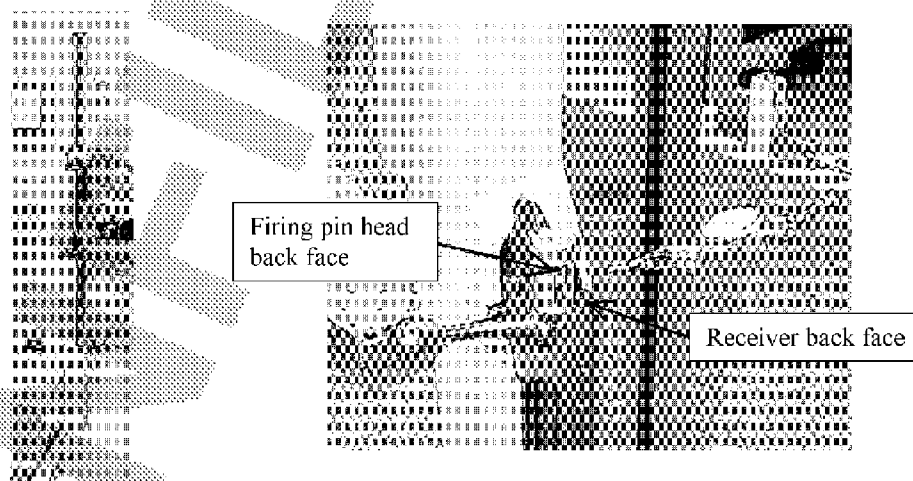


Figure 3. Closeup of measured area.

Figure 2. Height gauge used to measure firing pin protrusion (fatigue fixture shown)