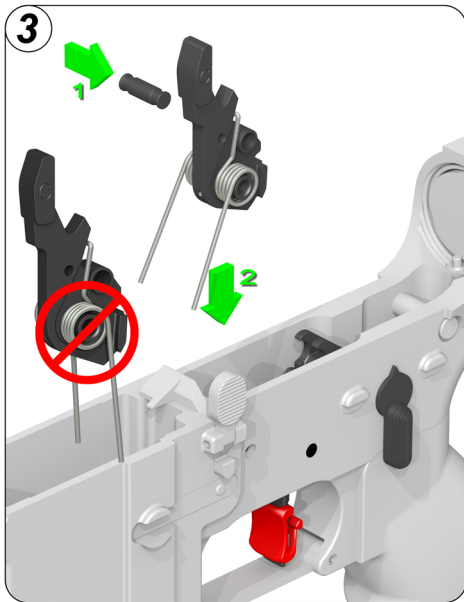




PROBLEM: No Hammer Fall Scenario #1

1) The hammer does not fall when the trigger is pulled when the gray (plain) toggle springs are installed; but, nudging the hammer will cause it to fall. When the Blue or Yellow toggle springs are installed, the hammer falls when the trigger is pulled, but only results in light firing pin strikes that fail to touch off the cartridge primers in some or most cases, independent of ammunition manufacturer.

The hammer spring is installed backwards. See Figure at left showing correct and incorrect hammer spring installations.

REMEDY: Install the hammer spring correctly.

PROBLEM: No Hammer Fall Scenario #2

The hammer does not fall when the trigger is pulled when any of toggle spring pairs are installed when the upper receiver is closed down onto the lower receiver. When the upper is opened and the trigger is pulled, the hammer will fall.

This has occurred with some old AR rifles and more recently in some of the DPMS 308-LR rifles. Some of these rifles do not meet the modern accepted spec for the AR platform. In these cases, the ends of the toggle spring shafts hit the underside of the upper because they extend beyond the upper surface of the lower when the hammer cycles between cocking and hammer fall and cause binding. When cocking, the force of the BCG can push the shafts past binding by the force of round ejection. However, during hammer fall, the spring force is not enough to cause it to unbind.

REMEDY: Remove a little material from the ends of the shafts that cause binding, or remove a little material from the underside of the upper with a Dremel tool. You should be able to see where the shafts are striking as they will leave marks.

PROBLEM: No Hammer Fall Scenario #3

The hammer does not fall when the trigger is pulled when any of toggle spring pairs are installed, or it falls with a little from your finger to get it going.

This occurs when an installation detail is missed. The MIL-spec hammer pivot pin's middle groove does not receive the hammer J-spring. So, the hammer's J-spring can push against the pivot pin causing the hammer to bind on the pivot pin during rotation, limiting free movement.

REMEDY: Reseat the hammer pivot pin so that it is seen or sounds to snap in place.

