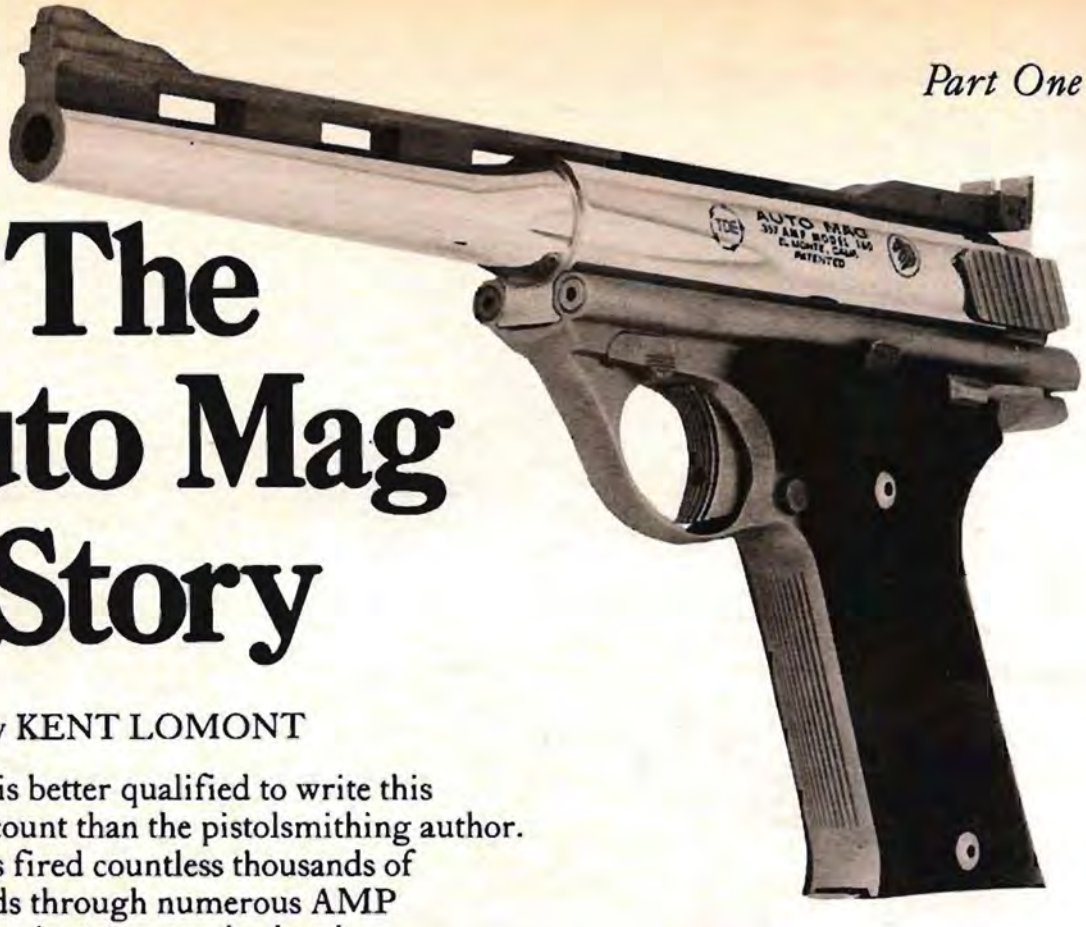
Part One



The Auto Mag Story

by KENT LOMONT

No one is better qualified to write this engrossing account than the pistolsmithing author. He has fired countless thousands of rounds through numerous AMP specimens — standard and experimental calibers. Here are his detailed notes, too, on the care and feeding of these powerful pistols, their problems and — sometimes — their cures.

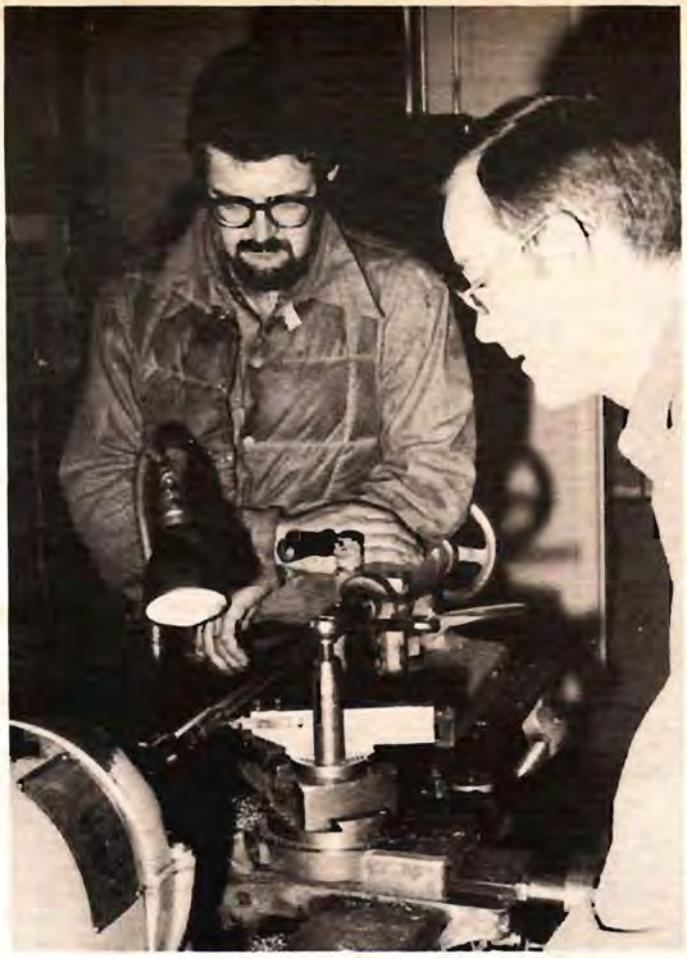
MANY OF YOU already know the Auto Mag pistol — a 6-locking-lug, rotary bolt, short-recoil operated, semi-automatic handgun made primarily of high-strength stainless steel. At present this high-powered handgun is available in the original 44 Auto Mag chambering and in 357 Auto Mag, a necked-down version of the 44. Working velocities attainable with the 44 AMP run about 250 feet per second (fps) faster than the 44 Magnum, both with the same barrel length. Muzzle velocities (MV) with the 357 AMP go around 500 fps faster than the 357 Magnum revolver. Auto Mag accuracy is in the bolt-action rifle class, as are its working pressures. With maximum loads the Auto Mag, when Mag-Na-Ported, offers more accuracy and faster aimed-shot repeatability than the revolver. Properly tuned and set up, the Auto Mag is the most powerful hunting handgun in the world.

