



To fit this right-hand replacement rail section you will need to have competent welding skills as this is a structural part of the vehicle. A 3 phase mig welder is ideal. A single phase mig can be used if large enough capacity but must be used with Argoshield. Flux core wire/ gasless mig or stick welding is not suitable. A hoist is recommended to enable access to lift car high enough.

Please note that the factory rails are not straight. They slightly kick in towards the centre of the vehicle and this is how I have made them also. I made a jig from a VE chassis rail. All vehicles seem to be slightly different as manufacturing tolerances were a lot sloppier. You will need to account for this on your particular vehicle. Once driveline and suspension has been removed this is a 10-20hr job. Depending on what previous repairs have been done to it before, sleeve fitted for example, there is a lot more grinding/cutting to remove. I recommend not using a sleeve over the top of this part once installed. Having double layers is a water trap which will cause rust later. I have put plenty of holes in underside of rail to squirt lots of rust preventative into and allow water to drain out.

Tools needed – mig, oxy acetylene torch, 1/8" and 3/8" drill bits, 3/8" spot weld drill bit, 5" grinder using 1mm cutting discs, grinding and fibre discs, air hacksaw, hammer, table knife/screwdriver as parting tools, clamps (sliding and G), vice grips, white marker, cardboard, weld through primer, masking tape.

All photos are numbered according to instruction step. Some steps have multiple photos.



1. Remove all suspension, steering, engine/trans and clutch Z bar if fitted. Axle stands or hoist – car should be lifted at the most forward section of horizontal rail under front floors, next to torque boxes on VH-CM models
2. Clean up and find welds. Mark with a white marker the spot welds/stick welds on clutch Z bar brace, brake line, top and bottom bump stop brackets.
3. Drill out clutch brace spot welds previously marked using a 1/8" drill bit. Then drill through top surface only using 3/8" spot weld drill. Cut stick weld with oxy and remove clutch Z bar brace.
4. Cut with grinder the brake line bracket and lower bump stop welds on lower edge of chassis rail. Drill lower bump stop spot welds into side of chassis rail with 1/8" drill bit and then 3/8" drill bit (can go all the way through old rail) and then remove. Cut with grinder the welds holding top bump stop in place. Remove parts neatly for reference on refitting. Take care not to damage/ remove too much material from parts removed as these need to be reused.
5. Using new chassis rail section take cardboard and make pattern of both sides of the new rail. Leave enough cardboard to allow for marking of steering box bracket as pictured. Locate and mark steering box center hole and location of K frame nut on the pattern. Ensure the pattern is neat to the bottom edge of the chassis rail.
6. Mark with white marker welds over side edge of chassis rail from top control arm mounting point braces. Use grinder and cut these welds. Using heat, heat up and bend out of the way (must be heated as bending cold they will snap when bent back to original position).



7. Find spot welds under these removed parts of lower chassis rail section where it meets the top section and drill out 1/8" and then 3/8" spot weld drill top surface only.
8. Drill out base of inner guard to firewall panel with 1/8" drill bit and then 3/8" spot weld drill through top surface only. Fold up out of way just enough to gain access to spot welds needed to be drilled out.
9. Find spot weld under this area in top edge of chassis rail and drill out 1/8" and then 3/8" spot weld drill top surface only.
10. Mark and drill from engine bay side spot welds along top edge of chassis rail and drill out 1/8" then drill spot weld 3/8". Drill top surface only of horizontal welds but vertical welds through the back go all the way through as 3/8".
11. Fold base of inner guard on engine bay side out of the way. Mark any spot welds underneath and drill 1/8" and then 3/8" spot weld drill top surface only.
12. Mark on car the cuts as per drawing and using cardboard pattern made earlier. Use steering box center bolt hole and K frame to locate pattern. Cut short of these lines to allow enough material to trim.
13. Ensure all spot welds are drilled to 3/8" just through top layer only. Inside on rear edge drill clean. Use spot weld drill or drill sharpened at low angle.
14. Cut with 1mm cutting wheel 10mm shy of the lines marked, also use air hacksaw where needed.
15. Use oxy to cut stick weld rear outside under clutch brace area through top layer only.



16. Use flat screwdriver/knife to split all drilled spot welds. You may find more you have missed. If so, drill these 1/8" and then 3/8" spot weld drill top surface only. I find an old full metal table knife with the front cut square and a blade sharpened on to it works quite well.
17. Mark with white marker 5 top plug welds – 2 rear from engine bay side, 1 behind top control arm mount, 1 middle top control arm mount and 1 forward top control arm mount.
18. Cut out these 5 plug welds with oxy from the top. Don't over enlarge holes. Original hole was 6mm x 16mm (1/4" x 5/8"). Weld may be off center of holes. Some of these can be quite tricky to get to. Split/knock rail off these welds. Rail will be able to be removed if all welds have been cut/broken. Air blow out rail front and rear of all rubbish. With the lower section removed any rust in the top section of the chassis boxing can be repaired from underneath. I find that using a section of 50x50x3mm RHS can be used here.
19. Take new rail and hold up to confirm marked cuts are in correct place. Once confirmed these cuts are in the right place cut 3mm shy of horizontal inside lines marked and cut front and rear to lines to allow new section to fit in.
20. Weld shut all 1/8" holes drilled in top edge of chassis rail (also any that went to full 3/8"). Using piece of aluminum or brass behind can help fill these holes when welding. Grind tidy.
21. Trial fit new rail into car. You may have to open up top sides to allow it to slip over original top section. Use clamps as needed to pull it into position. Use grinder with 1mm disc to trim anything needed to allow it to go all the way up into position.



22. Fit up K frame to check alignment. Fit three bolts into original chassis nuts. The fourth one in the new section must fit close to center of new chassis rail section nut.
Use clamps to get in line.
23. Remove chassis rail section and grind 45° on all butt weld edges. Clean inside car chassis rail to prepare for welding. Clean inside new section.
24. Use weld through primer on all internal parts/weld joins.
25. Tape off internal gussets on top edge and insides of plug weld joints. Use galv/zinc primer inside rails.
26. Remove tape and paint remaining with copper weld through primer. Use copper weld through primer on car chassis open section.
27. Fit rail to car with clamps and K frame.
28. Tack weld in once happy with alignment. May need to hammer in to flush with car rail.
29. Weld all butt welds and plug welds through sides and top and grind tidy/flush as needed.
30. Mark on the cardboard pattern bump stop and brake line bracket positions from the removed section. Mark on new rail. I use a center punch here through cardboard.
31. Clean up and prime copper inner guard. Fold back down, clamp and weld back into position. Grind tidy and fit clutch brace if removed (manual only).
32. Use oxy to heat top control arm bracket folded out of way in Step 6 and fold back into place and weld.
33. Take cardboard template and mark positions of lower holes of steering box from old rail section.



34. Remove steering box bracket from old rail. Do not bend or damage.
35. Using steering box, mount to car rail using original center bolt. Using other two bolts, bolt bracket to steering box with the open section of bracket to the engine bay side. Position so all fits correctly. Tack weld and then remove steering box. Use cardboard pattern to check location is correct.
36. Using marks in Step 30 fit bump stops. Fit front top bump stop first and fully weld, then fit lower bump stop and brake line bracket.
37. Weld fully the steering box bracket and tidy welds.
38. Paint/prime.
39. Job done. Open beer and send pictures and feedback to Bruce at email@bluestargarage.com.au