PROBLEM: Hammer Light Strikes

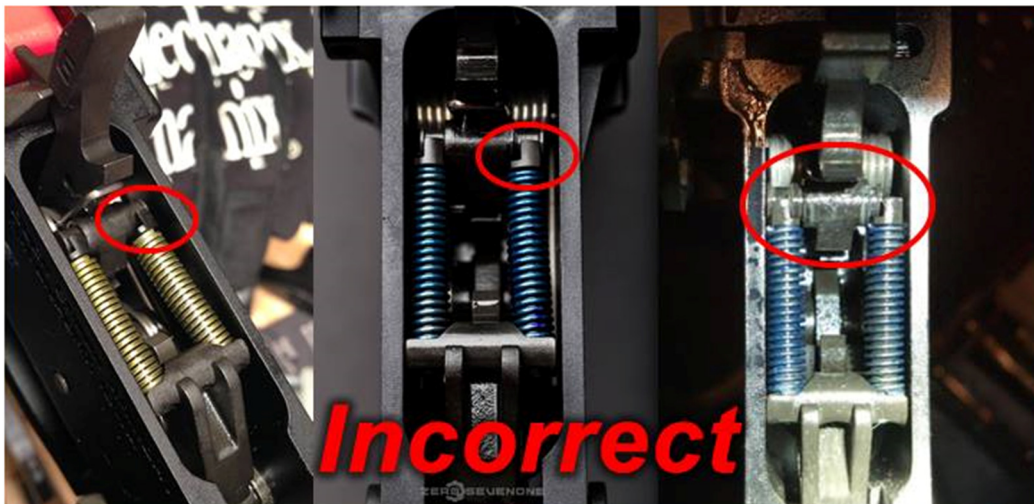


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Hammer fall results in light strikes some of the time when using domestic primers but more often on MIL or foreign primers when any of the three toggle spring pairs are installed.

The MIL-spec pivot pins supplied with the product are not installed. Instead, the user installs aftermarket anti-rotation or anti-walk pins that inhibit free rotation of the hammer in some way because 1) their diameters are greater than 0.154-inches; 2) they do not have a groove to receive the hammer J-spring; 3) they are worn out.

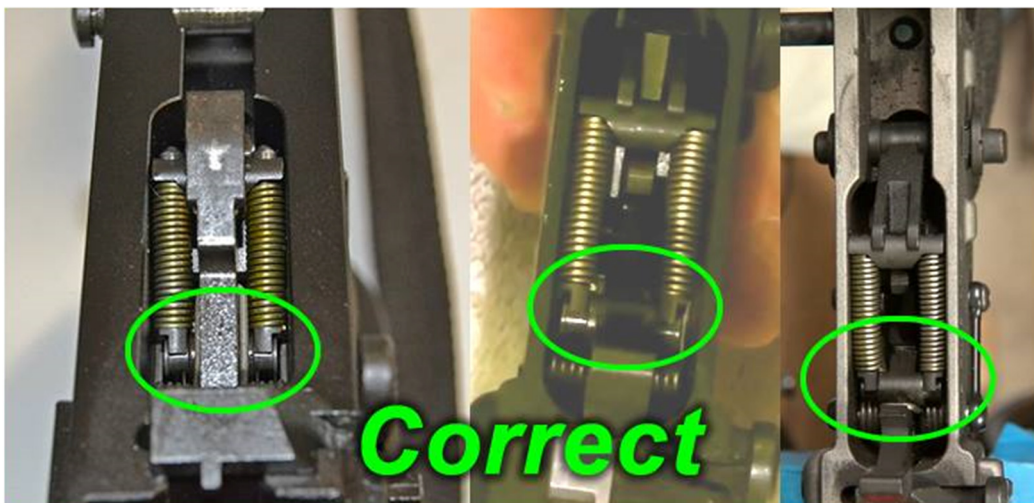
REMEDY: Install the FCG with the pins supplied with the product so that the preferred high energy hammer fall is experienced as the baseline. Install other after-market pins only if their impact on performance does not degrade from the baseline installation.



PROBLEM: Trigger Weight Is Too Light

The trigger pull weight measures very light, 1½ lbs or lighter, with one or any of the toggle spring pairs installed.

1) The trigger weight measuring device is not calibrated, defective, or misused. 2) The hammer spring is installed backwards (see No Hammer Fall). 3) Anti-rotation or anti-walk pins were installed instead of the MIL-spec pins supplied with the product (see Hammer Light Strikes). 4) The toggle shafts that guide the toggle springs are installed incorrectly and bind, reducing sear pressure therefore reducing pull weight. 5) The hammer spring's legs don't sit on top of the trigger pivot pin, but rest underneath the



pull weight. 5) The hammer spring's legs don't sit on top of the trigger pivot pin, but rest underneath the

pin on the cavity floor, reducing hammer spring force, which reduces trigger sear friction and pull weight.