Credit for the Auto Mag's design goes to Harry W. Sanford. Asked why he designed the Auto Mag, Harry called it "just a big ego trip." In truth, he designed the Auto Mag with one thought in mind — hunting. His thought was transformed into reality. Which is what it is — a hunting gun, nothing else.

Only two other auto pistols ever approached the strength of the Auto Mag — the Schwarzlose, patented in Britain in 1898 by Andreas Wilhelm Schwarzlose, caliber 7.65 Mauser. The other was the over-complicated Mars, patented in Britain in 1900 by Hugh W. Gabbet-Fairfax. The 8.5mm Mars pushed a 140-gr. bullet at around 1550 fps, the 9mm a 156-gr. bullet at 1600, and the 450 Long a 220-gr. bullet at 1200 fps. Though accurate, the Mars recoiled excessively and was never made in quantity; it proved unreliable for its intended military use. The Auto Mag, however, is a highly-workable design, in a class by itself where maximum accuracy and power are required. It's the first major breakthrough in auto pistol design in over 80 years.

Sanford conceived the basic Auto Mag idea in the early 1960s and, by July of 1968, had a single-shot prototype. By 1969 he had a second version, a handmade, fully-working model, which appeared on the cover of the March, 1970, issue of *Guns and Ammo* magazine, the covering story by Jeff Cooper. Now Sanford decided to attempt commercial manufacture. A completely new design, this would have been a hard task for one of the big armsmakers to carry out, let alone in the small shop Harry had. From the beginning, however, no pains were spared to make this truly "the aristocrat of hunting handguns." The final production design was reached after 6 more prototypes were made, tested and modified.

Much of the money needed to set up the Auto Mag Corp. came from a wealthy Californian. In return, Sanford traded his rights to the handgun design for 10% of the corporation's stock. The pace during the



Kent Lomont (left) and Jim Ehresman watching the final machining of the 16" tapered octagon barrel in 44 AMP caliber.

next two years was hectic—ads ran in most major gun magazines, and 44 Mag ammunition was produced by CDM, a Mexican firm partly owned (49%) by Remington. CDM produced about 300,000 loaded cartridges and some 600,000 empty brass cases.

357/45 Tests

Experiments with 357 and 45 cartridges were also made. Tests of the 44 AMP determined best bullet shape, propellent, actual tolerances required for various pistol parts, optimum materials, heat treatment, best assembly and fitting procedures, etc. Needed and hired was a staff of metallurgists, engineers, draftsmen, ballisticians, tool-and-die makers, and just plain gun nuts. Since the initial cost of tooling to produce every part was prohibitive, and time was short, many parts were contracted for. There were many delays—some suppliers failed to meet schedules, and special steels needed for most small parts, bolt and barrel assembly, arrived late. Carpenter 455 steel is hard to machine and hell on tooling. There were also the usual problems inherent in manufacturing any new precision item—parts differing from the blue prints, and the small design changes required to facilitate manufacture of components.

Nevertheless, in early 1971 the company began delivering a handgun unlike any other ever made—a stainless steel 3½ lb. beauty that bespoke quality and craftsmanship at a glance. This, the Pasadena Auto Mag; the frame of 17-4 PH steel, the bolt and entire barrel assembly from 455. Most small parts were also from 455, with a few of 17-7 and 17-4 steels. The pistol was delivered in a black, foam-lined plastic attaché case, complete with stainless allen wrenches, special lubricant and the finest instruction manual ever delivered with a commercial firearm. Although costing more than had been first projected, those who had ordered when the price was still under $200 paid only that amount. The retail price soon reached $275.

After reading the 1970 article in *Guns & Ammo*, I had ordered 4 Auto Mags. Before seeing the first gun I had obtained RCBS dies, formed 10,000 cases from 308 brass, and set up a Star tool head for the 44 AMP. My first gun fired 2,700 rounds the first two weeks I had it. I had some problems, admittedly, so I began corresponding with several Auto Mag engineers. Interested in my problems, they supplied parts, modified parts, and offered ideas and information. My phone bill that month would have bought another gun!

Although the corporation was delivering some guns and had a hell of a bunch of good men with a real interest in the Auto Mag's future, the company was not progressing fast enough to suit the major financial backers. Late deliveries of a few critical parts put delivery months behind, so early in 1971 the investors pulled out. Despite having parts on hand for nearly 5,000 guns, Auto Mag went bankrupt in May of 1971. Thomas Oil Co. bought most of the tooling and the parts in process, then formed the T.D.E. (Trust Deed Estates Corp.), with the express purpose of assembling complete guns after manufacturing the missing parts. Those would-be buyers who had made only a small down payment had their money refunded, but those who paid all lost all!

Thomas Oil Co., realizing that the Auto Mag wouldn't just fall together, wisely hired Harry Sanford to ramrod the outfit. Initially T.D.E. probably meant only to assemble the remaining pistols and then call it quits, but this was not Harry's intention. He immediately started a product-improvement program that is in full swing to this day. Surprisingly, the original AMP design remains unchanged. The only changes found necessary were in some materials, in heat-treatment changes and tolerances as more experience was gained. T.D.E., first set up in North Hollywood, moved to its present location in El Monte.

