

Thank you for your purchase of the TUNE PRO X barrel tuner specially developed for rimfire rifles. This custom precision product will enable you to optimise your barrel harmonics to your chosen ammunition and enable you to get to best accuracy from your shooting platform.

The TUNE PRO X is designed to not involve any gunsmithing or alteration to your barrel – it is a simple clamp on system that does not extend your barrel length and it does not have to be removed once installed for cleaning and it leaves free access to clean your muzzle and remove any moderator or any other devices fitted to a threaded barrel end without disturbing the tuner position. Your tuner would have been custom sized to your personal rifle barrel profile.

There are 2 models available.

1. TUNE PRO X version A1 - All brass clamp body and brass tuner weight.
2. TUNE PRO X version A2 - All Aluminium body and brass tuner weight.

All models clamp in an identical fashion and the centre line on the tuner clamp body must be aligned with the top centre of the barrel – please note the function of the tuner will not be affected by any off-centre orientation of the mounting as long as it is not moved after tuning the barrel.

The above centre line mounting is purely for practical reasons to be able to see setting position easily – the transverse lines on the tuner body is the top dead centre of the tuner clamp body as seen in the picture below.

Installation:

1. Remove front sight mount if there is a mount - ensure no raised edges around existing threaded holes.
2. The tuner is 70mm long – lubricate mount area of barrel with pure silicone or anti seize of choice to prevent corrosion or seizure of tuner to barrel – just a very thin application is required.
Try the tuner for size by sliding it on the wrong way round initially – solid side first – this ensures that the clamp side that may have opened slightly it slides over and the tuner then comes to a stop against the solid part of the tuner mount body.
If it does not slide on do not attempt to force it on – re measure and see what the issue is and ask for advice – it may just need a slight polish with water paper and a dowel to slide on - if there is a large discrepancy please contact us for further advice
3. Once size check is complete slide the tuner onto barrel and align the tuner vertically with the centre of the barrel and the end flush with the end of your barrel or where your personal preference suits – i.e., clear of a threaded section -

4. Tighten the clamp screws to a maximum 3 Nm torque – this spec is purely to prevent over tightening and damaging the threads of the tuner clamp body.
5. Set your tuner weight to the zero position – tuner weight bevelled front end flush with tuner clamp body and zero mark on the weight aligned with centre line on Tuner body.
6. You are now ready to start tuning.

Tuning process:

1. For best clear results tuning to be done at 40 to 50 meter range – this accentuates group sizes and shooter error and environmental conditions do not give false indications – needless to say choosing minimum wind conditions or indoor range is preferred – place rifle on solid rifle front rest and rear bag to maximize stability and accuracy potential.
The tuning can be done at 25m range quite effectively – the group variances are just smaller but still clear to see.

Please note any fittings added after or removed after tuning may affect your barrel harmonics – so muzzle breaks, moderators thread protection caps or sights must be fitted or removed as you prefer to have your shooting platform be configured in the tuned state.

You need target with multiple aim points – simple blank paper with a block pattern drawn on it will suffice if shooting scoped rifle – it can be pre marked at each aim point with the tuner settings.

The tuner has 20 lines around the weight body – 10 numbered and 10 in between the numbers - each line represents a .002" linear movement of the tuner weight – .004" per numbered line.

1. Ensure barrel thoroughly clean.
2. Fire 3 – 6 froulers then zero rifle.
3. Once rifle is zero'd fire 3 shot grouping at zero setting – note elevation on target and group size.

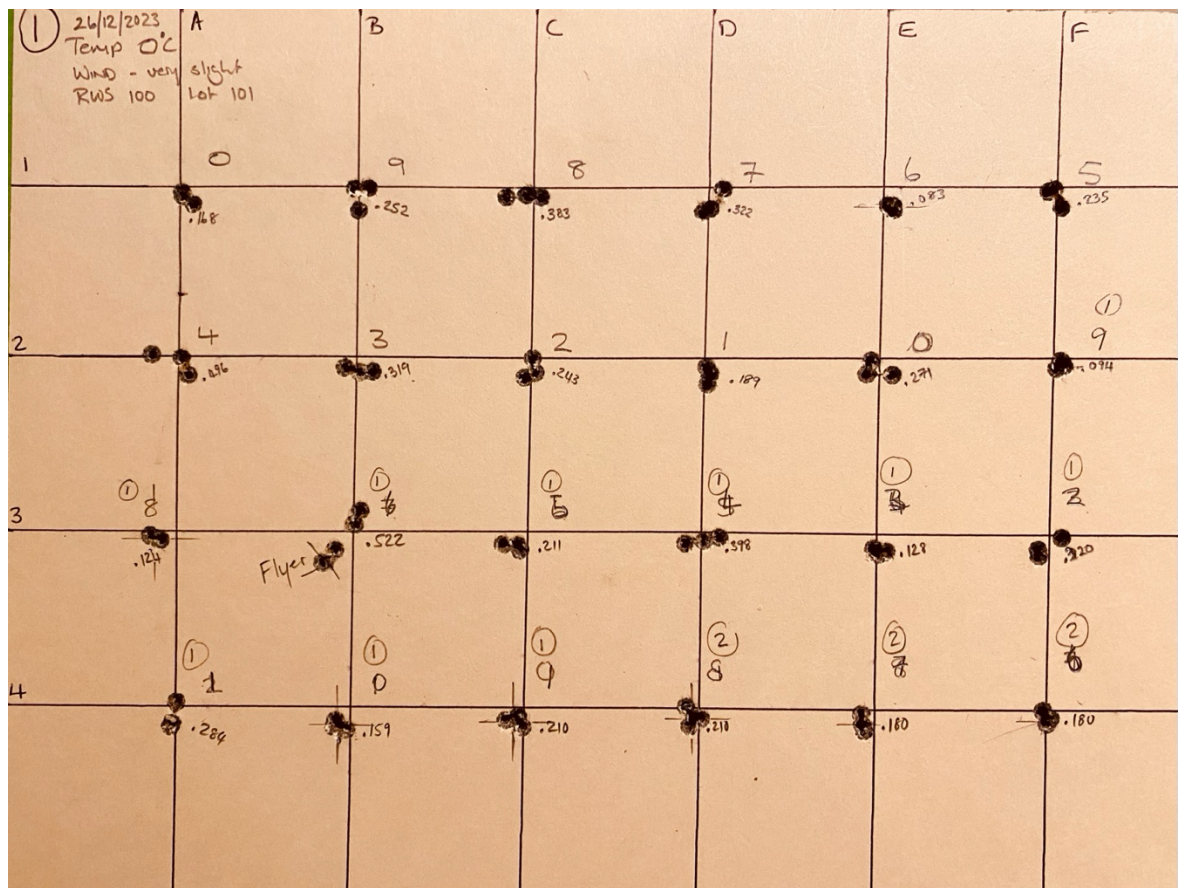
It is better if zero is not causing groupings to obscure point of aim so that constant point of aim can be maintained.