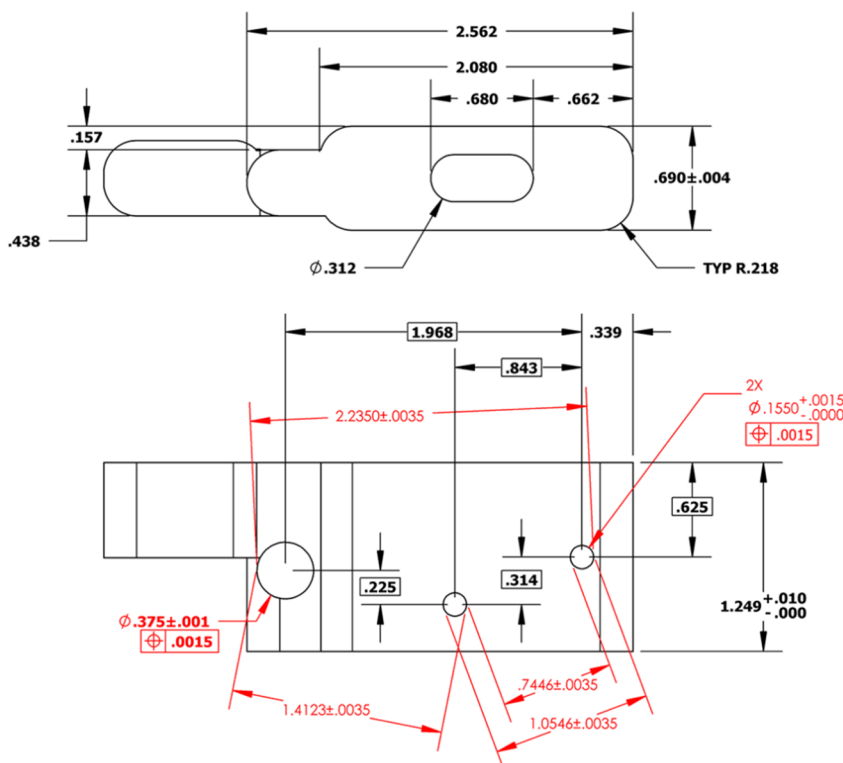
REMEDY: 1) Verify the trigger weight instrument is measuring correctly or measure with another device. 2) Reinstall the hammer spring correctly. 3) Remove the anti-rotation or anti-walk pins and the MIL-spec pins supplied. 4) Reinstall the toggle pivot shafts correctly. 5) Reinstall the hammer with the hammer spring legs resting on the top of the trigger pivot pin.

PROBLEM: Trigger Feel Is Gritty

The trigger makes noise when the hammer is cocked manually during dry fire and/or the trigger feel is "gritty."

1) Installation includes anti-roll or anti-walk pins (see Hammer Light Strikes) causing the trigger to bind at its pivot or the force on the sear is too high. 2) The FCG is fouled by debris or a blown primer cup. 3) The trigger slot hole in the bottom of the receiver has a burr or is not centered, so the trigger rubs one or the other side.

"AR10" and "AR15" Fire-Control Cavities



REMEDY: 1) Remove the offending after-market pivot pins and install the product's MIL-spec pivot pins or after-market pins that are compliant with MIL-spec and the hammer J-spring. 2) Remove and thoroughly clean the trigger components of debris and apply a lubricant that does not attract debris. 3) Open up the receiver's slotted trigger hole with a file, Dremel tool, etc. to eliminate the interference with free trigger movement or reinstall the trigger in a different lower that is in-spec.

PROBLEM: No Hammer Reset

After taking a shot, the hammer does not reset when the trigger is fully let-off.

1) The lower receiver pivot pin spacing is too close together, or the lower receiver's pivot pin holes are worn out (diameters too large,



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or oblong) preventing disengagement of the semi-auto disconnecter's sear with the hammer's secondary sear. See the Figure at left showing the in-spec FCG fire control cavity and pivot holes spacing dimensions. 2) The pistol grip screw is too long. It prevents the trigger from rotating fully forward at the trigger bow because the rear underside hits the protruding pistol grip's attachment screw. 3) Debris is in the FCG cavity (small bits of gravel, blown primer cups, shards of cartridge brass, etc.) preventing the trigger from rotating fully forward, because of an obstruction along the trigger's rear underside.

