

Laura Watson

From: Nations, Sheila T.  
Sent: 07/30/2002 04:56:28 PM  
To: Watson, Laura M.; Frederick, Tonya  
CC:  
BCC:  
Subject: Training Notes (I didn't know what I had already sent so I sent them all)

Laura I think that this is all of my notes so far.

Thanks.

Sheila T. Nations

Consumer Service Representative

Remington Arms Company, Inc.

P.O. Box 700

Madison, NC 27025-0700

Phone: 336-548-8772

Fax: 336-548-7801

nationsst@remington.com

Visit Remington Country @ [www.remington.com](http://www.remington.com)

Subject to Protective Order - Williams v. Remington



MAE00008814

## 1100's & 1187's Fully Gas Operated

The 1100 came out in 1961. It was the first gas operated semi auto shotgun. Prior to this was the 1148 and the 1158 (semi auto not fully gas operated).

This is an assembly line gun. It has common parts which are basically the same parts as the 870.

Instead of pumping it is cycled by gas.

Instead of the magazine guide on the barrel these have gas cylinder brazed on the barrel.

It takes 8 lbs. of pressure to cycle this gun. Orifice size is very specific.

The piston and the piston seal (the silver rings on the magazine that the barrel seal goes on) push on the action tube and action bars. The bolt slides on the action bars. As this pushes back, cocks hammer, ejects spent round.

The action spring is inside the stock and that spring pushes the action back forward. As this comes forward the locking bolt locks into the cut. It also has an action lock-this must be locked to fire.

The carrier release (located on the bottom side of gun) will let go forward.

The ejector on a semi auto is a small button or notch on the bbl extension. On new barrels it is punched out.

The shell latch is on the right. It holds the shell in the magazine tube.

The interceptor latch is on the left. It intercepts the next shell in the magazine (after one is fed) to keep it in the magazine.

The interceptor is held in by the interceptor latch stud and retainer.

These models use the same common fire control.

1187's and 1100's the action bar and slide are the an assembly.

The fore end support is what rides on the action bars. These keep the fore end in the right spot when putting it on. (keeps the barrel tight.)

The operating handle opens the bolt. This fits into the cut in the bolt (fits in the slide).

The slide has a detent ball that holds the operating handle in.

The action bar assembly consists of:

Action bar sleeve

Fore end support

Slide

Action bars

NEVER PULL TRIGGER WHEN THE TRIGGER ASSEMBLY IS BACK. It will break the gun. The hammer hits the carrier latch and it breaks. This latch is purchasable but it needs to be adjusted (bent back and forth with pliers). If they buy a total trigger assembly then it doesn't need adjusting.

If they break the carrier release then they need to buy a new carrier assembly.

The 1187 magazine tube (stainless steel) is silver soldered on.  
The 1100 is carbon

The indentation on the magazine tube is for the bbl seal.

The bbl guide stud is an entral part. It is cut into the steel. If it breaks it is no big deal. It just fits into the cut into the bbl. You don't absolutely need it. The gun can shoot fine without it. The only way to replace it is to replace the whole receiver (which will have a new serial number). Advise consumer to leave it alone they really don't need it.

The part that looks like tweezers is called a link. It links the action spring to the back of the action bars.

The receiver buffer is the black seal around the back of the firing pin. This must be individually fitted by a gunsmith. This piece buffers the receiver from the bolt-it stops the action movement so that it doesn't keep going. It reverses the force.

The 1100 and the 1187 have a bolt nut instead of a bolt that is inside the stock. This is because you have an action tube and an action spring-the nut goes on this.

Use the link to take the action spring out of the action tube. Push the spring down and use the link to push the pin out. Pull spring out carefully.  
The action spring follower is in front of the spring. The link pushes against.

Only someone with an FFL license holder can get a receiver and they must have their FFL license on file with us.

The receiver assembly consists of:

Magazine tube

Magazine spring

Magazine retainer

Follower

Action tube

Action spring

Action latch

Shell latch

Interceptor latch

When the 1100 came out it was awesome-it was gas operated, was reliable, and it also greatly reduced recoil (this is due to it using recycled gas)

1100 and 1187 have least amount of felt recoil of any on the market.

The 1100 was a great gun but you had to buy target model 2 ¾ only or magnum 3".

The 2 ¾ inch bbl had a V at the end of the serial number.

3 ¾ inch shells don't cycle reliably yet.

1100 AND 1187 BBL'S DO NOT INTERCHANGE!!!!!!

The 1100 has a flat bbl guide

The 1187 has a relief cut on the bbl guide and has the gas compensating system.

The cut in the receiver that goes back toward the stock is to keep the receiver from cracking.

## Troubleshooting

When the 1100 or 1187 aren't cycling, say it shoots the 1<sup>st</sup> round and jams the second,

1. Check the bbl seal-look to see if it's cracking, dry rotted, or stretched too much. Try to stretch-if it will stretch then it's rubber and it's not a real bbl seal.
2. Piston Assembly-this used to be two separate parts in '98 went to the snap together kind that we use now. When they were separate pieces that didn't snap together they cracked badly. Now that it's one part with cuts you have to make sure that the cuts are opposite from each other. If they are lined up the gas escapes. Consumers must make sure that these, piston and piston seal, are clean too.
3. Magazine tube needs to be super clean. To do this get a bronze bristle brush or nylon brush with bore solvent or bore action cleaner (or rem oil) and scrub, scrub, scrub. Fine steel wool either 00 or 000 will work. After cleaning do not oil. If you oil before you store it, make sure to clean it all off when you get gun back out.
4. The action spring tube (in the stock) must be clean. The spring can also get worn out or set back. This must be replaced. You can use a .45 cal bronze brush and scrub the fool out of the action tube. Do not put oil on the tube (can put a LITTLE on the action spring).
5. If the carrier latch is broken (from pulling trigger with trigger assembly out of gun).
6. Took bbl off and piston seal and piston. The bbl seal may be stuck in the gas cylinder.

Cont'd

7. If a consumer complains about having a cut or hole in his action tube this is OK it won't hurt anything. Consumer's will also see wear where the action bars go into the action sleeve. This is also OK.
8. If a consumer takes their piston and piston seal off and can't find their bbl seal, It may be stuck in the gas cylinder.
9. The link needs to follow the bend in the receiver. If a gun owner can't open His action then he may have put the link in upside down. (The link goes into the action sleeve follower.
10. If someone calls in with a hole in the follower. Check to see if aluminum (shiny) or steel. Send consumers with aluminum people a new one free.
11. Always remind people to clean action tube.
12. If the bbl guide stud inside receiver breaks it doesn't matter.
13. The interceptor latch has a spring stud retainer (this is hard to put on with out the correct tool). If two shells come out or maybe not cycling then the interceptor stud, spring, or retainer. This needs to go to the factory or a RARC.
14. The magazine tube on the 1107 is stainless steel. The magazine tube on an 1100 is carbide and they can break at the weld. Send to the factory.
15. If a stress crack comes in the receiver then it is trashed. This can't be fixed- the metal has been compromised.
16. Fore ends can crack. If the firearm is less than 2 yrs. old then send them one for free. If the firearm is older then send it in. 9 times out of 10 we will replace it for free.
17. If it won't cycle 3 1/2 inch loads it mainly has to do with the carrier latch (it will need adjusting-send in to the factory)
18. If it won't cycle 2 1/4 inch loads ask do they have a bbl seal activator. If they don't know what they are talking about then they don't have it.
19. The fore end on the super magnum has a gas cylinder collar built into the fore end. If calling to say that they don't have one then have them look in the fore end.
20. The gas cylinder collar keeps the gas cylinder spring from popping off. This needs to be on before the fore end goes on.
21. If the temperature was 32 degrees or below and the gun jams then it is probably too much oil causing the problem.
22. If the action tube breaks off then they need a new receiver.
23. If the consumer's gun is ported and the problem is not cycling correctly then he needs to take back to the person who ported it and have them open the orifices.

24. To get the bbl on the action must be open.  
25. If gun owner presses the bbl release with the bbl off, sometimes you can get unstuck sometimes a gunsmith must fix.  
26. If they say that there are 2 spots (or something in the bbl) that they can't clean out of bbl these are the orifice tubes.  
27. One way to keep the choke tubes from getting loose is a TINY bit of gun grease on the threads.  
28. "What spare parts do I need to carry?"  
A couple of bbl seals  
(1 set) Piston assembly  
Link  
Operating handle  
29. Are bbl's and actions heat treated? Yes.

2 3/4" shells have two orifice holes.  
3" shells have one orifice hole.

On the 1187 the magazine tube is SS.  
On the 1100 the magazine tube is carbon steel.

On early testing of the 1187 it was found out that gas pressure from 3 1/2" shells would blow the top of the magazine.

To clean the trigger assembly take Rem action spray or an air compressor. Put one drop of oil on the hammer spring and one on the plunger.

Side buffer is on the end of the slide. It's the button that presses against the receiver buffer (on the bolt at the firing pin).

The fore end support is the space ship shaped piece that slides on the action bars right behind the slide and before the action sleeve.

The operating handle goes into the slide and it is held in by a detent ball and detent spring. The new operating handle has cuts in it so that it will fit early and late models.

The link bend needs to follow the bend of the receiver.

1187 ONLY - BBL's come in light contour and standard contour.  
LT contour came out in 1993. All LT contour have a decreased outside diameter. This took 8 oz of weight out of the gun. Since the bbl was smaller the inside contour of the fore end had to be smaller.

Deer bbl, turkey bbl, SP bbl, cantilever are all standard contour fore ends.

We do have a program for CONSUMERS ONLY-When they buy a deer bbl or other standard bbl we sell them a fore end for \$25.00 plus tax and shipping. If it is a dealer calling for a customer they should have the customer call us.

Super magnum (3 1/2 inch shells came out in 1996 or 1997) has many super only parts.

BBL seal activator(for super magnum only)-after the piston seal activator (doesn't matter which way) then you put on the bbl seal. The activator pushes against the bbl to make flatter. This increases the bolt speed and completely seats the end of firearm so that the gas has to go in the correct direction. It makes the gun cycle lighter 2 1/4 skeet and trap loads better. DO NOT USE WITH 3 INCH OR 3 1/2 INCH SHELLS. IT INCREASES BOLT SPEED SO IT WILL TEAR THE RECEIVER UP BADLY.

There is metal instead of fiberglass bedding for reinforcement on the super magnum.

The gas cylinder collar keeps the gas cylinder spring from popping off. This needs to be on before the fore end goes on.

