



OCT 2020

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

10

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

WORKING H&A REVOLVERS, PART 4

GHOST GUNS • THE LINDA CARBINE • RICO MORGAN'S M14... AND MINE • REUPPING TOOL SUPPLY

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 202

DIGITAL ARCHIVE EDITION

Preserved for the bench.

This edition presents the original American Gunsmith editorial work in a modern, searchable layout while preserving its issue, author, and source-page history.

ABOUT THIS EDITION

The article text comes from the original issue and has been reflowed for legibility. Obsolete subscription, ordering, association-service, and house-advertising pages are not reproduced.

Original article images appear only where permission has been confirmed. All other image positions remain visibly reserved so approved art can be restored without rebuilding the issue.

Report corrections or rights information to editor@gunsmithmag.com.



AMERICAN GUNSMITH

DIGITAL ARCHIVE EDITION • OCTOBER 2020

ISSUE RECORD

ORIGINAL DATE	October 2020
VOLUME	Archive volume not stated
ISSUE NUMBER	10
SOURCE ID	ag-5ba11557c02d4a18e8426a9a

DIGITAL EDITION

PUBLICATION	American Gunsmith
EDITION	Digital Archive Edition
ARCHIVE STEWARD	Innovation Network LLC
CONTACT	editor@gunsmithmag.com

Editorial fidelity. Article titles, author attribution, issue relationships, source-page references, and article text remain bound to the archive corpus. Layout, covers, navigation, and conversion notes are newly produced for this edition. Historical statements remain part of the original editorial record.

IN THIS ISSUE

Contents

A complete guide to the searchable editorial work preserved from October 2020.

2**Ghost Guns**

HOMEMADE WEAPONS REVOLUTION • ORIGINAL PAGES 2

3**Working H&A Revolvers, Part 4**

BRIAN R. SMITH • ORIGINAL PAGES 3-9

10**The Linda Carbine**

GLEN CALVERT • ORIGINAL PAGES 10-13

14**Rico Morgan's M14... and Mine**

RAY ORDORICA • ORIGINAL PAGES 14-18

19**Reupping Tool Supply**

ROBERT K. CAMPBELL • ORIGINAL PAGES 19-21

22**Glock 44**

ROBERT K. CAMPBELL • ORIGINAL PAGES 22-23

24**Reader Forum**

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 24

FROM THE ARCHIVE

Ghost Guns

BY HOMEMADE WEAPONS REVOLUTION OCTOBER 2020

ORIGINAL PP. 2

Hobbyists, Hackers, and the Homemade Weapons Revolution by Mark A. Tallman is a thorough report on the independently fabricated small arms that go by many names: “homemade,” “DIY,” “80%,” “component” builds, etc; terms that are clearer than the one embraced by media: ghost guns. Homemade firearms have existed for a millennium, but the term ghost gun is more recent.

The first media use of the term to reference actual firearms might be a 2001 article on plastic flare guns that the Real Irish Republican Army converted to fire live cartridges. More recently and infamously, the term became popular after California senator Kevin de León held a notably confused press conference in 2014 where he displayed a firearm he referred to as a “ghost gun” with a “30 caliber clip” and firing a “30 magazine clip in half a second”.

Ghost Guns While FBI statistics indicate a 51 percent decline in violent crime between 1993 and 2018, and the Bureau of Justice Statistics suggests a 71 percent decline, decades of polling indicates that majorities of Americans consistently believe crime to be rising. Mass shootings regularly represent less than 1 percent of gun deaths, and the risks of a student being fatally shot at school have declined 300 percent from the 1990s.

Northeastern University criminologist James Alan Fox maintains that neither mass killings nor school shootings have risen significantly enough to indicate an “epidemic” and Harvard’s David Ropeik observed that the probability of a student being killed by a gun in school on any given day is roughly one in 614,000,000, “far lower than almost any other mortality risk a kid faces.” There are many studies and stats on homemade firearms in Ghost Gun.

The book includes chapters on the “4th Industrial Revolution”, the history and current state of gun making around the world, criminal and terrorist misuse, what the potential real effects may be, and what sort of policies might make sense. Among other advice, Tallman suggests a focus on violence and illegal demand. Some quotes: “Other countries have guns and they don’t have the crime.

At the end of the day it’s still more a social and behavioral issue than a technology issue.” —Greg Moser, State of Colorado Counterterrorism Coordinator (Ret.) “Most adult men in Switzerland have a rifle, and there’s been one mass shooting in its history. It’s because the culture is different. I think you need to build consumer and technology cultures that are healthy!” —Jonathan Poritz, Cryptographer/Computer Science professor

PISTOLS

Working H&A Revolvers, Part 4

The final H&A article covering the Triple Action Safety Police.

BY BRIAN R. SMITH OCTOBER 2020

ORIGINAL PP. 3-9



Right: Hopkins & Allen Triple Action Safety Police models are represented here by a five-shot, four-inch model in 38 S&W. It is remarkably well made, features double and single action, a nickelplated cast iron frame, oversized "target" style walnut grips, automatic extraction of empty cases, a frame-mounted firing pin, and an improved, nearly-foolproof top strap catch mechanism.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: The top strap catch employs two independent levers on both sides, actuated by a pinching motion using finger and thumb. Pinching the levers causes two robust projections to be withdrawn from under the upright above the firing pin in the lower frame. When the two halves are brought together and closed, the opposing projections provide very secure locking.

Below center: Separating the two frame halves by removing of the hinge axis screw makes working on this and other top break style revolvers much easier. Otherwise, you have to contend with one half moving around relative to the other. Below right: The cylinder retention system is also improved over that of the earlier H&A top break auto-extracting revolvers. On the Triple Action Safety Police, merely press a lever on the right side of the upper frame below the forcing cone area of barrel and pull the cylinder to the rear and off its trunnion.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: The top strap catch employs two independent levers on both sides, actuated by a pinching motion using finger and thumb. Pinching the levers causes two robust projections to be withdrawn from under the upright above the firing pin in the lower frame. When the two halves are brought together and closed, the opposing projections provide very secure locking. Below center: Separating the two frame halves by removing of the hinge axis screw makes working on this and other top break style revolvers much easier. Otherwise, you have to contend with one half moving around relative to the other. Below right: The cylinder retention system is also improved over that of the earlier H&A top break auto-extracting revolvers. On the Triple Action Safety Police, merely press a lever on the right side of the upper frame below the forcing cone area of barrel and pull the cylinder to the rear and off its trunnion.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: The top strap catch employs two independent levers on both sides, actuated by a pinching motion using finger and thumb. Pinching the levers causes two robust projections to be withdrawn from under the upright above the firing pin in the lower frame. When the two halves are brought together and closed, the opposing projections provide very secure locking. Below center: Separating the two frame halves by removing of the hinge axis screw makes working on this and other top break style revolvers much easier. Otherwise, you have to contend with one half moving around relative to the other. Below right: The cylinder retention system is also improved over that of the earlier H&A top break auto-extracting revolvers. On the Triple Action Safety Police, merely press a lever on the right side of the upper frame below the forcing cone area of barrel and pull the cylinder to the rear and off its trunnion.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

In the preceding issue, the Hopkins & Allen double action top break revolvers made prior to 1906 were examined and disassembly procedures outlined. This last installment deals with the final H&A revolver design, the top break, automatic-extracting Triple Action Safety Police, or just Safety Police. Hopkins & Allen designers made a number of improvements that set the Triple Action Safety Police apart from their previous top break models.

The primary design change incorporated a gear-driven hammer positioning feature that replaces the more common rebounding hammer. That's correct, the H&A Safety Police is the only revolver made in the United States that I know of that employs spur gears in the lockwork. Specifically, the rear of the trigger has a gear segment that meshes with a mating gear segment in a cam that rides in Pinching the levers causes two robust projections to be withdrawn from under the upright above the firing pin in the lower frame.

When the two halves are brought together and closed, the opposing projections provide very secure locking. Below center: Separating the two frame halves by removing of the hinge axis screw makes working on this and other top break style revolvers much easier. Otherwise, you have to contend with one half moving around relative to the other.

On the Triple Action Safety Police, merely press a lever on the right side of the upper frame below the forcing cone area of barrel and pull the cylinder to the rear and off its trunnion. It is remarkably well made, features double and single action, a nickelplated cast iron frame, oversized "target" style walnut grips, automatic extraction of empty cases, a frame-mounted firing pin, and an improved, nearly-foolproof top strap catch mechanism. a large circular opening in the hammer.

A hole offset from center in the geared cam is located by the hammer axis screw when assembled. The two gear segments control vertical

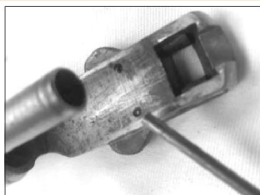
hammer position. Depending on the relative positions of the trigger and hammer on a Safety Police revolver, the hammer nose is either fully upward and tucked under the rear of the top strap or it is lowered to be in contact with the striking face of the framemounted firing pin. This happens only when the trigger is pulled and the hammer is in the forward, fallen position.

This hammer-implemented safety feature is analogous to a modern transfer bar that slides up and down in front of the hammer. When in the up position the hammer strikes the transfer bar, transferring the blow to the firing pin. H&A took a "don't raise the bridge, lower the river" approach and designed the gear system to translate—to use the engineering term—the hammer vertically, instead of a transfer bar.

