Gunsmithing the Phoenix HP-22 / 25

By John Siers a/k/a "Gunsmith Jack"

Just when you thought all of those cheap little pistols from the "Ring of Fire" era – the Ravens, the Lorcins, the Brycos, etc. were history… along comes the Phoenix. This pistol has been around for a couple of years but recently seems to have gotten much more popular. I've not only seen them on gun auction sites but also in the display cases at local gun shops. They may cost as much as $150 over the counter, but can be had online for around $100.

But other than price, why are these little guns suddenly so popular? I mean, seriously, what kind of gun would you expect to get for $100? And what kind of gunsmith would ever want to work on one when a simple clean-and-inspect would cost the customer half the price of a new-in-the-box gun?

Well, as some of you may have figured out by now, I'm a semi-retired gunsmith with a bit of spare time, a love for all kinds of guns, and a willingness to take on projects that may not be very profitable but are interesting and fun. In fact, I bought a Phoenix HP-25 from my favorite distributor specifically so that I could try it out, take it apart, and see how it works. I'm going to share what I learned with you, just in case a customer does bring one of these to your shop.

When I first opened the box, I had to admit that the Phoenix HP-25 looks a lot better than most $100 guns I've seen. The design is sleek and stylish, and the fit and finish look very good. Unlike most of the earlier cheap pistols, the Phoenix is a single-action hammer-fired design with an exposed hammer. There are two models out there at the moment, the HP-22 and the HP-25, and about the only difference between them is the caliber (.22 LR vs. .25ACP). There's one minor difference I'll mention later, but for the most part the two guns are identical and probably can interchange most parts without a problem. Speaking of parts, Phoenix is the only manufacturer I know that includes not only a complete parts breakdown but a price list for replacement parts in the Owner's Guide that comes with each gun. Unfortunately, this may encourage a lot of amateur gunsmiths to work on their own guns; but the good news is that a lot of those wannabes may bring their box of parts to you and pay you good money to put the gun back together when they have problems with it.

In some ways, the Phoenix is kind of a different gun, even in the basic philosophy of how a semiauto should operate. It has some unusual design features that just might bring you some business. Customers may bring it to you complaining that it doesn't work, when the real problem is a failure to

understand how it's supposed to work. When I worked in computer services, we used to call this a "problem between the keyboard and the chair."

For example, unlike a lot of the older cheap pistols, the Phoenix has a typical push-button magazine release located about where you would expect it on the left side behind the trigger. However, you can't release the magazine unless the safety selector (also located about where you would expect it to be) is in the "Safe" position. This complicates any reload drill – especially since the Phoenix slide doesn't lock back on empty. It does, however, have a manual lock-back feature… which again relies on the safety. You rack the slide to the rear and then push up on the safety (to the "Safe" position) to lock it back. If you want to impress the customer, you can explain the "Phoenix Reload Drill" which goes like this:

- Click! (gun empty)
- Rack slide manually and lock it back (by pushing the safety selector to "Safe")
- Drop empty magazine
- Insert new magazine
- Release slide (safety selector to "Fire")

Yeah, it's one more step than you need with a Glock, but it's the most efficient way to do a quick reload with this gun.

One other unusual feature: The Phoenix has a manually-operated firing-pin blocking safety.

"Say what???"

(Bet you haven't seen one of those before.)

But there it is, that little lever mounted up there on the left side of the rear sight (of all places). Push up for "Fire" and down for "Safe." That's all this safety does – blocks the firing pin. Everything else functions just fine while it is engaged. So… if the customer doesn't read the manual and doesn't know what that little gadget is for, we're all set up for the "this gun doesn't fire and I don't know what's wrong with it" scenario. These days, people go out of their way to buy guns that have *no* manual safety, so you really have to wonder why Phoenix chose to have *two* of them. Of course, the firing pin block does provide you with a (relatively) safe way to drop the hammer if you don't want to carry it "cocked and locked" but then you would need to remember to disengage the F/P safety and manually cock the hammer before firing.

