

MGB MECHANICAL PUMP POWER STEERING

FITTING INSTRUCTIONS

*Please read all these instructions and look at all of the photos before starting.
The fitment of various other options / equipment may impede progress.*

RACK MOUNTINGS

OPTION 1 - Fit a ready modified sub frame.

OPTION 2 - Modify your own sub frame. **DO NOT DO THIS IF:**

1. The rack mountings are bent or damaged.
2. After cleaning, there is significant corrosion / thinning of the original metal.

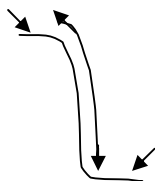
**THIS IS SAFETY CRITICAL.
THE WELDING MUST BE OF A HIGH STANDARD.
IF IN DOUBT – DON'T DO IT!!!**

It is possible to carry out this procedure on the sub frame while still on the car, though it is much easier if it is removed.

Fitting PAS rack mountings on to the sub frame on the car.

Remove standard rack. Leave universal joint on steering column. Hold wheel central with a bungee cord down onto seat mounting.

Clean oil, dirt, under-seal, rust etc. from the front face of sub frame between the rack mountings.



Remove all contamination – very light grind if possible.
THIS IS IMPORTANT FOR WELDING.

Make sure that the existing manual rack mounting surface is clean and straight.

1. Weld rack spacers onto the top face of plate 'A' in both locations, as shown in the picture below. Make sure the holes in each component align; use a bolt and nut to locate the spacer before welding.

Please note - if you are fitting to a left-hand drive vehicle, plate 'A' orientation is reversed; the spacers should always be fitted to the top face of the plate.

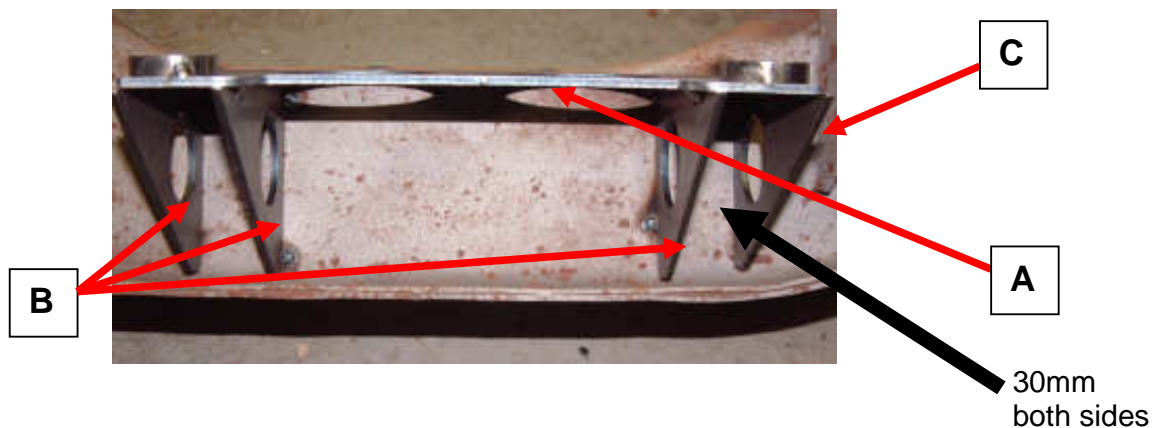
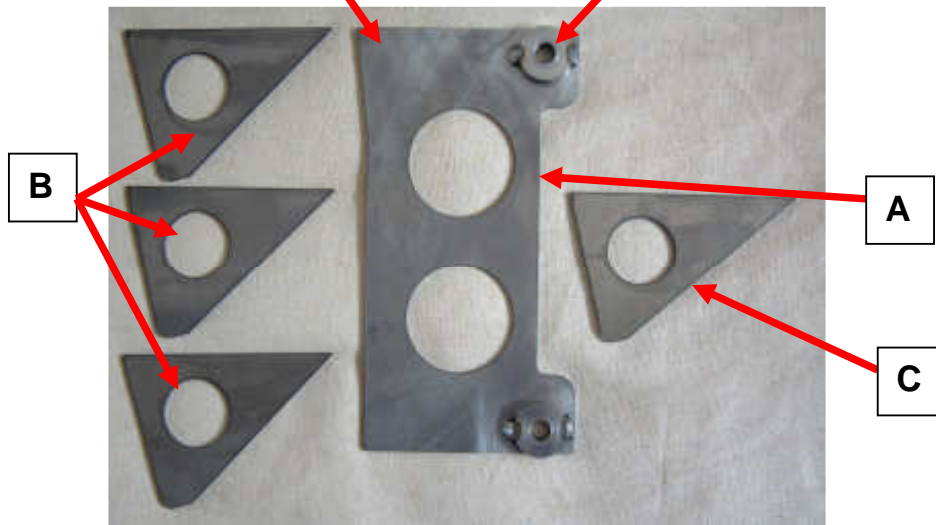
2. Attach jig to existing rack mountings. Bolt plate 'A' to jig – make sure there is a small gap (½ -1mm to the joint of the sub frame). See photo.

