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Morris Minor Ford based disc brake kit. Fitting Instructions

Please note that this kit is designed for use with standard wheels. You must ensure the suitability of any other wheels before fitting.

These instructions have been compiled for your safety and to make it easier for you to assemble this kit, but are not designed to cover all possible conditions and situations that may occur. It must be clearly understood that common sense, caution and care are factors that cannot be built into any product, these factors must be supplied by the person fitting this conversion and whosoever subsequently drives the car. Please read these sheets and understand the contents before starting the job, as assembly problems can often be avoided this way. Remember to carry out this conversion with care and if you are unsure on any point, or not confident in your abilities, then ask for help.

Before starting work

Jack up the front of the car and support it securely on axle stands placed under the chassis. Do not use a jack alone to support the car whilst working, even when you are not actually underneath it. If it falls off then you may well be injured or trapped. BE SAFE! It is assumed that you have already stripped off the existing braking. If you are unsure please refer to any Minor workshop manual.

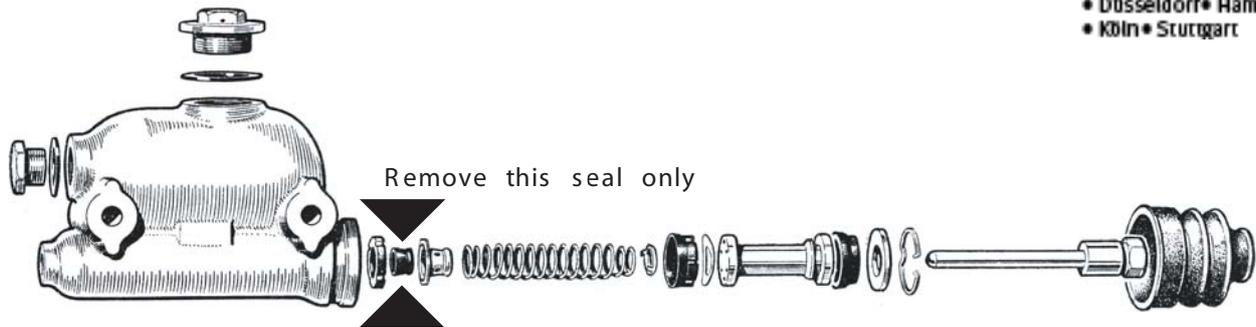
Before starting work read the following notes as there are a couple of things to do at the outset (1, 2 & 5) and some important things to note (3,4, 6 & 7).

- 1) Drill out the four 5/16" holes in each king pin (the ones that held the drum back plate) to 3/8" for the new caliper bracket bolts. Use a slow speed and a sharp drill bit as the material may work harden if too high a speed is used. Take care when drilling as there is only a very small amount of metal to be removed and the bit may tend to 'grab' as it passes through.
- 2) Clean out the split pin holes in the stub axle and ensure the new pins will pass through ok. If not open out the hole gently with a drill.
- 3) Included in the kit are two replacement hub nuts, check these will go onto the stub axle thread easily. These half nuts are left and right handed and the pressed steel retainer included takes the place of the castellations on the original nut.

- 4) In the kit we have included a number of large washers. Some of these are for spacing the calipers as explained further on. Amongst them you will find TWO with a much larger centre bore; experience has shown that the stub axle can vary in length a little, by up to around 3mm, which can cause the small outer bearing not to seat fully. Whilst taking full note of the bearing adjustment instructions further on, if you subsequently cannot initially eliminate all play in the bearings prior to final setting, then one of these larger washers should be fitted on the stub axle before the original Minor thrust washer. Ensure the new washer goes over the stub axle, past the threaded end and sits up against the small bearing face. Do not fit this washer if not required as it may effect the split pin hole alignment.
- 5) The brake master cylinder must be removed for a slight modification. The small rubber cup seal (only) at the outlet end must be removed (see picture). Leave the cone shaped metal holder attached to the spring in place. And YES, this really is necessary, even if a servo is fitted as well, to prevent the disc pads from binding due to retained pressure in the system. Removal of this valve has no other effect whatsoever on the braking system but will cause binding if not removed. The seal should be replaced if drum brakes are ever re-fitted in the future.
- 6) The standard Minor wheels vary and, sometimes, when the wheel is first fitted the outer edge of the caliper just rubs the inside of the wheel. If this is so, you will need to put in a thin spacer (commonly available from Mini specialists or factors), but more often than not in these rare cases just a few miles on the road allows the pads to bed in and the sliding part of the caliper then moves away from the wheel to leave more than enough clearance. To determine the thickness of spacer you may require use of some washers to pack out the wheel but don't use them instead of a spacer.
- 7) If a remote type brake servo is to be fitted this needs to be installed at the correct angle, i.e. hydraulic end pointing up by about 25 degrees with the air inlet chamber/valve cover uppermost. Failure to do so will make system bleeding very difficult. Consult the manufacturers fitting instructions.

