H&R/NEF Handi-Rifle Trigger Work

These instructions can be found at:
www.perkloafm.com

Email comments to: perklo@perkloafm.com

Warning and Disclaimer: Make sure that the firearm is unloaded before going further. Also, be aware that if you modify firearms from factory stock, you are likely voiding your warranty. If you can't afford to try this project as a learning experience, DON'T ATTEMPT IT. Important: NEVER, EVER HAVE LIVE AMMO of the caliber of the firearm you are working on IN THE SAME ROOM. Only inert "Dummy" rounds, "Action Proving" rounds or "Snap-Caps" should be allowed in your work area. Be SAFE, not sorry.

AND MOST IMPORTANT OF ALL – IF YOU AREN'T WILLING TO BEAR ALL THE LIABILITY AND RESPONSIBILITY OF CHECKING FOR SAFETY AND PROPER FUNCTION AFTER ANY TRIGGER WORK, DON'T ATTEMPT IT. YOU ALONE ARE LIABLE FOR ANY INJURY OR DAMAGE.

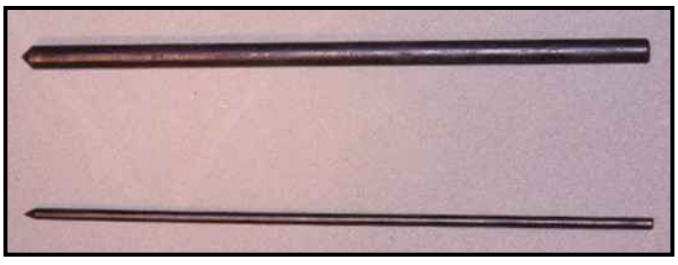
Part II - Lightening the trigger pull and reassembly.

Overview:

There is no magic to lightening the trigger pull weight on the Handi-Rifle. To bring the pull weight down to an acceptable 3.25 - 2.75 lbs all you have to do is a complete light polish and lubrication of the internals. Basically you are just overcoming the effects of friction on the rough finish of some factory parts. Only a small amount of smoothing on any one part is required to achieve an overall effect that is much better than the factory pull. It is essential that you don't just grind away at the internal parts; take care and read these instructions through completely before you begin. If done at the factory this handwork would add a quite a few dollars to the cost of these firearms and truthfully, for a majority of the intended market, the heavier trigger isn't an issue. However many shooters who discover how "handy" the Handi-Rifle is want to take performance to the level of a truly great hunting or target gun with a lighter trigger pull.

Here's a tip:

This next step is not necessary and can be skipped without affecting your results at all. I did it because I was going to do a bunch of Handi triggers and I wanted a better fixture for disassembly. I ordered two transfer punches from MSC Industrial for about two dollars each. Transfer punches are prick punches that come in exact sizes, in this case 3/32 and 3/16 like the two pin sizes used in the Handi action. I clamped my frame (padded) against a piece of 1/4" thick by 2" tall aluminum stock I bought at the hardware store. Then I ran the transfer punches through the frame and rapped them with my hammer to make exactly located marks to drill my slightly oversized holes (7/64 and 7/32). Sand the holes and the rest of the aluminum smooth when finished.