In addition to the 44 AMPs, Sanford began making a few 357 AMPs at T.D.E. He and I had been exchanging notes and phone calls since T.D.E.'s inception, so he sent me several of these first 357s. Several straight days of loading, shooting and chronographing left me amazed at the 357's performance. I had developed good accurate working loads—a 110-gr. bullet at 2,200 fps, 125s at 2,000 and the 158 at 1,800, all from the 6½" barrel. Careful bench shooting, using the Merit eye attachment, had netted

many 2" and 3" groups at 100 yards, these results with the first production 357 AMP barrels. Three 357 AMP barrels had been made at the Pasadena plant, same outside diameter of the 44 barrel, but these didn't function as well as the barrels made at T.D.E. Dean Grennell's article, "Necking with the 357 AMP" (*Gun World*, April 1972), using data supplied by Robert Barbasiewicz, manager of engineering at the original Auto Mag plant, was based on these experimental barrels. Mr. Barbasiewicz, I am told, is the man responsible for the manufacture of the bright-polish barrels sold through *Shotgun News* for a while after the bankruptcy. Some of these barrels are stainless, others have stainless receivers and 4130 barrels. Those I examined and fired were very good.

The chamber of these earlier 357 barrels is slightly deeper than that of the T.D.E. guns, so those owning unmarked barrels should pay particular attention to die adjustment when reloading for them.

This Auto Mag has Lomont-type scope mounting and new buttstock.

Enter Lee Jurras

About 10 months after working up the 357 AMP loads I showed a gun to Lee Jurras, the founder and then president of the now-defunct Super Vel Corp. I was hoping Lee would take an interest and set up a pressure barrel so I could see what pressures my high velocity handloads were generating. We ran some loads through his chronograph and he was impressed. Lee asked me to get an uncut barrel from Harry to put on his pressure gun, which I did. My first tested loads, using a slow lot of H-110 with the 137-gr. Super Vel bullet, went 1940 fps, with 48,000 copper units of pressure (cup). Maximum MV variation for the 10-shot string was only 20 fps, but we soon learned that no other lot of H-110, or any other powder we could find, would match that particular powder lot. We also found that pressures in the 45,000 cup range, especially with lighter bullets, were mandatory for reliable functioning of the 357 AMP.

With the same lot of H-110 I reached 1800 fps with the 180-gr. bullet in the 44 AMP, 1700 with the 200-gr., 1600 with the 240, and 1500 fps with the 265. However, friend Buzz Shambly had another lot of H-110 which pushed the 180-gr. bullet to 2,014 MV, with 54,100 cup. The H-110 Lee and I had wouldn't reach beyond 1800 but, sadly, Buzz had only a couple of pounds of his lot left. Anyway, Lee and I were most impressed with the 357 AMP's flat trajectory, accuracy and power.

Jim Ehresman working on the rear sight of the 16" tapered octagon barrel, caliber 44 AMP.

As of now, Lee has probably taken more varied big game with a handgun than anyone in the world—over 115 head! He has used nothing but the 357 Auto Mag for his hunting since his first encounter with one.

Surprisingly, with only a couple of hundred 357 AMPs in circulation, Lee and I were getting a raft of requests for information on reloading the hot cartridge. Impressed with this level of interest, and based on his hunting experience with the 357, Lee asked Sanford to make for him 100 special 357 Auto Mags. Called the LEJ Custom Model 100, these guns were serially numbered from LEJ 001 to LEJ 100. All were Mag-Na-Ported, fitted with custom laminated grips made by my friend Clint Teeters of Ossian, Ind., and delivered in a Gun-Ho case with "LEJ Custom Model 100" in gold lettering on it. The response was so great that Lee had Harry Make him 100 more, these in 44 AMP with serial numbers matching the 357s, followed by the letter X. All had a 6½" ribbed barrel except numbers LEJ 808 through LEJ 090, which carried the unribbed 8½" barrel. Incidentally, these LEJ specials, which sold for around $500, are reportedly bringing $750 to $1,000 now.

Then, because Lee and I were getting so many letters asking about the Auto Mag, Lee decided to start an Auto Mag association, and to publish a monthly newsletter. Thus the Club de Auto Mag International was formed, its periodical newsletter publishing the findings of dedicated Auto Mag shooters. Membership, including the newsletter, is well worth the $10 yearly dues.

At about this time Don Mitchell, then president of High Standard, became interested in the Auto Mag pistol. After visiting Harry at T.D.E., Don made plans for High Standard to buy AMPs, these to carry the company name. Less than 200 were delivered, the serial numbers prefixed with "H.S." Several hundred more were delivered with the High Standard markings on the barrel, but serial numbered in the regular Auto Mag sequence, starting with the prefix "A.O." During this period Sanford went into partnership with a lawyer, and together they bought T.D.E. from the Thomas Oil Co. This let Sanford devote full time to making the Auto Mag, with his partner handling the financial end. Until this time Auto Mags were being advertised almost exclusively in *Shotgun News*, yet demand was greatly outstripping supply. In fact, even today many dealers have never *seen* an Auto Mag. Sanford and his partner decided it would be an advantage to have only one distributor for the Auto Mag, which would free them from marketing problems. They realized, too, that it would be most important that someone manufacture factory ammo for the Auto Mag, for the original supply of CDM 44 ammo was dwindling rapidly and no factory 357 AMP ammo had ever been manufactured. They also wanted the distributor to take over all warranty and other repair works, which meant that the distributor selected should have a good knowledge of handguns, with emphasis on the Auto Mag. Lee Jurras was selected because of his unusual position—he was then an ammunition manufacturer and an Auto Mag expert, besides being a handgun authority generally.

World Distributor Named

The rest is handgun history. Lee Jurras and Associates in September of 1974 became exclusive world distributors of the Auto Mag, as well as factory service center

Jim Ehresman (left) and the author doing the final grinding on a 16" tapered octagon barrel in 44 AMP caliber.

and parts distributor. This was, in my estimation, the best thing that could have happened to the Auto Mag, for Jurras had and has much more than a monetary interest in the Auto Mag; he's devoted to handgunning as a sport and recreation, to handgun hunting, and to the furtherance of handguns and handgunning at all levels.

