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SAAMI TECHNICAL COMMITTEE MANUAL

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VOLUME VII, CENTERFIRE RIFLE

REVISED

PROOF TESTING
DEFINITION AND PURPOSE

Proofing of a firearm is traditionally defined as the intentional non-destructive stressing of components which contain the cartridge by firing cartridges which develop pressures substantially exceeding those of normal service loads. The elements being proofed are those in direct contact with, and/or which contain the primary firing pressures.

Proofing originated in the early days of muzzle-loading firearms with the purpose of establishing the integrity of hand-forged or hand-welded barrels. It has evolved through the years as a method of indicating that the firearm and subsequently, with the introduction of cartridges, the firearm-ammunition system had adequate strength in normal use. In present day usage, proofing is only one of various manufacturing operations that may be performed to assure that the firearm-ammunition system is structurally sound.

Proofing is accomplished by firing DEFINITIVE PROOF cartridges. With future technological advances, other means which induce comparable stresses on the pressure containing elements may be used.

In addition to proofing, the manufacturer should use other means at his disposal to maintain dimensional, physical and metallurgical quality. Other controls of quality should be established by the individual manufacturer and are not covered in these recommendations. If proofing is performed by means other than firing a proof cartridge, stresses induced in the components being proofed should correspond to stresses induced by firing DEFINITIVE PROOF cartridges.

Headspace, bore and chamber dimensions and cartridge case support are of major importance in assuring that specified pressure is obtained from the cartridge and that the firearm-ammunition system is structurally sound. Control of these characteristics is necessary to prevent cartridge case or firearm failure.