Some 2 1/4 inch 1100's won't cycle light loads. One way to correct this is to make orifice holes bigger.(Don't tell anyone-if they ask yes it will fix but it will void the warranty.)

The 1187 turkey bbl 23" and super magnum turkey bbl are not gas compensated. BOTH ARE FOR MAGNUM LOADS ONLY-WILL NOT CYCLE 2 1/4 INCH SHELLS.

The differences in the police version versus the consumer version are:  
Different finish  
Magazine tube extension  
Shorter bbl

The bbl support is the piece of metal that is welded to the magazine tube inside the receiver.

The 12 gauge is the only piston ring and seal that snap together.

The 20 gauge is separate.

The 1187 20 gauge just came out 2 years ago. It is gas compensated and it has a bbl seal activator stays on all of the time (not just on light loads). The only time that this comes out is to clean.

1100 trap guns and old 1187 skeet-target guns have a piece 1/2 the size of the ejector (on the opposite side) the deflector button. We sell this but it won't work on current guns. (this is all in the bbl extension)

If the gun is ported it won't cycle, it lets off too much gas. The consumer should go back to the person who ported the gun and have him open the gas orifices.

You must have the action open to get the bbl on.

IF A PERSON PRESSES THE BBL RELEASE WITH THE BBL OFF SOMETIMES YOU CAN GET IT UNSTUCK AND SOMETIMES YOU MUST USE A GUNSMITH.

You can almost NEVER wear out a shotgun bbl.

A quality concern is the gas cylinder falling off. When this happens people actually shoot their bbl off.



22's (All are Rim Fires and all begin with 50)

Next after muzzleloaders was shells and rim fire was the first shells.

At this time you can only get 22's in rim fire.

The most predominate model is the 597. This was the first fire arm not to be produced in Ilian. We started shipping this gun again in 1997 from the Mayfield Kentucky factory. This factory has 75,000 square feet. A couple hours north of Mayfield in Elizabethtown is where our research and development facility is located.

Model 597 is semi-auto (autoloader) magazine fed 22's. This gun directly compares with the Ruger 1022. We are much more accurate. We make regular long rifle and magnum. Magnum is just the same case with more powder. YOU CANNOT INTERCHANGE THE AMMO. This gun retails for between \$140 and \$150. It is offered in a synthetic stock or a laminated stock and there is a stainless version.

We make a 552 and a 572 that have also been out on the market for 40 to 45 years. Other than the 870 these are our oldest guns.

The 572 is pump action.

The 552 is semi-auto.

These guns are twice as expensive as the 597. They are tube fed, better wood, and fancier overall than the 597.

The 552 is the only semi-auto on the market that shoots all three kinds of ammo (Long-Long Rifle-Short)

We haven't made a bolt action 22 since '98. These models were the 541 and the 581.

Some companies make a 17 caliber but not us.

On the magazine (or clip) the orange (or whatever color) piece that pushes the cartridges up is called the follower.

The magazine on the long rifle holds 10 rounds. The magnum holds 8 rounds.

It is against federal law to make any magazine that holds more than 10 rounds. This started in 1993.

The chamber on the gun is cut and shaped like a shell.

Never dry fire a 22. This caused what is called rim burst..

Todd knows the 597 and the 510 by heart.

The 597 supports a telescopic scope. We have a 597 scope mount rail or you can put a scope on by tip off rings that are pretty industry standard (cheap rings most of the time come with the scopes).

We make a heavier barrel version-they disperse heat quicker. Heat makes metal expand and accuracy suffers. Heavier barrels are also more rigid (steadier). Target guns usually have the heavier barrel. The target gun comes in long rifle and magazine, has scope mount rail standard.

ADL are more rugged - not as fancy less expensive wood or other finish.  
BDL is fancier wood, different finishes on wood and metal.  
Both have the same action.

## 597's

597 was the first gun to come out of the Mayfield plant when it opened in '96. We shipped the first one out in '97.

The 597 was to be inexpensive, lightweight, very accurate, semi-auto.

Mayfield is all modern machinery. Computer was used extensively to design this gun (and the 710). This was made specifically for Mayfield. This was one of Elizabethtowns 1<sup>st</sup> projects. Mike McKinney was the designing engineer.

Rimfire guns in general have been made the same way for 100+ years.

The 597 is not hammer forged. It is button rifled (cut to dimension needed then inserted with a mandrel that cuts the rifling in when pushed in. Button rifling is less stressful to metal. This makes for better accuracy.

Barrel is screwed into the barrel extension. BBL ext. is hooked into receiver. (All 22 receivers now are made of air craft quality aluminum). The receiver is more or less just to hold the bolt. No pressure on a 22 is in the receiver so aluminum is fine. Both of the above parts are restricted.

BBL ext. is held onto receiver by clamp and screw.

The rear site is the same as model 700. Front site is held on by one screw. Rear site is several different parts:

Base

Base slide

Aperature (has V to be lined up)

Two base screws

Elevation Screw (on side)

Windage screw

\*\*\*\*\*Note there are two types of back sites.

Lock tight will hold screws tight but you can still get them off.

\*\*\*\*\*USE RED LOCK TIGHT ONLY ON FIREARMS

The receiver is repaired except to RARC's but a new gun is cheaper so we don't really sell to RARC's either. Cracked receivers need to come back to Ilion (NOT MAYFIELD NOT RARC)

NEVER SEND CANADIAN GUN TO FACTORY-ALWAYS FIND A REPAIR CENTER IN CANADA

Trigger assembly is extremely simple. The only part that folks can get is the whole thing (trigger housing assembly).

The hold open only works w/empty magazine clip. It lets you know that the clip is empty and prevents dry fire.

597's will only go on safety if gun is cocked. This is how it is designed. Gun is fine.

597 is cycled by gas

The bolt assembly is made to specific weight. When the bolt comes back the 597 extracts the spent shell recocks the hammer.

\*\*\*The stock assembly on the 597 doesn't come with swivel studs. These can be added. Technically this voids the warranty on the stock but don't discourage it-do say that it voids the warranty though.

Drill your hole about 2 inches from the butt. Keep perpendicular with the stock.

The ridges on the inside of the stock make it stronger.

Barreled action is what you have left when you take the stock off. This consists of:

Barrel

Receiver

Trigger assembly

We don't sell the barreled action.

Rear site assembly has:

Base

Slide

Elevation screw on side (used to be flat and 2 yrs ago went to allen)-The marks on the side are for reference only-they mean nothing

Aperture (top part)-this is held on by

Windage screw-holds aperture on

Base(is held on by 2 screws)

Trigger assembly (held on by a drift pin)

Take pin out pull down to get assembly out.

Parts are:

Hold open

Hold open spring

The hold open holds open just enough to stop the bolt from coming open.

Ejector & hold open assembly is all that people can purchase separately. (Can't have magazine latch alone either) must buy trigger housing assembly.

Clean with Rem Action Cleaner after trigger housing assembly comes out.

Consumers can buy the action springs and the bolt action.

Dual bolt guide rails are a major feature of this gun. All others on the market have only one bolt guide rail. By putting two the bolt comes back at the same consistency. Consistency leads to accuracy. That and the buttoned rifling are what makes this gun more accurate. That is why this firearm is as accurate as a bolt action.

If this gun is jamming it is usually the clip or ejector.

Rubber between the bolt action screens is called bolt buffer. This is epoxied in-it stops the bolt from slamming into the back of the receiver.

The operating handle (pulls right out) pulls bolt back. You have to take this out to disassemble the bolt. Take out the guide rail retaining screws (at back). These must be put in loose tighten until stops then back off  $\frac{1}{2}$  to  $\frac{3}{4}$  turn. When these are out take bolt guide rail and action springs out.

Parts included in the bolt assembly are:

Extractor (pulls spent round out of case)

Extractor spring (inside extractor)

Extractor pin (RARC Restricted because there are two different sizes of these and they must fit properly for head space)

Head space is lining up of bolt, ammo, and chamber. If head space is incorrect to a point gun will go boom.

Inside of the bolt is the firing pin. Inside of this is the firing pin return spring. Consumers can get the firing pin and firing pin return spring.

The receiver and the barrel make up the barrel assembly.

The 3 pins on top of the receiver are for a scope mount. The grooves are for 22 tip off rings for scope. These rings are made for small cheap 22 scopes that are  $\frac{3}{4}$  in in diameter. If you wanted to put a quality scope most are 1 inch in diameter. You would need Weaver style rings to make this fit. When you put the scope on

## 7400 (Autoloading, Centerfire) 7600 (Bolt Action)

The 7400 that looks like Stainless Steel is not. It is actually Electroless Nickel Coating.

This gun was made from 1955 to 1960 as a model 740. This model looked kind of like the modern 7400. After 5 years and then 1960 to 1980 we made the 742. Over a million of this model were produced and ¾ of them are still being used.

In 1980 we came out with the 7400. This gun had about 20 different changes from the 742. The only interchangeable parts between the 7400 and the 742 are the butte stock and the magazine clip.

Any autoloader has more metal to metal friction than bolt action. They just won't last as long as a bolt action. Some things that make it last longer are:

Inside the box that we use to ship the guns to the stores is a chamber brush. This is so that the consumer can scrub the chamber. A MAJOR REASON FOR THE COMPLAINT OF "THE GUN WON'T CYCLE" IS A DIRTY CHAMBER. You will see notes to this effect on the repair order when you check in SAP.

The 7400 has to be cleaned from the end of the barrel toward the breech (just opposite of most) and this makes it hard to clean the chamber. This is why the chamber brush is included. Consumers MUST keep the chamber cleaned.

The operating handle is pinned in. You can't take out the operating handle without taking the magazine out and knocking the drift pin out. This is hard to do. It is made to be hard for a reason. We really don't want them to do it.

### DON'T TAKE THE BARREL OFF!!!

Trigger plate pins always hold the trigger plate in. Push the pins out to take the trigger plate off.

All guns use the same basic trigger plate assembly.

The trigger plate assembly includes two little arms that go to the seer and disconnecter. The disconnecter goes up against the back of the bolt to fire. If disconnecter is broken then gun won't fire.

Consumers can't get:

Hammer  
Disconnecter  
Hammer Spring  
Hammer Plunger  
Hammer Pivot Pin  
Trigger Pivot Pin

## 7400 (Autoloading, Centerfire) 7600 (Bolt Action)

The 7400 that looks like Stainless Steel is not. It is actually Electroless Nickel Coating.

This gun was made from 1955 to 1960 as a model 740. This model looked kind of like the modern 7400. After 5 years and then 1960 to 1980 we made the 742. Over a million of this model were produced and ¾ of them are still being used. In 1980 we came out with the 7400. This gun had about 20 different changes from the 742. The only interchangeable parts between the 7400 and the 742 are the butt stock and the magazine clip.