3. Facing the sub frame from the front, position, one at a time, a 'B' support on the left hand side and then a 'C' support on the right hand side, both at 90° to the top surface of 'A'. (See photos below)
NB. Pieces B and C may look the same but they are different.

Use tube section supplied to give 30mm spacing between outer and inner supports.
B-B & B-C.

This wider section always fits to the near-side of the vehicle

Weld spacers onto plate 'A' in both locations





Complete welding (as photos below).

Important - Once the welding of the bracket is complete, remove the original rack mounts from the cross member.

Finally, wire brush and paint to prevent corrosion.



FITTING THE RACK

Centralise steering rack (use the intermediate column to help). From one side to the other is 2.85 turns, therefore 1.425 each side is central. Use the flat triangular piece with 114 marked on it between the ram and the flat of the nut on top of the ram post.

Fit intermediate column to rack using the special bolt with the nyloc. Nip – do not tighten.

THIS IS A TWO-PERSON JOB. Fit steering rack to its' mounting (using M10 x 45 bolts, nylocs and standard size washers) while guiding the splined end of the intermediate column into the steering column universal joint. If there is insufficient clearance between the rack housing and the cross-member, insert one to two large washer spacers under both rack mountings. Torque to 40 lbs/ft.

Turn the steering wheel to get access to the lower bolt and loosen the nyloc so the coupling is 'just loose' on the shaft.

Insert the original pinch bolt to lower half of the upper universal joint. Make sure it has secured the intermediate column; use a new nyloc nut. Tighten, Torque 25-30 ft/lbs.

Tighten lower bolt. Torque 25-30 ft/lbs.

Note – the lower universal joint bolt locks the coupling to the rack by turning. Do not hold / restrain the other end.

Remove track rod ends from manual rack, check their condition. If OK, re-use. At this stage it may be worth checking the king pins etc for free play and stiffness. Fit track rod ends to the rack with the lock nuts. Align the outer side of the brake disc with the rear tyre, $\frac{1}{3}$ on the outside, $\frac{2}{3}$ on the inside.

NOTE: FOR RUBBER BUMPER MODELS. Intermediate column clearance through the engine mounting is very tight. Please check carefully, it may be necessary to use 1 or 2 M10 washers between each of the rack mounting points to achieve clearance.

Put intermediate column through engine mount before installing the steering rack.

FITTING THE RESERVOIR

Reservoir Kit:

Reservoir

Bracket

Spacer

1 ¼ bolt

Washer

Feed pipe 5/8 dia. 380mm long, adjust length if necessary.

2 off OX jubilee clips

Reservoir bracket can be fitted in two ways:

1. Use the mounting of the oil pressure gauge pipe joiner; turn joiner over if necessary.
2. Fitted to the bulkhead as shown in the picture below; this will require the bracket to be bent by 90 degrees.

