

Rear hinge replacement

Important information

- On used bikes, slight play can be expected at the rear hinge; if the play is unacceptable (more than 2mm in either direction, at the rear wheel axle) the rear hinge bushes need to be replaced.
- A specific reaming tool (part QRHREAM) is needed to carry out the work.
- It is recommended you use a 7/16" x 20 UNF second tap to extract the worn bushes from the frame.
- If the rear hinge bolts work loose or need removing for any reason you should discard the bolts and use a new set of bolts, these should be fitted with a thread-locking liquid and tightened to 10 Nm.

Should you require more information, please contact tech@brompton.co.uk

Dismantling the rear hinge assembly

In order to access the drive side bolt you will need to remove the right hand crank or chainring from the bike.

The bolts on either side of the rear hinge assembly are assembled during production using a thread-locking compound and it may therefore be difficult to remove the bolts. A 5/32" hex key should be used to remove the bolts; ensure that the tool is fully engaged to prevent rounding the bolt head.

Once one of the bolts is removed you may find that when trying to loosen the other bolt the spindle and bolt both rotate. If this happens clean and refit the bolt you have removed into the spindle, tighten the bolt and then remove the opposite bolt. You should then easily be able to remove the bolt you have refitted from the spindle.

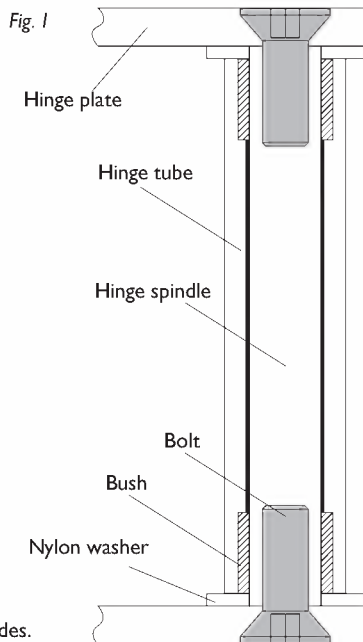
If you cannot remove both bolts there are two options open to you. Firstly you can drill the head from the stuck bolt using a 1/4" drill bit. When doing this we recommend refitting and lightly tightening the removed bolt to the opposite side to support the rear frame.

If you cannot loosen either bolt you can use a 1/4" drill bit to drill out both sides.

Alternatively, instead of drilling it is possible to cut through the rear hinge spindle between the rear hinge tube and hinge plate. Firstly you will need to remove the two plastic washers (between the rear frame and mainframe) using a sharp knife, then with the space created by the removal of the washers push the rear frame over to create a gap on the side you wish to cut (where the bolt is stuck) and carefully cut through the hinge spindle.

Take care when cutting not to damage the hinge plate or rear hinge tube with the saw blade. Once you have cut through the side with the seized bolt (or both sides if neither bolt will release) you might need to release the bolt head from the hinge plate by pushing it out from the back.

Once you have successfully removed both bolts and can separate the two frame parts, secure the rear frame assembly to the underside of the mainframe tube (using a toe-strap or similar around the wheel and frame tube), do not let the rear frame hang under the bike by the cables, this could damage the cable housings. At this stage you should discard the hinge spindle bolts and washers.



Removing the rear hinge bushes

In order to extract the worn bushes, screw the 7/16" tap into the bush and when it is well engaged feed a suitable drift in to the hinge tube from the opposite side. Lightly tap the drift to push the tap and bush out of the hinge tube, repeat the process for the opposite bush. In some cases, as you screw the tap into the bush the bush will start to rotate in the rear frame and you can simply pull it out as you turn the tap. Once you have removed the bush from each side of the hinge tube clean the bore of the tube with some cleaner and a rag.

Fitting the new bushes

Using a suitable press (or, with care, a hammer and drift can be used) fit the new bushes into either side of the hinge tube, ensuring that the end of the bush is level with the end of the hinge tube.

Reaming the bushes

The bushes can then be reamed to size using the Brompton rear hinge reamer (QRHREAM), the reamer features a pilot to ensure the bushes are cut parallel to the hinge tube. Insert the reamer from one side and carefully cut the bush on this side with the reamer do not pass the cutting surface into the hinge tube by more than 15mm. Remove the reamer and repeat the process from the opposite side.

At this point any plastic shavings from the tube should be cleaned away before checking the fit of the new hinge spindle in the bushes. Insert the spindle through the tube so it passes through both bushes, **this should take only a firm push with a single finger or thumb**. If the spindle is too tight, repeat the reaming process inserting the reamer a further 10mm and repeat the process until you get a satisfactory fit. Ensure you remove any plastic shavings from the assembly before continuing.

If the spindle is too tight in the bushes it will accelerate the bushing wear so it is best to err away from a very tight fit.

Reassembling the hinge

Once you have achieved a satisfactory fit, remove the spindle and apply grease to both bushes. Before fitting the hinge spindle it is important to ensure that no grease enters into the threads in the spindle, use a piece of tissue paper, presta valve cap or similar to plug the threads.

Insert the spindle through the bushes and wipe away any grease collected on the end of the spindle, remove the plug from the end of the spindle and ensure the threads are clean and grease free.

Fit the nylon washers to each side of the hinge spindle (a very small dab of grease on the back of the washer will hold it in place during assembly) and check that the spindle is protruding equally from each side of the hinge tube.

Before positioning the rear frame clean the counter bore in each hinge plate with some degreaser to remove any grease or threadlock residue. You can now position the rear frame and fit the new bolts in place, these should have a line of thread-locking compound applied to the length of the threads and the countersunk head. The bolts should then be tightened to 10Nm using a torque wrench and 5/32" hex bit.

The rear frame should be able to move under its own weight and rotate around its range of movement, at this stage also check for any play in the hinge assembly. The bike should then be left stationary to allow the thread locking compound to cure before riding. The drive side crank and any other components removed can be refitted to the bike.