Any autoloader has more metal to metal friction than bolt action. They just won't last as long as a bolt action. Some things that make it last longer are:

Inside the box that we use to ship the guns to the stores is a chamber brush. This is so that the consumer can scrub the chamber. A MAJOR REASON FOR THE COMPLAINT OF "THE GUN WON'T CYCLE" IS A DIRTY CHAMBER. You will see notes to this effect on the repair order when you check in SAP. The 7400 has to be cleaned from the end of the barrel toward the breech (just opposite of most) and this makes it hard to clean the chamber. This is why the chamber brush is included. Consumers MUST keep the chamber cleaned.

The operating handle is pinned in. You can't take out the operating handle without taking the magazine out and knocking the drift pin out. This is hard to do. It is made to be hard for a reason. We really don't want them to do it.

**DON'T TAKE THE BARREL OFF!!!**

Trigger plate pins always hold the trigger plate in. Push the pins out to take the trigger plate off.  
All guns use the same basic trigger plate assembly.

The trigger plate assembly includes two little arms that go to the sear and disconnector. The disconnector goes up against the back of the bolt to fire. If disconnector is broken then gun won't fire.

Consumers can't get:  
Hammer  
Disconnector  
Hammer Spring  
Hammer Plunger  
Hammer Pivot Pin  
Trigger Pivot Pin

The best advice is DON'T OIL AT ALL. If they oil the gun down for the summer then clean it all off. Clean with Rem Action Cleaner on trigger. (Put one drop down the hole in the top of the trigger and one drop on the top of the plunger).

Cycle of operation (7400)-is when you pull the bolt back, it goes forward and locks the lugs on the bolt into the barrel. This automatically cams the gun. When you pull the trigger the sear lets loose, hits the bolt head-firing pin and explosion happens in the barrel.

There are 3 locking lugs in the bolt of the 7400. There are orifices in the barrel that push gas back. This moves the action bar back and cycles gun.

To clean just use Rem action cleaner. You can't take bolt off with out removing the barrel. DON'T DO THIS-to clean just use rem oil cleaner and spray the fool out of it.

Probably the biggest mistake that people make is too much oil.

You will never see a 7400 with a recoil pad. You must hold it tight against your shoulder for recycling. This gun uses inertia from your body to get force. A recoil pad or too many clothes can be detrimental to this.

Don't store this gun open-it binds the spring.

It is fine to dry fire any centerfire.

Out of battery firing is when the bolt isn't completely forward and the gun fires. This is comparative to rim burst on a 22.

Common Fire Control is defined as the hull around the trigger. No other parts. Guns that have the common fire control are 7400, 7600, 870, 1100, 1187, 552, 572. It was the same trigger as the 742 and the 740.

Every 700 is shot for accuracy.

The Fore End Screw-You can change the accuracy of the gun by loosening it up. It will kill accuracy if loose. There are after market products that have a swivel screw on them that don't fit correctly.

The best way to put a sling on this gun is a barrel band. This clamps on the end of the barrel and has swivels.

In order for the field open to work on these guns an empty magazine has to be inserted.



The 7400 is held to the same accuracy standards as a 7600. Most of the time bolt actions are more accurate.

Both the 7400 and the 7600 come in both long action and short action. They don't come in magnum calibers-they never will.

## Model 7600 Bolt Action (shooter manually cycles)

The 7600 uses basically the same parts-bolt, firing pin, spring. The difference is the way that it cycles-auto vs. bolt.

We used to use press checkering (smoother) and now we use cut (rougher) checkering.

DO NOT USE HORNADY LIGHT MAGNUM OR FEDERAL HIGH POWER. These are basically just regular cartridges with a hot load. DO NOT USE THESE IN ANY GUN THAT WE PRODUCE. Stuff is loaded to make for higher pressure and it isn't good for the firearm. To use would run the risk of bulging the chamber and wearing out the gun.

Using this ammo causes heat checkering (puts a kind of rippled effect in the rifling at the top of the barrel. Bad reloads will do this also.

On any pump action the action comes open and ejects the shell immediately-THIS IS NORMAL-without the bolt opening like this it would cause vapor lock.

When cycling 7600 you have to put good forward pressure to close the chamber or it won't close and fire.

On the 7400 you have to let the gun slam back on its own.

When troubleshooting,

Ask temperature on the day problem occurred.

What kind of ammo used?

If reload write down recipe and send to factory.

Find out if jamming is the problem-is it the ejection, bolt override, or extraction.

If fails to eject then it may be a broken ejector.

Many extraction problems are dirty or pitted.

Consumers can't get:

Trigger

Sear

Sear spring

ISS and Triggers are restricted to RARC's.

If a consumer is adamant about changing the trigger pull on a gun then you can sell them the 1100, 1187, 870 trap, skeet gun sear screw.

Unless the consumer already knows that this will work don't suggest it (most of them will tell you the part number that they need).

## 870 Pump Action

The 870 came out in 1950 and it works basically the same as the pump action 7600. We were the first ones to have production line firearms and this was the first gun that we produced on the line. The 870 is the best selling gun in the history of the world. The only gun that there has been more manufactured of is the SKS which is Chinese made.

All of the first 870's were called Wingmasters. Express came out in 1987.

The 12 gauge is the most popular and the most versatile.

The predecessor to this gun was the Model 10. This was the early pump action. These were basically the only 2 pump action shotguns that we ever made.

The 870 uses the common fire control.

The carrier is a longer black piece on the trigger assembly. The carrier dog is connected to that.

Cross lock (or trigger lock) is the type of safety on shotguns. The gun won't go off when this is on. This one doesn't have a sear block safety. Model 700 is a sear block safety.

The cycle of operation is:

Magazine tube

Follower (now orange, was grey on the cutaway)

Magazine spring (Inside the magazine tube)

LH Shell latch (When loading ammo this holds the ammo in the magazine tube)

RH Shell latch (As the LH Shell latch lets go the RH shell latch comes over and catches the new shell to make it go in.

Both the LH and RH shell latches are different.

Bolt (rides on top of the action bars).

The shell latches on other guns are called feed latches.

The actual movement is:

The shell is on top of the carrier.

Carrier comes up.

Bolt comes forward and push feeds the shell.

Pull trigger.

Being

When you push back forward the LH shell latch takes over again. Pull back and extractor, extractor plunger, and extractor spring extract shell.

The ejector needs to be installed at the factory or by a qualified gunsmith. It has to be heated up and gun has to be refinished (about \$100.00)

When the shell is in the chamber, ready to go, the chamber locks.

On top of the action bars sits the slide assembly in cut outs made specifically for it..

The bolt assembly sits on top of the slide.

Inside the bolt is the firing pin and the firing pin spring.

On the end of the bolt is the extractor and extractor spring.

The appr. 2 1/2 inch piece that kind of flops around on the top is the locking bolt.

The locking bolt moves up and down as the bolt goes over slide.

This locks into the cut on the barrel extension (on end of barrel)

(You are locking the bolt into the end of the barrel which is on the end of the barrel.)

Locking bolt

You only want the gun to go off in the locked position. This holds the force back. If you barely move the fore end it won't go off. Locking bolt stops the firing pin from moving forward to unload push action bar release on LH side of trigger.

The fore end assembly includes:

Action bars

Action tube

This gun uses the same trigger plate pins as in all common fire controls.

Receiver set happens when the barrel pushes back into the receiver. Always make sure that the magazine cap is tight.

New followers are all orange now. Have been gray or black.

The magazine tube is silver soldered or welded onto the receiver. This must come to the factory to get replaced or worked on.

The barrel support is welded onto the magazine tube.

Anyone can buy the magazine tube assembly.

Soft solder is what homeowners use. Silver solder consumers can't do.

For magazine tube work send to RARC. Tell consumers to use RARC or factory.

Our receivers are cut out of a single piece of steel. All other manufacturers forge the receiver. Ours is much stronger.

The receiver assembly consists of:

Ejector

Receiver shell latches (LH,RH)

Magazine tube

To get the receiver assembly a person must have FFL license. Once in a while we sell to RARC's but not often.

Shell latches are held in by staking. Use a staking tool to remove them.

When putting barrel on the action must be open. Open and push forward just a little.

FORE END MUST BE AS TIGHT AS POSSIBLE

The action bar release is on the trigger assembly. Push this in to unload or kick out live loads or rounds.

The cut in the barrel is called the extraction cut.

In order to take the fore end off you must first press the disconnecter.

The locking bolt on the bolt (the big thing that sits inside) locks up into the barrel extension.

All of the parts of this gun are made with a flat side and a rounded side. All flat sides face the same direction (all rounded sides face the same direction).

The fore end wrench takes the fore end tube off.

The cut on the fore end is made to be cracked. This is an expansion joint.

We make two different extractors.

Steel is on the Wingmaster and Police models. (about \$9.00)

Powdered metal is on express. (about \$1.00)

These do break sometimes.

To get the extractor out push down on the plunger. Move around and extractor comes out. There is an extractor plunger and spring.

The firing pin is held on by the firing pin retaining pin. On top and bottom of the bolt (small circular) you take a punch and push out. The back of the firing pin has a cut in it to hold it in.

We recently upgraded the firing pin spring. It's tighter.

The locking bolt is held in by a little pin. Take the firing pin out first. The locking bolt rarely breaks.

Headspacing on the 870 is controlled at the bolt face, extractor, and barrel. You can get SET BACK in the barrel-the cut gets bigger and this makes too much headspace. You can use the oversized locking bolt to fix this sometimes (bring it back to specs.) If this doesn't work then the consumer must buy a new barrel.

The barrel guide is on top of the barrel.

The trigger plate pins-there are two (front smaller, rear bigger)

A consumer can buy almost any part of this gun.

The sequence goes:

Carrier

Carrier dog (activates the bolt and then dog lifts carrier)

Carrier dog spring (this and the carrier dog plunger help activate the carrier dog)

Carrier dog plunger " " " " " " " " " " " "

Carrier pivot tube (carrier pivots on this-front trigger plate screw goes on this)

Carrier pivot tube detent spring

Hammer pin

Hammer pin (slides in hammer pivot pin)-this is pinned in

Hammer pin washer

Disconnecter (is also held on by the hammer pin)

Action bar lock (makes disconnecter move up)

Action bar lock spring

Sear

Sear spring

Hammer spring

Hammer spring plunger

Safety

Trigger pivot pin

The cut in the follower is for: along with the physical shape and cuts in the slide are called the FLEXIE TAB SYSTEM.

