

# **Rock Sliders**

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The most vulnerable cosmetic part of any vehicle while off-roading is the door sills (rocker panels), located just under the doors. This area is potentially exposed to a variety of different flying obstacles, including rocks and branches.

I discovered this little fact on a day trip to Toolangi State Forest with a group of friends. I had never been there before and really had no idea as for what to expect.

We stumbled upon a track that was covered with fallen trees, some of which had been cut and cleared, but none the less it was a tight squeeze through the maze of remaining tree trunks and branches. In one section, my rear tyre brushed a rock ledge, and my vehicle was thrown onto a tree stump.



Fortunately, due to my body lift, I managed to pull the vehicle out with only superficial damage. It was at that stage that I decided that I needed some body armour in the form of rock sliders.

In short, rock sliders are steel bars that run along each side of the vehicle, under the door sills, from just behind the front wheel to just before the rear wheel. They are affixed to the vehicle's chassis and protect the door sills from being damaged.

The following week I went off in pursuit of some decent sliders. After some research, I discovered lots of visually exciting sliders in a multitude of colours – but all of these sliders were not compliant with Victorian roadworthy standards. The problem was that every slider I came across required some form of modification to the vehicle's chassis for installation (e.g. drilling or welding), which in itself is a roadworthy issue, because it weakens the vehicle's structure. So after days of thinking, and a few weeks to manufacture, I came up with a roadworthy design – this is how.

**Required Tools:** Angle grinder, pipe bender, welder, drill, plasma cutter / oxy (a small angle grinder and some skill will also suffice).



**Did you know Team MudRhino has a pipe bender for forum member loan?**

**Take a look in the 'Body Modification & Fabrication' section of the forum for more information.**

**Required Materials:** 50 mm x 3 mm bendable metal pipe, 70 mm x 5 mm bendable metal pipe, tube pipe, c channel frame (to wrap around your chassis – which will vary in size depending on your car's chassis thickness), self tap screws, and 2 high tensile nuts and bolts (like the ones you use in body lifts). Exact lengths will vary depending on your vehicle.

### Step 1: Measuring the length of your sliders

The first thing you need to do is measure up the amount of metal you're going to need. Here is a basic way to measure up all the sections required:

1. *Measuring the length of the outer tubing (70mm)* (see figure 1). Generally this will be about the same length as your door sills. Add to this the necessary depth of the sliders, which will be the distance between the chassis and how far out you want the bars to stick - keep in mind, the bar should hang out past the door sills to limit the possibility of something flying up and hitting your vehicle. Once you have the width and depth, add them together and allow a little extra to accommodate for the extra material required in each bend – being about 150 mm – 200 mm per bend – then multiply it by 2 (because you'll need to build 2 sliders, one for either side of your vehicle).
2. *Measuring the length of the inner tubing (50mm)* (see figure 1). This should be roughly the same length as your door sills.
3. *Measuring the inner support braces (50mm)*. The inner support brace is a small piece of 50mm tubing that fits between the outer 70mm section of your slider and the inner 50mm section of tubing. It is roughly the same length between your vehicles chassis and outside of your slider bar and is designed purely for support and strengthening purposes. We only used 1 support bar in this instance, but others choose to use more – particularly with long wheel base vehicles (see figure 2).

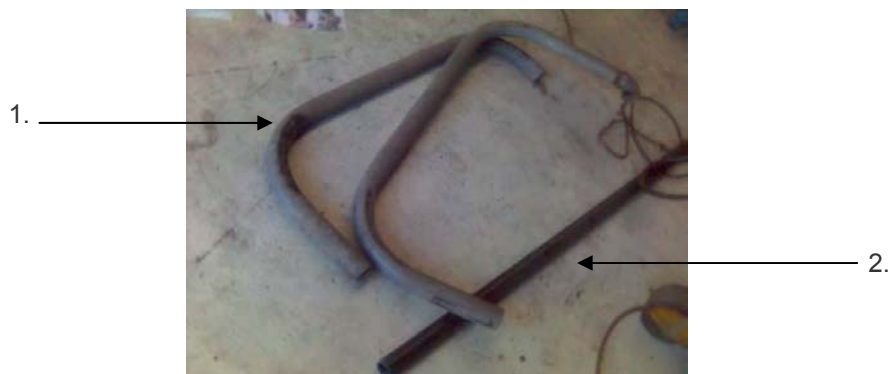
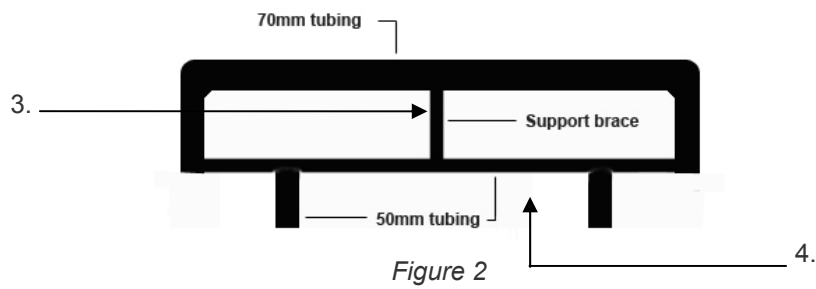


