

# **BGK** ***BROWN & GAMMONS***

## **CASTOR REDUCTION KIT – FOR MGB, GT & V8 1962-1981**

### **PART No: AHH6195CASTOR**

#### **INTRODUCTION:**

The MGB when it was first introduced in 1962 had a 7° castor angle. This angle, which produces the self-centring action on steering, should ensure that the vehicle will continue in a straight line and matched the tyres of the era. The downside is that it requires effort to move the steering wheel. Indeed the greater the castor angle the greater the steering effort. Since those early days tyre developments have materially reduced the need to operate at high castor angles and the MGRV8 (based on the MGB body) when it came out in 1993 had a reduced castor angle of just under 4°.

This kit is designed to replicate the 4° angle on all MGB's, GT's and V8's whether they be chrome bumper or rubber bumper and thereby reduce the steering load. It is specifically not suitable for use on the RV8 or any vehicle fitted with a Heritage Crossmember since this would reduce the castor angle to virtually zero.

#### **THE KIT:**

This kit has been engineered to maintain the same mounting of the crossmember with the same compliance in the crossmember mounts so that there is no loss of ride quality, steering control and so that in all respects other than lighter steering the vehicle will operate exactly as before.

The kit is entirely capable of being fitted by a competent DIY mechanic but as with most matters relating to vehicles needs to be installed by somebody with the right equipment, conditions, knowledge and aptitude. If you have any doubts whatever, the kit should be fitted by a professional. We estimate that approximately 3 hours work would be required.

#### **PRINCIPAL OF THE KIT:**

The MGB front crossmember is mounted onto the chassis legs where four high tensile steel studs are positively located on taper seats into the leg. The lower plain portion of the stud is designed to provide a fixed length of location for the crossmember mounts. See picture for detail of the original fitted.

The method of reducing the castor angle is to provide a steel packing on the front two mount studs in order to rotate the crossmember towards the front of the vehicle. Since the steel packing has utilised some of the length of the plain portion of the stud a steel collar has to be fitted which in effect extends the plain stud length back to its original length. Without this the crossmember rubber pad mounts would be compressed too much thereby ruining the mounts and the ride quality and of course giving a variable castor angle. New slightly shallower high tensile nuts are provided to account for the reduction of useable thread length.

Because the angle of the crossmember upon which the steering rack is mounted will have changed relative to the chassis legs and body the steering rack mast will quite probably no longer align with the steering universal joint. The rack mounts therefore will have to be packed at the front in order to re-align the rack with the universal joint.

## **FITTING THE KIT**

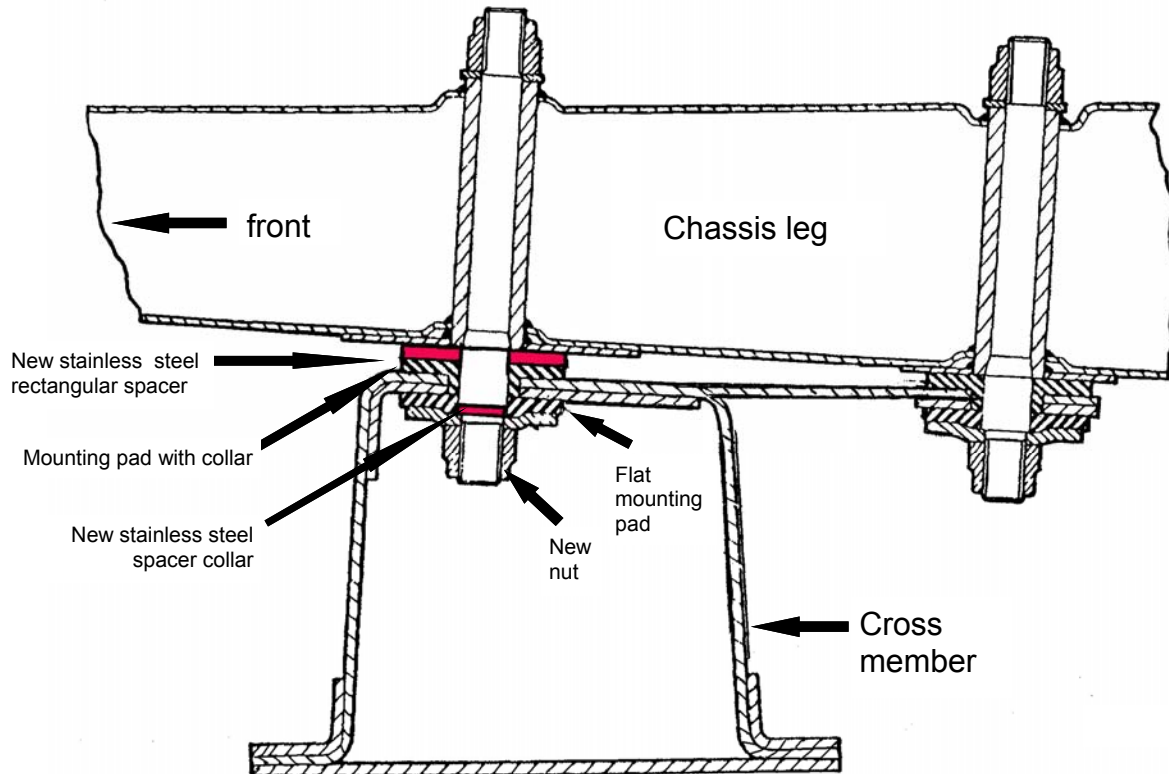
## **\*\*\*\* READ THIS BEFORE COMMENCING \*\*\*\***

