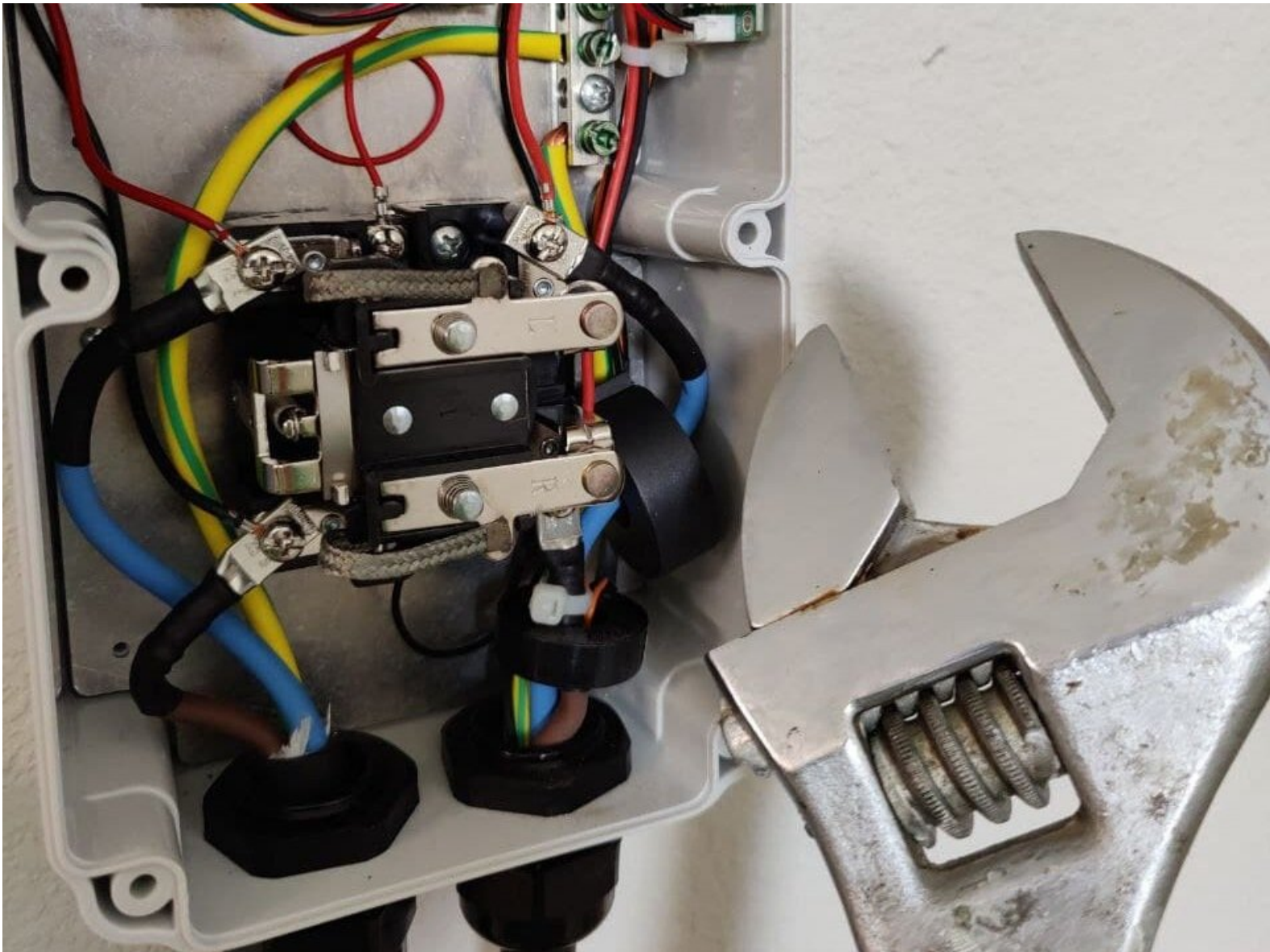


OpenEVSE

Relay Maintenance

If your OpenEVSE shows a "Stuck Relay" error, your primary relay is likely stuck. This can happen due to buildup / corrosion

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INTRODUCTION

Troubleshooting and repairing a "Stuck Relay" error.

This repair procedure applies to any OpenEVSE with an open-air relay (contactor) such as the 50A - Struthers - Dunn.

If your relay is a sealed unit, replace the entire relay.



TOOLS:

- [Phillips Screwdriver](#) (1)
 - [Multimeter](#) (1)
 - [Emery Cloth](#) (1)
 - [Electric Contact Cleaner](#) (1)
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Step 1 — Introduction



- EV standards (IEC and SAE) require charging stations to provide soft start and soft stop of each charging session.

⚠ A properly functioning station should never require relay maintenance.

- ★ Ensure that the button on SAE J1772 plugs and lock/unlock are functioning properly to automatically remove all load before disconnecting vehicle.

⚠ The plug should never be disconnected under load if the button/unlock are working correctly.

