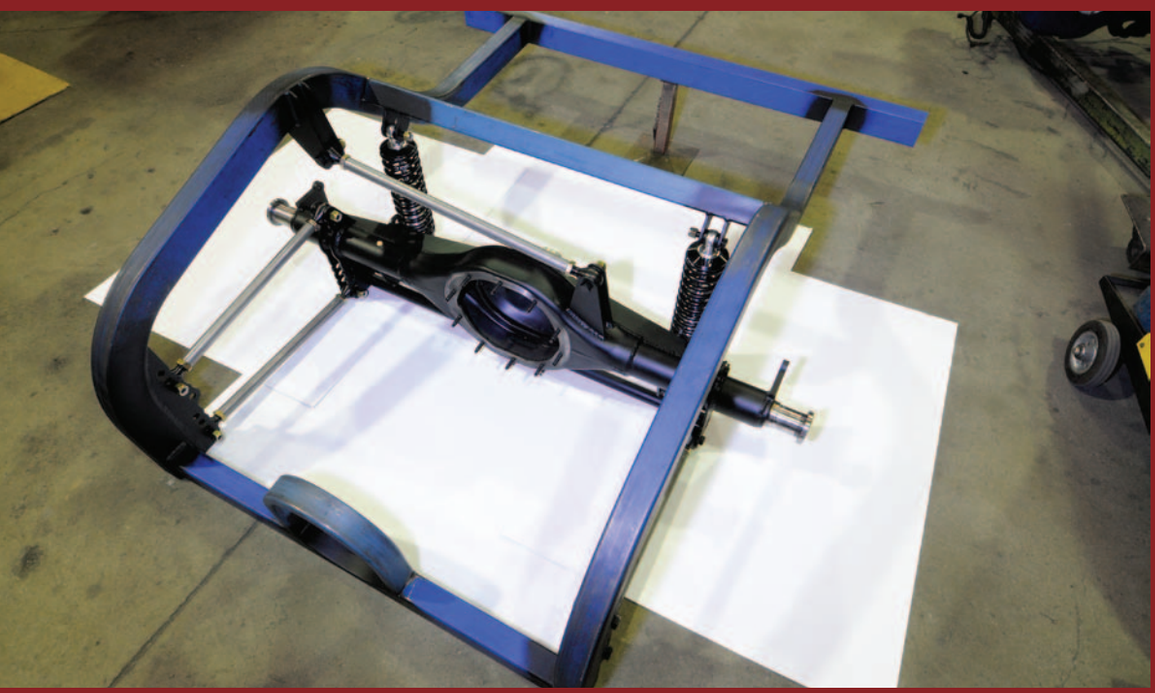
McDONALD BROS RACING

WHO BETTER TO TALK TO ABOUT TIGHT REAR-ENDS THAN THE CHASSIS MASTERS THEMSELVES, MCDONALD BROS RACING?



ADJUSTABLE 4-LINK CLIP

One of the most recognised names in the chassis game, McDonald Bros Racing have been in business for 40 years and have built rear ends for some of Australia's toughest cars. With five full-time staff on site at any given time, McDonald Bros design and manufacture a number of different rear end chassis clips, suspension and differential setups for race and street cars along with a load of other components and accessories that are made in-house and available from their workshop in Victoria as well as online.

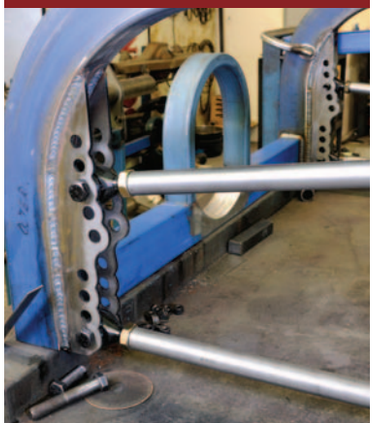
While the workshop and team are equipped to carry out chassis modifications and installations of their clips on site, the large majority of McDonald Bros' business is supplying chassis clips and rear end components, including complete rear clips to other workshops and DIY'ers throughout Australia.

