

Sterling Manual

**You must read this manual carefully
before attempting to use this marker!!
It contains important safety information
and operating instructions.**



STP



Bronze

STERLING
MADE IN BRITAIN BY CHAPMAN

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The Bottom Line, male to female 1/8th NPT elbow, hose and fastening screws. (10/32" x 1")

Always exercise great care when attaching or removing cylinders from your marker. When ambient temperature rises, it may be necessary to check paintball velocity has not risen above the legal maximum of 300 fps. This may involve clipping or changing the mainspring, or adjusting ten

If you are using regulated air, set the output pressure of the regulator for 600/700 psi.

If using CO₂ use cylinder fitted with anti siphon tube.sion.

1. **REGULATED.** You will need a reliable regulator approved for use with CO₂. Ensure that your tank is fitted with an anti-siphon to prevent liquid CO₂ entering the regulator and causing malfunction.
2. **EXPANSION TANK.** This would normally be used on a vapour set up in place of the regulator. The expansion tank allows liquid CO₂ to boil off into a vapour state, helping to keep a steady
3. **REMOTE SET UP.** This configuration will allow gas vapour to be drawn from the top of the cylinder. Used in conjunction with a remote expansion system should ensure that no liquid will be drawn into the marker. Note, NO anti siphon tube is required on the cylinders.
4. **LIQUID ONLY.** You will need to fit a siphon tube to the cylinder with this set up. This can be a clunk tank setup, that is with the internal feed being made of a flexible tube with a weighted end, sometimes incorporating a filter. Or a solid tube bent down into the liquid, so only liquid is fed to the gun.

Note Using liquid can result in much higher velocities if the gun has originally been set to use vapour, so you will need to clip or change mainspring. Seal damage and greater wear on the gun may also result from using liquid CO₂. supply pressure.

Once you have selected your preferred method, fit the cylinder to the marker exercising great care, wear gloves and eye protection.

ALWAYS: Use A Barrel Plug (Use one that actually fits the Barrel tight)

ALWAYS: Check before Dry firing, you have not got a ball loaded in the barrel. This marker uses a closed bolt system (Means a ball is loaded into the Barrel after one has been fired)

DO NOT LOOK DOWN THE BARREL if you are not sure remove the Barrel and CHECK!!

Basic operation of The Sterling.

The Sterling fires from a closed bolt on single shot.

The Sterling also has rapid slam fire. Slam fire is when the trigger is held in and for every manual pump cycle a ball will be discharged.

Getting Your Gun Ready For Use.

First install a barrel plug so as to prevent any accident due to a negligent or accidental discharge.

Then attach the hopper to the feed collar. Use a correct fitting feed elbow.

Your gun is now ready to fire. Pull the pump back until it stops this operation does two jobs simultaneously; it allows a ball to drop into the breach and also for the pickup to engage the hammer.

Move your pump forward, the ball will be loaded into the breach and the hammer will be in the cocked position.

Pull the trigger and your paintball will be on it's way to your target. Now you will need to check the velocity of the marker, for this you will need a correctly calibrated chronoscope. Failure to check may result in you running hot, risking disqualification in a game, injury to other players and is ILLEGAL! Ignorance is no excuse!



Always Observe the Paintball Player Code

"As a responsible paintball player, I understand and assume all the risks I may encounter while playing paintball."

Responsible paintball playing duties include:

- ✓ Playing within the limits of my ability.
- ✓ Treating every marker as if it were loaded and never pointing the marker at anything I don't wish to shoot.
- ✓ Keeping the marker on "safe" until ready to shoot.
- ✓ Keeping the barrel sock in the marker's nozzle when not shooting.
- ✓ Always removing gas source before disassembly.
- ✓ Storing the marker unloaded and depressurized in a locked place.
- ✓ Following warnings listed on the gas source for handling and storage.
- ✓ Not shooting fragile objects, such as windows.
- ✓ Not shooting porous surfaces.
- ✓ Always wearing eye, face and ear protection designed specifically for paintball.
- ✓ Never shooting a person who is not wearing proper protection.
- ✓ Never shooting at velocities in excess of 90 metres (300 feet) per second.
- ✓ Accepting responsibility for my own safety in every game.
- ✓ Being environmentally conscious in every game.

