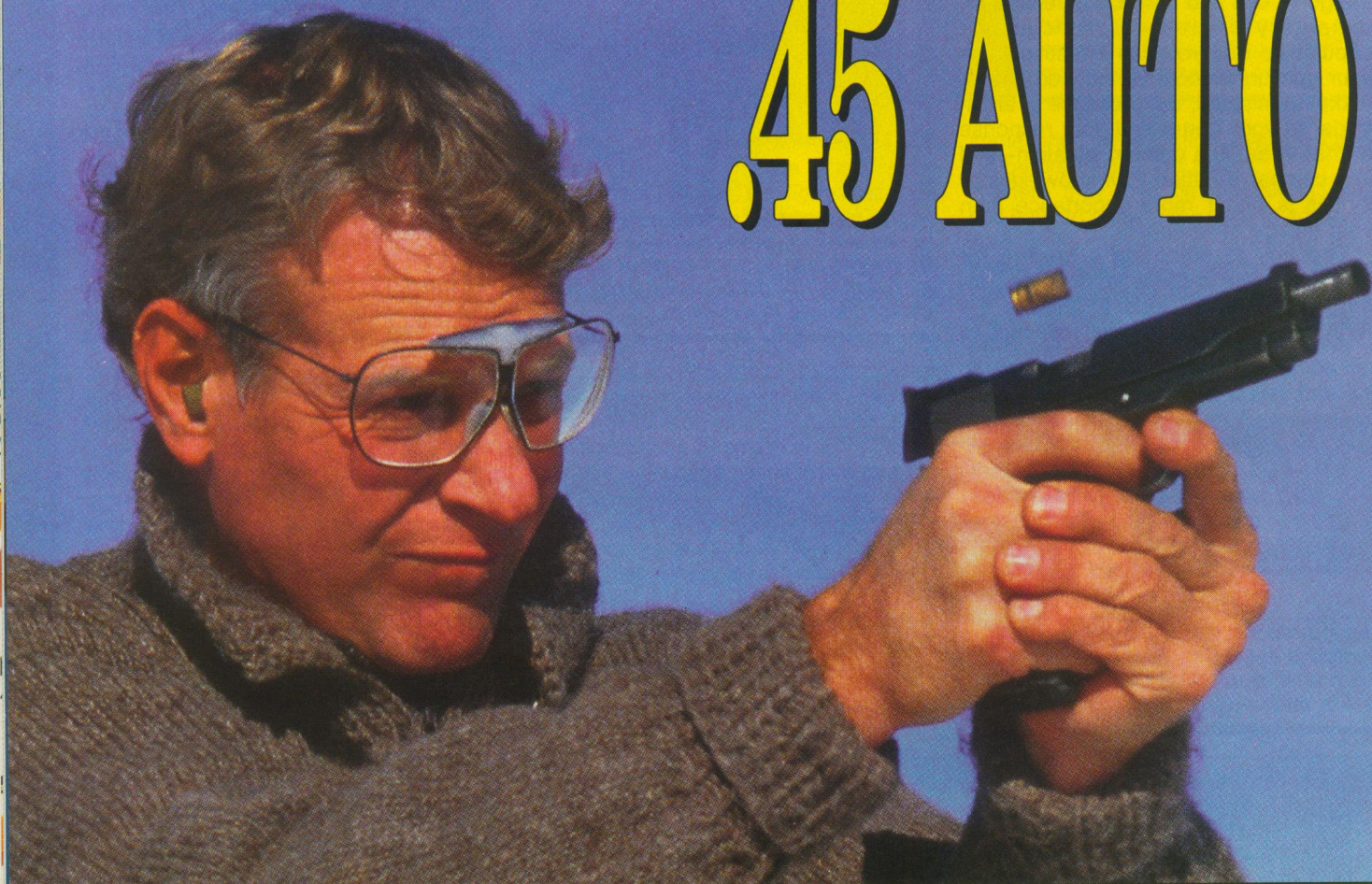


# How to Build the “PERFECT” .45 AUTO



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*The author's experience in the field and on the range help him sort the necessary from the unnecessary.*

*By Ross Seyfried*

**T**here are few guns that receive or deserve more customizing than the 1911 Colt and its clones. When the guns leave the factory they are serviceable, but not very shootable or likeable. There is a little work that *should* be done to every pistol and a whole lot that *can* be done to turn a workhorse into a shooting masterpiece.

