

WHITE LABORATORY, INC.
1000 S. 10th St., Arlington, VA 22204



30 June 1983
(HPWLI Job 3040)

NOBLES
M/40X

Department of the Army
U.S. Army Claims Service
Office of the Judge Advocate General
Fort George G. Meade, Maryland 20755

Attention: Larry W. Bowman, Sergeant First Class, JAGC

Gentlemen:

In accordance with your letter of 25 May 1983 and the provisions of Purchase Order No. DAKF27-82-M-7343, H.P. White Laboratory conducted an examination and limited testing of a Remington Model 40X, caliber .22 rifle, Serial No. 42716B, delivered by your representative on 26 May 1983.

The rifle was a single shot, bolt action Match rifle, the condition of which was consistent with moderate usage and good maintenance. No defects or deficiencies were noted.

One hundred rounds of each of three brands of ammunition were cycled through the gun. Each round was handloaded and chambered. The bolt was then partially retracted and the extraction of the unfired cartridge visually confirmed. The bolt was then closed a second time, the gun fired and bolt manipulated to extract and eject the spent case. Table I is a summary of the results of these tests.

TABLE I. SUMMARY OF EXTRACTION TESTS

Ammunition	Unfired Extractions		Fired Extractions	
	No.	Failures to Extract	No.	Failures to Extract
Remington(a)	100	0	100	0
Winchester(b)	100	20	100	0
CCI(c)	100	0	100	0

(a) Standard velocity, Long Rifle Lot No. K16U3A.
(b) Standard velocity, Long Rifle Lot No. 1NK60L.
(c) Standard velocity, Long Rifle Lot No. M15M11.

Encl

Department of the Army
U.S. Army Claims Service
Attention: Larry W. Bowman, Sergeant First Class, JAGC
30 June 1983
Page 2

Subsequent to the examination and testing the fired and unfired cartridges of each brand were examined and the radius between the body of the case and the head of the unfired Winchester cartridges were found to be noticeably greater than the others (see attached photograph). This condition can prevent the extractor from taking as great a bite on the rim of the case and, in conjunction with the "tight" chamber normally found in match firearms, will cause the extractor to slip over the rim of the case resulting in failures-to-extract.

Finally, the configuration of each of the three types of ammunition and a casting of the chamber of the rifle were compared to Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) recommended configuration specifications (copy attached). All of the ammunition and the chamber of the gun were found to be in compliance with those specifications. If you will refer to the attached SAAMI drawing you will note that SAAMI does not control the radius between the body and rim of the case. You will also note that there is an "interference fit" between the bore of the gun (.217") and the diameter of the bullet (.2255") which will increase the force necessary to extract an unfired cartridge.

It is our opinion that the interference fit of the bore and bullet in conjunction with the radius in the joint between the body and rim of the case of the Winchester ammunition cause the failures to extract as noted above.

We will retain custody of the rifle pending your review of this matter and your instructions regarding its disposition. Should you have any questions regarding this matter or if we may be of any further service, please do not hesitate to contact us.

Very truly yours,

H.P. WHITE LABORATORY, INC.


