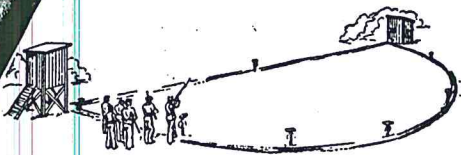
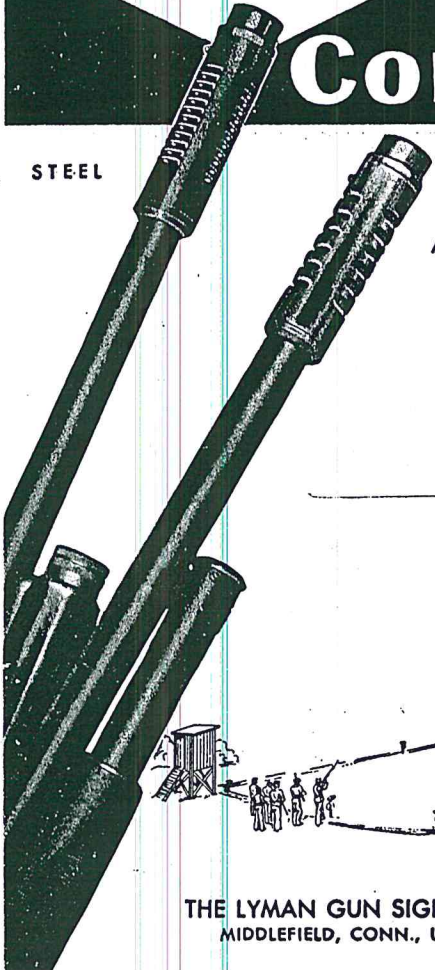


COMP

STEEL

ALUMINUM
ALLOY



THE LYMAN GUN SIGHT CORP.
MIDDLEFIELD, CONN., U. S. A.

THE Cutts Comp was invented and patented by Col. R. M. Cutts and developed in the beginning to reduce the recoil of large guns and rifles. However, its most important application has been found on single barrel shotguns where it not only reduces recoil, but also permits of easy arrangement for change of chokes with the result that consistently uniform patterns can be thrown which are more effective than patterns obtained from a plain gun where equal choked patterns are compared.

By actual test the Comp reduces the recoil of the gun 35% with the so-called light loads, such as Trap and Skeet loads, and 46% when the high velocity loads are used. This recoil reduction is obtained by the action of the gases in the Comp body when the shot column has for an instant formed a gas seal when passing through the choke tube. The gases are forced out through the open ports at right angles to their normal flight. This force counteracts the force of recoil before the momentum of the gun has been built up to produce the kick against the shoulder. The recoil reduction is delayed long enough so that it does not interfere with the proper functioning of automatic shotguns.

DIFFERENT chokes are obtained by changing the solid choke tubes. This is the only positive way that the choke of a gun can be changed. These tubes screw into the Comp body and can be changed in a few seconds. They do not need to be wrench tight, but a wrench for tightening or loosening them is provided with each set.



Cutts Comp for shotguns, with all 12 gauge tubes. Left to right: Comp with Spreader Tube; No. 680 or Long Range No. 2; No. 690 or Long Range No. 3; No. 705 Full Choke; No. 725 Modified Choke; No. 755 General Purpose Tube. These tubes for 12 ga. ONLY. All other gauges, Spreader, Modified and Full Choke.

In all gauges except the 12 gauge there are three tubes which approximate in diameter of patterns those chokes of the plain bored guns, namely: Full, Modified, and Cylinder. Owing to the unfavorable name which "Cylinder" has in the minds of shooters and which was caused by the blotchy patterns of the cylinder guns, our tubes of equal diameter patterns are called "Spreader".

On the 12 gauge, after years of experimental work and actual use of all forms of shooting, we have standardized on six tubes which we find give definite results for practical types of shooting.

No. 680 or Long Range No. 2 and No. 690 or Long Range No. 3, are more constricted chokes than any except special bored guns. They are

designed for long range shooting and will handle best those loads and sizes of shot designed for such long range shooting.