Here we run you through a typical street/strip 4-link clip being put together at McDonald Bros Racing. This particular setup is being built for a 1958 Chrysler Royal but apart from the chassis dimensions it is a standard setup that the guys have produced time and time again and it's for this reason they are the chassis specialists.

This is how it all begins. Here you can see the new chassis rail clip sitting on the jig. Installation of the 4-link brackets and adjustable chromoly upper and lower control arms has begun

A quality spirit level is a must when setting up a chassis clip and should always be on hand

A typical 4-link setup includes all brackets that are precision laser-cut to ensure a standardised high-quality finish. The control arms can either be made from steel or chromoly and are fitted with either solid rose joints as pictured here, which are for race-use only, or bushed items for street use

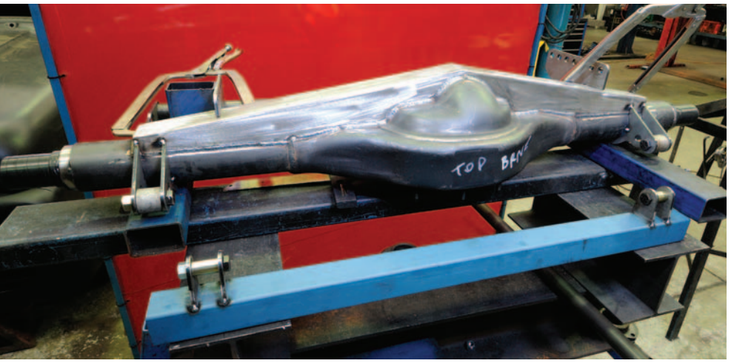


The chassis brackets are welded to the front of the clip. If you have bought a kit and you're doing this at home you must ensure that the person carrying out the assembly is a competent welder as these welds will be under plenty of stress when the car is on the road

On the opposite end of the arms is the diff' bracket. This will be welded to the actual diff' housing

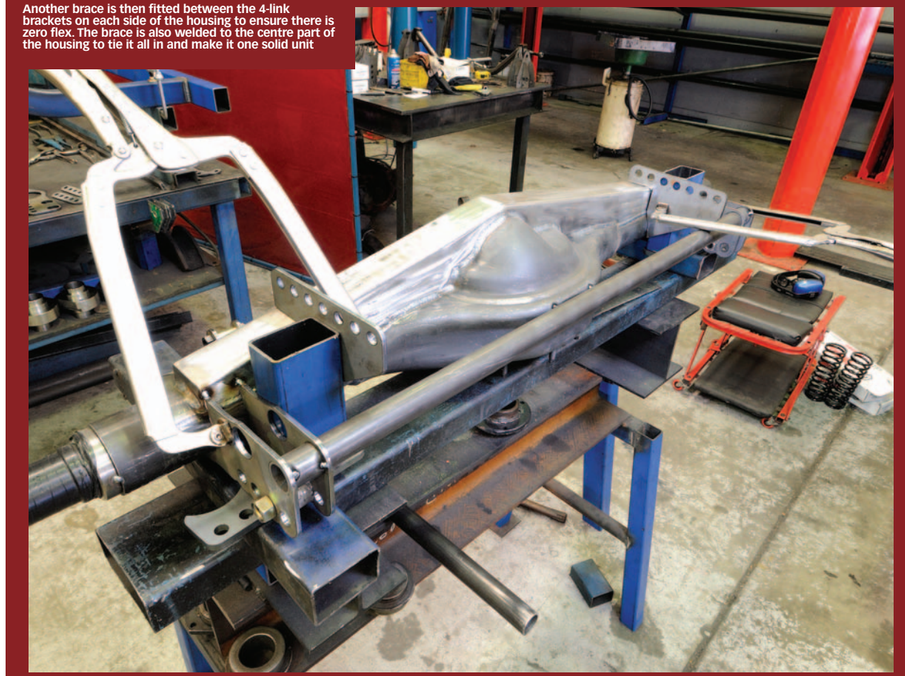
This setup uses mild steel for the arms and bushed rose joints which are a must for road-registered cars

