BROMPTON

3 SPEED TRIGGER

Operation.
The lever has two operating arms to reduce the reach required for each gear change. When changing gear, ease pressure on the pedals. If the bicycle is stationary ease the pedals slightly backwards.
The Brompton 3 speed trigger can be used with Sturmey Archer and Sram 3 speed hubs that are used on the Brompton.

Position
The mounting position of the trigger on the handlebar has been chosen for easy operation and to avoid clashing with the front spokes when folded. You may of course want to choose another position and this can be achieved by moving the trigger along the
handlebar, rotating the trigger on the trigger boss TB or both, however
- the resulting cable routing may not be satisfactory.
- the hub gear will need to be readjusted.
- the trigger may clash with the front spokes when folded.

Fig. GTR1 shows a typical set-up viewed from the front. The trigger should be as near as possible to the brake lever.
Fig. GTR2 shows the method for rotating the control on the trigger boss.
Figs. GTR3 and **GTR4** show the two most likely mounting positions for the control.
The dashed outline shows the position of the lever arms in the lowest gear. Note the position of the lower arm relative to the handlebar.

fig G

CS

TB
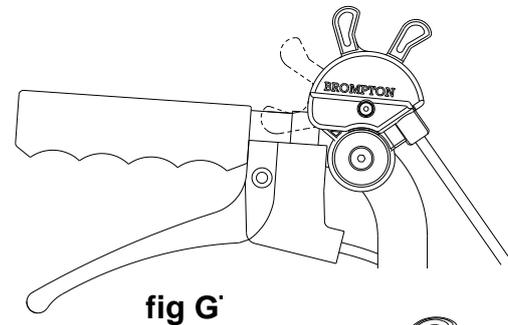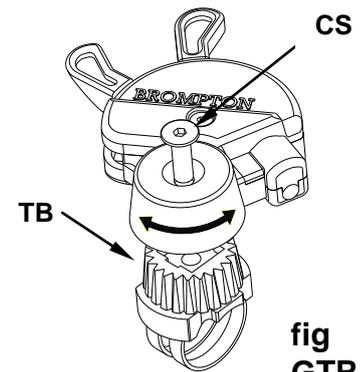
fig GTR2

Fitting/replacing the trigger
If you are replacing a Sturmey Archer or Sram trigger disconnect the cable adjustor from the gear indicator at the rear hub and remove the cable adjustor from the inner wire. The inner wire can now be removed from the outer cable and the trigger. Undo the trigger handlebar clip and remove the screw. Open the clip and remove the control from the handlebar (avoid scratching the bar). We strongly recommend that both the trigger inner wire and outer cable be replaced. **TIP.** To ensure the correct outer cable run, use the old cable as a guide when fitting the new outer cable, removing the old cable as the new cable is fitted.
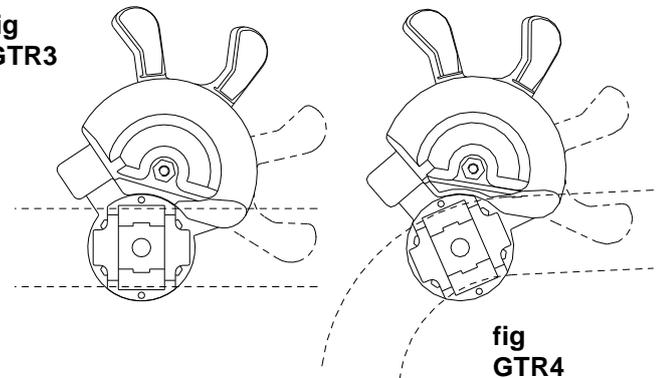
If you are replacing a Brompton trigger, disconnect the cable at the hub as above
To remove the inner wire from the Brompton trigger, set the trigger lever in the middle gear position and lightly push the lever in direction **1** (**fig. GTR7**) to open up the cable loading window **2**.
The inner wire can now be removed through the window **2** in the reverse direction to the direction **3** shown. Some twisting of the wire will help.

