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X-Brake Fitting Instructions

See Appendix for fitting to Range Rover, Discovery and PTO vehicles
+ Upgrade kit

Thank you for choosing to buy an X-Brake!
Fitting the X-Brake is simple and can be completed by anybody not afraid to wield a spanner.

The Defender / PTO kit contains the following parts. If you have a Range Rover / Discovery kit, it is covered later in this booklet.

Take a look at your existing hand brake drum. Does the hand brake cable go straight in to the drum (at the bottom) or is there a linkage with a metal rod passing in to the rear side of the drum?

If it has the former, you will also need a 200tdi type brake cable (Part Number NRC5088 or NRC5089 for Left hand drive). I would buy one of these before you begin!



Although the brake is pretty easy to fit, I've fitted them many times and this is the easiest sequence I've found.

First remove your rear prop shaft.

Slacken off the adjuster on the rear of your existing handbrake drum. This will make it a lot easier to remove the drum.

The Hand Brake drum is secured by two counter-sunk screws which you will need a big screw driver to remove. Remove the screws and pull the drum off.

Remove the brake shoes.

You will now be able to remove the end of the cable (from the linkage, or from the expander mechanism at the bottom of the drum)



You will now see four bolts on the back plate of the drum which hold the back plate to the back of your transfer box. Remove the bolts (and retain). The back plate can now be removed.

Clean off ALL the dirt from the flange on the back of the transfer box and the prop shaft. Failure to do so may cause the disk to warp!

Remove the right hand calliper slide tube from the calliper and assemble the back plate as shown here.

The M16 bolt should not be fully tightened at this stage.

The back plate can now be bolted to the back of the transfer box using the four bolts retained earlier.

Tip! Before you proceed, have a look at the 'Troubleshooting and Servicing' section on page 5



Now slide the calliper on to the calliper slide now attached to the back plate.

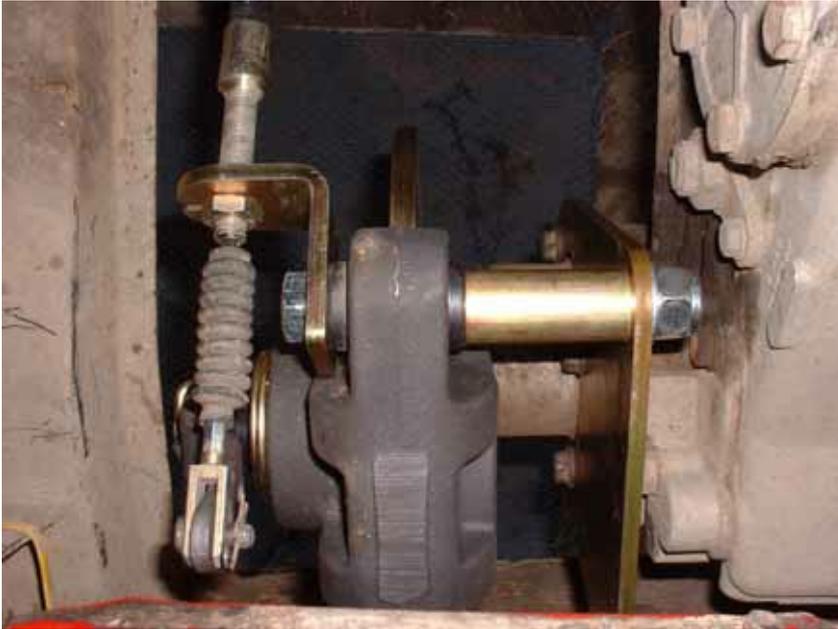


Slide the brake disk over the four studs which secure the prop shaft.

You will need to rotate the calliper 90 degrees clockwise on it's slide to clear the disk.



Remove the packing from in-between the brake pads and rotate the calliper such that the disk slots in-between the pads. This is a close fit and if the two components are not square with the pads pushed against their seats, it won't fit.



Now pass the remaining M16 bolt through the angle bracket and through the calliper. Hold the second spacer tube between the rear of the calliper and the back plate. Slide the bolt through the spacer and the back plate. Fit the last washer and the Nylock nut – but do not tighten fully yet.

Re-fit the prop shaft at this point in order to clamp the brake disk in its final position.

Connect the brake cable as shown in the photograph, but don't worry about adjustment at this stage.

