**SETTING THE POWER**

These calculations are approximate, based on the most accurate pellet not the most powerful.

Formula to convert feet per second to foot pounds energy

\[
\text{FPS} \times \text{FPS} \times \text{Grms} = \text{Muzzle Energy}
\]

**WARNING** - Changing the rifle from the manufacturers setting could take the rifle over the legal limit. This is an offence and could result in rifle confiscation or prosecution.

<table>
<thead>
<tr>
<th>Calibre</th>
<th>Power</th>
<th>Pellet</th>
<th>Weight (grms)</th>
<th>FPS</th>
<th>Shots Based on a 400cc bottle</th>
<th>Full Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900psi</td>
<td>.177</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>7.9</td>
<td>825</td>
</tr>
<tr>
<td>1900psi</td>
<td>.177</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>7.9</td>
<td>825</td>
</tr>
<tr>
<td>2500psi</td>
<td>.20</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>3000psi</td>
<td>.20</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>2500psi</td>
<td>.22</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>3000psi</td>
<td>.22</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>3200psi</td>
<td>.25</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>3200psi</td>
<td>.25</td>
<td>12 fps</td>
<td>FAC</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>1700psi</td>
<td>Elan</td>
<td>22</td>
<td>12 fps</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
<tr>
<td>1700psi</td>
<td>Elan</td>
<td>22</td>
<td>12 fps</td>
<td>Crossman Premier</td>
<td>14.3</td>
<td>610</td>
</tr>
</tbody>
</table>
Black Acetal Valves are fitted in all current Rapids and over 90% produced since January 1998. Although service kits and replacement o-rings for the original Metal valve will be available for some time after this. Rifles built originally with metal valves are able to have the new style black valves fitted. These valves are easier to service and are more resistant to the type of damage that can cause failure. If your rifle needs servicing and you have never done it before, we recommend that you fit the new black valve even if your rifle is currently fitted with a metal valve. Please Note; Elans,12ft/lbs and FAC Rapids are fitted with different size valves. When ordering please quote rifle type. Elan Service Kit is also available.

Please specify the type of kit you require and for which type of Rapid.

Rapid Trouble Shooting

Power failure
1. Buddy bottle not charged correctly i.e. overfilled or underfilled.
2. BS111 N90 o-ring on bottle neck must be greased (Molykote 33) and at all times protected from dirt. Even a hair across an o-ring will cause leakage.
3. Metal valve main seal damaged (Theoben 088). This can happen if dirt is allowed into the charging system from bottles or via inlet adaptor on rifle. Seal will need replacing.
4. Black valve face damaged. May need replacing.
5. It is unlikely but possible that other o-rings in rifle assembly could fail. These can be changed using replacements from the service kit.

Low power
1. Rear cap (item 7B) needs turning clockwise to increase hammer spring pressure, thus increasing power. (Always use a chronograph).
2. Buddy bottles either over or under pressure.
3. Hammer and floating inertia not assembled correctly. (See diagram overleaf).
4. Oil in/on the hammer. It should run dry of lubricant.

Change rifle scope
1. Dirty or leaded up barrel, See cleaning the barrel
2. Wrong calibre silencer fitted
3. Metal valve main seal damaged (Theoben 088). This can happen if dirt is allowed into the charging system from bottles or via inlet adaptor on rifle. Seal will need replacing.
4. Black valve face damaged. May need replacing.
5. It is unlikely but possible that other o-rings in rifle assembly could fail. These can be changed using replacements from the service kit.

Accuracy
1. Wrong calibre silencer fitted
2. Dirty or leaded up barrel. See cleaning the barrel
3. Change rifle scope
4. Not using the recommended pellets i.e.

<table>
<thead>
<tr>
<th>Magazine</th>
<th>.22 cal only</th>
<th>.22 cal only</th>
<th>.22 cal only</th>
<th>.22 cal only</th>
</tr>
</thead>
<tbody>
<tr>
<td>177</td>
<td>STD Crossman 7.8 grain</td>
<td>FAC Crossman 10.5 grain</td>
<td>FAC Crossman 10.5 grain</td>
<td>FAC Crossman 10.5 grain</td>
</tr>
<tr>
<td>20</td>
<td>STD Crossman 14.3 grain</td>
<td>FAC Crossman 14.3 grain</td>
<td>FAC Crossman 14.3 grain</td>
<td>FAC Crossman 14.3 grain</td>
</tr>
<tr>
<td>22</td>
<td>STD Crossman 14.3 grain</td>
<td>FAC Bisley Magnum 21 grain</td>
<td>FAC Crossman 14.3 grain</td>
<td>FAC Crossman 14.3 grain</td>
</tr>
<tr>
<td>25</td>
<td>FAC Bisley Superfield 24.5 grain</td>
<td>FAC &amp; N Ramport 27 grain</td>
<td>FAC Crossman 14.3 grain</td>
<td>FAC Crossman 14.3 grain</td>
</tr>
</tbody>
</table>

