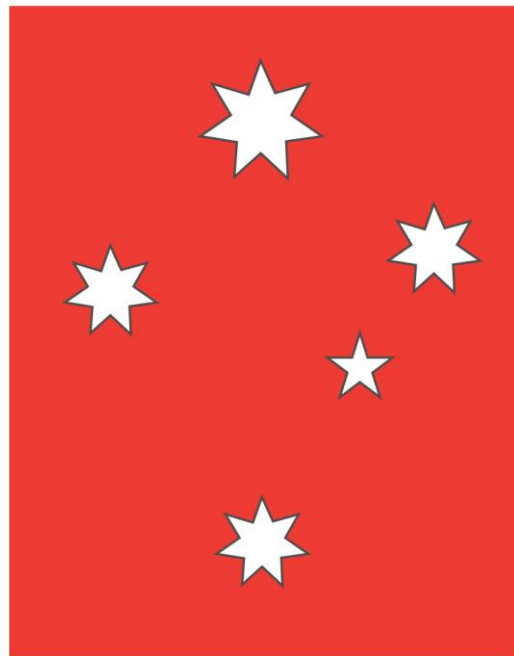


Installation & Maintenance Manual

Commercial & Industrial Systems

II-04 - Rev 7



ERPS

Electronic
Rust Prevention
Systems

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Electronic Rust Prevention Systems (Australia) Pty Ltd

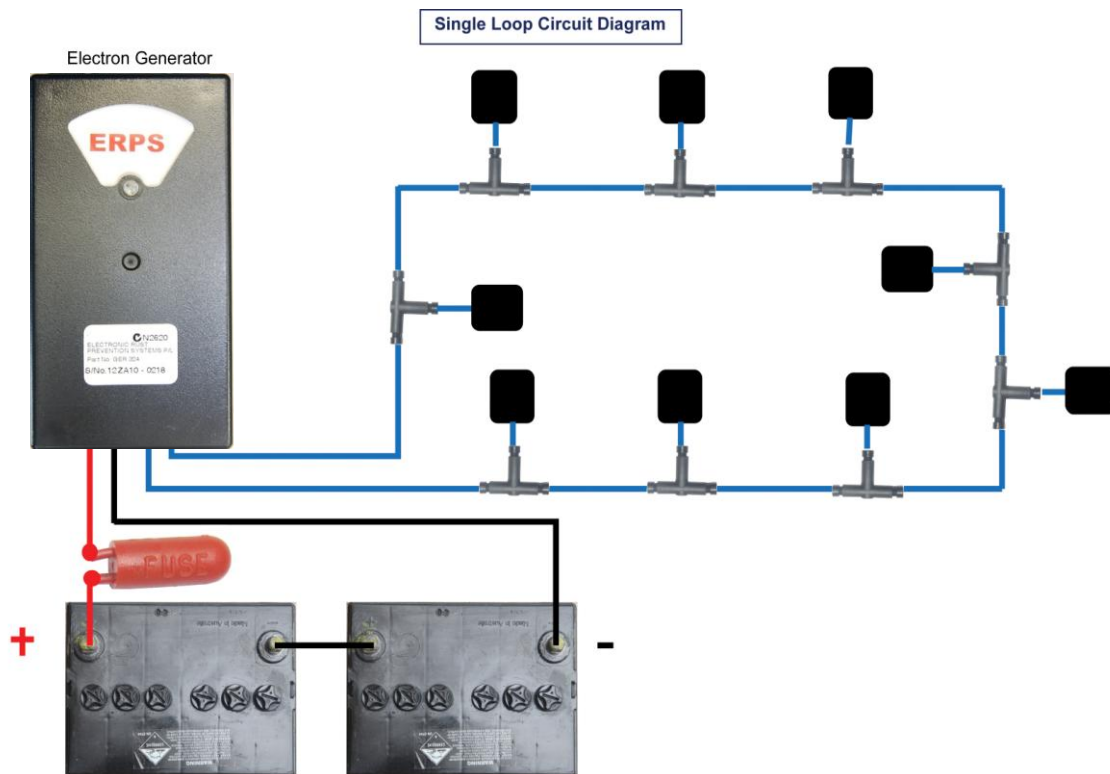
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Introduction

The ERPS electronic rust prevention system is made up of an “Electron Generator” and a series of Electro-Couplers and / or Strip Couplers which are joined to one or possibly two or more “loop circuits” around the vehicle or item of plant.



Maintenance:

The system is constructed of solid state electronics with no moving, wearing or sacrificial components. The system therefore requires no maintenance other than inspection of the LED indicator lights on the Electron Generator (check monthly).

The Electron Generator incorporates either one or more LED indicator lights. **All LED indicator lights should be illuminated at all times.**

