REPLACING BROMPTON HUB-GEAR CABLES.

As a result of changes to the Brompton, different cables are required for different models:

- a long-wheel-base M-type bike (one shipped after January 2004, and with a main-frame hinge which is cast) requires **longer rear cables** than a short-wheel-base M-type (where the hinge is forged, with a hand-brazed joint): M-types were formerly called L- or T-type.
- also the gear cables used on an M-type, P-type, H-type and S-type are all different.

Make sure that you have the right length cable for the bike in question. **The application sheet shows for which model this cable is suited.**

As a general rule when replacing cables, correct cable routing is vital, with the outers being exactly the same length (+/- 2mm) as the original cables. If a cable outer is too short, the cable will be damaged through stretching during folding, and if too long, will hook up on other parts. The cable supplied will either be 5mm helical without ferrules, or 4mm linear with a 5mm ferrule at each end.

You will find that cable ties are supplied: you will only need these if the original cable you are replacing has a dynamo wiring loom attached to it. Fit the new ties at the same position as those you replace: in particular, the rearmost tie on a rear control-cable must be just aft of the centre cable guide, CGC (**not** in front of the CGC).

subtext cable routing

Correct routing of the control cables is essential if these are not to be damaged during folding. All cables MUST pass in front of the handlebar, to the left of the handlebar stem and to the right of the main frame tube.

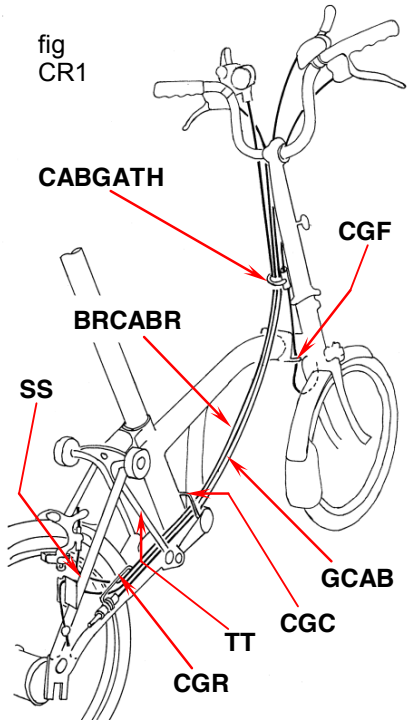
The front brake cable must pass:

a) through the **body** of the cable gatherer, CABGATH (outer cable in two parts)
b) through the forward cable guide, CGF, and
c) to the left of the front mudguard (for a C-type, see note below).

The rear cable(s) must pass:

a) through the **ring** on the cable gatherer, CABGATH,
b) through the centre cable guide, CGC,
c) inside the tube TT,
d) through the rear cable guide, CGR, as shown, and
e) for the brake cable, BRCABR, inside the tube SS

fig CR1



The gear cable(s) GCAB should lie below the brake cable, BRCABR. If there are two gear cables, then the derailleur cable should lie below the hub-gear cable.

When replacing the front brake cable outers, leave the CABGATH on the rear cable(s), and then feed the new outers (shorter part on top) onto the CABGATH.

When replacing a cable to which a dynamo wiring loom is attached, cut the tie wraps holding the loom to the old cable, and re-tie the loom (at the same spots as before) to the new cable: on a rear cable the rearmost tie must lie just aft of the CGC, **not** in front of it. (If the loom is a Mk 2 type, which reverses inside a rubber sleeve just under the CABGATH, use two tiewraps here, and pull them extra tight to prevent slipping.)

Note re bikes without mudguards: the LH front fork will either have a fender disc or a brazed-on wire loop: the brake cable must pass **outside** these (and **not** through the loop).

subtext gtrigb3 cable fitting

Changing a cable at the Brompton RH trigger.

There is normally no need to remove the trigger-cover.

To fit the inner wire to the 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 existing inner wire can now be pushed back through the window **2**.

