# Instillation guide for a 12v Heavy Duty Split Charge Relay System

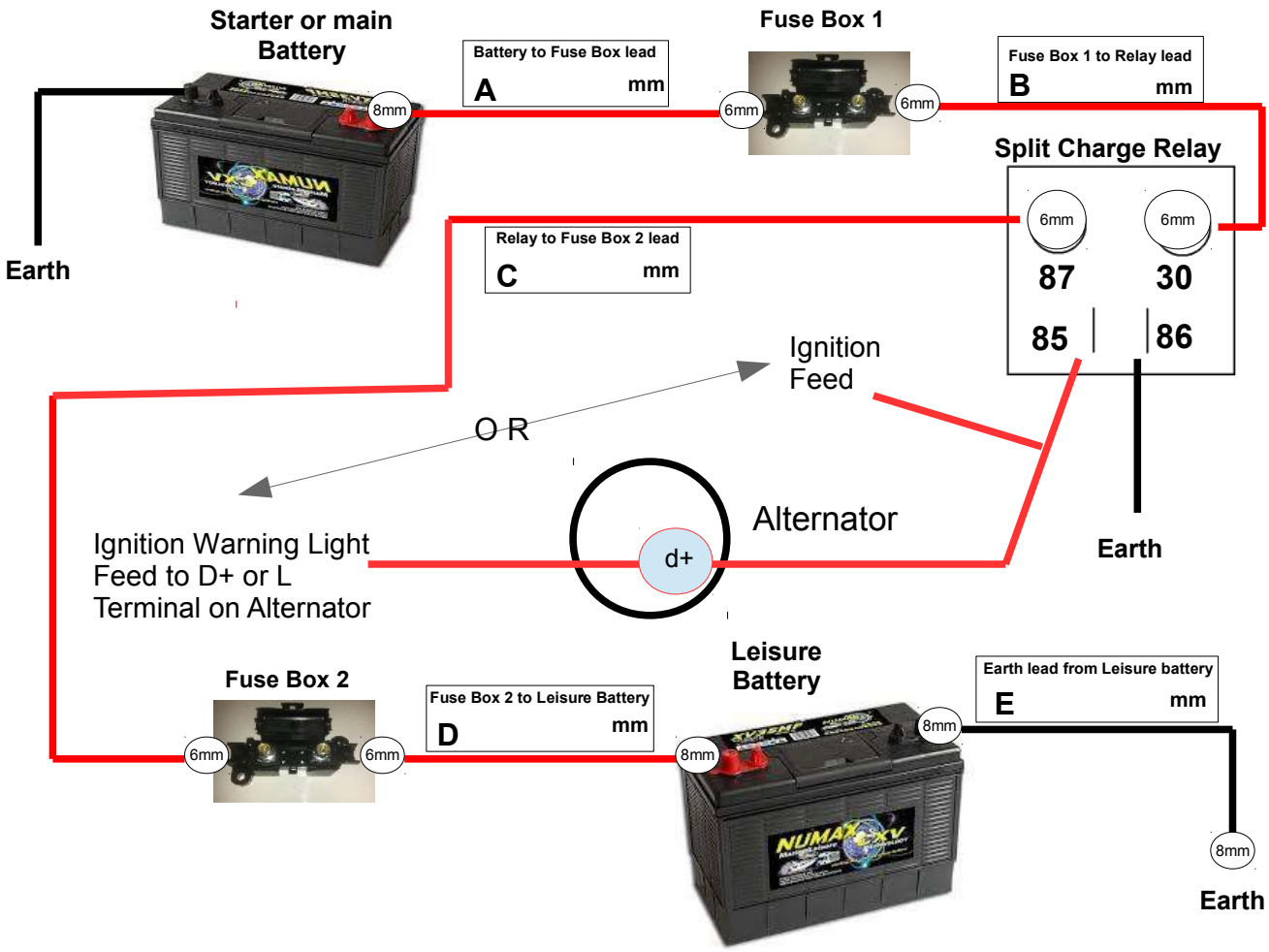
**Thank you for purchasing this kit from Simply Split Charge.**

**All of our systems are very easy to install if you follow the simple instructions. You will find all the components you need in the kit. Please have a look at the instructions below and if you have any questions then please contact us. All our kits should be installed by a qualified auto electrician.**

**You will need basic tools and fixings to install this kit including**
**1. Cable cutters for trimming cables to length and Crimping tools, or a soldering kit to fix the terminals on**
**2. Screwdrivers for trim work and fixing components**
**3. Spanners for battery terminals ECT.**
**4. Electrical multi-metre to check everything is working as it should when you are finished**
**5. A small blow torch to shrink the heat shrink onto the terminals but you manage with a lighter**