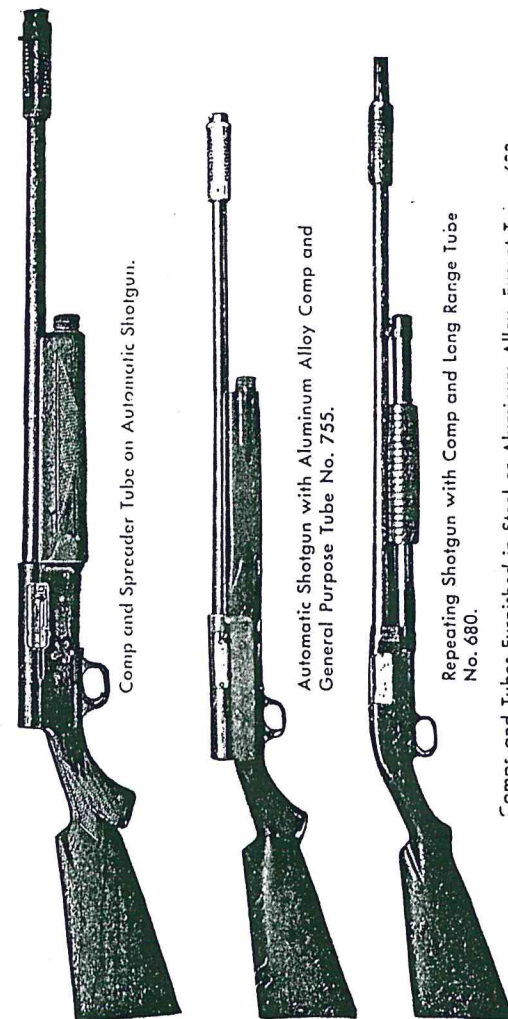
No. 705 or Full Choke produces a uniform pattern with very high center density and killing power to the extreme outside edge. This tube is best for crow shooting or for other fairly large birds that are not regularly found inside of 40 yards. No. 705 is also recommended for handicap Trap shooting.

No. 725 or Modified Choke should be used where the majority of shots are from 35 to 40 yards such as 16 yard Trap shooting or game at such distances. Many shooters consider this tube equal to the average full choke barrel as the center of the pattern will reach out to give good clean kills at surprising distances. *Use the Modified or Spreader tube in each gauge for rifled slugs. Do not use Full Choke. Modified tube best for Buckshot.*

No. 755 tube has been recently found to meet those conditions for which the old 740 or General Purpose Tube was designed, namely, a pattern half way between the Spreader and the Modified Choke. For those Skeet shooters who cannot get their out-going birds as close as station 8, this is the tube to use. For game shooting at 30 yards it cannot be equalled.

The Spreader tube is the tube for most Skeet shooters to use. It gives a pattern covering a 30 inch circle at 25 yards, but has the uniformity of the smaller diameter improved cylinder plain barrel. For most quail and other small bird shooting it is unexcelled.

Spreader tubes for 16, 20 and 28 gauges are similar in design to the No. 755 12 gauge in order to give the type of pattern required for the smaller gauges.



Comp and Spreader Tube on Automatic Shotgun.

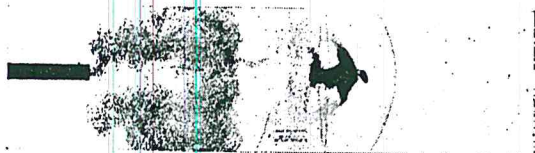
Automatic Shotgun with Aluminum Alloy Comp and General Purpose Tube No. 755.

Repeating Shotgun with Comp and Long Range Tube No. 680.

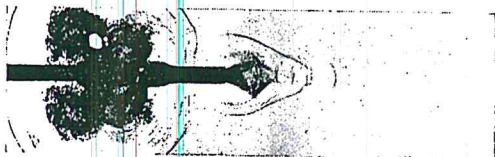
Comps and Tubes Furnished in Steel or Aluminum Alloy, Except Tubes 680 and 690 which are made in Steel only.

ACTION OF SHOTGUN COMPENSATOR

(A, without Compensator, B, C, D, E, with Compensator)
ON 12 GAUGE GUN, LOAD 3-1/4-7/8c.



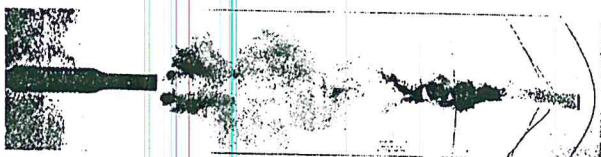
A. Without Comp. Note pancaking of shot column due to wad pressure and flight of individual distorted pellets sideways.



