

Remington Arms Company, Inc.
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CONFIDENTIAL

Research and Development Technology Center
Elizabethtown, Kentucky

To: John Trull
Cc: D.Diaz

Subject: National Proof House of Gardone Al Trompia rejection of M/710 firearms.

In review of the (7) page fax from Lello Ambrosio to yourself dated July 20, 2001, two issues were noted as a result of their proof evaluation; 1. Ejector "jamming" inside of the bolt head. (See Fig. 1) 2. "Bolt buckled in the head" (See Fig 2). Both of the issues would indicate gas leakage around the primer cup and partial case head expansion. Review of incident cases would be required to confirm gas leakage and case head expansion. According to the pressure data supplied within the fax, the average test pressure for the proof loads was 5347 bar (77,540 psi) which is actually below the SAAMI recommended proof pressures of 80,000-86,000 psi. Although the pressures appear to be within acceptable limits, the indication that the proof loads were assembled utilizing "original Remington cases" may be the failure link. According to Lonoke procedures, proof cases are "pocket grooved" to provide protection against gas leakage around the primer. If indeed the cases in question were standard cases there would be a high probability of gas leakage when loaded to proof pressures.

In defense of gas leakage and case head expansion theory: In the first mode of failure, jamming of the ejector, the ejector was forced below the ejector retaining pin which could only be caused by high pressure, high velocity gases driving the ejector rearward, much like a piston. In the second mode of failure, bolt head buckled, the bolt head shroud which retains the extractor was physically deformed. The fundamental cause would have to have been case head expansion with the deformation to the bolt shroud occurring one of two ways. One, the case head swelled and trapped the extractor such that when the bolt was rotated to the unlocked position the extractor did not rotate, aligning the extractor with the deformed region of the shroud. The physical deformation would then be a result of high axial force required to remove the case from the chamber. The second possible cause, and most probable, would be a result of an attempt to remove the swelled case from the bolt assembly after removal from the firearm. That is, the case head swelled and lodged within the bolt head but extracted without issue from the barrel. In an attempt to remove the case from the bolt, the shroud was inadvertently deformed.

Based on the information supplied in the fax and the one bolt assembly sample received, the cause of failure would lie within the proof ammunition employed and not a fault of the firearm.

Michael D. Keeney
Staff Engineer

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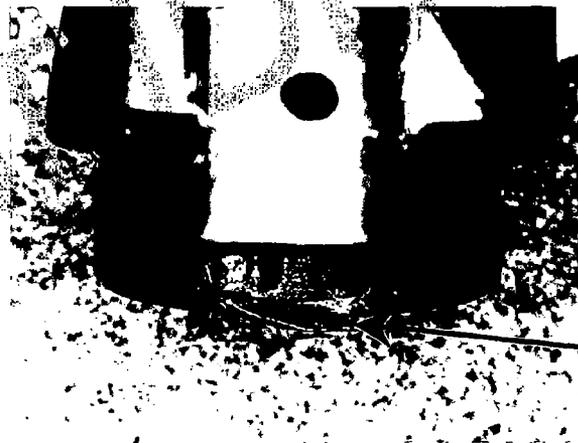
Italian Proof Results

ET35057



Ejector recessed within
bolt head

Fig. 1



Bolt shroud deformation

Fig. 2

Michael D. Keency
Staff Engineer

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Italian Proof Results

ET35058