Lee's time was so taken up with the Auto Mag that he had little left to spend on making Super-Vel ammo. In December of 1974 he decided to close Super-Vel; he would make handgun ammo only for the Auto Mag. He already was offering factory 44 and 357 ammo made with CDM brass, as he had bought almost all of their remaining stock. He negotiated with CDM to manufacture a large quantity of brass for the 357, 41 and 44 Auto Mag cartridges. The 41, dubbed the 41 JMP for Jurras Magnum Pistol, was made by necking down the 44 to accept the .410" bullet. The resulting slight bottleneck gave more uniform ballistics with the ball powders available. The first shot fired through the 41 JMP 7½" pressure barrel with 30.0 grains of W-W 296 and the 170-gr. Sierra H.C. ran a sizzling 2,000 fps with only 47,000 cup.

Lee suggested manufacturing a shoulder-stock Auto Mag, and one is being tested. Regular aluminum tubing often collapsed when so used, so the final version is of stainless steel with a hinged buttplate. The barrel of this special model is 8½" long with a 6½" rib (sans sights). Caliber is 357 to get the flat trajectory needed for long-range hunting, and the sight is a Leupold M8-2X scope mounted on a one-piece titanium base that Dave Pence of Bluffton (Ind.) and I designed. Mount rings are stainless steel, and the scope is held tightly by Allen screws whose flat heads are tapered to draw a full length stainless sheet securely over the scope tube. This setup eliminates scope slippage. Three stainless 10x32 Allen cap screws attach the base to the barrel. Barrel, rib and frame are polished bright, the barrel Mag-Na-Ported. The final version will possibly have three sets of ports as the absence of a full-length rib and front sight allows using a top port.

This pistol, the Lee E. Jurras Custom Model 200 International, will come complete with a 6½" open-sighted ribbed barrel, an 8½" ribbed barrel, scope and mount, stainless shoulder stock, spare magazine, custom laminated grips by Clint Teeters, clip depressor, ammo, spare parts manual and trajectory charts—all in a custom leather hard attaché case. Only 25 will be manufactured, serial numbered from 001 to 025. Price—about $3500.

Lee is also manufacturing a limited number of 12½" shoulder-stocked 44 AMPs. Called the Alaskan, this model is aimed at the foothunter who desires maximum power and accuracy in a small, easily carried package. Buyers of this gun will, of course, have to pay the $200 federal transfer tax.

Another interesting model is the Backpacker, a 4" 44 AMP with the grip section reduced about 3/8" and a square trigger guard. Several of these have been ordered by Highway Patrol officers requiring an extremely powerful small handgun. Small, of course, but only when compared with its daddy!

Other Auto Mag Calibers

During my testing I became enamored with the possibilities of 22-, 25-, and 30-cal. cartridges based on the 357 Auto Mag. I had Max Clymer make up reamers from drawings based on my ideas. To increase neck length and provide sufficient neck tension to withstand recoil forces in the magazine, I moved the midpoint of the shoulder back .025" on the 30, .050" on the 25, and .075" on the 22. I also changed the shoulder angle from 20° to 30°.

Bob Sherer of Shutz Brothers (No. Manchester, Ind.) made and chambered two barrels in each caliber for me, plus loading dies and neck reamers. All were 11¾" long, with a 1-in-10" left-hand twist. Made of 416 stainless steel, they were left soft (annealed) so Sanford could easily turn them to the same configuration as the current 10½" 357 barrel. The neck reamers maintained .015" neck thickness in all cases. In November, 1974, I sent the barrels to Sanford to be incorporated into complete barrel assemblies, and I began forming brass.

In January, 1975, I received the assemblies and began testing. Here are some condensed results:

Best 22 AMP Loads

Bullet, grs.	O.A.L.	Load	MV
40 Sierra	1.640	25.0/4198	3160
55 Hornady SX	1.675	30.0/BL-C2	2870
70 Speer	1.700	27.0/748BR	2424

Best accuracy came with the middle load. Initially the barrel assemblies weighed 28.6 oz. but the gun would not function at this weight. One barrel was milled to a tapered-octagon profile, a little at a time, until at 20.6 oz. it functioned well with 55-gr. and 70-gr. bullets. With Ball powder this barrel fouls quickly and must be cleaned after each 20 shots for best accuracy—about one MOA (minute of angle).

Best 25 AMP Loads

Bullet, grs.	O.A.L.	Load	MV
60 Horn.	1.605	28.0/4198	2800
75 Horn.	1.685	32.0/BL-C2	2550
100 S'tip	1.695	21.0/4198	2100
100 S'tip	1.695	27.0/BL-C2	2000*
117 Rem. PP	1.695	27.0/BL-C2	2025

*Low pressure but works well

Best accuracy was with 75- and 100-gr. bullets. The 117-gr. Power Point did not do as well. Some 120-gr. spitzers keyholed at 100 yards, so they're not listed. A faster twist may help, so I'm having several barrels made with a 7⅞" twist. The 25-cal. barrels originally weighed 28.0 oz., and would work with the 117-gr. bullets about 80% of the time. At 24.0 oz. they worked all of the time with heavy bullets. At 22.1 oz.

Shirley—the author's wife—shooting a 12½" barreled 44 Auto Mag. The gun is seen in full-recoil position after emergence of the 265-gr. Hornady bullet at 1950 fps muzzle velocity.

Tom Clymer shoots the experimental 25-cal. AMP. The one in his belt is a 22-cal. AMP. These calibers, including the test 30-cal. gun, are not in production.

smoothed guns worked with 75-gr. bullets but not with 60-gr.

In the 22s and 25s, identical velocities were produced with 4198 and BL-C2, but the latter gave much more recoil energy, hence Ball powder loads would function the gun when 4198 would not. An identical situation was found in the 30 AMP, W-W680 giving more recoil, at the same velocity, than did W-W296 or H-110.

