

AT C 1010



Patented

Instruction Manual



# Contents

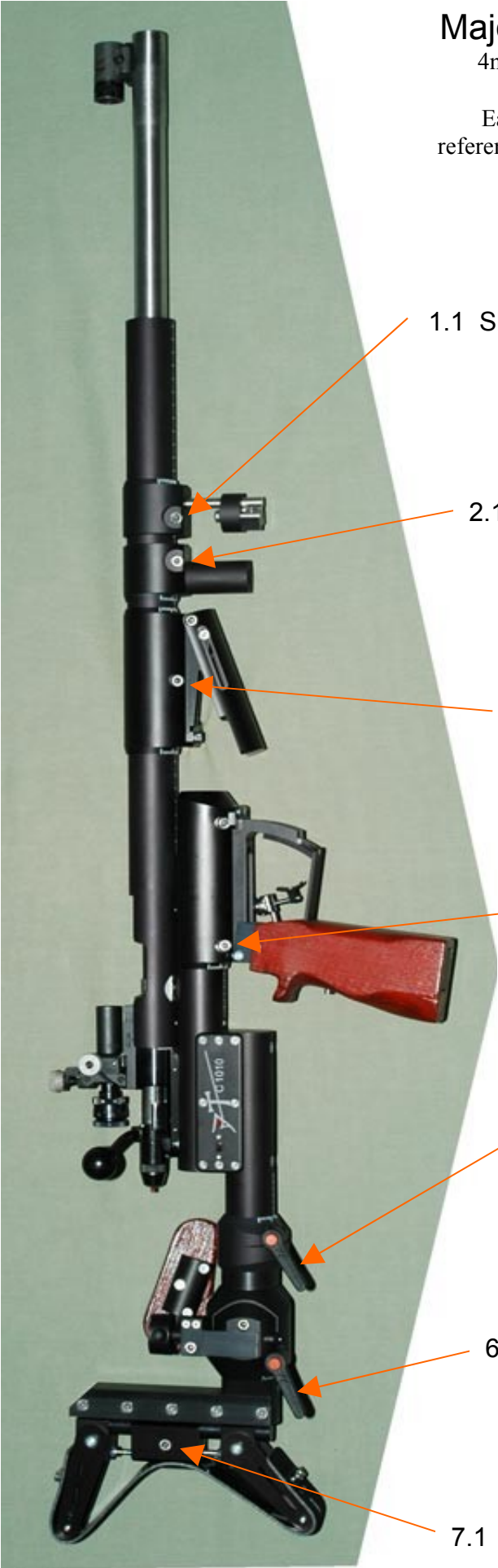
in suggested setup order

<b>GENERAL</b>	<b>3</b>
Adjustments/Terminology	3
Index Marks	3
Left/Right Handed - 3 Position	3
<b>BUTT LENGTH</b>	<b>4</b>
<b>BUTT ROTATION</b>	<b>4</b>
Barrel cleaning & removal of the rifle bolt	4
<b>BUTTPLATE</b>	<b>5</b>
<b>HANDSTOP</b>	<b>7</b>
<b>SLINGMOUNT</b>	<b>8</b>
<b>HANDREST</b>	<b>9</b>
<b>TRIGGER</b>	<b>11</b>
Operation	11
Weight	11
Travel	11
Trigger Shoe	12
Electronics	12
Dry Firing	12
Location	12
<b>PISTOLGRIP</b>	<b>13</b>
Removal of Pistolgrip	14
<b>CHEEKPIECE</b>	<b>15</b>
Height	15
Side-Side	15
Angle	15
<b>BREECH POSITION</b>	<b>16</b>
<b>CANT</b>	<b>16</b>
Warranty	16

# Major Adjustment Screws

4mm Allen Key or quick release.

Each screw has the same unique reference number throughout the manual.



1.1 Slingmount

2.1 Handstop

3.1 Handrest

4.1 Pistolgrip

5.1 Butt

6.1 Cheekpiece

7.1 Buttplate

## **General**

The FTC1010 rifle stock is designed to provide total control over the rifle, with a natural shooting position, thereby ensuring the most comfortable and stable hold. There is an infinite range of independent adjustment possibilities for each point of contact. The major benefits, relative to more traditional stocks, are an adjustable breech position and true cant adjustment. Details of the adjustments as well as a suggested initial setup position are provided for each adjustment.

### ***Adjustments/Terminology***

Each point of contact has a main support collar clamped with a single locking screw. This screw locks both movement along the barrel line and rotational movement. Either use a 4mm Allen key or the quick release to slacken/tighten this locking screw. Movement along the line of the barrel is considered a forward movement if it is towards the foresight and rearward if it is towards the butt. Rotational movement about the line of the barrel enables an optimum position for any degree of cant, hereafter referred to as cant rotation.

Additional adjustment is often provided on each of two further axes, horizontally and vertically at right angles to the barrel line. Similarly, there is usually only one locking screw for these axes. When viewing the rifle from the butt towards the foresight, movement along this horizontal axis is referred to as left and right. Rotation around this horizontal axis is referred to as rake. Similarly movement along this vertical axis is referred to as up and down, whilst rotation around this vertical axis is referred to as twist.

### ***Index Marks***

All main longitudinal index marks are spaced at 0.5cm with a half height intermediate to show the 0.25cm position, except for the tube around the barrel where the marks are spaced at 1.0cm with a half height intermediate to show the 0.5cm position. Every fifth main mark is numbered, starting from the muzzle end.

All rotation index marks are for six degrees of rotation, usually 10 either side of the central position with larger marks every fifth (or 30 degrees).

### ***Left/Right Handed - 3 Position***

Most of the components are universal for a left or right handed shooter. A different main tube and a different pistolgrip are required to convert from one to the other.

