

REMINGTON ARMS COMPANY, INC.

INTERDEPARTMENTAL CORRESPONDENCE

Remington
CAPSON

REMINGTON
CAPSON

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

Distribution:

C. B. Workman
C. E. Ritchie
J. P. Linde
J. W. Brooks
R. J. Pohl -
Petroleum Lab
Chambers Works
A. B. Hughes
ESD - LOUVIERS

RESEARCH TEST and MEASUREMENT REPORT - Report No. 82 0331

Supplement No. 4

LUBRICATION EVALUATION: ILION FISH AND GAME CLUB
CLEANING AND FIELD TESTING
EVALUATION

Prepared by: C. E. Ritchie

Date Prepared: 6-10-82

Proofread and Cleared By:

J.H. Hennings, / R.E. Nightingale,
Foreman-Test Lab/ Foreman-Measurement Lab

Signature _____ Date _____

C.E. Ritchie,
Sr. Supervisor - Testing,
Meas. & Mech. Analysis Lab

[Signature] 6/15/82
Signature Date

TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 82 0331 Supplement No. 4
REPORT TITLE: LUBRICATION EVALUATION: Lion Fish and Game Club
Cleaning & Field Testing
MODEL(S): 1100 Evaluation
GAUGE OR CALIBER:
DATE: 6 - 10 - 82
WORK ORDER NO.:
PART NAME:
DESIGNER/ENGINEER:

TEST TYPE:

1. PHOTO LAB
2. STRENGTH TEST - NO. OF GUNS TESTED _____
3. FUNCTION TEST - NO. OF GUNS TESTED _____
4. ACCURACY TEST - NO. OF GUNS TESTED _____
5. MEASUREMENTS - TYPE: _____
6. ENVIRONMENTAL TEST
7. AMMUNITION TESTING & EVALUATION - TYPE: _____
8. VISUAL EVALUATION - _____ OUT OF _____ GUN SAMPLE
9. X ENDURANCE - NO. OF GUNS TESTED: 16

NO. OF ROUNDS PER GUN: _____

TOTAL ROUNDS FIRED IN TEST: _____

AMMO TYPE: MAGS. _____; TARGET: _____

RIM FIRE _____ CENTER FIRE _____

REMINGTON ARMS COMPANY, INC.
Firearms Research Division

June 10, 1982

TO: C. B. Workman

FROM: C. E. Ritchie

REPORT TITLE: Lubrication Evaluation: Lion Fish & Game Club
Cleaning And Field Testing Evaluation

ABSTRACT

C. E. Ritchie requested the Test Lab to conduct a cleaning and field testing evaluation of existing Lion Fish & Game Club M/1100 shotguns. Sixteen M/1100 shotguns were selected from the club as test vehicles for the following three lubricants still being evaluated:

1. Du Pont - Synthetic Diester
2. Krylon 711
3. CRC - 556

SCOPE OF TEST

To compare the effectiveness of the remaining three lubricants to clean, lubricate and prevent rust build-up in M/1100 shotguns which receive a lot of use.

TEST RESULTS

In their order of finish, from the best performing overall lubricant (clean, lubricate and prevent rust) to the poorest, the following results were obtained.

Lubricant

1. Du Pont - Synthetic Diester
2. CRC 556
3. Krylon 711

REPORT TEXT

- A. "Cleaning" Results - The following conclusions were made during the cleaning of the Lion Fish and Game Club M/1100 shotguns:
- o Krylon 711 emits a heavy fog while spraying. It wiped off better than CRC 5-56 but not as well as Du Pont Synthetic Diester
 - o CRC 5-56 became gummy after setting for 1/2 hour. It also was harder to remove grime (ie. elbow grease).
 - o Du Pont Synthetic Diester - cleaned relatively easy and did not gum up after setting.
- B. "Inspection after Use" Results - The following conclusions were made while inspecting the 16 - M/1100 shotguns at the Lion Fish & Game Club after 3 months of use:
- o Krylon 711 - performed the worst. Samples showed signs of rust and film build-up.
 - o CRC 5-56 - performed better than 711. Samples showed signs of good lubrication but some signs of drying and light rust.
 - o Du Pont Synthetic Diester - performed the best of all. Samples all showed good signs of lubrication and rust prevention.