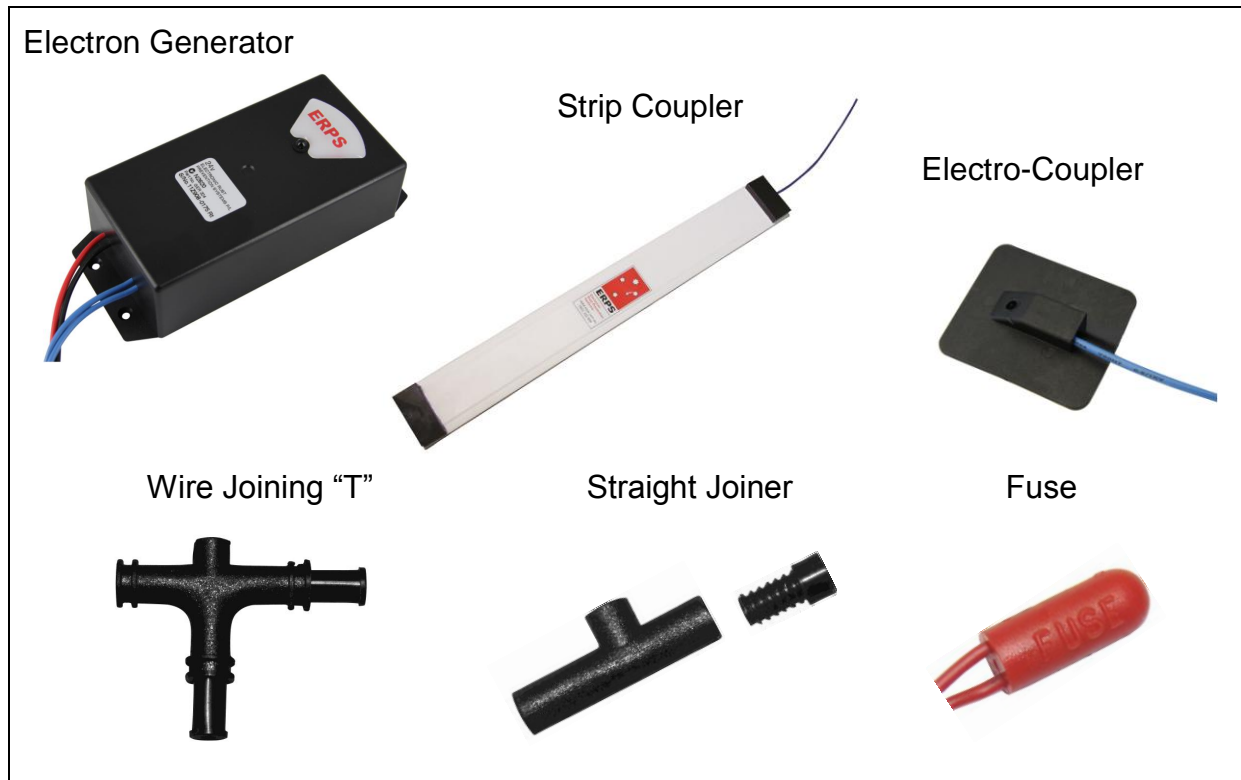
If one or more LED indicator light are not illuminated it means that a problem exists within the circuit.

The main causes of system failure are:

- Blown fuse or poor quality battery connection.
- Failed power generator.
- Short circuit in a coupler, wire joint or the coupler supply line.

For “Trouble Shooting” information see page 16 of this manual.

Component Identification



Generator Identification and Wiring Diagrams

The “Commercial or Industrial” ERPS Electron Generator which is wired directly to the battery via the fuse, can operate on either 12 or 24 volts.

Electron Generators are produced with either a “Single Loop” coupler supply line (2 blue wires) or a “Twin Loop” circuit supplying two separate coupler supply lines (4 blue wires).

Electron Generators are produced in four different configurations.

Part Number	Description
GER 224	ERPS Electron Generator 12/24 Volt (single loop)
GER 224-2L	ERPS Electron Generator 12/24 Volt (twin loop)
GER 224-2L-MS	ERPS Electron Generator 12/24 Volt (twin loop) Mine Spec
GER 224-2L-MSBB	ERPS Electron Generator 12/24 Volt (twin loop) Mine Spec. Battery Backup

