BURN GUNS

By Paul Smeltzer

Part one of a series

Several years ago at one of the early AGI "bashes" I had a conversation with Gene Kelly concerning the direction of my fledgling gunsmith business. One thing that stuck with me was his advice to "focus on the thing that you are most interested in or good at and run with it." I took that advice and focused on military firearms, more specifically restoration of military firearms. That road led to a general reputation for restorations of all kinds. Part of that rep was developed from a willingness to work with guns that have been in a fire. From the beginning I referred to these firearms as "Burn Guns". It is a rarity that I don't have a couple of burn guns in the shop. Presently, taking a look around I have 27 guns from two fires in the shop.

FNAR forearm

I think many, if not most gunsmiths have a certain level of trepidation when confronted with working on a firearm that has been in a fire. Understandable, it is not a stretch to understand that heat does bad things to metal, and if that metal is supposed to contain an explosion developing 50,000+ psi in a small area, one needs to be a bit concerned. Losing the heat treat in the barrel/receiver/bolt to the point that a round going off can result in a catastrophic failure resulting in death, maiming and general destruction is something to have trepidation over. Add to that a litigious society overflowing with "victims," and it is understandable why many would rather defer when it comes to firearms that were in a fire.

At the heart of the matter is the $64.00 question "is it safe to shoot". The answer: there is no definitive yes or no answer to this question. There is no foolproof 100% methodology that is practical to apply that is going to give you a definitive yes or no. Well, OK, if it's melted into a puddle, no, it is not safe to shoot! The standard test is to check out the springs, the idea being that if the springs have lost their temper then figure the gun got too hot, junk it. Not a bad place to start but what if the gun is encased in a melted gun case, what if there aren't many springs to check, or you can't get to them? It seems most folks see a gun that was in a fire, looks really bad and decide it is wrecked beyond repair. If there were a more sure fire "test" I wouldn't be writing this and you wouldn't be reading it.

What I can give you is some insight from having worked on well over a thousand burn guns. I am not a metallurgist, engineer, or expert on fires, just a gunsmith that has a little more experience with guns in fires than most and has learned a few things. First, all fires are not created equal, therefore the resulting damage is not equal. Fires can be slow burns with intense heat, they can be flash fires that burn quickly with relatively low heat. They can also be slow fires that are relatively "cool," or fast and intensely hot fires. Wet leaves on a cool day don't burn like very dry leaves on a hot windy day, balsa wood does not create the same heat as aged oak. All fires are not the same, the damage sustained by guns in those

FNAR butt stock


Melted magazine floorplate

fires is not the same. It is not only a matter of how hot the fire was but how long the gun was exposed to the heat and flame of that fire.

Speaking of exposure, where were the guns? Propped up in a corner of a closet, between the mattress and box springs, in a gun case (metal, wood, plastic, cardboard box), perhaps in a gun safe, perhaps in a plastic case in a gun safe. How long were they in the fire, what was used to extinguish the fire? Water, water plus some sort of fire retardant, foam, CO2? Some of this stuff is pretty corrosive, did the guns receive direct exposure to these corrosive agents? Remember, water is a corrosive agent.


Note nylon sling's different damage status

What were the guns/components made of? Aluminum alloys, composite materials, stainless steel, blued 1040 steel, stamped steel, pot metal castings, plastic trigger guards? What were the stocks/grips made of, solid wood, laminate wood, rubber, plastic, composite, carbon fiber, fiberglass, stag horn? A lot of questions, some of which you don't have answers to, but all have something to say about the potential damage and how salvageable the gun may be.

For those of us who possess a modicum of common sense, it would seem reasonable that a relatively "cool" fire of short duration would be the best of a bad situation, while a slow, hot fire that took forever to put out would be the worst. Lesson 1; don't store your guns in a closet in the garage next to the lawnmower, weed eater, gas cans, and bags of Goodwill clothes.

The most survivable place is a gun safe with a good fire rating. I must admit I am not a big fan of gun safes if theft security is the goal. I am afraid I have been jaundiced by a sheriff friend of mine that demonstrated to me how easy it was to break into an average gun safe. With that said, if fire protection is the goal then by all means get the one with the best fire protection you can afford. Now, just because you did does not mean you are now in high cotton with no worries. The interesting thing about gun safes is they become ovens in a fire, particularly in a hot fire.