B. With Comp shot charge still in pattern tube of Comp. Note Comp functioning as shown by cloud of gas emission from ports.

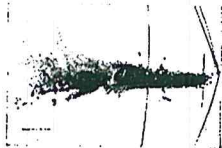


C. Shot charge leaving muzzle of pattern tube. Note heaviest action of gas release and counter-acting recoil effect from Comp.



D. Shot charge well clear of muzzle. Note comparative absence of gas in shot column and freedom from individual distorted pellets flying sideways.

E. Further flight of the shot charge showing compact column well ahead of wads being left behind, unaffected by internal gas effect of muzzle blast. The result is an ideal uniform dense pattern.



(Sparkographs courtesy
Peters Cartridge Company.)

6

INSTALLATION

THE Cutts Comp. style A, as now supplied is attached to the shotgun by means of an adapter which is silver soldered to the barrel. This adapter is threaded and the style A Comp body screws on to it firmly up against the shoulder where it is further secured by means of a set screw. As the Comp and Full Choke tube measure approximately 6 inches, it is customary to cut off a certain amount of barrel in order to have a suitable over-all length. Experience has shown that an over-all length of 28 inches with Full Choke tube and 26 inches with Spreader tube is satisfactory for practically all types of shooting. This requires cutting the barrel to a length of 22 inches.

Contrary to common belief very little loss in velocity and penetration is experienced and this is more than made up for by the beautiful, uniform patterns so that shooters get better results with their shorter, faster handling compensated gun than they did with their longer barrel without the Comp.

This work requires the services of a skilled mechanic with facilities for swinging the barrel in a lathe and there are many gunsmiths about the country who have proved themselves capable of this work.

Some gun manufacturers offer Cutts Comps installed as standard equipment on barrels made especially for the purpose and these are highly satisfactory.

Special facilities at our factory enable us to offer prompt service to shooters who wish to send the gun here to have the Cutts Comp installed. The complete gun should be sent.

7

THE LYMAN GUN SIGHT CORP.
MIDDLEFIELD, CONN., U. S. A.

SHOOTERS desiring a Comp of less weight than a steel Comp can now order one made of aluminum alloy which is 1/2 the weight of a steel Comp. Tubes of aluminum alloy are furnished the same as in steel except 12 gauge long range tubes Nos. 680 and 690, which are available only in steel. Tubes in steel and aluminum alloy are interchangeable in the Comps made of either metal.

Aluminum Comps are furnished in bright or black finish. Black supplied unless otherwise specified on the order. All Aluminum Comps are made with six ports as shown on cover of this folder, except the .410 gauge.

Aluminum Compensators are not recommended in any gauge where they are to be used to any extent with high speed hunting loads, except in the case of the new Remington Model 11-48, 28 gauge and 410 gauge where the lighter weight of the aluminum Compensator is necessary to permit proper functioning of the gun, especially with the lighter loads.

A new design of Compensator is available for the 410 ga. Rem. M11-48 as the original model is unsuited. This has angular ports and is supplied in aluminum only. This is also suitable for any make or model of 410 ga. gun where the light weight model is desired. In time all 410 ga. aluminum Comps will be of this design on account of the Rem. M11 which requires it. Mounting is identical with previous models. 410 ga. Full Choke tube is now supplied in aluminum, bright or black as well as black steel.

THE LYMAN GUN SIGHT CORP.
MIDDLEFIELD, CONN., U. S. A.

Lyman Metallic Sights
Ideal Reloading Tools

Lyman Telescopic Sights
Cutts Compensators

8

FORM CUTTS 5M-4-54-110-21

A wrench made of flat stock, similar to that used for the larger gauges, can be used to turn up the body of the thread when the models with straight ports are involved. The aluminum model with angular ports requires a short length of $\frac{1}{4}$ " drill rod which will clear the drilled holes just to the rear of and in line with the ports.

OPR. 4. With body in exact alignment, drill through screw holes in both sides with #31 drill and into the bore. Tap with #6-48 tap and insert anchor screws, setting them up as tightly as possible. Using a small half round file, file ends of screws, which project into bore, flush with inside of barrel. Polish bore at this point with fine emery cloth, wrapped on wood rod held in lathe chuck.

