



# FITTING INSTRUCTIONS

Part Number: **4240010**

Product **CHASSIS MOUNTED BATTERY TRAY TO SUIT 10" OPTIMA BATTERIES**

Description:

Suited to **Ford Ranger 2011 ON**

vehicle/s: **Mazda BT-50 2011 ON**

## WARNING

### NOTE:

- ◆ This product must be installed exactly as per these instructions using only the hardware supplied.
- ◆ Do not use this product for any vehicle make or model, other than those specified by ARB.
- ◆ The installation of this product may require the use of specialized tools and/or techniques
- ◆ It is recommended that this product is only installed by trained personnel
- ◆ These instructions are correct as at the publication date. ARB Corporation Ltd. cannot be held responsible for the impact of any changes subsequently made by the vehicle manufacturer
- ◆ During installation, it is the duty of the installer to check correct operation/clearances of all components
- ◆ Work safely at all times
- ◆ Unless otherwise instructed, tighten fasteners to specified torque

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## FITTING REQUIREMENTS

### REQUIRED TOOLS FOR FITMENT OF PRODUCT:

BASIC METRIC SPANNER AND SOCKET SETS	FLAT AND PHILIPS SCREWDRIVERS
SIDE CUTTERS	LONGNOSE PLIERS

### HAVE AVAILABLE THESE SAFETY ITEMS WHEN FITTING PRODUCT:

Protective eyewear		Hearing protection	
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**NOTE: 'WARNING' notes in the fitting procedure relate to OHS situations, where to avoid a potentially hazardous situation it is suggested that protective safety gear be worn or a safe work procedure be employed. If these notes and warnings are not heeded, injury may result.**

#### **IMPORTANT:**

- Ensure all electrical connections are correct and tight and that both main and auxiliary batteries have a good earth connection to engine or chassis. Failure to do this can result in the main wiring loom and vehicle catching fire.
- Make sure all wires are securely fastened away from any hot, sharp or moving surfaces. Do not fasten any wires to the brake or fuel lines.
- Good condition of the charging system and primary battery is important for the correct operation of this system. Any accessories connected to the battery must use the appropriate wiring and fuses.
- As the BCDC Charger priority charges the primary battery, it is desirable to wire additional driving lights to the primary battery. Other accessories such as a refrigerator should be wired to the auxiliary battery.
- CAUTION Additional driving lights can rapidly drain the primary battery.

#### **INFORMATION ON THE BCDC Charger:**

- DUAL BATTERY CHARGING. The BCDC Charger features technology designed to charge your batteries to 100%, regardless of their type or size. By providing a unique charging profile to each specific battery type, the BCDC charger can achieve and maintain an optimal charge in your auxiliary battery, at all times.
- EFFICIENT CHARGING. The BCDC Charger is designed to boost the low voltage present at the end of a long cable run to a level suitable to charge your auxiliary battery to 100%. The BCDC charger has a built-in battery isolator which protects your vehicle's start battery from going flat.
- WORKS WITH ALL ALTERNATORS. The BCDC Charger is designed to work with newer variable voltage alternators where the vehicle battery may not reach optimum voltage for a typical isolator to open. They are designed to boost the voltage to optimum levels, regardless of what input voltage they are getting from the primary battery.

## PARTS LISTING – 4240010 AUX BATT KIT

APPLICATION.	PART NO.	QTY	DESCRIPTION
BCDC TO BATTERY TRAY	6151017	4	Bolt Hex M6 x 1.0 x 16
	6151128	4	Nut Flange M6
	6151046	4	Washer Flat M6
FIT BATTERY BOX	6542129	1	Battery Box
	6151619	4	Bolt M10 x 1.5 x 140
	6151322	4	Nut Nyloc M10 x 1.5
	4581083	8	Washer Flat M10 x 20 x 2
FIT BATTERY AND CLAMP	6582454	1	Bracket Battery Clamp
	6151229	2	Bolt L M8 x 238mm
	6151032	2	Nut M8 x 1.25 Nyloc
	4581044	2	Washer Flat M8
	5848397	2	Plastic Insulator
BRAKE LINE REPOSITION	3759197	1	Bracket Brake Line Union
	3759198	1	Bracket Brake Line

**\*\*NOTE** : This product is designed to fit on the inboard Passenger side of the chassis, between the Fuel tank and the Transmission.