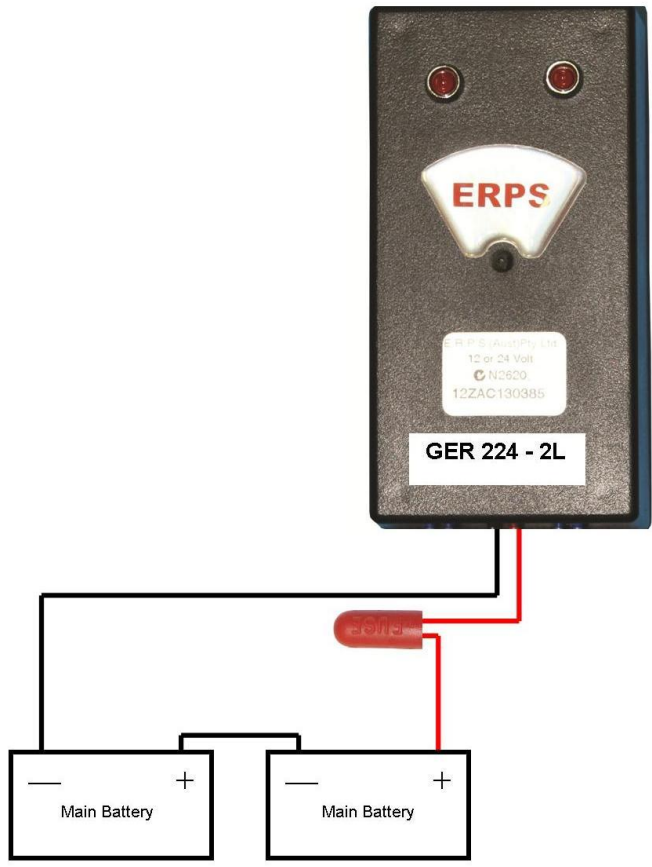
GER 224



GER 224-2L



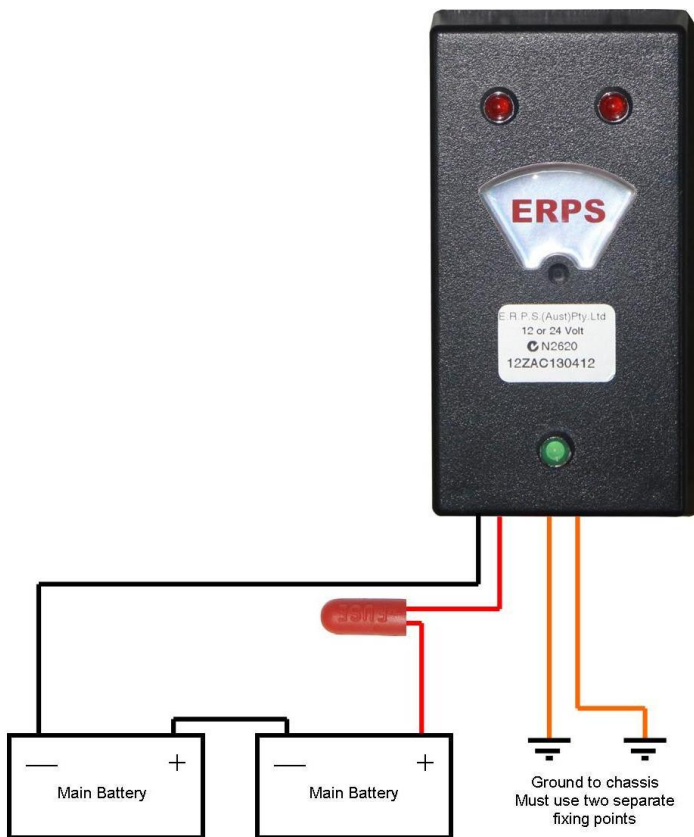
Battery Wiring Diagram
for
GER 224-2L



**GER 224-2L-MS
Electron Generator**



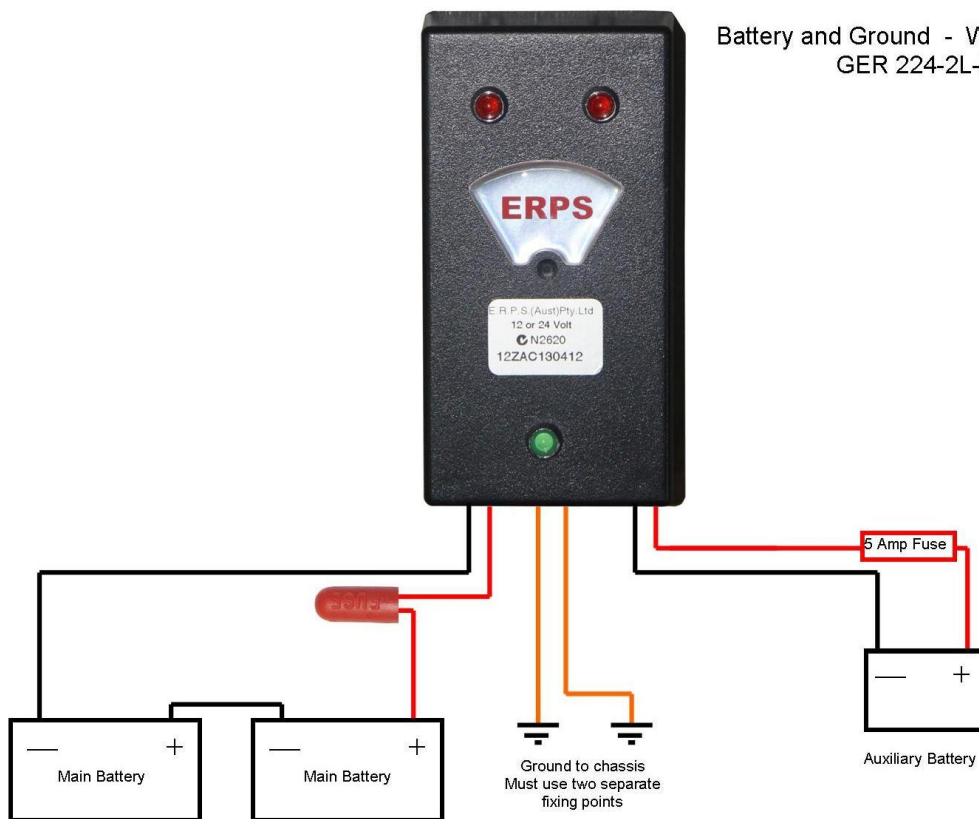
Battery and Ground - Wiring Diagram for GER 224-2L-MS



**GER 224-2L-MSBB
Front Electron Generator**



Battery and Ground - Wiring Diagram for GER 224-2L-MSBB



Installation Instructions



Select a suitable position to mount the Electron Generator.

Preferably the generator should be as close as practical to the battery but away from heat and vibration.



Using the medi swab, clean the fitting area thoroughly.

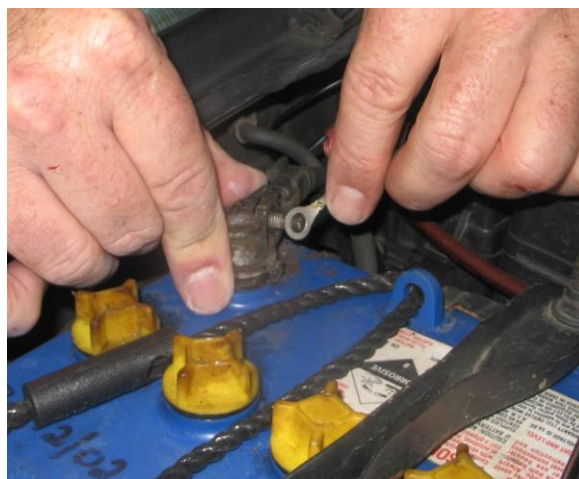
Peel the protective strip from the adhesive backing on the rear of the Electron Generator.

Place the generator into position and press down firmly for ten seconds.



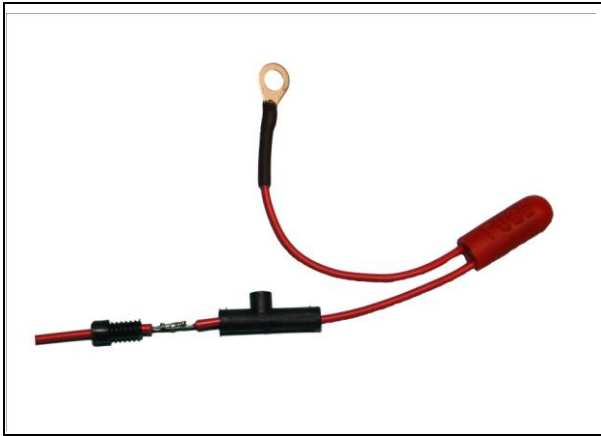
Run the red and black wires to the battery, either cut or extend the wires to suit.

Use split tubing to protect the wires.



Solder the ring terminal to the negative (black) wire and connect to the negative terminal of the battery.

NB: Always connect the black earth wire to the battery before connecting the positive red wire. This ensures the generator is grounded, stopping any stray voltage from damaging the electronics inside the generator.



Connect the fuse to the positive (red) wire, but do “not” connect to the battery until the final stage of installation.



Connect the fuse by pushing the wires through the straight joiner. Strip the insulation and twist the wires together. Solder the joint then pull the join back inside the straight joiner. Tighten the screw.