OPR. 5. Refer to paragraph marked "Very Important" following OPR. 7 on Style A Comps used on larger gauges: Shoot gun to check point of impact and then adjust if necessary and re-test. Test all guns whether slide-actions or auto-loaders.

IMPORTANT

Do not attempt to use any other than the aluminum with angular ports on Rem. M11-48, 410 ga. as this mechanism is so delicately balanced that malfunctions will occur with standard model, even in aluminum.

A very handy tool for use in setting up the Comp body on the thread is readily made from a small piece of hard wood $\frac{3}{4}$ " x $1\frac{1}{2}$ " x 12" long. Drill a 1" hole in the center of the flat side. Cut a groove a little over $\frac{1}{4}$ " wide and $\frac{3}{8}$ " deep lengthwise on the flat side. This will pass through the center of the 1" hole on one face. This can be slipped over the Comp body with groove toward the rear and the $\frac{1}{4}$ " rod used to turn body will slip into groove. This will give more leverage, be easier on the hands and prevent rod from bending. Use in OPR. 3.



LYMAN PRODUCTS FOR SHOOTERS
MIDDLEFIELD, CONNECTICUT

Silver solder is the only type of solder that is satisfactory for this work. Soft solder will not give as good a joint and results over a period of years have shown that much trouble will be encountered. Silver solder is readily obtainable through any source of welding supplies throughout the country and it has a relatively low melting point which makes it easy to use. It also gives an excellent joint. Be sure to use the flux that can be purchased with it for this purpose.

Operation 5

Face off the extra 1/32" of the barrel beyond the end of the adapter and excess solder using the same counterbore with which the barrel was faced originally. This is most easily accomplished with the arbor in the chamber of the barrel on the tail center of the lathe and the counterbore held in a lathe chuck. The barrel can be held from rotating by hand and gradually fed against the counterbore with the tail stock. Mount the barrel on centers again and true up the shoulder of the adapter and cut away any solder that may have run through the telltale holes and in the recess.

Operation 6

Polish the outer diameter, bevel and face of the adapter with emery cloth on a stick and blacken with whatever means available. The barrel is now ready for attaching the Compensator and the thread on the adapter itself need not be touched further except to brush off any dirt which may have accumulated in the threads. Screw the Compensator onto the adapter until it is against the shoulder. When turned up by hand, the rear sight should lack about 1/16" of lining up in the vertical position and as this will not occur on the first trial, except by chance, the barrel is then mounted on centers and sufficient faced off the shoulder of the adapter to bring the front sight in the position mentioned. When this has been accomplished, the barrel is held securely in a padded vise and a strip of steel which will pass through the rear ports of the Compensator preferably with a wooden handle attached, is used to force this against the shoulder sufficiently to bring the sight into its proper upright position.

NOTE: If a micrometer carriage stop is available on the lathe and it is remembered that one turn on a 28 pitch thread is approximately .036" or a quarter turn .009", the proper amount can be removed with one or two trials.

Operation 7

With the Compensator securely on the adapter with the sight in its proper position and with approximately 1/16" of draw on the thread - that is forced 1/16" beyond the point where it first touches the shoulder - it is now ready for insertion of the anchor screw. With a No 20 or No 21 drill "spot" through the anchor screw hole in the Compensator into the adapter a short distance sufficiently so that when the screw is inserted and set up as tightly as possible, it will be approximately flush with the outer surface. The Compensator is now fully fitted. The preceding operation is very important as it is absolutely essential that the Compensator body be forced into position for the last short distance to relieve the strain on the threads and to prevent its loosening under vibration. The anchor screw is just an added precaution and will have no real work to do.

VERY IMPORTANT

On auto-loading shotguns, the Compensator, as installed above, is ready for use; but on slide action repeaters, a slight bending or adjusting of the Compensator is necessary to prevent the gun from shooting below center when sighted in the normal way. Take a piece of 3/4" steel bar and thread a short head on one end about 1-1/4" in diameter. This can then be turned down for a distance of 1/2" to 1.100 and threaded with 28 threads per inch to the shoulder to duplicate the thread that is on the pattern tubes. This thread dimension is for 12 gauge only. The 20 gauge is .920 x 28. Holding the body of the Comp between "V" blocks lined with paper just over the point where it is threaded to the barrel, and with the blocks just clearing the rearward port screw the rod mentioned above into the front end of the Compensator. It is desirable in this instance to have the front sight horizontal and then pressure can be applied toward the sight to bend the Compensator slightly upward. On most of the slide action guns, a movement of from .025" to .030" is sufficient and some guns will require less. This bending is not noticeable but can be checked with a straight edge along the bottom of the Compensator. After having done this once or twice, it will be a simple matter to adjust these to bring the point of impact where it should be and in most instances, the gun should shoot the center of the pattern at the center of the hold when sighted closely across the top of the receiver and the top of the front sight. It is recommended that this firing be done at 25 yards with a small sighting spot not larger than one inch which will permit very close holding.