Figure 1

## Top view of rock sliders



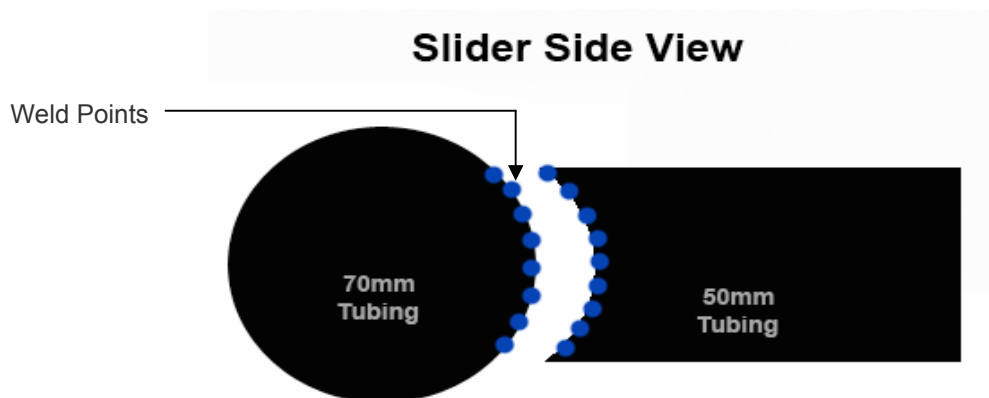
Now with your measurements in hand, its time to go shopping! There are numerous stores that supply metal tubing – one that springs to mind is ‘Robot’. We recommend that you use as a minimum 70mm piping for the main part of the slider.



## Step 2: Bending and welding

Okay, so now you have your metal pipes – the next thing to do is use the pipe bender to bend the tube into the appropriate shape. We are not going to describe the use of the pipe bender and bending process here, we are assuming you already know how to use the machine, and that you’re capable of bending the bars as shown in figure 1 above.

Once you have bent your outer 70mm bar to the appropriate ‘U’ type shape, you will need to place the 50mm bar in between your bent bar as shown by point 4 in figure 2. It is suggested you try and cut the edges of the 50mm bar in a half circle eclipse so that it fits more snugly onto your 70mm external bar, as shown in figure 3 below. Once in place you will need to weld them together. Again, we are presuming you’re capable of welding the bars, so we are not going to describe welding styles and methods.



Next you need to place a small portion of the 50mm tubing in between the outer 70mm tubing of your sliders, and straight 50mm tubing as described above (point 3, figure 2). Again, weld this together as shown above.

The finished product should look like the picture below.



### **Step 3: Sealing your tubing**

This next step is an optional extra, but we did it just to stop the bar rusting immaturely, and also because we are a bit anal about visuals.

If you have an Oxyacetylene (oxy) or plasma cutter, get a flat piece of metal and cut out circles the same size as the 70mm tube, then weld them on to the end of your bar work to seal them. If you don't have an oxy or a plasma cutter, you can cheat by buying very big washers and welding those on instead.

### **Step 4: Making mounting brackets**

The next step is to make mounting brackets that will hold your sliders to your chassis. Now bare in mind that we were fitting these sliders to a SWB Nissan Patrol, so our mounting points may very well be different to yours if you have a different vehicle. If this is the case, don't be afraid to get creative.

For the front mount point, we utilised an existing bolt point that was on the vehicle, and for the back we overlapped two sections of C channel metal over the chassis as a type of brace.

Let's take a look at the front mount to begin with. After looking around for a suitable mounting point, we opted to go with the front control arm support frame, which already had holes in it for running a bolt through.



