



REAR FRAME REPLACEMENT.

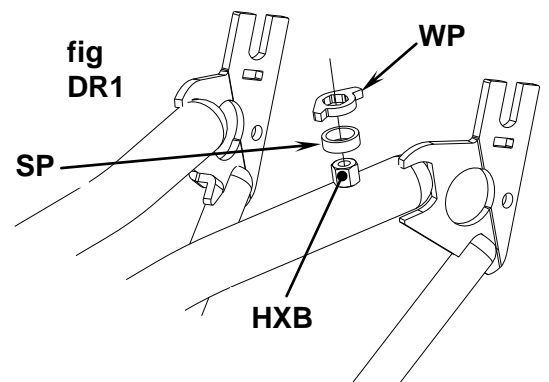
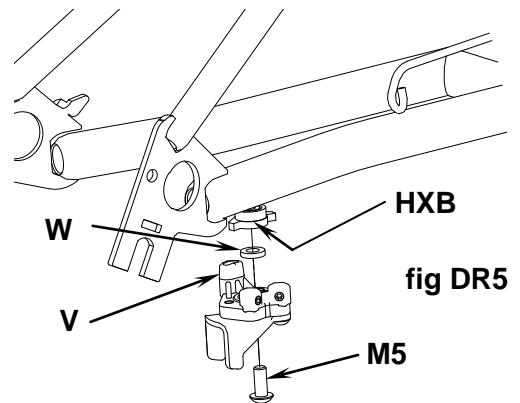
When replacing a rear frame always renew the rear hinge spindle: one of these is supplied with the countersunk screws in this kit. Also, on the frame supplied now, the slot in the axle drop-out may be wider (to accommodate all rear hub types) than on the frame you are replacing: on such frames, for bikes with Sturmey or Sram hubs, you should fit one or other of the pairs of anti-rotation tab-washers supplied (“SA” for Sturmey, “SM” for Sram) - make sure you fit these the correct way round, the end marked “TOP” uppermost.

Special tools required: chain rivet extractor, crank extractor.

Dismantling.

Any gear control levers should be in the up position (with the corresponding gear engaged).

1. Remove the chain from the idler wheel on the spring-loaded arm of the chain tensioner.
2. Remove the chain tensioner and rear wheel.
3. Break the chain using the rivet extractor, and remove the chain.
4. Remove the chainwheel and RH crank (a special extractor tool is needed for this - do not attempt to remove it without the right tool).
5. Cables: note how the cables are routed before disconnecting these – they must be put back together following exactly the same routing. Disconnect the rear brake cable from the caliper and the hub-gear control cable(s) from the cable anchorage near the rear hub. Remove the dynamo, if fitted, and disconnect the lighting wire(s) from the dynamo (and if necessary from the rear lamp).
6. If a derailleur is fitted, unscrew the M5 screw retaining the actuator: on removal, take care not to lose the spacer **W** which lies between the bearing and the hex boss **HXB** on the rear frame. Next, pulling apart the two cable stops (against spring pressure), lift the inner cable out of the loop on the rear cable guide.
7. Withdraw the cables forward. For the derailleur cable (if present) it's impossible to draw it through the centre cable guide on the main frame because the actuator is still attached: this does not matter.
8. Detach the rear frame from the main frame: for details see below.
9. Remove all items attached to the rear frame (brake caliper, carrier (if fitted), mudguard, roller assemblies at the forward end, cable pulley housing(s), plastic set-screw in the hex boss **HXB** (if fitted, and there is no derailleur) and suspension block assy.). Note how washers etc. are disposed at the various points of attachment for reference on re-assembly, particularly at the brake caliper. On a derailleur bike, prise the small wing plate **WP** off the hex boss **HXB**, and remove the plastic spacer **SP** underneath it.



Reassembly.

If you're fitting a replacement rear frame for an early 5-speed (with two-cable control), make sure that the new frame has a gear cable stop on the LH side as well as on the RH side.

The various components that were removed at step 9 from the rear frame can now be attached to the new frame. Apart from making sure that washers and cables are all replaced in the same way as they were originally assembled (particularly those at the brake bolt):

- a) you should use a thread locking compound on the screws used to attach the main rollers (those at the forward end of the rear frame).
- b) the bolt retaining the suspension block should be tightened so that the rubber is slightly compressed, with the bolt becoming slightly stiff as it reaches a tapering thread in the nylon buffer disc.
- c) on a derailleur bike, fit the wing plate, WP. Put the spacer SP in place over the boss HXB, and address the wing plate to this boss. The orientation must be as shown in fig DR2: feel the male hexagon start to engage in the wing plate (if necessary, try the wing plate the other way up).

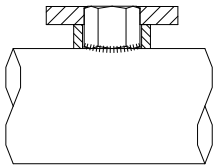


fig DR3

Using a suitable drift, tap the wing plate down till it's near enough flush with the end of the hex boss.