5. Oil in/on the hammer. It should run dry of lubricant.

Removing the barrel is achieved by unscrewing top grub screw (8b), located under front scope mount and barrel clamp assembly. Barrel must be relocated in the body precisely for smooth operation of magazine and correct lock down of the bolt.

Barrel Cleaning - Theoben supply barrel cleaning kits and spare Napier cloth. Kits come with instructions for use. We only recommend Napier cloth.

Trigger (sporter)
The only engagement adjustment is with the grub screw behind trigger pull. Turn outwards (anticlockwise) for more engagement. Test for safe operation by flicking off bolt from its back position. If set properly the trigger will hold the hammer back and prevent the rifle from firing off.

Safety catch failure can only be caused by pushing the catch foreword beyond its normal position. This bends the spring located on the trigger assembly. This can be rectified by straightening the spring so that it relocates in the safety catch notches. It is not necessary to completely remove the trigger to do this.

If the trigger is removed from the body (not advisable because the whole assembly flies apart) the trigger and must be built up using 5/8" long slave pin. The whole assembly is then lined up in the Rapid body and the 1" long pin pushed through, thereby pushing the slave pin out.

Diagram/instructions for both the field target & the sporter trigger are available from Theoben.

NOTE: TRIGGER SHOULD BE TESTED FOR SAFE OPERATION WITH THE BOTTLE AND THE MAGAZINE REMOVED.

Bolt (from January 2000)
This new design is easily adjusted to make a metal to metal seal between the probe and the barrel. This is factory set but over time and use the lockdown may ease. So using a 1/16 inch allen key adjust a 1/8 or 1/4 of a turn at a time - in for harder, out for easier. Adjustment is only required if a ‘puff’ of air is felt from the side of the magazine.

If your rifle is pre Jan 2000 and for whatever reason you purchase a new bolt assembly, you will also need to buy a new bolt handle, dog and dog screw. *

Bolt (pre January 2000)
This assembly is shimmed to achieve metal to metal seal between probe and barrel. Air blasting out from the side of the magazine is wasted air! Check barrel position. More usually a shim (crinkle washer) is needed behind probe assembly. Remove the bolt from the action, then remove circlip and all components. Place extra crinkle washer (.10") at the bottom of the blind hole. Reassemble. To remove bolt it is necessary to remove bolt handle and hammer assembly. Do not forget the square dog has to be removed from the underside of the bolt assembly. Make sure when this is refitted it is the correct way round.

Only use Theoben recommended lubricants. DO NOT USE silicone Oil/grease as it seriously impedes the correct operation of our rifles and accessories.

Rifles, Magazines and Bottles may be returned to the Factory for Servicing.

CONVERT YOUR RAPID TO FAC SPECIFICATION - except the Rapid Elan

If you have an Rapid in .20 or .22 calibre it can be converted at the factory to FAC for only £76 plus postage. This price does not include conversion to a 19 inch barrel, but using your existing 16 inch barrel. Some efficiency will be lost compared with the 19 inch barrel FAC version Rapid, but you can still expect about 26 ft/lbs for .20 calibre and 28 ft/lbs for .22 cal. However the benefit is a shorter, lighter rifle for easier use.

If you wish to convert your .177 cal a 19" barrel must be purchased. Exchange of your 16" barrel to 19" is only possible if the barrel is immaculate. If the barrel is damaged the cost is £105 for a new barrel.

We can also de-rate Rapids from FAC to under 12 ft/lbs. Please note that barrel size must be reduced to 16".

Metal Valve Service Kit

- Full Instructions
- Molykote 33 Grease (pack)
- Theoben 008 white seal 6F
- 111 o-ring (buddy bottle) 3G
- 015 o-ring 6B
- 013 o-ring 6H
- 1 Collet
- 1 Rod

O-Ring Kit

- Full Instructions
- Molykote 33 Grease (pack)
- Theoben 008 white seal 6F
- 111 o-ring (buddy bottle) 3G
- 015 o-ring 6B
- 013 o-ring 6H
- 1 Collet
- 1 Rod

-complete valve servicing and o-ring kits are available from theoben