This operation of adjusting the Compensator after being applied to slide action repeaters is very important, and it is a point that is frequently ignored or forgotten by outside gunsmiths making this installation. If this adjustment is not performed and the gun tested, it will result in a job that will shoot noticeably below the point of aim and the customer will not find it satisfactory. It is well to point out at this time that an occasional individual will prefer that the Compensator be left true with the bore without adjustment as the shooter habitually shoots with their head above the receiver and "sees more barrel" which results in the pattern being thrown high and eliminates the necessity for this adjustment.

BORE DIMENSIONS OF ADAPTERS AVAILABLE

12 GAUGE: .795, .812, .825, and .840

MATERIALS AND SMALL TOOLS REQUIRED

Hacksaw, preferably 32 pitch blades.

Scrapers made from three-cornered file.

INSTRUCTIONS

FOR ATTACHING

CUTTS COMPENSATOR



Trade Mark Reg. U. S. Pat. Office



LYMAN PRODUCTS FOR SHOOTERS

MIDDLEFIELD, CONNECTICUT

OPERATION 7: With the Compensator securely on the adapter with the sight in its proper position and with approximately $\frac{1}{16}$ " of draw on the thread; that is, forced $\frac{1}{16}$ " beyond the point where it first touches the shoulder, it is now ready to insert the anchor screw. With No. 20 or No. 21 drill spot through the anchor screw hole in the Compensator into the adapter a short distance sufficiently so that when the screw is inserted and set up as tightly as possible it will be approximately flush with the outer surface. The Compensator is now fully fitted.

The preceding operation is very important as it is absolutely essential that the Compensator body be forced into position for the last short distance to relieve the strain on the threads and to prevent its loosening under vibration. The anchor screw is just an added precaution and will have no real work to do.

VERY IMPORTANT

On Auto-Loading shotguns the Compensator as installed above is ready for use, but on slide action repeaters such as the Winchester Model 12 and Remington Model 31 a slight bending or adjusting of the Compensator is necessary to prevent the gun from shooting below center when sighted in the normal way. Take a piece of $\frac{3}{4}$ " steel bar and thread a short head on one end about $1\frac{1}{4}$ " in diameter. This can then be turned down for a distance of $\frac{1}{2}$ " to 1.100 and threaded with 28 threads per inch to the shoulder, to duplicate the thread that is on the pattern tubes. This thread dimension is for 12 gauge only. The 16 gauge thread is .982" x 28 and the 20 gauge is .920 x 28. Holding the body of the Comp between "V" blocks lined with paper just over the point where it is threaded to the barrel and with the blocks just clearing the rearward port, screw the rod mentioned above into the front end of the Compensator. It is desirable to have front sight, in this instance, horizontal and then pressure can be applied toward the sight to bend the Compensator slightly upward. On most of the slide action guns a movement of from .025" to .030" is sufficient and some guns will require less. This bending is not noticeable but can be checked with a straight edge along the bottom of the Compensator. After having done this once or twice it will be a simple matter to adjust these to bring the point of impact where it should be and in most instances the gun should shoot the center of the pattern at the center of the hold when sighted closely across the top of the receiver and the top of the front sight. It is recommended that this firing be done at 25 yards with a small sighting spot not larger than one inch which will permit very close holding.

This operation of adjusting the Compensator after being applied to slide action repeaters is very important and it is a point that is frequently ignored or forgotten by outside gunsmiths making this installation. If this adjustment is not performed and the gun tested it will result in a job that will shoot noticeably below the point of aim and the

customer will not find it satisfactory. It is well to point out at this time that an occasional individual will prefer that the Compensator be left true with the bore without adjustment as he habitually shoots with his head above the receiver and "sees more barrel" as the saying goes which results in the pattern being thrown high and eliminates the necessity for this adjustment.