The FLEXIE TAB SYSTEM this allows you to when reloading if you don't push shell all the way up-shell is stuck-the flexie tab system allows you to keep cycling gun and keep putting new shells in the gun and keep shooting. It allows the gun to cycle over that stuck shell.

Every 870 has the flexie tab system.

To change an old gun to the new flexi tab assembly you must buy a new slide, new fore end tube assembly, and carrier assembly. There is a flexie tab assembly but is restricted to police only and it is for the longer extension (22 inches long) only.

The standard magazine spring is 14 inches.  
There is one that is 16 inches (called magazine spring extended) for the positive feed.

To clean the magazine tube use 10 or 12 ga. Bronze bristle brush and wrap a patch around it.

Ejector and ejector spring need to have RARC or us do because it is riveted in. We have had two ejectors-the first were non-magnum. All 2 1/4 or 2 3/4 have V in the serial number. The reason for the 2 3/4 only is due to the ejector. It's too short to eject the 3". We can change the ejector if they send it in.

FFS is Fire on Safe Release.

To put the recoil pad on use a med. Sized Phillips head.

Stock bolt is down in the large hole in the stock. Use a large straight slot screw driver or a stock bolt tool to get it off and on.

Don't use stock bearing plate (a spacer) with synthetic stock. If changing from synthetic to wood must buy this stock bearing plate.

Receiver stud (this came off-consumer can buy). The nut at the end of the receiver that the stock goes in to.

The receiver assembly is made up of:  
Receiver  
Stud  
Magazine tube

The vent rib is 3/8 inch wide or 7mm. The exception for this is the SP10 which is 8mm.

The width of the vent rib on all gauges BUT the SP10 is the same. We put them as standard beginning in the mid 80's. They give a line for sight.  
The wavy lines disperse heat.

Wingmaster has front site (thread size is 6x48) and middle bead (middle is half the size of the front).

Wingmaster and target gun front site and beads are screwed in.

Express only has front bead (no middle bead). This is pressed in and won't come out. The only way to get it out is by a gunsmith. It has to be cut and drilled out.  
THE EXCEPTION IS: The Express Turkey gun has the same site as the Wingmaster (Bradley front site and middle bead).

Rifled sided barrels have basically model sites. They are welded on at the base.

About 2 yrs. Ago we started making barrels by cold forging. We now do laser edging on the writing on the barrels.

Police barrels have detent rings on the BBL Guide Rings.

The best way to site a gun in is at 25 feet and go from there.

Porting on choke tubes reduces recoil.

Police barrels and Marine Magnum have detent rings and magazine cap is ported. You can't put a regular barrel on a police gun w/o having a detent spring installed. You could loose your barrel without it. (You would shoot it out)

Timing cuts on the action bars activate the shell latches.

## Trouble shooting:

If they say that the long skinny thing keeps falling out then it is the shell latch. (This is staked in)

If consumer can't open the fore end up to eject the spent shell then there is probably a burr in the chamber near the barrel extension. Can be filed down.

If the barrel guide ring falls off then gun needs to be taken in or send to RARC & it will be replaced.

Consumer says that the end of the barrel is not concentric (shooting off to the left, right, or whatever), the customer may say that the metal on one side of the end of the barrel is thicker than the other (this is OK-it is from the spin polishing-if it were bored wrong then the choke tube wouldn't go in) 9 times out of 10 this is caused by the barrel-sometimes it's the magazine tube-send the total gun to the factory.

If the trigger plate pins keep falling out then the detent spring is missing. We can sell them a new one.

Gun owners sometimes loose these pins when they put a saddle scope mount on you take these off the gun and use the scope mount scope screws. Many times when gun owner's are ready to take these off the firearm they can't find those original pins-we can sell them more.



The vent rib is brazed on.

The only difference in a police gun and a regular 870 is that the police trigger is powdered metal and the sear spring is red (as opposed to yellow) and it's stiffer (this is intentional-they don't want the gun accidentally firing).

We have made 3 different styles in the 20 gauge shotguns. The first 20 gauge is called the 20 gauge standard frame or full frame. The first 20 gauge's were 12 gauges with a modified receiver, action bar assembly, etc. We did this until 1977. These were also known as LW's (this is stamped on the gun).

In 1977 we came out with the 20 gauge LT. This is a true 20 gauge gun. The frame and everything is smaller.

PARTS BETWEEN LT AND STANDARD (LW) DO NOT INTERCHANGE-THIS INCLUDES BARRELS!

IF THE SERIAL NUMBER ENDS IN X OR N THEN IT'S A STANDARD FRAME 20 GAUGE. WE DON'T HAVE PARTS TRY JACK FIRST AND GUN PARTS.

The little frame is all guns from 1977 forward. Check serial number.

THIS IS THE SAME ON THE 1160'S ALSO.

A lot of 16 and 12 gauges are the same.

## Ammo

For Untra Mag you need thicker jacket for velocity.

Thicker hide on animal thicker jacket needed.

To get most accurate gun ammo combo-Practice.

Whitetail Corelock & .30-06 rifle.

30-06 & 270 are 99% of calls.

Bullet weight x velocity = energy

Heavier faster = more punch

Hollow point in rifle bullet is mainly used for target because helps w/accuracy (flight path) and rotation-(spin). More aerodynamic.

Soft Point expands better.

Nosler Partition is a bonded bullet. Core is bonded to jacket.  
Not good for varmint.

Any time you get heavier bullet you have a better bullet.

Boat tail is tapered smaller towards bottom. For more velocity & accuracy.  
(perception).

Does help a little w/ drag.

The diameter of a bullet actually doubles with impact.

Case-brass that encases powder holds projectile.

Bullet-loaded complete ammunition in rifle.

Cartridges are loaded bullets in centerfire.

Some people call the projectile a bullet but loaded ammo is a cartridge or shell.

308 is a good starting bullet. This gun is good for women, beginners, or youth.  
The 308 is good for varmint hunting.

Heavier goes less distance but has more punch.

In a bullet 7.62 x 39mm. 7.62 = bullet diameter. 39mm is length of case.

With Short Action and Long Action the difference is in the size of the action.

The most popular case design in the world was the .30-06. The long action case is .72mm.

A 270 is a neck down .30-06. The .25-06 is a neck down version.

Some short action guns are the 308, 700, & the 7mm08.

All varmint guns are short action.

A good rule is double the distance triple the vary.

Over 3 inches is long action.

# use of handguns is for concealed weapons and target.

209 & 209p primers will interchange. But contact powder manufacturer for this information.

Shorter barrel is for shooting slugs. Good for deer.

Core Lokt is the most popular ammo in the world. More game has been killed with this than any other ammo on this continent.

Water fowl always uses shotgun.

## Black Powder Notes (Scroll down to middle for parts and repair notes)

No one actually uses black powder any more. Too volatile.

Three types of product used with muzzle loaders are:

Pyrodex

Go Ex

Clean Shot

These don't have nitro content of black powder. Different derivatives.

Barrel Action consists of the barrel action, receiver, everything but stock.

Barrel

Action

Bolt

Firing Pin Inbolt (called striker in muzzleloader)

Bolt

Trigger Assembly (holds safety)

Trigger Guard

Ram Rod

Barrels are controlled. These are not sold to customers.

The types of projectile used for muzzleloaders are:

Lead Round Balls (target small game) used very little for small game

Pieces of lead shaped like bullets.

Sabot projectile in plastic sleeve. The jacket protects the bullet from the rifling. 20 or 30ft after fire the jacket falls off and bullet keeps going.

There are two types of muzzleloaders:

Inline (most of ours are inline)

Sidelock (has big hammer & moves back)

### To Load a Muzzleloader

Put powder in (measure the grains by volume not weight). Must use between 90 grains to 150 grains. Most of the time between 90 to 120.

Pour this into muzzle end of gun.

Put projectile in barrel.

Put jag on ram rod to press projectile down in gun.

Next need something to ignite powder.

With inline the breech end is open and you have a breech plug that screws into breech.

Powder sits right up against hole in breech plug.

Nipple screws into breech plug. On top of nipple you place percussion cap. (this is piece that makes spark to ignite powder-it has explosive paste inside).

This sets on end of nipple and striker hits this. Fire goes down through nipple and ignites powder.

Standard muzzleloader has 24 in barrel. 700 mag has 26 inch barrel.

Pyrodex has 50 & 30 grain pellets to make it easier to load. Magnum is made for 120 to 150 grain powder but 90 will do fine. For accuracy we recommend from 90 to 120 grains.

The Bedding Block is in the action.

The objective is the front part of the scope.

For scope the screws are called receiver plug screws.

We have 700 synthetic & 700 camo stock.

50 & 45 the 45 is new for this year. (50 caliber means that the bore size-inside barrel is .50.

Our Model 700 Rifle is the most popular in the world. Everyone wants our receiver.

What makes 700 or centerfire so good is the 3 rings of steel.

Receiver

Barrel

Breach plug

Most of the pressure in any gun is in the Breach Plug. 700's have the strongest receiver in the market. (ours is the strongest in the market)

Smokeless powder is measured in grains of weight NOT volume.

A couple of years ago someone made smokeless powder for muzzleloaders. THIS IS NOT GOOD-DON'T USE THIS!!!!!! Some people used this in our guns and others in the market. The guns blew up-no one died w/ ours. The receiver held up.

Bullets and powder volume make accuracy. Experimentation using parameters is advised.

We make several different types of projectiles.

Lead conical-chunks of lead

Balls

Sabots

Our guns were specifically designed for sabots. They have different weights but ours in general work best w/ around a 300 grain bullet (projectile) and 90 to 120 grains of powder. The customer will need to experiment to find out how much is best using these parameters.

Some states ban sabots (lead with copper around it) Every state has different regulations. If they can't use sabots they can use conicals, gamemaster, or bullets.

SAMMI-Shooting Arms Ammunition Manufacturers Institute. This is our governing regulator-not the federal government. Federal government has no say in anything. We issue recalls-not the government. SAMMI makes regulations for this-not the federal government.

Shooting a muzzleloader is not like other guns. It is very dirty. When sighting and trying to find the right combination of powder, etc. you have to clean the gun (bore).

The way to clean the bore is to use Wonder Lube patches. Take ram rod & cleaning jag (the little brass thing in the box with 3 ridges on it). This gets the patch down and back. Do this once between every shot.

Wonder Lube is a cleaning product for Muzzleloaders. A cleaning product for Muzzleloaders can't be petroleum based. Wonder Lube is vegetable based. Petroleum based burns and leaves residue, gumming up gun.

It's very important to clean after every shot!