Now inject the straight joiner with silicon through the hole in the top until silicon can be seen squeezing out around the wires.

NB: Make sure the soldered joint is centrally located in the joiner.

Selecting Coupler Sites:

Couplers are adhered directly to the painted steel surface of the vehicle's body or chassis. Wherever possible couplers should be mounted inside the vehicle. Typically couplers should be mounted behind the trim.

To distribute the charge evenly the couplers should be positioned strategically throughout the vehicle.

The ERPS system's charge emits from the coupler and is strongest at the point where the coupler is mounted to the vehicle. The further the distance from the coupler the weaker the charge will become. Therefore the greater the number of couplers and the better overlap between the couplers, the better the protective charge will be.

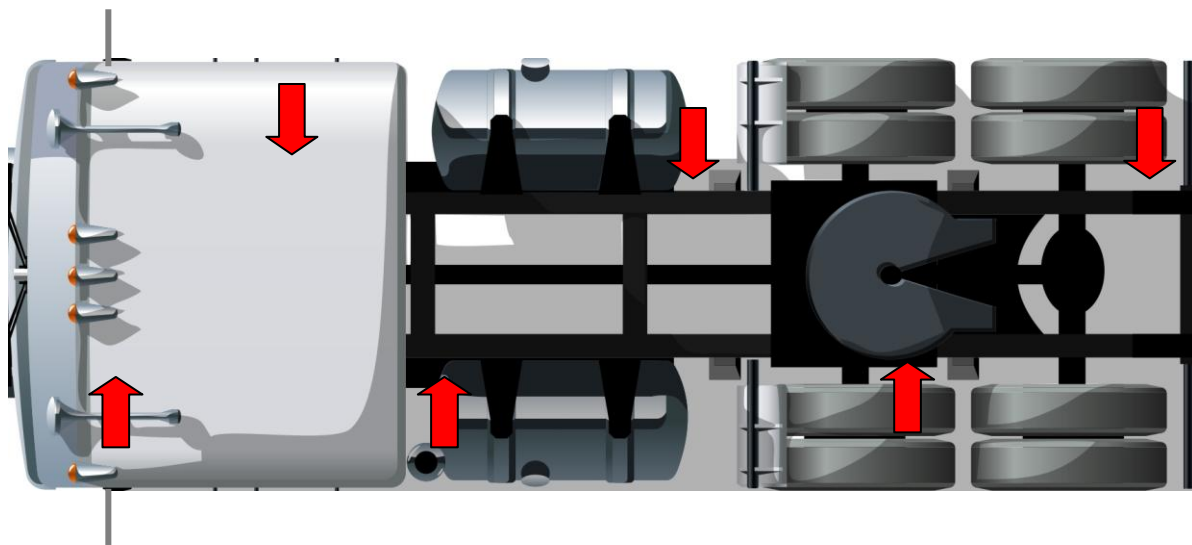
Road Trucks:

Cabin

Typically four couplers will be mounted inside the cabin. This can be increased in severe conditions by adding couplers inside each door.

Chassis

Couplers should be mounted approximately every two metres along the chassis rails. Try to stagger the coupler mounting points from one chassis rail to the other. See diagram below.



For all other heavy vehicle types or commercial applications, please contact the ERPS factory on 1800 332 899 for advice on coupler placement.



Coupler Sites must be:

- Flat (no contoured surfaces)
- Well painted
- Free from indentations, holes or scratches.
- Free of welding slag.
- As far as practical, away from excessive heat or moisture.
- Free of bituminous paint, underseal or sound deadener.
- Thoroughly cleaned.



Important Note:

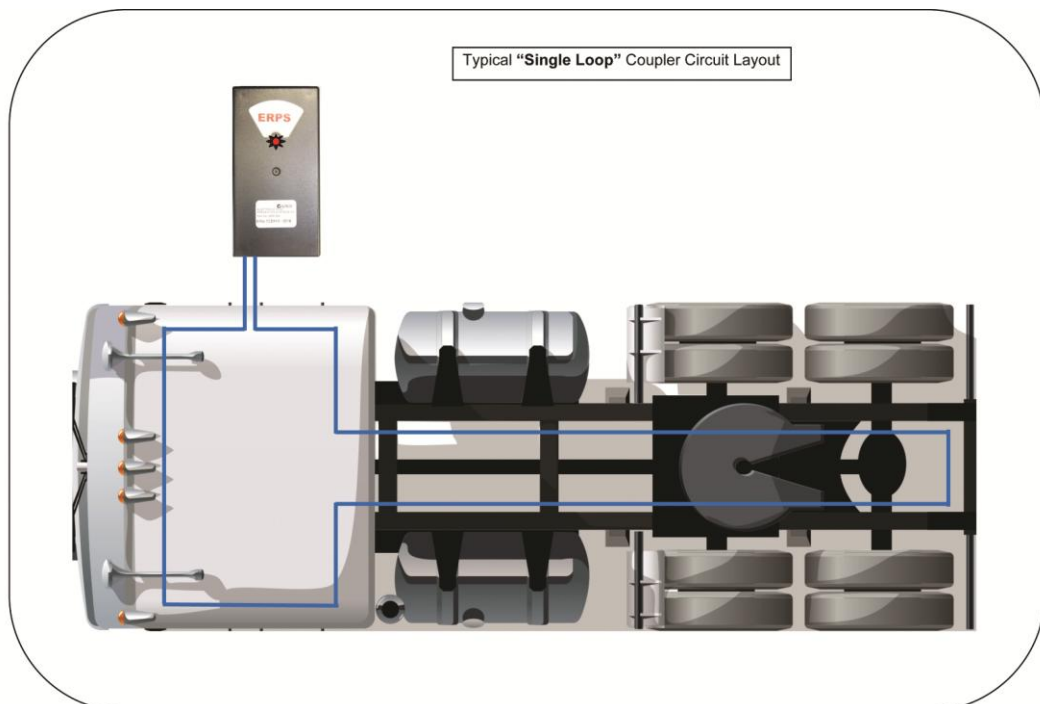
The coupler site must be well painted. Most vehicles have sufficient paint in the engine compartment but not on internal panels and some chassis.