fig GTR3

fig GTR4

fig GTR5

fig GTR6


TB
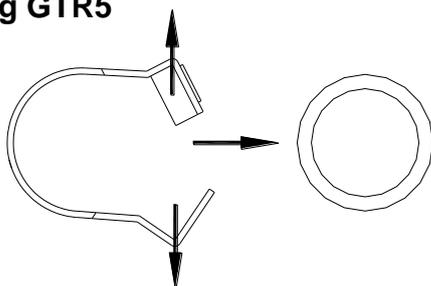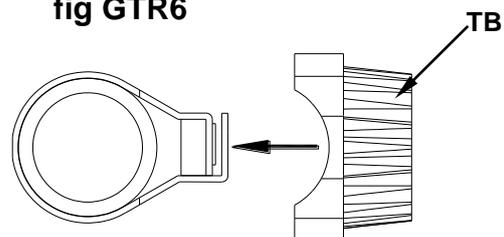
Next undo the clip screw CS and remove the trigger, leaving the metal clip on the handlebar. Re-use the old clip when fitting the new control unless it is damaged.

If fitting the new handlebar clip, open the clip, as shown in **fig.GTR5**, to allow this to be fitted to the handlebar, without marking it. Squeeze the ends of the clip together and push the trigger boss TB onto the new clip **fig.GTR6**, (or else onto the old already closed clip).
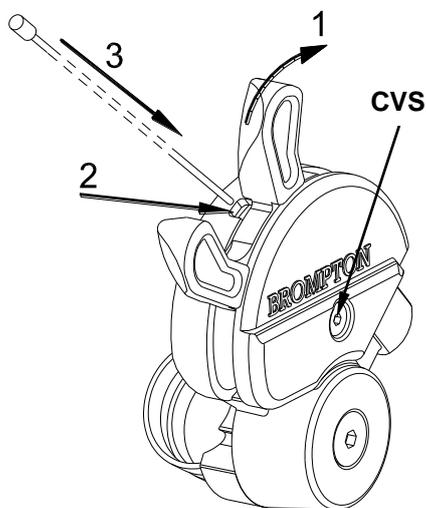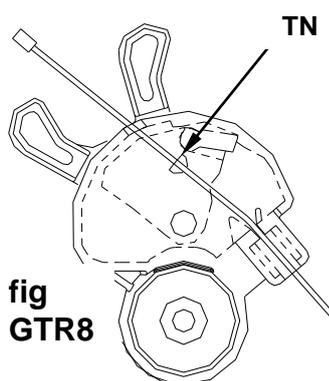
The rotational position of the trigger can now be selected as shown in **fig.GTR2**.
Tighten the clip screw CS to a torque of 5Nm maximum. Note, if you wish to change the trigger angle after securing it, the tapered trigger boss TB may have become jammed in the housing - it can be withdrawn using pliers

To fit the inner wire to the new trigger, set the trigger lever in the middle gear position and lightly push the lever in direction **1** (**fig.GTR7**) to open up the cable loading window **2**.
The inner wire can now be loaded through the window **2** as shown in direction **3**.

fig GTR7

Fig. GTR8 shows the route the wire should take through the control.
TIP. Rotating the inner wire slightly while feeding the inner wire through the control can assist the loading. If you experience trouble feeding the wire through the trigger nipple hole, set the control as shown in **fig GTR7** and look for the hole in the trigger nipple TN through the window and then visually guide the inner wire into the trigger nipple

fig GTR8

Feed the inner wire through the outer cable on the bike and push the outer cable fully into the nose of the control. **TIP**. Fitting of the outer cable can be assisted by unscrewing the cover screw CVS a couple of turns. Don't forget to retighten the screw afterwards.

Next, with the bicycle unfolded, ensure that the inner wire is correctly routed around the pulley on the rear frame and loosely re-fit the cable adjustor (**figs.AR5 & AR6**). Make sure that the indicator rod is screwed fully home into the hub (and backed off not more than half a turn to obtain correct alignment with the cable). After ensuring that the hub is in top gear attach the cable adjustor to the indicator rod, the minimum amount necessary for a robust connection and pull the inner wire through the cable clamp on the cable adjustor so that most of the slack is taken up. Tighten the cable clamp to secure the cable adjustor onto the inner wire.