But OK… you can find out all of that from the Owner's Guide. Let's get into the actual "how it works" with a look at the insides. First of all, the basic teardown of the gun is… well, let's just say "non-intuitive." First, clear the gun as usual, clear the chamber and empty the magazine. *Then put the empty magazine back in the gun, set the safety to "Fire" and cock the hammer manually*. After that, push forward on the release latch (toward the front, under the slide, on both sides of the gun – see picture). This can be very stiff, depending on how new the gun is, but when you get it pushed forward, you then lift the front of the barrel and rotate it upward and out of the gun. Watch out because the recoil spring (which has no guide rod) will want to jump up and out of there. Just move the slide forward (which will relieve the tension on the spring) and lift that off as well. Then you can remove the spring along with the latch and plunger arrangement it attaches to.

There you have it – the field-stripped gun (and if you think that was fun, wait until we try to put it back together again). Oh, yes… now you can remove the magazine.

At this point, I need to mention one other little quirk this gun has: as previously mentioned, you have to put the safety selector in the "Safe" position to remove the magazine, but once the magazine is removed you *cannot move the safety to the "Fire" position*, and that means you can't move the slide, either. That's why you have to reinsert the empty magazine and put the safety in "Fire" in order to field-strip the gun. We'll see how all that stuff works when we get inside this little beast.

For the moment, let's put the barrel, slide, and magazine aside and turn to the frame. We'll start in the usual manner, by removing the grips. That's a simple process – two screws on each side, all screws identical, nothing special. Like many other inexpensive pistols of bygone days, the Phoenix mounts a lot of action parts directly under the grips and relies on the grips to hold them in place. Take care that none of these fall out when you remove the grips (or if they do, make sure you know how to reinstall them). The disconnector on the right side is the first and most likely drop-out candidate, but the safety selector on the left side can come loose as well.

A word about the frame: it would be nice if I could say this gun had a steel frame, but doesn't. I'm not a metallurgist, but the frame is not magnetic and is too heavy to be aluminum. I'm guessing that it's made of Zamak – the injection-molded zinc alloy that was used for all cheap pocket pistols in days gone by. That's not a big deal for a gun that costs less than $100 and is not expected to last 100 years.

In fact, since these guns are not made in calibers larger than .25, they should hold up pretty well if properly cared for. It does explain why (as you can see in the pictures) most of the inner parts are pinned in place using roll pins rather than solid pins. The alloy is obviously a lot softer than steel and solid pins would probably work loose over time. If you need to drive any of these pins out to repair the gun, I would recommend replacing the roll pin as well.

Very little of the fire-control group is actually "inside" the frame – just the hammer, the sear, and the trigger itself. The mainspring that drives the hammer (via a hammer tail) is conventionally located in the backstrap of the frame behind the magazine well (see picture). The remainder of the fire-control components – disconnector, trigger bar and safety – are outside the frame and easily accessible with the grips off.

The disconnector is fairly typical for guns of this type. When the slide cycles, it pushes the disconnector down, and this pushes the trigger bar out of engagement with the sear. The two pictures below show how this works. On the left, the disconnector is up and the trigger bar engaged. On the right, down and disengaged.

So OK, now let's spend some time with that strange and unconventional safety arrangement on the other side of the gun. This first picture shows the safety in the "Safe" (Up) position. The top tab would have been pushed up into the recess in the slide, covering up the word "Fire" (and also preventing the slide from being moved). Note that the tail on the rear of the safety is blocking the sear.

Take a look at that little tab on the front of the safety (where my punch is pointing). When the safety is in the "Fire" position (down) that tab slips under the magazine release button, blocking it from moving – which is why you can't drop the magazine unless the gun is on "Safe."

The bottom tab on the safety provides the two-position detent, engaging the small spring below. I predict that this spring will be a commonly-lost part on this gun, afflicting curious gunsmith-wannabes who insist on removing the grips. To my surprise, Phoenix shows this spring in their parts breakdown, but not on their replacement part price list. On the other hand, it's probably something you can make in your shop without much difficulty.

There's one other feature of the safety system we need to look at: what Phoenix calls the "Safety Block." That's the black bar in the picture that extends downward below the safety itself. This bar has a tab that goes through a slot in the frame into the magazine well. When you insert a magazine, the safety block is pushed outward, allowing the safety to slide under it and move downward. This picture shows the safety moved down into the "Fire" position (with magazine inserted). Note that the safety has moved down under the safety block and is no longer blocking the sear, but it is blocking the magazine release.