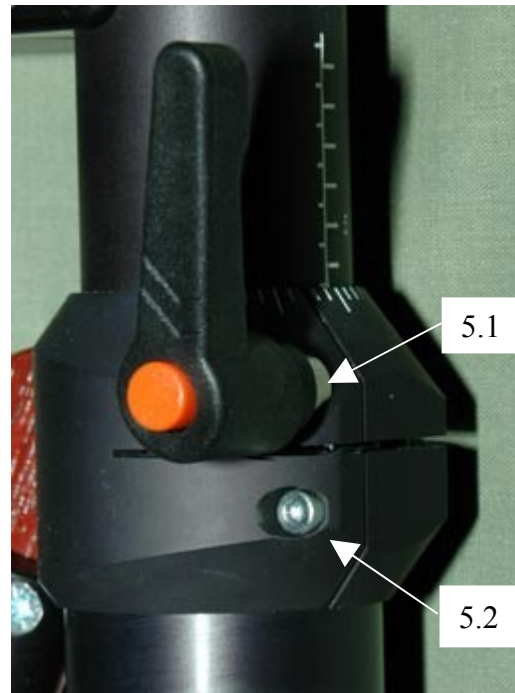
The rifle is supplied suitable for the prone or kneeling position, for standing an additional handrest is required either to fit to the supplied handstop or to the handrest.

The following description and pictures assume a right handed prone position. They cover each individual adjustment, with a suggested initial setup position. They are in an order for the initial set up of the rifle:

## Butt length

On the butt collar the front quick release screw 5.1 locks the butt length and cant rotation. The length index marks are numbered every fifth major mark (starting from the front). The last index mark is at 18, and this is the last one to be safely used. You should only extend the butt beyond 18 in order to remove it from the rifle.

Set the butt collar (with no rotation) so the buttplate fits in the crook of your firing arm elbow, whilst the tip of your trigger finger just reaches the breech face.



## Butt rotation

The front quick release screw 5.1 locks both the butt length and cant rotation. You should note the length position before rotating the butt.

Set the butt collar to suit your angle of cant, whilst maintaining the previously determined length. However, it is also possible to rotate the butt without changing the length. This enables experimentation with the rifle in the shoulder, to see how it feels/find a cant angle you like. This is achieved by slackening the screw 5.2 (use 2.5mm Allen key). If this is done then the rotation index mark can be set to the central mark for your chosen cant (easier to remember). A way to find your cant angle (with screw 5.2 slackened) is to slide the slingmount and handstop fully forward, then rotate both the handrest and the cheekpiece through some 180°. Now you can easily pick up the rifle without the sling and, while holding your head vertical, cant the rifle to the position where you can look through the sights. This either needs an assistant to ensure your head remains vertical or the use of a mirror, since it is all too easy to lean your head without realising it.

## ***Barrel cleaning & removal of the rifle bolt***

Make a note of your chosen index marks for butt length and cant rotation. Now slacken the quick release screw 5.1. Then the whole butt assembly (with the cheek piece) can be rotated out of the way. You now have easy access for fitting/removal of the rifle bolt and cleaning of the rifle barrel. After cleaning etc. you rotate the butt assembly back to the same position and tighten the quick release screw 5.1. It is also advisable to tighten screw 5.1 whenever the butt assembly has been rotated, to avoid accidentally removing the butt assembly from the rifle.

## Buttplate

Designed to simply mould and clamp to your shoulder. Adjustments are provided to ensure a good fit to different size shoulders/jacket thicknesses etc.

Screw 7.1 (4mm Allen key) locks both the height and the twist of the buttplate. Dependent on assembly, screws 7.2 & 7.3 (PZ2 screwdriver and 8mm spanner) may also need to be slackened. Set the height so the screw 7.1 is just above the centre of the mounting rod, as shown in the pictures. This position should minimise any recoil jump. The buttplate height does need to be checked with live firing. If the buttplate is too high then the recoil will flip the barrel downwards, whilst if it is too low then the recoil will flip the barrel upwards. Set the twist so the buttplate is angled slightly to the left.

If required there is a very large height adjustment range achievable through changing the position of the buttplate mounting rod. Screws 7.4 (PZ2 screwdriver) are equally spaced (max 5 on each side) so that the channel they hold can be repositioned (suggested minimum of 3 screws per side). The buttplate mounting rod is held to this channel with internal screws 7.5 (PZ1 screwdriver). These can only be accessed by removing all the screws 7.4 and lifting the channel clear of the rifle. Screws 7.5 are also evenly spaced so the rod may be repositioned (suggested minimum of 3 screws).