Pull the hand brake lever until it tightens. This will align the calliper with the disk.

Tighten the right hand bolt to 80 Nm torque then align the angle bracket such that the cable is more or less straight and tighten the left hand bolt to 80 Nm.

Release the hand brake lever. Adjust the cable using the two nuts on the threaded adjuster such that the disk is just free to rotate.



X-Brake Use:

The X-Brake is intended to be used as a park brake only.

Your X-Brake may be damaged if you:

- Winch against the X-Brake while applied.
- Drive the vehicle against the X-Brake while applied.

Important Adjustment Note:

When you finally adjust the X-Brake, make very sure the disk is free to rotate with only the lightest amount of rubbing. When the pads and disk are new, the gap between the pads and disk is about right with no further closure. Adjust the cable tensioner such that when the handbrake lever is released, the cable just becomes slack and the calliper operating lever is fully clockwise. 6 clicks on the lever is about right.

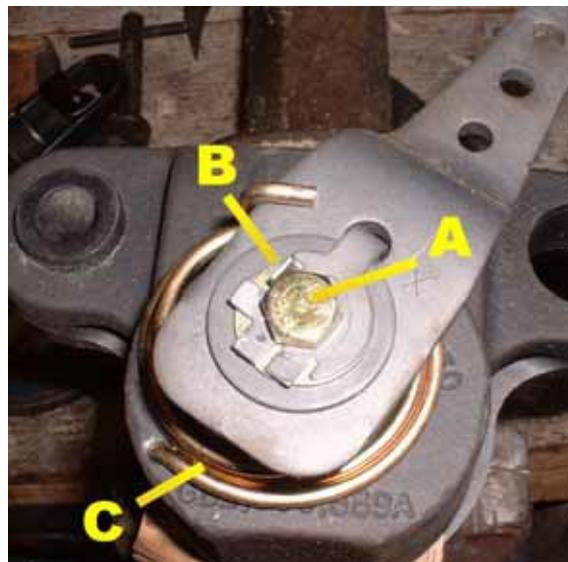
If when the lever is pulled, there is insufficient lever movement for the calliper to grip (you will find in practice it needs very little force), move the cable on the calliper operating lever to the middle of the three holes. This will give more calliper movement for a given amount of lever movement and will make it feel much tighter.

Warranty claims where the returned calliper shows signs of overheating and pad wear due to over-adjustment will not be entertained. In this case, we offer a calliper repair service or we can supply replacement pads, and piston seal for you to fit yourself. Contact us for details.

We have found there is a lot of variation in the lengths of handbrake cables from different suppliers. The one shown in the photographs is about 2cm shorter than the one we supply.

If this is the case and you cannot adjust the brake adequately using just the thread on the cable, there is a course adjustment on the calliper itself. This is much easier to carry out on the bench than on the vehicle.

The lever is attached to the calliper via a spline and is held in place by the bolt 'A' on diagram.



Bend the lock tab 'B' back and loosen bolt 'A' about 5mm until the lever is just free to rotate above the spline. DO NOT REMOVE BOLT – it's the devil's own job to get the spring 'C' back in place!

Rotate the lever one spline either way to cope with longer or shorter cables. Make sure the lever lines up with the splines then re-tighten the bolt 'A' to between 12 and 15 Nm torque such that a flat on the bolt lines up with one of the lock tabs.

Bend a lock tab up such as to lock bolt in place **THIS IS IMPORTANT!**

It's worth pulling and releasing the hand brake lever a few times and re-adjusting to take up slack in the cable etc – but make very sure the disk is free to rotate.

Make sure the lock nuts on the cable adjuster are tight.

That's it, you're ready to roll!

Troubleshooting & Servicing

A few customers have found that their X Brake makes a rattling sound while moving.

The following is a quick guide to how your calliper works and how, if necessary, to stop it rattling. Use the same procedure if you need to change the pads.

There are two pads inside the calliper. One moves when the lever is pulled and the other is stationary.

The fixed pad (the one towards the front of the vehicle) is most likely to be causing a rattle. The photo below shows the fixed pad prior to removal.



It can be removed by gently pushing it from the back towards the moving pad, breaking the bead of silicone which holds it in place.

When you slide the pad out, you will reveal the moving pad. It is held in place by a small plastic peg.