The safety block serves just one purpose, to keep the safety from being moved to the "Fire" position with no magazine in the gun. This makes sense if you accept their first premise – that you shouldn't be able to remove the magazine unless the gun is on "Safe." You wouldn't want to try inserting a magazine while the magazine release button (and the latch attached to it) is blocked, since that might damage the latch. But to my way of thinking, this is another feature that may lead to customer confusion. There are lots of guns out there that will not fire if the magazine is removed, but every other one I've seen is a passive system that doesn't require any action on the part of the user.

Moving along, let's take a look at the slide and its internal components. Once again, it appears that we are looking at Zamak alloy here, but that's not a big deal in a .25 caliber gun. The basic components in the slide are the extractor, firing pin, and that strange and unusual manual firing pin safety.

There is one other unusual feature found on the slide. Though the rear sight is molded into the frame, it is actually adjustable for windage via a little moving blade and screw arrangement. Nothing complicated about it, and it's easily disassembled just by removing the screw; but there is a small spring inside so be careful not to lose that.

The extractor is pretty conventional in design – held in place by a pin through the top of the slide (and fully accessible from the bottom), with a spring under the rear of the extractor itself. The pin holding it is the only solid (not roll) pin I saw on the entire gun.

Looking at the rear of the slide, you see that the firing pin is retained by a rear plate secured by a screw in the bottom. When I first looked at it, the screw appeared to be just another roll pin (and a blind one at that), but closer examination revealed a very small Allen-head screw, requiring a tiny hex driver to remove. Once that's out, you can put the firing pin safety in the "Fire" (up) position, depress the firing pin and slide the plate out. The firing pin and its spring can then be removed.

Now this is where that funny little difference between the HP25 and the HP22 comes in. Take a look at the firing pin and spring in the picture. The Phoenix parts diagram shows the firing pin installed with the spring underneath (as shown in this picture); but when the firing pin came out of my HP25, it was flipped over and the spring was on top. Phoenix uses the same firing pin for both models, and the spring-on-top installation positions it correctly for the centerfire .25 caliber, while the spring-on-the-bottom installation is correct for the rimfire .22. That also explains the double-sided notch toward the rear of the firing pin – so that the firing pin safety can engage it no matter which way it's flipped.

Speaking of which, the firing pin safety is retained and detented by a small, straight spring that is accessible from the rear of the slide, under the retainer plate. I say "accessible" but I needed a really sharp dental pick to get in there and grab the little hook on the end to pull it out. Once it's out, the safety itself can be pulled out of the slide. The safety and spring are shown in this picture.

Reassembly of the slide didn't pose any particular problems. You may have to wiggle the firing pin safety a bit to get the detent spring to go in, but I didn't have any difficulty with it. The firing pin won't go in the wrong way , since the slide is cut differently for the HP25 vs. the HP22. If you try to put it in upside down, it won't match up to the firing pin hole and won't go in all the way.

Just one small note about the barrel, which consists of a steel barrel inserted into a Zamak casting. The bottom of the barrel reveals one removable part, a small steel plate secured in place by a screw (see picture) which engages the release latch. Steel-on-steel makes sense here, because this is the lock point that secures the barrel to the gun. This part should not need any maintenance (other than to make sure it is secure). If the screw hole is stripped or damaged in any way and can't be securely tightened, a new barrel is in order (for which Phoenix wants almost the price of a new gun.

One other note on the barrel: the standard barrel for both the .22 and .25 models is a 3-inch; but the .22 is also available with a 5-inch barrel (or, in a "range kit" with *both* barrels). The longer barrel is obviously an attempt to promote the gun as a target pistol, but I haven't tried one so I can't say how accurate it might be.

About the only thing I haven't mentioned is the magazine. It's a single-stack design, and disassembles in the conventional manner. Push in the detent button in the base, slide the plastic base off the magazine, and everything comes out. Nothing unusual there.

