



HW77/97

7.5 Joules / 12 ft lbs (16.2 Joules) / High Power

Tuning Kit Fitting Instructions

Contents

Your tuning kit contains those items marked with a tick ✓:-

✓ Fitting Instructions	✓ Guide Set	Piston Seal Fitting Tool	✓ Grease
✓ Spring	✓ Piston Sleeve	✓ Black Delrin Spacer	✓ Oil
✓ Seal	Breech Seal ¹	✓ Pre-Load Washers	

Note: ¹ Optional Extra

Disclaimer

Thank you for purchasing one of our specialised tuning kits. The components supplied are of the same high quality as those fitted to our tuned and custom rifles. Whilst every effort is made to ensure optimum performance is achieved when fitted, it is possible, due to manufacturers' tolerances, internal finish and possible action faults, that power levels and cocking and firing cycles will vary.

The tuning kit supplied is assembled and balanced to generate within the power level indicated on the reverse of the packaging. The power level options available are now 7.5 joules, 12 ft lbs (16.2 joules) and high power. It is the purchaser's responsibility to ensure that the rifle is operating within the power limits allowed by law for the relevant country. Power limits vary significantly from country to country.

Tuning kits are dedicated to each specified rifle's make, model, calibre and power level.

Tuning kits nominated for the 7.5 joules models are invariably dedicated to 0.177 calibre only.

High powered tuning kits, or FAC as they are sometimes listed, are restricted to the following:-

- countries allowing higher power levels than 12 ft lbs (16.2 joules). It is your responsibility to check this limit.
- countries with no power limits
- licensed holders, who are granted permission by the relevant authorities to own high powered air weapons under restricted conditions.

Other than the high power option, the tuning kits are designed to operate safely within their intended limit when assembled as directed. Pre-compression washers and a nylon spring guide spacer are supplied to adjust the power level, if required. It is not advisable, or necessarily beneficial, to add all pre-compression washers and spacers on initial assembly. This practice will not always equate to higher power levels, and can upset the balance and overall performance of the tuning kit.

We strongly advise that, after fitting, the rifle should be chronographed to ensure that it is operating safely within the relevant power limits allowed by law.

Use the oil and grease supplied very sparingly and never in front of the piston seal. Damage caused by incorrect or excessive lubrication cannot be deemed as our responsibility.

We recommend that, if possible, tuning kits should be fitted by a competent gunsmith. We do not accept any responsibility for personal injury or rifle damage incurred whilst fitting any of our kits or components.

If you experience any difficulties in fitting the kit, please contact us.

Pre-Fitting Checks

- Please read the fitting instructions and disclaimer thoroughly.
- Ensure that you have the correct kit and that it is nominated in the correct calibre for your rifle.
- **Note for HW77/97s:**
 - In addition to the description on the packaging, check that the piston seal is of the correct size for your rifle. The early HW77/97 models, with a 25mm chamber and with a serial number of 1446048 and under, require a small piston seal. The seal is marked "S" on the inside face.
 - The later HW77/97 models with a serial number of 1446049 and over have a 26mm chamber and require a bigger piston seal. The seal is marked "B" on the inside face.

Fitting

- 1 Check that the rifle is uncocked and unloaded.
- 2 Remove the stock screws (trigger guard and forend) and lift off stock.
- 3 Remove the large bolt forward of the trigger unit (this applies to later model 77 and 97 only).
- 4 Tap out the trigger retaining pins, front and rear, and remove trigger unit, safety catch and spring.
- 5 To unscrew trigger block (which is usually very firm) insert a steel or brass block into the trigger housing slot and strike sharply anti-clockwise with a small/medium hammer. Once the trigger block is hand tight, continue to unscrew and remove with the aid of a spring compressor.
- 6 Tap out the pivot pin near the breech and remove cocking lever complete with linkage and lift off anti-bear trap.
- 7 Remove all internal components and degrease piston and compression chamber thoroughly and dry.
- 8 Prise off the piston seal and replace with the seal supplied.
- 9 Fit the piston sleeve supplied with the open section opposite to the slot in the piston.
- 10 Lightly apply grease to the piston slot and very sparingly to the piston body. A barely visible coat of grease should be applied to the outside of the seal only, ensuring no grease is on the front of the seal face.

- 11 Assemble the piston back into the compression chamber ensuring that no damage occurs when passing through the slotted section of the chamber.
- 12 Lightly apply grease to the outside of the compression chamber and the inside of the main body and refit to the action.
- 13 Reassemble cocking lever, linkage and anti-bear trap.
- 14 Add 2 pre-compression washers to the inside of the piston.
- 15 With the compression chamber/piston assembly in the fully forward position, apply the grease supplied behind the assembled units into the main body of the action. This can be applied quite liberally.
- 16 Lightly coat the outside of the mainspring (guides x 2 already fitted and lubricated) and reassemble the rifle completely. When refitting the large bolt retaining the anti-bear trap mechanism, ensure that you do so without causing damage to the anti-bear trap itself.
- 17 Test fire: Should you encounter any difficulties or have any questions regarding the fitting of this kit, we are happy to advise.
- 18 The rifle should be chronographed using a selection of quality pellets, of a known weight, to ensure that it does not exceed the applicable legal muzzle energy limit.
- 19 The nylon spacer supplied is designed to locate over the guide tube to add additional pre-compression if required to increase performance. The additional washers are designed to go inside the piston for the same reason. Do not add the spacer or additional washers until the rifle has been chronographed.

Fault Finding

The single most common area for a tolerance discrepancy, which can effect performance, lies with the fit of the replacement seal on the piston and the corresponding fit inside the compression chamber.

The factory piston can vary in size and these tolerances can sometimes influence the correct fit of the seal. The piston seal should fit the piston without being excessively tight, bulging or failing to locate into the groove. This applies to the mushroom shaped piston found on the HW range. The seal should turn freely with a little friction only. A small amount of movement is not cause for concern if you have a slightly undersized piston, it will still be a far better fit than the factory seal on the factory piston. Note: The fit of the seal in the Air Arms, BSA, Diana and Webley kit is much tighter and this is how the seal is designed to fit

Piston Depth

Ensure that there are no washers, spacers or guide tubes (top hats) already located in the piston. It is easy to overlook the fact that the rifle may not be standard and could already have been modified in some way. Any of the above located in the piston can prevent the rifle from cocking and greatly increase the preload of the mainspring and should be removed prior to the fitting of the kit.

PLEASE NOTE: Oil supplied is for external use only – eg pivot pins and safety catch. Do not insert oil into the rifle's barrel or compression chamber as "dieseling " will occur, which in turn will damage the piston seal and possibly the mainspring.

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