The hand (or pawl, depending on your revolver politics) is trigger mounted with an eye that engages a pin in the left rear of the trigger, employing a flat spring with an arched

WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 4



Above left: When separating the halves of the frame, take care so that the extractor cam is not misplaced. The cam shaped like a numeral "6" is shown in its rest position as if assembled. Note the leaf sprung cast off inside the extractor cam, the tip of which projects downward from the frame hinge when assembled. Above center: The punch tip calls attention to the cylinder retaining lever pivot screw. It's slotted head is tiny, requiring a jeweler's screwdriver or the like to remove it, but only if repairs require it. The screw is small enough to qualify as a "sleeping dog". Above right: The punch tip points to one of the two top strap catch lever pivot pins. Drive out the short pins to remove the catch levers, keeping in mind that the levers are loaded with small coils springs on each side.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED



Above left: When separating the halves of the frame, take care so that the extractor cam is not misplaced. The cam shaped like a numeral "6" is shown in its rest position as if assembled. Note the leaf sprung cast off inside the extractor cam, the tip of which projects downward from the frame hinge when assembled. Above center: The punch tip calls attention to the cylinder retaining lever pivot screw. It's slotted head is tiny, requiring a jeweler's screwdriver or the like to remove it, but only if repairs require it. The screw is small enough to qualify as a "sleeping dog". Above right: The punch tip points to one of the two top strap catch lever pivot pins. Drive out the short pins to remove the catch levers, keeping in mind that the levers are loaded with small coils springs on each side.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED



Above left: When separating the halves of the frame, take care so that the extractor cam is not misplaced. The cam shaped like a numeral "6" is shown in its rest position as if assembled. Note the leaf sprung cast off inside the extractor cam, the tip of which projects downward from the frame hinge when assembled. Above center: The punch tip calls attention to the cylinder retaining lever pivot screw. It's slotted head is tiny, requiring a jeweler's screwdriver or the like to remove it, but only if repairs require it. The screw is small enough to qualify as a "sleeping dog". Above right: The punch tip points to one of the two top strap catch lever pivot pins. Drive out the short pins to remove the catch levers, keeping in mind that the levers are loaded with small coils springs on each side.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED



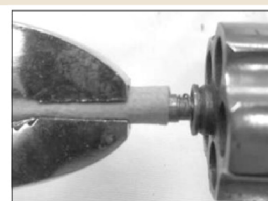
Below left: It helps to place a spring clamp with projected jaws on each side of the top strap to contain the latch levers and their springs when driving out the latch lever pins. Below center: Right-side latch lever is shown with its coil spring next to the upper frame top strap. The left side is a mirror image. The latch lever axis pin is not shown; it was immediately placed in a magnetic dish upon removal. The author did not wish to tempt fate and trusts the readers know what a tiny cylindrical pin looks like. Below right: The extractor actuation rod is right-hand threaded and removed using pliers with protected jaws. The hose clamp pliers used here have jaws each fitted with a triangular recess for purposes of opening round wireform hose clamps, doubling as a tool for loosening these rods.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED



Below left: It helps to place a spring clamp with projected jaws on each side of the top strap to contain the latch levers and their springs when driving out the latch lever pins. Below center: Right-side latch lever is shown with its coil spring next to the upper frame top strap. The left side is a mirror image. The latch lever axis pin is not shown; it was immediately placed in a magnetic dish upon removal. The author did not wish to tempt fate and trusts the readers know what a tiny cylindrical pin looks like. Below right: The extractor actuation rod is right-hand threaded and removed using pliers with protected jaws. The hose clamp pliers used here have jaws each fitted with a triangular recess for purposes of opening round wireform hose clamps, doubling as a tool for loosening these rods.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED



Below left: It helps to place a spring clamp with projected jaws on each side of the top strap to contain the latch levers and their springs when driving out the latch lever pins. Below center: Right-side latch lever is shown with its coil spring next to the upper frame top strap. The left side is a mirror image. The latch lever axis pin is not shown; it was immediately placed in a magnetic dish upon removal. The author did not wish to tempt fate and trusts the readers know what a tiny cylindrical pin looks like. Below right: The extractor actuation rod is right-hand threaded and removed using pliers with protected jaws. The hose clamp pliers used here have jaws each fitted with a triangular recess for purposes of opening round wireform hose clamps, doubling as a tool for loosening these rods.

ORIGINAL ARCHIVE IMAGE - PERMISSION CONFIRMED

The cam shaped like a numeral "6" is shown in its rest position as if assembled. Note the leaf sprung cast off inside the extractor cam, the tip of which projects downward from the frame hinge when assembled. Above center: The punch tip calls attention to the cylinder retaining lever pivot screw. It's slotted head is tiny, requiring a jeweler's screwdriver or the like to remove it, but only if repairs require it. The screw is small enough to qualify as a "sleeping dog".

Drive out the short pins to remove the catch levers, keeping in mind that the levers are loaded with small coils springs on each side. lower end that is driven into a slot in the hand. This makes for a much more robust hand mechanism as compared to those of previous small pocket revolvers of H&A manufacture and its competitors. Another improvement is the top strap latch. Previous top break mod- Below center: Right-side latch lever is shown with its coil spring next to the upper frame top strap.

The left side is a mirror image. The latch lever axis pin is not shown; it was immediately placed in a magnetic dish upon removal. The author did not wish to tempt fate and trusts the readers know what a tiny cylindrical pin looks like. The hose clamp pliers used here have jaws each fitted with a triangular recess for purposes of opening round wireform hose clamps, doubling as a tool for loosening these rods. els employed a spring-loaded sliding and tilting top strap latch.

The Safety Police took a radical departure. On each side of the rear of the top strap are long, thin catch levers with projections for thumb and forefinger purchase. These catch levers are coil sprung in the closed position and pivot on small diameter pins. Pressing on the projections cause the catch levers to pivot the opposite ends out of engaging slots in the top of the frame above the recoil shield.

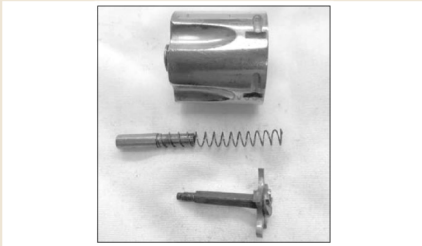
This Safety Police frame latch mechanism is extremely positive in function and a huge improvement over those of prior H&A and competitive top break designs. There is a similar lever on the right side of the top frame in front of the cylinder that retains and releases the cylinder.

With the action open, pressing on the cylinder catch lever thumb piece rotates the cylinder retaining lever hook away from a mating circular groove in the "bushing" projecting from the forward end of the cylinder, allowing for easy cylinder removal from its trunnion for cleaning or lubrication. Disassembly So much for the improvements; on to disassembly. First, ensure that the revolver is unloaded.

Next, remove the hinge screw to separate the upper and lower frame sections because it makes for easier manipulation of the two halves as sub assemblies for disassembly and reassembly. The hinge screw is a one-piece screw as opposed to a screw-inside-a-pin

WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 5



Above left: The disassembled cylinder assembly consists of the cylinder, actuator rod and spring, and extractor star. Above center: H&A spared no expense when it came to grip fastening, providing the oversize target grips with two sets of screws, free escutcheons, and threaded nut escutcheons. Use the standard procedure of unscrewing the screws, then pushing on the screws to pop the opposing grip panel off without damage. In this case, apply force to the upper screw under the screwdriver as shown. Above right: As with the other H&A revolvers described in earlier issues, use pliers to dislodge the lower end of the mainspring from its seat in the grip frame and push sideways to free it.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED



Above left: The disassembled cylinder assembly consists of the cylinder, actuator rod and spring, and extractor star. Above center: H&A spared no expense when it came to grip fastening, providing the oversize target grips with two sets of screws, free escutcheons, and threaded nut escutcheons. Use the standard procedure of unscrewing the screws, then pushing on the screws to pop the opposing grip panel off without damage. In this case, apply force to the upper screw under the screwdriver as shown. Above right: As with the other H&A revolvers described in earlier issues, use pliers to dislodge the lower end of the mainspring from its seat in the grip frame and push sideways to free it.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED



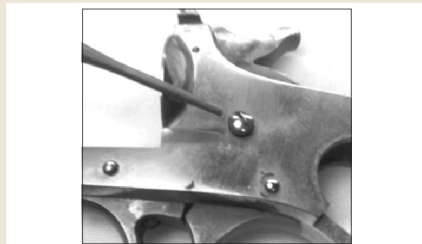
Above left: The disassembled cylinder assembly consists of the cylinder, actuator rod and spring, and extractor star. Above center: H&A spared no expense when it came to grip fastening, providing the oversize target grips with two sets of screws, free escutcheons, and threaded nut escutcheons. Use the standard procedure of unscrewing the screws, then pushing on the screws to pop the opposing grip panel off without damage. In this case, apply force to the upper screw under the screwdriver as shown. Above right: As with the other H&A revolvers described in earlier issues, use pliers to dislodge the lower end of the mainspring from its seat in the grip frame and push sideways to free it.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED



Below left: To begin removal of the lockwork components, unscrew the hammer axis screw several turns to introduce a little slop in the lockwork. Below center: Drive out the front (shown) and rear frame cross pins to remove the trigger guard. Below right: Lower frame is shown with cross pins and trigger guard removed. The rear cross pin is about two times the diameter of that of the front cross pin, so there is no confusing them.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED



Below left: To begin removal of the lockwork components, unscrew the hammer axis screw several turns to introduce a little slop in the lockwork. Below center: Drive out the front (shown) and rear frame cross pins to remove the trigger guard. Below right: Lower frame is shown with cross pins and trigger guard removed. The rear cross pin is about two times the diameter of that of the front cross pin, so there is no confusing them.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED



Below left: To begin removal of the lockwork components, unscrew the hammer axis screw several turns to introduce a little slop in the lockwork. Below center: Drive out the front (shown) and rear frame cross pins to remove the trigger guard. Below right: Lower frame is shown with cross pins and trigger guard removed. The rear cross pin is about two times the diameter of that of the front cross pin, so there is no confusing them.

ORIGINAL ARCHIVE IMAGE • PERMISSION
CONFIRMED

Above center: H&A spared no expense when it came to grip fastening, providing the oversize target grips with two sets of screws, free escutcheons, and threaded nut escutcheons. Use the standard procedure of unscrewing the screws, then pushing on the screws to pop the opposing grip panel off without damage. In this case, apply force to the upper screw under the screwdriver as shown. two-piece setup of the previous H&A top break designs.

Take notice of the extractor cam that rests between the two halves of the top frame hinge. It's circular with a "tail" that projects upward and points to the rear, with the tip of that tail pressing on the end of the extractor plunger when the top frame is opened, causing the extractor star to raise and eject the cartridges or cases. Continuing with the top frame,

press on the cylinder retaining lever thumb piece and carefully pull the cylinder off the trunnion.

There is a microscopically-tiny screw that serves as a pivot pin for the cylinder retaining lever that is accessed where the right side of the hinge meets the frame. For the purposes of this article, I prudently decided to allow Below center: Drive out the front (shown) and rear frame cross pins to remove the trigger guard. The rear cross pin is about two times the diameter of that of the front cross pin, so there is no confusing them. that little bit of a dog to remain sleeping, but your attention is called to it.