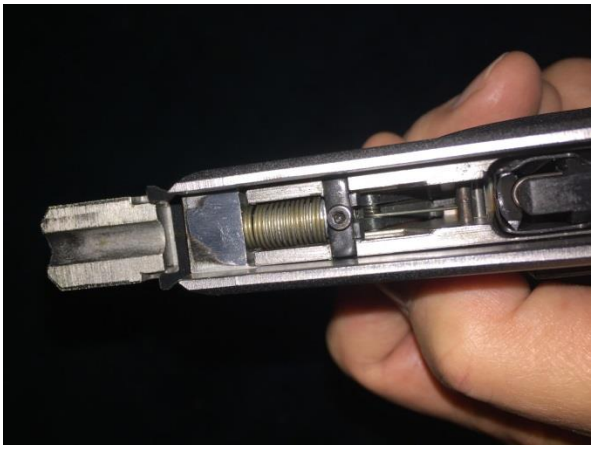
So now we have put the frame and its parts back together and the grips back on. We have the slide reassembled with firing pin and firing pin safety installed. We're pretty much back to where it was when we first field-stripped the gun, so let's just put it back together.

Unless you know the secret, doing that could be a lot harder than you think. Phoenix tells you how to do it in the manual, but who reads manuals? I'll bet a lot of Phoenix owners will spend at least an hour trying to get the gun back together until they a) get lucky or b) read the manual or c) give up and bring the gun to *you*.

The problem is that darned recoil spring with no guide rod (shown here attached to the barrel latch assembly). You need to lay it down into the frame, then hook the front of the slide over it and push the slide back so you can put in the barrel, which has to engage those two little tabs on the back of the latch. When you try to do that, the unguided spring wants to arch up and pop out of the slide.

OK, so here's the secret. By now, you've probably figured out that the first thing you need to do is put the empty magazine back in the gun so you can move the safety selector to "Fire" (otherwise, you won't be able to get the slide on at all because the tab on the safety will be in the way). Once you have done that, lay the latch and spring assembly into the frame and place the slide over it in the far forward position (spring touching the slide, but not compressed yet).

Now, take the *barrel* and turn it around backwards. Lay it down in its channel in the slide, but with the muzzle facing the rear (see picture at left).



Holding the barrel in that position, *bring the slide all the way to the rear and push the safety up to lock it back.* The barrel holds the spring down and keeps it from popping out, and once the slide is all the way back, the spring is mostly coiled around that little cylindrical stub at the rear. In fact, as shown in the picture at left, it's almost coil-bound and cannot get out at all. Now all you have to do is turn the barrel back around, hook the rear of it into the notch in the frame, and rotate the front downward. It will push the little tabs of the barrel latch forward and you should hear them click into place. Done!!!

Phoenix notes that this can only be done with the 3-inch barrel, not the 5-inch. They say if you do not have the 3-inch barrel, use the back of the magazine to do the same thing. Of course you would have to have a spare magazine to do that… since you can't remove the magazine from the gun until you put the safety in the "Safe" position. But since you now

see how it works, I'm sure you can find something on your workbench that will serve the purpose. All it has to do is hold that pesky spring down while you bring the slide back and lock it.

Of course, I didn't do all this just to pack the gun back in its box and put it up for sale. Once it was all put back together, I grabbed a couple boxes of .25 ACP and headed out to the range. I found that the gun shoots well and is reasonably accurate at short range (enough so to make that adjustable rear sight worthwhile). Brand new out of the box, it had no feed or eject problems and handled several different brands of ammo without a hitch. The trigger has a small amount of take-up, but breaks cleanly and consistently.

Beyond that the gun felt good in my hand. Phoenix sells a magazine with an extended finger tang on the bottom and will sell the tang separately (for $7.50) to convert the existing magazine; but with the relatively mild recoil of a .22 or .25, I didn't really think it was necessary. The grip is wide enough to be comfortable, and the gun has enough weight to it for stable shooting. Now, if I could just get proficient at that Phoenix reload drill…

Bottom line: Yes, it's a strange design with some unusual features; but I found that I really LIKE this little gun. It looks good, feels good, and shoots well; and from what I've seen inside, it's better-made than you would expect from a gun that costs so little.

In fact, I like it so well I might just keep it. Just don't tell my bookkeeper (wife)…