Velocity Adjustment: -

Velocity is increased by increasing spring tension.

Velocity is decreased by decreasing spring tension.

To adjust the spring tension on the STP is simple, requiring no disassembly.

(Removal of the barrel will make adjustment easier)

Insert the long 3/32 Allen key into the front of the pump. (A small 3mm hole in the front of the pump) Turn this clockwise to reduce and anti-clockwise to increase velocity. 6.5 turns of adjustment are available, anything more than this being needed will require disassembly and mainspring changing.

To adjust velocity on the Bronze will require mainspring and/or exhaust valve change.

A spares kit is available consisting of 3 different tension mainsprings and 3 different exhaust valve springs.

Finer adjustments may be made by adding flat washers as spring packers.

CHANGING MAIN SPRING

Remove the Front Field Screw (42), disconnect the Pump Rod (9) from the bolt (7) found at the rear of the body.

Remove pump rod from the bolt and turn pump rod counter clockwise 90 degrees. Pull out bolt from the upper rear chamber.

This will ensure easy removal of the whole assembly.

Slide the pump (8), pump assembly together with the Pump Rod off of the barrel.

Remove main spring from inside the lower chamber. (The spring sits inside the hammer (17))

Replace the main spring with one that is slightly heavier in its compression. (Supplied with marker)

Reverse strip procedure.

At this point ensure that the bolt is synchronised with the pickup, you must pull the pump back to its stop position and look into the direct feed collar, the front of the bolt must have cleared the rear of the feed collar.

This position is set at the factory and should not need adjusting.

The Bottom Line, male to female 1/8th NPT elbow, hose and fastening screws. (10/32" x 1")





Now check your gun over a chronograph to measure the velocity. **IMPORTANT.** The **MAXIMUM** safe velocity is 300 feet per second. It is illegal to exceed this velocity.
Changing exhaust valve.

IMPORTANT NOTE: You must remove the power source, and cycle action or serious injury may occur.

Remove the Rear Field Screw (44). Pull the valve body (25) out from the lower chamber, bottom line(28) and hose assembly(26) will need to detached from grip frame(36) to make this more convenient.
Unscrew the brass valve guide positioned at the front of the Valve body using some wooden dowling to prevent damage, inside you will find an exhaust valve and spring. Ensure the sealing surface of the exhaust valve is clean and free from any grit or swarf, also check the valve assembly is still firmly attached to the shaft.

Now check your gun over a chronograph to measure the velocity. **IMPORTANT.** The **MAXIMUM** safe velocity is 300 feet per second. It is illegal to exceed this velocity.

Servicing

All repairs and adjustments must carried out by a fully competent person. If you are unsure return marker to the factory to have work carried out.
Ant damage resulting from attempts to do it yourself are not covered under warranty and may render the marker unsafe!

Your Sterling will require little more than cleaning and regular lubricating. However it is recommended to replace all the 'O' rings on the marker once a year as a preventative measure and ensure efficient function.
Always ensure your gun is clean and free from mud or dust. Lightly oiled internals will give you a more consistent velocity. We recommend Arrow-Precision Ltd's own brand, called STP LUBE, which has been formulated specially for Sterling's, and is available from your dealers.

To disassemble your Sterling for servicing you need to remove both front and rear knurled field screws. This will detach the grip frame from the body.
The valve body may now be removed from the main body.

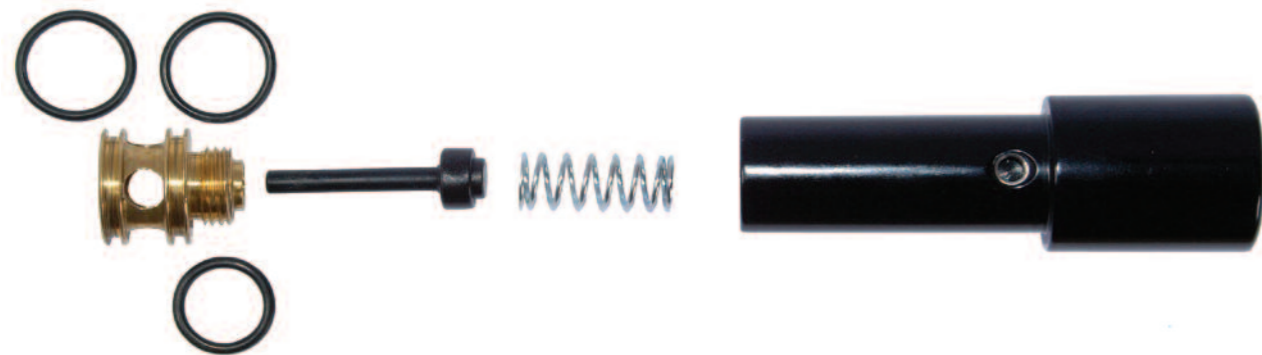
Disconnect pump rod from the bolt by flexing the rod out of bolt, slide pump over the barrel, complete with pickup and pickup guide assembly.