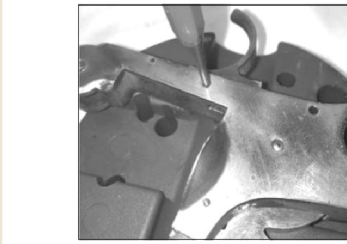
Also note the tiny coil spring that lies behind the cylinder retaining lever. Removal of that pivot screw requires a very small jeweler's screwdriver. I also recommend a few drops of

Kroil or your favorite penetrant around the cylinder retaining lever and on the screw head. A swing-arm magnifier or a pair of "cheater" reading glasses is also a good idea. There is a cross pin through the top frame at the base of the cylinder trunnion, retaining it. Disassembly is not recommended unless repairs demand it.

The last bits to be removed from the top frame are the frame catch levers. There are two pins, one each side, that are driven out from the underside toward the top using a small diameter punch and a bench block. There is a small coil spring on each side, one per latch lever, located behind the latch lever thumbpiece area. The punch will act as a slave pin when driving out the actual catch lever retaining pins and you should control the catch levers when removing

WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 6



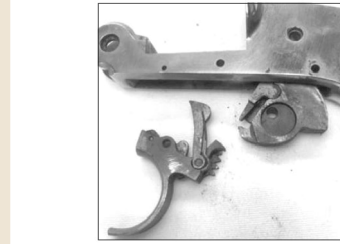
Above left: Once the trigger guard is removed, drive out the trigger axis pin to remove the trigger and hammer, both of which are removed from the trigger guard slot in the underside of the frame. Above center: Close up of the hammer assembly showing the gear segment, leaf-spring loaded hand, and the half-moon shaped cylinder stop (bolt) just to the left of the hand and to the right of the trigger axis hole. The cylinder stop is hinged on the cross pin just to the left of the trigger axis hole. Above right: Trigger assembly and hammer eccentric below the hammer. The hammer eccentric rides in the hole in the hammer.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



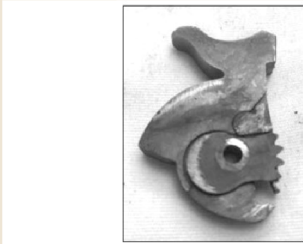
Above left: Once the trigger guard is removed, drive out the trigger axis pin to remove the trigger and hammer, both of which are removed from the trigger guard slot in the underside of the frame. Above center: Close up of the hammer assembly showing the gear segment, leaf-spring loaded hand, and the half-moon shaped cylinder stop (bolt) just to the left of the hand and to the right of the trigger axis hole. The cylinder stop is hinged on the cross pin just to the left of the trigger axis hole. Above right: Trigger assembly and hammer eccentric below the hammer. The hammer eccentric rides in the hole in the hammer.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Above left: Once the trigger guard is removed, drive out the trigger axis pin to remove the trigger and hammer, both of which are removed from the trigger guard slot in the underside of the frame. Above center: Close up of the hammer assembly showing the gear segment, leaf-spring loaded hand, and the half-moon shaped cylinder stop (bolt) just to the left of the hand and to the right of the trigger axis hole. The cylinder stop is hinged on the cross pin just to the left of the trigger axis hole. Above right: Trigger assembly and hammer eccentric below the hammer. The hammer eccentric rides in the hole in the hammer.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: Withdraw the trigger assembly and hammer through the trigger guard slot in the bottom of the frame. Below center: Cylinder stop removed from the trigger. The cylinder stop pin remains engaged in the left side hole in the trigger. Below right: Hammer assembly shown complete from the right side, with the eccentric in place and the gear segment rotated up.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: Withdraw the trigger assembly and hammer through the trigger guard slot in the bottom of the frame. Below center: Cylinder stop removed from the trigger. The cylinder stop pin remains engaged in the left side hole in the trigger. Below right: Hammer assembly shown complete from the right side, with the eccentric in place and the gear segment rotated up.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: Withdraw the trigger assembly and hammer through the trigger guard slot in the bottom of the frame. Below center: Cylinder stop removed from the trigger. The cylinder stop pin remains engaged in the left side hole in the trigger. Below right: Hammer assembly shown complete from the right side, with the eccentric in place and the gear segment rotated up.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

Above center: Close up of the hammer assembly showing the gear segment, leaf-spring loaded hand, and the half-moon shaped cylinder stop (bolt) just to the left of the hand and to the right of the trigger axis hole. The cylinder stop is hinged on the cross pin just to the left of the trigger axis hole. The hammer eccentric rides in the hole in the hammer. the punch to ensure the levers and springs aren't launched. Next, take up the cylinder assembly.

Using a pliers with protected jaws, unscrew the extractor plunger projecting from the front of the cylinder assembly counterclockwise. I use an old SK Hand Tool Hose Clamp, a slip joint pliers intended for removal of circular spring wireform hose clamps. This tool has triangular notches in the ends of the jaws which form a diamond-shaped recess when closed; perfect for removing top break extractor actuator rods. Once the extractor rod is unscrewed, remove the extractor rod spring.

From the opposite end of the cylinder, pull out the extractor star. The extractor star shaft is pentagonal in section. The star and its shaft are "matched" by a tiny female semi-circle in the end of one Below center: Cylinder stop removed from the trigger. The cylinder stop pin remains engaged in the left side hole in the trigger. of the star arms and a matching male semi-circle in the mating side of the cylinder.

Conveniently, H&A assembly technicians applied the last three digits of the serial number to the rear face of the cylinder above one of the extractor star arms and thoughtfully applied the last two digits of the serial number to that star arm. Match the numbers and the extractor star assembly is properly positioned for the semicircular cutouts to be aligned. Attention is turned to the lower frame. Remove the grip panels.

In this case, there are two grip screws retaining the "army style" enlarged grip panels, as H&A referred to them. Push the right side

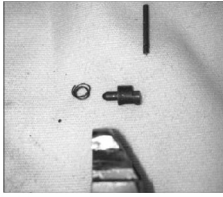
panel off by applying force to the heads of the partially-unscrewed grip screws to avoid damage to the grip panels. Next, as with the previous H&A models with external hammers, grasp the flat mainspring with a pair of needle-nose pliers and force the spring forward and to the right or left to disengage it from its seat in the bottom of the frame.

The rounded upper end of the mainspring fits in a seat in the underside of the hammer. There are three pins in the frame beneath the trigger guard and the cylinder window. The middle pin is the trigger axis pin. Using appropriately-sized punches and a bench block, drive out the outermost two pins which retain the trigger guard. The forward pin is smaller in diameter than the rear most pin so it is easy to tell which pin belongs where.

The rear most pin is the same diameter and length as the trigger axis pin, but I prefer not to mix them up. With the retaining

WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 7



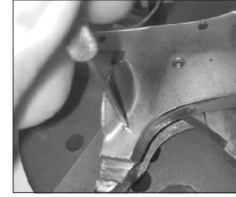
Above left: Reinstalling the hand on the trigger entails gently prying the leaf spring such that the tip of the curved end of the spring is pulled away from the rear of the trigger, allowing the hand loop to slide onto its stud. Above center: Firing pin is frame mounted, another unusual feature for a 110 year old design. Drive out the cross pin in the lower frame upright in order to withdraw the firing pin and spring to the rear. Above right: From left to right, firing pin return spring, firing pin, and firing pin retainer cross pin. The mangled firing pin return spring is what brought this revolver to the author's bench in the first place. A section of low-force spring of the firing pin diameter was cut from a spring in a Wolff Gunsprings Master Gunsmith Spring Kit and worked nicely.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Above left: Reinstalling the hand on the trigger entails gently prying the leaf spring such that the tip of the curved end of the spring is pulled away from the rear of the trigger, allowing the hand loop to slide onto its stud. Above center: Firing pin is frame mounted, another unusual feature for a 110 year old design. Drive out the cross pin in the lower frame upright in order to withdraw the firing pin and spring to the rear. Above right: From left to right, firing pin return spring, firing pin, and firing pin retainer cross pin. The mangled firing pin return spring is what brought this revolver to the author's bench in the first place. A section of low-force spring of the firing pin diameter was cut from a spring in a Wolff Gunsprings Master Gunsmith Spring Kit and worked nicely.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



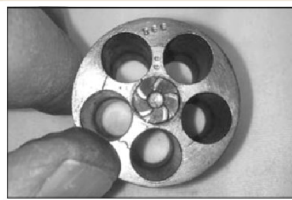
Above left: Reinstalling the hand on the trigger entails gently prying the leaf spring such that the tip of the curved end of the spring is pulled away from the rear of the trigger, allowing the hand loop to slide onto its stud. Above center: Firing pin is frame mounted, another unusual feature for a 110 year old design. Drive out the cross pin in the lower frame upright in order to withdraw the firing pin and spring to the rear. Above right: From left to right, firing pin return spring, firing pin, and firing pin retainer cross pin. The mangled firing pin return spring is what brought this revolver to the author's bench in the first place. A section of low-force spring of the firing pin diameter was cut from a spring in a Wolff Gunsprings Master Gunsmith Spring Kit and worked nicely.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Far left: If repairs mandate, remove this cross pin to withdraw the cylinder trunnion from the upper frame. Left: The extractor star is keyed to the cylinder by means of a pentagonal shaft, cylinder axis, and an indent in the outer edge of one of the extractor star arms mating with a tab on the cylinder, shown next slightly above and to the right of the thumb. Note also the match marking of the serial numbers on the cylinder and the extractor arm at 12 o'clock.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Far left: If repairs mandate, remove this cross pin to withdraw the cylinder trunnion from the upper frame. Left: The extractor star is keyed to the cylinder by means of a pentagonal shaft, cylinder axis, and an indent in the outer edge of one of the extractor star arms mating with a tab on the cylinder, shown next slightly above and to the right of the thumb. Note also the match marking of the serial numbers on the cylinder and the extractor arm at 12 o'clock.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

Above center: Firing pin is frame mounted, another unusual feature for a pins removed, the trigger guard is readily withdrawn from its mortise in the lower frame. There are no reset springs or other parts to fall out with removal of the trigger guard. If parts do fall out when removing the trigger guard, congratulations, you likely found the problem with the revolver you're working on. With the trigger guard out, tilt the lower frame and look at the lockwork from the underside under illumination.

