

Fitting GM 'W' body rear calipers to a Lotus Elan M100

Background

I recently sourced what I believed to be a set of direct replacement calipers for my Elan M100. These calipers are from US spec General Motors 'W' bodied cars, specifically:-

Buick Regal 1990-1993

Chevy Lumina 1990-1994

Oldsmobile Cutlass Supreme 1989-93

Pontiac Grand Prix 1989-1993

These calipers are an improvement over the Lotus originals, as they have a hardened anodised handbrake bushing and metal sliding pins, these I believe were as a result of the well published GM lawsuit. As a result, they shouldn't be as prone to seizing, as the originals are.

****Note**** My calipers specifically stated they were heavy duty, not sure why but worthy of a mention.

Inspection/fitting

On initial inspection these calipers were identical to the Lotus originals, same shape, dimensions, pipe fixings, bleed nipple locations, handbrake brackets etc. In fact, the only difference I could see was the left hand brake actuator arm (see picture), this looked completely different to the Lotus offering but I didn't see this as a huge problem, as I could use my originals (worth noting that you can't buy these separately).



However, when it came to fitting, it became apparent that something was amiss with the handbrake actuator mechanism. This was eventually traced to a subtle difference in the caliper casting body i.e the new calipers were missing a small piece of casting, around the size of your fingertip. See red circle below.