**Equipment needed:** Trolley jack, 4 axle stands, AF socket set and AF ring, torque wrench, open ended spanners, side cutters.

1. Position the vehicle on a level firm concrete floor, handbrake on.
2. Jack up the front of the vehicle and position axle stands under the front chassis legs at such a height as to leave the wheels clear of the floor at full extent of the suspension. Remove both front wheels
3. Position trolley jack under suspension pan and support. Disconnect antiroll bar link bolt. Remove lower trunnion bolt, drop suspension pan and remove coil spring. Repeat for other side.
4. Before removing the rack mark the steering mast and UJ with a white line so that you may refit the rack mast into the same spline. Unbolt the rack from the crossmember, you do not have to disconnect from the steering arms but you may find this would give more room and aid re-locating the spline and the rack packing more easily.
5. Position trolley jack in centre of crossmember and progressively undo the lower nuts holding the crossmember to the chassis legs; carefully lower the crossmember onto the axle stands just clear of the mounting studs. Ensure that the metal brake pipes are not strained at this point of the operation.  
**N.B.** Do not undo the upper nuts holding the studs into the chassis leg. These should be checked tightened to 56 lbs/ft.
6. Fit new pads at the rear and the rectangular steel spacer and new pad at the front.  
**N.B.** The pads adjacent to the chassis leg are the ones with the collar on which locates into the crossmember.  
**N.B.** It will be easier and safer to fit the rear mounts first because the front pads are slightly fiddly because you are working inside the crossmember.
7. Jack crossmember back into position ensuring that the rubber pad collars fit inside the aperture in the crossmember mounts then fit the flat rubber pads, original steel plate and nuts at the rear and then repeat operation at the front ensuring that the steel collar is fitted correctly. Use the new shallower nuts on the front studs.  
  
Ensure that the rectangular steel plates are positioned so that they do not touch the sides of the crossmember. Tighten nuts to 56lb.ft and ensure that the thread of the stud protrudes through the nut locking mechanism.
8. Refit the rack and ascertain what packing is required for easy alignment of the mast spline onto the UJ. Using packing as required then tighten the rack in position.  
  
**N.B.** It is very worthwhile carefully examining the rack mounts that are welded to the crossmember in particular on rubber bumper and all V8 models since significant cracks have been discovered on more than one. Our re-enforcement gusset kit AHH6195BRACKET is available to provide extra support to this failure area.
9. Reverse the removal procedure to refit the front springs making sure that the trunnion rubber seals are correctly in position and that the trunnion bolt is adequately tightened before being split pinned. Refit the antiroll bar links. Make sure that the springs are properly located at the top on the spigot inside the crossmember.
10. Refit road wheels, jack vehicle and remove axle stands, lower vehicle to ground and check tighten the road wheels.
11. Although fitting the kit will not have affected the track it may be worthwhile checking that the front track is correct, set at  $\frac{1}{16}$  to  $\frac{3}{16}$  (1.5mm to 2.3mm) unladen toe-in

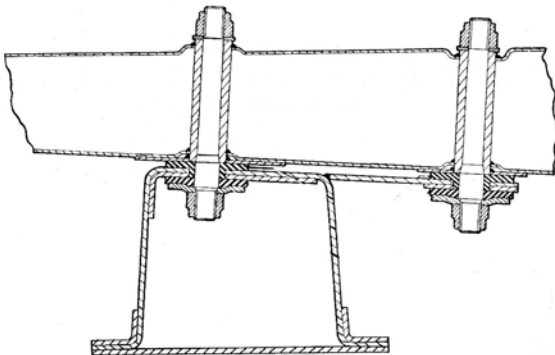
## **CASTOR REDUCTION KIT. DETAIL DRAWING**

Cross section of chassis leg and cross member mounting with kit fitted.



**Note:** The cross section shown is that of a chrome bumper car. A rubber bumper cross member is virtually identical apart from a fabricated metal spacer above the cross member and part of it.

Original installation drawing



Kit Contents:

1. Instruction leaflet
2. 2 x stainless steel rectangular packing pieces
3. 2 x stainless steel collar packers
4. 4 x upper mount pads (either rubber or poly)
5. 4 x lower mount pads (either rubber or poly)
6. 2 x shallow locking nuts
7. 2 x split pins for lower trunnion bolts.
8. 6 x rack packing shims.