Fabricated housings like these Competition Engineering items are able to support 1000hp or double that when sufficiently braced



The custom heavy duty housing is externally braced for added strength. McDonald Bros HD 9in housings are a lot stronger than the OEM Ford items and are good for 650-700hp. Once you start pushing numbers passed these then bracing is a must to prevent the housing from twisting and bending

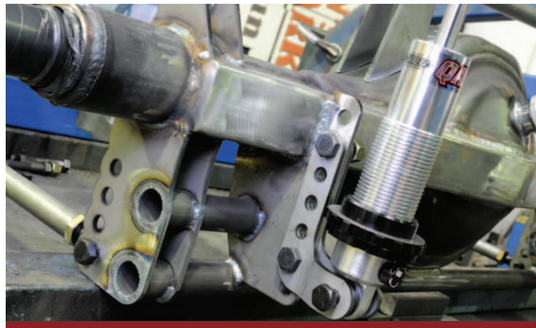
Another brace is then fitted between the 4-link brackets on each side of the housing to ensure there is zero flex. The brace is also welded to the centre part of the housing to tie it all in and make it one solid unit



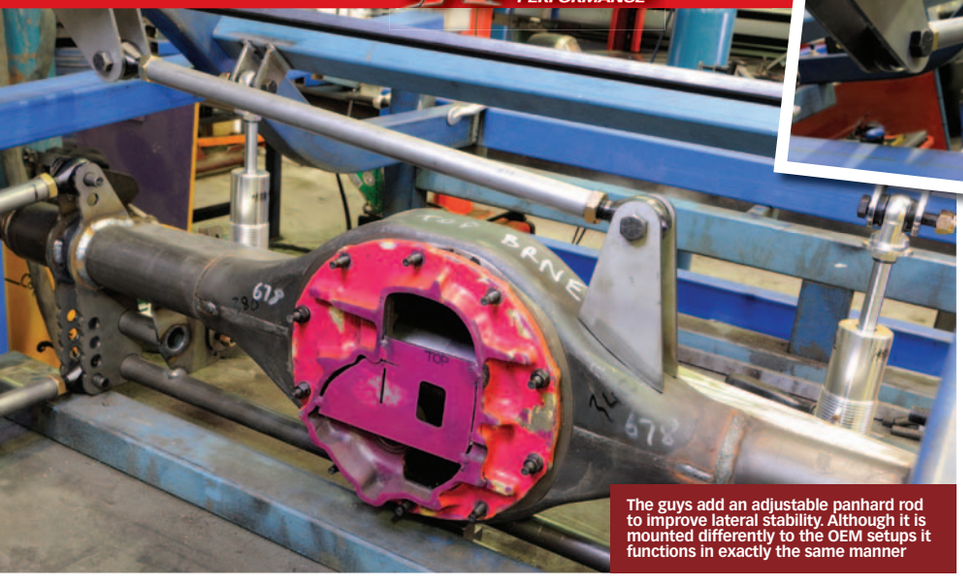
Unless you look like an octopus and have multiple arms you're not going to be able to hold everything in place when welding and assembling and that's where these guys come in handy. They won't squeal from the welding sparks either like your mate will either

Next are the brackets for the coilover shocks. Once welded to the housing they are also tied in with the support bracing just like the others

