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cc: G.M. Calhoun  
J.E. Maupin  
H.J. Hackman  
E. Sapp  
W.E. Leek  
M.H. Walker

MEMORANDUM OF DISCUSSION

March 23, 1954

PLAINTIFF'S  
EXHIBIT

3116

SUBJECT: MODEL 721-722 QUALITY  
Notes on Discussion Held in Gun Room 3-23-54  
Between Messrs. Hackman, Sapp, Leek, Walker & Alvis

The purpose of this discussion was an effort to correlate a number of items which R&D personnel feel to be adverse to quality. Also, it is felt that some of these items may be directly or indirectly contributing to reductions in sales on these models.

It was not expected that the results of this discussion would be conclusive since in most cases there is not sufficient information. It was also confirmed that in most cases the Plant is fully aware of the conditions reported but question the justification of expense that would be involved to meet the requirements considered necessary by Research personnel. However, it was agreed desirable that this information be reviewed so that there would be no question regarding the opinions of each group, and where indicated, additional data is to be obtained for consultation with Management and Sales regarding action to be taken.

Lapping of Barrels

The lapping operation was discontinued quite some time ago and on basis of test results through the Plant Gallery. Research personnel are of opinion that elimination of the lapping is not necessarily reflected in normal Gallery testing but that it does cause excessive fouling of the barrel after additional firing. It was also brought out that the use of double base powders such as in the 222 Remington caliber further aggravates this situation and also is contributing to the pitting of barrels such as observed in many of our production guns.

This question as to whether or not we should consider going back to the lapping can be resolved only after making further test and it was tentatively agreed that such a test would be run using approximately 60 rifles in 222 Cal. as now being run. One half of these would be lapped in a manner considered satisfactory to P.E. & C. and Research, and each gun would be fired a total of six 5-shot groups through accuracy testing device. (The above test may well be subject to review by the Plant Testing Committee).

Chamber Diameter

This item has come up more recently because of guns returned, in 300 B&H Mag. caliber and involves "high spots" in the chambers

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thought to be caused by our chambering tools and not easily picked up by the air gage. It was brought out that the condition would probably not cause trouble with factory ammunition but since it does not conform with SAAMI "max. cartridge" dimensions we should take steps to correct same.

#### Caliber 222 - Groove Diameter

It was reported that the present lot. of 222 caliber barrels are being produced with a groove diameter from .002" to .005" under size. It is understood that production feels that these barrels should be satisfactory in finished guns and that they will "shoot" to most accuracy specifications. R&D personnel are of opinion that this variation in groove diameter may very well affect ballistics, especially that of pressures, and that the barrels should be "lapped in" to proper dimensions. It is understood that this condition was probably caused by fact that we have not revised our tools to accommodate the new stress release furnace. In the past we have "pickled out" a certain amount of scale from the barrels after heat treating. With the new atmosphere control furnace there is no loss of metal in scale.

#### Alignment of Threads - Receiver to Barrel

M.H. Walker pointed out that the misalignment in this assembly does not conform to drawing requirements. E. Sapp reported that he is having this investigated further and will advise just what is involved. Again, this may be a question as to justification for making a change.

#### Extractors

M.H. Walker pointed out that some time ago we accepted a lot of extractors which had "missed" an operation. It seems that this came to the attention of Research while investigating complaint guns involving extraction difficulties. Apparently there is no further question on this item, only that of concern with respect to the quantity of guns produced with these extractors that may cause future complaints.

#### M/721-722 Quality - General

H.J. Hackman pointed out that complaints on these two models during 1953 totaled approximately 500 guns in all categories and "were just and unjust complaints", out of a total production of approximately 50,000. This is considered to be a very good level. However, opinion was expressed that because of the number of rifles which are being repaired on the outside there is some doubt as to whether or not our complaint report records show a true picture. It was agreed that we have no other means of accurately measuring our quality.

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Future Program

Copies of notes on this discussion are being distributed to interested personnel and arrangements will be made to again review the situation within approximately one month.

S. M. Alvis, Manager  
Arms Research & Development Division

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