Best 30 AMP Loads

Bullet, grs.	O.A.L	Load	MV
110 Zero	1.670	28.0/4198	2310
110 Zero	1.670	34.0/BL-C2	2000
110 Zero	1.670	21.0/H-110 (old lot)	2249
110 Zero	1.670	22.0/H-110 (old lot)	2355
110 Zero	1.670	21.0/W-W296	2259
110 Zero	1.670	26.0/W-W680	2450
130 Speer	1.685	30.0/BL-C2	1800*
130 Speer	1.685	26.0/4198	2200†
150 Sierra	1.755	26.0/4198	2150
150 Sierra	1.755	22.0/W-W680	1950

*Low pressure, perfect functioning, superb accuracy.
†Very accurate

All 30 AMP loads tested were accurate. My favorite, the 130-gr. Speer spitzer at 2200 fps, shoots under 1½ MOA and is extremely flat to long range. As received, 30 AMP barrels weighed 26.7 oz. and smoothed guns functioned with this weight. My scoped-barrel, at 37.4 oz., also works well with 130- and 150-gr. bullets, but requires maximum accelerator throws. I'm testing another pair of 30s, these with 7⅝" twist, hoping to increase recoil energy for reliable functioning with the scoped unit using 110-gr. bullets. So far I have reached no conclusion.

Materials, Manufacture, Takedown

In less than three seconds the Auto Mag can be broken down into its two major units, barrel assembly and frame. With hammer back, the cocking piece is pulled to the rear until the bolt is locked back by the "holdopen" device. Then the barrel latch is pushed down and the barrel assembly slid forward out of its mortise in the frame.

The barrel assembly consists of the barrel, action, rib, accelerator, accelerator block, accelerator pin, rear sight assembly and sight pin, plus the block that slides into the frame, its bottom slotted to act as a stop when engaged by the barrel latch. On the original Pasadena guns these parts were machined from Carpenter 455 bar stock. The barrel was electron-beam welded into the breech, then the rib and bottom lug welded on. After the move was made to North Hollywood the accelerator pad was changed to 4150 steel and fitted to some of the remaining 455 accelerators. Later the accelerator and pad were switched to 17-4 PH steel. There were two reasons for this—economy and the belief that the 455 accelerator had a tendency to batter the frame excessively and gall the pad. (I had no trouble with any accelerators or pads.) All 357 AMP barrels have been of 17-4PH, and eventually the 44 barrels will be switched to this material—it is easier to fabricate and equally durable. In November of 1974 the breech assembly, which contains the lugs, was changed to 17-4PH.

Rear sights have been changed to 1050 so they can be blued to eliminate glare. The barrels have left-hand 1-in-18" rifling, with 8 equal-width lands and grooves. Torque created by the unlocking bolt is believed canceled via the left-hand twist.

The frame is investment cast of 17-4PH, as is the rib, since the move to North Hollywood. Many machining operations are performed after casting, for a large number of extremely critical dimensions must be held. These frames seem virtually indestructible. Two that I used for initial load development have fired over 20,000 rounds, many in a dangerous-pressure category, yet they are near perfect and still conform to original dimensions. At around serial number 6500 a new frame mould was put into operation, as the original one was about worn out.

The bolt is machined from 455 bar stock, as is the barrel assembly. It rides through a circular projection on top of the frame and is stopped in its rearward travel by the bolt rotating pin and the springs. The bolt is one of the most impressive parts of the gun. The slot down the center has a 22½-degree helix at the rear which rotates the bolt and unlocks the lugs at the proper time to eliminate binding.

The bolt's lug end is drilled for the ejector, extractor pin, ejector pin and firing pin, and is milled-recessed for the extractor and case head—all made of 455 steel also. The two ears at the rear of the bolt, which house the critical bolt rotation spring, must mate perfectly with the cocking piece, and the bolt safety tappet on the bottom rear of the bolt must be in perfect position to disconnect the trigger until complete rotation is achieved. Over 100 critical dimensions on the bolt must be held, yet at this writing a spare bolt sells for only $67. Tests are being run to find a more machinable replacement for 455, one less difficult to heat treat.

Bolt rotation pins were first made of 455, but high cost and a galling problem (which reportedly slowed bolt action) brought a change to 4140. At about serial number 6300 the shape of the pin was changed slightly for smoother action. Current rotation pins are of 17-4PH, and very durable.

The cocking piece is affixed to the bolt by two interlocking ears. A notch inside the cocking piece engages the free end of the circular bolt-rotation spring attached to the rear of the bolt. This spring is tensioned by rotating the cocking piece 90° to the right during assembly, which causes the bolt to attempt to rotate into locked position. Locking occurs when the bolt moves far enough forward to let the bolt rotating pin engage the helix at its rear. The cocking piece is further affixed to the frame by the two threaded recoil rods that run through circular channels on either side of the frame below the bolt. "Heli-coil" wires in the 10x32 threaded holes prevent loosening of the recoil rods. The recoil rods, of 455, are removable from the front of the frame with the 3/32" Allen wrench provided.

Six Auto Mag pistols—standard and otherwise—plus 13 barrel assemblies and the new TDE 380-cal. Back Up auto pistol.

The intricately-shaped sear was expensive to machine from Carpenter 455, so at about serial number AO 6500 a switch was made to A2 steel, investment cast. These sears seem as good as the indestructible 455 sears and cost only a tenth as much to make.

The hammer, trigger, safety lever, barrel latch and magazine latch are of cast 17-4PH. Early firing pins were of 455 steel, weighing 65 ± 5 grains, but were soon changed to 75 ± 5 grains to increase firing pin energy. Early extractors were machined from 455, later changed to 17-4PH, with good functionality when properly fitted. The trigger bar, safety lever and holdopen device were initially of 17-7PH, with the trigger bar changed to 303 at about SN 6500. Springs were (and are) of stainless steel, which tends to take a "set" rather fast; I'm having some made up of music wire to see if this works better.