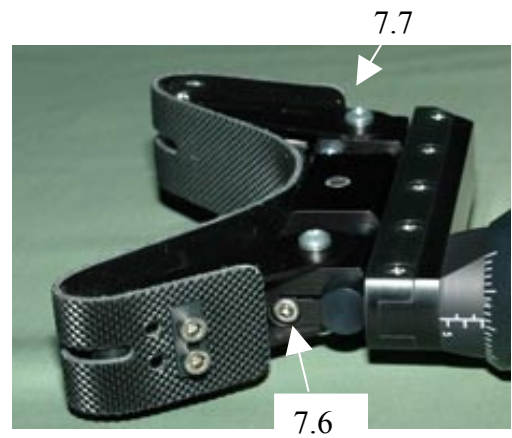
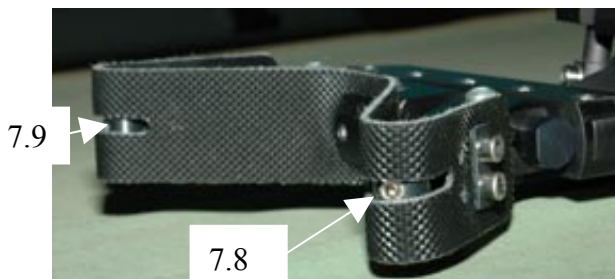
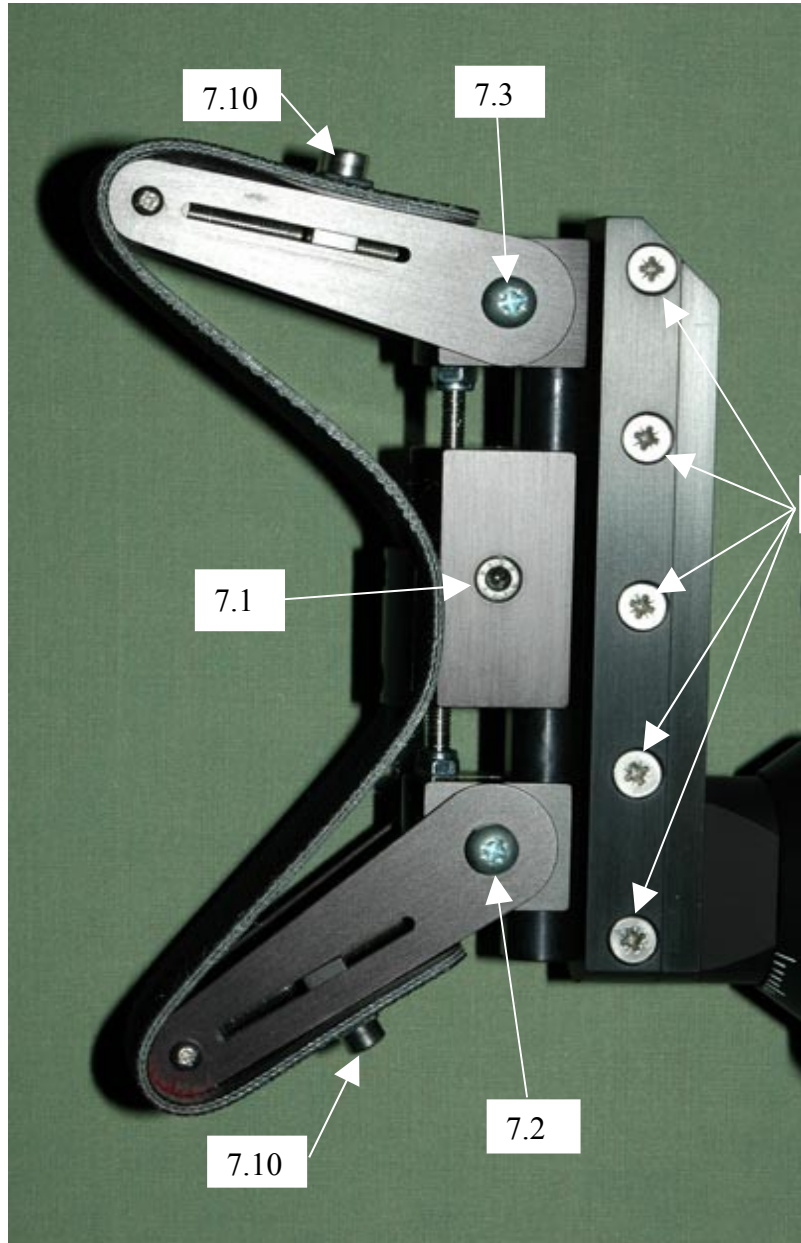
The bottom and top arms, which rotate on screws 7.2 and 7.3, may be moved up and down relative to the central mounting block by turning screws 7.6 & 7.7 (4mm Allen key). Set the arm mounting blocks with a 1.5cm gap between themselves and the central mounting block. Note these screws (7.6 & 7.7) turn easily, if they do not then slacken screws 7.2 and/or 7.3.

The rotation of these arms may be made easier or more difficult by loosening/tightening the screws 7.2 and & 7.3. Whilst the arms can be almost locked in position, the leverage available from the tip of the arm makes complete locking impossible. Set the lower arm to an angle of 45° and tighten fully, and leave the top arm able to rotate easily. A spacing washer can be inserted so that screws 7.2 and or 7.3 do not clamp to the butt rod when they are tightened. The fixed lower arm ensures that the buttplate returns to the same position in your shoulder every time. The rotation on the upper arm provides the clamping effect to lock the buttplate into your shoulder.

The tension in the webbing may be adjusted for the bottom arm and the top arm independently, with screws 7.8 & 7.9 (4mm Allen key). Turn clockwise to reduce the tension and counterclockwise to increase the tension. Note these screws turn easily, if they do not then the clamping screws 7.10 have been tightened. These clamping screws (7.10) should only be tightened once you are happy with the arm position and the tension in the webbing. It is not essential to tighten screws 7.10, although they should not be loose. Set the tension in the lower webbing tight, with the arm clamped down at 45°. Set the tension in the upper webbing so it is tight whilst the arm is held at 45°.

Use of an assistant is recommended in setting up this buttplate, to ensure it fits properly. There should be no gaps between the webbing and your shoulder, with an even amount of pressure on the central section of the webbing.





