Installing an ‘A’ Frame rear suspension set-up to an Austin A30 or A35

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An ‘A’ frame rear suspension set-up can be installed beneath an Austin A30 like this, or an A35 (plus other rear drive BMC models!).

Hylton Reid describes how he tackled this job, to improve rear axle location and dynamic behaviour…

(All words and photographs courtesy Hylton Reid; © H. G. Reid 2020).

Note: All information given in good faith; please work safely and if in any doubt about your own abilities to carry out the work, entrust the job to competent professionals.

The purpose of this article is to show how an "A" frame may be fitted to the rear axle of an Austin A30 or A35. It will also probably suit an A40 Farina, Austin Healey Sprite or MG Midget.

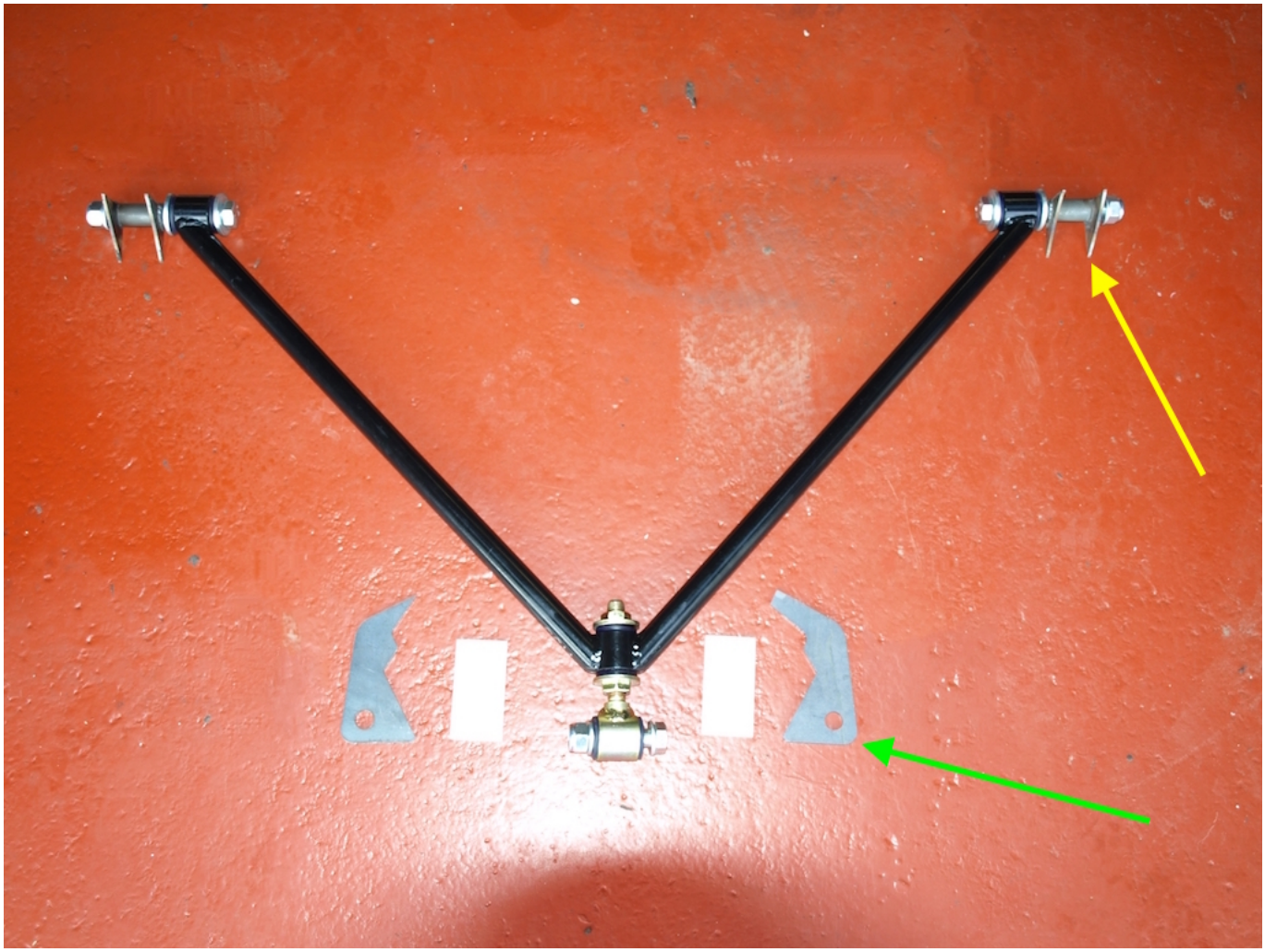
All parts obtained from Rae Davis Racing. The "A" frame comes delivered with all components, including those that need welding.

The general layout is shown in the photograph below.

At the outside top are a pair of triangular plates (indicated by the yellow arrow) joined by a tube. They are the mounting pieces for locating the front of the "A" frame to the chassis.

The peculiarly-shaped pieces at the bottom (as shown by the green arrow) are for welding on the rear of the differential case, to support the rear mounting of the "A" frame.

The square-ended one goes on the RIGHT of the differential and the pointed one goes on the LEFT. They are pictured in the correct positions.



The first task is to correctly position the front, triangular, mounting pieces.

They fit slightly underneath the front part of the rear road springs, and inside the existing flanges for the springs.