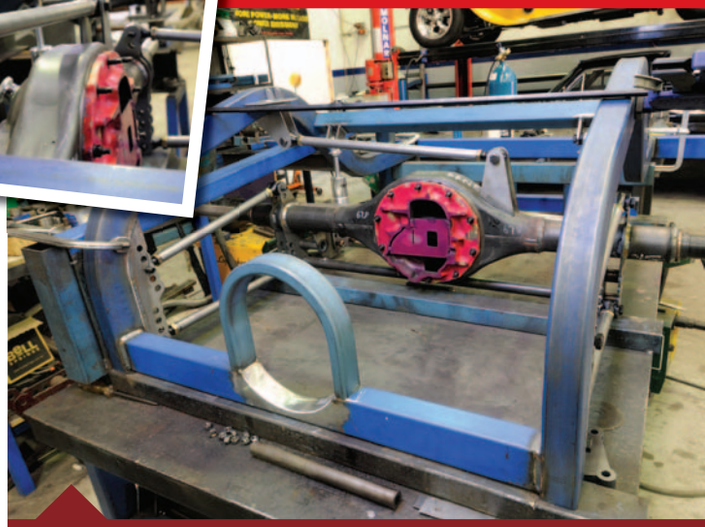
McDonald Bros can supply a few different brands of coilovers but for this particular install they have gone with these quality QA1 items. They are fully adjustable and are nice and compact



In this image you can see the coilovers mounted and the huge amount of bracing involved. This ensures all brackets are kept square at all times even when being put under huge amounts of stress from those hard launches on the strip

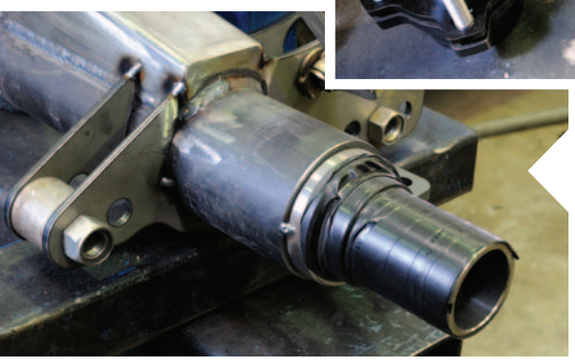


The guys add an adjustable panhard rod to improve lateral stability. Although it is mounted differently to the OEM setups it functions in exactly the same manner