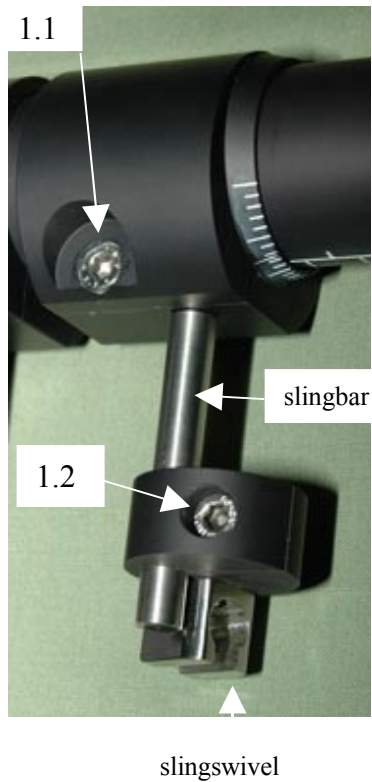


## Handstop

Screw 2.1 (4mm Allen key) adjusts to lock the handstop collar. There are no other adjustments possible since the handstop is a simple cylinder (it does have a M12 thread in the bottom to accept additional items).

Set the handstop to the same distance as normally used, as measured from the butt. To determine a position; rotate the handrest through 180° (above the barrel) and slide it fully back, slide the slingmount and handstop fully forward, then (without a sling) pick up the rifle in what feels to be a natural position. Note your hand position and set the handstop so it would fall into the "V" between thumb and index finger. This is likely to result in the handstop angled out towards your support elbow rather than pointing vertically down. Now lock it about 2cm further forward at the same rotation, so that it is comfortable when used with the sling.





## Slingmount

Screw 1.1 (4mm Allen key) adjusts to lock the slingmount collar. Screw 1.2 (4mm Allen key) locks a secondary collar from sliding and rotating on the slingbar. The height of the secondary collar on the slingbar determines the amount of pressure from the sling onto the back of the support hand. The slingswivel is free to rotate on all axes; to assist in affixing the sling, and to ensure no twist at the mounting point. Any twist in the sling at the mounting point will create uneven pressure, across the width of the sling, into the support hand.

Set the slingmount collar 0.5cm in front of the handstop collar. Then, with the rifle in your chosen cant position, rotate the collar so that the slingbar points vertically downwards. Set the secondary collar on the slingbar towards the bottom of the slingrod as shown in the picture. This removes pressure from the sling onto the back of the support hand. To increase pressure on the back of the support hand move the secondary collar closer towards the barrel.

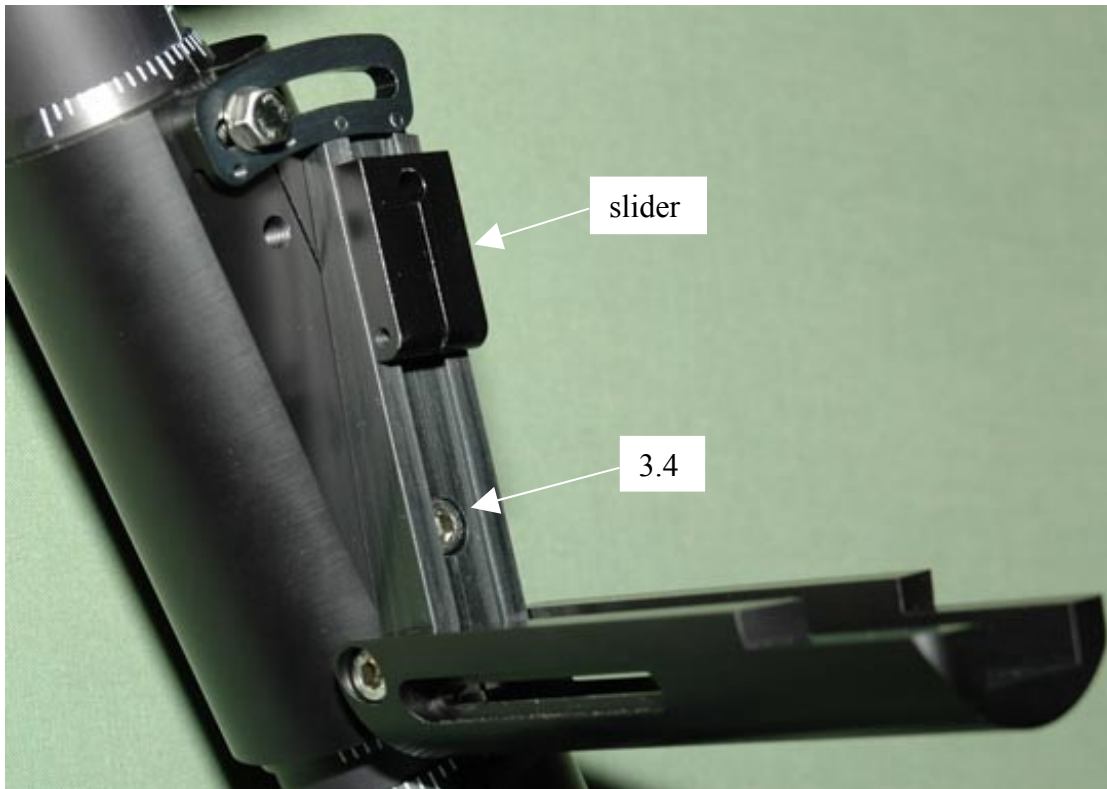
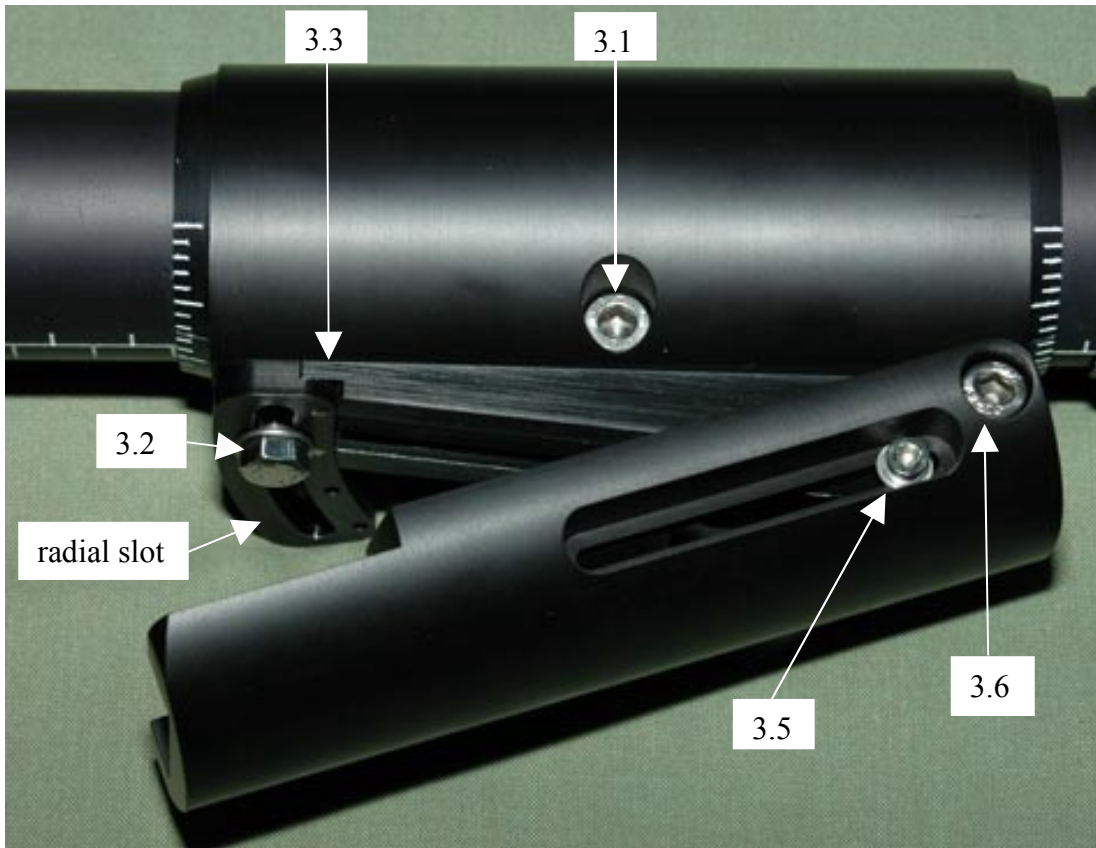
Fine adjustment of the sling tension can be achieved by sliding the slingmount backwards (reduce tension) or forwards (increase tension). Dependent on the type of sling this may be easier than adjusting the sling length.