Specifically, pay attention to the engagement of the two gear segments on the rear of the trigger and projecting out the front of the hammer eccentric cam. Important note, the bottom-most tooth on the hammer cam is properly located between the two lower-most teeth on the trigger gear segment. Read that last sentence again, two or three times, and take another look at the guts of the Safety Police through the frame slot. Take a photo and make a drawing. Compare to the photos accompanying this article.

Those gears mesh only one way and one way only for proper function of a reassembled H&A Safety Police. This is an "ask me how I know" situation; in preparing this article I intentionally reassembled the Safety Police with the gears imout the cross pin in the lower frame upright in order to withdraw the firing pin and spring to the rear. The mangled firing pin return spring is what brought this revolver to the author's bench in the first place.

A section of low-force spring of the firing pin diameter was cut from a spring in a Wolff Gunsprings Master Gunsmith Spring Kit and worked nicely. properly meshed one tooth each way of correct. This made the lockwork not function properly or the hammer was not vertically positioned correctly if the gearing wasn't properly engaged during reassembly. With a thorough understanding of the relationship between the trigger gear and hammer eccentric cam gear segments, loosen but don't remove the hammer screw.

It helps disassembly and unmeshing of the gears if both trigger and hammer are free to shift a bit. Then drive out the trigger axis pin and withdraw the trigger, manipulating it so that the hand clears its slot in the recoil shield. With the hammer out of the way, remove the hammer screw and withdraw the hammer from the bottom of the lower frame.

The hammer eccentric cam may drop out of its circular penetration in the hammer but it only goes together one way, with the eccentric cam inserting from the right side of the hammer. If desired, the hand can be slid off its pivot pin on the trigger. For reassembly it is helpful to insert a small slotted screwdriver between the hand and its flat spring to bring the curved end of the spring away from the bottom of the hand to clear the pivot pin.

The cylinder stop (bolt) lever has two lobes, the actual stop toward the rear and an actuator lobe toward the Far

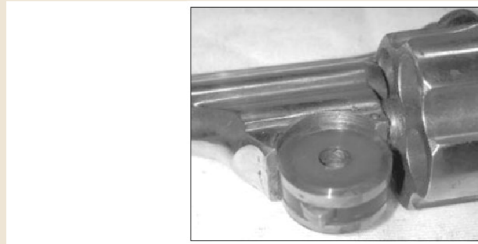
WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 8



window—firing pin, hand tip, and cylinder stop. Below left: With the revolver uncocked and the trigger is in its forward rest position, the top of the hammer should be snug up and filling its recess in the rear of the top strap as shown. Note, if there's a gap between the top of the hammer and that recess, or the top strap won't close without the hammer being cocked, the gears are NOT correctly meshed. Disassemble and adjust the gear mesh.

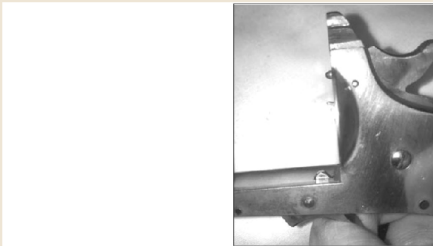
ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Far left: Extractor actuating cam installed in its proper position in the hinge area of the upper frame. Note the orientation of the "shark fin" of the cam at roughly 7 o'clock on the hinge. Left: Critically important, the lockwork parts assembled external to the frame and illustrate the correct and ONLY way the gear segments mesh together. Note, the hammer is swung back out of the way for clarity. The lowest tooth of the hammer eccentric resides between the two lowermost trigger gear teeth.

When reinstalling the lockwork, make sure the gears are meshed as shown. Perform this by installing the trigger axis pin first and leaving the hammer to be free to slide around in the frame. Using a jeweler's screwdriver or a toothpick, position the hammer eccentric teeth in mesh with the trigger teeth. Hold the gears together and position the hammer up/down to align the axis hole in the eccentric with the frame holes. Install the hammer axis screw, then check the gear position to make certain the mesh is correct as shown.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Left: A quick lockwork function check with the trigger pulled and hammer forward show the lockwork bits are correctly in position in the cylinder

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED



Below left: With the revolver uncocked and the trigger is in its forward rest position, the top of the hammer should be snug up and filling its recess in the rear of the top strap as shown. Note, if there's a gap between the top of the hammer and that recess, or the top strap won't close without the hammer being cocked, the gears are NOT correctly meshed. Disassemble and adjust the gear mesh.

ORIGINAL ARCHIVE IMAGE • PERMISSION CONFIRMED

Far The lowest tooth of the hammer eccentric resides between the two lowermost trigger gear teeth. When reinstalling the lockwork, make sure the gears are meshed as shown. Perform this by installing the trigger axis pin first and leaving the hammer to be free to slide around in the frame. Using a jeweler's screwdriver or a toothpick, position the hammer eccentric teeth in mesh with the trigger teeth.

Hold the gears together and position the hammer up/down to align the axis hole in the eccentric with the frame holes. Install the hammer axis screw, then check the gear position to make certain the mesh is correct as shown. front. Pressing down on the actuator lobe causes the cylinder stop to rise up through its slot in the bottom of the cylinder window. The cylinder stop is pivoted on a pin in a slot in the trigger and loaded with a coil spring under the actuation lobe.

To remove the cylinder stop, support the trigger on a bench block and drive out the axis pin while controlling the cylinder stop to prevent a parts launch. The hammer pawl is pivoted at the lower front of the hammer and loaded with a light wire coil spring in a manner similar to modern revolvers. This is another dog that I chose to let sleep without disassembly, but the reader is at least aware of how the hammer pawl appears in the Safety Police.

The final bits to be removed in the lower frame are the firing pin, its spring, and retaining pin. Supporting the lower frame on a bench block, drive out the retaining pin located behind the recoil shield. The firing pin is withdrawn from the rear through the hammer mortise and the firing pin spring follows.

In the subject Safety Police example, the firing pin spring turned out to be the source of complaint; it had been "mashed flat" to use the technical term, and was not positively re-

turning the firing pin to its rest position with the firing pin tip retracted into the frame as the hammer nose translated upward and out of contact with the firing pin. A section of small diameter wire spring of the proper ID from a Wolff Master Gunsmith Spring Kit took swift care of the issue.

To reassemble, first install the spring, then the firing pin with the Drive in the retaining pin. Reassembly of the Safety Police is more involved than the usual "in the opposite manner" often used. The previously-mentioned gear set relationship is of critical importance. Attention is called to the critically important photo above showing the trigger and hammer assembled in relative positions on the outer surface of the left side of the Safety Police lower frame.

Note the lower-most tooth on the hammer eccentric cam engaged between window—firing pin, hand tip, and cylinder stop. Disassemble and adjust the gear mesh.

WORKING H&A REVOLVERS, PART 4 CONTINUED

ORIGINAL PAGE 9

the two lower-most teeth on the trigger gear segment (the hand has been removed and the hammer rotated to the right for clarity). This is the ONLY proper relationship between the trigger and hammer components when assembled. Anything else will cause the assembled revolver to malfunction. It is recommended to put a little schmear of low-viscosity firearm grease on the hammer eccentric cam to help hold it in place in the hammer penetration.

I use Weapon Shield grease for tasks like this and for lubrication where low-viscosity grease is indicated. Slide the hammer assembly up through the trigger guard slot in into its general location. Don't install the hammer axis screw just yet. Insert the trigger assembly with the hand extended to the rear a bit so that it can enter its slot in the recoil shield. It helps to hold the trigger a little forward of its normal position when inserting the hand in its slot.

Then reinstall the trigger axis cross pin to restrain the trigger. You'll need one less hand that way. Bring the hammer and trigger assemblies together. Use a tool to align the gear segments, ensuring the lower-most tooth on the hammer is engaged between the two lower-most gear teeth on the trigger. I won't apologize for repeating myself, because it bears mentioning one last time.

With the gear set correctly meshed, shift the hammer assembly around until the hammer axis screw hole in the hammer eccentric cam is aligned with its holes in the lower frame. Apply a drop or two of oil to the axis screw, insert the axis screw, and tighten. As an aside, the trigger axis pin was the second complaint with the subject Safety Police example; indeed, it would all but slip out of the frame on its own.

I exchanged the trigger axis pin with the rear trigger guard pin but it slipped out of the trigger axis pin frame holes more readily and did not exhibit any shiny marking from the trigger rotating the way the pin

originally removed from the trigger axis location did. To remedy, I used slip joint pliers with sharp teeth to intentionally burr the left, outermost end of the trigger axis pin to promote some friction and interference.

The pins are soft and the pliers imparted three 1/8" long shallow burrs on the pin circumference parallel to the long axis of the pin. The trigger axis pin was drifted snugly in place with the newly-burred end seating in the left side of the frame. It did not walk itself back out with repeated cycling of the action as it previously did with just one or two cocks of the hammer.

At this point, to ensure proper operation of the lockwork, reinstall the mainspring by seating the rounded top against its mating spot in the underside of the hammer. Use needlenose pliers to reposition the lower end of the mainspring in the slot in the frame. Cock the hammer to verify the single-action sear surfaces engage properly.

Pull the trigger, watching where the hammer nose falls while holding the trigger back, then release the trigger and verify that the hammer "climbs" upward and the firing pin retracts back into the frame. Verify double action function by pulling the trigger and ensuring the hammer retracts, falls, and climbs back into the rest position, with the firing pin retracting as the hammer climbs, the same as it did in single action.

Assuming all systems are go and there are no problems of which Houston needs to be notified, breathe a sigh of relief, then reinstall the trigger guard and pins. The upper frame reassembly is straightforward opposite of disassembly. Once reassembled, fit the upper frame to the lower frame, putting a thin schmear of low viscosity grease on the extractor cam before fitting it into place. Reinstall the hinge screw and snug it up. Apply a drop or two of oil to the extractor star shaft. Replace the grip panels.

A final word about safety. Given that these revolvers were made for black powder cartridges and have cast iron frames, it is strongly recommended that they NOT be fired, even with black powder type loads. Many of these revolvers have considerable play in the cylinder when the hammer is cocked and have relatively large gaps between the face of the cylinder and the forcing cone. Owners should be cautioned to curate these revolvers and instead shoot their more modern handguns.

Cowboy action enthusiasts are recommended to employ these revolvers as fashion accessories, not competition guns. The "hardened" components of Hopkins & Allen revolvers are not at all hard compared to the respective parts of revolvers of current manufacture. Process control of iron and steel heat treatment back in the day was rudimentary compared to that used in WWII and postwar firearms, which itself cannot be compared to 21st century PLC-controlled processes.

