

TESTING AN ADVERC, ALTERNATOR & CHARGING SYSTEM
- USING A DIGITAL MULTIMETER.



PURPOSE:

A fact, not always fully appreciated, is that small voltage changes can produce significant differences in battery charging current. Testing the ADVERC gives you piece of mind that your batteries are being charged efficiently.

RECOMMENDED PROCEDURE:

- Carefully pull back the outer sleeving on the harness going into the ADVERC black box and insert the multimeter probes into the back of the plug.
- Before starting the engine, measure and record the **actual battery voltage – the one to which the Adverc red battery sense lead is connected.**
- Using a multimeter, measure the voltage across the following leads:

- Red/Black**
- Brown/Black**
- Blue/Black**
- Green/Black**
- Yellow/Black**
- Red/Blue**

The **Red/Black** reading should be the same as in 2.



- Start the engine and maintain the rpm just above idle i.e. so that the alternator is 'producing'. Switch-off all electrical loads.
- Allow the Adverc to 'cycle' i.e. after 5 minutes, both the battery voltage and **Red/Black** voltage should jump by approximately **0.4** volts.
- Repeat 3.
- Disconnect** the Adverc, whilst the engine is running – it is safe to do so.
- Repeat 3.
- Switch-off the engine.

With the Adverc plug still disconnected, using a multimeter on a **Kohms** setting, measure the resistance between the **two white** leads. The reading should be between **4 and 10 Kohms**.

- Typical readings for a 12 volt system are as follows:

SCENARIO			TYPICAL VOLTAGES ± 0.2 VOLTS					
ENGINE	B/DIODE USED	ADVERC	RED/BLACK	BROWN/BLACK	BLUE/BLACK	GREEN/BLACK	YELLOW/BLACK	RED/BLUE
OFF	YES	CONNECTED	12.6	0	12.6	0	0	0
OFF	NO	CONNECTED	12.6	0	12.6	0	0	0
ON	YES	CONNECTED	14.4	15.3	14.4	3 - 13	14.4	0
ON	NO	CONNECTED	14.4	14.4	14.4	3 - 13	14.4	0
ON	YES	DISCONNECTED	13.4	14.1	13.4	3 - 13	13.4	0
ON	NO	DISCONNECTED	13.9	14.1	14.1	3 - 13	13.9	0.2

Note:

- Red/Black** voltages vary with ambient temperature.
- Green/Black** readings can vary, depending on the polarity of the Adverc, the state of charge of the battery and if any electrical loads are applied.
- Red/Blue** values should be no more than **0.3** volts. The ideal value is **zero**, indicating no voltage losses in the system. Voltage losses in the positive line will be compensated for by the Adverc system. However, the Adverc will not compensate for any losses in the negative return, resulting in lower **Red/Black** voltages e.g. **14.2**, instead of **14.4**, reducing charging performance.
- Voltage losses in the negative return can be checked by measuring the voltage between alternator negative and the battery negative terminal. This ideally, should be **zero** and not greater than **0.1** volts, for optimum charging performance.

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ADVERC BM Ltd., 245 Trysull Road, Merry Hill, Wolverhampton, West Midlands WV3 7LG.

Tel: 01902 380494 Fax: 01902 380435

e-mail: techsales@adverc.co.uk http://www.adverc.co.uk