You get blowback that goes into bolt assembly. EXTREMELY IMPORTANT that after shooting and end of season-clean bolt assembly put bolt disassembly tool on end of bolt, turn 1/4 turn and rock back & get firing pin assembly and bolt body-very important to clean each time w/ all powder natural cleaner, all natural bore cleaner, or Vortex Bore Cleaner.

You can soak parts in bore cleaner & scrub w/ nylon brush. Do this outside. When putting gun up for storage can use Kent Oil but before using VERY IMPORTANT to clean before using.

Clean inside of bolt, outside of bolt - everything-completely dry off-Dirt and debris will stick to it and gum it up. Coat very well w/ wonder lube-all metal except trigger assembly for storage and leave it on.

The tool for breech plug assembly (breech plug nipple wrench goes up into bolt assembly. Turn to get nipple and breech plug out.

To install breech plug VERY IMPORTANT to take wonder lube and put it on the nipple and breech plug threads before installing or they will NEVER get it out. VERY IMPORTANT!

Some people make breech plug grease that people can get.

To clean bore (every time that you shoot) take stock off-get bucket of hot water, put in all natural bore cleaner (ours is a 10 to one solution). Don't do cleaning in the bathtub. Stick whole receiver (breech) end of gun down into water. Take clean cotton cloth with ram rod and cleaning jag and put down barrel. Keep pulling and pushing back and forth



with the ram rod until gun is clean. Take out of the water and dry well (VERY IMPORTANT) See two pieces of metal (seer and trigger control) in hole. EXTREMELY IMPORTANT to get all black powder out. This is mechanism. All triggers for muzzleloaders are stainless but they will rust. Spray only here in gun very lightly with Rem Oil & wipe off.

The bolt itself is held in w/ cam screw that goes down cut out in the bolt. Get all powder off here also.

To clean with Vortex (a hydrogen peroxide cleaner) comes with a little toothpick thing. Pour Vortex down barrel until 1 inch from the top. Let sit from 5 to 10 minutes. Pour Vortex back into bottle. Bore will be completely spotless. You still have to clean the breech plug. Dry everything-clean trigger assembly. Lube everything with wonder lube-coat bore with Wonder Lube. Trigger mechanism can actually be cleaned with Rim Action Cleaner (it's alcohol spray)

VERY VERY IMPORTANT- NEVER NEVER run a dry patch down barrel of muzzleloader except to dry gun. Always use cotton patch. Lick patch if necessary.

DENNIS SANITA (3352 EXT. 452) GETS ALL PERSONAL INJURY, PROPERTY DAMAGE CALLS.

IF YOU CAN'T GET HIM THEN CALL FRED SUPRY (3606 EXT. 444)

#### COMMON QUESTIONS:

I had to bolt my gun twice-it didn't go off-why?

Usually you have to replace the nipple (this part should be changed once a year)

There are two types of ignition systems for muzzleloaders:

Musket Cap (uses musket hats ((top hat caps)) instead of percussion caps.

Musket caps are more reliable in rain than percussion caps. Percussion caps won't work w/ moisture.

New this year is the 209 conversion kit-uses 209 shop gun primer-same primer as in the back of shotgun shells (waterproof). The kit has different nipple and firing pin assembly w/ nodule that sticks up. The kit is approximately \$40.00. Primers are sold anywhere. This kit makes for completely reliable ignition every time.

There are two kinds of muzzle loaders:

In line (this is what ours is)

Side lock (has big hammer on side doesn't have bolt -it's totally enclosed in top except for 1 hole for the nipple).

The 1<sup>st</sup> gun was a muzzle loader-this was approximately the 13<sup>th</sup> century by an Austrian Monk trying to protect his home.

We haven't made a side lock in more than 100 years EXCEPT for 1995. This was a kind of anniversary edition. It had approximately a 35 inch barrel. It was the Eliphalet Anniversary Special. It was a flint lock custom shop gun.

Flint lock-the hammer hits a piece of flint for ignition.

We started producing the line that we have now in 1996. It is based on the Model 700-same receiver-short action.

For scope mounts they would use the same ones as the regular short action 700 would use.

Muzzle loaders use black powder or a black powder substitute. We use a substitute. Black powder is a nitro based solid. It is very volatile and unstable. It is also very dirty and corrosive. Not many people use actual black powder.

We make no powder. There are only three manufacturers in the country: DuPont, the US government, and one more company. The laws governing this manufacturing are very tight.

We have tested black powder and pyrodex. Pyrodex is the biggest seller. Some other brands are go-ex and clean shot. We have always used pyrodex in testing for accuracy. MEASURE POWDER OUT BY VOLUME NOT WEIGHT

MUST USE POWDER SUBSTITUTE LABELED RS (rifle or shotgun) OR FFG EQUIVILANT (burn rate). THERE IS ALSO SPECIFICALLY MADE FOR PISTOLS-DON'T USE THIS IN RIFLES!

Pyrodex Select is great. Better control (consistency) in size of granules. Consistency leads to accuracy.

Projectiles we make and use are:

- 1.Round ball (originally used)  
Coated with brass (ours are golden balls-the golden color is brass powder)
- 2.Lead Conical (used in Civil War)-chunky lead shaped like a bullet. These come pre-lubricated with wonder lube.
- 3.Sabots (the green plastic is the sabot)-this protects the metal part-it prevents rifle lines on the brass. For accuracy we use core loks bullets in ours. (In class we saw a .50 caliber sabot with a .45 bullet in it).

We make a solid copper sabot for one of ours because it keeps it's weight better. They keep 100% of their weight where lead bullets keep about 75% of theirs.

The only problem with solid copper is that some states don't allow them. Some don't even allow copper jackets-it must be lead.

HAVE CONSUMER CHECK THEIR STATE AND LOCAL REGULATIONS.

#### TO LOAD:

Check the bore (make sure that nothing is already loaded there) to do this take the ram rod put down barrel until it stops. Make a mark on the ramrod. You can use this to measure. When you first do it to make the mark to measure from you MUST have gun empty.

The best way to unload is to shoot the firearm-otherwise you have to take the bolt off take the nipple off and do many more steps to unload.

This gun is made to hold up to 150 grains. We recommend between 90 and 120 grains for best accuracy. These specs are to be used with sabots for the best accuracy.

Pour powder in gun-tap sides of barrel to get any powder stuck there off. To measure powder you DO need some kind of measuring tool.

Put projectile in (if using round balls you must use shooting patch (a patch with wonder lube-this creates a seal). With a sabot or a conical just push down into the gun. To do this use a jag head on the ram rod. Just push smoothly down into the gun don't slam the ram rod down (this ruins the point on the bullet). Remember to take ram rod out.

WHILE DOING THESE STEPS IT IS CRUCIAL THAT YOU HAVE THE BOLT OPEN AND NEVER, NEVER, NEVER HAVE THE PERCUSSION CAP ON! (The percussion cap is a little piece of copper with primer gel in the bottom - a lot of people, before shooting the gun will shoot a couple primers just to clean the flash hole and this is OK.)

NOW put the primer (percussion cap) in the end of the nipple. (The bolt has a striker instead of the firing pin.)

Pyrodex came out 4 years ago with Pyro Pellets. They came in 30 gr. and 50 gr. Pellets. The best accuracy comes with powder not pellets.

Normally anything more than 120 grains leaves powder that won't burn leaving the gun dirty.

Usually a 300 gr. wt. sabot bullet works best in our guns and 90 to 120 grain wt. powder. The more powder used the bigger bullet you should use.

Every gun is different. EXPERIMENT.

Start with 90 gr. powder and 303 gr. wt. either copper jacketed or core loks sabot. If this works stick with it if not change up.

Wonder Lube is an all natural vegetable oil based lubricant.

ALL PRODUCTS USED IN AND AROUND MUZZLE LOADERS HAVE TO BE NATURAL PRODUCTS. PETROLEUM BASED WILL RUIN THE GUN AND NEUTRALIZE THE POWDER.

#### Troubleshooting Tips:

The #1 reason that the gun won't fire is a dirty bolt. You get a lot of blow back so it's very important to clean bolt and firing pin assembly. Use a penny or a bolt assembly tool to do this.

If the gun fires twice to shoot once the nipple could be oversized and 1<sup>st</sup> strike seats the percussion cap. Second strike makes gun go off.

Won't fire at all, or just sometimes, may be bad percussion caps or nipples.

If the ram rod keeps falling out take the stock off and bend screw. (This is the ram rod spring screw.)

---

With the 209 primer these guns are just as reliable as centerfire rifles. This makes gun use shotgun primers.

The trigger assembly is a model 700 trigger assembly. It's all stainless steel except trigger pivot pin (holds the trigger in)

The action, receiver, barrel, and trigger assembly are all factory restricted.

The bolt is sold as the bolt body and firing pin assembly. You have to buy both to get both.

The cam follower screw holds the bolt in. Remove screw to remove bolt.

CONFIDENTIAL

Subject to Protective Order - Williams v. Remington

MAE00008845

The ram rod is held in place by a ram rod spring.

The warning on the barrel says pyrodex or black powder only. No smokeless powder.

It is EXTREMELY important to put all natural lubricant (wonder lube) on the threads of the breech plug or it can electro statically fuse to the gun and it may never come out.

Never use grease or gun oil on muzzle loaders. They aren't natural. Don't get paste on any other parts just in the threads.

Only place to use Rem Oil on this gun is 1 drop in the trigger assembly hole.

When storing bolt assembly, spray down w/rem oil. Make sure that you clean it back off before shooting.

To get the bore ready for storage put a patch with a lot of wonder lube on it and run it down in the barrel.

We supply the breech plug nipple wrench with the gun.

Use 7/16 in. deep socket wrench to take musket cap nipple off and put new one back on. The nipple is sold in the accessories division.

Musket cap (or English style cap) looks like a top hat. It's a little more reliable than a percussion cap.

The guns come in a 24 inch barrel and was 30 caliber and.....

The only other version that we make of this gun is 26 inch barrel magnum 45 and 50 caliber. The longer barrel (2 inches longer) allows more powder to burn leaving less excess in the barrel.

Measure the barrel from the ejection port to end for barrel length. Muzzle loaders won't say magnum on the barrel.

Our magnum muzzle loaders come with a percussion cap nipple conversion and a musket cap nipple. The standard gun only comes with a percussion nipple.

All we offer is a 45 caliber and a 50 caliber. The 45 caliber is new for this year. We used to make a 54 caliber but we don't any more. We couldn't get good accuracy out of the 54 caliber.

Our guns come with a choice of stainless and blued. The stainless has a camo stock. We make these stocks not HS Precision.