While having the revolvers in this series apart, I was struck by just how soft the sear contact surfaces on hammers and triggers were, with the sear surfaces of nearly every one of the revolvers exhibiting remarkable levels of wear and even chiselsharp "wire" edges in two of the revolvers. I couldn't resist giving hammers and triggers a file test on hidden, non-critical surfaces.

The file did not slide over those components but readily dug right in and removed metal, suggesting that heat treating was not a process employed by Hopkins & Allen. These are not robustly-built revolvers that can stand up to digesting hundreds of rounds in competition every weekend. Enjoy them for what they are and represent. Put them in a display case, or if a cowboy action shooter, tuck them into a vest pocket or stocking garter depending on your Old West costume and gender. AG

PISTOLS

The Linda Carbine

BY GLEN CALVERT OCTOBER 2020

ORIGINAL PP. 10-13

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P10-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P10-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P10-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P10-F02

I first saw the Linda Carbine in an article about two years ago. To me, it was a neat retro design with a high “coolness” factor. I wasn’t interested in a pistol caliber carbine at the time as there were higher priority guns on my wish list. I did keep the article for future reference and when I came across it again about six months ago, I thought it was time.

Unfortunately, the Linda was on back order so I put my name on the Wilkinson Arms website (Wilkinson Arms. com, Recently, I was notified that the carbine was available and I confirmed the order. I received it in a week. The Linda Carbine is a direct blowback design chambered in 9mm Luger and fires from a closed bolt. The bolt “telescopes” over the breech end of the barrel and has a hole in its center that the barrel fits through.

When the bolt is closed, the front of the bolt is about 5.5" forward of the breech instead of being just behind it. The Uzi uses the same type of design, which shortens the overall length of the carbine. Having the magazine well in the pistol grip also makes things more compact; the barrel ex-

tends only 10" past the front of the receiver. The Linda, like the Uzi, attaches the barrel to the receiver with a large nut.

The barrel has a slot that indexes it on a pin in the barrel support sleeve that in turn is threaded into the receiver. The receiver, trigger housing, and barrel shroud assembly are aluminum. The bolt and barrel are steel. The Linda looks like a submachine gun with the cylindrical receiver, barrel shroud, stamped steel sights, and tube stock. It has elements of the Thompson, Sten, Uzi, and M3 SMGs. The walnut butt plate and foregrip area nice contrast to the black powder coat finish.

The “old school” design aspect shows up in other places. The bolt does not lock open on an empty magazine and the bolt cannot be locked in the open position. The magazine does not drop free and must be pulled from the mag well. The sights are attached with screws to the receiver with no provisions for adjustment. The Linda ships with a 31 round magazine and an 18 round mag is available. The Linda weighs 6.1 pounds empty and is 32" long. The 16.5" barrel has a 1 in 10" twist with six grooves.

It has 1/2x28 threads on the muzzle with a cap. The trigger is single stage, with 0.25" of travel and breaking at 7.3 pounds, averaged over ten pulls. It has an internal hammer. The length of pull is 15". With the stock removed, the carbine is only 21" long. The top rail on the Linda receiver does not have slots. The two LE (limited edition) versions do have slots and are available with either an under-folding AK style stock or a M4-type stock.

I wanted the slots so I ordered my Linda with the LE receiver at extra cost. The LE versions have a Picatinny rail in place of the walnut foregrip and a vertical handgrip can be installed if desired. History The Linda has its origins in the 1960s. Ray Wilkinson designed a prototype carbine and went into business with Bob Penney, forming J&R Engineering. Their first product was the M-68 carbine, a 9mm blowback carbine with a telescoping bolt that fired in the closed position.

It had a wooden stock and the charging handle was on the top of the receiver. The carbine sold

THE LINDA CARBINE CONTINUED

ORIGINAL PAGE 11

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P11-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P11-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P11-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P11-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P11-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P11-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P11-F04. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P11-F04

well, mainly by mail order. The Gun Control Act of and J&R went out of business shortly thereafter. The remaining parts and tooling were acquired by Bob Penney who continued to sell the M-68 under introduced with design changes that moved the charging handle to the left side of the receiver and added a dust cover on the ejection port. After several years, Ray Wilkinson and the newly formed Wilkinson Arms introduced the Terry Carbine (named after his daughter) which improved upon the M-80 carbines.

The changes included a relocated mag release (from the bottom of the mag well to the left side grip) and improvements to the feed ramp and other components. The Wilkinson Arms Linda Carbine was introduced in the the PJK name. Anew model, the M-80, was early 1980s. The Linda receiver was shorter than that of the Terry but the carbine retained much of the design and components of the original M-68. Unfortunately, after several years, sales diminished and production ended.

In the mid 2000s, Northwest Arms started producing the Linda Carbine again. Ray Wilkinson had passed away by then. In 2015, Patrick The 18 and 31 round magazines are below the stock. Mc Farland obtained the rights, parts, and tooling to bring back the Wilkinson Arms name in honor of its originator. Disassembly The Linda Carbine is a simple design with relatively few parts. Remove the magazine and make sure the chamber is empty.

Remove the muzzle cap and loosen the set screw on the bottom of the barrel shroud end cap. The barrel nut, barrel shroud, and end cap are an assembly and this screw prevents the barrel nut from loosening during operation. Unscrew the barrel nut and remove the shroud assembly. The barrel is pulled from the receiver. This makes it very easy to clean. Inspection of the bore with a digital scope did not show any tooling marks or other issues. The barrel support sleeve is unscrewed from the receiver.

It has two large slots to allow the use of an Allen wrench or screwdriver to apply torque. Pulling the bolt back slightly takes the spring force off the support sleeve and makes it easier to unscrew initially. The charging handle is removed from the bolt and the bolt is removed from the receiver. Pushing the bolt rearward slightly (through the front of the receiver) makes it easier to remove and reinstall the charging handle. The recoil spring is on the OD of the bolt.

The large diameter of the spring reduces the stresses in it and increases its fatigue life. It is retained by a snap ring. There is a recoil buffer pad at the rear of the receiver. This covers the field strip procedure. The trigger housing is attached to the receiver with two screws on the bottom of the receiver and is easily removed. The trigger group is a simple, easily cleaned design. The polymer grip panels and back strap are retained by a screw in the back strap.

Reassembly is the reverse of the disassembly, as normal.

THE LINDA CARBINE CONTINUED

ORIGINAL PAGE 12

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P12-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P12-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P12-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P12-F02

Far At the Range I started shooting at 25 yards to check the steel sight's accuracy. The front sight is a blade and the rear sight is a simple peep, both protected by ears. The sight radius is only 8" so my expectations weren't high. The elevation was dead on but the windage was off by 3.5". The sights are not adjustable although there is room on the rear sight to slot the screw holes to zero the windage. I had planned on adding a scope to measure the accuracy so I wasn't too concerned about the steel sights.

To honestly assess the accuracy of the Linda, I needed magnification for my aging eyes. When I tried to install the scope rings, however, I found an issue with the top rail. The rings were loose in the slots, even with the screws torqued to spec. The top rail on the Linda is 0.800" wide, which is 0.035" narrower than the Weaver and Picatinny rail spec. I'm assuming that the rail is a carryover from the original carbine and is a dovetail style that hasn't been updated for modern optics.

The slot width and spacing are Picatinny spec, 0.206" and 0.395", respectively. The depth of the slot is 0.105" which is a little shy of the Picatinny 0.118". There is no spec for the number of slots or their spacing for the Weaver rail, just the rail width and the 0.180" slot width. That's why the Picatinny (MIL-STD -1913) rail was developed and is widely used today. Weaver rings will generally fit in Picatinny slots because the crossrail is narrower to fit the Weaver slot width.

The typical Picatinny cross-rail may not fit in the Weaver slot unless the manufacturer chooses to make it narrow enough to do so. I measured the inside width of the scope ring mounting flanges (screws tightened) and found they were 0.815". To take up the clearance between the rail and the ring flanges, I added two small pieces of 0.010" thick aluminum sheet to the inside of the flanges. The thin aluminum was easy to form to the required shape and allowed the rings to fit securely on the rail.

I checked the ring alignment and installed a scope. With the scope zeroed, I began shooting for accuracy at 50 yards from a bench rest. I used three brands of 115 grain FMJ round nose ammo that I typically shoot in 9mm handguns. The smallest groups were right at 1.0" and the average of each ammo ranged from 1.57 to 1.95". These groups are typical for 9mm carbines. The overall results are in the accuracy table.

The added shims were not an elegant solution and if I were to keep a scope on the carbine, I would try the 1" scope mounts that Wilkinson Arms offers. I guess I should have looked on their website first, but hey, making stuff work is half the fun, right? I installed a red dot and zeroed it. The red dot (1X) is more appropriate for shooting at 25 and 50 yards and I was able to put all of the rounds in a 3" target at 50 yards using a bench rest. I then shot off-hand at a 10" steel plate at 50 yards and couldn't miss!

Side note: I discovered what a lot of other people already knew—PC carbines are fun to shoot! Low recoil Far

THE LINDA CARBINE CONTINUED

ORIGINAL PAGE 13

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P13-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P13-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P13-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P13-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P13-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P13-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2368-P13-F04. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2368-P13-F04

and noise, it's like shooting 22 LR carbines, just plain and simple fun, only with more expensive ammo but considerably more down-range energy. I fired 250 rounds and had no issues with feeding, firing, or ejecting. The Linda was 100% reliable. Top Center Bottom One aspect that affects the ability to shoot accurately is that the tube stock does not allow for a good cheek weld when looking through a scope or red dot. It's more of a chin weld.

I have an idea on how to address that and will work on it when time permits. One more thing, the rear scope mount proved to be a real knuckle buster if I wasn't careful when pulling the charging handle rearward. That's why I mounted the red dot in front of the charging handle. There are many pistol caliber carbines available on the market today. Hi- Point, Ruger, SIG, H&K, and several AR-

15 platform versions, among others. PC carbine competitions have become very popular. The Linda is light and handy.

The trigger is a little heavy but that can probably be improved. Quick reloads are not possible but the 31 round mag may be adequate for each stage. It would not be the first choice for a serious competitor but it would certainly stand out in the crowd and be a lot of fun. AG

RIFLES

Rico Morgan's M14... and Mine

restored a Poly Tech rifle into a top-end self-loading 308 Winchester.