Remove bolt from body, slide out hammer and spring from bodies lower chamber.
You have now disassembled your gun into its main sub-assemblies.

Servicing of the sub-assemblies:

- A. **Pump and Assembly**
Pump Assembly requires only cleaning and light oiling.
- B. **Valve body and valve, (with hose and grip on STP)**
Valve body has the valve guide and exhaust valve with valve spring internally unscrew, valve guide to reveal exhaust valve and spring, check exhaust valve and remove any debris which may have embedded itself on the seal face.
If you continue to get a leak of gas through the barrel you may have to replace the exhaust valve.
- C. **Body and barrel**
Body and barrel, clean out and lightly oil both upper and lower chambers.
- D. **Bolt**
Bolt, check 'O' rings clean and lightly oil, spare 'O' rings for bolt available in Sterling service kit.

The valve body disassembled, showing the valve guide with 'O' rings removed, the valve itself and the valve return spring.



45 Aluminium Grip Frame. Spacer bar has been removed to show trigger set screw.



E. Hammer and main spring

Hammer, ensure SEAR has free movement, clean with solvent and lightly lubricate with oil.

F. Grip assembly with spacer bar

Grip assembly requires only a few drops of oil introduced around SEAR. The spacer bar which is mounted on the top of grip frame has a seal, this is called the space bar O-ring (32) ensure this is in place if not a spare is included in the service kit

G. Barrel

Inspect the barrel and remove any nicks or burrs that may have occurred during use, paying particular attention to the muzzle. As this is the most likely place for damage to occur and has the greatest effect on ball breakages. Use fine emery paper to remove damage and polish afterwards, this will remove anodised finish, so small areas can be re-touched with a permanent black marker pen, anything larger will require re-anodising of the part.

Always make sure your barrel is clean, remove any gelatine and paint residue with a damp swab or cottontail pull through. To remove barrel, turn counter clockwise and pull out from body of gun.

If you have just serviced your gun and have oiled the internals, fire off 6 shots without paintballs. This will introduce oil into the barrel. This must be cleaned out otherwise your accuracy will suffer. Silicone oil may be used internally on the barrel, however is not recommended for gun lubrication.

The barrel may be cleaned without the need to remove it from the body, this is achieved by removing bolt rod from the bolt and turn bolt rod counter clockwise 90 degrees. Pull out bolt from the upper rear chamber.

Insert pull through or cleaning rod through rear body upper chamber and clean body and barrel simultaneously. Alternatively a stick squeegee may be used.

Re-assemble the gun in the reverse of the procedure described above then dry fire the gun five six times to blast through any excess lubricant

The velocity adjuster is located with the hammer and is adjustable through the hole in the pump, using long reach allen key provided. Adjustment may be made without disassembling the gun.



The valve body assembly.





The bolt and O rings.



The pump, cocking arm with pickup, hammer and pickup guide assembly.



Trouble Shooting.

If you suspect anything is wrong with your Sterling, stop using it straight away! Remove paintballs, de-gas and perform an inspection. If you have any doubts return your Sterling to Arrow-Precision Ltd.

