



January 4, 2010 Rev 2

TECHNICAL NOTE 68: TUNING THE ARMALITE TACTICAL TWO-STAGE TRIGGER

GENERAL:

The ArmaLite® Tactical Two Stage Trigger is extremely smooth, stable, and *very* flexible. It may be used as a tactical two stage trigger mechanism with the safe, smooth 6 to 7.5 pound weight desired by police departments or tuned to a smooth, crisp National Match Trigger.

The purpose of this Technical Note is to expand on Technical Note 78, **INSTALLATION OF ARMALITE'S® TWO STAGE TRIGGER SET (TACTICAL TWO STAGE TRIGGER SET P/N 10309000, AND NATIONAL MATCH TWO STAGE TRIGGER SET P/N 10309050)** to advise Gunsmiths on the proper tuning of the trigger.

DESCRIPTION:

ArmaLite's® new trigger mechanism consists of two main components:

- A **hammer assembly** featuring sear surfaces raised up the hammer body to reduce the heavy pressure placed on the standard M16 sear surfaces.
- A **trigger assembly** bearing a unique disconnecter with three settings for the disconnecter spring. The settings allow approximately one pound of trigger weight adjustment. The trigger features a raised stop at the rear that may be reduced in order to increase overtravel.



FEATURES:

The ArmaLite® Tactical Two Stage Trigger is a sophisticated device that provides:

- Simple installation.

- Smooth first and second stage.

- Adjustable trigger weight available by selection of disconnect spring setting and simple spring tuning.

- Easily trimmed second stage for the crisp let off desired by many target shooters without the need to periodically readjust screws.

- Deep sear engagement for long life and safety.

- Flexibility in a safe 6 to 7.5 pound weight of pull for tactical users, yet tunable for the lighter weight desired by competitive shooters.

- Backup searing surface for safety in case of total sear loss.

- Long life. There are no adjustment screws to shift during use or allow maladjustment by users. The hammer pin is retained by a reliable D-ring instead of the fragile J-wire of standard hammers.

- Virtually no need for backlash or overtravel adjustment. A raised stop at the rear of the trigger may be lowered to increase “overtravel” (the distance the trigger moves after the hammer is released).

- Positive Hammer/trigger engagement; the hammer actually draws the trigger into safe engagement just like the MIL SPEC trigger to increase drop safety.

No competing trigger mechanism offers the redundant safety features and tamper-resistance of the ArmaLite Tactical Two Stage trigger.

INSTRUCTIONS:

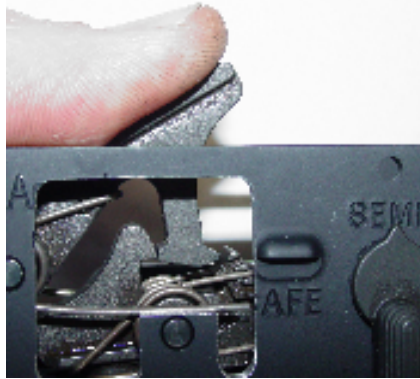
Install the Tactical Two-Stage™ Trigger Mechanism as instructed in Technical Note 78, **INSTALLATION OF ARMALITE'S® TWO STAGE TRIGGER SET (TACTICAL TWO STAGE TRIGGER SET P/N 10309000, AND NATIONAL MATCH TWO STAGE TRIGGER SET P/N 10309050)**

Note: The hammer pin is held in the receiver by a D shaped ring on one side of the hammer. The end groove of the hammer pin MUST be placed on the same side of the hammer as the D ring or the hammer pin will slip out of position and cause a failure to fire.

Allow the trigger to break in with approximately 500 rounds of live or dry firing. There should be a slight amount of “creep” in the second stage. (If not, no tuning is needed.)

1. If tuning is needed, much of it is performed with the trigger mechanism installed in the lower receiver; removal of the hammer is not needed unless springs are to be shifted or altered.

The trigger pull is divided into two regions: the first and the second stages. The first stage is slack. The second stage is initiated when the rear hook of the hammer contacts the top of the disconnecter and starts to compress the disconnecter spring as the trigger is pulled further. The added resistance of the trigger spring creates the second stage. Shortening the rear hammer hook to reduce the distance the disconnecter is compressed decreases the length of the second stage to the point that no creep is detectable.