BORE DIMENSIONS OF ADAPTERS AVAILABLE

12 gauge — .795, .812, .825, .840, Blank.

16 gauge — .740, .765.

20 and 28 gauges — .690, .715, Blank.

NOTE—Blanks are smaller than any barrel and must be bored to size. The 20 ga. blank is suitable for use on new Rem. 28 ga.

SPECIAL APPLICATIONS Remington Model 11, 28 gauge

The advent of the Rem. M11-48-28 ga. has complicated the situation somewhat as some of these guns do not eject well when the steel Compensator is used and when this occurs, the aluminum model is a must. All of the guns that we are fitting for Remington factory installation have the black aluminum body on them and if your gunsmiths run into any trouble this information may be of some assistance to you.

The barrel on this new gun is also much smaller than the Winchester Model 12, 28 gauge that has been on the market for some years, and so we are now supplying all 28 gauge Comps with blank adapter measuring about .625 in the bore. This has to be bored out to fit the various barrels as they occur and in this way avoid reducing the barrel diameter any more than absolutely necessary. This seems to be the best thing to do at the moment, at least until there is enough of these on the market so that we can establish a size that will be satisfactory for them. We are calling this to your attention for the information of your customers and gunsmiths.

When attaching the Comp to a Rem. M11-48 (all gauges) it is not advisable to make the barrel length any shorter than 26" with Comp and Spreader tube. Any length much shorter will cause interference between the forearm and Comp body when the gun is taken apart, with a risk of damage to the forearm.

REMINGTON MODEL 58

The new Remington Model 58 gas operated autoloader presents a slightly different problem as far as the installation of Cutts Compensators is concerned. The functioning of the gun is actuated by the gases of the discharging cartridge which pass through an orifice in the barrel and pressure is transmitted to the mechanism in that way. This orifice, which is on the underside of the barrel inside the magazine ring, is .128" in diameter.

We have fitted a reasonable number of these guns with Compensators and there has been no trace of failure to function, that is eject the fired case and reload. It is possible that on some guns and with certain loads, this trouble could occur and we are advised by the Remington Arms Company that this orifice can be enlarged to as much as .140" (#28 drill) if necessary. This can be readily done by pushing a pin of suitable size, or possibly a #30 drill, into this orifice and clamp it in a vise until vertical and then it can be enlarged easily in a drill press. It might be well to do this one drill size at a time, enlarging the hole from .128" to .136" with a #29 drill and trying it and not enlarge it to the #28 drill size unless necessary. As far as we have been able to learn, this is the only way of controlling the action on this particular model.

HIGH STANDARD MODEL 60

The High Standard Model 60 autoloading shotgun, which is also gas operated, requires special attention.

To begin with, all of the models that we have handled are solid frame guns without a take-down and the barrels are very securely set up into the receiver. Due to the nature of this receiver, and the fact that it could be easily damaged, we do not believe that any attempt should be made to remove this barrel so the Compensator can be attached in the normal way. We have, here at our plant, made a special fixture, at considerable expense, to fit the spindle nose of the lathe to hold this gun by the receiver in such a position that the barrel will run true and the outer end can be supported on the tail center as in a normal fitting. This permits the adapter to be fitted in the usual manner and the attachment completed. A fixture of this kind is much too expensive for the average installer to make up and we suggest that any of our installers, with guns of this model to attach, should send them in to us and let us handle them here. This will avoid turning away customers and we are able to give one week or less delivery under normal conditions.

The functioning of this gun is very similar to that of the Remington Model 58 and the gas port is in the same location. The standard port is .080" (#46 drill) in size and can be enlarged to .096" (#41 drill) if necessary. In other respects, the handling of this is the same as mentioned above in connection with the Remington Model 58.

Win. Model 59 "Win-Lite" (Fiberglass) Barrel

The attachment of the Cutts Comp to this Glass Barrel is similar in most respects to the procedure in common use on conventional steel barrels. The steel liner is very thin and must not be reduced when the glass coating is removed. The fitting of the adapter is accomplished by the use of a special low temperature (650° - 700°F) non lead solder and Epoxy adhesive. Normal silver solder such as used for fittings to steel barrels must not be used as the higher heat necessary (1100° - 1150°F)