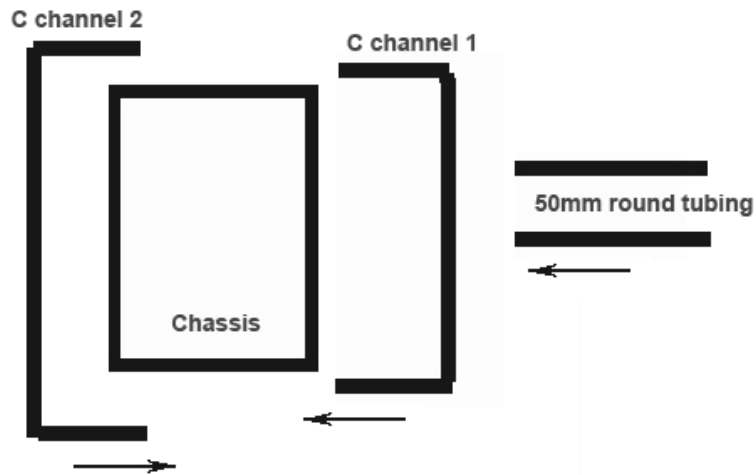
Once we found the mounting point, we slid in a square piece of tube (find square tubing that fits snugly), then proceeded to mark up where we needed to drill holes into it to match up with the holes on the control arm support. Once we did this, we proceeded to drill the holes, and then weld a piece of the 50mm tubing from the square tube to the sliders. See picture below:



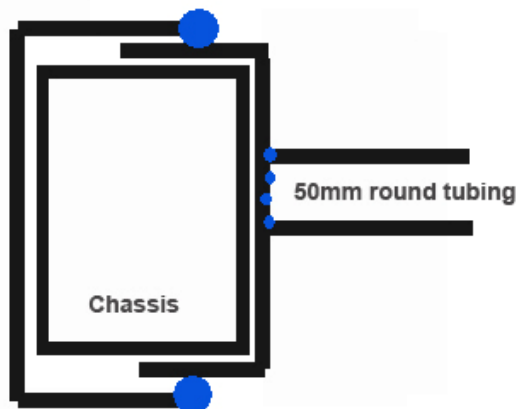
When deciding on the length of the square tube, we suggest you try and make it as short as possible so that there are fewer overhangs and ultimately less places for your vehicle to get caught up on – but in saying this it is also important that it's long enough to ensure the slider will be level with the back.

On the rear, use 2 “C” channel metal frames – which is pretty much rectangular tubing with only 3 sides. The first “C” channel (C channel 1) will need to be big enough to fit around your chassis snugly, and the second “C” channel (C channel 2) will need to be a touch bigger to fit over the smaller “C” channel (C channel 1).

If this is all sounding confusing then take a quick look at the 2 diagrams below that show how the “C” channel frames fit together over the chassis.



When together, the 2 “C” channel frames and chassis should look like this:”



At this stage you just need to cut them to size and make sure that they fit into each other with no play.

The next step is to place your sliders in the position you wish for them to sit (see image below on left) and cut a piece of 50 mm round tube that will be welded between your “C” channel bracket to your sliders.



Once you have cut out the right length tubing you can begin welding everything together. Remember; try not to weld onto the chassis of the car if you want your modification to remain road worthy. Only weld the two "C" channels together tightly, on top of each other.



### **Step 5: The final touches**

Once you have completed all your welding, and feel secure that everything will hold together when impacting with objects, it is time to start painting your sliders.

Be sure to liberally cover the panels of your vehicle (e.g. doors and quarter panels) with either a big drop sheet or lots of pieces of newspaper held on with masking tape. You would be surprised how far aerosol paint can travel!

To ensure your paint sticks to the metal, it is recommended you sand the sliders with a light grade sand paper – this will help your paint adhere to the metal and provide a longer lasting finish. Once you have

done this, spray your sliders with an undercoat of etching primer paint ('Knight' produces a good quality etcher primer in aerosol, which is available at most hardware stores). This too will help affix the paint to your metal work. Once the primer has had time to dry, use a high quality enamel paint to provide the final coat in what ever colour you desire. If you opt to go for black, we recommend using engine enamel as it is stronger and harder wearing.



### **Important things to keeping mind**

There are a number of things worth keeping in mind when it comes to sliders:

1. No matter how strong you make your sliders, they will always flex up to some degree when hitting objects. If you install your sliders too close to your door seals, then there is a good chance your going to end up bending them somewhere down the track.
2. Once your sliders are finished and on your car, try not to use them as side steps. If the sliders are wet or dusty and you try standing on them I can guarantee your going to slide off and hurt yourself.

Well that's about it. I hope this guide is somewhat helpful in assisting you with your own project, and remember – above all else, don't be afraid to experiment.

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