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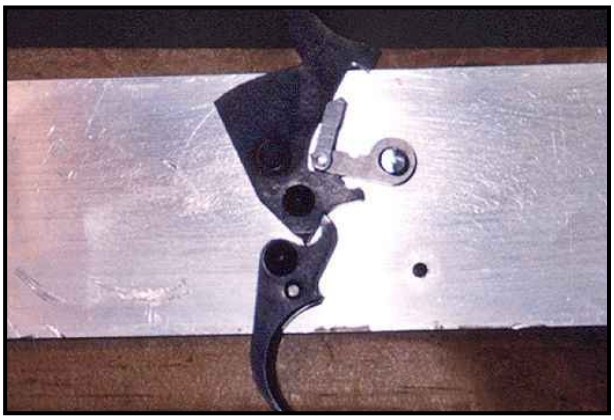
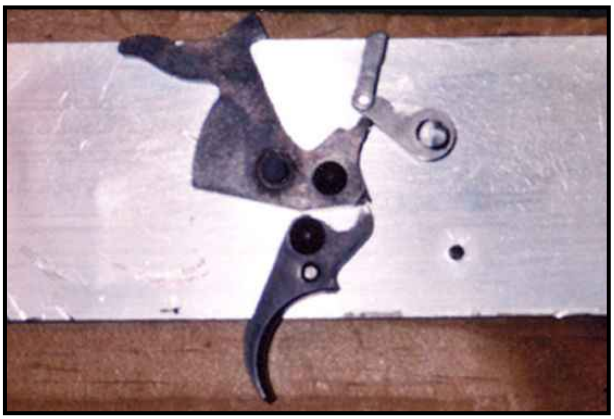
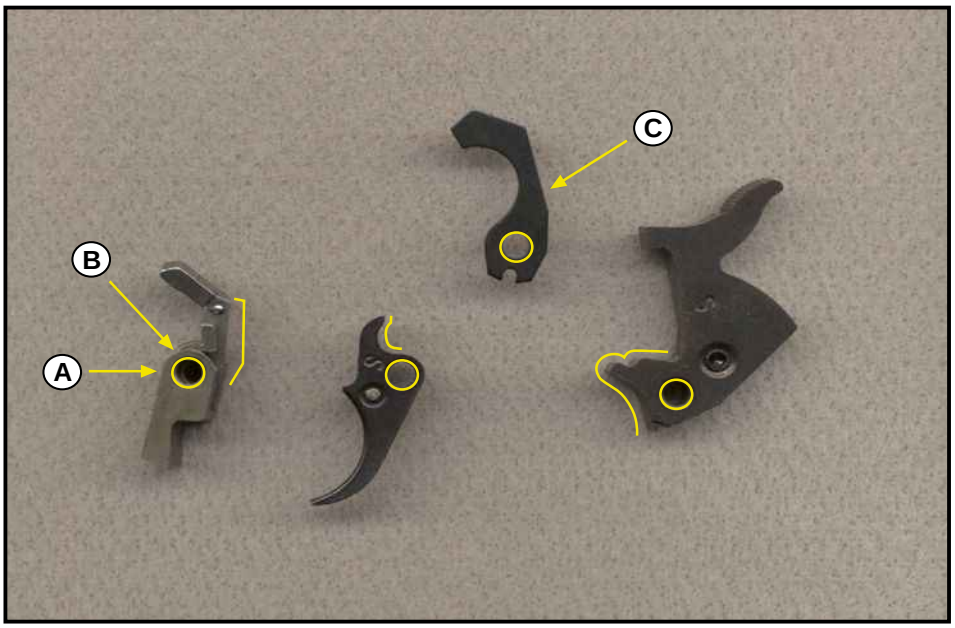
First, assemble your hammer, trigger and lifter/striker assembly on their 3/16 splined pins on the outside of the right side your frame. To obtain contrast for photography, I did the same using my aluminum fixture. The first photo below shows the parts in the “hammer down” postion - the second shows them at the “full cock” position. Moving them gently to avoid scratching your frame side, work your parts in the same way and pay close attention to how they bear on each other. These are the areas you must polish to ease friction in the trigger, hammer and action parts.





All pin holes, pins and bearing surfaces must be smoothed while taking care not to enlarge pin holes or reduce the pins they ride on by more than one or two thousandths of an inch. Any more than that and undesirable play and slop will creep into the trigger pull. The areas highlighted below in yellow will require polishing; the exact tools and methods best used will be shown in the pages that follow.



(A) Arrows indicate an area to polish that is out of view - in this case the slot in the barrel catch that the lifter is sitting in.

(B) This arrow indicates the “hole” area in the lifter that you can’t see.

(C) Arrow indicates the flat sides of the extension, including the back side that you can’t see. I only had to polish this part on one of the three Handi’s I worked, but do inspect it for rough spots.

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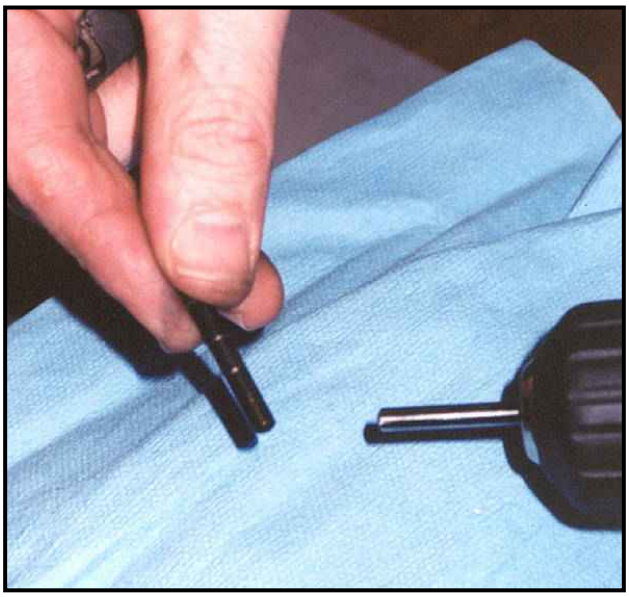
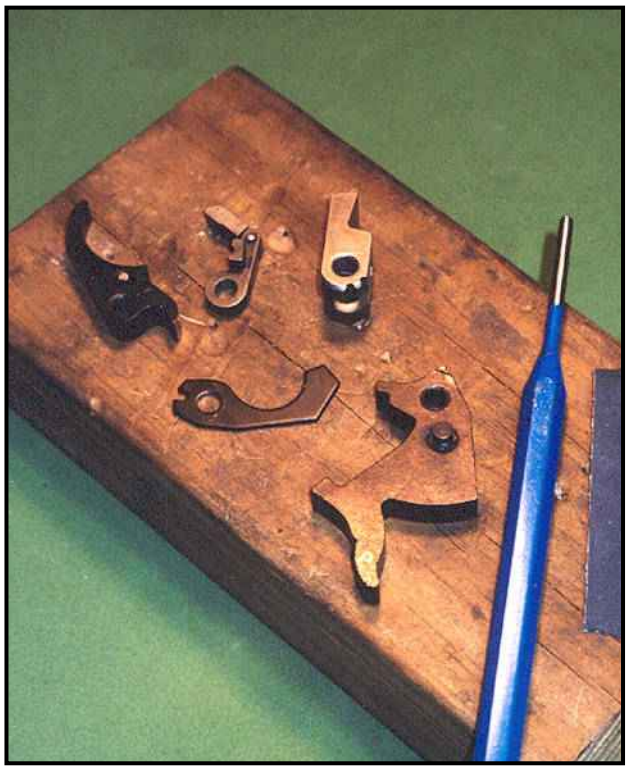
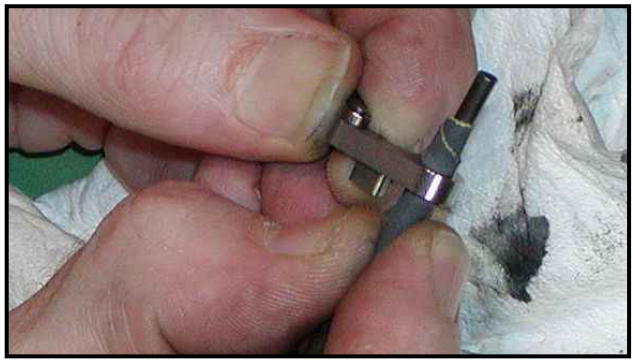
Polish all three 3/16 splined pins. Polish the pins by locking the splined end in a hand drill and spinning them in LIGHTLY held 600 grit wet sandpaper. Work the sandpaper back and forth so it doesn't stay in one spot. Note the two shiny rub marks from roughness of factory parts on the unpolished pin in my hand in the first photo below. This roughness is what we want to eliminate throughout the action.