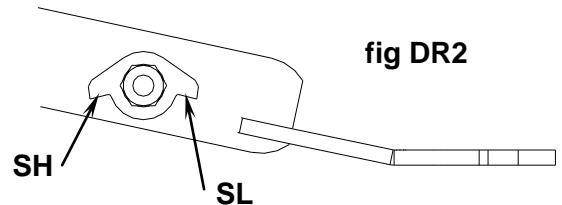


fig DR2

1. Attach the new rear frame to the main frame: for details see below.
2. Feed the cables back through (fig CR1), including the dynamo loom which passes through the RH chainstay CHS (fig EL40), and round under the rear carrier stays at K up to the dynamo. Fit the dynamo, and secure without tightening the nut.

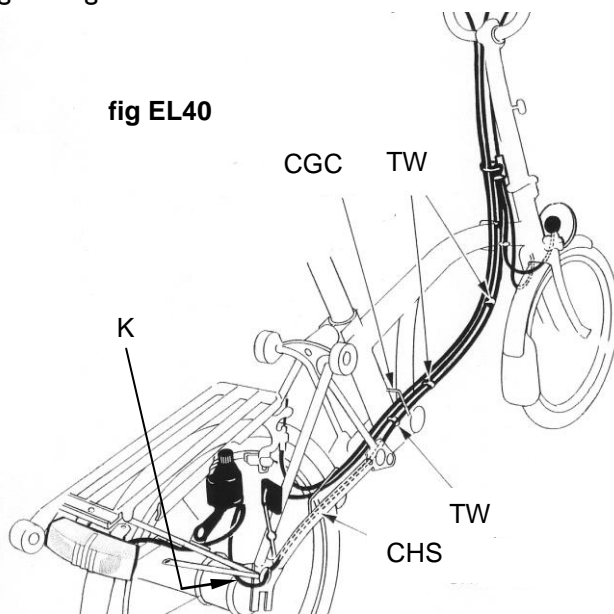


fig EL40

3. If the bike has a derailleur, first pull the two cable stops apart against spring pressure to show the inner wire, and feed this wire through the gap in the loop on the rear cable guide CGR:

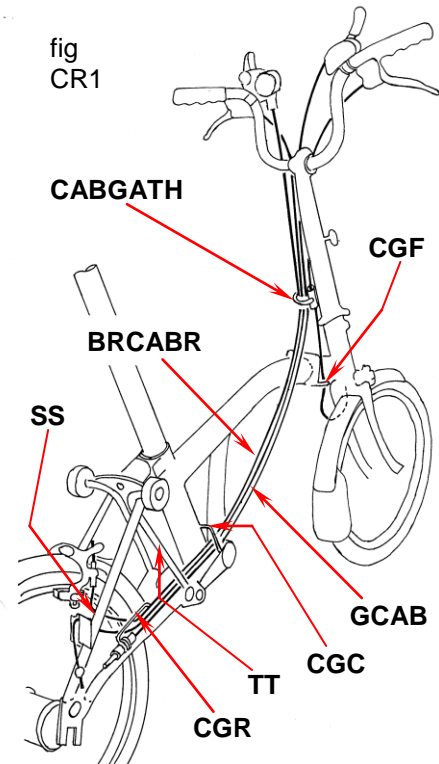


fig CR1

press the cable stops together to butt against the loop on this cable guide.

Next, attach the actuator (there should be waterproof grease under the head of the screw and on the spacer W where they abut against the bearing): address the M5 screw through the bearing and spacer W, and screw it into the boss HXB, taking care not to drop the spacer: do up the M5 screw firmly.

4. Fit the chain wheel.
5. Fit the rear wheel (using the correct axle tab-washer each end).
6. Connect the brake cable, and centre the brake.
7. Fit the chain and chain tensioner.
8. Connect the hub-gear cable(s) and set the hub gears.
9. The dynamo, if fitted, may need resetting at the correct angle and spacing from the tyre.
10. Set the lower stop correctly, as described below.

subtext rear hin assy

Dismantling the rear hinge.

The socket head countersunk screws at each end of the rear hinge (fig FR6) are inserted during assembly of the bike using a locking compound and a torque-wrench. As a result, it is sometimes impossible to unscrew them, but you should try first.

(Note: you should be aware that, when one screw is removed, the whole weight of the rear frame is being taken by the other screw and bracket, and that therefore the rear frame, if pushed sideways, may become damaged.)

Using a 5/32" or 4mm allen key (provided with the kit), and ensuring that it is fully engaged in the socket in the screw, loosen the screws. Considerable force is needed for this, and there are three possible outcomes:-

1. if you manage to loosen both screws, all is well, but there still remains the problem that, once you have removed one screw, the other cannot be removed because the rear hinge spindle to which it is attached will tend to turn with the screw. The technique, once you have established that both screws can be moved, is as follows. Nip one screw up tight, and unscrew the other completely: clean this screw and then screw it in and out of the rear hinge spindle until it feeds in and out fairly freely. Now nip this screw up tight and repeat the process for the other screw. Finally unscrew both at the same time: if the spindle still spins with the screw, you can normally prevent this by applying slight lateral force to the rear frame such that there is increased friction between the hinge spindle and its bearings.
2. if you manage to loosen one screw only, then, first, unscrew this screw almost completely, and secondly, using the 1/4" drill bit (provided with the kit), drill out the head of the other screw: once this has broken free, and the other screw is finally removed, the rear frame can be removed.
3. if neither screw can be loosened, use the 1/4" drill bit provided to remove the head of both screws.