D.R. Dunn

DRD:lc

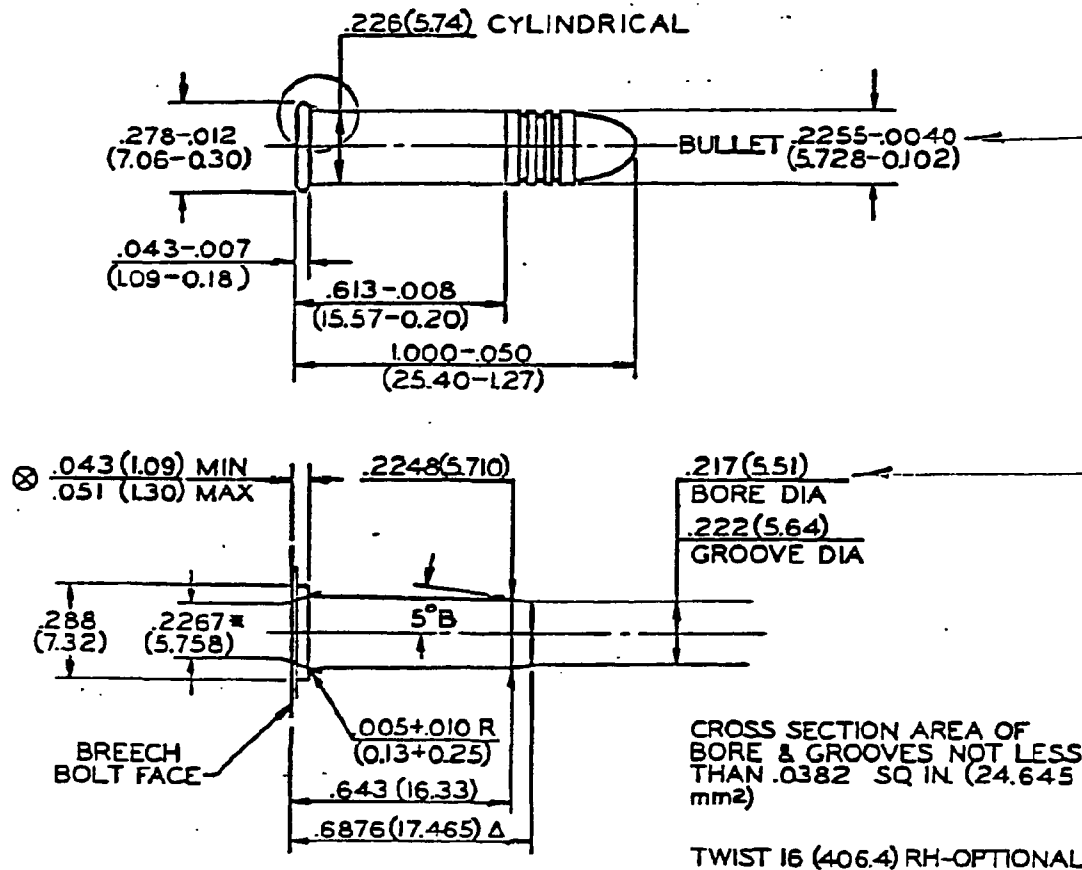
enclosures

R2515028

SECTION I - CHARACTERISTICS
RIMFIRE
SAAMI VOLUNTARY PERFORMANCE STANDARDS

CARTRIDGE & CHAMBER
22 Long Rifle-Match

CARTRIDGE
UNLESS OTHERWISE NOTED
BODY DIA $-.004$ (0.10)



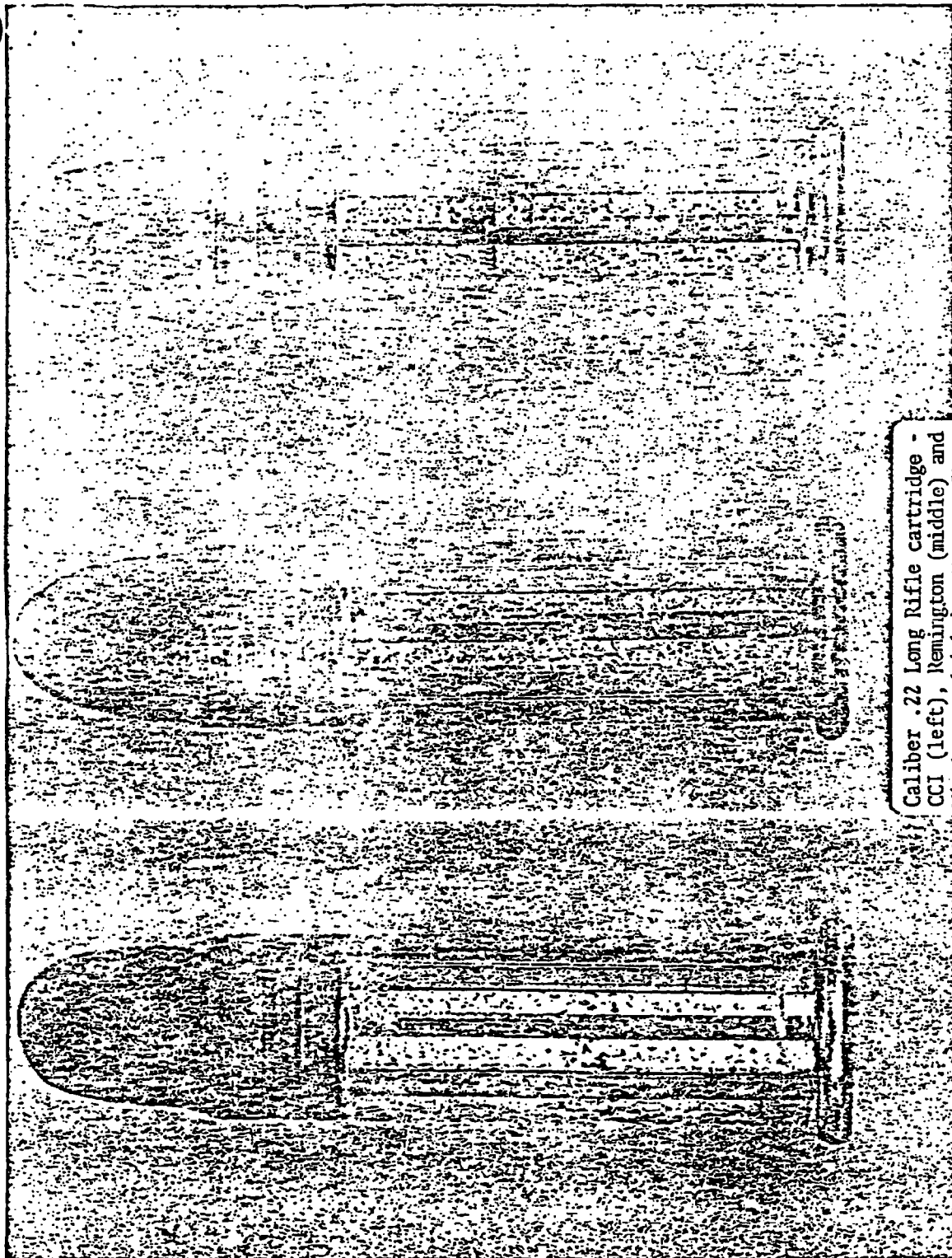
CHAMBER
UNLESS OTHERWISE NOTED
ALL DIA $+.002$ (0.05)
LENGTH TOL $+.015$ (0.38)

