HOW TO:

Tune Your Luger's Trigger

Lugers are notorious for their creepy, tough trigger pulls, and most shooters believe they are stuck with them. However, it's easy to adjust trigger pull to a mere two pounds — and you can do it in one evening with little cost.

By Mike Gorman

IN TODAY'S AGE of space flight, transistors, and pocket electronic calculators, it seems incredible that manufacturers can't design a decent trigger pull for the high-quality handguns currently available.

Most revolvers require some work before they'll let off crisply enough for best accuracy, but my primary beef is with the autoloaders. Some of the finest autos, having quality workmanship and inherently fine accuracy, carry the heaviest trigger pulls imaginable, complete with creep and backlash.

Exceptions, of course, exist among target-grade autoloaders, notably the S&W Model 52 and the high Standard target series. The Browning Hi-Power, however, which is one of the finest 9mm defense guns around, has one of the toughest trigger pulls I've ever tried to master.

Most notorious of all, though, seems to be the Pistole Parabellum (most commonly called the "Luger"), in all its variations from the eight-inch Artillery to the stubby P-08. Even Mauser's new Parabellum continues the tradition by having a typical eight-pound pull and ⅛ of an inch or more of travel.

I've always been intrigued with the idea of tackling a Luger trigger job, despite the usual prophecies of failure. The prophets, however, were not quite accurate.

Though complete understanding of the Luger system is necessary before you attempt the job, excellent results can be obtained by doing the right things, and doing them with care.

The key point to remember is that you're trying to *improve* a basically inefficient trigger system, not *perfect* it. If you want to reduce that eight-pound pull to two pounds, and cut trigger travel to 1/16 of an inch, here's how.

My new Mauser Parabellum provided the ideal opportunity to perform a full-blown trigger job. Before beginning, however, I spent several hours examining the Luger system to be certain of the exact function of each part.

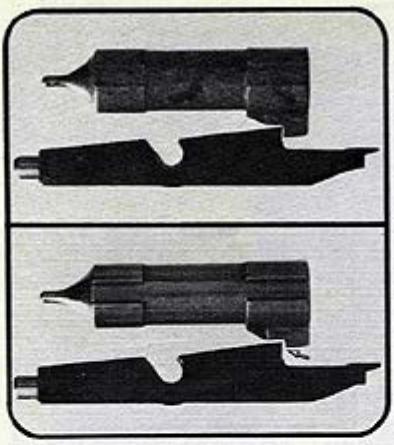
The Luger has no Browning-type pivoted hammer, but contains a spring-loaded firing pin within the breechblock, a system common to smaller autos and some older military designs. In the full-cocked position, the trigger bar directly engages the firing pin, which is under compression by an internal coil spring. When the trigger is pulled, the sear disengages from the firing pin, allowing it to fly forward in the breechblock with sufficient energy to fire the chambered cartridge.

As for the trigger to trigger bar linkup, Rube Goldberg couldn't have done a better job. A pivoting, L-shaped trigger-lever pinned into the side plate provides the connection between the trigger and the trigger bar. In operation, the lower part of the trigger-lever engages a slot milled into the trigger, above and forward of its pivot pin, and the upper part of the lever bears on the trigger bar plunger, which is essentially a spring-loaded extension of the trigger bar.

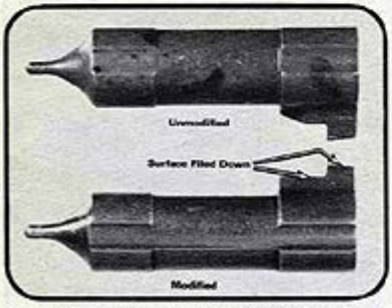
As the trigger is pulled, the trigger-lever pivots on its pin in the side plate, causing the trigger bar to pivot laterally on its mounting point on the receiver. At a certain point in its travel, the trigger bar (or sear, if you prefer) disengages from the firing pin, which fires the loaded cartridge.

Oddly enough, this complicated linkage is not the major gremlin in the Luger system. Actually, 90 per cent of the creep and weight of pull can be traced to the last direct linkup in the chain: the point where the trigger bar engages the firing pin in its cocked position. In all the Lugers I've examined, the bearing surfaces of both the trigger bar and firing pin are not cut perpendicular to their respective parts, but at a slight angle.

As can be seen from the photos, the trigger bar and firing pin do not merely engage one another, but actually *interlock*. The excessive weight of pull, then, is caused at this point, since the trigger bar must move the firing pin (under considerable spring pressure) an additional distance to the rear before disengagement occurs. In addition, direct sear engagement is roughly .015 to .020



The standard firing pin/sear engagement (above) differs from modified firing pin/sear engagement (below), where firing pin is filed perpendicular to its longitudinal axis.



The modified firing pin shows both the the reduction of the sear engagement and the elimination of the angle on the forward bearing surface of the firing pin.

inch greater than necessary for safe operation.

Simply put, then, a considerable amount of creep and weight of pull can be eliminated by taking the following steps:

1—Carefully secure the firing pin in a vise which is padded with soft wood or other suitable material. Using a six-inch flat file, work down the forward bearing surface of the firing pin lug until it is perpendicular to the longitudinal axis of the firing pin. Take your time in this operation, being careful not to create a *reverse* angle on this surface.