Step 2 — Power off unit



- Turn power off to your OpenEVSE unit at the breaker

⚠ Validate that your OpenEVSE unit is off

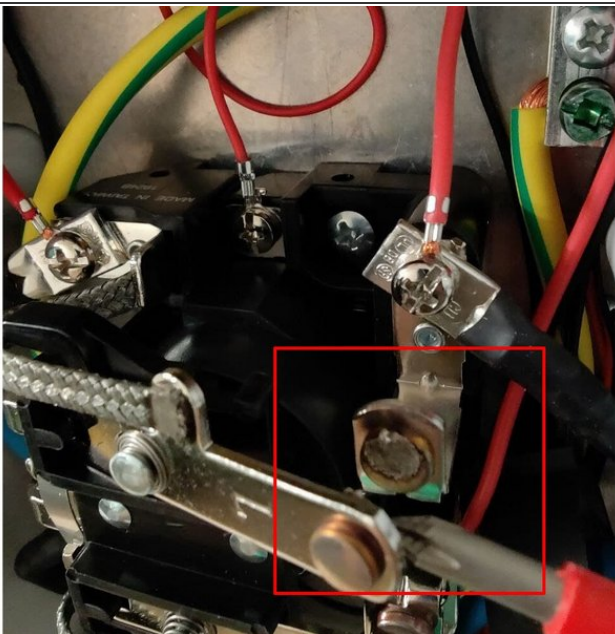
Step 3 — Open unit



- Open your OpenEVSE unit

⚠ Validate that voltage is not present with your multimeter to ensure electricity is off

Step 4 — Inspect contacts

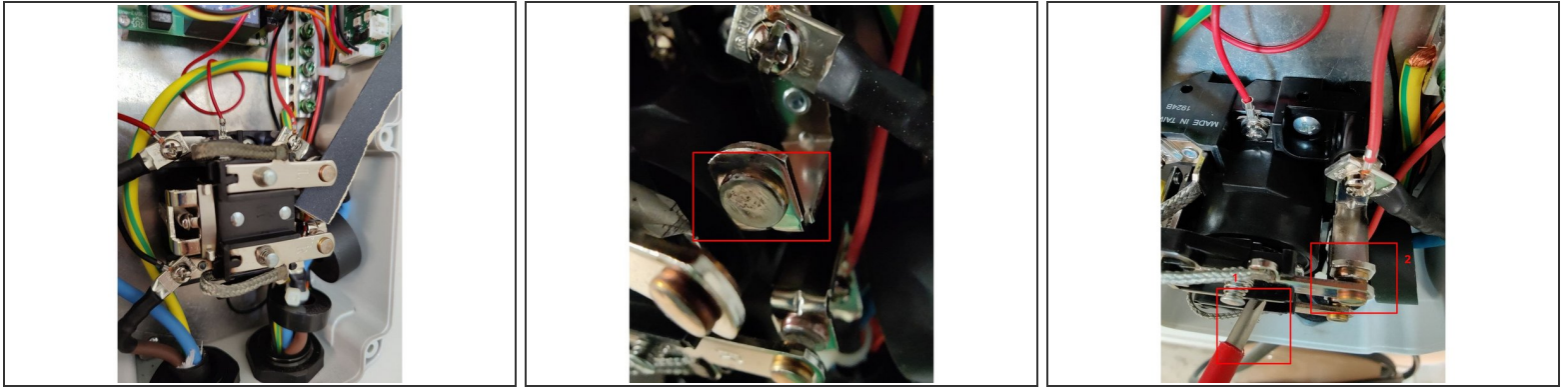


- Inspect the relay, ensure the contacts open and close as expected.
- Gently tug any stuck contacts to free them.

⚠ If the relay is seriously damaged, melted, bent, broken, or the contacts cannot be separated, replace it.

ⓘ If relay is lightly pitted, or has other debris or build-up as shown in picture, continue guide to clean.

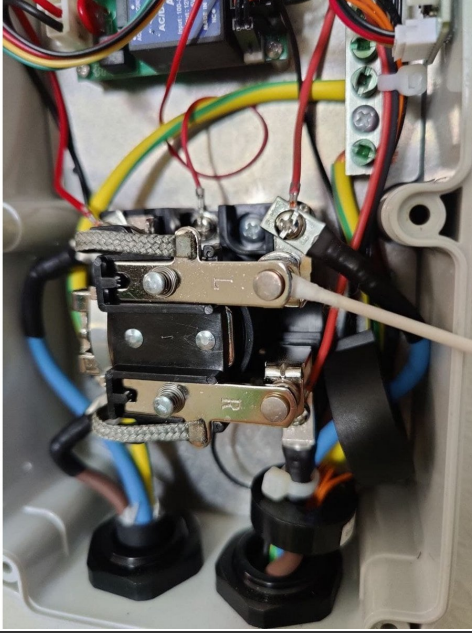
Step 5 — Sand contacts



⚠ 'Ensure any sharp metal burrs are removed from the edges of contacts. A metal file might be required.

- Cut a piece of coarse emery cloth roughly 3x the width of the contact (normal sandpaper is not recommended as it can leave deposits of other metal types on the contact surface)
- Fold the piece of coarse emery cloth, and place it between one set of contacts at a time. Apply gentle pressure to the contacts and sand evenly between the two surfaces.
- Repeat process above using coarse, medium, and fine emery cloth to ensure a good connection.
- Close the relay by gently pressing the plastic top bracket. Ensure an even and flat connection between the contacts.

Step 6 — Clean contacts



- Once your contacts are evenly sanded, use contact cleaner and a q-tip to scrub each contact surface removing any build-up, metal, or grease

Step 7 — Test



- Reassemble your OpenEVSE and power it on.
- ❗ Monitor the self-test to ensure errors have cleared
- Attach a vehicle and charge at the full rate, monitor the OpenEVSE unit for any excessive heat build-up.
- ⚠ If any excessive heat is detected on the OpenEVSE unit, replace the relay.
- Slowly plug and unplug the vehicle a few times ensuring the relay opens and closes as expected each time.