NOTE

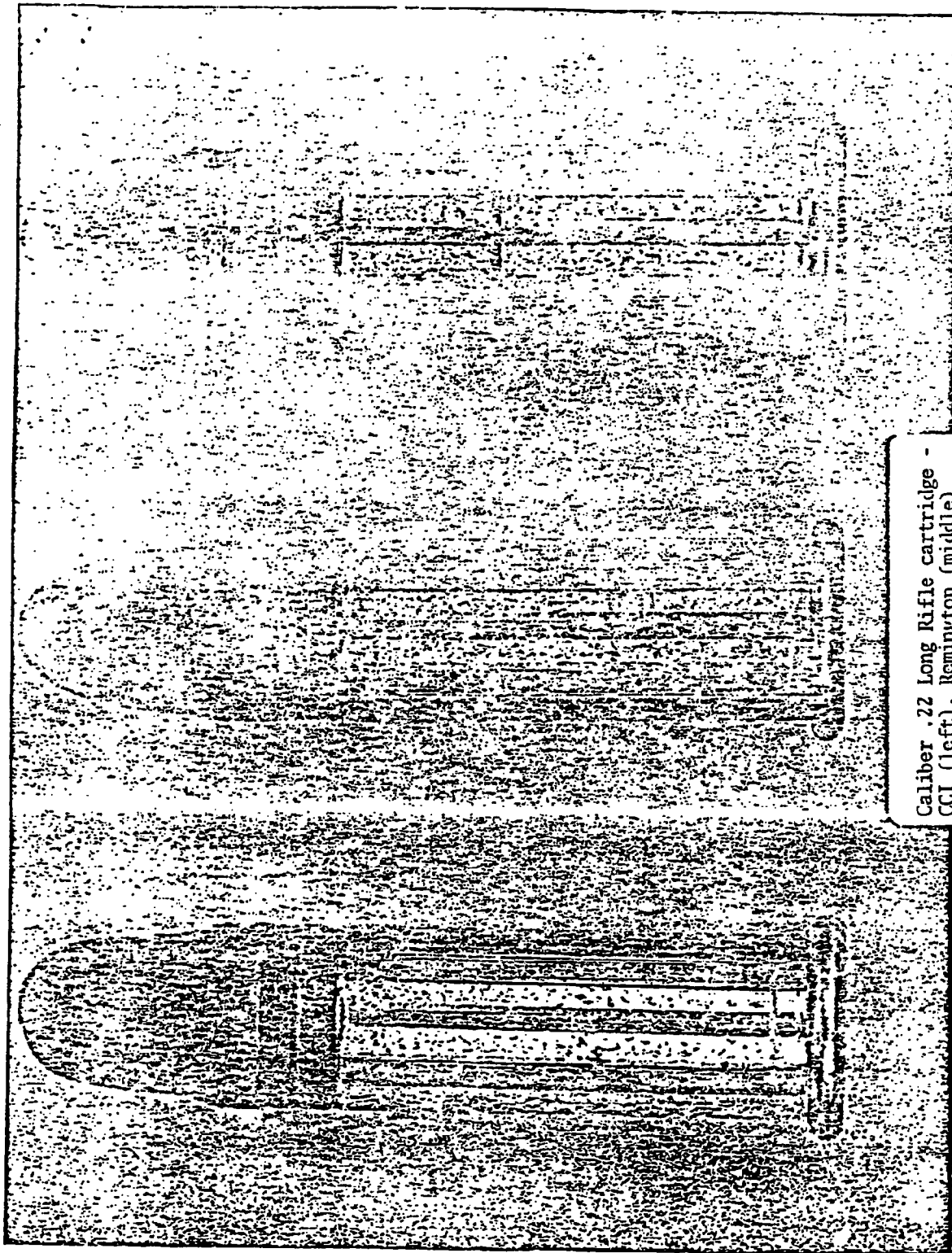
B=BASIC

(XX.XX)=MILLIMETERS \otimes =HEADSPACE DIMENSION

* DIMENSIONS ARE TO INTERSECTION OF LINES Δ=REFERENCE DIMENSION
ALL CALCULATIONS APPLY AT MAXIMUM MATERIAL CONDITION (MMC)



Caliber .22 Long Rifle cartridge -
CCI (left), Remington (middle) and
Winchester (right). Note config-
uration of forward edge of
Winchester rim. (typical).



Caliber .22 Long Rifle cartridge -
CCI (left), Remington (middle)
and Winchester (right). Note
configuration of forward edge of
Winchester rim fire (bottom)