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Note: Remove the valve rubber only from this check valve. Leave the metal body in place

Caliper mounting brackets and dust shields

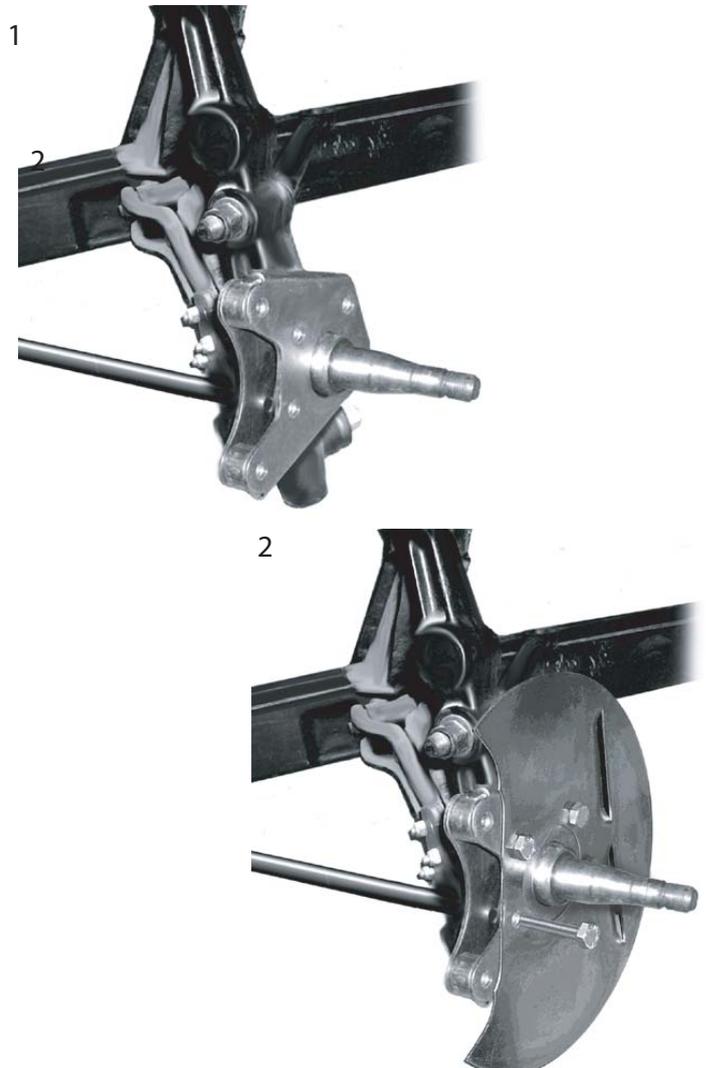
The bracket kit has been loosely assembled before dispatch, please do not take it apart until you understand the reassembly order. The two caliper mounting brackets are handed, as are the dust shields. The side plates are not handed but will only fit one way round. The dust shields must be fitted at the same time as the brackets, using the same bolts. The louvers face away from the disc and towards the rear of the car. **Note** – the calipers go to the front of the suspension leg.