We used to have a Model 700 muzzle loader custom gun. It had a thumb hole in the stock.

## Cleaning

To clean the breech plug and nipple use all natural bore cleaner (let soak) use hot water to mix (this evaporates and cleans better).

Take a 3 gallon bucket and put bore cleaner in. Take the action off the gun and soak it. Take jag and a cotton patch. Put jag on the ram rod (don't push into threads) and pull back up. When you pull up thru the barrel this pulls water back up to clean barrel out. Dry barrel with a clean cotton patch and the ram rod then go from the breech plug side with patch and a finger-clean threads and wipe.

Take Rem Action Cleaner and spray down good to clean trigger assembly. Put one drop of oil in the sear hole and one drop in the trigger hole. You can also put one drop on the safety pivot pin. Get wonder lube grease and run a patch with it on it and go back down the bore. Get a stiff brush and clean nipple and breech. Grease threads on the nipple and breech brush and put back. It is important to change the nipple every year.

Make sure that the top of the trigger assembly sear are cleaned good. Take bolt in first phase and let soak also. You can scrub these with a caliber specific brush and clean bolt body. Clean firing pin assembly with bore cleaner and a toothbrush. For storage coat the gun with wonder lube or Rem Oil. Make sure to clean either of those cleaners before using.

Vortex is the simplest way of cleaning. Plug up the end of the barrel, pour vortex in and let soak. Vortex also works for the nipple and the breech plug and the bolt-just soak them.

When shooting the firearm, everytime you take a shot clean the bore with pre lubricated patches (bigger than cleaning patches).

Never put a dry patch against the bore. Can make a charge and ignite left over powder.  
**NEVER USE NYLON!**  
**ALWAYS USE LUBRICATED COTTON PATCHES.**

The Ramrod is made out of aluminum and it is threaded. This can get stripped out or broken. You can send a new one for free. There is an extension and the extension handle are made for cleaning.

Pieces that come with the gun are:  
Jag (caliber specific has it written on it)  
Breech plug nipple wrench

Hex key or allen wrench (fits 2 trigger guard screws and cam follower screw-cam follower screw is used to take bolt off)

Ram rod extension

(there is also a 5/32 hex head screw on top of trigger that is not included)

The ram rod extension handle and cleaning tube (goes through the back of the receiver with the bolt out and screws down into the breech plug threads).

Can buy bronze bristle brush.

The ram rod bracket is the bracket around the barrel that holds the ram rod.  
If the ram rod keeps falling out, take the stock off and bend screw (this is the



Ken's Police Training Notes

700P minute of angle out to 500 yards  
700 LPR min of angle out to 300 yards  
A 5 shot group has to be a minute from angle

Minute of angle is approximately 1.2 (almost  $1 \frac{1}{4}$ ) inches at 100 yards. This goes up in graduations. Our rifles shoot that.  
(200 yards is not 2.4 inches.)

M-24 gives minute of angle at 1000 meters

On average less lethal ammo (bean bags flash bang) uses straight cylinder bore barrel improved cylinder or open choke. The tightest is 7/16"

14 inch barrels come standard with modified choke so they are not good for less lethal rounds.

The and fore ends are short so that they can fit in the racks

These firearms use ghost ring sites (the rear site is mounted to receiver

Track lock ghost ring sites (or rear aperture) are the latest. They have Tridium (radioactive type crystal) inserts.

1187 P is gas operated non pressure compensated  
has a standard 18 in barrel  
comes with a magazine extender

14 in barrel guns do not come with magazine tube extender like the 18 in. do

All police guns will cycle 3  $\frac{1}{4}$  drams 1  $\frac{1}{4}$  gr shot

14 in guns only shoot standard magazine ammo. Some tactical loads won't cycle in 14 in gun

All 1187 P's are gas operated. Everyone else uses recoil based or inertia for cycling.  
The advantage of gas is less recoil (can get next shot off sooner)  
The disadvantages are: finicky on loads and needs more maintenance in gas orifice holes  
if orifices are maintained gun will last as long as 870.

1100, 1187, and 870 all use same stocks-fore ends never interchange-

except

1100 and 1187 synthetic (synthetic only!!!) stock and fore ends are interchangeable.

Buckshot and slugs are mainly what police use.

Tactical buckshot has better patterning capability.

Reduce recoil shells reduce recoil.

Our 8 pellet buck is the best (it shoots tight).

Model 700P comes in 223,308,7mm,300 win mag & 300 Ultra Mag calibers.

Military designations for 700 are:

223=5.56 nato

308=7.62 nato

In both the 700P and the 700P the ultimate function is the same-the design is different.

The 700P has a 26 in barrel, heavy Parkerized barrel, HS Precision stock w/ full length aluminum bedding block system. Stock uses fiberglass w/ Kevlar reinforced fiberglass. Another term for Kevlar is aramid.

Varmint guns doesn't use full length bedding block it uses partial bedding block. (The full length goes down into the stock)

By going into the stock it makes for the stiffer block, stiffer action, the more accurate the gun.

## Consistency leads to accuracy

We free float the barrel. Muzzle doesn't touch the stock from muzzle to end (doesn't touch the receiver). The key to this working is the bedding block-it makes sure that the action doesn't move. The heavy barrel reduces amount of barrel whip that gun has-thicker metal better for heat-less expansion can fire more rounds consistently.

With the LTR barrel is 1 inches shorter so it has asymmetrical fluting (Fred Martin designed this). Flutes make bullet exit barrel consistently-they don't help w/barrel whip. Consistency leads to accuracy!

M-24 uses a different type rifling than conventional rifle.

Angle on lands on a standard production rifle is 90 degrees. The M-24 has 5R rifling. 5R doesn't deform bullet as much, bullet spins on center axis better, and there is less friction on the bullet which makes for higher muzzle velocity. This makes for longer barrel life.

Average barrel life is:

M-24	10,000 rounds
Production gun	5,000 rounds
Mag gun	2,500 rounds

Custom Shop uses button rifling-the button is the tool that they use.

There are two types:

Push buttoning

Pull buttoning

Other guns are hammer forged.

Everyone has an opinion on which is better.

## Ammo

Police generally use golden saber bullets.

Most cartridges rely on liquid type tissue for expansion (hydro dynamic expansion).

Golden sabre relies on both mechanical & hydro dynamic expansion. This means that it can shoot (will expand) when shot into a soft or a hard surface. Can pass through glass hit soft flesh after first impact and still expand.

Most police use this because they need to stop not just maim.

The better that a bullet expands and the faster that it expands the more effect that it has on the target.

The way that a hollow point bullet expands is that it opens up & drags the shape of the hollow point. It is designed to make the bullet expand if it ever hits a hard surface.

The 1 shot stop ratio is about 87% with a .45 caliber.

Police bullets also have a driving band (the thickness of grooves opposed to the thickness of lands. Our driving band is made to hit the open surface between the lands.

O geige is made t touch lands. Ours traps gas evenly behind bullet. It has higher velocity and makes for better accuracy.

## History

The way that Eliphelet got into the business was making muzzle loader barrels. He made one for himself, he shot well and others wanted him to make one for them. We quit making them in the mid 1800's. We started again in '96.

## Shotguns

We made the shotgun from the 1870's until 1910. Over & under were the oldest.

We bought John Brown's patent for model 11.

Model 10 will be the first that we have serial #'s for.

If you have a slide action shotgun w/ no model # but serial # starts w/ U it's model 10.

An old shotgun that we sold cheaply was the Sportsman.

Model 11 is a 5 shot autoloader.  
Sportsman is a 3 shot autoloader.

The 11-48 is an improved version of the Model 11.

The Sportsman 48 is a 3 shot version of the 11-48.

The best selling pump action shotgun came out in 1950. The 870 was made in 112 to 115 versions. These have always had serial numbers.

In 1956 we brought out the Model Sportsman 58 autoloader.

In 1963 we brought out the 1100.

We identify guns by serial #'s on the LH side of the receiver.

All 870's & 1100's will always have a suffix.

In 1968 we started having prefixes & suffixes.

From 1932 to 42 we made model 32 side by side gun.

CONFIDENTIAL

Subject to Protective Order: Williams v. Remington

MAE00008858

### Miscellaneous Notes:

For a credit reference get call to Greg Drake (8641) or Deleia Hutcherson (8679)

There are two kinds of barrels-carbine and steel. Carbon usually blue stainless is usually shiny.

All stocks are walnut except 870 which is birch. There are different grades of wood. This is part of the distinction between BDL and ADL. Other distinctions would be shiny finish verses satin the finish on the barrel matte verses shiny.

We don't have any bolt action Rim Fire rifles.

Three types of bullets are:

S-Short

L-Long

LR-Long Rifle

Use web pages for Custom Shop products.

1100's and 1187's are automatics or autoloaders.

Wingmaster is just cosmetically better. Gun is the same as the express model.

Three kinds of Chokes are:

Improved

Modified

Full

Super Mag takes up to 3 1/4"

Mag takes up to 3"

Non Mag (in 1100's) = 2 1/4"

Express Models always have Real Tree Advantage for Camo. Special Purpose always has Mossy Oak for Camo pattern.

All parts interchange with youth models.

700 Rifles are Bolt Action Rifles.

ADL doesn't have Hinged Floor Plate or Detachable Mag. It has a Blind Box and it has to be loaded and reloaded from the top of gun.

BDL has either Hinged Floor Plate or Detachable Mag.

Thicker, heavier Barrel has less movement when ammo moves through and better heat control. This makes for better accuracy.

Shooting School is closed now. We are trying to reopen but who knows. Skip Smith if adamant can tell them where they are at.

Pam Faulcon handles rebates.

Shot group is based on a 3" shot group from 100 yds.

522 wasn't recall.

597 was exchange but not even.

742 was the same for...

7400 was the same for...

597 the barrel is screwed in to the receiver with a barrel extension. This extension is horse shoe shaped.

When using stainless on a blued gun you won't see unless they take the stock off.



Do quality sheets on any quality issues.

When ordering 710 parts use MKM and take off complete delivery if ordering separately.

If sending out good sized parts (stock, barrel, whatever) put notes in text field (header) miscall. text put why sending free.

Important-Get PO number as well as physical address.

Cannot ship paint from here. Angie can compile and send to Liberty. Just e-mail Angie.

XP-100-You can't send with a UPS label. This gun is considered a hand gun. Have customer overnight it.

The Bedding Block is in the action.

The objective is the front part of the scope.

For scope the screws are called receiver plug screws.

We have 700 synthetic & 700 camo stock.

50 & 45 the 45 is new for this year. (50 caliber means that the bore size-inside barrel is .50.