Most other Auto Mag parts are made of 455 steel.

The hammer pin is retained by a small ring that seldom gives any problem. The safety lever is inserted through the frame from the left side with the safety plate over its end on the right. This assembly is retained by a small snap ring, initially of stainless steel, later changed to 4140. An identical snap ring retains the trigger bar. These two snap rings have a tendency to shoot off. I am experimenting with heavier snap rings, which don't seem as likely to come off, making the piece a little more durable.

Initially, black polyurethane grips with full checkering were furnished. Some complained that the sharp checkering cut their hands, so the mould was modified by radiusing the rear corners, removing some checkering and dulling what was left. These grips are durable but, to my eye, not pretty. Teeters made me a set of walnut grips, but because of the required thin sections, they split after a few rounds. He then made me some of laminated wood. These are much more durable and comfortable than the original plastics.

How the Auto Mag Functions

The short-recoil Auto Mag uses an accelerator similar in principle to that on the Browning 50-cal. machine gun. The Auto Mag manual explains operation fully, but for those without one, here's how the AMP functions:

Upon firing, the expanding powder gases force the barrel assembly rearward, pushing the bolt back. Unlocking is not completed until gas pressure drops and the bullet has left the muzzle. As the barrel assembly moves about 0.325" to the rear, the action of the rotating pin in the helical camming cut unlocks the bolt, and the bottom of the accelerator strikes a lug on the frame, moving the top of the accelerator against a heavy lug on the bolt. This assists in throwing the bolt all the way rearward. The barrel assembly continues rearward (about another .090") until it reaches the integral projection housing the bolt, then stops.

The bolt is stopped by the bolt-rotating pin and the heavily-compressed recoil-rod springs. The fired case is ejected as soon as its mouth clears the ejection port on the right side of the barrel assembly. At this point the barrel assembly is all the way to the rear, lining up the separate feed ramps of the frame and barrel assembly. The expanding recoil springs slam the bolt forward, stripping a cartridge from the magazine and feeding it into the chamber. Simultaneously, the barrel assembly is shoved forward until it contacts the barrel latch and the bolt is rotated into the locked position.

The bolt safety tappet prevents the gun from firing until the bolt has rotated shut, at which time the tappet enters a small cut in the bottom of the bolt. This allows the trigger bar to move up and engage the sear when the trigger is squeezed. The piece can't fire when the bolt is back because the hammer is stopped by the bottom of the cocking piece.

The Auto Mag has an effective safety —when applied with the gun cocked, the trigger is disconnected, the hammer is cammed out of sear engagement, locking the gun shut. Even struck hard enough to knock the hammer forward, shearing the heavy hammer pin, the gun could not fire because the hammer would fly out. The inertia-type firing pin makes the gun safe to carry with the hammer down on a live cartridge. A quarter-cock or safety notch stops the hammer fall if the gun is accidentally dropped while the hammer is being lowered on a live round or if the full-cock notch fails. With the hammer fully down or on quarter-cock, the safety prevents the hammer from being cocked or the piece opened.

When the last round is fired the small stud on the left side of the magazine engages and pushes the hold-open device up until it catches the bolt, holding it back and open. The bolt can be locked open with the magazine removed by holding it to the rear and pushing up on the exposed portion of the hold-open assembly located in front of the safety. It is easier to pull the bolt back after cocking the hammer but, don't get cut on the sight! The massive Auto Mag handgun needs strength to open and to operate.

Tuning, Trouble Shooting, Repair

Because of space limits, I'll cover here only the major areas. Since all parts have some interrelation, there may be some repetition.

Anyone attempting to repair the Auto Mag should become thoroughly familiar with the way the pistol is built and how it functions. He should make sure his ammunition provides the correct recoil impulse to reliably function the pistol. The 44 has much greater load tolerance than does the 357. Unported 357s can be made 100% reliable with bullet weights as low as 90 grains, but this requires maximum loads with maximum accelerator movement. The 44 can be made reliable with 180-gr. bullets at velocities from 1400 to 1900 fps.

The only tools normally required are feeler gauges, vernier caliper with I.D. and O.D. jaws, small files, a small drill or, better, a Dremel Moto-Tool outfit, 240- and 400-grit sandpaper, crocus cloth, a vise and small punches. Keep a log of operations performed and the resulting changes in functioning. It helps to have an assortment of Auto Mag parts to interchange so you can note functioning differences. Small brass rods, slitted at one end to hold the sandpaper or crocus cloth, can be chucked into the drill for polishing the feed ramp, barrel chamber, bolt, integral projection, etc.

After the barrel assembly moves about .415" rearward, the integral projection on the frame that the bolt rides through strikes a shoulder at the rear of the ejection port. About .090" before completion of this movement, the bottom of the accelerator contacts a lug on the frame and pivots the top of the accelerator against a heavy lug on the bolt, throwing the bolt rearward.

A variety of Auto Mag pistols, special holster and magazine pouches — all a part of pistolsmith Kent Lomont's working collection.

Anyone attempting these repairs or modifications is on his own; neither I, GUN DIGEST, T.D.E. Corporation nor Lee Jurras and Associates will accept responsibility in any way for the results obtained.

Accelerator "throw" is the distance the accelerator pushes the bolt back when the barrel assembly contacts the integral projection. To determine the amount of throw accurately, remove the clip and make sure the gun is clean, particularly around the accelerator, locking lugs and contact points at the integral lug. With hammer cocked grasp the cocking piece, and pull the bolt about halfway back. Push the muzzle against an unyielding surface and ease the bolt forward while maintaining pressure on the barrel. Measure the gap—accelerator throw—between the barrel assembly and the cocking piece.