- 1) First fit the brackets so that the folded flange faces inwards towards the centre of the car; ie. wrapping around the face it is bolted to. The two short bolts go at the rear (nyloc nuts behind the leg) and the two long ones to the front, nearest the caliper. Use the shakeproof washers on the longer bolts up against the suspension leg, then a full nut (not nyloc). Now tighten all four bolts.
- 2) Fit the side plates next (behind the leg) with washers and nuts as supplied. Before final tightening check the caliper boltholes line up in both plate and bracket. Tighten 3/8 bolts to 35-42 lbft.
 Final reminder: order of assembly is: bolts through dust shield - caliper bracket - onto leg - shakeproof washers on long bolts - full nuts - side plates - washers and nyloc or full nuts (as supplied)

The hub bearing assembly

The bearing outer cups are already fitted to the hubs and should not be disturbed until replacement. Identification numbers are on the bearing cases for your reference and are readily available when the time comes. Drift diameters for the bearings would be 52mm and 40mm OD. Check the fit of all the bearing inner races on the stub axles, they should be an easy slide fit on the shaft without sloppiness or resistance. If tight just ease down the stub axle very gently with some fine emery or even just wet and dry paper.

Half fill the wheel hub with a lithium based grease, also grease the larger of the two roller races and then insert it into the hub. Put a smear of grease around the oil seal lip, pack out the inner cavity and press into the hub cavity first.



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Fitting the alloy hubs

Place the hub over the stub axle and slide on about half way; grease the small bearing race, insert into the hub and gently push the whole assembly on until fully home. This should leave 13mm to 16mm of thread showing. Follow this up with the original thrust washer as used on the Minor. Important note: Should you be unable to achieve zero play during the initial bearing adjustment (see adjustment section), or to maintain the correct amount of minimum wheel rock during use then refer to ,4‘ on previous page. Spin on the correct side hub nut (left or right-hand thread) and leave at just finger tight for now.

Any excessive resistance will indicate something is wrong - stop and check. It may be that the bearings have not gone on squarely or they are tight on the stub axle (see ,Bearing Assembly‘ section).

