Final Construction

Once all 3 components are ready, you can begin welding them together. You'll no doubt have your own ideas about how to put these components together but for reference I used the weld details shown in Fig 5, which admittedly aren't ideal but certainly cable of the loading they will see in practice.

To minimize distortion I tacked each component in place on both sides and tried to balance the welding deposits to reduce distortion. Also I used 2mm rods in a "stringer bead" technique which basically means you run single beads with minimal weaving from side to side as you might normally do to build up a deposit. It minimizes heat input and hence distortion, but it's a much slower method and you need to ensure you're fusing subsequent runs.

Fig 9

I welded the spacer plate to the carrier plate first, using a square section to keep everything at 90deg as in Fig 9. Tack weld both ends and then equalize the welding on either side.

I then assembled the carrier/spacer plate on the hub carrier to determine the cut point for the spacer plate. Slide on the hub/disc assembly and then with the caliper bolted to the caliper plate, drop the caliper over the disc to mark where the caliper plate meets the spacer plate.

The disc is 10mm thick but the gap in the caliper itself is much wider, probably in the region of 15mm, so you have a good tolerance in this dimension. I set the vertical by eye and marked the spacer plate with a felt tip pen, dismantled everything and then made a more accurate cutting mark parallel to the carrier plate.

I measured and marked this using the digital calipers and then cut with a hacksaw, the critical detail being that the cut must be exactly parallel to the carrier plate. In practice I cut slightly away from the mark and then adjusted by hand file & digital caliper to ensure it was as good as I could get it with only hand tools.

With the spacer cut to final dimensions and fully welded to the carrier plate you can assemble everything again and mark the vertical position on the caliper plate. Details to watch are obviously that it is exactly vertical and parallel to the carrier plate and low enough so that the pads will fully contact the disc itself ; the last thing you need is the pads mounting too high and a lip forming in use. Note the dimensions because you'll need to have the same height on the other side of the car to balance braking effort.

This was one part where I measured, cut the caliper plate leaving 1/4" "too long", tacked it into position and then re-mounted to make certain that the clearances and angles were ok. Once you're happy with it, cut away the excess metal on the caliper plate and weld it all together.

Critical points are that it it is exactly parallel to the carrier plate along both the horizontal & vertical axis.

Fig 10

I used spirit levels to try to get the plates parallel. In Fig 10 the red level is monitoring two planes for the carrier plate and I cross-checked the caliper plate by rotating the yellow level to match up. This isn't perfect by any means but it does give you a good indication and is easy to do during the weld process.

And that's about it. You should have one very robust and rigid mounting bracket that you can use as a mirror-image check for making the second one. It took me quite some time to make the first bracket, the second one I managed to get some distortion and subsequently scrapped, but the third one was completed in only a morning's work. Practice makes perfect, or at least practice makes faster.....

I finished mine in silver paint. Black would look much better, but silver will make it easier to see any cracking at welds or mounting holes. Not that I expect any, but it's just one of those little things that cost nothing and could be useful.

Assembly

With two completed brackets you're ready to assemble everything. If you're using the Renault calipers then the first thing that will hit you is that because these were designed to be used vertically on a trailing mount, now that we want to mount them horizontally the bleed nipple is now at the bottom and the fluid entrance at the top.

Not ideal but as both holes have the same depth and conical base, swap over the fittings so you have the bleed nipple at the top.