I'm not going to talk about the ultra-tricked-up competition guns—they go beyond my scope of interest and expertise. What I am interested in are the kinds of pistols that I used in competition, the same ones I carry today as se-

*Author Seyfried at work with his custom .45 Colt. Note three rounds of brass close together in midair.*

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curity blankets. The combination of ingredients makes a pistol that is easy to hit with, extremely reliable, and pleasing to the eye. In my backward way, I still favor the .45 auto round over other pistol cartridges. To date I haven't found any pistol that would cause me to abandon John Browning's Colt, but a lot of the logic that goes into my pistols can be applied to other makes of guns and certain-

ly to 1911-type pistols with other cartridges.

Firing several tons of ammunition taught me some things about the Colt that I will try to relate to you. At the same time, I'm not going to try to tell you how to fix your own pistol. I think one amateur pistolsmith trying to tell another how to do very sophisticated work is a cruel joke. My gunsmith friends all love it when a gunwriter pens one of the famous "how to customize your own handgun" stories. They are kept busy for the next year reassembling and repairing all of the butchered guns. I only want to give you some idea of what work you want to have done to your pistol and how to go about getting it done correctly.

There are many good pistolsmiths that

I don't know, so making a list would be an injustice. If possible I suggest you try to use a smith from your general area; it will be easier to communicate with him. Pistolsmiths who are serious competitors or who are making guns for high-level competitors in IPSC competitions will generally understand the requirements for a great pistol.

When they come from the factory, the standard Government Model pistols are very "weak" in the two most important parts of any handgun: trigger and sights. I don't pretend that the pistol is improperly made, they just aren't the way I like them. If the factories were to try to please all of us, the basic pistol would cost several times what we pay for them now. Because it is impossible to please

everyone, the gun comes out in its basic form. Each of us can fix it to suit ourselves, spending what we choose on the modifications.

Without question the Government-type sights have to go. They are low, rounded, and small. There just isn't enough sight there to see and align properly. If we can't align the sights, we can't hit. All of my pistols have Bo-Mar adjustable sights, but that isn't the only answer. Any of the good rear sights, either fixed or adjustable, with a broad, flat sighting surface will let you hit with the pistol. I like both the front blade and the rear notch .125 inch wide. This gives you plenty of daylight on both sides of the front sight, allowing you to clearly define and center it even in poor light.

The standard peened-in-place front-sight application should never be trusted. A little rectangular stud sticks through the slide and is riveted in place, and it will shoot loose and fly off. Front sights must be silver-soldered or dove-tailed in place. If you have adjustable rear sights you can plan on them breaking at somewhere around 5,000 rounds, but that's a lot of shooting for most people. Watch out for roll pins—they will be the first to go. Be prepared to replace them with solid-steel pins. If you use a fixed rear sight there is a lot less to