If in any doubt, apply two coats of Quick Dry Enamel to the coupler site, fifteen minutes apart. Coat an area of approx 150mm square.

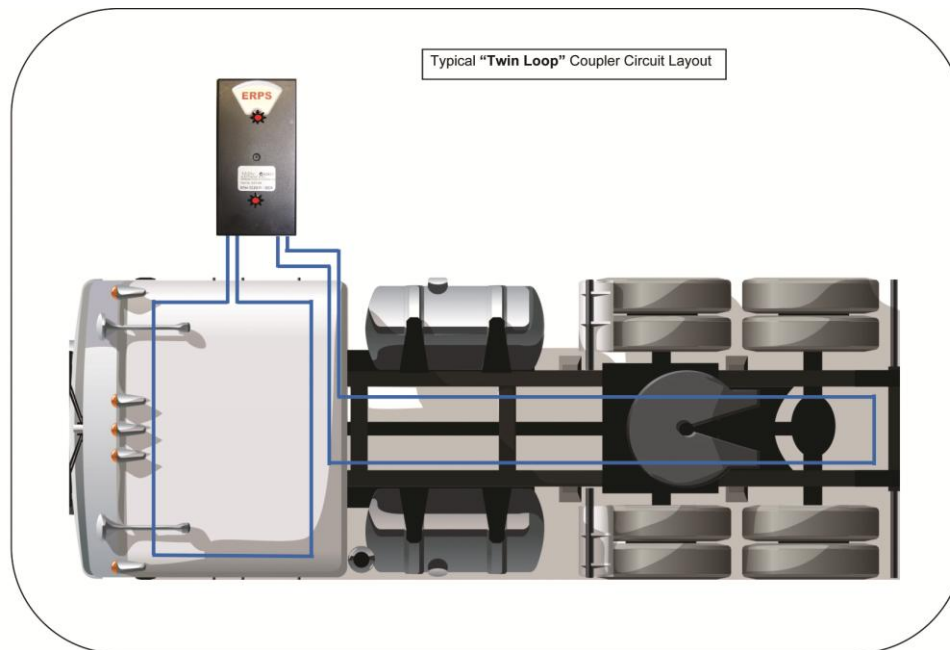
If the paint at the coupler site is too thin the coupler will short through to the steel body and the system will shut down.

Running the Coupler power supply line:

The power supply line leaves the generator through one of the blue wires (either blue wire – the system is bi-directional) loops around the vehicle then re-enters the generator through the second blue wire. Join the blue wires using the Straight Wire Joiners. The couplers are then joined to this “Loop Circuit” using the “T” joiners.

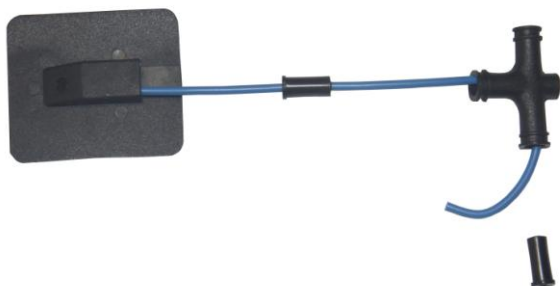


In some applications (when more than 20 couplers are required or in extreme conditions) a “Twin Loop” coupler power supply line may be required. In this case two separate coupler power supply lines are run to different parts of the vehicle.

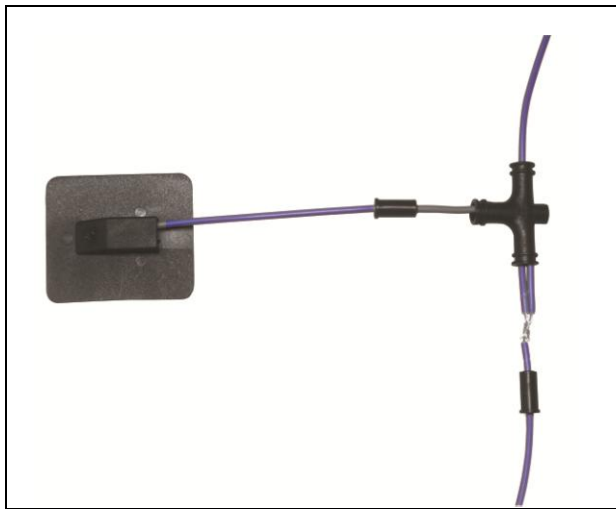


Joining The Couplers:

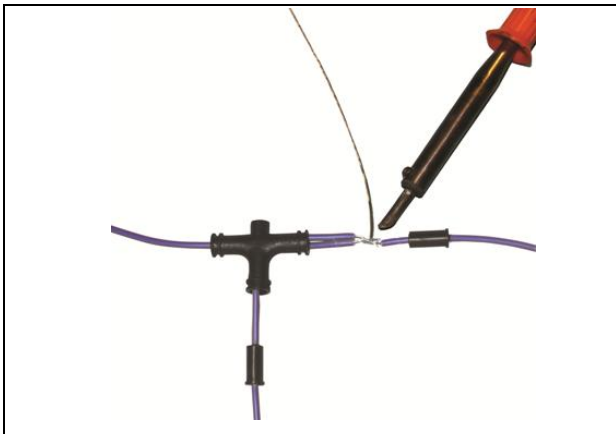
The couplers are joined to the coupler power supply line using specially designed “T” joiners.



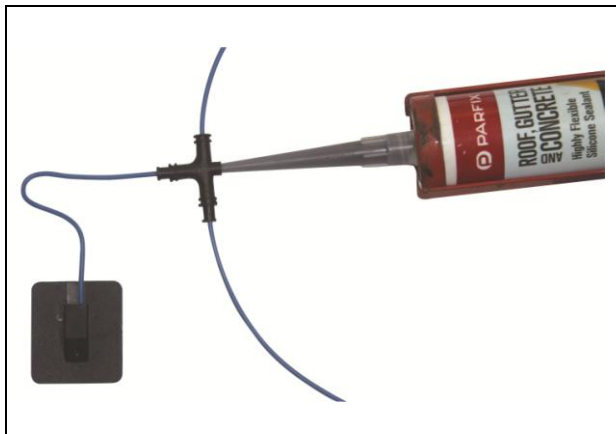
Remove both tapered plastic plugs from the T joiner. Push one plastic plug onto the coupler wire (ensure the small end of the taper faces the T joiner). Then twist the end of the wire in an arc, this will help to feed the wire through the T joiner. Push the wire through the bottom port of the T joiner and out one of the top ports. **NB: Do NOT strip the insulation from the wire at this stage as it makes it harder to feed through the T joiner.**



Push one cable of the coupler power supply line through the top port of the T joiner and rejoin it to the coupler power supply line and the coupler wire.
NB: Ensure you have attached all plastic tapered plugs before soldering the joint



Solder the wire joint then pull it back inside the plastic T joiner.
 Push all tapered plugs back into the T joiner.