Gauge your pins with calipers before polishing. Even if they don't get as shiny as the one in the photo, stop when you have removed a max .002" of material.





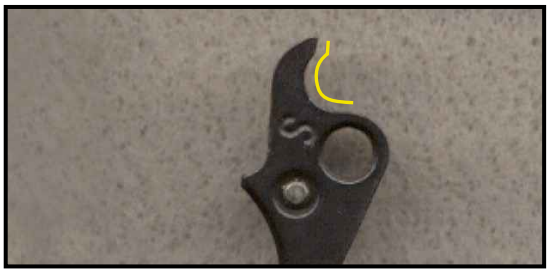
600 grit wet sandpaper wrapped around the 5/32 punch does nicely to polish the insides of holes on the hammer, trigger, lifter, extension and catch. Use a popsicle stick and sandpaper to smooth any rough spots in the slot inside the disassembled barrel catch. Remember that you are lightly smoothing, not enlarging the holes.

When the pins and holes are polished, reference the diagram from page 3 and remember the surfaces that bore on each other when you assembled those parts outside your frame. Polish these surfaces with your Dremel using a round felt polishing wheel and a fine metal polish. I used the Flitz polish shown. DON'T POLISH "HOOK" OF THE HAMMER WITH THE DREMEL. BE VERY CAREFUL TO JUST LIGHTLY POLISH THE SEAR BY DREMEL, THEY'LL BOTH BE POLISHED WITH A STONE IN THE NEXT STEP.

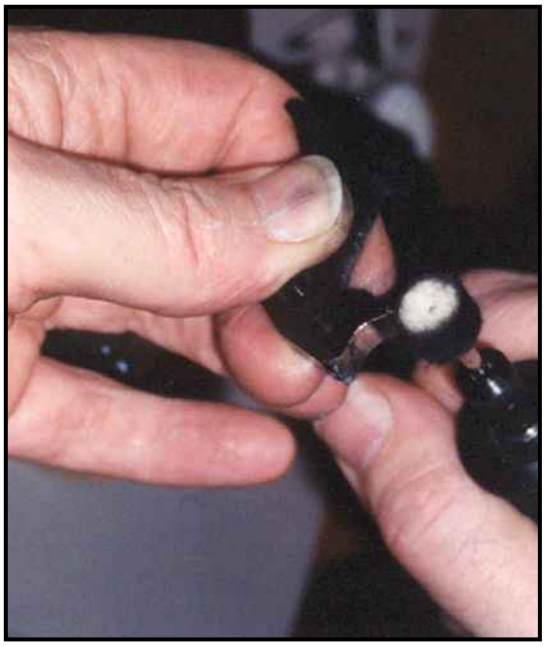
Polishing gets those felt Dremel wheels black fast, but they last a LONG time. Spin in a rag to remove build-up, then apply fresh polish.

Note how rough this surface of the hammer is. The surface I'm pointing to only bears on the sear section of the trigger while cocking, but once you stone the sear smooth, why would you want it to rub over and over on a rough surface?

This surface of the lifter that the hammer bears on when pushing it to the "fire" position must be polished to a slick finish.