The new inner wire should be fed through the window **2** as shown, in direction **3**

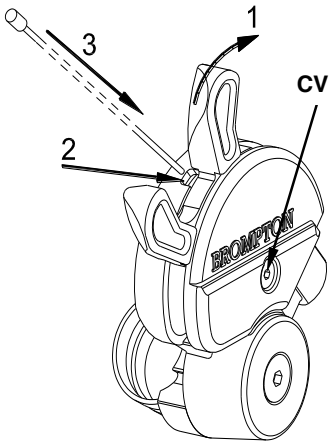


fig GTR7

TIP. Rotating the inner wire slightly while feeding the inner wire through the control can assist loading/unloading. If you experience trouble feeding the new wire in 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

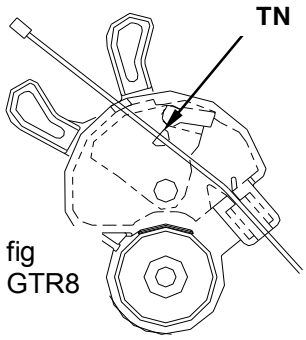


fig GTR8

Fig. GTR8 shows the route the wire should take through the control.

subtext gadj hub

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:-

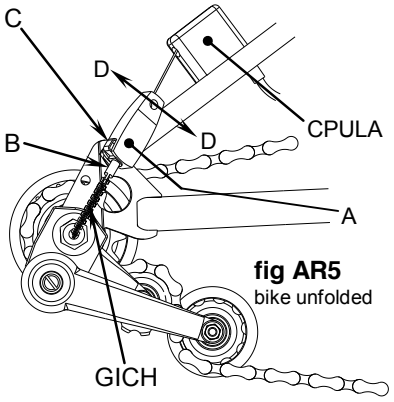


fig AR5
bike unfolded

- 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.

STURMEY ARCHER 3-spd & 5-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.

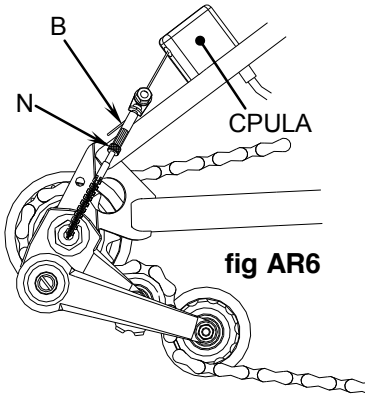


fig AR6

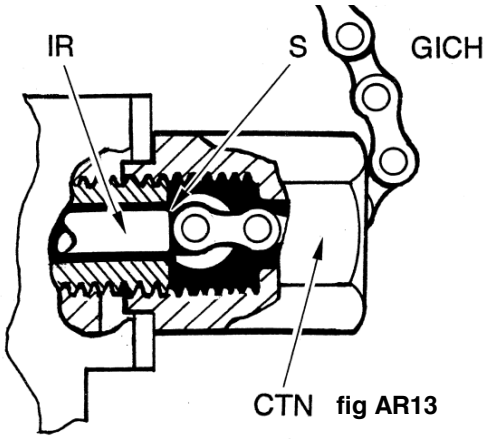


fig AR13

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.

5-speed, fig AR15 (Note: the GRA must be aligned with the cable/indicator-chain, fig AR12). Engage top gear, then move the control trigger to position 2 (2nd bottom gear): the annular groove, SR, coloured red or blue, towards the end of the indicator rod, should lie level with the end of the axle. Next change down and then up through all the gears, and check that all gears engage cleanly, fine tuning the setting if needed. In practice, you may find that, with the gears functioning correctly, the groove SR lies (when in 2nd gear) somewhere between the end of the axle and 1.5mm out from the end of the axle (i.e. a slightly tighter setting): but bear in mind that, when in top, the indicator chain, GICH, should be just slack. Next, test the gear selection under load by riding the bike, again changing down and up through all the gears.

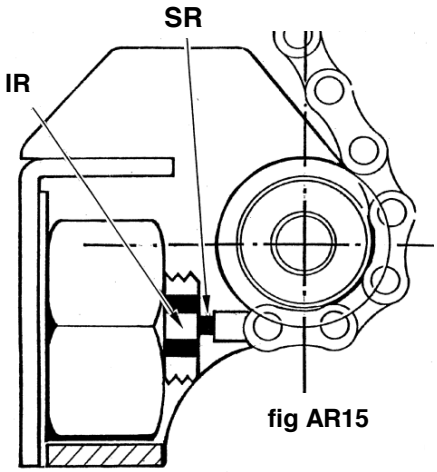


fig AR15