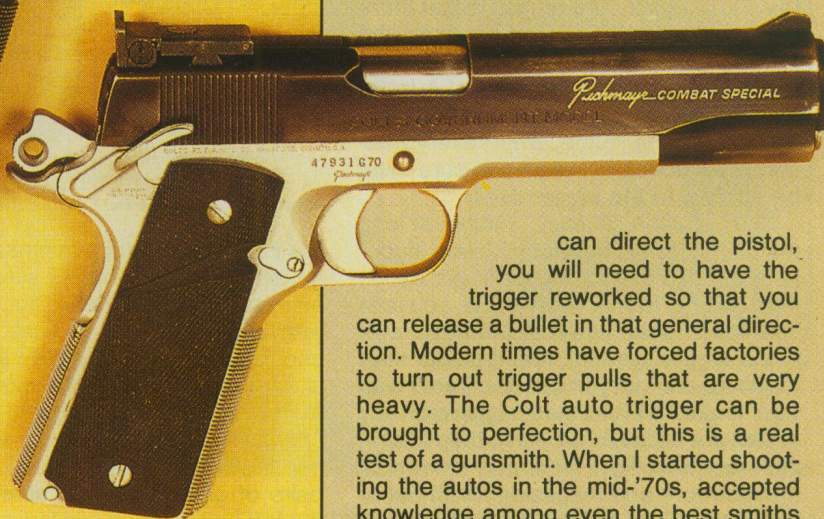


*Three of the author's modified Colts are alike in many of their features, particularly Bo-Mar sights, long triggers, modified grip safeties, and flat mainspring housings. Plenty of thought went into each modification. Everything was done for a good reason.*



break, but you won't be able to easily compensate for impact changes due to barrel/bushing wear or different loads.

With the sights organized so that you



can direct the pistol, you will need to have the trigger reworked so that you can release a bullet in that general direction. Modern times have forced factories to turn out trigger pulls that are very heavy. The Colt auto trigger can be brought to perfection, but this is a real test of a gunsmith. When I started shooting the autos in the mid-'70s, accepted knowledge among even the best smiths was that the Colt trigger couldn't be safely and reliably brought below 4½ pounds. The truth is that after a few men pioneered great triggers on the pistols, some smiths (count them on one hand) brought pulls down under 2 pounds. This is much lighter than necessary or rea-



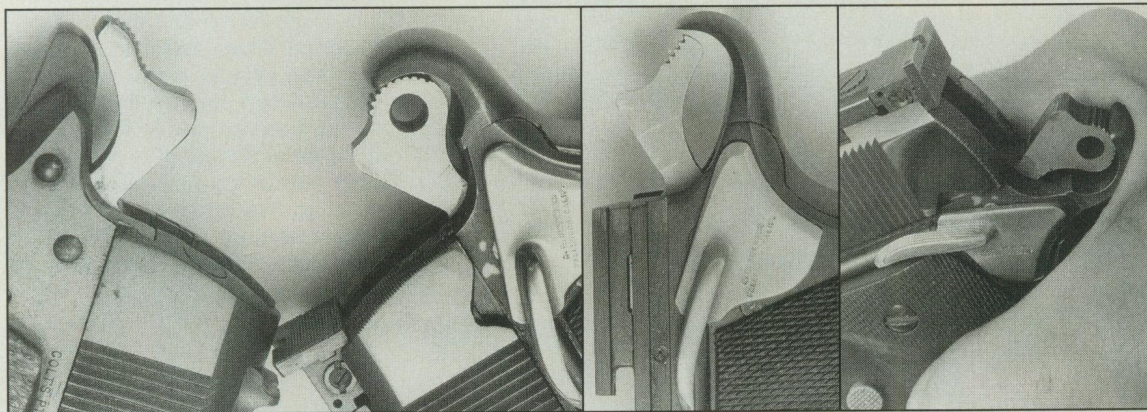
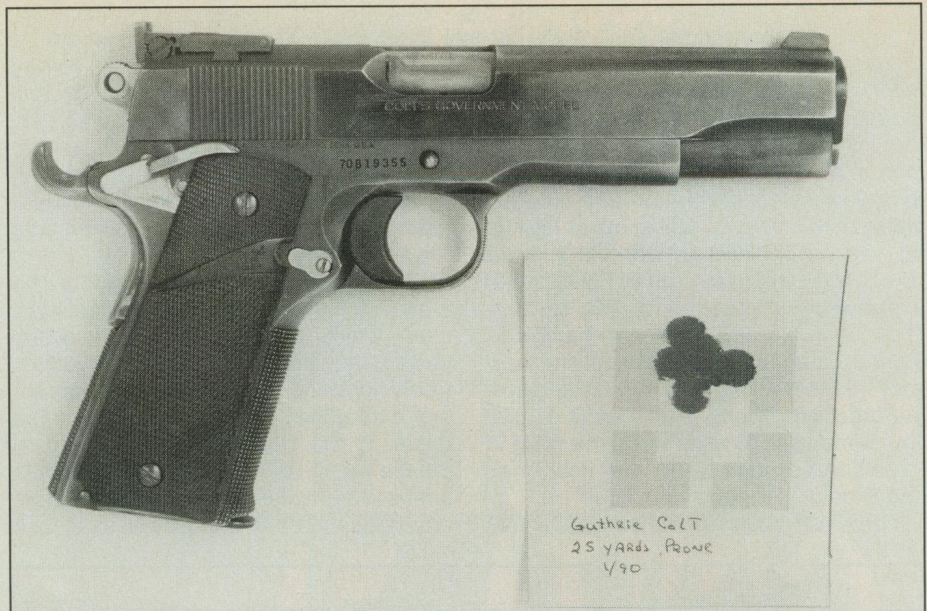
*A stock Colt .45 with the special custom parts that will be used to upgrade and improve the pistol.*