Inject the plastic T joiner with silicon through its top port until silicon starts to ooze out where the wires enter the screws.
NB: Do not fill the T joiner of the coupler closest to the generator until after you have tested the system voltage.

Coupler power supply lines must be:

- Protected with split tubing when inside the engine bay, on the chassis or any position that they may incur damage.
- Tied firmly with cable ties. Existing brake or electrical lines can be used to brace the line.
- Protected by rubber grommets when travelling through the firewall or similar bulkhead.
- Run inside the vehicle wherever possible.
- Run in areas where they will not be damaged by impact or excessive wear.



7mm split tubing can be slipped over the T Joiner and fastened with a cable tie.

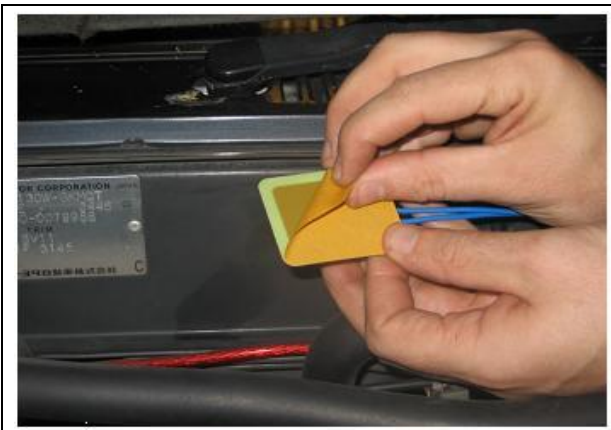


Attaching the Couplers:

Having selected the coupler site thoroughly clean the surface (about 150mm square) with the medi-swab supplied and allow to dry.

If the area is very dirty or undersealed, use white spirits or similar and a rag to clean the area first.

Always finish with the medi-swab.

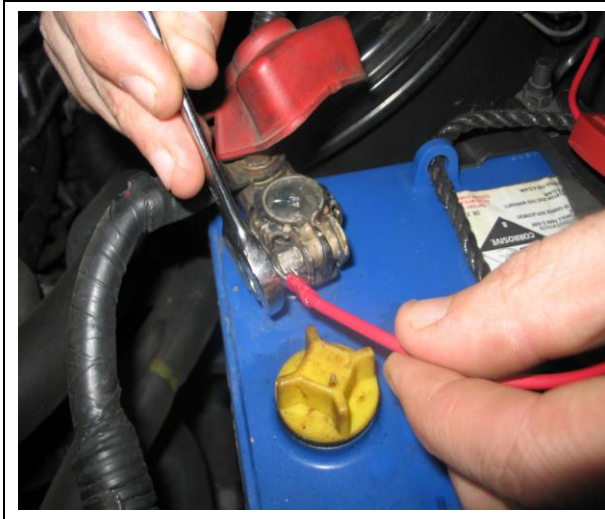


Peel off the paper cover (do not touch the adhesive face).

Firmly press the coupler onto the prepared site.



Finally apply Sikaflex (11FC or similar) around the edge of the coupler. This will stop ingress of moisture to the coupler/paint surface interface.



Connect the red wire from the fuse to the positive terminal of the battery.

Always ensure the black earth wire is connected to the battery before installing the positive (red) wire. This will protect the electronic components inside the generator.

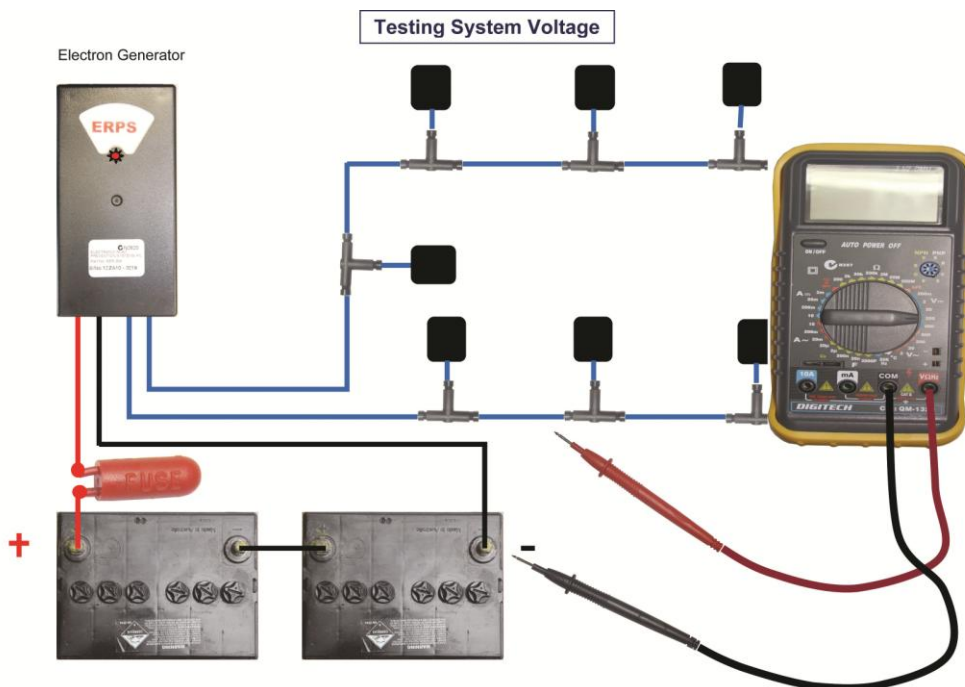
The red LED indicator light/lights on the generator should now be illuminated. The red LED indicator light/lights should remain "ON" at all times, indicating that the system is operating correctly.