In the case of 2 and 3, you should discard the old rear hinge spindle. In all cases, you should discard the screws, even if they were unscrewed in the normal way.

Re-assembly of the rear hinge.

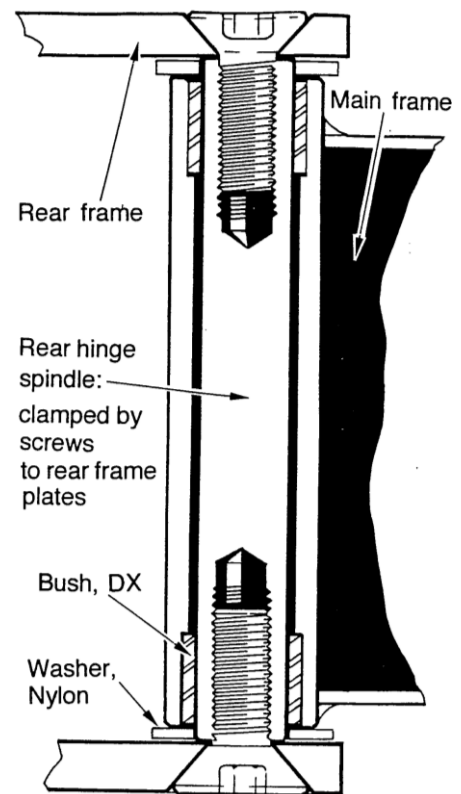
If you have removed the hinge spindle, or are fitting a fresh spindle, smear some grease on the bore of the bushes in the main frame. As it is vital that no grease enters the thread in the rear hinge spindle when you feed it in, you should avoid applying excess grease. Also put a temporary stopper of say paper in the end of the spindle-thread.

Feeding the spindle through the bushes: you should be able either to press it right through by hand, or tap it lightly into position. If you need to hammer hard, then the spindle is too tight a fit in the bushes (which would cause it quickly to deteriorate).

Fit the nylon washers at each end of the spindle, and with the rear frame in place, do up the screws. You must use a thread locking compound such as Loctite Nutloc, and secure the screws using a torque of 10NM.

Fig FR6

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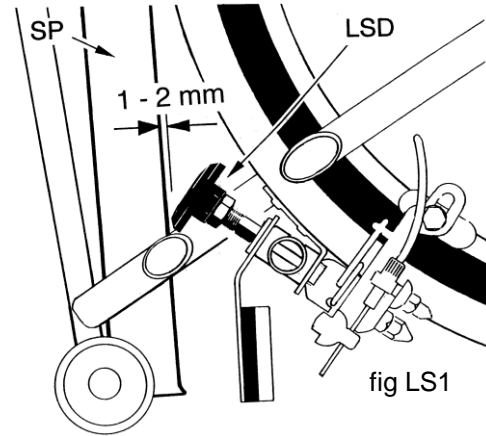
subtext lsadj

The Lower Stop Disc, its role in the folding process: when you pick up the folded bike, the rear wheel cannot unfold because the lower stop disc, LSD, butts against the "folded" seat pillar, SP. The LSD can be adjusted to obtain the correct gap between itself and the SP: if the gap is too small, then the SP may foul, irritatingly, against the LSD during folding: if the gap is too large, then the rear wheel will drop away too far when the bike is picked up, so that the hook retaining the front wheel slips off the chainstay tube (CHS) on the rear frame.

On bikes shipped from our factory before March 2000 (Mk 2 bikes), the lower stop disc is an eccentric, and calls for a different approach from those fitted on later Mk3 bikes.

Setting the Mk3 Lower Stop (fig LS1)

The lock-nut should be slacked off. Fold the bike completely, and spin the LSD along the thread to give the correct gap of 1-2mm. Finally, using 2 spanners, 19 AF and 15 AF, tighten the lock-nut: do not overtighten, correct torque 8NM.



Setting the Mk2 Lower Stop (figs LS11 & LS13)

The rear brake nut, RBNUT, must be well tightened, torque 14NM: if it is not secure, the brake caliper may move off centre when fitting the lower stop disc, LSD, to it, and the RBNUT (together with the LSD) may come loose in use.

To set the lower stop correctly, partially slacken off the retaining screw so that the LSD is not loose, but can be moved by hand: fold the bike completely, and move the LSD to give the correct gap of 2-3mm. The LSD should be disposed to lie towards the LH side of the bike (fig LS13), not towards the right. Finally, re-tighten the retaining screw firmly.

