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TECHNICAL NOTE 2: TITANIUM FIRING PINS CONSIDERED GENERALLY USELESS

PURPOSE: The purpose of the Technical Note is to review the merits of commercially marketed firing pins made of titanium.

FACTS:

1. Titanium firing pins are intended to reduce lock time; the time between release of the hammer and ignition of the primer. Theoretically, faster ignition of the shot allows less time for disturbance of the rifle.

2. Because titanium is lighter than the steel normally used in the production of firing pins, it has less inertia: a titanium firing pin is accelerated faster than a steel firing pin when struck by the hammer. This theoretically results in the firing pin striking the primer faster than a steel firing pin would. Lightweight firing pins or strikers have been used with bolt action rifles for many years.

3. Movement of the firing pin of the M16 type rifles is, however, only a very small part of the lock time of the rifles. Lightening the firing pin produces virtually no improvement in lock time. No engineering or experimental data has been provided which supports a change to titanium firing pins.

4. Titanium is strong, but doesn't handle impact well. For this reason alone it is less suitable than steel for use in firing pins.

5. Titanium is lighter than steel. The steel firing pin retains a slight momentum as the bolt carrier closes. This momentum normally causes the primer to be lightly indented by the firing pin, and can cause slamfire if the primer is overly sensitive. A titanium firing pin has less momentum, causes less indent, and reduces the possibility for slamfire.

RECOMMENDATION: Demand engineering test data to support claims of accuracy improvement of any sort. We conclude that the titanium firing pin is one of many fad items separating shooters from money otherwise better spent, and recommend against them. A titanium firing pin can reduce the (already) slight possibility of slamfire. ArmaLite does not sell titanium firing pins.

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