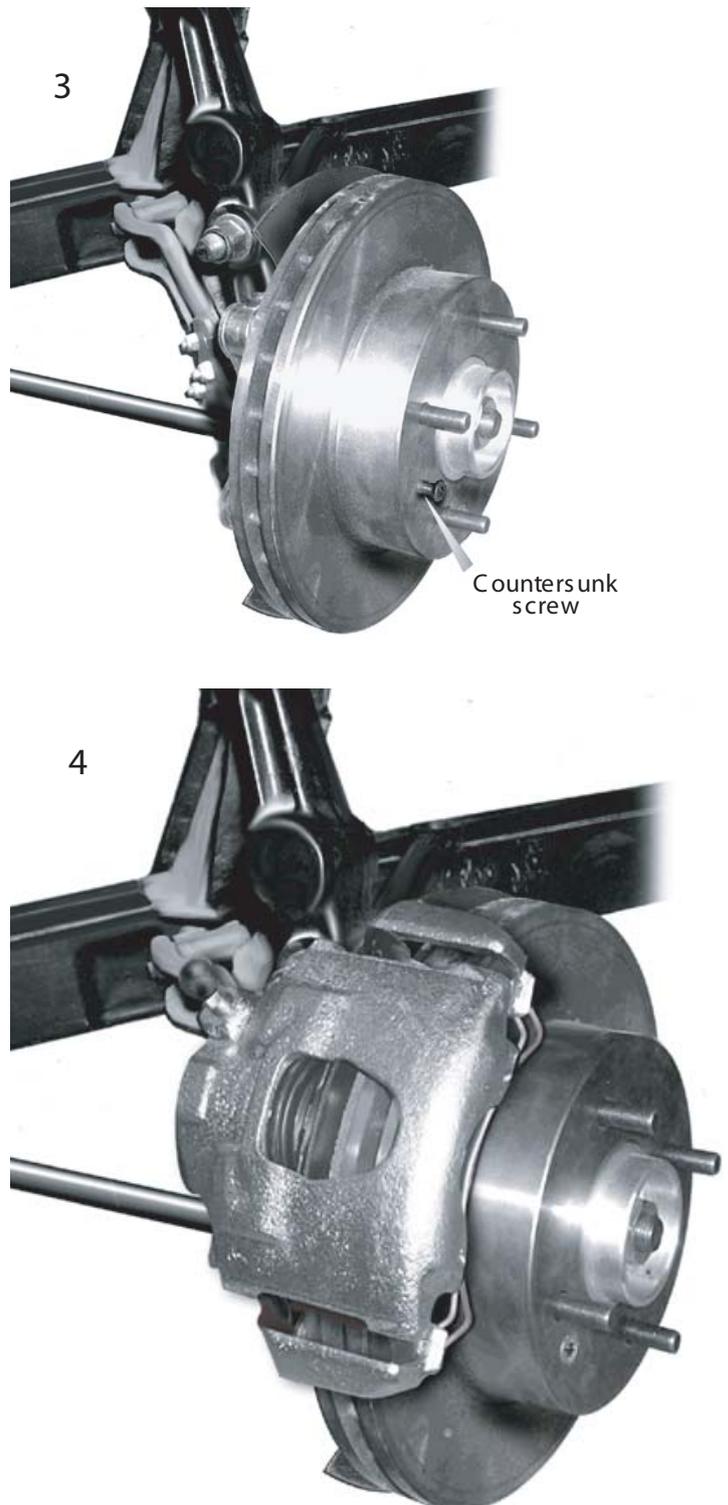
3) Fitting the disc

Take the disc from its wrapping and clean thoroughly with a de-greasant. The disc goes over the hub from the outside, and is loosely held in position by the small countersunk screw but mainly by the wheel when fitted. Ensure the front face of the hub and the mating internal face of the disc is clean and free from dirt, burrs etc. This is important. Align the small hole in the disc with the threaded hole in the hub, push it on and secure it with the countersunk screw.

Run a couple of wheel nuts down the studs to hold the disc flat and check the run-out. Providing everything is clean the runout should not exceed .006“, anything in excess can normally be attributed to the disc not seating fully flat. Don't worry initially if run-out is a little more, it would pay to run the car for a short while to assist the bedding in of components , but if it persists then check again.

4) Caliper fitting

The calipers are handed and fitted with the hose entry pointing upwards and the bleed nipples facing forward. The caliper is fixed between the disc and the mounting bracket, and is secured by the two 10 mm x 35 bolts with spring washers. Included in the kit are 8 thick and 8 thinner washers of about 1“ diameter. Some of these will go between the caliper and the disc to centralise the caliper over the disc. It is an unknown quantity but normally one thick and one thin washer per bolt is a good starting point. Any combination or just one or a mixture is fine so long as there is a reasonably even clearance on both sides and the caliper does not sit at an angle across the disc. Finally use a drop of thread sealant of some sort on the caliper bolts and tighten to about 40lbft.



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Brake hose fitting

Screw the hose into the caliper and tighten. There is no copper washer under the head as metric unions make their seal against the seat on the end of the thread, not under the hexagon. The chassis end of the hose is connected in the normal way of the Minor.

Adjust the taper roller bearings

- 1) With the hub nut backed off, spin the hub and tighten the nut to 5 lbft whilst it is still turning.
- 2) Stop the hub and slacken the nut.
- 3) Repeat this operation a couple of times to let things bed in a bit, then leave at finger tight only for now.
- 4) Position the pressed steel split pin retainer over the nut so that half a split pin hole in the shaft is covered by one of the arms of the retainer and so that when you undo the nut all the hole is exposed. Got it?
- 5) Finally slacken the nut until the full hole is exposed and insert the split pin, locking it by bending around the retainer.
- 6) A small amount of rock (max 1/4") will be noticeable when the wheel is fitted. This is quite normal and should not be eliminated altogether as these bearings must not be pre-loaded as with the original Minor bearings. To do so will cause them to overheat and burn out very quickly. Set correctly the hub end float will be about .005". Do not attempt to use the bearing spacer found in the Minor hub. Use the original Minor hub grease cap in the alloy hub.

A few handy tips to take note of

The wheel bearings will need to be checked and doubtless adjusted two or three times until they bed down, the same applies to checking the wheel nuts.

If the system has been bled correctly and the first feel of the pedal is a bit spongy, it is unlikely to be air in the system. Allow up to 200 miles for the pads and discs to bed in together, over this time some gradual improvement will be felt.

Disc pad assembly order



Caliper/Disc pad assembled