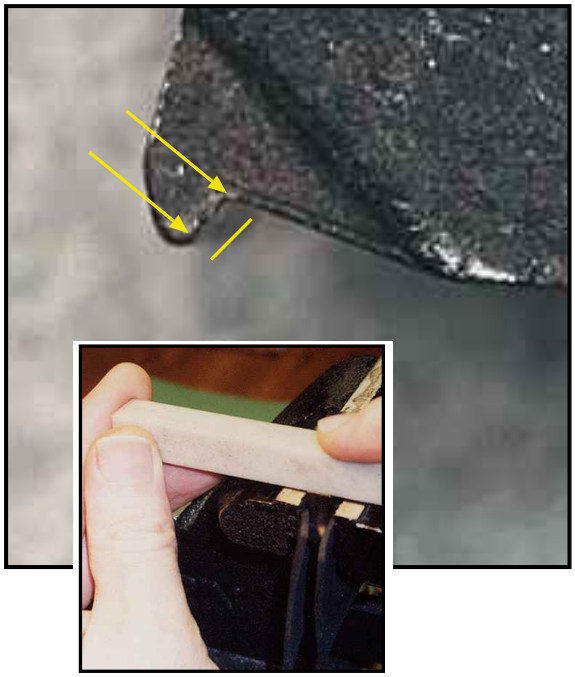
Polish this area of the sear the hammer rides on while cocking slick with the Dremel. Don't go past the area on the tip indicated by the yellow line.



Also notice how bright and smooth that section is after polishing. I'm polishing the hammer tip that pushes the lifter up here. It needs a real slick finish as well. Work around the tip and polish the top before finishing.

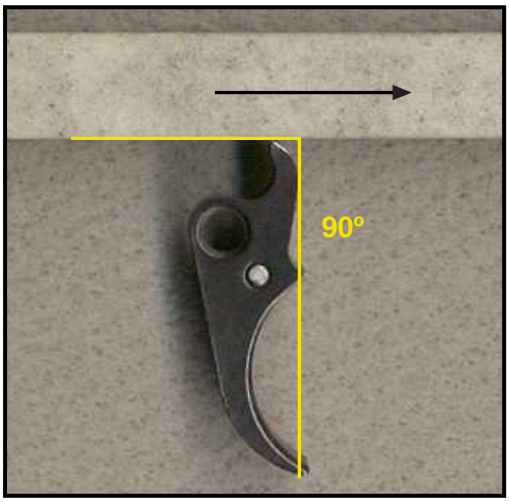
If your pull was less than four pounds before disassembly, the steps on this page regarding stoning the hammer and sear should NOT be done until you reassemble and check pull weight. You can't go back if you take the pull down too light without buying a new hammer and trigger/sear. So if your weight was less than four pounds, go on to the lubrication and reassembly instructions, check that pull weight and, if it is still too high, come back and JUDICIOUSLY go through these stoning steps. Also, correctly stoning angles on the tiny areas of sears and hammers is an artform unto itself that gunsmiths study for years. A little goes a long way, so proceed with caution.

The angles you are going to stone on the sear and hammer are fairly easy, but you are only going to SMOOTH the surfaces at the angles shown, not re-cut them. And a lot will depend on your specific hammer and trigger. Use a magnifier and inspect them. The hammer "hook" at right is not a perfect 90 degrees when enlarged. I stoned the hammer locked upside-down in a padded vise with the square stone pressed against the face of the "hook". Give 20 strokes or so at the angle indicated by the short yellow line. If you don't feel you have the skill to keep your strokes even at this angle across the whole surface face - DON'T try it.



Don't forget to keep your stone saturated with honing oil! And keep those strokes consistent and parallel to the surface angle.

I would only stone the hammer hook as indicated above and give the sear about 10 to 20 light strokes at the 90º angle shown below, then reassemble and check pull weight. If still too heavy give the sear section about 20 more light strokes on your oiled stone. Make sure to keep the whole surface you are stoning in contact at the correct angle for the complete stroke to avoid rounding off the corners of the engagement surface. Light strokes means almost no downward pressure on the part at all.

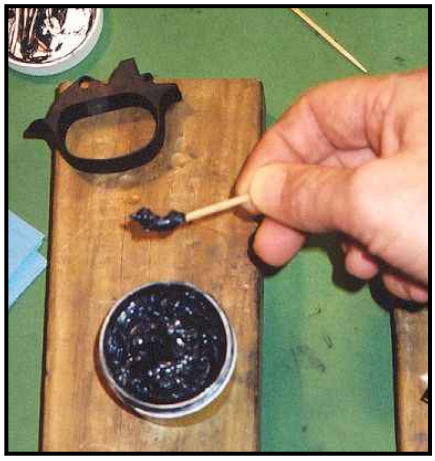


The photo at right shows how to hold the trigger and stone correctly, not the exact angle to stone...

Lubrication, reassembly and safety checks.

Lubricate as directed on the package with a high grade trigger lube like Brownells Action Lube Plus, the moly lube sold by Midway USA from Wheeler Engineering, Wilson Combat's Optima Lube or Tetragun "G" Grease. I prefer the Brownells lube and the thicker greases in general. It's not that easy to access the Handi action and the thicker greases stay put for a long time. Also, greases require that you pay extra attention in the field to avoid dirt and trash entering the top of the hammer slot and mucking the action up.

Brownells permanent lube, Action Magic II, would seem ideal for a hard-to-get-to action, but most shooters like to clean their bores with solvents that tend to leech out later, and it shouldn't be used. If petroleum based solvents mix with the dry Action Magic II, a gummy mess results. Stick with moly greases and similar products.