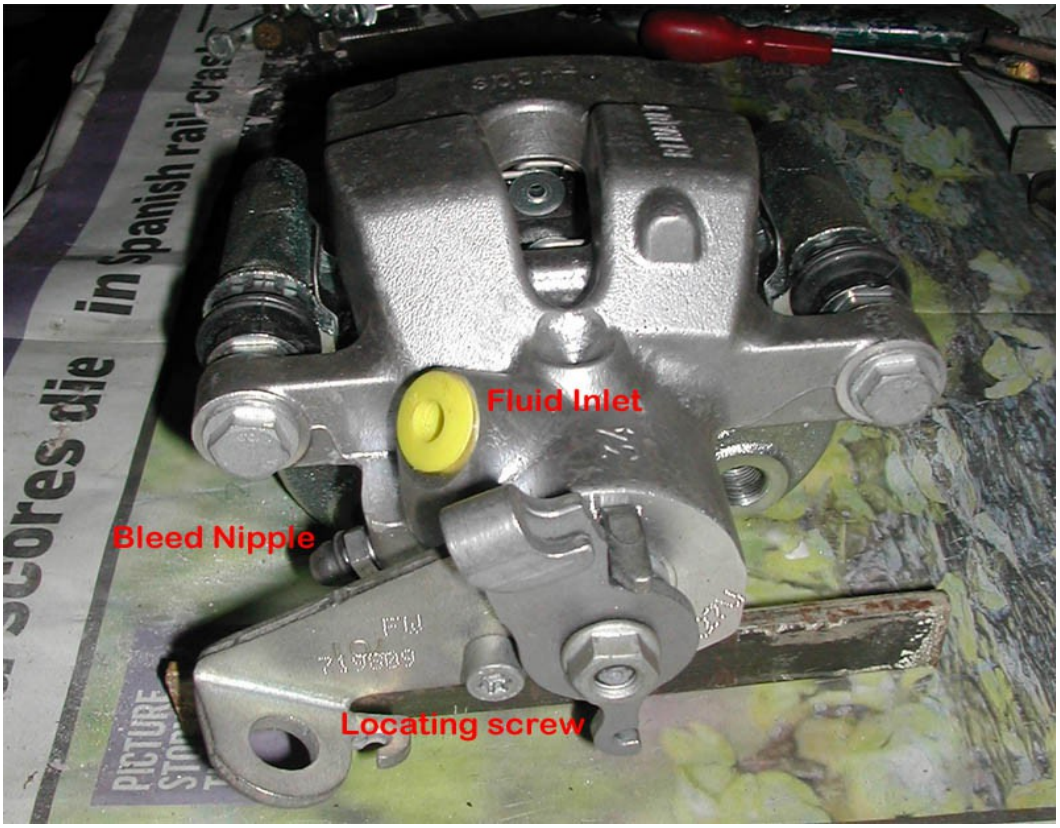

Fig 11

The next thing you will see is that the handbrake actuating arm and cable stop is also wrong for our new application and doesn't allow a smooth cable run, it will be sharply kinked as it enters the cable stop arm.

If you look at Fig 11, this is the approximate mounting position for the caliper and the cable run would be coming up at almost 90deg from the trailing arm.

Fortunately this is an easy fix because the cable stop bracket is mounted & located using a single screw, so you can weld on a small extension as shown in Fig 12, drill a new hole and it's job done. The actuating arm itself is on a splined shaft which will need a small puller to remove, but can be placed in a new position very easily once you've decided where the cable stop bracket is going.

Fig 12

Grind smooth and drill a new hole in the added metal which allows the arm to be rotated more towards the horizontal. Once that's positioned, the actuating arm just slots on to the nearest spline and bolts into place.

Handbrake cable

After mounting the brackets, the handbrake cable is straightforward. I used the OEM cable as a pattern and estimated the new lengths from that. In the end I made the single cable 115" long with two 48" long outer casings to both calipers. When finally adjusted the handbrake starts to operate half way and the adjuster in the central tunnel is approx 1" along it's thread, so there's plenty of future adjustment if ever needed..