## Handrest

Screw 3.1 (4mm Allen key) adjusts to lock the handrest collar. Bolt 3.2 (8mm spanner) adjusts to lock rotation of the handrest about a vertical axis (twist). Note this bolt can only be removed fully at either end of the radial slot. If further rotation is required the radial slot (through which this bolt passes) may be repositioned, it is secured with two screws 3.3 (PZ1 screwdriver). When this twist is adjusted it may loosen/tighten the front twist rotation screw 3.4 (4mm Allen key). This is accessed with the rest swung down through  $90^{\circ}$ . To do this, remove the two screws 3.5 (one on each side), slacken the two screws 3.6, and slide the slider back to reveal screw 3.4. The handrest may be set to any rake angle from  $0-90^{\circ}$ , about a horizontal axis. This is achieved by slackening the two screws 3.5 (2.5mm Allen key) and also two screws 3.6 (4mm Allen key) about which the handrest rotates. Although the slider can be eased along by holding the ends of the screws 3.5, it may be simpler to remove them and then reposition the slider to achieve the desired rake angle. It has been designed to ensure the handrest locks completely solid and has no play in it at all.

Set the handrest collar about 0.5cm behind the handstop collar and rotate for cant so the centreline of the handrest points towards the centreline of the handstop. The twist angle should swing the handrest away from the support arm (towards the trigger arm). Set this twist to some  $15^{\circ}$ . The fixing screwholes in the radial slot are roughly every  $10^{\circ}$ , i.e. there is a further  $10^{\circ}$  of adjustment if required (larger radial slots can be provided if necessary). The rake angle can be set to approximately half the angle of your support forearm. For a relatively low position (some rules have a  $30^{\circ}$  minimum) with your forearm at say  $35^{\circ}$  set this to  $18^{\circ}$ .

It is worth experimenting with the position of the handrest since it can enable a relaxed position for the support arm wrist. This has a large impact on reducing pain in the wrist, and it will also ensure a better hold (i.e. a more stable rifle).