SYMPTOM	REMEDY
Gas leaking down Barrel. Can hear gas escaping/hissing.	Check exhaust valve and spring for damage, check valve seating for damage, replace as necessary.
Gas blowing out of feed stub.	Timing incorrect-rest timing: return to Arrow-Precision.
Gas leaking from top of Grip Frame.	The space bar O ring has failed and needs replacing.
Sudden drop in velocity.	Check tank pressure. If shooting in cold weather could be freeze down, so warm up tank. Damaged valve-replace Weak or damaged mainspring-replace. Damaged 'o' rings-replace.
Paintballs getting frequently chopped.	Timing incorrect-Cocking arm needs re-timing.
Feed stub loose or damaged.	Replace-return to Arrow-Precision.
Can't cock marker.	Pickup has loosened-Return to Arrow-Precision No gas pressure- try gassing up to see if the problem is resolved.
Can't tighten knurled field screws.	Threads have stripped-Replace helicoil or replace part.
Keep finding red welts and paint marks on body.	Get better!
Rattling sound from marker	Cocking arm loose/worn-replace. Pickup has become detached-return to Arrow-Precision.



Assembly and Disassembly

The Sterling Bronze.

Remove barrel, undo trigger frame screws so that pump assembly, valve body and bolt can be removed.



The pump, cocking arm with pickup, hammer and pickup guide assembly.



STP body is fitted with ball retainer spring.



The bolt and O rings.





Cocking arm disassembled.



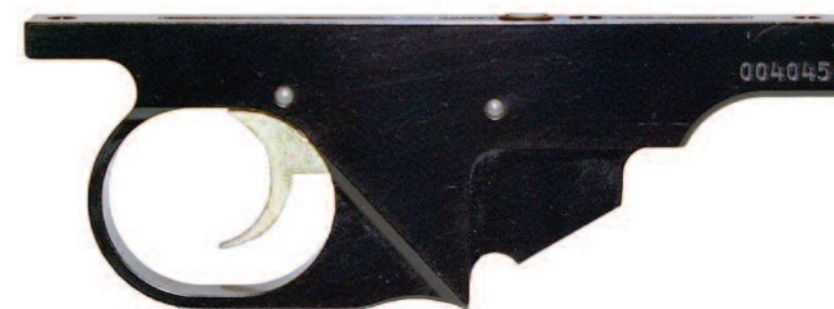
The barrel.



Velocity adjustment washers.

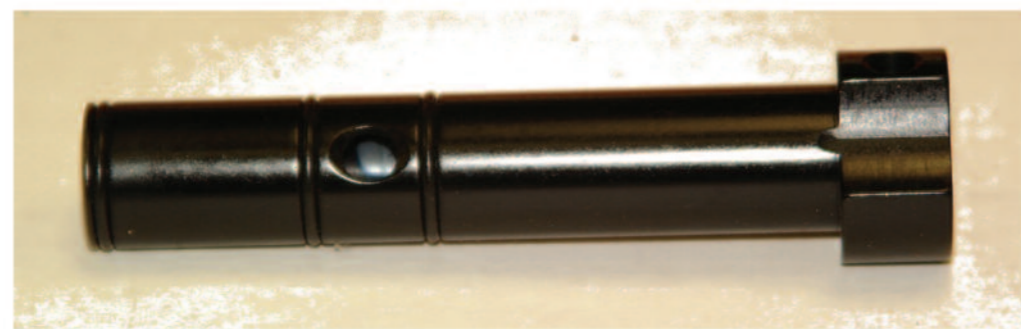
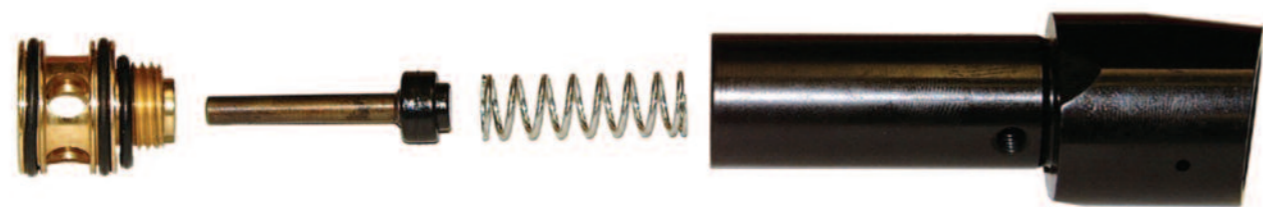


Trigger frame with grip removed.





Donkey body assembly.



Body and feed stub.