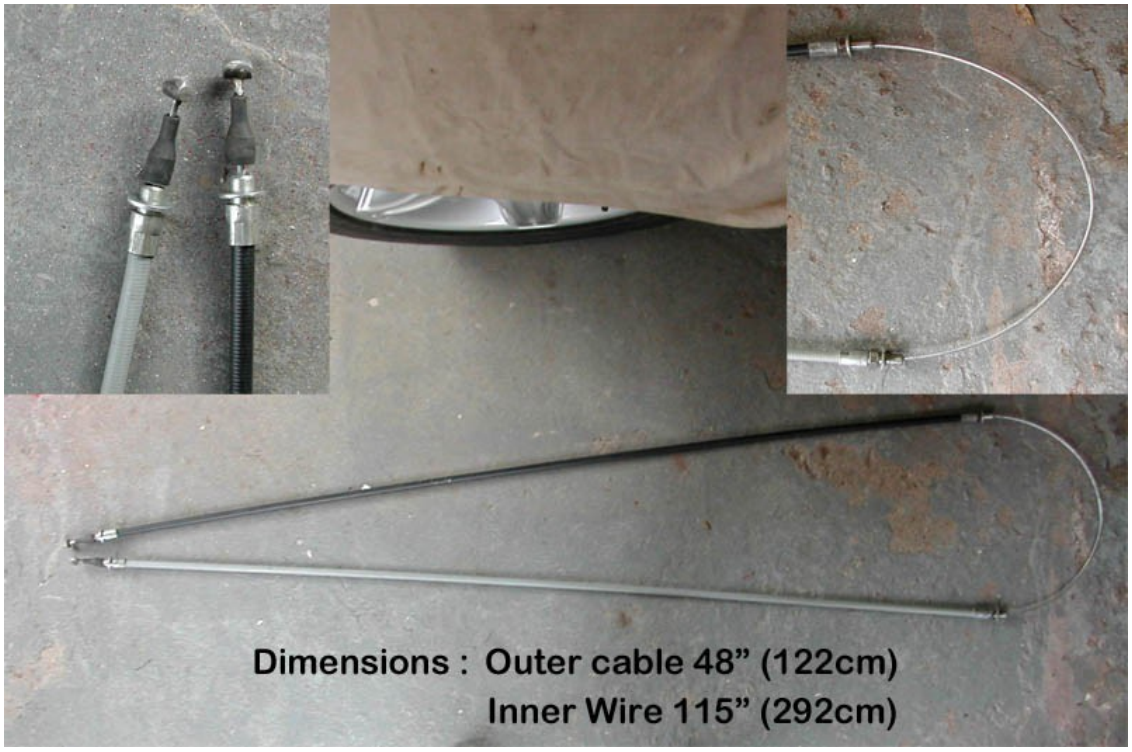

Fig 13

Both ends of the cable have drum nipples fitted, soldered in position as with the OEM cable.

The method of construction was to solder one nipple in place, cut one outer casing to the approximate length and then try one side on the car to see how it fitted, cutting back the outer casing as needed to get something that looked ok.

Both outer casings are identical lengths so once you've got a length you're happy with, pass the inner wire from one caliper to the other via the center tunnel adjusting bracket. and mark off where the second nipple should go from the caliper's actuating arm.

Solder in position and it's all finished, probably no more than an hour's work in total.

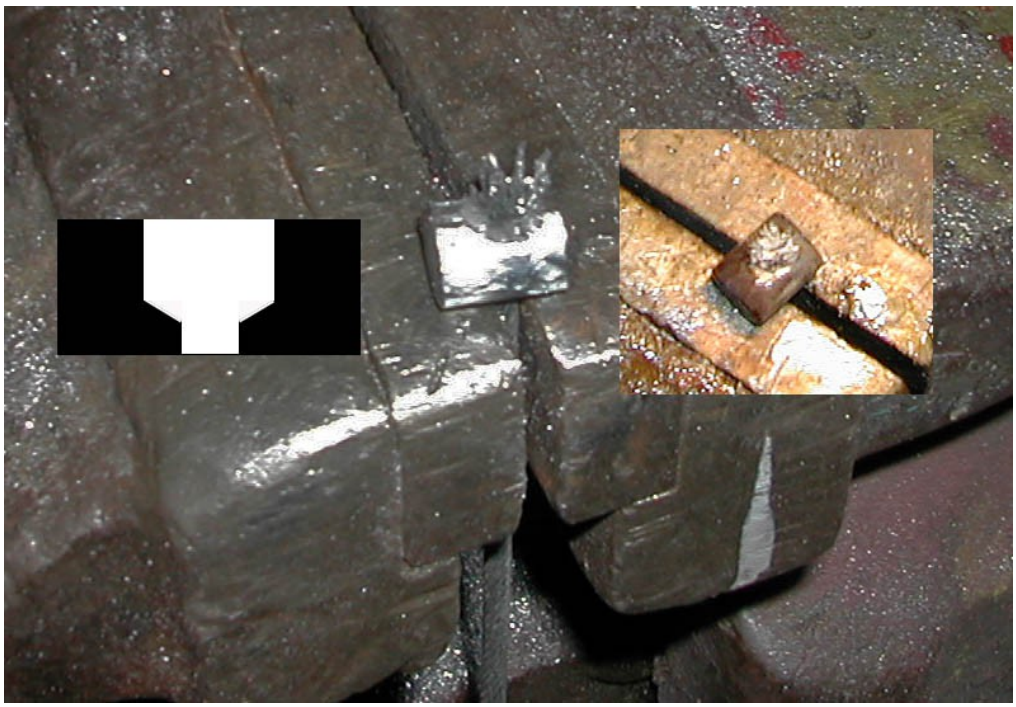

Fig 14

The soldered joint wasn't just a wire passing through a straight hole, the nipple had a 3mm hole enlarged to 5mm for approximately half it's depth, as shown in the sketch on Fig 14.

I soldered the inner wire into position and then splayed out the cable as it passed into the 5mm section before filling that with solder. Hence to pull the wire out now you need enough force to either disbond all the cable strands or somehow compress it to fit through the 3mm hole - that's just not going to happen, the wire will snap first.

All that’s required now is to connect up the new cable, fill the system with brake fluid and bleed the brakes. For some reason I had some trouble doing this, no idea why but it took several attempts before I obtained a reasonable pedal travel with a firm feel to it.