Hub-Gear adjustment.

Adjustment of the gear control must be carried out with the bike fully unfolded (i.e NOT parked), and with the indicator rod screwed **fully home** into the hub (and backed off not more than half a turn to align with the cable). The aim is to make sure that the indicator rod & chain down at the the rear axle moves to the correct position in response to moving the trigger. For this the cable has to be running well: it must be free of kinks or sharp radii, with the cable pulley rolling freely.

While setting gears, you should ensure that the gear you select by moving the control trigger has indeed engaged in the hub, and to this end, each time you are moving the trigger, keep the wheel spinning forwards, and pedal back and forwards, to ensure the gear engages. It's easiest, when actually altering the setting, to have the cable slack: so select top gear and back and forward pedal a bit first.

If you cannot obtain a satisfactory setting, then the most likely cause is either the cable not running freely, or damage to the indicator chain itself, where it runs into the axle end. Otherwise, the fault may be with the hub internals.

SRAM 3-spd gear adjustment:.

The cable is made tighter by pushing the adjustor A further onto the grooved end B of the indicator chain GICH: to obtain a looser setting, the spring clip C has to be depressed.

You can usually get things right first time by moving the trigger into top gear, pulling on the adjustor (away from the pulley housing CPULA), and then feeding the grooved end B of the indicator chain into the adjustor until it is just not loose, i.e. *WITHOUT* pulling the indicator chain out of the axle at all. The setting is correct when:-

- with the trigger in top, the cable is just slack (with a *Brompton Y-trigger* fitted, there should be up to 5mm side-to-side movement at D-D, and with a *Sram Torpedo* trigger, rather less), in other words neither flopping around too much, nor taut. If, when you try pulling the adjustor A away from the CPULA, you can see any movement of the indicator chain back into the axle where it enters it, then the setting is too tight, and

- with the trigger in low, the indicator chain (where it enters the end of the axle) should either move not at all, or perhaps up to 1mm, when you pull the adjustor towards the CPULA (if it moves more than this, then the setting is probably too loose: on the other hand, if, while back-pedalling and moving the trigger slowly from mid- to low-position, you see that the indicator chain stops moving out of the end of the axle *before* the trigger has clicked into low-position, then the setting is probably too tight), and

- when pedalling forwards (under no load) and changing through the 3 gears, both up and down, all three gears are positively selected.
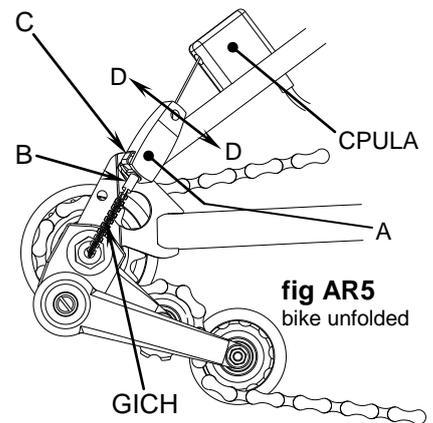
fig AR5
bike unfolded

STURMEY ARCHER 3-spd adjustment:

Adjustment is carried out by slackening the lock nut N, turning the barrel B to obtain correct setting, and relocking the nut N. Ensure the indicator rod is the correct length for the hub-type.
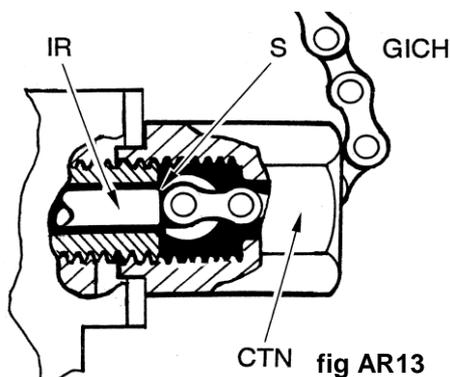
fig AR6

3-speed. Engage top gear, then move the control trigger to the middle position: the step, S, towards the end of the indicator rod, IR, should be level with the end of the axle, visible through the hole in the CTN. Next, select bottom gear, then middle, then top, and check that all three are engaging correctly.

fig AR13