Technical Bulletin

Technical Helpline: +44(0)1622 833004 **Fax:** +44(0)1622 834004

ADZ91107 and ADZ91113 Alternators

Date Issued: 01/11/01

We are aware of common vehicle faults associated with the charging system on Vauxhall applications using the Isuzu 1.5 and 1.7 diesel engines. The aim of this bulletin is to allow the correct diagnosis prior to replacing the alternator, and to assist in the prevention of further problems.

If your vehicle has the charge warning lamp illuminated whilst the engine is running, we strongly suggest that the following checks are made prior to the alternator being replaced (in addition to a basic battery test);

1 - Charging Voltage test

Test the battery voltage when the engine is running. The voltage should be between 13.7 and 14.7 volts at 1250 rpm. If it is within the above guidelines, the unit is charging correctly (see charge lamp relay test).

Please note that the battery must be in good condition and be fully charged with non-essential electrical loads switched off. A battery fault may cause overcharging, low voltage readings, or cause the alternator to 'burn out' after prolonged use.

2 - Charge lamp relay test

It is our experience that the Charging Lamp Relay is prone to failure. The relay controls the dashboard charging light operation and alternator excitation. It also gives a signal to the diesel system self-diagnostics and glow plug control unit for post-glow operation.

- **We strongly recommend that the relay is changed as a matter of course when replacing the alternator, as it is possible for an internal alternator fault to damage the relay whilst in operation.**

A 'quick' and simple test involves separating the round 4-pin alternator loom connector (on the driver's side inner wing - see figs 9 & 10 overleaf). With the ignition on (and the immobiliser cleared, if applicable), give a fused positive feed to the relay energising wire. This wire is normally Yellow/Red (male connector, vehicle side) and will correspond to terminal 86 at the charge lamp relay. Alternatively, apply a fused feed directly to terminal 86 at the relay (under the same conditions) to eliminate a harness fault. (see figs 1,2 & 7 overleaf).

- **If the charge warning lamp on the instrument display goes out, the relay is functioning correctly and attention should be given to the alternator and loom. If the lamp does not go out, further tests may be prudent at the relay holder.**

3 - Alternator loom continuity

There are two common failure points. Firstly the **large main alternator cable connector on the inner wing** is very susceptible to severe corrosion (see fig 4 overleaf of main 'Lucar' connector). Partial contact here will restrict or stop alternator charge from reaching the battery and in some cases cause the alternator to fail prematurely. This should be checked, cleaned or replaced as necessary.

Secondly, **the wires in the alternator loom** are prone to breakage (at the alternator end). This should be tested with an Ohm meter between the inner wing connection and the alternator plug. Please be aware that the wire positions in the connectors at each end of this loom will not be the same. The rubber 'bungs' in the back of the loom connectors should be removed to show the true wire location (see fig 10 overleaf). Also, ensure that the terminals in all of the connectors are 'tight' and have no evidence of corrosion.

4 - Other associated vehicle problems

Air bag warning light on - sometimes caused by an overcharging alternator.
Initial excitation - sometimes require two minutes at 2,500 rpm to initially start from new

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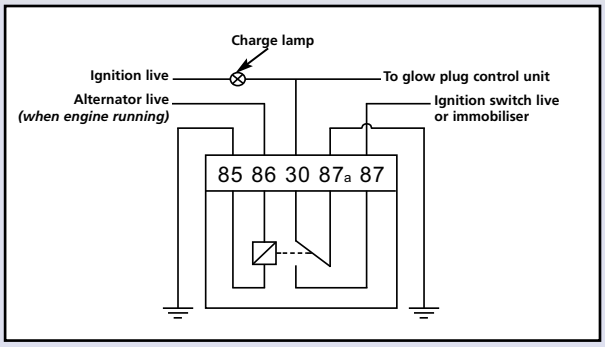

fig 1. - Charge Lamp Relay circuit

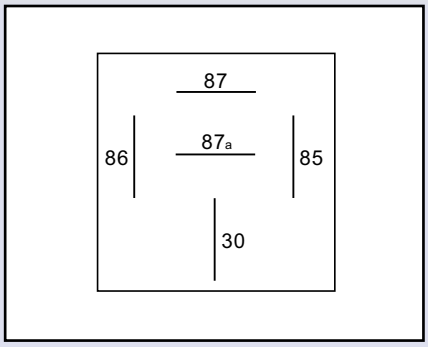

fig 1. - Charge Lamp Relay circuit

fig 3. - Charging voltage test

fig 4. - Main cable Lucar connector

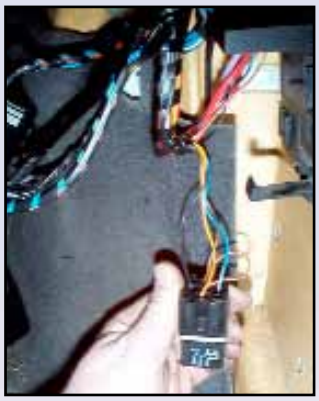

fig 5. - Relay removed

fig 6. - Footwell location of relay

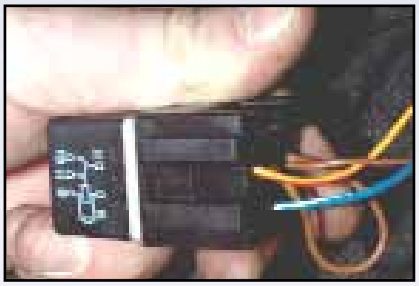

fig 7. - Charge Lamp Relay

fig 8. - Alternator loom requiring continuity test (inner wing multi plug to alternator)

fig 9. - Position of 4-pin alternator loom and main Lucar connector on inner wing

fig 10. - 4-pin connector (bung removed)

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