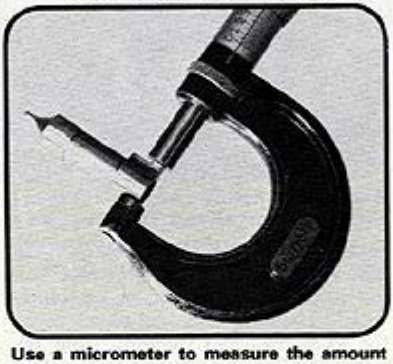
2—With 400- or 600-grit wet-or-dry sandpaper on a small block, polish your work. Finish glass-smooth with crocus cloth.

3—At this point, secure the trigger bar in the vise with the sear up, and go over the sharp edge of the sear lightly with 600-grit wet-or-dry, followed by crocus cloth. The aim of this operation is to smooth this sharp edge enough to lessen its drag on the firing pin lug, nothing more. If you've done this properly, the sear will still appear sharp, with no visible radius.

If the foregoing steps have been done carefully, the weight of pull has been reduced from its original seven or eight pounds to roughly two pounds. The next step is to remove .015 to .020 inch of sear engagement. To accomplish this, take the following steps:

1—As illustrated in the photo, use a micrometer to measure across the base of the firing pin to include the lug, and record the total width. For example, the firing pin of my Parabellum miked .469 inch before beginning.

2—After resecuring the firing pin in the vise, begin filing the out-



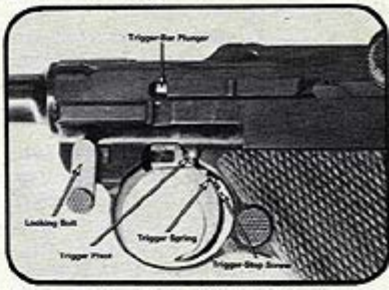
Use a micrometer to measure the amount of metal filed to reduce sear engagement.

side surface of its lug in very small amounts at a time. Measure after every three or four strokes, being careful to stop after you've removed .015 inch or so of metal.

3—At this point, place the firing pin back into the breechblock, but *do not* replace the firing pin spring or its guide. Insert the breechblock and toggle assembly into the receiver and secure with the receiver axle. With the barrel pointing *downward*, snap the breechblock forward into battery. The trigger bar (sear) will catch the firing pin, holding it to the rear.

4—Watching the rear half of the trigger bar, slowly push in the trigger bar's forward end until the firing pin is released and falls forward. Repeat this several times, noting how much trigger bar travel is required before the firing pin falls. The trigger bar should move *at least* 1/32 of an inch before the firing pin drops, and 3/64 of an inch would be absolutely safe. If necessary, con-

Above, note the relationship of the trigger bar and the firing pin to the breechblock.



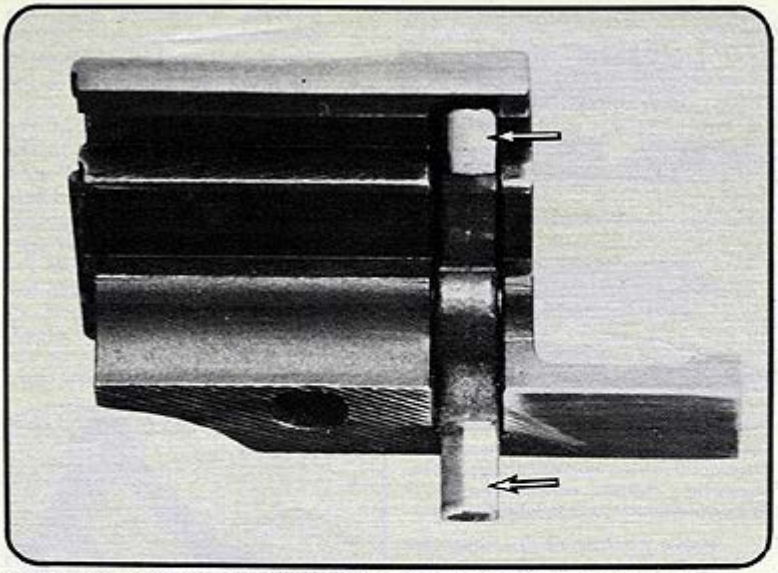
Anyone can easily eliminate most of the creep and weight of pull in a few hours.

tinue to file down the firing pin lug until the firing pin drops at 3/64 of an inch of trigger bar travel.

Measure the firing pin once again with the micrometer, noting how much metal has been removed. In the case of the test Parabellum, .020 of an inch was removed from the firing pin lug to bring sear engagement down to 1/32 (.03125) of an inch.

Remember: 1/32 of an inch is the absolute minimum sear engagement for this gun! To continue past this point invites full-automatic fire if the trigger bar plunger should cam in front of the trigger-lever as the receiver returns to battery from recoil.

One additional bit of insurance against full-auto fire is to file flat the front end of the trigger bar plunger, since it comes from the factory considerably beveled. Removing this bevel decreases the possibility of any camming action against the trigger-lever.