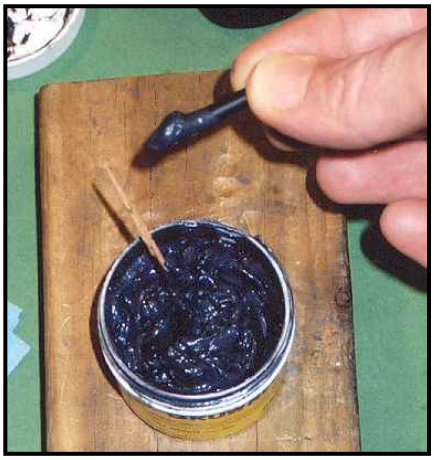


Use generous amounts of lube at this point, as the handling required to reassemble the action parts will tend to remove a good bit of what you apply.

I keep a couple of cotton swabs and paper towels handy for removal of excess lubricant.

Use toothpicks to spread the lube inside holes and evenly across all surfaces that you polished. Set pieces aside after lubing on a piece of paper towel ready to be reassembled.

Right before inserting the pins back into the frame, dip the ends into your grease. The extra will be left outside the frame as it slides into the hole.



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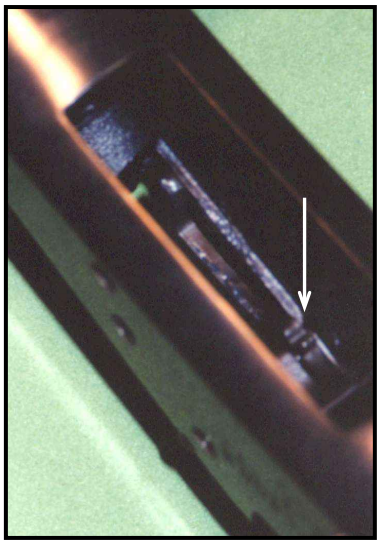
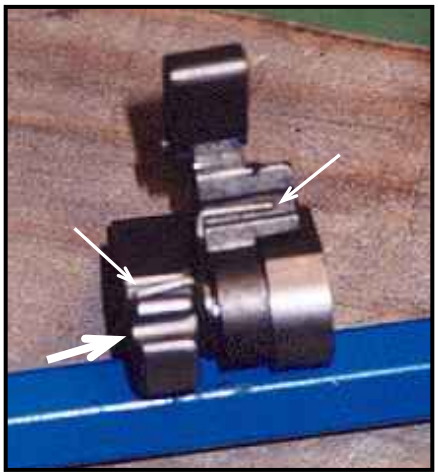


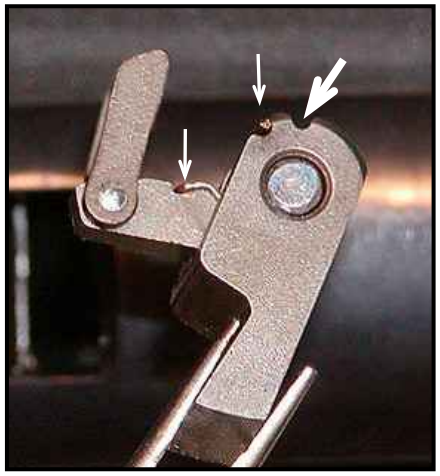
The arrow at left points to the lobe of the barrel catch lever that must engage the barrel catch. When reassembling, make sure that the barrel catch lever correctly engages the barrel catch/lifter assembly before going further or you will have to diassemble again and it can be frustrating. If correctly assembled, grasping the barrel catch lever and working it up and down will cam the catch/lifter assembly back and forth smoothly. If not, try again until you get the proper alignment of the "teeth" of the lever to the barrel catch.

Assemble the lubricated barel catch, lifter and lifter spring into a unit using your slave pin. Put some action grease on the slave pin first and it won't fall while you are trying to fit the catch/lifter assembly into place.



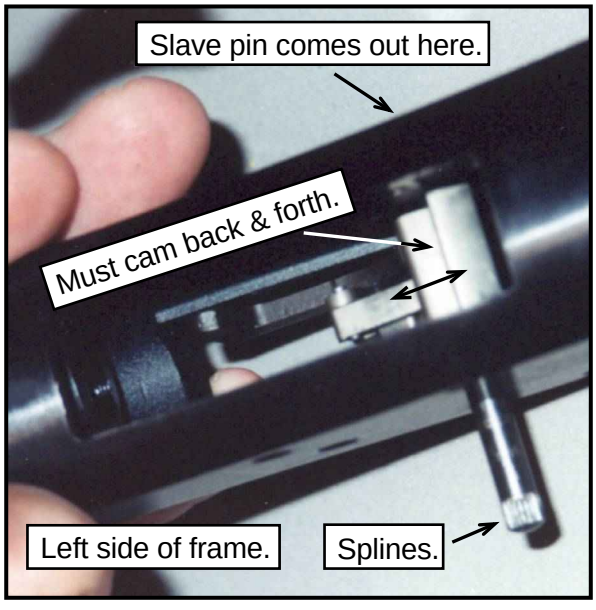
This is not easy to do, so be patient. In these two views of the catch/lifter assembly, note the thinner arrows pointing to where the "legs" of the lifter spring must sit in the two parts.