The throw on factory guns will vary from .075" to .100." Fire several clips of ammo before measuring to eliminate possible false readings from burrs, and to allow a certain amount of bedding-in of the various components. The same amount of throw (as found above) should be obtainable by simply pushing on the barrel assembly, but some guns are rough and that won't work. Such guns should be worked on until they do. Sometimes the accelerator top is too wide and binds in the mortise between barrel and frame. Occasionally there is a small burr between accelerator and block, and on some guns the block sides or accelerator rub the frame; I have also seen accelerator blocks with a radius unlike that of the accelerator. Both conditions cause stickiness. Make sure the barrel assembly easily moves back and forth all of the way until stopped by the integral projection. If it does not, correct it. With much shooting the accelerator will bed in, in several areas, lessening throw. This sometimes requires fiitting a larger accelerator, mainly in the 357 when reliability with 90-gr. bullets is required.

Accelerator throw can be decreased by carefully stoning the bolt-lug contact portion. The movement ratio is roughly three to one; that is, removing .001" will decrease throw around .003." Generally, an accelerator measuring .455" will give a throw of .075" to .090," depending on the gun, and one of .465" will give about .110" to .125." A particular accelerator's measurements apply only to the gun it will be used in. Larger accelerators always give greater throws in the same gun, but not necessarily more throw in another one. A larger accelerator is the only way to increase accelerator throw without disturbing other relationships, which would be left strictly alone unless you know exactly what you are doing.

Optimum accelerator throw for the 44 AMP is the minimum amount that will reliably function the gun and no more, unless the gun will be used in very cold weather. With maximum-pressure loads, the heavier bullets in warm weather will reliably function the lightly oiled 6½" barreled 44 without the accelerator. When setting up the accelerator make sure the clip is full. It takes more throw to move the bolt all the way back with a full clip than with a partly full one (the heavily compressed clip spring exerts more drag on the bolt).

It helps a lot to have various accelerators on hand—my kit contains over 40, giving throws from .010" to .130." Most guns suffer from accelerator and bolt-lug contact at throws above .125" when the piece is closed, thereby limiting the maximum throw obtainable. Functioning of 8½" and 10½" 44 barrels often will be improved by removing the accelerator, or decreasing throw to around .035"-.060." I usually use a .060" for the 265-gr. Hornady at 1400 fps and a .090" for the 180-gr. Super Vel at 1800 fps in 6½" barrels. If too much throw is used in the 44, it slams the bolt rearward too forcefully, tipping the top cartridge in the magazine up too much at the nose and down at the base. The closing bolt then causes a jam by hitting the cartridge in the middle. Not enough throw has the same effect because the bolt won't get far enough rearward to pick up the head of the case, especially when the clip is full. However, it may function well when the clip is empty, thereby engaging the holdopen and giving the erroneous conclusion that the accelerator throw is adequate. In other words, it is difficult to determine whether the bolt is moving all the way rearward and tipping the next round or not moving all the way rearward. The results are the same—a shell caught in the middle—but the causes are entirely different.

One word of caution—because maximum throw cannot be easily reached by pushing on the barrel does not necessarily fault the accelerator. A rough bolt helix, bolt lug interference, oversize or rough rotating pin, poor barrel-to-frame fit, bolt-safety tappet drag, and several other things can prevent easy movement to full accelerator throw. Make sure the problem is understood before attempting to correct it by filing or stoning.

I have experimented with clip lips that were almost closed. These don't permit cartridges to tip. They require a cartridge depressor and bolt modifications, and they must be loaded from the front, but function is improved. However, those were factory clips, which have too good a memory and tend to open up. I plan to make such clips, heat treat them and run further tests.

A major limiting factor of magazine-spring tension is that an increase causes the cartridges to pop through the magazine lips during recoil.

Barrel weight has much to do with positive functioning. I feel the 44 would work better if its barrel weight were increased from the current 23.2 oz. (6½") and 24.5 oz. of the 10½" to about 34 oz. I believe this because my scoped barrels work better than when unscoped, and exhibit less catch-the-shell-in-the-middle syndrome.

Bob Sherer made some long and heavy 44 AMP barrels to cut down recoil energy, and Sanford send me a 12½" and a 16" length, each of 1-inch diameter with 1/25" twist, these weighing 48 and 57 oz. They have worked better for me than any others,

The author shoots a 44-cal. 16" Auto Mag pistol, the 180-gr. bullet having a muzzle velocity of 2300 fps. This barrel weighs 54 oz., the optimum figure for heavy loads if maximum reliability is required.

Auto Mag Elevation Data

Elevation in feet, obtained by holding blade or blade/ramp higher

Range, yds.	100	200	300	400	500	600	700	800
8½" bbl.*								
Blade	8.2	12.3	18.5	24.8	30.8	37.0	43.2	49.3
Blade/Ramp	17.2	34.3	51.5	68.8	86.0	103	120	138
6½" bbl.								
Blade	4.8	9.7	14.5	19.3	24.2	29.0	33.8	38.6
Blade/Ramp	9.4	18.7	28.1	37.5	46.8	56.2	65.6	75.0

*Multiply 8½" barrel figures by 0.86 to obtain 10½" bbl. elevation

Auto Mag Sight Data

Barrel	Sight Radius	Windage, per Click	Elevation, Per Click	Sight Height Blade	Sight Height Blade/Ramp
6½"	10½"	1.015 MOA*	.437 MOA	.170"	.330
8½"	12 3/16"	.882	.379	.250"	.700
10½"	14 3/16"	.757	.325	.250"	.700

*MOA—minute of angle. Turning sight adjustment screw clockwise moves point of impact left for windage, up for elevation.

coupled with a .090" accelerator throw. After initial test-firing I had both machined to a tapered octagon and fitted with front sights. With the 265-gr. Hornady and an extremely heavy load of ball powder, I reached 2,050 fps with the 12½" and 2,125 with the 16." WW680 powder did not pan out with the longer barrel. Max velocity was reached with H-110. In the field the barrels can be hand held without causing malfunctioning. I am going to fit a forearm to the 16" and get one of Jurras's shoulder stocks to play with. The 12½" is very good as is at long range.