REMEDY: 1) Inspect the lower for dimensional compliance and/or substitute an in-spec lower for installation. 2) Replace the over-long grip screw with a shorter one, or file the end back to eliminate the obstruction and reinstall. 3) Clean out the large scale debris in the lower's FCG cavity.

PROBLEM: Rifle Doubles

Occasionally the rifle will "double," or after a few thousand rounds, it begins to "double."

1) The lower receiver pivot pin holes' dimensional spacing may be out of spec on the high side at manufacture, or become high due to excessive wear, causing unreliable retention of the hammer by the disconnecter during hammer cocking (see Figure on previous page). 2) The rifle is not gripped securely by the shooter at the pistol grip causing the hammer to reset during rifle recoil and unintended repeat fire when the rifle then rebounds relative to the more or less stationary trigger finger, commonly called "bump fire." 3) Over time, because the pull weight is light and smooth, the shooter depends less on conscious and deliberate trigger pull and more on reflexive action where the shooter's muscle memory contracts the pull stroke length (because it can), which in turn leads to inadequate engagement of the hammer's secondary sear by the semi-auto disconnecter sear causing "bump fire." 4) The rifle "slam fires" because the bolt carrier group is of the "low mass" variety and/or the recoil buffer spring is too stiff causing high energy inertial collision of the firing pin with the cartridge primer.

REMEDY: 1) Inspect the lower for dimensional compliance and/or substitute an in-spec lower for installation. 2) and 3) Grip the pistol grip firmly or install a pistol grip that more completely engages the shooter's shooting hand, especially when shooting over barricades, weak hand, off bipods, or bags to prevent relative motion of the rifle with respect to the trigger finger; and/or do not stop trigger pull at break, but develop the discipline of deliberately pulling through the break to ensure adequate capture of the hammer by the disconnecter; and/or increase the trigger pull weight until "bump fire" ceases. 4) Go back to a stock recoil buffer spring and/or employ a standard-mass BCG and/or use ammunition with harder primers to prevent "slam fire."

PROBLEM: Rifle Bursts

Occasionally the rifle will "burst" (unintentional repeat fire beyond two rounds).

See Rifle Doubles, where all reasons can apply.

REMEDY: See Rifle Doubles, where all remedies can apply.

PROBLEM: Rifle Always Bursts

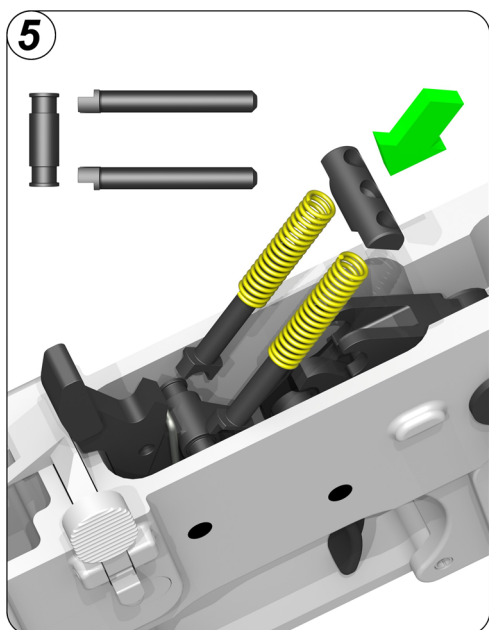
The rifle runs “full-auto” all the time. It stops sometimes when the trigger is let off completely or when the ammunition magazine is emptied.

1) The FCG has been installed in a “large pin” Colt lower receiver increasing the effective hammer and trigger pivot hole distance beyond the spec limits for semi-auto operation thus preventing capture of the hammer by the semi-auto disconnect. 2) The lower receiver’s pivot pin holes are severely worn. 3) The rifle slam fires ammunition with over “soft” primers, or old and defective primers.

REMEDY: *1) Remove the FCG from the Colt lower and install it in a “small pin” (0.154-inch diameter pivot pin) AR type lower receiver in good condition. 2) Replace the worn lower receiver with one in condition. 3) Stop using ammunition that “slam fires.” Use other ammunition from reputable domestic manufacturers, or run rifles with firing pin springs designed to prevent “slam fire,” like those found in some large caliber rifles 7.62/.308 for example) with heavier weight bolt carrier groups of large inertial mass.*

PROBLEM: Toggle Shafts Come Off

When the rifle is live-fired, the toggle shafts come off at the hammer and sometimes become lodged in the FCG bending one or both of the toggle springs, or worse.