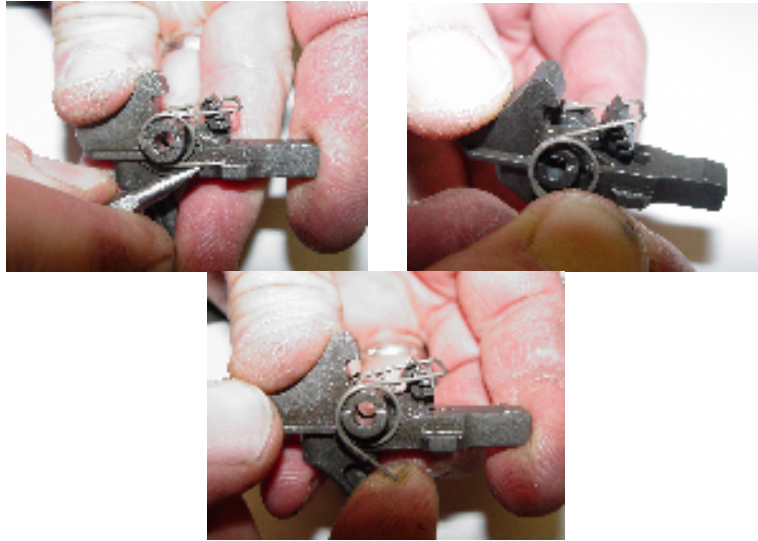
2. To reduce the length of the second stage, cement or otherwise attach a 5/16 inch thick shim to ½ inch wide fine Arkansas stone. Set the shim on the tip of the hammer, with the stone resting on the top hook of the hammer. The shim assures that the angle of the cut on the hammer hook is correct. Stone the hammer hook VERY slightly; only a thousandth or two. Check for second stage creep and cut a little more if you detect creep. Several repetitions may be needed before any change is noticed. From this point only a few thousandths of cut is needed. Assure that top and bottom edges of your shiny cut across the hammer hook are parallel. If they aren't, the cut is crooked. As soon as the second stage is *virtually* undetectable with a NORMAL trigger pull technique, stop cutting. No further tuning is needed. During use, the slight amount of second stage creep remaining will decrease.



3. Took too much off? You know you've stoned too much if there is no second stage or if the trigger catches on the microscopic radius on the hammer hook and doesn't return to the forward position when released during the safety check (see below). If so, you will probably need to replace the hammer and try again.

4. Adjust the trigger weight if lighter weight is desired.

Start by adjusting the spring on the disconnecter. The disconnecter of the ArmaLite trigger has three tabs on each side. The disconnecter spring is normally set to the middle setting. The legs of the disconnecter spring may be lifted off the hubs of the trigger to shift the closed end of the spring up or down a single position. Raising the spring one position reduces the weight of the trigger pull by approximately 6 to 8 ounces. Lowering the spring one position increases the trigger pull. Setting the disconnecter spring on the top position results in the lightest weight.



Finish by reducing the strength of the disconnecter spring slightly. With the trigger assembly in hand, take a small flat head screwdriver and push the leg of the disconnecter spring straight up until the end is even with the top notch of the disconnecter.



Release the leg of the spring and ensure it is set on the trigger shelf. Repeat on the opposite leg of the spring and reinstall the trigger to test for trigger pull weight. If a lighter weight is still desired, repeat the process but try bending the spring upward even more on each side until the leg of the spring has cleared the top of the disconnecter. Reinstall and once again check the trigger pull weight.

Note: DO NOT SET THE TRIGGER PULL WEIGHT BELOW 4.5 LBS! While the disconnecter spring may be altered by bringing the leg upward, it cannot be bent downward without distorting the coils of the spring.

5. Adjust the overtravel if needed. Overtravel is the distance the trigger travels after the hammer is released. Some shooters prefer more overtravel than others. Because the ArmaLite system is factory-built for minimal overtravel with most rifles, the trigger may actually fail to release the hammer in some receivers with slightly different dimensions. In such a case, remove the trigger system and note the small bump on the top rear of the trigger. This is the overtravel stop. It contacts the safety to stop the rearward movement of the trigger. To increase the overtravel to suit the tastes of the user or to allow the mechanism to release better, simply file or stone the overtravel stop down just a few thousandths of an inch, then reinstall and retest the mechanism until the hammer releases properly.



When the overtravel is adjusted correctly the hammer will not contact any part of the trigger after release.

Damage to the trigger mechanism due to installer error is not covered by warranty.



WARNING: WHEN YOU HAVE COMPLETED FINAL INSTALLATION OF YOUR TRIGGER SET, CONDUCT THE FUNCTIONAL CHECK DESCRIBED IN PARAGRAPH 6 BELOW.



CAUTION: NEVER DRY FIRE YOUR RIFLE WITHOUT THE BOLT CARRIER ASSEMBLY INSTALLED. THE FIRING PIN STOPS THE FALL OF THE HAMMER. WITHOUT THE BOLT CARRIER ASSEMBLY INSTALLED, THE HAMMER COULD IMPACT ON THE LOWER RECEIVER, DAMAGING BOTH.



WARNING: FOLLOW ALL OF THE RULES OF SAFE GUN HANDLING ANYTIME YOU DRY FIRE YOUR FIREARM.

6. Conduct a Functional Check

- a. Remove the magazine and visually inspect the chamber to assure that it is empty.
- b. Pull the charging handle to the rear and then manually return it forward.
- c. Place the safety on "SAFE". Squeeze the trigger. The trigger should not fall.
- d. Place the safety on "FIRE". Squeeze the trigger and hold the trigger to the rear; the hammer should fall. Pull the charging handle to the rear and release it. Release the trigger. You should hear a click as you release the trigger. Squeeze again; the hammer should fall.

**CALL ARMALITE® AT (309) 944-6939 IF YOUR RIFLE FAILS
EITHER TEST.**

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