The first thing to go are the cheap synthetics and plastics which will begin to melt, this includes handguns that were stored in the safe in the original plastic cases in which they were purchased. Your gun safe/easy bake oven has probably gotten that plastic melted enough to flow into all the nooks and crannies of that brand new Beretta FS 92 contained within - how great is that! The upside is that the case acted somewhat as an insulator and kept the 92 from destruction. I have had one of those and it took a great deal of time and patience to extricate the Beretta from its tomb.


FNAR left side

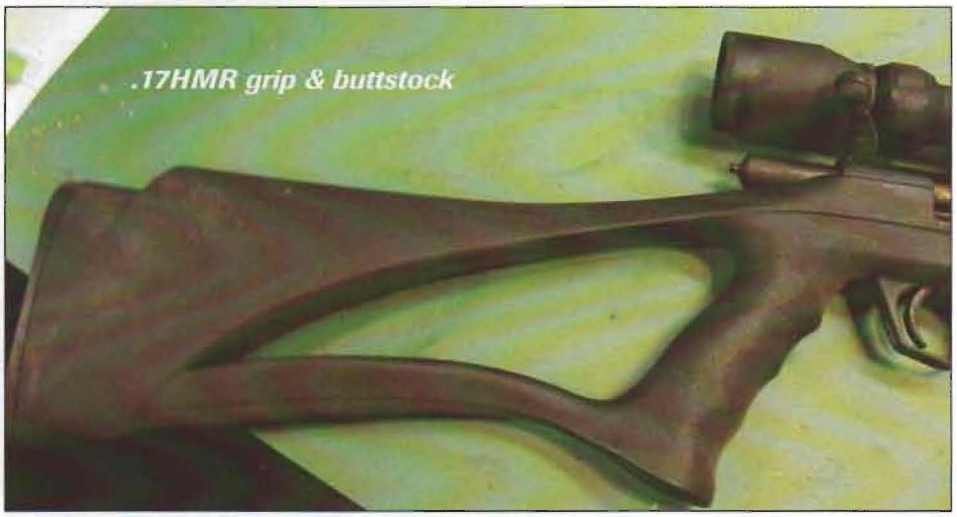
Once released it was not in too bad a shape, the synthetic grips had to be replaced, having become distorted, and the gun needed to be refinished, but otherwise not the worse for wear.

An odd thing about insulating materials that is counterintuitive - in the same safe with the Beretta was a S&W revolver with wood grips stored in the original heavy cardboard box that came out looking unscathed, barely needed cleaning. Apparently cardboard does not melt and offers insulation.

The first indicators of how hot and long the fire was are the stocks and grips. Their condition can help me understand how it most likely affected the metal parts. On wood stocks I look for stocks that were flat burned, looking like they were actually on fire, also stocks that were charred but don't look like they were on fire, more just discolored.


Area around bolt handle


.17HMR right side action area


.17HMR grip & buttstock

What about the recoil pad or butt plate, was the rubber or plastic badly damaged? I do the same assessment for synthetic stocks. I look for areas that have burned badly enough that it nearly melted away, where it just started melting, or was just sooty. I have found that most stocks will show different degrees of damage on the same stock.

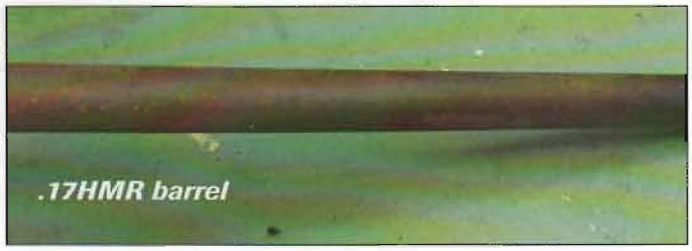
I have seen guns with the recoil pad melted off and a couple of inches of the butt severely burned but the forearm was only a little sooty.

If you look at the pictures of the FNAR scattered throughout this article we can see some interesting damage that can tell us something about this fire and what kind of heat this gun took.