To remove the pad, you need to rotate the operating lever (which moves the pad out of its housing) then gently insert a screwdriver blade behind the pad. As you release the lever, use a pair of long nose pliers



to squeeze the peg.

Sometimes the peg breaks as the pad is removed. This is not important as we are going to stick the pad in with silicone anyway.



Replace the moving pad on its peg and gently press against the backing pad.

Next we need to apply a bead of silicone to the back of the fixed pad.



And slide it in to place.



Place a piece of folded cardboard between the pads to hold them in place until finished.

Now the fixed pad is in place, apply a bigger bead of silicone between the back of the pad and the calliper.



The last step is to let the silicone set whilst the handbrake is applied. This will squeeze out any excess silicone.

Either re-fit the calliper to the vehicle, apply the handbrake and leave for a few hours or until the silicone has set, or, if the handbrake has not been fitted, you can apply tension to the lever with a setup like this.

Use a cable tie and one of the mounting bolts to hold the lever rotated with the pads pressing on the disk.



X-Brake Range Rover / Discovery Fitting Appendix

The fitting of an X-Brake to Range Rover and Discovery models differs a little from Defenders.

The components of the Range Rover / Discovery kit are shown (Right).

The basic instructions and advice hold true, however, the calliper is rotated 90 degrees towards the passenger side with the cable routed between the vehicle floor and the exhaust pipe heat shield.



If your vehicle does not have a heat shield, one must be fitted to prevent damage to the cable.



The photograph (Left) shows the handbrake cable attached to the middle hole on the calliper operating lever. On most Defender models, the handbrake lever has more travel than that on Discovery and Range Rover models. Moving the cable to the middle hole compensates for this difference.

Lastly, again due to differences between vehicles it may be necessary to bend the corner of the exhaust heat-shield down slightly to clear the handbrake cable.

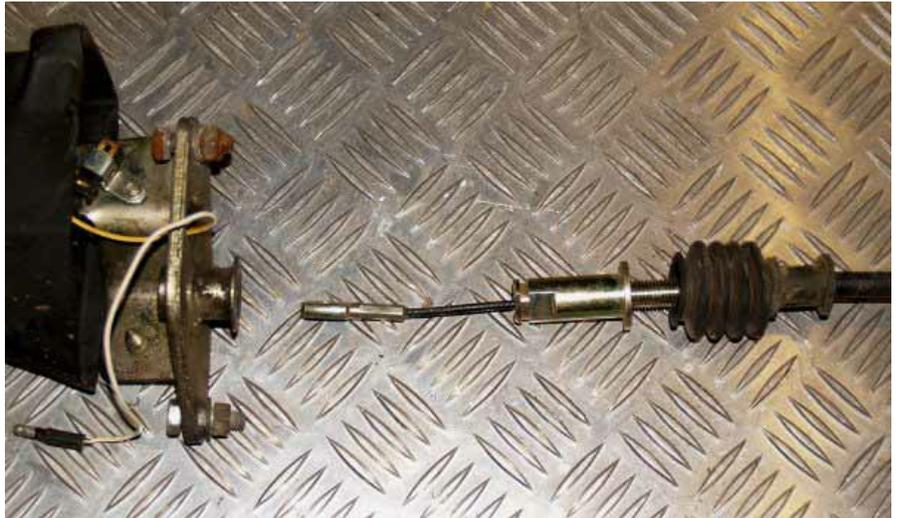
Td5 / 300Tdi Cable Change

If you are fitting an X-Brake to a Td5 or 300Tdi vehicle, you will need to change your handbrake cable.



The photograph (Left) shows a Td5 / 300Tdi cable Top and an earlier type below.

The cable we supply is suitable for fitting to both.



The photo on the right shows how a Td5 or 300Tdi cable is inserted into the tube on the Td5 / 300Tdi lever and retained with a circlip. The cable and adjuster sleeve (as shown on the right) must be removed and can be discarded.

Take the new NRC5088 (or 5089 for LHD) cable and insert it into the receiving tube on the Td5 / 300Tdi lever. The thread on the end of the cable is the correct size to push into the tube as shown on the right.

The eye on the end of the cable can then be attached to the lever in the normal way. The cable is subsequently held in place simply by tension. Some Td5 / 300Tdi cables are fitted with a rubber bung on the inside of the vehicle to reduce water ingress. This can be removed by slitting with a knife and attached to the 5088 cable with a cable-tie if required.