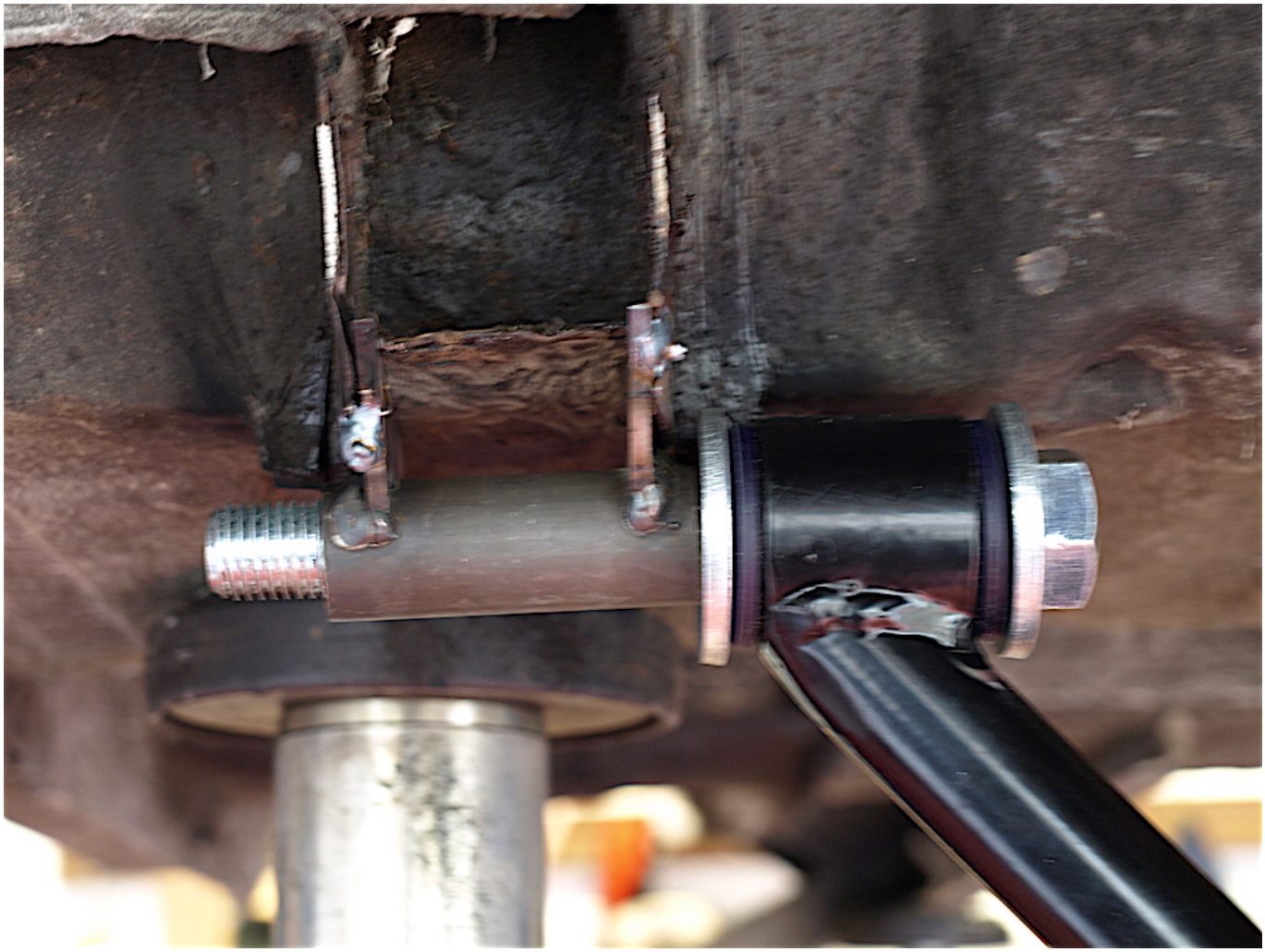




(Note: These photographs were taken before the car before it went for its restoration and re-painting!).

It is important that they are correctly aligned with each other and positioned so the frame is central to the axle. The easiest method is to use the “A” frame itself.


STEEL



Above we can see the “A” frame used to locate each mounting piece, which are held in place by G clamps.

At this stage you can raise the “A” frame into its operating position and take sights along the transmission tunnel to check its alignment for the centre of the differential. If it is a bit out you can still adjust it.

Here (below) we have the “A” frame hanging from the mounting pieces. These have just been tack welded into position, prior to having a full weld carried out.


FRAGILE



Next, as shown below, you need to assemble the rear axle onto the springs in the same position it will occupy when on the road, then fit the “A” frame to the front mountings and, using this as a guide, prepare the vertical brackets for welding onto the rear axle.



Now, referring to our first general layout/'schematic' image at the start of this feature, and the photograph below, select the correct profiles for the LEFT and RIGHT vertical brackets. They may need a little bit of adjustment to make them a good fit.

Remember to remove the differential unit before you start welding.

First just align the brackets and tack weld them in place, using the rear of the "A" frame as a jig.

The small, rectangular pieces may be used to re-enforce between the vertical brackets for

additional strength, if required. (Note: This one does not have the re-enforcement pieces fitted.)

Ideally remove the “A” frame and axle from the car, to make the welding position more comfortable. However, it is possible to weld them in place in the car.



Finally, assemble the whole lot together, making certain that the bolts are not over tightened. Job done!

THERE’S MORE…

This article has created much interest, and in response to a reader’s query regarding the different ways that a Panhard rod system operates, compared with an “A” frame set-up as described in this article, Hylton writes:

‘The “A” frame conversion to the rear axle will act as a Panhard Rod and Radius Arms combined.

The Panhard Rod prevents the axle moving sideways in a corner, which the “A” frame also does. The problem with Panhard Rods is that they are not symmetrical, so the effect varies between right and left corners. The “A” frame does not.

Also it prevents axle wind up on acceleration, just like Radius Rods. So you would gain on both counts.’