BY RAY ORDORICA OCTOBER 2020

ORIGINAL PP. 14-18

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P14-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P14-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P14-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P14-F02

It began life as a lowly Chinesemade Poly Tech M14S rifle. It had no claims to fame except perhaps that it was my first centerfire autoloading rifle. I'd recently moved in with Mom, having come back to southern Michigan from my 14-year Alaskan sojourn. The time was the early 1990s. On the way to Mom's house I passed through John Linebaugh's Wyoming country where I retrieved my sixguns, mailed to John's FFL from Alaska.

I stopped at Ross Seyfried's ranch in Roggen, Colorado, for a few days, then drove my Land Cruiser—pulling my tiny travel trailer—to the old family homestead in southern Michigan. At odds with what to do with myself, and not being able to clearly explain to Mom exactly why I was there—not consciously knowing she'd be dead in a year—I looked for work. I found it at two local golf courses, one of which gave me my wonderful dog Birdie.

I also had a few remaining gunnie contacts from my previous work and took to writing for some of them. The vent hand guard was my preference after trying a wood one. I

even tried the stock from his Springfield M1A for a time but prefer the GI stock. The trigger pull is simply fabulous, the fine work of Clint Mc Kee at Fulton Armory.

Additions include genuine walnut M14 stock, Winchester barrel, forged receiver, mostly all-GI parts throughout including the sling, Burris 2-8X scope in S&K mount, and custom flash hider. This is a sub-MOA rifle with match ammunition. Mom lived on ten acres of Michigan woods but neighbors were close. My first project after building a dog house—which Birdie never, ever, entered—was to make a sound-deadening box so I could do some shooting without unduly alarming the neighbors.

This was an open wood tunnel about four feet long and three feet square lined with fiberglass insulation supported internally with an 18-inch-diameter tube of chicken wire. In use, I'd put the gun's muzzle deep into the box to shoot. Mom said the sound was not at all bad, even when she was outside and not far away from it. But I digress... I had very little money to spare,

with only meager earnings from the golf courses. My gun writing had not yet paid anything.

I'd been away from gun writing for over a decade in Alaska, during which time I was a professional photographer in Anchorage. I don't recall ever firing a gun in that time. Now I had a dog to care for and feed. Eventually I had a bit of success with my gun articles, so I was finally back at my chosen profession, with a few dollars coming in. One fine day I realized I had enough spare jack to consider buying a battle rifle. I'd never owned a modern semiautomatic mil-spec rifle of any sort.

I never liked the common AR-15 black rifles with their dinky 223 Remington/5.56 NATO cartridge. I wanted none of that. I wanted a 308 Winchester/7.62 NATO battle rifle or nothing. The Springfield M1A was way too costly for a man of my limited means. After a lot of looking I found a new Chinese Poly Tech M14S at a local gun shop for \$510 and bought it. The M1A cost about

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P15-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P15-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P15-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P15-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P15-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P15-F03

twice that at the time. I shot the Poly Tech a bit and enjoyed it quite a lot. I'd owned it three days before I went to work on the stock. My notes tell me I smoothed the square shoulders of the stock and tried to get the "motor oil" out of the wood with kerosene. I then put linseed oil thinned with turpentine into the wood, which made it look better, but it was no stronger. Accuracy out of the box with the original chrome-lined barrel was lousy, on the order of eight inches at 100 yards.

I had to move the rear sight fully to the left to center the group. I went to work shimming the stock here and there, improving accuracy to around five. Replacement of parts such as the bolt-hold-open with original U. S.-made GI parts assures longevity and improves overall safety. Originally I had a Brookfield mount on the rifle with 10X Leupold sniper scope. It was too much scope

for my uses for this rifle. inches at 100. Turned out the fault was not with the barrel but with the dodgy bedding.

I discovered the main recoil lug was bearing only on the right side. By filing the lug and using machinist's bluing to guide my work I got it to touch evenly on both sides. That gave me about three-inch groups. I added some temporary shims inside the stock to see what effect they'd have. Things improved somewhat but were never stellar. The best the original barrel did was on the order of 2.5" at 100 yards, which is not bad but not what I wanted.

Six weeks after I bought the rifle I began replacing Chinese parts with USGI stuff. These included Some promises have to wait awhile. GI magazine and sling. The stock has an oil finish. They're not this slick as issued. the hammer, recoil-spring guide rod which stops the op-rod from coming off the bolt, and the rear sight, which got a National Match replacement. I replaced some of my temporary

shims, only to find the accuracy went to pot. Along the way I evaluated the wood inside and out.

Here are some of my notes: "...wood is terrible quality. Soft, sapwood, coarse-grained. Lousy at best." The forend splintered when I removed the rivets holding on the front swivel. I needed something better. About that time one of the sales people where I bought the rifle informed me the barrel threads were identical with USGI rifle barrels and one customer had replaced his chrome-lined barrel with a good US barrel. That set me to thinking furiously.

One of the last modifications I made to the original parts before I moved to Illinois was to drill 49 holes with a #20 drill into the original Chinese flash hider. The unit was a mockup of the real thing, with depressions in its side rather than being pierced. My holes made it functional. I tested it at night and found it to be amazingly effective. There was no visible flash with a variety of ammo.

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P16-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P16-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P16-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P16-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P16-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P16-F03

For various reasons never fully understood, groups degraded the more I tested the rifle. They settled in at about six inches at 100 yards. I tried upward pressure on the gas tube at the forward end of the stock. Groups went to 10-12 inches at 100. Mistake! Around this time—early 1994—my mother passed away. I was unable to do much with the M14S until I got resettled in the Chicago area. My new job was as one of two Senior Editors at DBI Books, which gave me a decent income.

Once I got settled in my new job I went back to work on the M14S. I replaced the soft Chinese stock with a genuine GI walnut one (\$40 in 1994) and, with no other changes, groups became one-third the size they had been with the original stock. It looked a whole lot better, too. Later that year I finally did what I'd planned to do for many months. I sent the rifle off to Fulton Armory and got the splendid work of Clint Mc Kee applied to it.

I got the rifle back in late October with the following additions: Winchester GI barrel; The iron sights are actually usable without removing the scope. All the frontand rear-sight parts are GI replacements. This works better than the GI part. TRW bolt, connector lock and pin; GI hammer; National Match op-rod spring guide and spring; GI elevation

knob and base; GI ejector and extractor springs; NM front sight and screw; NM gas system; GI spindle valve pin and spring, gas lock, piston; NM trigger modification.

Clint also installed one or two other bits and pieces in the rifle, the whole assembled with extreme care, proper headspacing, all the things it needed to be a viable and trustworthy rifle. Along with the new parts came the professional touch of a master gunsmith who, like me, considered the forged action to be the best part of the Poly- Tech rifles. There were rumors that these were actual USGI actions, but at the time no one could be absolutely sure. I still don't know and frankly, don't care.

Clint was happy to use the original action and not much else from the rifle. I eventually changed a few of the remaining Chinese parts for GI originals, including most of the magazines. Then I popped for the best scope mount in the world for it, a genuine Brookfield. The mount alone cost \$235 in late 1994. I'd guess you can about double that today. The Brookfield attaches to the receiver with a large bolt and the serious torque of a wrench, no dinky little screws.

Today there are several similar mounts for the M1A and M14S that utilize the dovetail and bolt to the action and also cost a lot less. To crown the mount I stuck a Leupold Mark

4 M3-10X scope into it, one of the finest sniper scopes in the world. The most recent price I saw on that scope, which is now discontinued, was \$2,000. With that setup I was quite happy. The rifle now shot extremely well. I recorded a fourshot, 100-yard group with Federal Gold Medal Match ammo at 3/4 inch.

So, was this a great way to get an exceptional rifle? Would I not have been better off starting with an M1A Springfield rifle? I wondered hard about that. By the time I got the rifle back from Fulton Armory I was in a financial position to be able to look into other 308 semiauto options and that's what I did. In order to get firsthand answers about other 7.62 NATO rifle options I acquired a Springfield M1A. One day I tried it in very cold weather.

There was apparently some grease in the trigger area and I had a double, which resulted in a jammed rifle. The ammo was WCC 87 Winchester ball. The second fired case was stuck in the chamber and the hammer was down on it. There may have been a chip of brass in the chamber that caused the stuck case. In the cold at a commercial range I was unable to properly analyze the trouble. This did not give me confidence in that rifle, even though the M1A was capable of sub-minute groups with match ammo.

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P17-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P17-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P17-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P17-F02

Next I acquired not one but two FAL rifles, an older L1A1 and a brand-new Argentine version, both from my friend Dave Selvaggio, headman of DS Arms. I did a trigger job on the latter, which improved it immensely, and eventually sold that one to Chuck Taylor. I liked the FALs. Accuracy and reliability were at least acceptable. Then came a brace of HK-91 rifles, one a Springfield SAR-8 and the other a genuine HK-91. To the latter I attached a collapsible stock and that was one heluva fine rifle.

My friend Jeff Cooper also liked that setup. One day at SHOT Show, Jeff and I were talking about the HK-91s and when he asked which it does not noticeably distort the scope image, version I had, it turned out we both had the collapsible stock. To clarify it, Jeff made a downward wave of his right hand and extended his hand to the right, which is how that HK stock extended. We understood each other perfectly. So I ended up comparing my custom M14S/GI conversion with five other rifles in the same caliber.

The FALs had their charm and their problems (very long rifles with a short sight radius, easy to open for cleaning, somewhat

fussy for ammo in my experience). The costly and precision-made, rollerlocked HKs had their good points, one of the best being the collapsible stock. One thing about them is that if you're a reloader you'll never find your brass. The rifle flings it into orbit.

This is a pain if you're testing, as I was, with top-notch Federal Gold Medal Match ammo. The two-stage trigger pull is 3.5 pounds take-up and just one more pound to a perfect let off, with a dead stop after. This is one of the finest triggers, rifle or handgun, I have experienced in over sixty years of testing guns, which has some of the finest brass in the world. I don't believe I ever recovered a single empty from the HKs.

Despite the added weight of the HK-91 over the M14S it had a harsher felt recoil due to its locking system. Both my HK-91s were completely reliable at all times and accuracy was excellent. The stock of the M1A was fat and heavy, weighing a full pound more than the GI M14 stock on my custom rifle. I swapped the stocks for a time to see if I liked it. The M1A Springfield stock

looked great, but I eventually sold the M1A to a fellow and gave him the proper fat, heavy stock with the rifle.