First the forearm looks like it took the most heat. It appears to be made of some kind of fiberglass material, a good insulator. There has been some melting, probably from some sort of plastic shell over the fiberglass. This shell has melted over the receiver particularly on the side opposite the bolt handle. Although badly deformed, the fiberglass is still mostly there. On the bolt side it is pulled away from the barrel, on the opposite side it is against the barrel.

Note the plastic lens cap on the scope, the rim is still in place, a little damaged, the thinnest part covering the lens has melted inwards.

The buttstock is nearly unscathed, except for soot and damage to the pistol grip that looks like melted material fell on it and pooled up on the front side. The trigger guard, a



plastic component, has started to deform also. The magazine is still in the gun and note the melted floor plate, some sort of aluminum alloy, not very heat resistant.

Another interesting observation is the nylon carrying strap is still mostly intact. The front end that would have attached to the forend has melted, the back end is actually the melted blob stuck on the pistol grip, the middle is still intact.

So what do we do with this gun, it is not exactly a cheap gun. The gun was in a gun safe/oven, not in direct contact with flame. It was standing upright, most of the heat was in the forearm area, hot enough to melt plastic. It was probably leaning on its right side, maybe against another gun or perhaps the wall of the safe. Hot enough to melt some sort of aluminum alloy, but not hot enough overall to melt away a highly combustible carrying strap. As we all know, those nylon straps will melt quickly and easily with the flame from a simple match.

At this point I am not willing to write this one off. I am encouraged that the nylon strap is in pretty good shape, the forearm seems to have taken the most heat and the core fiberglass is still intact, the lens cap only melted the thin middle area. I am not happy with the idea that most of the heat was in the chamber/front receiver area, probably the worst area to have heat, or that the magazine cap has started to melt.

I am also not happy with the area around the bolt handle, evidence that somebody tried to force the action open and broke it.

I need more info before I make a call on this one, including taking a look at the springs. With all that melted mess it will take some time to get this gun disassembled and get a good look at the internals.

In contrast, the pictures of the little .17HMR show the rifle looking great (relatively speaking). It came through the same fire in a different safe next to the safe with the FNAR. Nothing melted, nothing obviously stressed, just dirty, sooty and the barrel showing considerable corrosion.

Part One of the "Burn Gun" series written by
Paul Smeltzer, Proprietor of The Athens Gunsmith

Producer's Cut

by Keith Hezmalhalch
AGI/GCA Executive
Video Producer

Another year passes . . .
and apparently a few of my brain cells went with it! I made a point of getting in touch with the powers-that-be before the deadline in order to get our New Year's Eve tickets (that I mentioned last month) and then totally spaced out on actually sending the PAYMENT! Sigh. So we watched some new DVDs and partied with New York via television, accenting the celebration with lighting our own fireworks and a champagne toast!

"and they're OFF!" . . .
This year seems to be off to a great start but as is often the case, there can be a certain "birthing" process. Suzy and I enjoyed meeting up with about 40 of our fellow Fiat enthusiasts on New Year's morning for the annual New Year's drive and it was the most perfect sunny morning! All-in-all it was a great drive and a great day, but it was tarnished a bit by two drivers getting a little too intimate with the flora and fauna.

a brush with . . .
Thankfully no one was injured but their cars paid a price. It served as a reminder that we need to know our limits and stick with them, even when others around us might be running harder and faster than we are currently capable of matching. This applies so aptly to shooting. Part of the excitement of our sport is controlling the explosion taking place in our hand as we hurl projectiles downrange. But we all need to curtail the tendency to try what the guy next to us is doing when we're not quite ready, because the price for a mistake is very high!

that being said . . .
Spring has come and I hope you are thawing out nicely. I also hope Santa brought you many things that will make your adventures even more enjoyable! I know I am looking forward to some new adventures in 2015 and . . . doing a lot more shooting! I'm going to make it a priority because I have too many fun guns that I haven't been enjoying.

movin' on up . . .
As 2015 continues to march forward, who knows what it has in store!? I know I am looking forward to the next filming session with John Bush to see more of his treasurers and I am also excited for the next session with Ken and the new

Continued on page 13