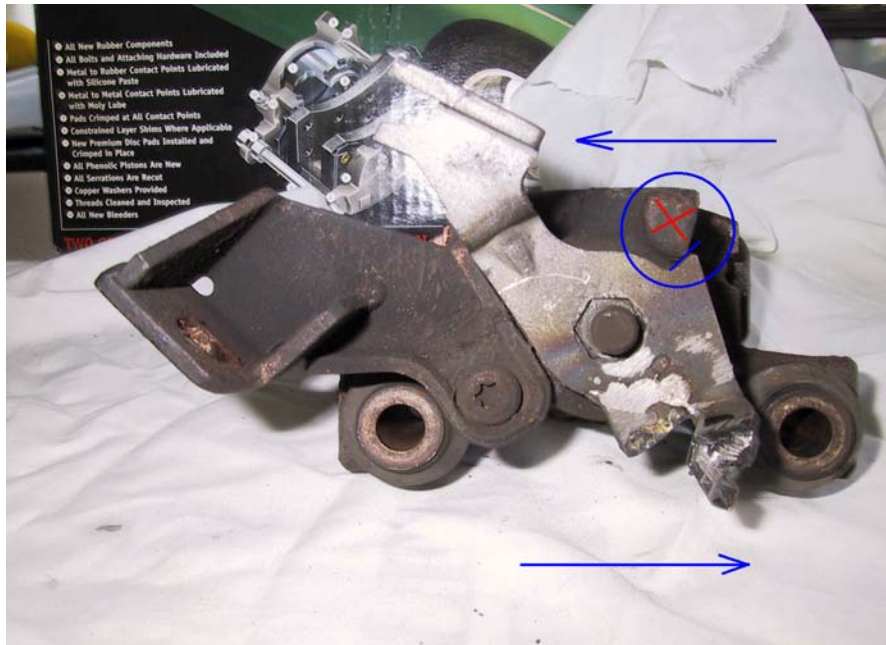


And again here :-

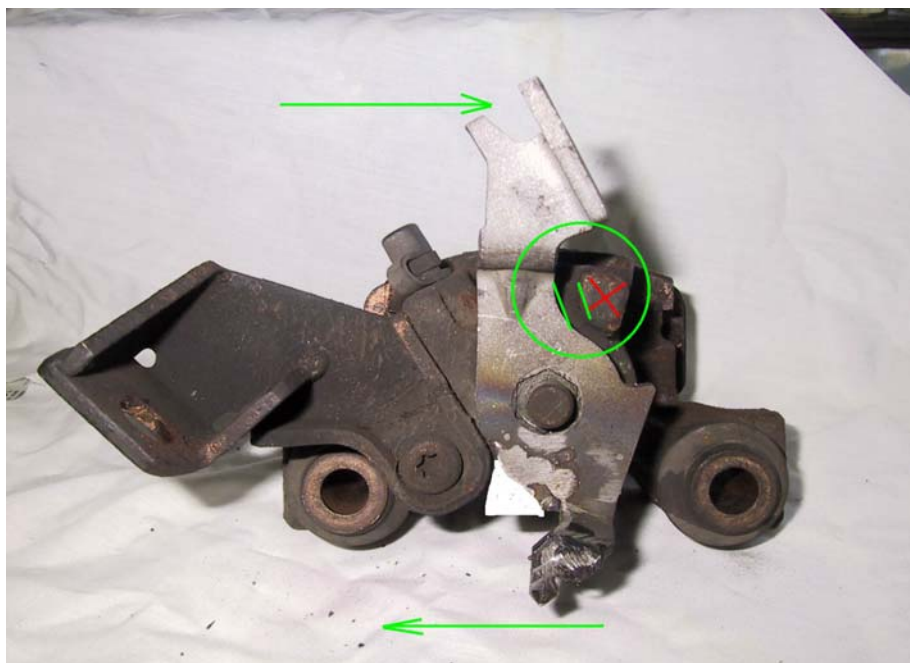


The purpose of this missing casting is to limit the clockwise/counter-clockwise movement of the handbrake actuator arm.

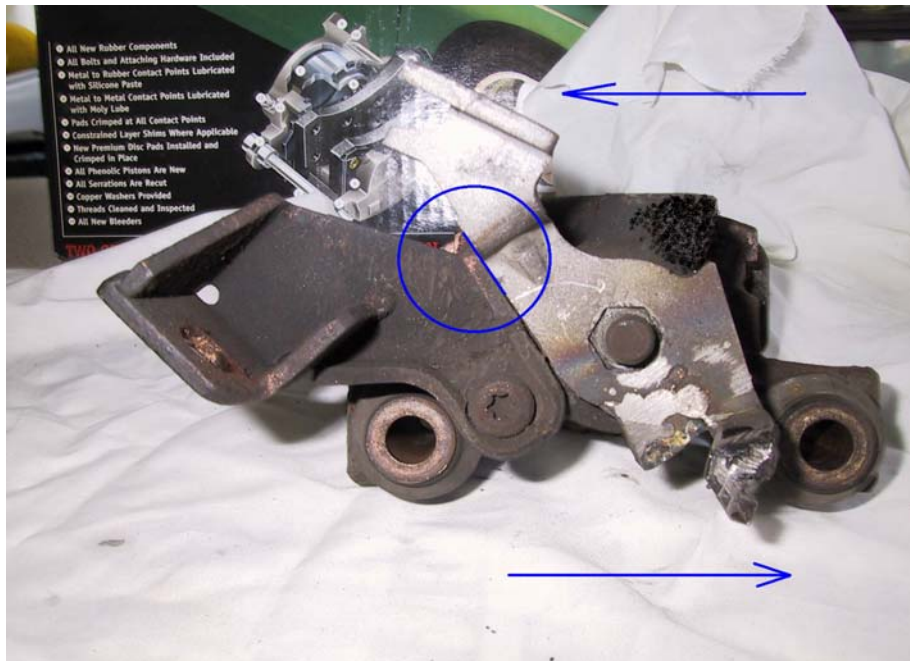
In the picture below, you can see the red X on the casting and where the actuator lever presses against it (blue line), when the lever is operated in a counter-clockwise motion (All pictures are of a Right Hand Caliper/Lever setup).



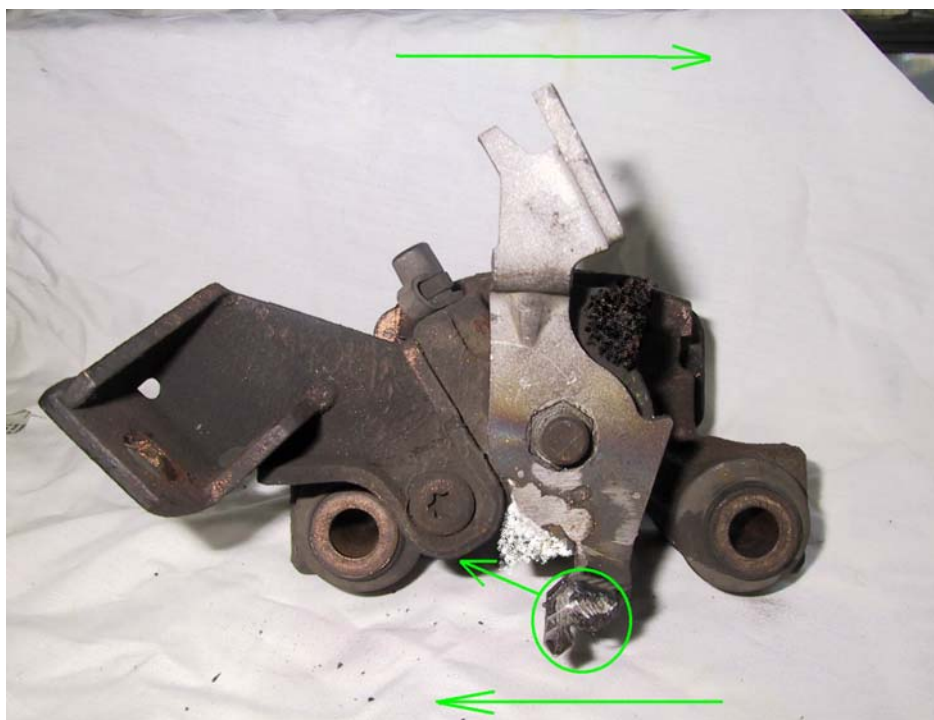
And again in a clockwise direction (green lines).