## THE "PERFECT" .45

sonable. The technology did give us extraordinary trigger quality in the 3-to-4-pound class, and that is what you want. With a proper trigger job you should be able to slam the slide violently (*on an empty gun*) without the hammer falling to half-cock. A smith who gives you a trigger that falls to half-cock for any reason hasn't finished his job.

With the trigger quality where you want it, the mechanical trigger itself probably needs attention. The Government Model comes with a very short trigger. That is, the shoe that you touch with

*Author's Guthrie Colt is perfectly reliable, and it shoots like a dream. This is a recent 25-yard group fired from the prone position.*



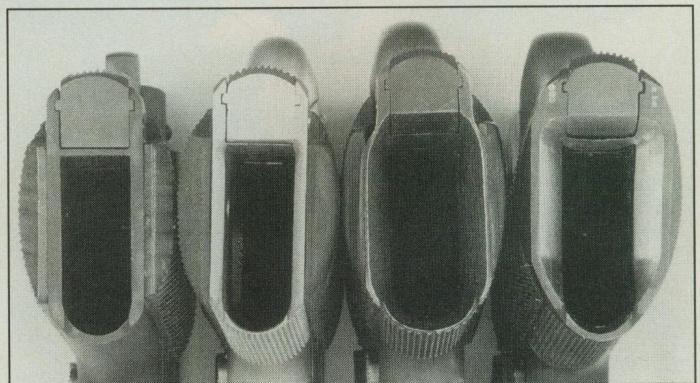
*Grip-safety tang modifications: on the far left, the standard compared to the Commander hammer with new grip safety; a standard hammer with another type of safety. Final picture shows how the hammer cannot bite, no matter how the shooter grips the pistol.*

your finger just barely extends out of the frame. The thought behind this short shoe is that shooters with small hands can "reach the trigger." I've found few people whose hands are too short, but plenty who can't shoot the gun well with the short trigger. The reason is that there is so little trigger protruding from the frame that the trigger finger presses on both the frame *and* the trigger. A lot of the fine control and finger pressure are ill-spent on the frame, when every fraction of an ounce of subtle pressure must be applied to the trigger itself.

The solution is easy. Fitting a long match trigger or extra-long Plaxco trigger puts the pad of your trigger finger well in front of the frame. With these you can "pre-load" (take up all of the free travel in the trigger system), feel the sear start to move, and not run into the frame with your finger. When these triggers or any others are installed properly, they float in their raceway. Test them with the rest of the lockwork and magazine catch out of the pistol. The trigger should "pour" back and forth as the pistol is tilted fore and aft. Test again with the magazine in place, making sure that it doesn't interfere with the trigger's effortless travel.

