cc: W. R. Googin

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M. H. WALKER

M/40X SEAR AND CONNECTOR HARDNESS

Due to complaints on chipping and undue wear on mating surfaces of Sear and Connector, an investigation was conducted to attempt to find the possible cause.

Process calls for cyanide hardening of these parts. Hardness is file hard; and readings are on the R15N scale 80 to 90. Readings were taken on standard production Sear and Safety Cam Assemblies and Connectors and all were within specifications, running from 87 to 91.

Consulting with the Chem & Met Department, it was agreed to try a new heat treatment on these parts;- Micro-Carb at 1700 F for 2 hours @ .80C. Readings on these pieces also ran from 87 to 91 on the R15N scale.

The following four groups were set up to be run on the dry cycle machine:

1. Standard M/700 - Standard Heat Treat
2. Standard M/40X - Standard Heat Treat
3. Standard M/40X - New Heat Treat (no chrome)
4. Standard M/40X - New Heat Treat (chrome)

Each set-up was run 10,000 cycles on the machine. At 1000, 2500, 5000, 7500 and 10,000 cycles, each part was taken out and observed under the microscope for signs of wear and chipping or burring. The first run through was set up with an engagement of .025 to .050 between Sear and Connector. The test was then re-run setting up production engagement of .015 on the M/700 and .007 on the M/40X.

The attached sheets convey this information; however, the writer feels there is no significant difference between the heat treats; also, providing our specifications are held, the wear should be negligible.

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