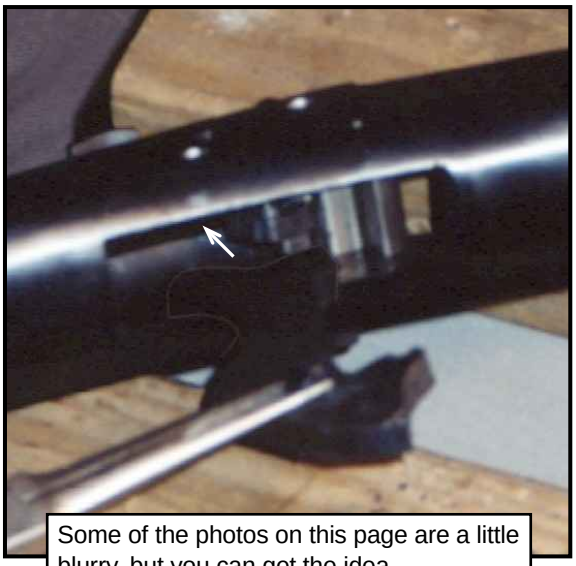
The thicker arrows point to the gear recess that the lobe on the barrel catch lever must engage to function correctly.



This view shows the frame upside down looking into the triggerguard slot. Insert the unsplined end of a 3/16 pin into the topmost hole in the LEFT side of the frame.

Once you have aligned the frame holes and the catch/lifter assembly, insert the 3/16 pin until the splines touch the frame, pushing the slave pin out the right frame side. Work the barrel catch lever up and down to see if the barrel catch cams back and forth. If it does, go on to the next assembly step. If not, insert the slave pin back in the right frame side hole and use a punch to push it into the center of the catch/lifter assembly once again. Fully remove the 3/16 splined pin from the left side and try once again to align the catch lever lobe and the barrel catch gear recess correctly. Repeat until successful. Do not fully seat the splined pin!





Some of the photos on this page are a little blurry, but you can get the idea.

Once the barrel catch pin is partially seated to the splines and the catch functioning, use your needle-nose pliers or assembly tweezers to work the hammer back in positon. Have your splined hammer pin ready to insert (unsplined end first) from the left side of the frame once you align the frame and hammer pin holes.

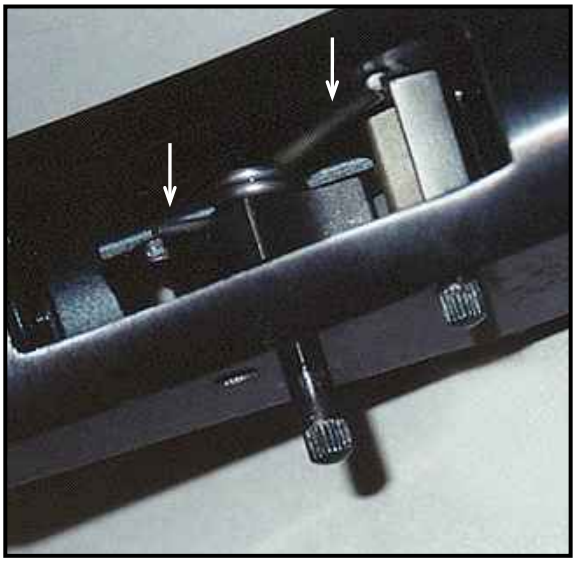
Note the stud the pliers are holding in the photo at left. The short leg of the hammer spring will be retained by this stud.

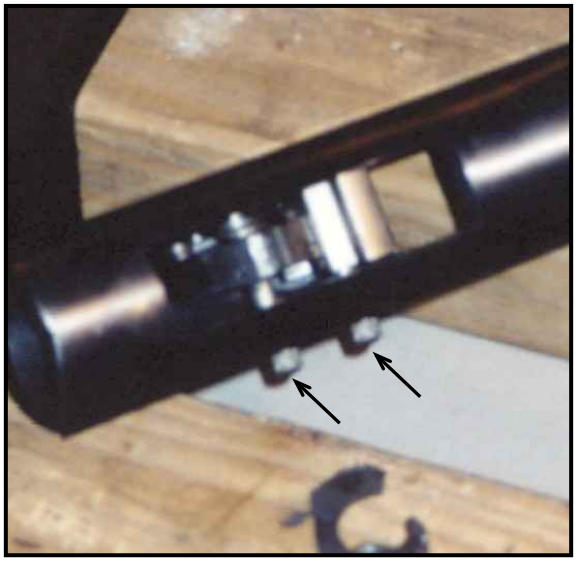
As you push the hammer pin in, only insert it a hair past the hole in the hammer. You must install the hammer spring before inserting the pin until the splines barely touch the left side of the frame.

Take the hammer spring by the long leg as shown in the photo to the right and slide the hole created by the coils between the hammer and the right inside of frame.

Make sure the hammer pin will pass through the holes in both the hammer and the hammer spring coils and then seat the pin until the splines of the pin touch the left outside of the frame.

It's a little hard to see but the white arrows in the photo to the right are pointing to the short leg of the hammer spring that must be retained under the hammer stud and the long leg pointing at you out of the frame bottom.