With the pistol arranged so we can align it on target and fire it in that same direction, we add some traction so that

*Here are various types of magazine-well modification. From left, standard Colt followed by Pachmayr's bevel and two more that have been welded up and/or swaged to form an easy-to-find loading chute for the magazine. The pistol is then faster to reload.*



it is easier to control. Pachmayr grips are an almost perfect instant solution. They also supply mainspring housings (flat and arched) covered with the same checkered rubber. The only thing better is fine hand-cut steel checkering added to the frontstrap, triggerguard, and mainspring housing. With this system, I still use the Pachmayr side panels. I buy two pairs of grips, cut them apart, and use the left one with the scallop cut-away for easy access to the magazine catch and the right side that is flat, without the thumb rest.

The mainspring housing and frontstrap are checkered 20 lines per inch, while the front of the triggerguard carries 30 to 40-LPI checkering. This fine check-

ering on the triggerguard gives your left index finger traction without cutting it or your holster to pieces. I always found the various "hooks" that some smiths put on the front of the guards unsightly and awkward. They can hinder reholstering and are in the way if you don't get your finger exactly in the right spot. While it seems a simple matter to put your finger in the hook, at great speeds (draw-fire-reload-and-fire-again-in-less-than-two-seconds sort of speed) you will find it very easy to slightly misplace your finger. The round, checkered guard is very forgiving, giving you control almost anywhere you touch it. If you don't hold the pistol with the left finger on the guard there is no need to checker it.

While you're checkering, have the top of the magazine release button checkered. This makes it *seem* much easier to push. I don't like to have it extended. A long button is too apt to go "semi-auto," spitting out the magazine when you least expect it.

The question of arched or flat mainspring housings is a personal one. The pistols come with an arched housing. They make the grip slightly larger in circumference than the flat ones do. Some claim arched housings make the pistol point a bit more naturally. I use flat housings, mainly because that's what I learned to shoot with. I favor keeping the grip as small as possible; if I could take two wraps around it I would like that better! One thing is certain: the arched and flat housings make the pistol behave differently, and change is fatal to good shooting. Pick one and stay with it.

*The box-stock Colt Government Model is a fine and reliable handgun—as-is. But the Colt, as customized to the author's specifications, is a shooting instrument of great precision that is also a sensible pistol to carry.*

Another area on the stock pistol that needs attention is the hammer/grip safety. The Colt comes with a big sharp set of fangs on its recoil surface with its standard stubby grip safety and long hammer. Depending on the construction of your hand, the pistol will nibble or chomp big bites out of you. Blood and pain are not conducive to hitting. Jeff Cooper will tell you that the big grip safeties are not necessary...sometimes even the Guru doesn't understand. I started with a standard grip safety and bitterly complained about the deep cracks in the combination of calluses and blisters on my hand. When I asked the "experts" about a cure in 1978 they said, "Just shoot some more and your hands will toughen up." I replied, "I'm at 100 thousand rounds this year—how long will it take?"

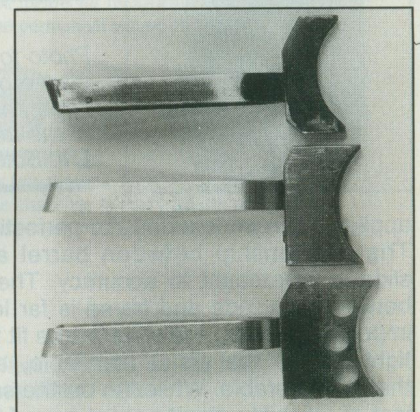
Needless to say, those things that don't kill us make us stronger and hopefully wiser. I switched to beavertail safeties as soon as I knew what they were. The wide surface spreads the recoil and keeps the pistol from digging into the web of your hand. I started with a mild version from Pachmayr. They do a perfect job of taking the bite out of the pistol. Later, by pure accident, I turned to a thing called a "duck tail" that almost completely encircles the hammer. My good South African friend Dale Guthrie was making a pistol for me in his garage. He welded up a safety, leaving excess

metal so that he could file it to my desires. I tried the strange-looking contraption and fell in love with it just the way it was. The big rounded surface cushioned recoil and, more importantly, was extremely forgiving when I drew. I could "miss" my draw by a reasonable margin and have the curved surface force my hand into a perfect firing grip. Combined with a "burr" (Commander) hammer it makes an almost perfectly round surface that doesn't snag on clothes or brush. When you start to have serious custom work on a pistol, the duck tail is an option well worth exploring.