TEST PROCEDURE

- A. On March 12, 1982, sixteen M/1100 shotguns were selected from the Lion Fish and Game Club to be used in this evaluation. These guns are:

<u>Labeled No.</u>	<u>Serial No.</u>	<u>Gauge</u>
1	N032715X	20
2	N098963H	410
3	N120547V	12
4	N122845V	12
5	N072571V	12
6	N098241H	410
7	N112195J	28
8	N120637V	12
9	N071849V	12
10	N067179V	12
11	N111015J	28
12	N032199X	20
13	N066916V	12
14	N120545V	12
15	N061062V	12
16	N067268V	12

The guns were delivered to the Lion Research Test Lab where they were individually disassembled to be cleaned. The shotguns were cleaned using only the lubricant as the cleaning agent. Results were based on the Test Lab personnel's opinion on how well each lubricant performed.

- B. For the next portion of the test, the entire firearm was dipped in Stoddard Solvent and thoroughly cleaned, degreased and allowed to dip dry. Each lubricant was assigned a firearm and then lubricated. The following firearm components were sprayed:

- o piston, piston seal, magazine tube - Spray, let stand for 5 minutes, lightly wipe off all excess.
- o receiver - Saturate, let stand for 5 minutes, lightly wipe off excess.
- o fire control - light spray.

The firearms were reassembled and then each were wiped down with a clean cloth dampened with the corresponding lubricant. The sixteen shotguns were returned to the Lion Fish and Game Club the week of 3/15/82 and placed in their metal storage cabinet. (Note: These storage cabinets are located in an unheated area on an earth floor. The room is also un insulated. The room experiences temperature extremes and maintains a relatively high level of humidity).

TEST PROCEDURE - continued.

The guns were used by the Remington Arms Employees at the Ilion Fish & Game Club for a period of approximately 3 months.

On June 10, 1982, R. E. Nightingale (Measurement Lab Foreman) and C. E. Ritchie (Test & Measurement Lab Supervisor) made a visual inspection of the operation and appearance of those same sixteen shotguns. Items noted were:

- o any visable rusting
- o condition of lubricant (still wet, dry, sticky, etc.)
- o appraisal of rounds on gun

Results of the inspection can be found in Appendix A.

APPENDIX "A"

(Data Sheets)

Lion Fish & Game Club Results:

DATA SHEET

<u>Label No.</u>	<u>Gauge</u>	<u>Lubricant</u>	<u>Results</u>
1	20	Du Pont	Still well lubricated — no rust evident.
2	410	"	Still well lubricated — no rust evident.
3	12	"	New rust spots on receiver (it appears someone wiped the outside of the receiver dry). Still well lubricated — light film on magazine tube by gas cylinder. High number of rounds on this gun.
4	12	"	Still well lubricated — no rust evident. High number of rounds on this gun.
5	12	"	Still well lubricated — no rust evident. High number of rounds on this gun.
6	410	711	Still well lubricated — no rust evident.
7	28	"	Lubricant is starting to dry out on magazine tube — gas cylinder and piston seal are lightly rusted (worst sample of rust — interior).
8	12	"	Rust on front area of magazine tube ahead of gas cylinder and on outside of gas cylinder — magazine tube has a very sticky film by gas cylinder area. High number of rounds on gun (worst sample of sticky film — interior).
9	12	"	Still well lubricated — no rust evident.
10	12	"	Still well lubricated — no rust evident. (A spot of rust on barrel at vent rib.)
11	28	CRC	Still well lubricated — no rust evident.
12	20	"	Still well lubricated but somewhat drier in appearance — no rust evident — gun is very dry but still functionable.
13	12	"	Still well lubricated — no rust evident. Moderate number of rounds on gun.
14	12	"	Lubrication starting to dry out on magazine tube at gas cylinder area. — some light rust inside gas cylinder. moderate number of rounds on gun.
15	12	"	Still well lubricated — no rust evident. High number of rounds on gun.
16	12	Du Pont	Still well lubricated — no rust evident. Starting to dry out a little — high number of rounds on gun (it appeared this gun had been shot the most).