Rifle Maintenance and Cleaning.

Rifle maintenance and cleanliness is a vital part of small bore shooting. There is no point investing all your money and time in a rifle if you don't keep it mechanically sound and keep your gear clean. Every shooter has their own theories/ methods on how a rifle should be cleaned, so this is written only as a guide and hopefully may include something you have overlooked.

Club rifles:

Just because you use a club rifle doesn't mean that you shouldn't keep it clean!!!!!! You will benefit just as much as others will and also learn how to keep them clean.

What you need:

To do the job you need the gear, all the usual stuff e.g. cleaning rod in good condition, rod guide (for Anschutz), jag (not bent), good quality bronze brushes, patches, oil, grease (fine molybdenum or similar), dental tool or similar for getting into the tight spots, toothbrush, allen keys and screwdrivers to suit your rifle, torque wrench or access to one and lastly something sturdy to put it all in. Make sure that the tools you have are relevant to the rifle you are using and accessible to you when you are shooting. Always carry the essentials with you onto the mound so you can fine tune hand stop and butt-plate position if the need arises.

Where to start: The barrel:

The dirtiest part and probably the hardest to clean. Can be prone to "leading up" if not cleaned regularly. Using Hoppe's, Shooters Choice or any good quality cleaning fluid, run the bronze brush through at least 10 times right through, don't stop half way and / or pull it back. Then use clean dry patches and remove the cleaning fluid, and with it all the residue etc. If the patches won't come clean, repeat the process. A product available called JB's Cleaning Compound, won't harm your barrel and really seems to clean them out well, if you use it make sure you follow the manufacturers instructions. You won't need to use this product very often. Most importantly, if you have a sneaking suspicion that there is something wrong with your barrel, e.g. not grouping or throwing wild shots get it checked by a gunsmith or someone with a bore-scope and who knows what to look for, There's no point wasting money on good ammo if your rifle won't put it in the middle !!!!!

Chamber / ejector slots:

After you've run the brush with fluid on it through the barrel, but before you clean it out with patches, you should give the chamber a good scrub with a toothbrush or similar, and a little cleaning fluid. Use a fine tipped instrument and clean out the ejector slots. These slots always fill up with wax and rubbish after a few rounds. Don't poke anything sharp down the barrel that may have the potential to damage it. While cleaning the chamber check this area for evidence of wear or firing pin damage.

Loading plate:
This should be removed after cleaning the barrel as fluid builds up under the plate causing it to float. To remove the plate undo the *king screws and remove the barreled action from the stock, being careful not to damage the trigger mechanism in the process. Then undo the butterfly clip or screw and push the retainer up and remove, then slide the plate back towards the trigger and turn the barrel upside down allowing the plate to drop into your hand. Wipe both the plate and the action clean, and dry and return the plate to its bed and replace the retainer and butterfly clip or screw.
*Note: Make sure you know what your rifle is torqued down to before removing the king screws and record the settings in your diary

Crown:
Yes, the end the bullet goes out!! This should be wiped clean after every day's shooting and after every cleaning to remove any residue that builds up.

Action:
Requires a clean and a wipe with a slightly oily rag and, as with all the parts, keep an eye on all parts for wear or damage. Keep the area where the action contacts with the bedding free of oil. The locking lugs can be smeared with a little grease to enable smoother closing of the bolt.

Trigger:
The triggers rate right up there with the barrel when it comes to maintenance and yet are probably the most neglected part of a target rifle. Triggers should be removed and cleaned at least once a year, or more to remove powder residue and rubbish which works its way into the mechanism. Shooters again have differing views on how they should be cleaned.
Lubrication is the most important thing. Remove the trigger from the action (ensuring that you don't lose any parts) and place in an ice cream container (or similar) with either White spirits with a few drops of oil in it (Fuelite, Shellite, Pegasol AA, it goes by many names) or a 70% petrol / 30% oil mix. These solutions will clean and lubricate and leave a light film of oil on the trigger. Carefully give the trigger a swirl round in the container, this will remove any foreign bodies from the mechanism. Lift the trigger out and leave to drip dry on a rag. When dry, use a fine tipped instrument and a fine good quality grease (molybdenum or similar) to lubricate the sears in the trigger. Screw it back onto the rifle ensuring that it goes back in the same place. (sliding it back or forward on the mounting screws can alter the trigger sear release point so you may wish to mark the action before you remove it). Also check your trigger for "creep". This is when the trigger response may be slow due to wear, damage or age, allowing the trigger blade to travel before releasing, causing inconsistencies in shot release.