At this point the outside of the pistol is about as shootable as it's going to get. From here we can have internal work done to increase reliability, smoothness, and accuracy. A pistol that is "right" will never fail. My old Pachmayr has fired over 75,000 rounds and has never let

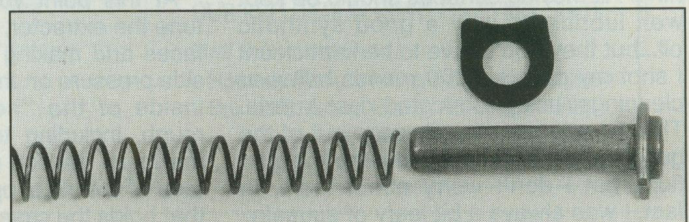
me down. The only occasions when it hasn't fed or ejected have been when totally oversized or misaligned ammunition couldn't possibly be forced into the chamber. If the round went in and fired, the spent case came out. This gun and its twin possess a special quality that I have not seen equaled by any other pistols. That is an oily smoothness in the operation of the slide. There is no sensation of unlocking, bumping into the disconnecter, or cocking the hammer. The entire cycle is one fluid movement. This smooth recoil cycle makes the guns the easiest to shoot, at high speed, of any I have touched.

They came from the days when Frank Pachmayr looked over the shoulder of Bill Ives, who in turn led the gunsmiths. I'm not sure what the magic ingredients are, but they should be the goal of every great pistolsmith. Accuracy is the least



*The above photo shows three types of triggers: standard (on top), the "long" trigger, and author's preferred Plaxco Master Trigger.*

*Seyfried prefers Wolff extra-power springs (above). He also uses the Wilson Shok-buff on the recoil-spring guide; it helps to prevent frame cracking.*



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important ingredient of the three. A good rule for minimum accuracy is 1 inch for every 10 yards of range. Obviously I'm not talking about bullseye guns, but for a working gun, 5 inches at 50 yards will get you by. Most of the great guns will hold less than half of that. My competition/self-defense guns will regularly shoot 1½-inch groups at 25 yards. I have seen totally reliable pistols that could stay in an inch at 50 yards, with perfect ammunition, but that's like a 1/4-minute hunting rifle—not really necessary, just luxurious.

Fitting the barrel to the slide and the slide to the frame are the most important elements. While the perception that "tightened/accurized" pistols weren't reliable was true in the past, it no longer

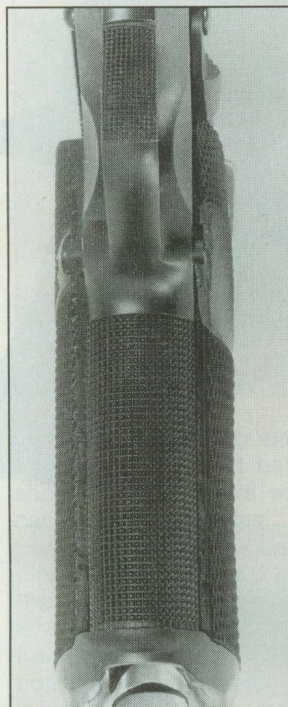
clean pistols. I always cleaned them and then fired at least 200 rounds before I entered a big match. If a smith tells you his pistol has to be kept spotless to work perfectly, try another...his doesn't have any margin for error.

Part of the accuracy/reliability treatment should be to replace the factory spring-finger bushing with a solid, hard-fit one. This bushing is lapped to the barrel and doesn't have the delicate little fingers to break. Now you also question whether to fit a new, oversize match barrel or weld up and fit the factory one. I won the world championship with a stock Colt barrel. They can be very good, but are usually a little more finicky about the kind of ammunition they will shoot accurately. Quite often the labor of welding and fitting the factory barrel offsets most of the cost of a match one, but it is probably better to bite the bullet and start with a best-quality barrel if you are

rough. The combination helps keep the case in place while the ejector gets a good whack at it. If the surfaces are highly polished, as is often done, the case is a lot more apt to float away from the breechface and not be thrown out of the gun by the ejector.