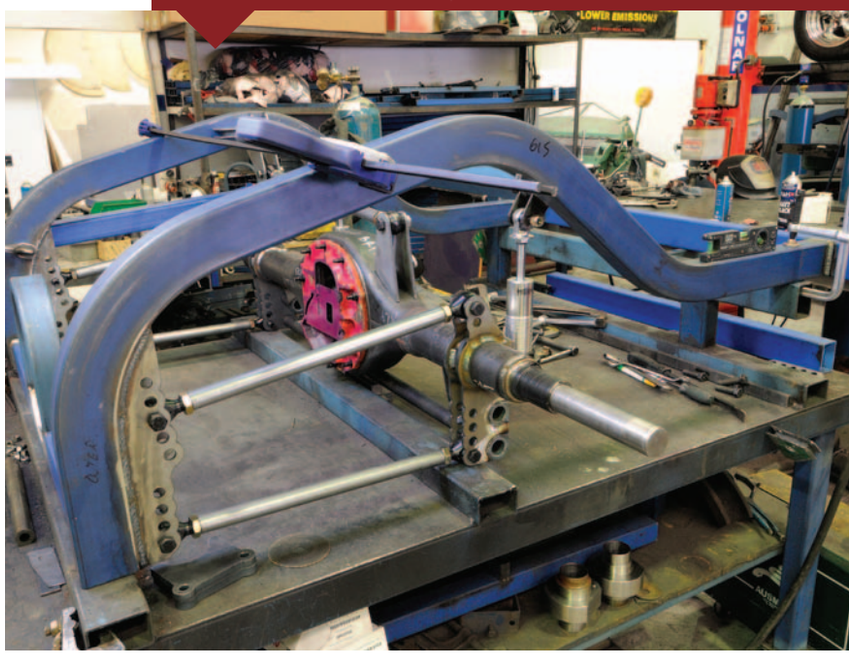


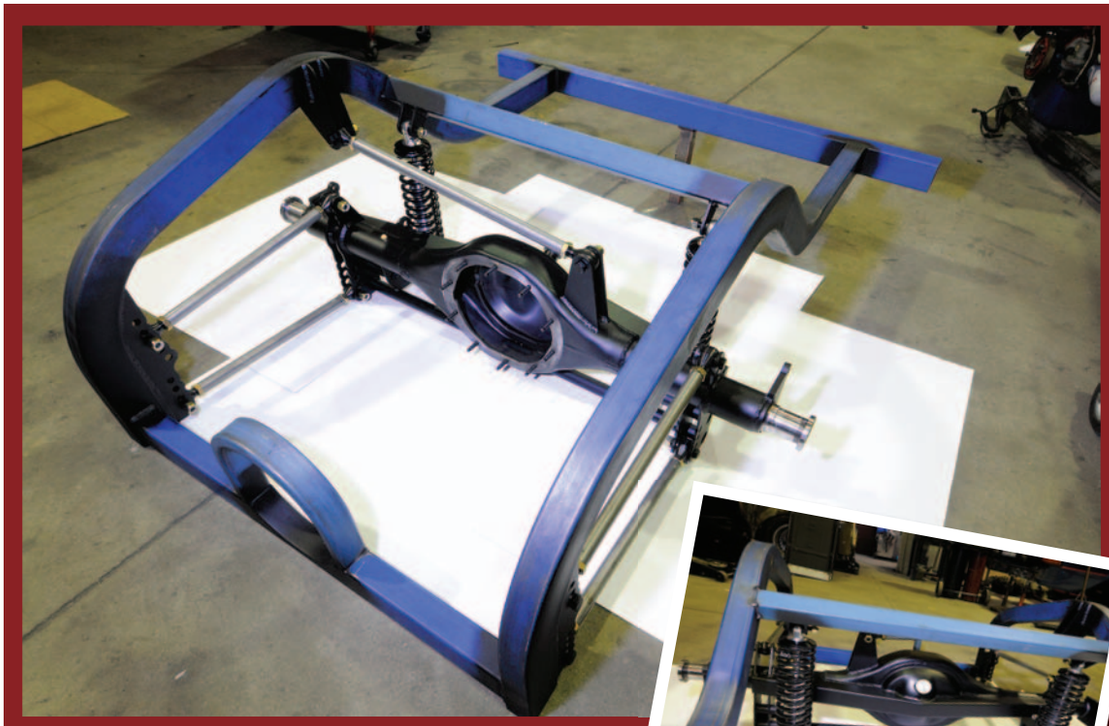
You can see now that it's all coming together with the housing now mounted in the clip along with the panhard rod and coilover shocks. At the front of the clip you will see the frame-work of the tailshaft tunnel which also functions as a tailshaft loop

In this photo you can see the two different bearing setups that are used. The black item front left is the floating hub assembly which is used in conjunction with the spindle behind it. The three billet flanges in the middle are conventional style ends, the front for the large-bearing Ford, Commodore/Holden in the middle and at the rear is small bearing Ford. The axles on the right side are to suit the floater setup and are splined on each end



One thing we haven't mentioned yet is the bearing setup. Here the customer has chosen to go with a full-floating setup rather than the conventional flanged type axle/bearing assembly. ANDRA rules state that you require a full-floater setup if your supercharged or turbocharged car is running quicker than 7.50's on the track





Here you can see the final product ready for installation or shipping. At this point you can really see the benefit of buying a whole rear-clip fully assembled ready to go. Then it's just a matter of setting your car up on stands ensuring that it is level, bracing up the rear of your shell and removing the rear floor-pan from your vehicle before lining up and welding in your new chassis-clip.

The most important thing to remember is that while these clips are sold in kit form they do require some serious thought when installing them into a vehicle DIY-style. As we mentioned you need to be a competent welder and have access to a decent MIG or TIG welder to start with. You also need to ensure that you take your time and as they say, measure twice, cut once. You must be certain that everything is where it is supposed to be prior to doing the final weld-job. There would be nothing worse than installing your new clip, getting your car on the road and finding out that the rear end is not square and that your car is now crab-walking down the street. Even if you don't plan on doing it yourself, being able to supply a clip ready to go to your engineer/fab shop will save you a lot of headaches, time and money in the end and you will have your car back in your shed a lot faster too.

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