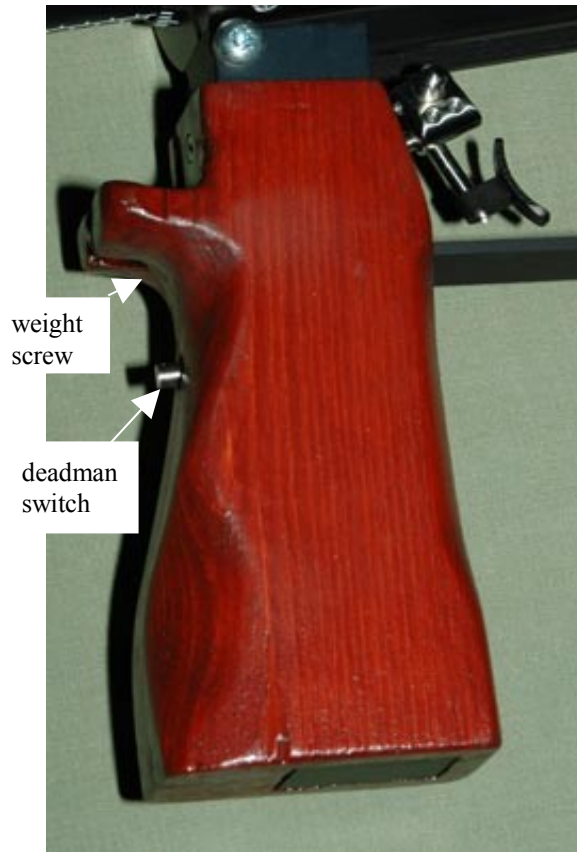
## Trigger

### Operation

The electronic trigger is single stage, and incorporates a deadman switch. If the deadman switch is not closed the trigger has no effect. The deadman switch is located on the back of the pistolgrip. When you place your hand on the grip, ready to fire, your hand automatically closes the switch. You will hear/feel a positive click when the switch closes.

### Weight

Adjust for weight with a 2.5mm Allen key. This Allen key must be passed through a hole in the back of the pistolgrip and you will feel it engage with the adjustment screw. There are some 18 turns from a zero weight (not recommended, since it will fire on closing the deadman switch) to about 1000g. Turning clockwise will increase the weight, and counterclockwise will decrease it. A marked increase in resistance to turning will be felt when the adjustment screw reaches the end of its travel.



### Travel

To adjust creep (trigger travel) use a PZ1 screwdriver through a hole in the front of the pistolgrip. Turning clockwise will decrease the amount of creep, and counterclockwise will increase it. Set a minimum "safe" level of creep by holding the deadman switch closed, and then reducing the creep until the moment it fires (you must have the electronics turned on!). If the creep is too little, it will fire when the deadman is closed. From the point at which it fires increase the creep by 1/16 of a turn, this is equivalent to providing about 5 microns (0.005mm) of travel on the trigger. More creep may be desirable, especially if a very light (<50g) trigger weight is used.



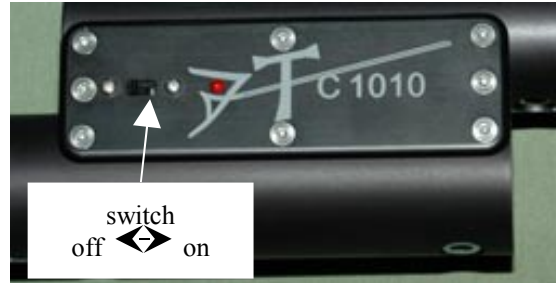


## Trigger Shoe

The supplied trigger shoe is retained by a single screw so it can be removed and replaced with alternatives. With very light trigger weights, a smaller pointed style of trigger shoe is desirable.

## Electronics

These are turned on by a slide switch below the breech. Slide the switch forwards for on and slide backwards for off. This switch is easily accessible when in position to shoot the rifle. When it is switched on the small red LED in front of the switch will come on briefly (about 5 seconds) then fade away to conserve battery life. The battery is a 9V PP3 type. With the supplied 1200mAh battery the unit has been tested to over 80,000 shots (firing at a rate of 1 shot/minute). Although in normal use many more are likely to be achieved. The faster you shoot the more shots you will achieve. To avoid multiple firing from a twitchy trigger finger there is a 2-3 second delay before it can fire again. The supplied battery has a shelf life of 10 years. It should be checked at least once a year, to be sure that it is still in good condition. To gain access to the battery; slacken the butt collar quick release screw 5.1, and remove the entire butt assembly.

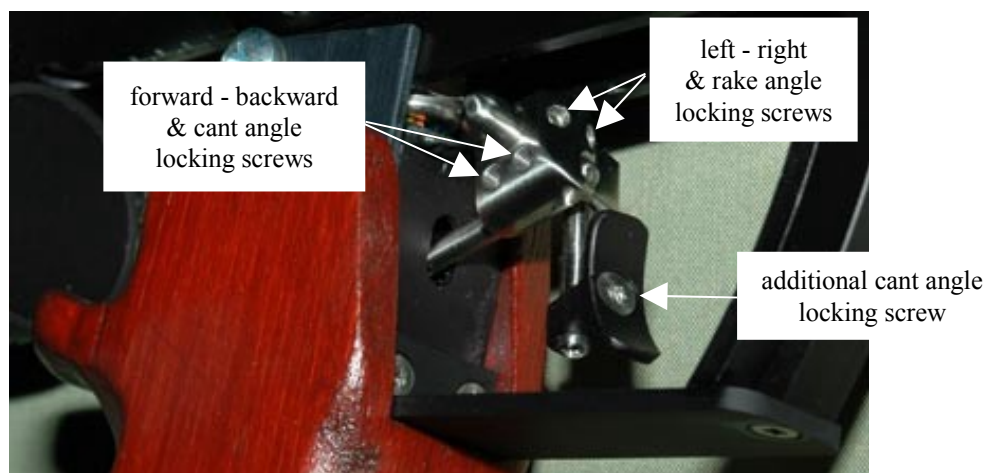


## Dry Firing

This is possible without cocking the bolt. When the electronics are on and the trigger is operated (in conjunction with the deadman switch), you will hear the solenoid operate the sears.

## Location

Although the trigger moves with the pistolgrip it can be independently adjusted for position to suit individual trigger fingers. Two grub screws (1.5mm Allen key) lock against sliding and rotation on each of three perpendicular axis.