The two black arrows are pointing to the splined ends of the hammer and barrel catch pins barely touching the left frame side.

Don't seat these pins any further yet.

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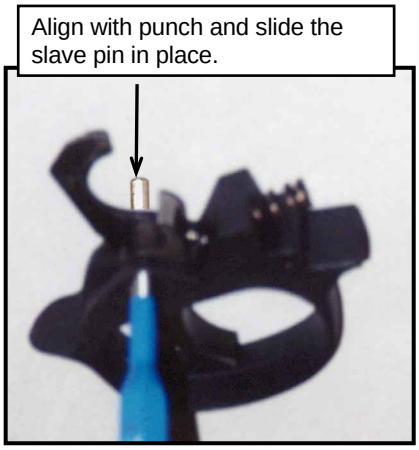
Triggerguard assembly tips: Put the trigger up through the guard, snap the trigger extension on the trigger as it was when you disassembled, line up the guard, trigger and extension holes and slide the slave pin in. Use a punch to align triggerguard, trigger and the extension, then put a dab of grease on the slave pin and push it in the hole from the opposite side from the punch.



When the slave pin is in place, put a dab of grease on the ends of the barrel catch and trigger return springs and insert those ends into the holes they reside in, and they are less likely to fall out when hands are at a premium.

Notice how thin the plastic is around the slave pin on the triggerguard to the right. Make sure the frame and triggerguard holes are aligned before driving the lubed splined pin in to avoid damage.

With the triggerguard assembled, you ready to add a dab of action grease onto any area(s) like the sear tip etc. that you may have rubbed the lube off of while doing this reassembly.

Right before reinserting the triggerguard, snap the long leg of the hammer spring up on the little ledge inside the frame as shown at the left.

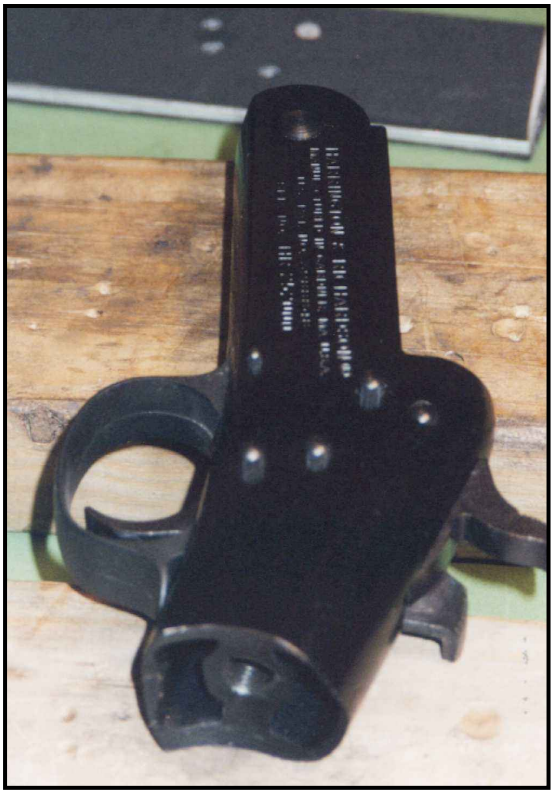
Read the rest of this page and the next two pages completely and then get all the tools and parts within easy reach of your right hand before going on. Getting the triggerguard back in place isn't rocket science, but having three hands would help...

The first thing to do is to rotate the trigger extension up and around the back side of the hammer pin, and between the left side of the hammer on the inside of the frame.

When you are trying to install the triggerguard assembly and you can't figure out how to get the barrel catch spring on the front of the triggerguard to slip into its position under the catch and allow the front of the guard to go into place, you can insert the triggerguard in the frame and use a large punch to wiggle the spring back under the barrel catch. This is made possible only if you really make use of all of your fingers and thumbs. With your left hand, use your left index finger to raise and hold up the barrel catch release. Your left thumb must be ready to push the rear of guard into postion.

Have the large punch and the two triggerguard pins near your right hand to access easily. You MUST have the catch lever raised with your left finger to have (barely!) enough clearance for the barrel catch spring.

Once you have the guard in place you must hold it in there against all the pressure from the springs with your left hand and reaching under the frame, insert the unsplined ends of the lubed pins by hand or (better) have a helper put the pins in while you hold the guard in place with BOTH hands. It may help to align the triggerguard with the frame using your 3/32 punch through the right side front pin hole. Flip the frame over and tap the pins with a hammer until the splines just touch the left side of the frame.



Test function before reseating the splined action pins fully. You don't want extra wear on the frame and pins by finding out after you seat them that something is wrong.

Check and see what the pull weight is before seating pins. If the pull weight is still too high, disassemble the triggerguard once more and LIGHTLY stone the top of the trigger that functions as a sear. KEEP THE FACTORY ANGLES. Reassemble and check pull weight again.

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Run these checks BEFORE the final seating of the splined pins, and again AFTER seating them.

