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Est. #4157

File XP-100

June 3, 1980

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Reference: R&D Forming and Loading of the 7MM BR.

A study has been performed to determine daily output of the forming and loading of the new 7mm BR cartridge for the XP-100 production needs in the Dept. 85 Gallery. It is estimated that an experienced operator, using current methods, could form and load 115 cartridges per day. Standard at this rate would be 6.609 hrs/c for both forming and loading. This works out to 2.5 minutes to form and 1.66 minutes to load each individual cartridge.

Using the following equation, it was estimated that 422 shells could be produced by two men per day. At an effectiveness of 85% it would be about 358 cartridges net per day.

X = 2.5 minutes per round (time needed to form)
Y = 1.66 minutes per round (time needed to load)

$$\frac{456 \text{ (minutes/day)}}{1(2.5) + 5(1.66)} = \text{Quantity of shells produced/day.}$$

$$\frac{456}{10.8} = Q$$

$$42.2 = Q$$

42.2 x 5 (utilization of shell) = 211/day
211 x 2 men = 422/day @ 85% eff. = 358 cart./day

At the above rates, 1/4 of the day would be used to build a bank towards November's anticipated date of the first shipment of 7mm BR's. The remaining 3/4 of the day would be needed to sustain current production. Using these rates, 3000 rounds could be banked from June 1 to August 31. This amounts to only 10 days production.

By using alternate methods (i.e., accurate charging device to eliminate individual unit weighing and a lathe cutoff for forming and chamfering to help eliminate hand operations), it may be possible to get an estimated increase in production from 358 to almost 500 rounds per day. At this rate, a bank of 36 production days could be built up from June 1 to August 31.

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