I stuck the genuine M14 walnut one back on the M14S and there it remains. The standard mil-spec flash hider on the M1A was not as effective as the one I made out of the phony one that came with the M14S. So my custom drilled unit is on it today. I found the ten-power scope to be way too much for average use. It was superb for sniping but not for all-around utility.

I removed the 10X Leupold scope and the Brookfield mount, bought an S&K detachable mount and stuck a Burris 2-8 scope with post reticle into the mount, and that's how it is set up today. The Burris is on the heavy side and the S&K mount must be firmly attached to stay properly tight. Finger pressure alone won't secure it. The rifle shoots groups of just over an inch reliably at 100 yards with just about any ammo. Match stuff is sub-MOA.

The National-Match conversion trigger that Fulton/Mc Kee set up on it bears special mention. Its total

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P18-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P18-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P18-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P18-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2369-P18-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2369-P18-F03

I tried glass bedding here and there, shims, careful fitting, but nothing gave decent accuracy. Simply swapping to a GI stock cut group size noticeably. The wood splintered badly when I removed the tiny rivets to replace them with these stout screws. pull weight is 4.5 pounds, take-up is 3.5, and the final break is just one pound, absolutely clean, coming to a dead stop on the break. This is the finest two-stage trigger I've ever experienced in over sixty years of testing guns.

All in all, the rifle is a complete winner. I got rid of all the other five 308 battle rifles and kept the M14S, having compared it to some of the finest of the world's military-style rifles in a serious caliber. During The recoil lug of the action bore against one side but not the other.

Careful fitting with bluing and filing helped the accuracy of the original setup considerably, but it never approached the sub-MOA of the rifle as it's set up today. my eighteen

years of testing guns exclusively for Gun Tests magazine I had the opportunity to once again compare my M14S with several other rifle types in the same caliber. These were largely "black rifles" with appearances and construction similar to the M16.

One or two of them got my attention, but the best ones were extremely costly and did not have the coldweather comfort of the wood stock on my M14S. Today the Poly Tech M14S is scarce. I saw one for sale recently for \$1,000. These can be modified as my rifle was by masters such as at Fulton Armory, however, the cost might not justify the result, unless you absolutely must have a forged receiver.

Fulton Armory, Springfield Armory, and possibly others sell complete rifles for about as much as the conversion would cost you. The only thing that you get with the customized conversion that's at all special is the forged receiver. As for GI parts, lots of them abound

for the M14S, but it's not easy nor cheap to get Winchester barrels any more. There are many other barrel options with prices from \$250 to over \$600. Is it necessary to replace the barrel? Suit yourself, but I'd say yes.

I doubt there's any way the original chrome-lined Chinese barrel would ever have shot subone-inch groups, as my Winchester barrel does. The Chinese barrel slugged 0.3085" at it tightest, with sticky spots at muzzle and breech. I've no idea the dimensions of the Winchester barrel. In short, after comparing six rifles in three types in the same caliber, I decided that my supercustom M14/GI conversion would stay here forever. What's it worth? Ten years ago I turned down \$2,000 for it.

Today it's not for sale at any price. However, I did loan it to Rico Morgan for use against a deadly foe one cold night, the story told in Border Caper, my first novel, available at Amazon. AG

MAINTENANCE & REPAIR

Reupping Tool Supply

Gunsmiths will inevitably acquire plenty of tools. It's sometimes useful to look in to new offerings.

BY ROBERT K. CAMPBELL OCTOBER 2020

ORIGINAL PP. 19-21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2370-P19-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2370-P19-F01

Beginning gunsmiths need to take a hard look at tool choice. The usual light table tools such as a variety of drivers and punches must receive some thought. Purchasing a good set with as much coverage as possible is economically sound. By the same token the mature gunsmith that has plenty of tools must realize the time comes to replace and discard some tools. I recently did so. Some of the kits and boxes I had accumulated over the years were missing key drivers or taps, others contained bent punches.

The odd assortment had become an aggravation. Some of the gear wasn't first class in the beginning and should have been ditched long ago. Some of the boxes were a mismatch of makes of varying quality. This kind of thing happens after a few decades even if you make it habit to return things to their proper resting place after cleaning. There are a number of chores that we perform on a regular basis.

As your skills improve and the number of jobs you want to be able to accomplish increases so does your need for more tools. Tools may last along time but they need to be replaced at some point. Sometimes better tools come along, often appreciably better ones. Customiz-

This one is oil and solvent resistant. A good magnifying visor is also a good but overlooked tool. ing, personalizing, and smoothing is typically done with smaller hand tools.

The lathe and drill will always be important but small jobs are bread and butter. Learning to do simple check ups and repairs is paramount; it has been along time since I scratched a finish or twisted a screw slot into a ragged burr. A fraction of the mistakes we make are related to the tools we use but these few mistakes may be eliminated by careful tool selection. As an example, I have discovered a number of my screwdriver ends have been chipped and worn over their years of use. These were recently discarded.

Simple parts replacement and use of hand tools is a sound beginning before moving to machine work. I routinely perform work that most of the guys in the gun shop should not attempt but neither do I cut frames and fit ramped barrels or special sights very often. The gun butcher is a large and busy class that will keep a good gunsmith busy. With a bit of care and the right tools you will be able to repair honest wear and mistakes as well.

If there is any advice that should be well taken it is to buy good quality tools in the beginning. They will last longer and perform the job better in skilled hands. Some tools are more difficult than others to locate and obtain. The split screwdriver used for disassembling Ruger revolver cylinder and extractor assemblies is one. You may go to the machine shop side of your business and make your own. You may find one for sale—and you may not.

Over a period of time you will have a wall full of properly-ground specialty tools. What if you don't have a machine shop yet? Then Brownells and Real Avid (RealAvid.com), are among the top choices. A good workspace is very important. Many of us have a spot set apart for certain chores. One of the best gunsmiths I know started out with a yard sale workbench in the corner of his apartment.

When he was actually at work his bench blocked access to his clothes closet, his back was at his bed, and his chair resembled a milking stool. Despite the spartan start, his bench was quite sturdy and provided a place to begin doing simple jobs while in gunsmithing school. A good, solid bench may be built if you are a bit handy with

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2370-P20-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2370-P20-F01

The Real Avid (center) has the proper cut for gunsmithing use. tools—and you should be. A sturdy chair should accompany the bench. Some gunsmith work such as grinding is done standing up but much of our work can be done seated. More than a few gunsmiths set up in a storage shed behind the house while others work in the back room of a pawn shop.

Larger shops may have separate work stations for different work but the rest of us get pretty smart at quickly arranging and re-arranging a single station for different work. The dining room table is sometimes a beginning spot, though it's important to realize that marital harmony will not survive hammers and chemicals for very long. A work bench in a dedicated space is a necessity. Your workspace should also have a surface to contain loose parts.

I have been recently using a Real Avid Master Cleaning Station which as a dedicated loose parts section. I also use floor pads to protect against dropped tools; a far superior surface to carpet. Another overlooked subject is lighting. Common lighting is too soft as detail work demands bright light. The level of brightness should be the same as a doctor's examination room. Specific Tools In addition to tools for general bench

use and the keeping them updated and replaced as needed, some tasks demand specific tools.

For example, modern pistols such as the Glock demand a unique set of tools to disassemble, maintain, and modify the handgun properly. The Glock 4-In-1 tool features several bits required for disassembly that folds for storage. Among the most useful com- This is a good set up for many uses. ponents is the 3/16" hex driver useful for fitting Glock front sights, a steady demand at every shop for Glock upgrades.

A nice touch is the hex driver is magnetized, a great idea when working with small parts that are easily dropped; this holds a loosened hex nut captive. A good number of aftermarket sights use a 0.050" Allen wrench to adjust windage on certain sight sets which this tool has. A few months ago I took in a Glock job but did not have a 3mm pin punch handy. Thankfully, the 4-In-1 tool has one. The general use flat bladed screwdriver is a must have for any multi tool.

Not long ago I was tasked to repair a revolver and find an original grip set and grip screws. The owner's grips were for an N-Frame revolver and he found a set of nice

grips at a gun show. The grip screw supplied was for a K-Frame and did not fit his revolver. I had to order a grip screw, costing \$17.25 with shipping when it arrived. I was equally surprised at the current cost of a set of 1911 grip screws; it's best not to wallow out or damage these screws in the first place!

I am sometimes amused that shooters spend a ton of money on the firearm, holsters, and ammunition but seldom spend alike amount on necessary maintenance. Tools are very important and they must be purpose designed tools for a firearm, not a cheap set from a chain store. An example is the Real Avid Smart Drive 90 multipurpose tool with two handles. One of them will perform most of the chores we run across while the other is specific for those hard to reach screws.

This short handle works well for trigger guard screws and may be fitted into the larger handle for greater leverage if needed. The tool kit's working load includes 87 black oxide coated tool steel bits that will fit most anything you run across. I used the set on the trigger guard screws of a Cimarron Lightning the first day the set was delivered. These screws are notoriously soft in

REUPPING TOOL SUPPLY CONTINUED

ORIGINAL PAGE 21

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2370-P21-F01. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2370-P21-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2370-P21-F02. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2370-P21-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2370-P21-F03. Know the rights holder? Please ask them to contact us.

AG-18E8426A9A-A2370-P21-F03

This is a profitable re-up and an upgrade as well. Uberti-produced revolvers and easily stripped. I placed the bit into the screws, tapped them in place, and broke the screws cleanly without any difficulty. When you have the right tools you are more likely to perform the necessary field stripping, maintenance, and occasional detail stripping. It is important to understand the difference between hollow ground and standard screwdriver bits. Many gunsmiths are proud to have screwdrivers they have ground themselves.

Lacking a grinding wheel and a few decades experience, the rest of us will need something like the Real Avid set— besides, there is a lot of sweat equity in grinding a complete screwdriver set. I examined the Real Avid screwdriver tips under magnification. The sides of the blade run parallel to the screwdriver tip. You don't want the usual taper to the tip. A taper to the tip type will not fit hard and flush in a firearm's screw slot.

