

Nature of Problem:

To develop high velocity armor piercing projectiles for 90, 76, 75 and 105 mm cannon and carry out production engineering preparatory to manufacture.

Summary of Progress from Inception:

Original designs by University of New Mexico tested and found inadequate. New design developed and carried through preliminary tests.

This Quarter's Work:

Remington design of 90 mm projectile has shown velocities approximately 50% higher than standard projectiles. Performance on armor penetration is good. Accuracy is not quite up to the desired level. Further modifications now being built.

Proposed Next Quarter's Work:

Work being confined to 90 mm and 76 mm sizes. Further design modifications being prepared for test. Detailed process to be laid out on completion of successful design.

Project: Investigation of .22 Caliber Chambers - TP-3384

Personnel: H. W. Young, Gun Design Unit

Authorized Amount: \$2,500 Total Expended to Date: \$2,166

Nature of Problem:

To determine the feasibility of the use of a tapered chamber to eliminate the use of the slip chamber as used in the Model 550.

Summary of Progress from Inception:

A range of chambers was designed and various barrels were equipped with different chambers within this range. Testing was done in a converted Model 550 rifle. Satisfactory functioning was obtained in a fairly wide range of dimensions, but did not include a chamber now used in the Model 37 rifle. Indications are that the chamber which does provide satisfactory autoloading operation can be used in other Remington .22 caliber models, with the probable exception of the Model 513-T.

This Quarter's Work:

Testing indicates that the chambers must be heat treated to eliminate erosion affecting functioning where a large number of rounds are fired.

A test involving 7000 rounds of gallery shorts eroded the chamber to such an extent that Long Rifle High Speed cartridges malfunctioned in that they swelled under the head and some of them burst at this point.

Proposed Next Quarter's Work:

Try out the chamber in other Remington .22 rifles (not including Model 37 and Model 513) to determine its effect on ac-