**In your kit you will have received**
**1 x Heavy Duty Split charge relay**
**Cable to connect everything together depending on the size of kit you purchased**
**2 x Fuse holders and Fuses including spares**
**Terminals to crimp or solder onto your cables**
**Heat shrink to protect them**
**Split tubing to protect your cable in the engine bay**
**15 x cable ties & self adhesive bases to keep it all tidy**
**Screws to fit fuse boxes & cable tie bases**
**Drill Bit**

## Basic wiring diagram for Split Charge Relay System



**Before starting the instillation the first thing you need to do is make a plan of where your going to fit all your components and how long each cable will need to be. Have a look at the diagram on page 1 to see the basic wiring diagram. I have left boxes on the diagram to help you with your measurements.**

**Things to remember when making your plan are,**

**That both the fuse boxes need to be positioned as close to the positive terminals of both the starter and the leisure batter as possible. This is because they are fitted to Protect the cables running through your vehicle from either the current being too high for the cables or that the cable may become damaged and short circuit.**

**The Split charge relay can be mounted anywhere that it will be easiest to switch on. Its best to use any positive feed that's only on when the ignition is on but it can be switched on with a very basic on/off switch but you will then have to remember to switch it off. I usually try to use the ignition warning light feed for the vehicles alternator D+ or L terminal on most alternators, so I try to fit the relay in the engine bay.**

**Measure the cable lengths very carefully maybe with a piece of string as once they are cut they are cut. All the ins and outs and ups and downs in a vehicle will soon add up and like ive always been told its always better to measure twice and cut once as it will save you a lot of time and money if you make a mistake and have to order more cable.**

## Basic fitting instructions

**1. With either the screws or sticky pads attach the FUSE BOX 1 and FUSE BOX 2 as close to the main starter Battery and Leisure batteries positive battery terminal as you can. I always try to fix the Fuse Box under 250mm if possible**

**2. Select where your going to install the Split Charge relay and secure it using the screws provided.**
**There are two 6mm ring terminals on the relay indicated with 30 and 87. 30 will be the main feed in from your main starter battery and 87 will be the feed to charge your leisure battery. You will connect these later when you have made up your main charging leads. There are also two 6.3mm spade terminals indicated 85 and 86. 85 will be the positive feed to switch on the relay and 86 will need to be connected to your vehicles earth.**



**3. Using the red 42amp cable you can measure,cut and make up your leads for the split charge circuit.**
**Cut each lead as accurately as you can using the measurements from your plan and label them if it will make things easier. ( A ) ( B ) ( C ) ( D ) with a piece of masking tape**

On some vehicles or instillations it might be easier to install the leads through smaller holes in the bodywork ECT. before you can connect the terminals.

Trim approx. 10mm of insulation off the end of each lead to attach the terminals.

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You are supplied with a selection of 6mm and 8mm yellow pre-insulated terminals to make up your split charge kit. Please look at the diagram on page 1 to see which terminal that you need to use on each lead. You will have some spares plus a couple of 10mm terminals which can be used on battery terminals or earth leads if required.

To fix on your terminals onto your leads first push the end of your cable as firmly into the terminal. You can then crimp the terminal onto your lead using suitable crimping pliers.

Slide the red heat shrink over the ends of the leads until it covers the cable and most of the terminal up to the bolt hole and heat gently until its shrunk tightly over the terminal using a small heat gun or even a normal household lighter.

Repeat the above process using the 42amp black earth lead ( E ).

Using the smaller 9amp red cable cut and crimp on the blue spade terminal on one end to be attached to 85 on the relay later.
Cut the smaller black 9am cable and crimp a blue spade terminal on one end to connect to 86 on the relay and a blue 8mm ring terminal on the other end to connect to earth later.

4. Connecting your leads

Insert any long leads through bodywork and trim until they are all in position to connect to either the relay or the fuse boxes.

First connect lead ( D ) to the Leisure battery positive terminal and tighten, connect the other end of the lead to the fuse box 2 but leave the 8mm nut loose

Connect lead ( C) to Fuse Box 2, insert a 40amp strip link fuse and tighten both of the 8mm nuts. Connect the other end of lead ( C ) to terminal 87 on the split charge relay.

Connect lead ( B) to terminal 30 on the Split Charge Relay and the other end of the lead to fuse box 1. Connect the small black earth lead to the 86 terminal on the relay and the other end to a suitable earth. Connect the small red lead to 85 and to a suitable ignition feed. " Usually the Warning Light Feed ( D+ or L terminal ) to the vehicles alternator"

Connect Lead ( A ) to Fuse Box 1. Insert a 40amp strip link fuse into the fuse box and tighten the 8mm terminals. Connect the other end of lead ( A) to the Positive Battery terminal on the main Starter battery and tighten.