The toggle shafts were installed incorrectly. See the photos above and the figure to the left for correct installation. The ends of the toggle shafts that fit onto the toggle spindle (installed in the hammer) are asymmetric in shape. The side cut, or shelf, must face outboard on both. If one or both face inboard, the shafts do not seat on the spindle and may push it to one side or the other with respect to the hammer and therefore only partially engage either or both toggle shafts. When the shafts are installed correctly, they are parallel. But, they can also appear parallel when installed incorrectly, so pay attention during installation. Hammer motion during live-fire is extremely fast. Improperly seated shafts are not held firmly in place by the toggle spring’s compressive forces and they will dislodge sooner or later with unpredictable results.

REMEDY: *Install the toggle shafts correctly so that they will not dislodge and the FCG will operate normally and reliably as designed.*

PROBLEM: No Hammer Fall, High Trigger Weight

The trigger weight is very high and the hammer will not release when the trigger is pulled no matter which pair of toggle springs are installed. Without the toggle springs, the trigger and hammer release seem to work just fine.



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The safety/selector is not installed. The toggle springs push the frame part to the rear (toward the butt stock) causing it to pivot off the trigger pin pushing it down against the rear upper surface of the trigger preventing complete rotation of the trigger to cause hammer release. This also makes the trigger weight uncharacteristically heavy.

REMEDY: *Install the safety/selector before installing the FCG. A first step in the installation manual sequence is turning the safety/selector to FIRE. That can not be accomplished if the safety/selector is not installed! When properly installed, the frame part is pushed against the barrel of the safety/selector stabilizing the toggle spring set up.*

PROBLEM: BCG Binds When The Rifle Is Charged

When the BCG is pulled to the rear by the charging handle motion is stopped about half way.

The hammer will not lie down because the trigger's bottom hits the front wall of the lower receiver's FCG cavity. This occurs because the distance between the wall and the hammer pivot hole is too close, i.e. not according to spec (see dimensioned cavity layout spec above). This is quite rare but unfortunately not rare enough.

REMEDY: *Uninstall the FCG and reinstall it in a different manufacturer's lower receiver. 2) Use a Dremel tool, or by other means, remove enough material from the front face of the lower receiver's FCG cavity at the location of hammer binding to allow the hammer to lie down completely. Remove material until a piece of paper can be pulled from between the wall and the fully depressed hammer. The top rear of the hammer head should almost touch the top of the HIPERTOCH® frame.*

PROBLEM: Hammer Binds When Fully Cocked

When the hammer is manually cocked for dry fire testing, the user can feel some resistance and sometimes hear a clicking or rubbing sound when the hammer is almost fully cocked, when it is pushed down to almost touch the HIPERTOCH® frame. The hammer will usually pop back up on its own when the pressure is removed.

The toggle shafts and toggle springs are installed incorrectly (not properly seated on the hammer spindle and/or not parallel) so that the horse shoe end of the hammer spring, lying against the hammer, contacts between the toggle spring pair, producing a force resisting further cocking. Sometimes the hammer binds in place and sticks.

REMEDY: *Reinstall the toggle spring pair correctly: the toggle spring shafts are properly seated on the hammer spindle and are parallel. Now, the hammer can be fully cocked with no resistance and will almost touch the HIPERTOCH® frame.*

PROBLEM: Hammer Cocks or Trigger Moves With A Rubbing Resistance



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When the hammer is manually cocked for dry fire testing a slight rubbing resistance is felt through the hammer or heard that is not due to hammer or toggle spring resistance. It can feel gritty.

See Hammer Light Strikes *where all reasons can apply*.

REMEDY: See Hammer Light Strikes *where all remedies can apply*.

Contact HIPERFIRE if other problems exhibit and no remedy can be found.