Our Model 700 Rifle is the most popular in the world. Everyone wants our receiver.

What makes 700 or centerfire so good is the 3 rings of steel.

Receiver

Barrel

Breach plug

Most of the pressure in any gun is in the Breach Plug. 700's have the strongest receiver in the market. (ours is the strongest in the market)

Smokeless powder is measured in grains of weight NOT volume.

A couple of years ago someone made smokeless powder for muzzleloaders. THIS IS NOT GOOD-DON'T USE THIS!!!!!! Some people used this in our guns and others in the market. The guns blew up-no one died w/ ours. The receiver held up.

Bullets and powder volume make accuracy. Experimentation using parameters is advised.

We make several different types of projectiles.

Lead conical-chunks of lead

Balls

Sabots

Our guns were specifically designed for sabots. They have different weights but ours in general work best w/ around a 300 grain bullet (projectile) and 90 to 120 grains of powder. The customer will need to experiment to find out how much is best using these parameters.

Some states ban sabots (lead with copper around it) Every state has different regulations. If they can't use sabots they can use conicals, gamemaster, or bullets.

**SAMMI-Shooting Arms Ammunition Manufacturers Institute.** This is our governing regulator-not the federal government. Federal government has no say in anything. We issue recalls on the government. SAMMI makes regulations for this-not the federal government. Ken Gordon is on the board of SAMMI. He was a vice president for Remington.

Calibers are based on two things:  
Diameter of projectile  
Size & shape of brass case

**CANNOT EXCHANGE CALIBERS EXCEPT IN A COUPLE OF INSTANCES-  
NEVER INTERCHANGE REMINGTON 300 ULTRA MAG WITH  
WINCHESTER 300 ULTRA MAG-USE WHAT IS CALLED FOR.**

**NEVER INTERCHANGE MAGNUM WITH OTHER TYPE. (LONG RIFLE FOR  
MAG)**

Short and long usually interchange with the 22's but follow directions.

The 552 uses LR SHORT OR LONG. This is the only gun on the market that does this.

Short or long action is determined by the length of the cartridge.

Short action ultra mag only comes in 300.

Shorter barrel is for shooting slugs. Good for deer.

Core Lokt is the most popular ammo in the world. More game has been killed with this than any other ammo on this continent.

Water fowl always uses shotgun.

Longer Barrels VS short barrels Modern smokeless powders burn in the first 13 to 16 inches of each other. Maximum velocities are obtained in the first 20 inches. Shot will go same distance regardless of the barrel length. Shot pattern will be the same whether the barrel is 21 length or 40 inches in length if the barrel has the same choke constriction. The basic advantage of a shorter barrel is that it will swing faster. The longer barrel gives the hunter a longer sight radius to be more precise particularly when pass shooting waterfowl. Also the longer barrel can often balance certain shotguns better.

## Model 700

The model 700 was conceived in the late 50's and was on the market in '62. It quickly became the standard for production firearms. We were the first to do production guns in an assembly line. Before this guns were done one at a time by hand.

Prior to the 700 we had several bolt action guns. The 600, 660, and 625 were the predecessors. These were very reliable, accurate, but 700 was designed to be better, faster, and easier to make.

The only difference between rimfire and centerfire is the primer. Rimfire has the paste around the outer edge centerfire has the primer in the center. This makes it reloadable. The self contained cartridge was a huge breakthrough in the late 1800's.

One of the key selling features is the locktime.  
Locktime is the time it takes from the trigger pull to the bang.  
The 700 has a 3 millisecond locktime.  
This is due to the way that the bolt assembly marries in with the seer.

The bolt assembly consists of:  
Bolt head (contains back side of firing pin-firing pin is connected to the bolt head. A lot of people call this the bolt plug.  
Firing Pin  
Firing Pin Spring (or main spring)  
(the plug is held in by a little pin. The spring wraps around the pin.  
When you cock the gun you are actually pulling the spring back. This is held back by trigger assembly. The seer makes contact w/ bolt at seer lines-when the seer drops down it (bolt goes forward and bang.  
Trigger Assembly-is held on by couple of screws to bottom of receiver.  
The safety assembly is on the trigger itself.  
All that our safety does is to block the seer.  
Trigger Adjustment Screws-2 in front and one in the back.

The bolt spring is available for consumers to buy but they should never be a reason for them to need to buy it. It can be dangerous to work with. Normally don't recommend that they work with it.

On Model 700 they can't get any part of bolt or firing pin assembly. They can get the spring only. This is factory restricted due to the lss system.

The firing pin itself isn't restricted.

Trigger work should be done only at the factory. Sometimes we let RARE get permission from Dennis Sanita for them to do it but not often.

The bolt locks into the receiver.

The receiver is the meat & bones of this gun. Everybody wants ours you can't blow it up. Our 3 rings of steel is stronger than anyones. There are imitations but ours is best by far.

The 3 rings of steel consist of:

receiver  
barrel  
bolt head

For excessive head space every bolt has different specs on the locking lugs.

The Barrel Lug (also called the recoil lug) is the bolt that hooks around the barrel. This stabilizes the barreled action in stock. It absorbs a large amount of energy. This is put on when the barrel is made.

We hammer forge our barrels. They are made out of steel.

On the end of the barrel is called the crown. Our guns have recessed crowns. This is so that when you bang the gun you don't knick the barrel. If you did knick the barrel you would destroy the accuracy.

Rifling is made at a specific rate of twist.

Faster rate of twist is for heavier bullets. Our rates of twist are made to stabilize any bullet in that caliber load-this is not necessarily true for reloads.

Free bore is there for safety reasons.

All 700 guns w/ standard barrels(not heavy) just blued we put front and rear sites on it. There are none on the hammer steel barrels.

Controlled feed is called Moser. This feeds by a claw. One bad thing about it is that it scratches the back of the brass casing. This is bad for reloaders. In testing the housing broke ours didn't. Ours is the strongest bolt on the market.

The parts of the 700 are:

Stock  
Trigger  
Bolt assembly  
Receiver  
Barrel

The main differences in the BDL and the ADL are that the BDL has a detachable magazine or a hinged floor plate.

(The BDL also has the great finish walnut stock, white spacers black fore end tip.

There is a new type of fore end tip now. The part is available to buy. They can put them on (or back on if just came off) with any two part epoxy.

If a gun is magnum then it gets a recoil pad. Standard Long action or short action get butt plate. Pads have to be fitted. They can buy them but they do have to be fitted to the gun. Caution is advised because they can mess up their stocks doing this. Both butt plates and recoil pads need to be fitted to the individual gun.

Recoil pads are not fitted they are flat. Butt plate is fitted. Recoil pad has to be cut to fit stock. We don't recommend that they do this work themselves. (Also putting the recoil pad on voids the warranty but don't make a big deal out of this).

Trigger guard assembly in BDL can be hinged or detachable.

Inside Hinged Floor Sprint is magazine spring (doesn't come with a hinged floorplate and trigger guard assembly when you order them).

On top of the magazine spring is the magazine spring follower. These are specific to caliber, long action, short action, and mag. Extracting and ejecting is done on the bolt face. The inside of the bolt on the opposite side of the lug is the extractor. This pulls the case out. The ejector is the shiny circular pin on the bolt face. When gun is fired this pin is pushed in and that ejects the shell. Consumers can buy and replace these.

The ejector parts are:

Ejector Spring  
Ejector plunger

A possible problem that people may have is:

Gun is hard to cam bolt handle down. Usually will drill hole to fit ejector in place there is a tiny burr left and it catches. Can fix with a grinder.

Another cause may be that the extractor is not installed properly. We should let them know that if they try to fix this themselves that they are easy to break.

Ask if consumer has a scope on the gun. Sometimes if the screw on the scope base is too far in that catches.

(Never forget that there is the possibility that it is the manufacturers fault. Always kindly serve the customer).

The Magazine follower spacer is only for 222 rem and 17rem calibers only. These two particular caliber bullets are really short and the spacer goes into the back of the follower to take up space and make it feed correctly.

Bolt face parts, ejector and spring are for sale.

We use rivetless extractors for long action and short action calibers. Magnum caliber extractors use riveted extractors. This is an extractor that has a rivet that goes down through the bolt face. This helps with the extra force of the magnum loads.

Normally we suggest that they get a gunsmith to put extractors on or they will break for them (unless its something that they are familiar with doing).

The magnum needs to be done by a gunsmith because of the tooling that has to be done to rivet it.

Guns with riveted extractors in small non magnum calibers are old. Consumers can get parts from Jack First (he not only sells and makes obsolete parts, he is a great gunsmith). They could just change from riveted to non-riveted by buying a total bolt assembly. This would modernize the firearm.

The same receiver plug screws are in all guns but we call them 597 plug screws. The exception is the 7400 and the 7600 (theirs are bigger).

We don't recommend see thru mounts.

Our safety is called a positive click safety. We will never make it quieter.

We just started making the detachable magazine models in 1993.

We do not make detachable magazine ultra mags because our current magazines won't fit.

### Except

The new custom shop African Game Rifle. It is detachable but it is completely different system. It is a single stack magazine.

The BDL Custom Deluxe always has a shiny walnut stock, white line spacers, black fore end tips and either a hinged floor plate or a detachable magazine.

The magnum has a recoil pad and 2 (as opposed to 1) black screw holes filled on the stock.

ADL is satin finish, lower grade wood, no black fore end tip. Blind box magazine.

Both come with swivel studs. These are both standard contour hunting barrels.

Contour barrel is a heavy barrel (sometimes called a bull barrel). It has a bigger outside diameter.

We have bull barrels are on the 700 varmint or Sendaro.

All of our varmint guns are short action caliber.

Long action receivers are physically longer to accommodate longer cartridges.

There are two different kinds of varmint stocks.

Synthetic-aramid fiber

Laminate wood -satin finish.

Laminate wood is the strongest stock that we make and it is impervious to weather.

We used to make a walnut varmint stock but it was discontinued.

The pressure point (located inside the fore end of the stock) is a design feature. People shouldn't sand them down. They can ruin the accuracy of the firearm.

There is no pressure point on a laminated stock-it's just not necessary.

A huge selling feature is the aluminum bedding block which can be found on the synthetic varmint and Sendaro.

(You can't put aluminum bedding-block in wood it just won't work).

The synthetic stock has an aluminum bedding block. This stabilizes the barrel.

People can bed their own guns with fiberglass or some other material. They do it a lot. (Voids the warranty on the stock).

Synthetic stocks are BDL style (hinged floor plate).

Wooden stocks should be tightened hand tight. If consumer is adamant about using torque pounds then they should never use more than 35 inch (not foot) pounds but try to push hand tight.