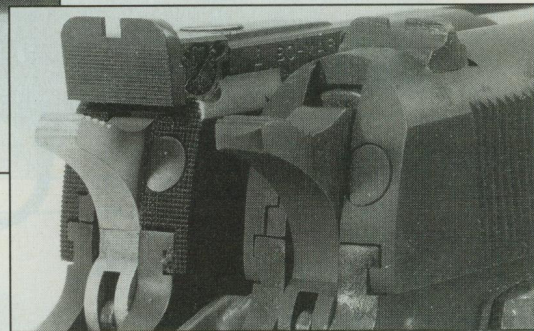
All of my pistols have the long-nosed Commander ejectors fitted. This lets the ejector hit the case earlier and is a great help in preventing "stovepipes." When a pistol is working correctly it should throw all empties in a relatively small "group." My best pistols will put most of their brass in a 5-gallon bucket if I stand and fire in the same position. The cases hit about 6 feet to the right and behind me. If you are firing your pistol and the cases dribble out of the port, or some land to the left or in front of the pistol, expect trouble. Sooner or later, that gun will leave a spent case trapped by the slide. Another standard treatment is to lower and bevel the ejection port. This cuts down on dents and dings in your brass and gives the gun a little larger door to throw the cases out of.

Even without other major modifications the recoil and firing-pin springs should be balanced with your loads. With most loads I find the factory 18-pound



*A lowered ejection port is a big aid to reliability. It also helps keep the fired cases in better shape for reloading—there are no dents in the case mouth.*

*Photo to the left shows the frontstrap area of one of the author's custom Colts. It has been checkered 20 lines per inch. The face of the triggerguard is also checkered, 30 LPI. Both make the .45 easier to control.*



*The low-mounted Bo-Mar rear sight contrasted with the stock Colt (above). Not only are the Bo-Mars precisely adjustable, they are also big, offering a good sight picture.*

applies if the work is done to perfection. The relationship between barrel and slide is paramount to accuracy. The fit between the slide and frame is far less important. Getting the slide/frame fit too tight makes the pistol unreliable, and that is intolerable. While I'm on the subject of reliability, don't accept any of the common excuses for unreliability: "You didn't hold it right," "It's dirty," "The magazine isn't perfect." A good pistol is totally reliable and will overcome almost any reasonable obstacle to keep running. All moving surfaces should be kept well lubricated with a good synthetic oil...but they don't have to be kept clean! I shot my pistols 2,000 rounds between cleanings, using lubricated cast bullets. The dirt and goo literally ooze out of the guns. I apply enough oil to keep the gum fluid, but I don't worry about them. In fact, I was always a bit leery of squeaky-

going to have a fully customized gun made. If you do use a match barrel you must insist on having a *standard chamber*. That is, the ultra-tight match-chamber tolerances found on most match barrels are too tight. Ammunition must be perfect to chamber and there is no room for dirt. A chamber cut to standard Colt tolerances is more accurate than any man can hold the pistol. A tight chamber might have some miniscule edge in machine-rest accuracy, but that doesn't count if the gun doesn't go bang!

At this point your smith should also tune the extractor, polishing its front surfaces and making sure it has plenty of side pressure on the rim of the case. The inside of the "hook" should be left rough, including tool marks, to give it maximum traction on the case. The surface of the slide, opposing the extractor, that holds the case should also be a little

spring too soft. One thing is for certain, light springs are rarely the correct cure for an unreliable pistol. With light match ammo, lighter springs are often needed, but my guns run perfectly with all ammo from 180-grain target loads to 230-grain hardball using the same springs. I prefer 20 or 22-pound springs. They seem to be the best balance between cushioning the slide's rearward travel and not throwing it forward too hard. The guns will cycle with hardball-type ammo using heavier springs, but they begin to recoil violently *forward*. This can damage the pistol and make it difficult to control. Along with the heavier mainsprings I always use Wolff "Extra Power" firing-pin springs. This is a safety measure and also helps reliability. I change both springs regularly, just like oil in an engine. A new set of springs every 2,000 rounds. A little

