

## APPENDIX

MATERIAL AND HEAT TREATMENT INFORMATION

Parts of the mechanism tested were made of materials and given the heat treatment as shown below:

| <u>Name</u>        | <u>Drawg. No.</u> | <u>Treatment</u>                                                                                                      |
|--------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| Barrel             | D-101-Y           | Steel - AISI - 4135<br>Quench from 1600° into oil<br>Draw - 1100° - 1170°F - 2 hours                                  |
| Barrel Bracket     | A-571-X           | AISI C-1118 - no heat treatment                                                                                       |
| Bolt Body          | B-250-X           | Steel - BE-5620 - Normalized & annealed<br>Quench from 1550 in oil from cyanide,<br>30 min.<br>Draw 325°F - 1.5 hours |
| Bolt Head          | B-325-X           | Steel - BE-5620<br>Quench from 1550 in oil from cyanide,<br>30 min.<br>Draw 325°F - 1.5 hours                         |
| Bolt Handle        | C-125-X           | AISI C-1118 - no heat treatment                                                                                       |
| Bolt Handle Ball   | C-751-X           | AISI C-1118 - no heat treatment                                                                                       |
| Bolt Plug          | C-121-X           | AISI C-1118 - Nitro Blank                                                                                             |
| Bolt Stop          | B-321-X           | BE-5620<br>Quench in oil from cyanide at 1550°F<br>Draw 300° for 1 hour                                               |
| Bolt Stop Follower | AF-B-6            | X-1112 C.D. - no heat treatment                                                                                       |
| Bolt Stop Pin      | A-738-X           | #3 Pin Wire<br>Quench in oil from 1450°F (Neutral Salt)<br>Draw 900°F nitro for color & water seal                    |
| Ejector            | A-27017           | #3 Pin Wire<br>Quench in oil from 1450°F (Neutral Salt)<br>Draw 900°F in nitro, air cool                              |
| Ejector Pin        | A-103-X           | #3 Pin Wire<br>Quench in oil from 1450° (Neutral Salt)<br>Draw 300 - 350 for 20 min, water cool                       |
| Ejector Washer     | A-745-X           | BE-5620 - Steel<br>Quench from 1550° in oil. No draw.                                                                 |

Induction brace Bolt Body to Bolt Head and Bolt Handle to Bolt Body and Bolt Handle to Bolt Handle Ball with "FAST FLOW", keeping Bolt Head lugs and cocking cam cool.

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| <u>Name</u>                                                                                                                                                                                                                                                                                                                                                          | <u>Drawg. No.</u> | <u>Treatment</u>                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Extractor                                                                                                                                                                                                                                                                                                                                                            | B-323-X           | AISI C-1095 Steel Strip                                                                                                             |
| <p>A. Original treatment - Quench in oil from 1425/1450 (neutral salt). Draw 600° in Nitro for 20 min. (water cool). This treatment found unsatisfactory. Therefore, the following treatment was subsequently used.</p> <p>B. Quench in nitrate-nitrite salt at 600°F from 1450°F. Hold in salt for 30 minutes. Re hardness 71-74. (R-30N Scale should be used).</p> |                   |                                                                                                                                     |
| Firing Pin                                                                                                                                                                                                                                                                                                                                                           | B-311-X           | Steel AISI C-1137<br>Quench from 1525 into oil<br>Draw 600°F for 30 min.                                                            |
| Firing Pin Head                                                                                                                                                                                                                                                                                                                                                      | B-322-X           | AISI C-2116<br>Quench in oil from 1600°F (Cyanide for 15 min.)<br>Draw 350°F for 1 hour in muffle furnace                           |
| Front Sight                                                                                                                                                                                                                                                                                                                                                          | 177               | AISI C-1113 - Nitro Black                                                                                                           |
| Front Sight Ramp                                                                                                                                                                                                                                                                                                                                                     | A-245-X           | AISI C-1113 - no heat treatment                                                                                                     |
| Follower                                                                                                                                                                                                                                                                                                                                                             | C-150-X           | AISI C-1020 - no heat treatment                                                                                                     |
| Guard Screw, Rear                                                                                                                                                                                                                                                                                                                                                    | A-748-X           | AISI C-1118 } Quench in water from                                                                                                  |
| Guard Screw, Front                                                                                                                                                                                                                                                                                                                                                   | A-749-X           | AISI C-1118 } cyanide at 1600 - 15 min<br>Draw 900 to Nitro Black                                                                   |
| Housing                                                                                                                                                                                                                                                                                                                                                              | C-144-X           | AISI C-1118 C.R. Strip annealed<br>Quench in oil from 1600°F (cyanide for 15 min.)<br>No draw.                                      |
| Magazine                                                                                                                                                                                                                                                                                                                                                             | C-145-X           | AISI C-1020 - no heat treatment                                                                                                     |
| Open Sight Base                                                                                                                                                                                                                                                                                                                                                      | A-227-X           | AISI C-1118 - Brazed on eight leaf with brass                                                                                       |
| Plug Screw                                                                                                                                                                                                                                                                                                                                                           |                   | AISI C-1113 - Nitro Black                                                                                                           |
| Receiver                                                                                                                                                                                                                                                                                                                                                             | D-97-X            | SAE 5620 - Steel C.R. Portrate for color<br>Quench from 1550 in oil from cyanide - 15 min.<br>Transfer only 2" of front end in salt |
| Safety                                                                                                                                                                                                                                                                                                                                                               | C-136-X           | AISI C-1020 C.R.<br>Quench in oil from 1550 cyanide 10 min.<br>Portrate for color                                                   |

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| <u>Name</u>           | <u>Drawg. No.</u> | <u>Treatment</u>                                                                                         |
|-----------------------|-------------------|----------------------------------------------------------------------------------------------------------|
| Safety Pin Pivot      | A-737-X           | AISI C-1113 - no heat treatment                                                                          |
| Safety Snap Washer    | A-736-X           | AISI A-1350<br>Quench in oil for 1500°F (Cyanide for 10 min.)<br>Draw 800°F for 30 min. in nitre         |
| Sear                  | C-119-X           | AISI C-1118<br>Quench in oil from 1600°F (Cyanide for 15 min.)<br>No draw                                |
| Sear Pin              | A-728-X           | #3 Pin Wire<br>Quench in oil from 1450 (Neutral Salt)<br>Draw 900°F in nitre 10 min., water cool         |
| Sight Leaf (Open)     |                   | AISI A-1350<br>Quench in oil from 1500°F (Neutral Salt)<br>Draw 800°F for 30 min.                        |
| Trigger               | C-120-X           | AISI C-1118 C.R. Strip Annealed<br>Quench in oil from 1600°F (Cyanide for 15 min.)<br>Pentrate for color |
| Trigger Guide Plate   | B-318-X           | Nitre Black - AISI C-1020                                                                                |
| Trigger Adjust. Screw | A-743-X           | AISI C-1113 - no heat treatment                                                                          |
| Trigger Spring Screw  | A-735-X           | AISI C-1113 - no heat treatment                                                                          |
| Trigger Stop Screw    | A-742-X           | AISI C-1113 - no heat treatment                                                                          |
| Trigger Guard         | C-147-X           | AISI C-1020 - 1/4 hard strip - pentrat for color                                                         |
| Trigger Pin           | A-729-X           | #3 Pin Wire<br>Quench in oil - 1450°F (Neutral Salt)<br>No draw                                          |

The above heat treatment is performed after base has been brazed on. Base is brazed on with high melting brass (1700-1750°).