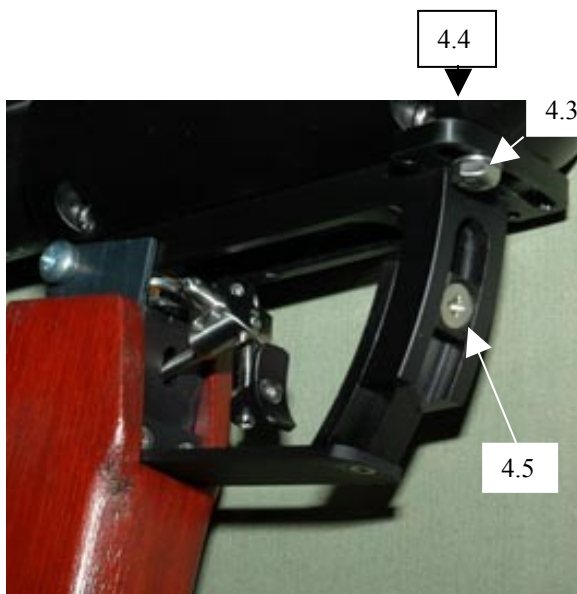


In addition, the trigger shoe itself can rotate and is locked with a 2mm Allen key. A range of different ways to locate the trigger in any position are possible. An optimum position will enable the trigger finger to avoid any contact with the pistolgrip whilst operating the trigger.

## Pistolgrip

Care is required when adjusting the pistolgrip. Since the wires pass through this unit, move it gently to ensure the wires do not become caught. Two pieces make up the pistolgrip collar. Screw 4.2 (4mm Allen key) holds the pieces together (and should only be removed if the pistolgrip is to be removed), and screw 4.1 (4mm Allen key) clamps the collar. It may be necessary to slightly slacken screw 4.2 when adjusting the collar. The collar should not be slid forward beyond the end of the index mark line (this will cut the wires!); rearward travel is limited by the middle tube of the stock.

Set the pistolgrip so that the trigger is about 2cm forward of the breech face, this will minimise the amount of movement required to load and fire. Provide a cant angle at a similar angle to your forearm reaching up to the grip. Both these positions are locked with the rear screw 4.1.



The grip has further adjustment about a vertical axis (twist), and this is locked with bolt 4.3 (8mm spanner) in a similar way to the handrest. If further twist is required the radial slot (through which bolt 4.3 passes) may be repositioned. The radial slot is secured with two screws 4.4 (PZ1 screwdriver). To gain access to the screws 4.4 you remove bolt 4.3 and twist the grip clear of the collar.

Set the "twist" angled out  $5^{\circ}$  away from the sling to provide a natural wrist position. This also ensures that the trigger guard does not interfere with the sling.

The final adjustment for the grip is about a horizontal axis (rake), and this is locked by screw 4.5 (PZ2 screwdriver). Set the "rake" to the middle of the adjustment range.

Once the grip has been positioned the trigger weight should be rechecked and adjusted if necessary. If a very light (<50g) trigger weight is set then adjustments to either the grip or the trigger shoe position can result in changes to the trigger weight of a few grammes, which may be noticeable.



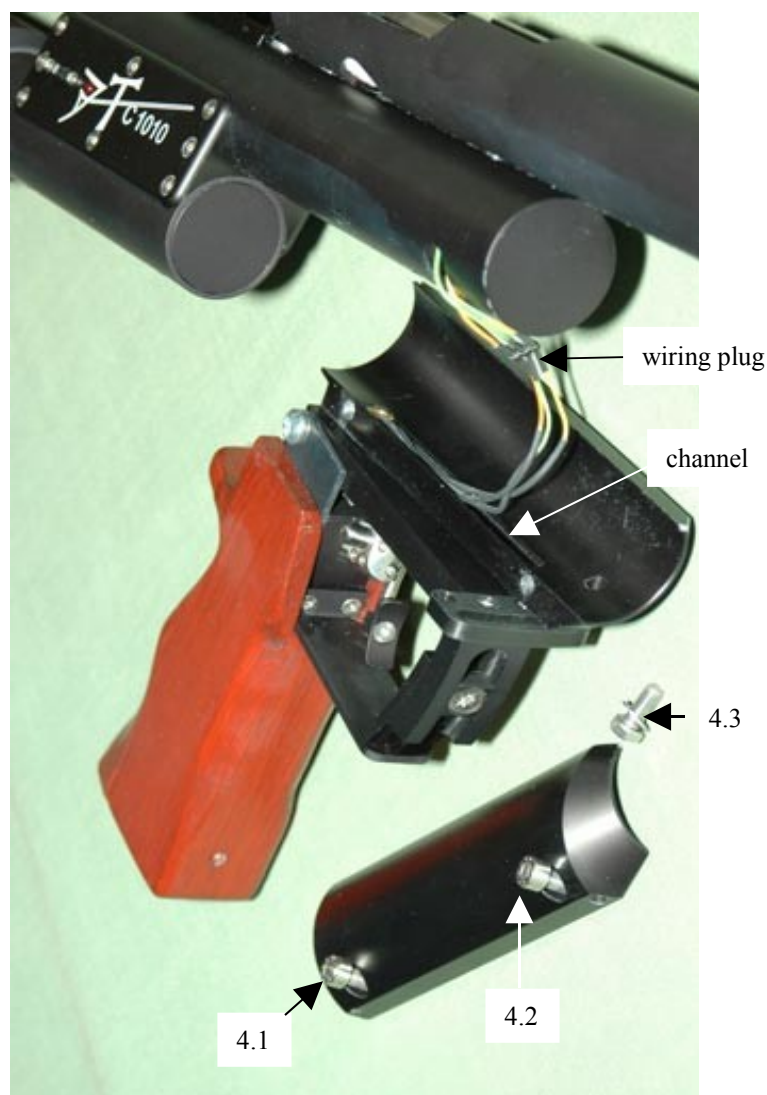
## Removal of Pistolgrip

Because the wires pass through this unit care must be exercised not to damage the wiring.