Polish both bearing surfaces of pivoting trigger lever to smooth the Luger's trigger pull.

Polish all work done to this point with 600-grit wet-or-dry and crocus cloth.

After polishing both bearing surfaces of the trigger-lever glass-smooth, completely reassemble the gun and check for functioning as follows:

1—With the magazine removed, allow the toggle and breechblock to snap forward several times, making sure that sear engagement is positive.

2—With the trigger held to the rear, manually push the receiver out of battery, and release it several times to assure that the trigger bar plunger is catching the trigger-lever as it returns to battery. With the receiver fully in battery, an audible click should be heard as the trigger is released, indicating proper functioning of the trigger bar plunger.

After all of this work had been completed on the test Mauser Parabellum, the result was a silky-smooth, two-pound trigger pull with 100 per cent positive functioning of all components.

If all is well with your gun at this point, a brief session on the range would be in order before proceeding further. Run a box of ammo through your gun to be sure functioning is positive. Actually, you can end the job right here, if you're satisfied with the weight of pull and aren't bothered by the slack and overtravel still present in the system.

I decided to go all the way and have a slack adjusting screw, plus a trigger-stop installed. Not wanting to risk butchering the gun by drilling a batch of holes in the wrong places, I knew that the services of a good gunsmith were required.

A couple of phone calls later, Ed Ireland of Everett Roach Sporting Goods Inc. (273 E. Paces Ferry Road NE, Atlanta, Ga. 30305) produced a top-notch smith and master machinist — Bill Hayllar, who also seems to be the local magician, judging from his work. Having already decided against any drilling or tapping of the frame, I explained to Hayllar that I wanted both adjusting screws set directly into the trigger, and adjustable without disassembly. As can be seen from the photos, Hayllar's installation is excellent in terms of both workmanship and appearance, a job worthy of a top-grade target auto.

The top adjustment, which is a No. 2-56 Allen set screw, is designed to take up the small but annoying amount of slack that is present in the linkup between the trigger and the trigger bar. Although it will do so, this screw is *not* designed to adjust sear engagement. If sear engagement is altered by turning this screw in too far, the trigger bar plunger will not reengage the trigger bar when the trigger is released, which will put the gun out of action.

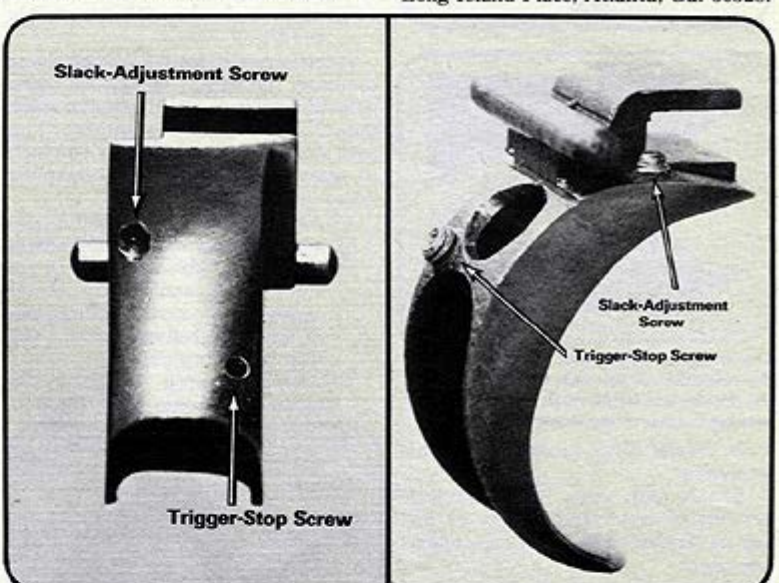
The lower No. 4-40 Allen screw functions as a standard trigger-stop, and is adjustable through a small hole drilled in the face of the trigger, which is just large enough to admit the Allen wrench.

By installing these adjustment screws, the total length of trigger travel was cut from over ⅛ of an inch to a hair over 1/16 of an inch, with practically zero backlash! Once you have the screws set properly, a small drop of Lock 'n Seal on each will insure less frequent readjustment.

Bill Hayllar will do this job on your trigger, and supply both the Allen wrenches to boot. Just drop your trigger and $15 in the mail to him at 96 Long Island Place, Atlanta, Ga. 30328. The completed unit plus wrenches will be returned to you postpaid. If $15 seems high, keep in mind that his is extremely fine work, and there's only one chance to do it right.

So there you have it — a two-pound, backlash-free trigger pull on a Luger. Follow the steps precisely, take your time, and above all, don't overdo it. Accept an extra 1/64 of an inch of sear engagement, if it means a greater margin of safety. Finally, reread this article, examine your gun, and understand the Luger system thoroughly before making the first file stroke.

With care and patience, you'll reap the rewards on the range, and you'll know that one hell of a fine handgun has been improved even more.



Front view of modified trigger (left) shows drilled and tapped holes for trigger-stop and slack-adjustment screws. The screws are placed in the author's modified trigger (right).