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buffer like the Wilson Shok-Buff put on the recoil-spring guide cushions the frame and slide. This helps prevent cracking of both parts. I use the plastic buffers only for practice, taking them out of the gun for serious work. They wear out and break. The trouble is, I can never be sure when they will fail, so I keep them out of the gun when total reliability is crucial.

A little reliability trick I use on all of my pistols is to grind a little cup in the face

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**"A good rule for minimum accuracy is 1 inch for every 10 yards of range."**

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of the slide stop. This forms a detent for the spring plunger. The cup should be placed so that the plunger constantly pushes *down* on the slide stop. If everything is fitted perfectly, the slide stop is still functional, but it will never pop on by itself.

Beyond this a couple of superfluous additions complete the pistol. The ambidextrous safety and magazine-well funnel can be whistles and bells unless you need them. The Swensen safety is the standard and my favorite. I alter the right lever slightly, beveling the rear corner so that my right knuckle can't put the safety "on" inadvertently. If you plan to reload the pistol in a hurry, surgery ranging from

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**"Depending on the construction of your hand, the pistol will nibble or chomp big bites out of you. Blood and pain are not conducive to hitting."**

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gently beveling the mouth of the mag well to a full weld-up and funnel rework is in order. The beveling is fine for most shooters, but if lightning 1/4-second reloads lurk in your future I suggest a funnel. These include welding additional metal to the outside of the frame and grinding a generous mouth on the inside of the magazine well, or heating and forging the opening to shape. There are some "bolt-on" funnels that you can use as well. They just aren't part of a complete gunmaker's best-quality pistol.

The magazines themselves are a functional part of the pistol. A good gun will run with almost any magazine, but if

you're really serious I suggest you have from two to five magazines fitted, tested, and numbered with the pistol.

Finally, metal finishes are worthy of your consideration. If you can live with a "white" gun the electroless nickels aren't a bad way to go. The dissimilar-metal theory, using a chrome frame and blue slide to reduce wear, is mostly theory. The two-tone effect does make a racy-looking pistol. Some of the new Teflon or Teflon/nickel finishes may be the best of all. Of course, there is very, very little wrong with a plain blued gun, unless rust resistance is important.

Whatever modification you have done to your pistol, you will have to test it to be sure it works perfectly. There are little gremlins in every auto pistol, whatever make or caliber. When the work is finished, you need to pull the trigger to smoke the little fellas into the open. If you are lucky the gun will be perfect. If it jams or fails, stop and carefully examine the problem. You will need to tell your gunsmith exactly what went wrong so that he can diagnose and cure the trouble.

Unlike its G.I.-issue ancestor, the tuned Colt is one of the most shootable, reliable, and even beautiful pistols in existence. Out of the box they are a bit like ill-trained mules, complete with bite, kick,



*A standard G.I. trigger is hard for many shooters to use. An extended trigger like this one is more comfortable.*

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and lack of direction. With a little "schooling" they become wondrous friends—fast, accurate, and easy to hit with. I know that many kinds of technology make John Browning's .45 auto obsolete, unless like me you still think they are the best pistols in the world.

Virtually every accessory is available from your retail shop or pistolsmith. If you can't find the Pachmayr grips and accessories, write: Pachmayr, Dept. GA, 1875 S. Mountain Ave., Monrovia, CA 91016. If your hands are medium to large I strongly recommend the Plaxco Master Triggers that are .165 inch longer than the normal *long* triggers. They are available as "drop-ins" or oversized, requiring gunsmith fitting. Write: J. Michael Plaxco, Dept. GA, Rt. 1, P.O. Box 203, Roland, AR 72135.