Connect lead ( E ) to the negative battery terminal on the Leisure Battery and the other end of lead ( E ) to a suitable earth.
This must be a paint,rust free location to ensure you get a good earth.

Cover any leads in the engine bay with the split plastic tubing to protect them and any area that the leads may get squashed or damaged throughout the vehicle. Finally using the cable tie bases and cable ties stick or screw on the bases and secure and tidy the leads throughout the kit.

## Below you will see some basic tests you can do to check everything is installed correctly and working

**Before starting the vehicle to check everything is working its essential you check all the leads are correctly installed and all the terminals are all tight.**

1 **You can now Start the Vehicle to check everything is working.**

**If you have connected your relay terminal (85) to a suitable positive ignition feed on your vehicle then your relay will now be switched on. This will now allow the charging circuit in your vehicle usually known as the alternator to allow the currant that charges your main starter battery through the relay to charge your leisure battery.**

**If you have selected to use a manual on/off switch to control your relay then you need to switch it to the on position.**

2. **With a multi-metre you can now check that both batteries are charging and your split charge system is working.**
   **First check the voltage on your main starter battery. It should be between 13.5volts and 14.5volts.**
   **Second check the voltage on your leisure or second battery. This should be exactly the same as the starter battery voltage. If they are both the same then your split charge system is working correctly.**

3. **If the voltages are different then you will need to do some tests.**
   **Switch off the vehicle but leave the ignition lights on and if using your on/off switch on.**

   **With a test light check the (85) terminal on your relay to make sure you have a positive feed when the ignition or your on/off switch if used is ok.**
   **If everything is ok your light will be on.**
   **If it is not on then you will need to find a new or better positive feed to switch on the relay.**
   **When you have done this and the light is on then you know this part of the circuit is all working ok**
   **You can now go back to number (1) and start the vehicle again or continue with further tests.**

   **With a test light check the (30) terminal on the relay to check you have a good connection to your main starter battery.**
   **If the light comes on then everything is ok.**
   **If the light does not come on check that lead (B) is connected correctly from the relay to the fuse box and lead (A) is connected correctly from the fuse box to the positive terminal on the starter or main battery and that the fuse in fuse box 1 is ok.**
   **If everything is connected properly and the fuse is ok you should now have a good connection to your starter battery and the test light should be on when you test the (30) terminal on the relay**
   **You can now go back to number (1) and start the vehicle again or continue with further tests.**

   **With a test light check the (87) terminal on the relay to check you have a good connection to your leisure or second battery.**
   **If the light comes on then everything is ok.**
   **If the light does not come on check that lead (C) is connected correctly from the relay to the fuse box and lead (D) is connected correctly from the fuse box to the positive terminal on the leisure or second battery and that the fuse in fuse box 2 is ok. Also check you have a good earth on your leisure battery.**
   **If everything is connected properly and the fuse is ok you should now have a good connection to your leisure battery and the test light should be on when you test the (87) terminal on the relay**
   **You can now go back to number (1) and start the vehicle again.**

3. **Switch off your vehicle and your manual on/off switch if used.**

4. **With your multi-metre you can now check both batteries voltage again to check that both batteries are isolated.**
   **First check your main starter battery. The voltage should be between 12.5 to 13volts.**
   **Second check your leisure or second battery voltage. The voltage should also be between 12.5 to 13volts.**
   **You will probably find that the voltages in each battery are different but don't worry if you find they are still the same.**
   **If they are different then this will mean that both batteries are isolated and everything is working ok.**

6. **If they are both the same voltage then you may need to do some more tests just to check the batteries are isolated.**
   **With a test light check the 85 terminal on the relay. If the test light does not come on then everything should be working ok.**
   **Double check the test light is working correctly by checking the 30 and the 87 terminal. The light should come on for both.**

7. **If the test light comes on when you check the (85) terminal.**
   **First make sure the ignition is off.**
   **Second make sure the on/off switch is off if used.**
   **If either were on then you will need to test everything again.**
   **If everything is off and your light still comes on when you test the (85) terminal then you will need to find a more suitable ignition feed that is not on when the ignition system or your on/off switch is off.**

**ALL OF THE ABOVE FITTING INSTALATIONS ARE A GUIDE ONLY AND SHOULD BE ALWAYS INSTALLED BY A QUALIFIED AUTO ELECTRITION.**
**SIMPLY SPLIT CHARGE WILL NOT BE LIABLE FOR ANY WORK OR DAMAGES TO YOUR VEHICLE FOR ANY SPLIT CHARGE RELAY KITS FITTED BY YOURSELF OR ANY UNQUALIFIED PERSONS.**