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G. H. Jacobs J. W. Miller
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June 30, 1952

TO: E. K. Ruckensack
FROM: E. K. Mearns
SUBJECT: PERFORMANCE SPECIFICATIONS FOR
GUN FINISHES FOR METAL PARTS

We have reviewed your tentative performance specification for gun finishes for metal parts and have a few comments to make concerning them. Paul Redleston and J. W. Miller have perused the specifications and offer the following suggestions:

1. APPEARANCE

b. Gloss - We do not polish to a 300 grit mirror finish. We currently use 120 grit oil finish. The cyanide black finish required parts polished with one grit finer grade.

d. Uniformity of Appearance - We currently nitro color some metal parts on the 500 series guns. This is a cyanide quench.

e. Matching - All parts do not match. Cyanide nitro, black oxide, nitro black, aluminite and bluing all very close.

2. FUNCTIONAL CHARACTERISTICS - Question these specs with regard to quantitative measurements. (J.W.M.)

a. Scratch Resistance - We definitely demand a higher degree of wear and scratch resistance on barrels and receivers than we do on other components. In the past we would not even consider a barrel and receiver finish which would withstand only 500 cycles on Taber. These specs as stated would per the use of black oxide on barrels and receivers. (P.H.E.)

c. Corrosion Resistance

(1) Salt spray

(a) Test conditions: Oiled or unlubricated samples?

(b) Specification: Government specifications for black oxide are 1 1/2 hr. unsealed and 2 hrs. oiled.

d. Resistance to commonly used gun-slaming materials
There is some feeling that a finish should also be resistant to lacquer thinner as customers may want to refinish their stocks and may get the thinner on the metal parts. (P.H.E.)

e. Performance under adverse operating conditions
Our testing unit tests guns at -40° F. We understand that the basis for this practice is the anticipation of using in the North where temperatures may drop to that range. Other Government specs are somewhat near this temperature. (P.H.E.)

GENERAL - The overall specifications are very good and will be particularly so if substantiating data can be developed. We will comment from time to time as our program develops.

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KKV/mms