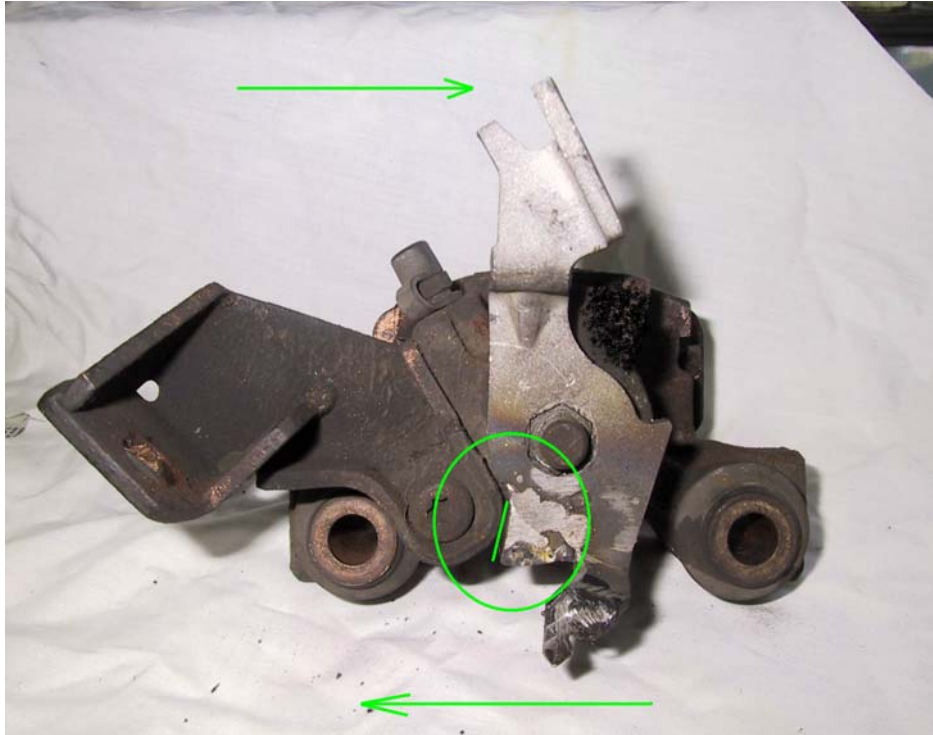
Now with this part of the casting missing we have a problem with actuator movement, or do we? Well yes and no, that is, in a counter-clockwise motion, the lever actually rests against the handbrake cable bracket without any problems (blue line).



But when the lever is operated in a clockwise direction, we have a fair amount of travel before the lever catches on the lower section of the handbrake bracket.



So our solution to this problem, was to weld a triangle section of steel onto the lower section of the actuator arm, which when operated in a clockwise direction, catches against the lower section of the handbrake bracket. See below.



The modified lever below shows the welded addition (shaded area).

****Note**** The top of this picture is actually the 'side' that presses against the caliper body. You can just make out the spring hook, just under the modified area.



Above (resting on the original lever).

Close up of the weld



This is what they look like fitted. If you look close enough, you'll be able to see the mod to the lever i.e the picture on the left has no gap between the lever and the bracket (hand brake off). Right shows a gap between the lever and the bracket (hand brake on).



I can't speak for all the other aftermarket GM 'W' bodied rear calipers i.e some may come with the lever stop casting in place.

Mine were fully loaded (complete with pads etc), remanufactured units, from Ohio Calipers.

Hope this document is of some use to you.

Kindest Regards
Darren Wood.