Testing System Voltage

Using a good quality multimeter (minimum 10 Mega ohm internal resistance). Check the voltage in the coupler power supply line.

Connect the positive red wire of the meter to the coupler power supply (blue) line (check at the joint of the last coupler before injecting the Wire Joining "T" with silicon). Connect the negative black wire from the meter to earth.

The voltage should be a minimum of **400 volts DC**. Be careful not to touch the live wires with your fingers during testing, this will short the system and give you a false reading.



Trouble Shooting Guide

The Electron Generators red and green LED indicator lights should be illuminated at all times, indicating that the system is operating correctly.

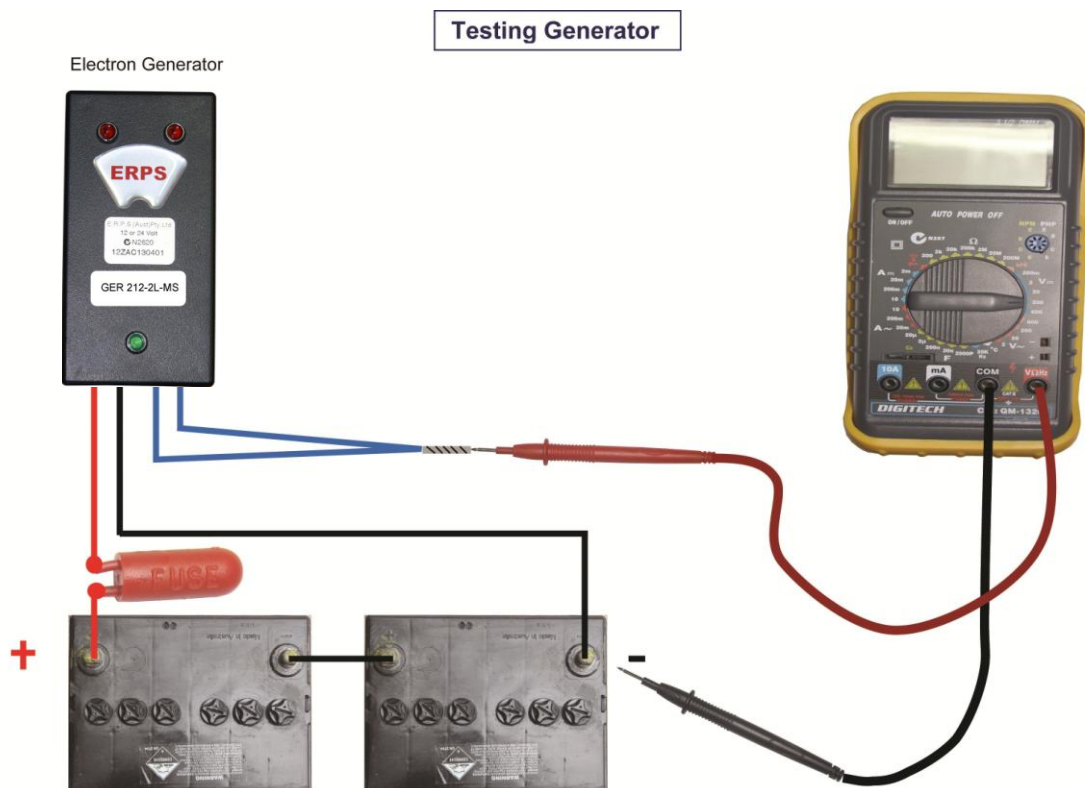
If either **RED** light is "NOT ON" follow the steps below.

- Check that the battery connections (red & black wires) are tight.
- Check that the fuse has not blown. If the fuse has blown a LED light should glow in the end of the fuse.



- Cut the two blue wires approximately 200mm from the generator, this isolates the generator from the coupler power supply line. Bare the wires and twist them together. Check the red LED indicator lights on the generator are on or check the voltage with a multimeter as per diagram below. The voltage should be a minimum of 400 volts DC with the vehicle engine running.

NB: do not touch the blue wires while checking the light or voltage reading as your body may short the wires to ground giving a false reading.



Scenario 1 – Red LED indicator light “DOES NOT” come on.

The generator requires repair or replacement. You can replace the generator with a new unit or return it to your point of purchase for testing.

Scenario 2 – Red LED indicator light “DOES” come on.