The synthetic varmint and Sendaro can go to 50 inch lbs. Hand tight is fine also.

Recoil pads on Varmint and Sendaros are glued on. Consumers must take to a gunsmith to remove and replace. We won't do it.

Even older stocks, 30 to 40 years old even, you may notice that the recoil pad may look slightly smaller than the stock. This is where the wood has swollen, this is perfectly normal.

Sendaro's are mostly just long action versions of a heavy barrel.



A heavy barrel disperses heat much better, (heat is the enemy of accuracy), and helps with rigidity.

To site a firearm in we suggest that you shoot 3 shot groups, let cool for 15 to 20 minutes and shot another group.

Sendaro has fluting. This gives more surface area. It cools better and makes it more rigid.

A classic gun is a variation of a mountain rifle.  
A mountain rifle is a light weight, shorter BBL that is smaller contour. The stock is always the same, no monte carlo stock, no cheekpiece, no black fore end.

The mountain rifle is offered in detachable magazine. The custom shop has other versions.

All custom shop wooden stocks are glass bedded by hand. They are truly free floated. Synthetic guns are glass (fiberglass) bedded too.

Synthetic 40x's are aluminum bedded.

A big thick fore end is referred to as a beaver tail fore end.

The recoil lug is listed as the barrel bracket on the parts list.

The bolt handle is not restricted on the parts list. Mark it as restricted on the parts list. People don't need to buy it.

The bolt plug listed on the parts list (blu and SS) are probably before ISS. The bolt plug manufactured after this time is restricted.

## Model 710

Only gun that we sell that comes with a (Bushnell) scope.

This firearm was designed specifically to keep cost down. It was the reason that the Mayfield plant was built.

The idea was also to build a completely different gun, be innovative, and make bunches of them.

The biggest key feature of this firearm is the way that the barrel and the receiver marry up. They are hydraulically pressed in this is permanent-there is no changing the barrel. Since we did this we could lock the locking lugs right into the barrel. They are right behind the chamber. We completely by passed the chamber as far as head space goes. Bolts could even be interchanged 710 to 710 (DON'T TELL CUSTOMERS THIS!). This is the only gun in the history of firearms that would do this.

The 710 has 3 locking lugs on the bolt instead of 2.  
The 710 still has the 3 rings of steel.

### TRIGGER ASSEMBLY

The big difference in this and the 700 is that when you take out the trigger bracket retaining screw the trigger is connected to the receiver insert. You have to replace one to replace the other. The receiver insert is nylon and the consumer can buy it.

There are two receiver backers. A left and a right. Every gun uses both. The larger goes on the left side and the small goes on the bottom.

The bolt stop on the 710 is on the barrel. Customers do break occasionally and they can buy this piece.

The only part that the consumer can't buy on this gun is the barrel assembly.

In the stock itself if the magazine release breaks they need the total stock. Same with the trigger housing. They are all made into the stock.

The magazine holds 5 cartridges.

NEVER USE GUNSCRUBBER ON YOUR FIREARM!

The barrel is button rifled.

## Model Seven

This is the other major centerfire that Ilion produces.

Came out in 1987.

It is a small compact light weight centerfire rifle.

Model seven was our first light weight rifle that we had.

It was based on the 700 but it wasn't the 700.

The main difference in the 700 and the seven is the shorter action in the model seven. It has always been short action-it will never be long action. There is no left hand seven and we are pretty sure that there will never be one.

Model seven works just like the 700 bolt action. Hinged floor plate that is held in by front and rear screw. The trigger works the same but they are NOT interchangeable.

The model seven has a bolt release just like the 700, a firing pin assembly, pushing the bolt handle down cocks the gun. When you cock the gun the firing pin doesn't turn-only the bolt body does, and it turns into the cut onto the firing pin. This makes the boom happen.

The model seven fore end is slimmed down.

We make a youth model of this firearm.

We don't make a walnut stock model seven anymore.

We offer synthetic and laminated models.

In 2000 we changed to a 20 inch standard barrel on this gun. Before this back to 1998 we had a standard 18 1/2 barrel. The reason for this change was mainly to gain accuracy on the 260 caliber model. It gained some accuracy in all calibers.

In 1998 we went from a single rear scope base screw hole to a two piece for those that want them. In parts consumer must specify the old style (1 screw-or 3 total) or the new style-2 rear screws (4 total).

The model seven magnum has a bigger diameter (but not as heavy as a bull) barrel.

The custom shop has a model seven model

The model seven Mannlicher. The stock goes all the way to the very end of the barrel on this firearm.

The Model Seven is always short action, right hand only. It is offered in 5 or 6 calibers. It is great for kids or small statured people.

This firearm has been said to be "the ultimate white tail deer gun."

## Over and Unders

Our over and under ONLY comes in 12 gauge.

Over and unders-break action-are the oldest modern shotguns.

332 will look basically like the 300.

All parts must stay with the same gun. **CAN'T INTERCHANGE!**

If they need a new bbl set they must send in all bbl sets so that the repairman can make the fore end and all other parts work with the new and old.

The receiver is called the frame on these guns.

These have a mechanical (not inertia) trigger.

This is a field gun but you can shoot trap or sport with it.

## Trouble shooting

One bbl not going off-This can be caused by overlock. If the operating handle gets over to the left then the bolt and other parts are getting worn. (The operating handle to the right is OK.)

Peerless and 396 were the last really good over and under that we made. We are still working on them in the repair shop.

These guns show wear around the bolt. Sometimes they sink in. This will cause the gun not to fire.

One thing that causes the above condition is using ammo with a steel firing pin such as Federal. **WE RECOMMEND THAT CONSUMERS NEVER USE STEEL PRIMERS!!!!!!**

**DO NOT DRY FIRE AN OVER-AND UNDER! THIS IS BAD FOR THE FIRING PINS.**

A 26" bbl on an 1100 will be longer than a 26" over and under. The over and under has a very short frame.

If the wood to metal fit isn't correct then the stock will crack.

The higher rated wood (ex. F) is more easy to crack.

## Shotguns

Model 332 Over and Under Shotguns (page 3)  
Model SP-10 Autoloading Shotguns (page 3)  
Model 11-87 "Premier" Autoloading Shotguns (page 4)  
Model 11-87 Special Purpose Magnum Synthetic Autoloading Shotguns (page 4)  
Model 11-87 Special Purpose Magnum Autoloading Shotguns (page 5)  
Model 1100 Target Shotguns Autoloader (page 6)  
Model 1100 Synthetic Autoloading Shotguns (with Synthetic stock and fore-end) (page 7)  
Model 870 Wingmaster Pump Action Shotguns (page 7)  
Model 870 Special Purpose Magnum Synthetic Shotguns (all have sling and swivels) (page 8)  
Model 870 Police Guns 3" Magnum Shotguns (page 8)  
Model 870 Express Super Magnum Pump Action Shotguns 3 1/2" Magnum (page 9)  
Model 870 Express Pump Action Shotguns- 3" Magnum (page 10)  
Model SP-10 Extra Barrels- 3 1/2" Chambers (Vent Rib) (  
Model 11-87 Extra Barrels- 3" Chambers (All Barrels have ventilated ribs except deer barrels)

## Extra Barrels

Model SP-10 Extra Barrels- 3 1/2" Chambers (Vent Rib) (page 9)  
Model 11-87 Extra Barrels- 3" Chambers (All Barrels have ventilated ribs except deer barrels) (page 11)  
Model 11-87 Super Magnum Extra Barrels- 3 1/2" Chambers (page 12)  
Model 1100 Extra Barrels (All barrels have ventilated ribs except deer barrels) (page 12)  
Model 870 Extra Barrels- 3" Chambers (All barrels have Ventilated ribs except deer barrels) (page 13)  
Model 870 Extra Barrels- 2 3/4" Chambers (page 13)

## Rifles

### Model 700 Rifles 700 Is bolt action

Model 700 ADL (Deluxe, Synthetic, Synthetic Youth) (page 14)  
Model 700 Classic (LTD Edition) (page 14)  
Model 700 BDL Custom Deluxe (page 14)  
Model 700 BDL (Custom Deluxe, Left-hand) (page 15)  
Model 700 BDL SS (Stainless Synthetic) (page 15)  
Model 700 Realtree Hardwoods Camo (Special Edition) (page 15)  
Model 700 LSS (Laminated Stock, Stainless-Steel) (page 16)  
Model 700 Mountain LSS (Laminated Stock, Stainless-Steel) (page 16)  
Model 700 Titanium Ultimate Lightweight (page 16)  
Model 700 Etronn Long Range Centerfire Bolt Action Rifles (page 17)  
Model 700 Long Range Centerfire Bolt Action Rifles (page 17)  
Model 700 Centerfire Bolt Action Rifles With Detachable Magazine (page 18)  
Model 700 In-Line Muzzleloading Rifles (With Synthetic Stock) (page 18)  
Model 710 Centerfire Sportsman Bolt Action Rifles (page 19)  
Model Seven Centerfire Lightweight Bolt Action Rifles (page 19)  
Model Seven Magnum Short Action Centerfire Lightweight Bolt Action Rifles (page 19)  
Model 7400 Autoloading Rifles (page 20)  
Model 7600 Pump-Action Rifles (page 20)  
Model 597 Autoloading Rimfire Rifles (page 21)  
Model 597 Autoloading Rimfire Target Rifle (page 21)  
Classic Rimfire Repeating Rifles (page 21)

## Custom Guns

Remington No.1 Rolling Block (page 22)  
Model 700 APR (African Plains Rifle) (page 22)  
Model 700 AWR (Alaskan Wilderness Rifle) (page 22)  
Model 700 ABG (African Big Game Rifle) (page 23)

## Custom Shop High Grade Guns

Model 700 Custom Rifle (page 23)  
Model 40-XR Custom Sporter (page 23)  
Model 700 Custom KS (Aramid Fiber Stock Mountain Rifle) (page 24)  
Model 700 Custom KS Stainless Mountain Rifle (Aramid Fiber Stock, Stainless Action) (page 24)  
Model 700 Custom KS Safari Grade Rifle (Aramid Fiber Stock) (page 25)  
Model 700 Custom KS Safari Stainless (page 25)  
Model Seven Custom KS (page 25)  
Model Seven AWR (Alaskan Wilderness Rifle) (page 26)  
Model Seven Custom MS (page 26)  
Model 40-X Series Rifles (page 27)  
Custom Shop High Grade Shotguns & Rifles (page 27)  
Custom Shop Options-Installed Prices On New Custom Shop Guns Only (page 27)