Based on a lot of shooting with different barrel weights, I believe the list that follows shows optimum barrel assembly weights for each caliber for best functioning on unported smooth guns (they won't work with guns not smoothed): 44 AMP, 45 oz.; 357 AMP, 30 oz.; 30 AMP, 25 oz.; 25 AMP, 22 oz.; 22 AMP, 18 oz.

Here are the ounce weights for production barrel assemblies:

357 AMP	44 AMP
6½"/21.5	6½"/23.2
8½"/23.2	8½"/23.2
10½"/24.0	10½"24.5

The 8½" and 10½" barrels were increased recently to 26.5 oz. and 27.4 oz.

I recommend that all 44 Auto Mags be Mag-Na-Ported. In the 6½" barrel, porting reduces recoil some 50% and increases the life of all parts. The picture on porting is not as clear on the 357, however. This will be discussed later. I once thought that porting did not lessen the catch-the-shell-in-the-middle syndrome in the 44, but I've changed my mind, at least for the average gun.

Though 357 and 44 AMP barrels weigh about the same, the lighter 357 bullets generate less recoil impulse. Thus the 357 usually requires maximum accelerator throw for reliable functioning with all bullet weights. If only 140-gr. or heavier bullets will be used, throws of .080" to .090" will serve. Lighter bullets require throws of .110" to .120". I prefer .110" for all bullets for positive functioning in all weather. The 357 AMP barrels should be ported unless the barrel is scoped or bullets of 110 grains or under will be used regularly, or for very cold weather shooting. Porting reduces 357 AMP recoil around 50%, as it does in the 44, but the 357 does not possess as much extra energy to operate the action as the larger caliber. The lighter 357 bullets lose velocity faster and drop almost as much as the heavier ones, but they're great on varmints to 150 yards.

As barrel length/weight increases, reliability with lighter bullets increases. Working velocities over 2,900 fps can be attained with 90-gr. bullets with 100% reliability in unported 10½" barrels, 2,650 in the 8½," and 2,500 in the 6½." Some 6½" guns are difficult to make 100% reliable with 90-gr. bullets even when unported, but careful smoothing and maximum throw will usually make them work.

The 357 AMP rarely suffers from midcase hits, and then only with 158-gr. bullets in guns set to maximum throws, with 7 rounds in the clip and weak clip springs. In both standard AMP calibers, if heavier bullets are to be used, Mag-Na-Porting becomes increasingly necessary as barrel length and recoil increases. With the longer lengths (in both calibers) lesser accelerator throws can be used for identical reliability with given loads. As mentioned before, 8½" and 10½" 44s may work better without the accelerator, or with very small throws.

I'll close Part One here. Part Two will carry detailed instructions on adjusting and polishing all AMP components, data on parts life and their replacement, desirable modification, trigger tuning, cleaning and lubricating. Scoping the AMP will also be thoroughly covered, as will iron sight adjustment and modifications for long range shooting, and shooting position for best results. ●

BALLISTIC DATA

Auto Mags Versus S&W Magnums

Caliber, barrel, in.	Bullet, grs.	BC*	MV† fps	Drop in inches and velocity at indicated yardages 100	200	300	400	500	600
22 AMP 10½ E	50	.223	3000	2.2	10.7	28.4	61.0	116.7	
				2570	2180	1840	1540	1290	1130
	70	.214	2500	3.2	16.2	43.8	95.6	180.9	
				2100	1750	1440	1210	1060	970
25 AMP 10½ E	60	.169	2900	2.5	11.5	30.0	67.0	130.0	
				2430	1890	1480	1180	1020	920
	75	.255	2700	2.7	12.5	33.3	69.9	129.3	
				2350	2030	1740	1490	1280	1130
	100	.357	2400	3.4	14.5	37.8	74.7	129.9	
				2160	1950	1740	1560	1400	1300
30 AMP 10½ E	110	.256	2500	3.1	14.6	39.2	82.6	152.0	
				2170	1870	1600	1370	1190	1060
	130	.292	2200	4.1	18.8	48.1	97.4	182.5	
				1930	1690	1480	1300	1150	1040
357 AMP 8½	100	.091	2650	3.3	19.6				
				1750	1150	920	780	670	570
	125	.122	2300	4.5	25.7	63.0			
				1680	1220	980	860	760	675
	137	.150	2200	4.1	20.2	55.8	120.5	223.5	
				1730	1340	1080	950	860	770
	158	.183	2000	5.3	26.7	63.0			
				1620	1310	1080	985	900	825
357 MAG 8⅜	173 K	.162	1500	9.5	44.0				
				1210	1030	910	830	770	700
41 JMP 8½	170	.120	2000	5.6	29.5				
				1430	1080	920	810	720	640
	210	.140	1700	7.6	36.3				
				1260	1040	920	820	740	660
41 MAG 8⅜	220 K	.137	1500	10.5	50.9				
				1150	980	860	780	700	640
44 AMP 8½	200	.153	1800	6.3	30.7	82.7			
				1390	1120	970	870	790	720
	240	.173	1600	8.2	43.0	100.0			
				1290	1080	960	860	800	740
	265	.193	1500	9.6	46.9	105.0			
				1220	1050	960	880	810	760
44 MAG 8⅜	250	.151	1500	9.6	45.0				
				1180	1000	890	800	740	670

*BC—ballistic coefficient
†MV—muzzle velocity

E—experimental calibers
K—Keith-type bullets

MV/Barrel Length

Many Auto Mag owners have wanted to know how much more muzzle velocity can be had from the longer barrels. Here are some average increases, these based on my firing of several thousands of cartridges in 357 and 44 AMPs with all barrel lengths. The MV figures shown are for the first 2" increase, then for the 2nd 2" increase, or for 8½" over 6½", and 10½" over 8½".

357 AMP	44 AMP
90-gr./200—185 fps.	180-gr./200—100 fps.
125-gr./140—130 fps.	200-gr./150— 75 fps.
140-gr./130—120 fps.	240-gr./100— 60 fps.
	265-gr./100— 50 fps.