Bolt:
The bolt should be stripped and cleaned at least once a season. Remove the bolt from the rifle, lay out a cloth and unscrew the bolt cap, then remove rest of the parts and lay them out in the order in which you removed them. Clean each part with an oily rag and the bolt face and ejectors with a toothbrush. Check the bolt face and firing-pin tip for wear or damage.
Reassemble the bolt in reverse order. The bolt should be stored in a discharged state. This removes the tension on the firing pin spring and thus prolongs its life. This spring will compress up to 10mm over time and should be replaced every couple of years and, at a cost of around $6, it's well worth the money.

King screws / Bedding:
The King screws should be, in this day and age, allen type screws so the barrel can be evenly torqued down. The thread should be in good condition and turn a minimum of six turns into the action when torqued down. Take care not to cross-thread the screws when tightening them. The king screw holes in the stock should be big enough that the screws don't bind in the holes when fitted and the barrel is centred in the stock before tightening.
If your bolt is hard to shut, check that the rear king-screw isn't protruding through the action and binding when the bolt is pushed shut. Similarly the front screw shouldn't bottom out in the front screw hole in the action. If this is happening, it maybe that the bedding, or the wood around the screw hole has collapsed. If this is the case, don't grind or cut the thread off the screw, or eventually you'll end up with nothing left !!!!. Get the rifle bedded or alloy blocked, whatever the case may be. Speak to a gunsmith if you want some advice.

Torquing the barrel:
Besides firmly holding your barrel in the stock, barrels can be torqued to tune your rifle to the brand and grade of ammunition you are using. there-fore improving the accuracy of your rifle. With such a great range of ammunition currently available these days, and the poor performance that some of it gives, it's well worthwhile trying a few different brands and batches to see what performs the best through your barrel. Top grade ammo may be expensive, but, if you want to shoot consistently competitive scores, then using top grade ammo is a must. You should also be aware that just because your mates rifle doesn't perform well with a certain brand or batch, this doesn't mean that your rifle won't !!!!

Barrel exterior:
Keep the exterior clean and use a light oil or similar protectant and give it a coat reasonably regularly. Keep a small bag of moisture absorbent material hanging in your secure lockup, as this helps absorb rust causing moisture, Note - FWB's have a special coating on their barrels so they aren't supposed to rust, but it doesn’t hurt to give them a wipe with an oily rag.

Rear/front sights / adjustable irises / colour filters:

Keep them dust and moisture free and lubricated where they need it. If you have a fault with them, get someone with the correct gear to check them out. They are too precise and expensive to risk damaging. Rear sights can be washed in white spirits and then lubricated with a good quality oil. REMOVE ALL IRISES, PLASTIC KNOBS, FILTERS ETC BEFORE YOU WASH THE SIGHT AS THEY DON'T REACT WELL TO SOLVENTS !!!!!!! It must be remembered that once set-up, most shooters will only move their sights 2 or 3 clicks in either direction during the course of a season, so the most wear will occur on the threads in this region. It is therefore important to get your sights checked using a micrometer or dial gauge to make sure that they are adjusting in even increments.

[This information has been primarily written for cleaning Anschutz rifle and some methods of assembly and cleaning may differ on other rifles!]

Keeping your case clean:

At least once a season your rifle case should be cleaned out and vacuum cleaned to remove grit and dust that builds up over the busy shooting season, it is this material that works is way into the sights, trigger etc and causes wear and reliability problems with your rifle. Cases lined with some types of packaging foam can pose a problem with the foam deteriorating, breaking down and clogging up sight and triggers etc. Cases should be built of good sturdy materials and well maintained providing a safe secure home for your expensive equipment.

Slings:

Make sure your sling is of good quality and in a good condition. Old leather slings stretch and move during the course of a shoot, and should be replaced with a new one. New synthetic slings are the best and both Anschutz and Kurt Thune are readily available.

Ammunition:

The basic idea is pick the best quality or affordable Ammo or Pellets as the case may be. Clean your gear. If you have access to a bench test rig, and or vice use it. Correctly set up your rifle, asking the help of an experienced shooter to assist you if necessary. Begin by firing a ten shot group into the back of a target with a torque of around 3Nm and record the details of the ammo and torque settings. Then start increasing the torque settings upwards until you get the tightest diameter group (recording the details of each group as you go.) Do this with as many batches and/or brands you have access to, cleaning your barrel between changing batches and manufacturers and select your next competition winning ammo. Remember that ammo should be stored in a safe, secure, warm dry environment so it does not deteriorate.

Be aware that Torque wrenches are not designed as a ratchet, don't undo screws with it or you may risk damage to it.