

Simtec ECU repair instructions

by

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1. The unit to be repaired.
2. Mount it well before removing the lid.
3. Use hot air gun to make the old sealant soft, it will help a lot.
4. When the sealant has become a bit soft take a sharpened screwdriver and carefully start to bend the lid out.
5. Proceed equally around the lid to bend it out.
6. Work in progress.
7. Lid removed and with only small dents at the edges of the lid. They are easy to "hammer" straight.
8. Remove the old sealant with a sharp screwdriver.
9. Groove cleaned.
10. Take your tweezers and position them like in the picture. Gently pull the tweezers out. If the wire holds in position you hear a "snap" and the wire is ok. This will reveal bad bonds and of course the loose ones.
11. One exaple of a loose connection.
12. Remove all wires from that side where you have any bad connections. I prefer this method because it will look better on my warranty statistics. ;)
13. Wires removed.
14. Remove the protective gel away from the pads. Put your tweezers under the gel and move them from right to left. There are components wich may be damaged if done otherwise.
15. You can pull the gel away from the pads with your fingertip and assist with tweezers to clean the pads.
16. Cleaned.
17. Take your sharpened screwdriver and "peel" off some of the plastic from the connector assembly. It will reveal some golden surface where you can solder with regular tin.
18. Ready to solder.
19. It is vital to use proper tools and temperature for soldering. Excess heat with flux core solder can corrode the "pcb" pads. Use normal good quality tin-lead alloy.

20. Presoldering the connector assembly pins.
21. "Cleaning" the oxidized pads with tweezers.
22. Pcb pads presoldered.
23. Cleaned with KENT brake cleaner.
24. Wire material is important. Have very very thin copper wire threads. It is easy to solder and it is flexible enough to handle the vibrations and movement between the connector frame and pcb. Believe me I know...
25. First wire.
26. Bend the wire as picture illustrates. Solder the other end.
27. The copper thread is long so we use tweezers to "cut" the extra wire away by pulling the tweezers down. Then we proceed to make the next connection.
28. Progress.
29. More progress.
30. Almost done.
31. These wires I intentionally removed just to show what to do if they are broken. Usually they aren't. You can use a bit thicker wire for these connections. Solder them to the connector frame with normal solder and the other end to the ground wires with Alusol.
32. Done!
33. Test the connections in case of short circuit. Take note that some pads are linked to each other. For example the two last wires on the right. Also the two before them are also linked to each other.
34. Add some silicone grease for protection against vibration.
35. Test that the lid will fit and is not bent.
36. Put motor silicone sealant to the groove.
37. Put the lid back to its place.
38. Take a cleaning cloth and smoothen the seam from excess sealant.
39. Ready to rock again.