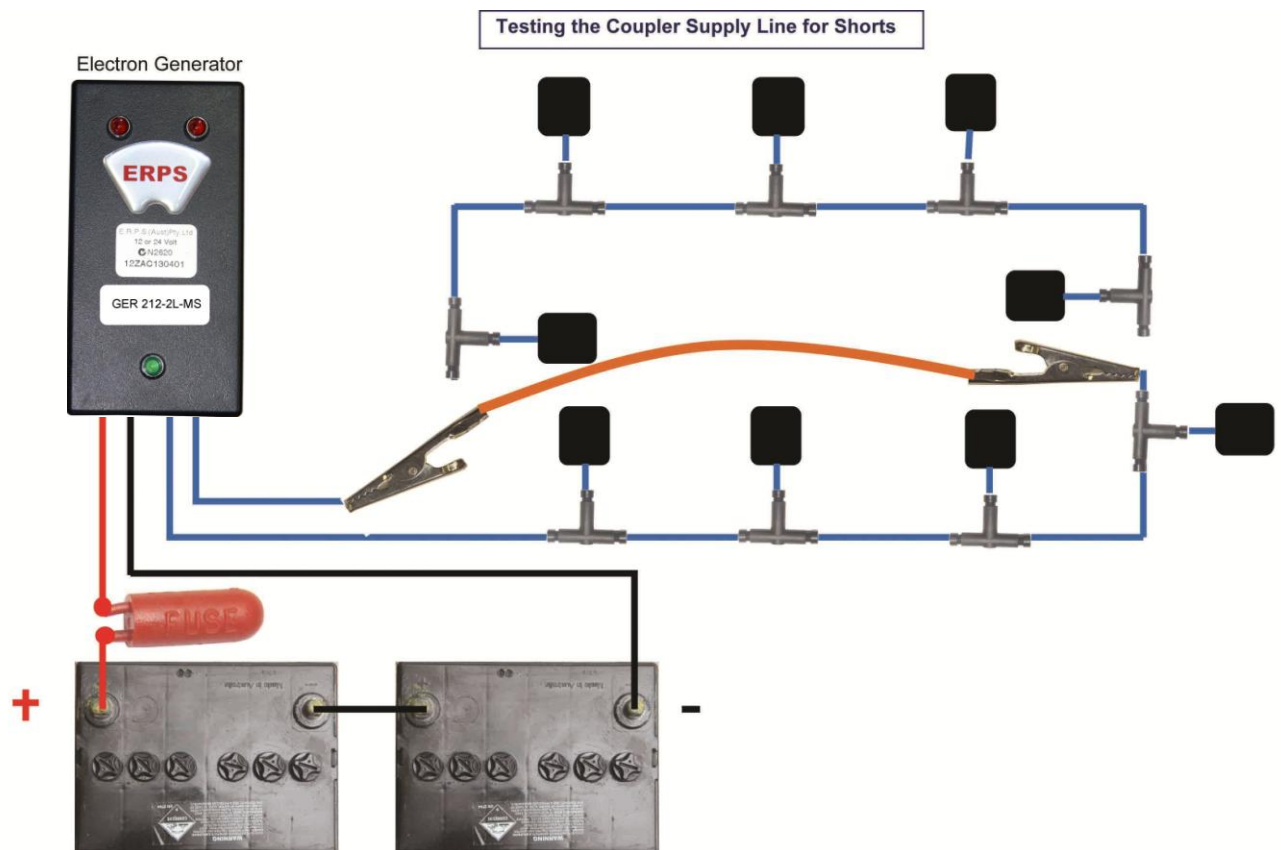
If the light does come on this indicates that the generator is operating correctly and a fault has occurred in the coupler supply line.

Possible faults in the coupler supply line.

- Broken wire
- Short to ground in wiring (jammed wire, damage insulation)
- Short in one or more couplers

Step One:

To isolate where the fault is within the coupler power supply line, divide the coupler power supply line into two halves. This can be done by cutting the line and attaching a jumper lead from the break in the line back to the generator as in the diagram below. This completes the loop circuit in one half of the vehicle only.

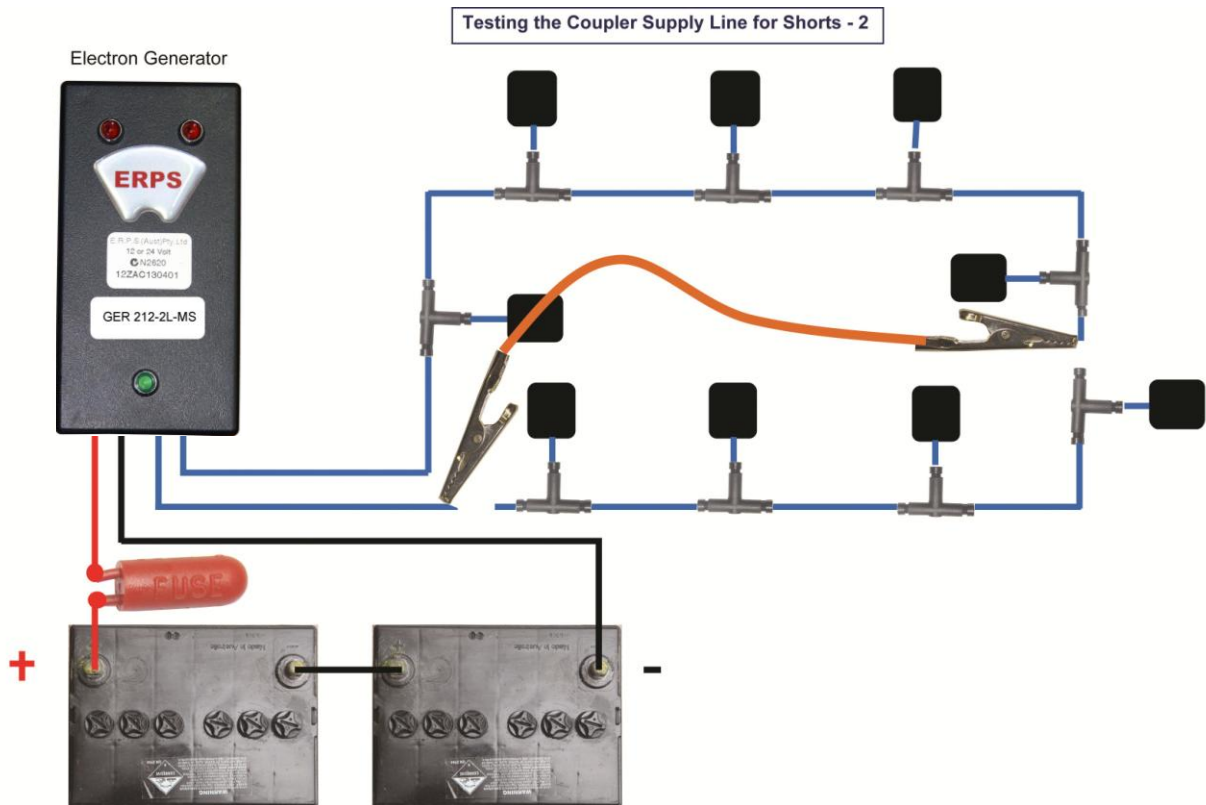


If the generator's LED indicator light comes on, this half of the circuit is ok. Proceed to “Step Two”.

If the light is not on, divide the system in half again until the fault is isolated.

Step Two:

Connect the generator to the second half of the circuit as per diagram below.



Again if the generator's LED indicator light comes on, this half of the circuit is ok.

If the light is not on, divide the system in half again until the fault is isolated.

If the **GREEN** light is not illuminated. Check both ground connections to the chassis. Unless both orange wires have a good connection to ground, the green LED light will not illuminate.

For assistance with trouble shooting - phone 1800 332 899.