Mount bracket with spacer and 1 ¼ x ¼ unf bolt.

The reservoir clips into forked bracket.



FITTING THE PUMP

Pump Kit:

- Pump
- 2 off spacers
- Front bracket - 2 off M8 x 20 bolts plus star washers
- Rear bracket - 2 off M8 x 45/50 bolts plus star washers
- 2 off M8 x 50 pivot bolts
- 2 off M8 nylocs
- 6 off M8 washers
- 1 off M8 x 55
- 2 off washers
- 1 off M8 nyloc

Pump mounts to front bracket by the two M8 x 20 bolts with star washers, the rear by two M8 x 45s with alloy spacers and star washers.

Completed Pump Installation



Pump Rear Bracket Showing Alloy Spacers



The front bracket uses the M8 x 55 bolt for adjustment on the existing thermostat housing (post 1976) or the bracket kit provided (pre 1976) Note sleeve nuts and spacers securing thermostat housing bracket on the pre 1976 models.



Front and rear brackets pivot on alternator mounting using new bolt M8 x 50.



Take note of the hose connections in this picture.

High pressure from pump going to the rack with the banjo fitting connected to the side of the pump.

Feed from reservoir to pump on top is a push fit secured with a jubilee clip.

Pump Pulley and Alternator Double Pulley

Pulley Kit

950 belt

550 belt

Pump pulley 130 dia.

4 off M6 x 12 bolts

4 off star washers

Alternator double pulley + (spacer where required)

Change alternator pulley. The spacer is used on post '76 cars.

CHECK PULLEY AND BELT ALIGNMENTS.

Use washers provided to correct alignment.

Use new shorter fan belt.

The pump pulley fits to the pump with the smaller diameter recess to the pump hub.



High Pressure (HP) and Low Pressure (LP) Hoses

NB; There are two types of hoses: screw in (early type) and push in (later type).

NB - PAS fluid or Vaseline should be used to lubricate the rubber hoses prior to connecting.

The return pipe from the rack goes to the smaller reservoir outlet. Use jubilee clip to secure.

Screw in Type (Early):

Both the pressure and return pipes into the rack use seats. 30° angle into the rack i.e. the hoses sit on the 45° angle.

Both pipes may need bending at the rack union to gain direction or clearance.
Pipes should not touch or rub on anything.

The pressure pipe secures to the pump outlet using the banjo connector on the hose and the banjo bolt with a sealing washer each side of the banjo union.

Push In Type (Late):

These type of connectors do not have pipe seats; they are sealed via o-rings on the hose fittings and are secured with a double U shaped plate, larger U for the return pipe.

To fit, wet the pipe ends and the O ring seals with PAS fluid, Push gently into the rack connector while making a small circular motion. When both are fully seated secure with the plate and M8 set screw.

Pipe Kit

Pressure hose – with banjo fitting
Return hose – cut to length
Banjo Bolt
2 off washers
1 off jubilee clip

Screw In Hoses:

Pressure pipe seat - small
Return pipe seat – large

Push In Hoses:

Double U plate
M8 set and lock washer

Picture Showing Completed Under Bonnet Installation



COMPLETION

Fill the PAS reservoir with fluid, approximately 1/2 litre total (Dexron RII).

Start engine, top up PAS fluid, check for leaks.

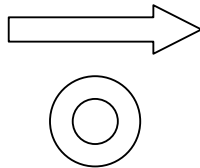
Work steering wheel from lock to lock 5-6 times – do not hold on full lock.

If everything is OK, lower car from stands and drive a short distance.

Determine where the steering wheel is relative to the vehicle going straight-ahead.

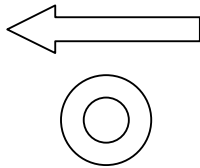
See diagram to correct.

To turn steering wheel:



Turn track rod ends:

N/S - IN
O/S - OUT



N/S - OUT
O/S - IN

Do this and test drive again. Check for leaks and steering is straight.

If OK, then re-track.

When driving, take time to become accustomed to the steering.