One reason for removal is to benchtest ammunition; replace the grip with a switch on a flying lead to ensure that there is no disturbance to the rifle when it is fired.

Removal of the grip is achieved by taking out bolt 4.3 and screws 4.1 and 4.2. It is best if the pistolgrip collar is held in place whilst this is done. Then lift off the top half of the mounting collar and move the lower half (with pistolgrip attached) to give access to the wires. Unplug the wires (two pairs of tweezers are useful for this) and the grip can now be taken away. Note the grip is permanently attached to the larger half of the mounting collar. Replacement is a straightforward reversal of removal, but the wires must be inside the channel in the collar and not trapped between the collar and the tube. The three wires are colour coded orange, yellow and green; connect the same colours together. There is a triple plug soldered to the wires from the grip - each wire inside the body of the rifle is individually terminated with a socket.

To fire the rifle with a switch on a flying lead, connect the switch between green and yellow; close the switch to fire. A pushbutton switch should be used which makes the circuit when it is pushed down. Do not hold the switch on, as it is wasteful (slightly) on the battery.



## Cheekpiece

On the cheekpiece collar there is a quick release screw 6.1 to lock both the front-back movement and the "cant" rotation. A cheek upright locator clamp is provided to enable small changes to the cheekpiece height to be made without any "twist" to the cheekpiece. Small height changes might be used between 50m and 100<sup>x</sup> or even between "iron sights" and "telescopic sights".

### Height

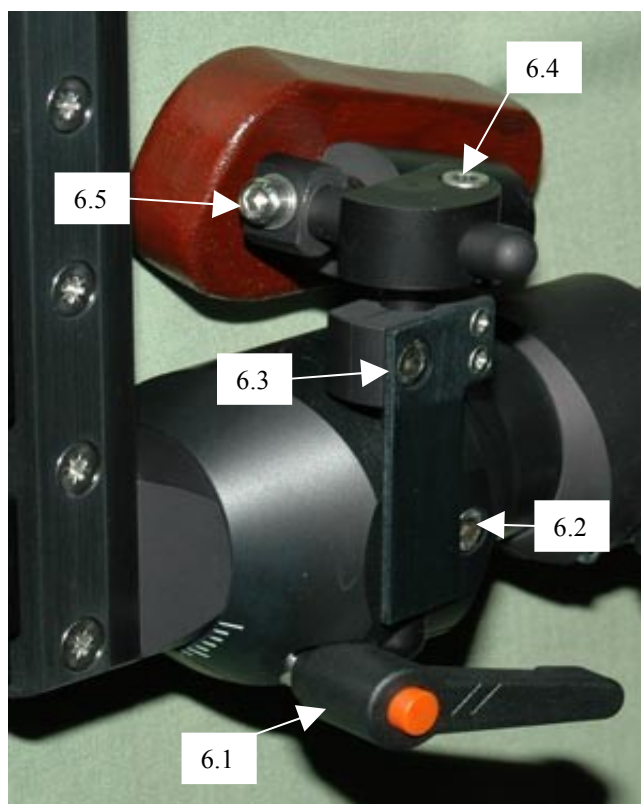
To change the height of the cheekpiece slacken screw 6.2 (4mm Allen key). This same screw locks the "twist" rotation (about a vertical axis). However, if the cheekpiece is to be rotated, then the upright locator clamp must first be slackened (screw 6.3, 4mm Allen key).

### Side-Side

The left-right adjustment and "rake" rotation (about a horizontal axis) is locked with screw 6.4 (4mm Allen key).

### Angle

The "cant" angle of contact to the cheek is also adjustable and locked with screw 6.5 (4mm Allen key).



An initial setup may be accomplished by slackening each of the adjustment screws so that the cheekpiece may be moved by hand (and stays where it is moved to). Locate your head and then move the cheekpiece to a comfortable position to support your head. Then clamp each of the cheekpiece screws: 6.1, 6.2, 6.4, 6.5. Note that clamping 6.3 at its lowest position limits the vertical movement to up only, so clamp it for your lowest position (shortest range you shoot). With the wide range of adjustments, there are different ways to achieve the same result.

With an established position (setup), then both the breech position and the rifle's cant can be adjusted without changing any other aspect of your position:

## **Breech Position**

This is adjusted by sliding each collar by an equal amount, do not change their angle of rotation. To move the breech back by 1cm; slide each of the collars forward by 1cm: slingmount, handstop, handrest, pistolgrip, butt (n.b. the cheekpiece moves with the butt). Note the rearsight should also be slid forward by 1cm. Exactly the same shooting position may now be adopted, but with the breech further back.

The optimum position is likely to be where the minimum amount of movement (least disturbance of your position) is required to load the rifle. No need to move the rifle from aiming at the target (rolling over on the support elbow), or lift your firing arm's elbow off the floor and stretch forward to load.

## **Cant**

This is varied by rotating each of the above collars by an equal amount; e.g. to bring the sights closer to your eyesight line by six degrees of anticlockwise cant, rotate the following points of contact by six degrees (1 index mark) clockwise: slingmount, handstop, handrest, pistolgrip, butt. Note that the cheekpiece will have moved with the butt so it now needs to be rotated six degrees anticlockwise.

The optimum position is likely to be where you can see through the sights with an upright head position.

# *Good Shooting*

## **Warranty**

There are numerous other fixings used in the assembly of this stock, these are usually glued in.

Only the adjustment screws described in this manual should be operated by the user.

Tampering with any other fixing may invalidate any warranty by the manufacturer.