The firearm screw Top Bottom The vise should be an early purchase. slot is not tapered; they run parallel. Hardware store screwdriver sets will slip and then you have the typical ham-handed showcase of a buggered up screw driver set. Real Avid states their kits contains every flat, Phillips, Hex and Torx typically needed. It will take a few months to confirm this but a look into the tool bin seems to agree. If it isn't complete, it's a darned good shot at it.

Also useful for precise work is the LED light on the larger driver, which only aids in the good lighting your shop should already have. Finally, there is a scope adjustment tool. This turret tool has already seen use on my bench with the Springfield Victor and Tru Glo Eminus. Other features include a magnetic parts tray and metric and standard parts bits. Several years ago I ordered a brass punch set. The first time I put a hammer to it the punch bent. I was pretty well disgusted.

While not even the best punches last forever, it is best to get a good set. The Accu-Punch set is affordable but well made of good material. Ten hardened punches may be driven by a hammer with interchangeable heads. The nylon punch is ringed with rubber to fight vibration. The grip is good and works well for close work. Steel, brass, rubber, and nylon heads make for good utility and I appreciate the pin alignment tool. Even the smallest pins may be properly aligned.

Keep the pins organized in the hard plastic case and you will enjoy years of use. A last item I tested is the Smart Bench Block which provides a solid surface to brace the item against to drive pins out. This block offers several slots for proper angles. Real Avid offers a wide range of gun products. These tools, especially the Smart Drive 90, are essential for my work. They take up less space due to intelligent storage design and work well when put to the test. I think they are well worth their price. AG

PISTOLS

Glock 44

Glock imperfection? An overview of Glock's 22 Long Rifle pistol.

BY ROBERT K. CAMPBELL OCTOBER 2020

ORIGINAL PP. 22-23

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-18E8426A9A-A2371-P22-F01. Know the rights holder? Please ask them to contact us.
AG-18E8426A9A-A2371-P22-F01

A recent introduction by Glock has proven very interesting. The Glock 44 is a purpose built 22 Long Rifle handgun. It appears very similar to the Glock 19 and has been well received as far as sales go. The pistol isn't perfect, however, and there are questions that need to be answered when it comes to aftermarket parts and gunsmithing. Is it identical in most regards to the Glock 19? Are there reliability issues? What about something as simple as aftermarket sights?

Lets look hard at the Glock 44 and see if we can avoid false steps with this pistol. The 22 Option One point concerning the Glock 44—Glock has for the first time moved out of the personal defense and service market. Many makers or aftermarket makers offer rimfire conversions for their handguns. Some work well, others not so much. I have used a 22 caliber handgun for marksmanship training, practice, and small game hunting for decades. They are just fun guns and you don't need an "important" reason to own one.

Shooters that neglect to own a 22 handgun are missing out on an important tool as the cost of shooting one pales over the cost of an extensive training regimen. The 22 LR

allows many thousands of rounds of rounds of ammunition to be fired for a pittance. The problem is the 22 LR is a hoary, old design. The rimmed cartridge case and heel-based bullet doesn't make for the most reliable feeding.

As the name implies, the propellant was intended for rifles and the resulting pressure curve makes for difficulty in convincing a pistol to feed properly. The heel-based bullet may tilt in the cartridge during the feed cycle. This is more related to the cartridge and its integrity than the feed ramp of the pistol. The powder, even at best, is dirtier than most centerfire loads, grain for grain. Most makers warranty their pistol with work only with high velocity loads.

Since standard velocity loads are generally more expensive than bulk produced high velocity loads, this isn't a demerit. CCI alone manufactures billions of 22 LR cartridges a year; most are high velocity loads. The Glock 44 doesn't have Glock's Gen5 improvements such as ambidextrous slide locks. The Glock 44 is essentially a Gen4 design with a finger groove frame, similar to the popular Glock 19 9mm. The Glock 44 is well suited for rimfire practice for those that own Glock centerfire handguns.

The pistol is equally well suited to beginning shooters and those that enjoy informal target shooting and small game hunting. A radical departure from the Glock 19 is a lightweight slide that is a hybrid mix of polymer with metal reinforcement. A steel slide would be too heavy to be actuated by rimfire recoil.

While it may be tempting to fit aftermarket sights, perhaps the same XS sights found on your Glock 23 as an example, makers tell me they do not recommend steel sights to be pressed into the polymer Glock hybrid slide. This means that until the aftermarket catches up, gunsmiths should not accept work to replace the Glock 44 sights with aftermarket sights.

I admit I have not tried this myself but the sight makers want to sell their products and when they decline to sell a product on this basis there is validity in their opinion. I am certain some brave soul will attempt the job. They may well be successful. Or not. I prefer to err on the side of caution. While you may fear the re-design prevents the Glock 44 slide from fitting a Glock 19 frame and vice versa.

GLOCK 44 CONTINUED

ORIGINAL PAGE 23

ask why fit night sights to a 22 LR, well, there are also target grade steel sights. Some would like to have exactly the same sights on the Glock rimfire as their service pistol. Other than these issues, the take down, magazine release, and trigger action are straight up Glock. You cannot place the Glock 44 slide on a Glock 19 frame as the locking block differs. This is a blowback action; the barrel isn't fixed but it is removable. The barrel is called a "Glock Marksman Barrel" (GMB) by the company.

The chamber is fluted to aid feed reliability. A threaded barrel will be available at some point. Magazines are readily available and affordable at around \$30 or less. The pistol is supplied with two magazines. No loading tool is needed as they are easy to fill. Glock 44 magazines are a single column holding ten rounds. Glock tells us that a high capacity magazine is difficult to convince to feed with the rimmed 22 Long Rifle cartridge.

The magazine features a nicely located tab on the follower that makes loading easy. Depress the tab and load one round at a time to properly stack the ammo in the magazine, do not depress the tab and drop cartridges into the magazine. The proper sequence ensures feed reliability. If the Glock comes into the shop with a feed issue ammunition and proper loading of the magazine would be the first place to look. Cleaning and lubrication will be an issue. The overall length is 7.28 inches. Barrel length is 4.02 inches.

Standard Glock-type frame inserts are included. The Glock 44 features a rail for mounting combat lights. Unlike most 22 LR rimfire handguns, the Glock 44 may be dry fired without harming the firing pin. Glock confirms this, as do my 650 dry fire cycles on my test pistol. The difference most apparent in handling is weight. The Glock 44 weighs just over 14.5 ounces, nine ounces less than the Glock 19. As far as the trigger action, the trigger breaks at 5.8 pounds compression.

The trigger action is standard Glock and may be interchanged with aftermarket triggers. The slide and barrel differ in the locking block so you cannot put a Glock 44 slide on the Glock 19 and that's good. Reliability is the big problem and the Glock 44 isn't as reliable as the company claims. My testing with several types of High Velocity loads demonstrated it is almost, but not quite, one hundred per cent. Be careful how you stagger the cartridges in the magazine.

Subsonic ammunition is supposed to work; sometimes yes, sometimes no and once the piece is dirty subsonics don't work as well. The first sign is the slide doesn't lock open on the last shot. The pistol's high point for reliability, given a clean gun and properly loaded magazine, is the CCI Mini Mag, either RN, HP, or segmented. These loads were completely reliable in my four hundred rounds of testing. Don't laud my efforts too much, as it was a lot of fun.

Main Points The upper unit is of composite polymer reinforced steel. Do not use steel sights. The adjustable sights are supplied with a loading tool. The striker cover may be interchanged with aftermarket types for pre-Gen5 pistols. The Glock 44 slide will not fit the Glock 19 frame. The locking block of the Glock 44 is polymer and differs from centerfire handguns. The ejector is longer. Grip inserts are Glock 19 types. For reliability issues check ammunition, lubrication, and proper magazine loading first.

Keep the Glock 44 clean and lubricated and it will go several hundred Mini Mags without a hiccup. That's all we can ask. It is a neat 22 LR, a Glock, and while it is less reliable than some 22s, it is more reliable than others. AG Far Even though the recoil spring assembly seems as large as the 9mm, it isn't nearly as strong.

PEOPLE & COMPANIES

Reader Forum

BY AMERICAN GUNSMITH EDITORS OCTOBER 2020

ORIGINAL PP. 24

NEF Handi-Rifle I recently purchased a New England Firearms Handi-Rifle SB2 in 243 Winchester. It also came with an additional 22-250 barrel that seems to fit but opens when fired. Since NEF is no longer in business I would like to properly fit the 22-250 barrel to the receiver. What advice can you provide on how to properly fit a new NEF barrel to an existing receiver?

Rueben Cole This break-open action rifle with side lever release was introduced in 1989 by New England Firearms in a number of centerfire cartridges from 22 Hornet through 30-06 and even 45-70. You mentioned the 22-250 barrel seemed to fit okay but opens when fired. I take this to mean the action jars open enough to open it fully while not using the side lever release.

Through feedback of other NEF SB2 owners, this sometimes occurred particularly on the heavy recoil models, regardless of hinge pin breech block tolerance. Some were improved by careful lubrication of the hinge-pin mechanism, which appears to bind, thereby allowing the action to open slightly. The way in which the SB2 rifle is held while firing can make a difference as well.

Some SB2 owners complain the rifle has to be held just right to cock it; it failed to cock from some angled positions and didn't always lock fully when closed unless it was slammed. Other owner's communication with the manufacturer left them with little satisfaction. Similar things occur with the Stevens 107B shotgun. Installing a side thumb screw to lock the action release mechanism on firing can remedy this. Note, the NEF Handi-Rifle is not an ultra precision action.

KEEP THIS IN MIND IF ATTEMPTING TO CHANGE THINGS. AG

ORIGINAL SOURCE PAGE

24

SEARCHABLE ISSUE RECORD

Archive index

Ghost Guns Homemade Weapons Revolution	2	Reupping Tool Supply Robert K. Campbell	19-21
Working H&A Revolvers, Part 4 Brian R. Smith	3-9	Glock 44 Robert K. Campbell	22-23
The Linda Carbine Glen Calvert	10-13	Reader Forum American Gunsmith Editors	24
Rico Morgan's M14... and Mine Ray Ordorica	14-18		

Rights and corrections. Images without confirmed permission remain reserved in place. Authors, photographers, and rights holders may contact editor@gunsmithmag.com. Corrections to searchable text are tracked against the source-page record.



American Gunsmith

The complete searchable archive of a technical journal devoted to craft, repair,
maintenance, machining, and restoration.

GUNSMITHMAG.COM • EDITOR@GUNSMITHMAG.COM