

Keeney, Mike

From: Serven, Alan
 Sent: Thursday, August 02, 2001 9:09 AM
 To: Keeney, Mike; Trull, John; Fink, John
 Cc: Golemboski, Matt R.; Bunting, Jay
 Subject: RE: Fax from Italian Proof House

Right church, wrong pew. The test limits for .30-'06 proof ammunition are 67,000 - 71,500 CUP (copper units of pressure, crusher testing) and/or 80,000 - 86,000 psi (pounds per square inch, piezoelectric transducer testing). [NOTE: The 85,000 psi upper limit in my first e-mail was a typo.] The Italian proof house was using a Kistler piezoelectric transducer, making the second, higher set of limits the appropriate comparison values.

I agree with you, Mike, that the pressure they are operating at should not be a problem for the shell or the gun. I did check one other thing this morning on our proof rounds for .30-'06. When we make them, we "pocket groove" the shells. That is, we cut a small ring in the primer pocket to provide enhanced protection against primer leaks and back-outs. Assuming the Italian proof house did not have these available, some primer leakage might be encountered. However, my experience has been that this will usually result in gas cutting of the bolt face, not the damage they are describing.

If we are able to obtain samples of the fired and unfired shells, we can check the head hardness to make sure there's nothing odd going on with the shells.

FYI - Proof is calculated from the maximum probable lot mean (MPLM), not the maximum average pressure (MAP, the service ammo loading limit). MPLM is 2.5% above MAP. From the MPLM, the lower proof limit is 130%, and the upper limit is placed at 140%. Lumping everything together, lower proof is 133.3% above service and the upper limit is 143.5% over service.

Alan

-----Original Message-----

From: Keeney, Mike
 Sent: Thursday, August 02, 2001 6:54 AM
 To: Serven, Alan; Trull, John; Fink, John
 Cc: Golemboski, Matt R.; Bunting, Jay
 Subject: RE: Fax from Italian Proof House

According to process sheets here, the 30-06 proof load targeted pressure was stated as 71,500 psi? I will verify that we read the chart properly, but typically isn't proof roughly 120% of max avg, which is 60,000 psi, so proof would fall in the 72,000 psi range. Regardless of the pressure, 77 ksi or even 85 ksi should not be enough to swell the case head to the point of causing deformation of the bolt shroud. We need to review the damaged firearms and fired brass before we determine the cause. Obviously there is something different in proof testing procedures.

Mike