Three things to test for before firing - if your weapon fails any of these tests, seek the aid of a professional gunsmith if you can't troubleshoot the problem yourself:

One: I would clamp the frame with the hammer cocked in a padded vise and hit the frame with a rubber mallet or slam the frame, cocked, onto a carpeted floor. Do this front and back of frame, about a dozen times without the hammer falling. Some sort of impact test to see if you can make the cocked hammer slip engagement is called for. Of course, if your transfer bar is functioning as designed, the gun should only fire if the trigger is pulled and held to the rear. The hammer falling without the trigger being pulled would defeat a MAJOR safety feature and leave safety to the secondary system - not a good thing.

Two: I would also make sure that the transfer bar/firing pin functions correctly. Cock hammer, let hammer fall, keep trigger held to the rear. Until you let go of the trigger the firing pin should stick out of the breechface. When you let go of the trigger, it should withdraw back into the breechface. Do this several times as well. If the firing pin doesn't withdraw upon releasing the trigger, then you must find the cause through disassembly and inspection. Closing the barrel with the firing pin sticking out of the breechface and a round in the chamber could easily cause your weapon to fire accidently.

Three: Put the barrel on the frame and press down on the front of the barrel and make sure there is good positive engagement of the barrel catch. You don't want the action to come open when you touch off a round if it is assembled wrong.

I'm sure you have noticed I haven't mentioned trimming or replacing springs on this firearm, as I see no need for inviting the liability and possible lack of reliability of doing so. Trimming or replacing the trigger return spring could increase the possibility of accidental discharge from an impact. Doing the same thing on the barrel catch spring increases the likelihood of negative function of the barrel catch - don't do it. A safe lightweight pull can be achieved without altering any springs.

These instructions apply only to current production firearms of H&R 1871. I've noted at least two styles of barrel catches have been made in the past and I have a disassembly book that shows that old style catch on guns that are new enough to have the transfer bar/lifter instead of the half-cock hammer. The difference is in the amount of lobes or teeth on the barrel catch that has to engage the ratchet on the bottom of the barrel catch lever upon reassembly. If your firearm is mechanically different than my photos upon disassembly, I would carefully reassemble and seek the help of a professional gunsmith.

Using the methods above and not going further into the dangerous area of changing factory geometry of the parts, just smoothing them and lubricating them, my 30.06 pull went from a 10 pull average of 4 15/16's lbs. down to a 3.1 lbs. average. The .308 went from 4.75 lbs. to 2.75 and the 25.06 went from 6 lbs. to 2.85.

Do not take the weight of pull below 2.75 lbs., as it is potentially dangerous. A lower than 2.75 lb. trigger and gloved hands on a hunting rifle could be a BAD combo considering the cramped triggerguard on Handi's.

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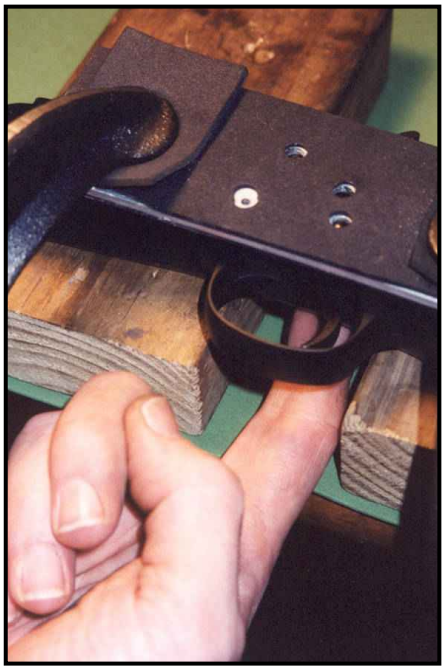
To do the final pin seating, reverse the wood (or metal) fixture to the left side of the frame and make a flopped version of the 2 x 4, frame and fixture clamped sandwich from the disassembly instructional. Pad that fixture if you made a metal one to avoid scratching the frame.

Make double sure all of the pin heads to be seated on the left side of the frame are indeed the splined ends, and carefully drive them back in place with the appropriate pin punch. Reach under the frame after every few strikes on a pin and feel for the head to come through the right side. Seat them evenly and if you drive any pin too far to the right side, flip your 2 x 4, frame and fixture sandwich again and gently tap that pin back a bit.



Remember to check safety function and pull weight once more after seating the pins fully - safety first! When you're satisfied with your work, reassemble stock and barrel in the reverse order of the disassembly instructional and enjoy your new trigger.

A couple of additional tips... a minority of people have emailed me and said they didn't find it necessary to polish the pins and holes. If your Handi doesn't show the rub marks from rough finish I pointed out in the instructional, then you may not need to. If they are already smooth and loose fitting, polishing would only add "slop" to your action. This seems to be a rarity though, as most people have written that it helped and it was required on all three Handi-Rifles that I worked. One person wrote that he lived in a VERY cold climate, and he was opposed to using a action grease on the internals. If you do live in such a climate, then a lighter lube that BONDS to the parts like Tetragun oil, Miltech lube or even the lighter Tetragun "G" grease might be better choices.

Future AFM projects:

Reworking a surplus Browning Hi-Power into an IDPA Custom Defense Pistol, converting a stainless Ruger Blackhawk .45 Colt into a short-barreled Bisley, Nylon Surgery and a basic gunsmithing supplies essay.

Stay tuned! - perklo