4. Turn tuner from 0 to position number 1 and repeat 3 shot group on new aimpoint – note elevation on target and group size – you have moved the weight by .004"
Each mark on the tuner represents .002" of movement each number .004" of movement.
A full rotation would represent .040" of movement.

The zero mark on the tuner is when the number "0" on the tuner weight is level with the longest line of the 5 transverse lines on the tuner body – Please see photo below to clarify. The longest mark is the most outward position of the tuner weight - as you turn the tuner weight clockwise inwards each full revolution will take you to the next transverse shorter mark – to see how many rotations you have done simply count the number of marks showing i.e. – if 3 showing you have done 2 full rotations.



5. Repeat the process in 1 number increments until the smallest group is achieved and then starts getting larger again – fine tune back in smaller increments until the sweet spot is found – the tuner can be moved in .001" increments with ease and repeatability.
Do not be tempted in moving tuner in large full turn increments – the .004" changes by turning the tuner one number value will produce dramatic changes in group sizes vertically and horizontally – you will miss multiple sweet spots by using large increments of turns.
The optimum is to find a sweet spot where there are similar smallest group sizes over an area of 3 – 6 positions – i.e. setting 2 to 8 – the centre of that will give you a large window of optimum accuracy – avoid small windows of one position or less change – a larger window gives you a more generous window of optimum accuracy.
5. Remember environmental conditions affect your ammunition and thus the tune of your barrel – take note of settings at different atmospheric conditions to be able to easily predict best tune settings for different environmental conditions.
7. In the tuning process keep your point of aim the same and note the elevation shift of your groupings – in testing it has been found that the groupings starting to trend higher than the previous fired group starts opening up and the best results were observed as the groupings shifted to the lower position to a mid-point position – this trend will become very clear as you go through the tuning process.
8. Below is a example of a tuning target note the position shift of the groupings and how the groupings decrease in size as the barrel gets tuned – this was at 50m. The process would continue for another full rotation at least to find a good size window – in this the group sizes already decreased from 0.281" average to .083" @ 50m just in the start of the tuning process.
The number on the target mirrors the numbers on the tuner as it is rotated clockwise.



Tuner mounted flush with Muzzle



Ammunition choice when tuning and competing

Choosing the correct ammunition for your shooting is critical to success – every rifle has preferences, but it is hugely beneficial if you can chronograph the ammunition to be used in your tuning and shooting to ensure it has the lowest SD possible – we have found that an SD of more than 10 Feet per second will give you less than ideal results – it is also clear that even premium manufacturers have batches that give unacceptable results so buying a premium brand does not guarantee consistent ammunition – it is more likely but not a given.

The best way for instance if your barrel prefers Eley to SK is to go with Eley and then find the most consistent batch with the lowest SD – preferably 5 F/sec and below and then tune your barrel to that.

We have had great results with RWS and Lapua products, but we have to stress that there is always batches that give unacceptable results and that can lead to great frustration when you get unexplained flyers.

If possible, chronograph during tuning as it will instantly show if an out or ordinary result was the result of a velocity spike up or down and it can be ignored.

High velocity ammunition have been found to be more inconsistent and have higher SD values – this will give elevation spikes in group sizes and has to be carefully considered with regard to the less time of flight as opposed to smaller group sizes.

Care of your Tuner:

1. Your tuner has been internally pre-lubed with marine grease to protect the very fine threads.
2. The O ring has been pre-lubed with silicone grease to protect it and ensure long service life.
3. The clamp screws are pre-lubed to avoid seizure.
4. Do not exceed the recommended torque spec of the clamp screws.
5. There is no need to take the tuner apart after shooting as ingress of dirt is prevented by the design – if it is taken apart lubricate as above and take extreme care not to damage the threads – this is a precision machined instrument.
6. Should you wish to replace lubricants or clean the inside of tuner carefully disassemble remove O ring and clean with solvent - dry, relubricate and assemble again - taking care to not damage O ring and threads – you would have received a spare O ring with your tuner should you damage or wear out the fitted one inside your tuner.
7. Should it get a scratch just buff with metal polish or scotch-Brite pad.