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October 13, 1975

PETERS CARTRIDGE DIVISION
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FINDLAY,
CABLE—HARTLEY, B

Mr. Timothy M. McCoy
Route #3 364
Blacksburgh, Virginia 24060

Dear Mr. McCoy:

Our Fred Martin informed me of your telephone call with regard to your problem in reloading your 6mm Model 700 Rifle.

With reference to the ring at the rear of the case, the rifle chambers are made to certain tolerances, and the cartridges are made to tolerances which are such that the max. cartridge will fit the min. chamber. Thus, with all guns, there is a clearance between the cartridge case and the chamber. This is the principal reason for using a brass case, since the brass case expands under pressure and seals the chamber, preventing the gas from escaping between the cartridge wall and the chamber wall.

The ring, or expansion, you see on your fired case comes at the point where the cartridge case goes from the heavy brass section to the drawn body wall section. This is also the area which stretches when the rifle is fired, as the front shoulder sets against the front of the chamber and the base grows against the bolt face. The cartridge expands in all directions, the front thin wall section seizing against the chamber, the head pushing back against the bolt face. This is why the annular ring develops when the gun is fired. To minimize working this area when reloading for a given rifle the cases should be just neck sized, as the body has already been formed to the given chamber.

Fred is on vacation this week and the above is the problem as I understand it. I hope the information will help you to clarify your given situation.

Sincerely yours,

John P. Linde
John P. Linde
Manager - Manual Firearms Design
Milton Research Division

JPL:T