### FASTENER TORQUE SETTINGS:

SIZE	Torque Nm	Torque lb/ft
M6	9Nm	7lbft
M8	22Nm	16lbft
M10	44Nm	32lbft

## BATTERY BOX PREPARATION

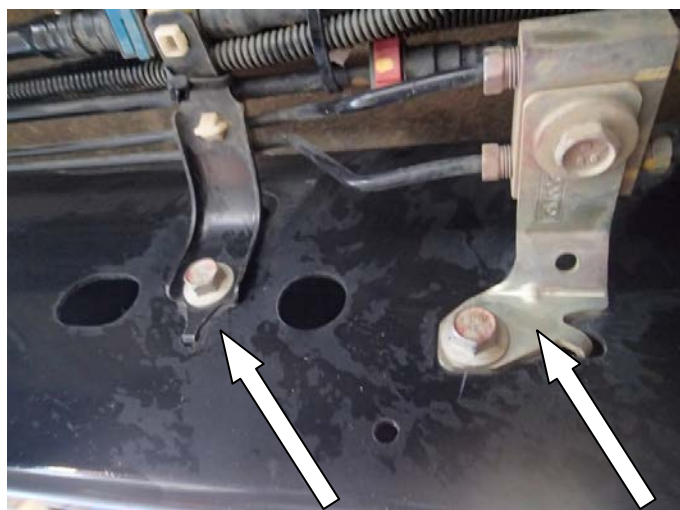


1. Install BCDC to the side of the Battery Tray as shown using M6 x 16 bolts, Flange nuts and Flat washers. Place a washer under bolt head . Tighten to specified torque.



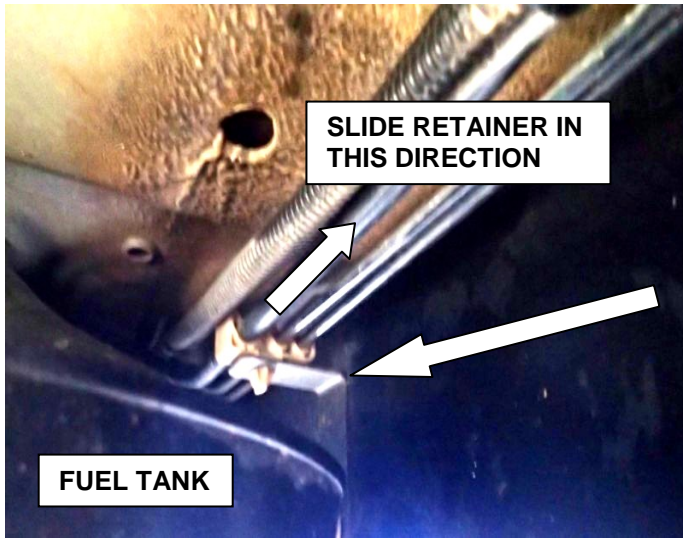
2. Press the 2 insulator pads into the back of the cover plate as shown.

## FITTING PROCEDURE



3. Unclip the plastic brake line retainer from the metal bracket on the Passenger side of chassis (shown LHS in picture) using long nose pliers.
4. Remove the metal brackets and retain the bolts.

## FUEL TANK



5. Remove the bolt from the Brake line bracket located beside the fuel tank and retain the bolt.
6. Slide the retainer clip and bracket towards the front of the tank.
7. Unclip the metal bracket from the plastic retainer using long nose pliers.



8. Install the Battery tray using (4) M10 x 140 bolts with M10 washers under the head.



9. Position the clamp plate on the opposite side of the chassis and fasten using M10 washer and M10 Nyloc nuts.



## FITTING PROCEDURE Cont.



10. Fit the new Brake line bracket to the retainer and slide back beside the tank to align with original mount hole and fasten with the M8 bolt.



11. Fit the Brake line union bracket as shown using original bolts.



12. Install the battery ensuring terminals are at the top.
13. Connect the wiring to the terminals as per diagram below and fasten securely.
14. Install the Battery cover using the "L" Bolts, M8 flat washers and M8 Nyloc nuts, through the hole in the lower corner of the tray and tighten securely.

Note: Photo shows final assembly out off the vehicle for clarity.

# 1 CONNECTING THE CHARGING CIRCUIT

ARB recommends fitting a Redarc BCDC charger to achieve optimum performance from the auxiliary battery.

To achieve safe and reliable operation of the BCDC charger, follow the steps below.

Even though the BCDC used will depend on the application, the following guidelines still apply.

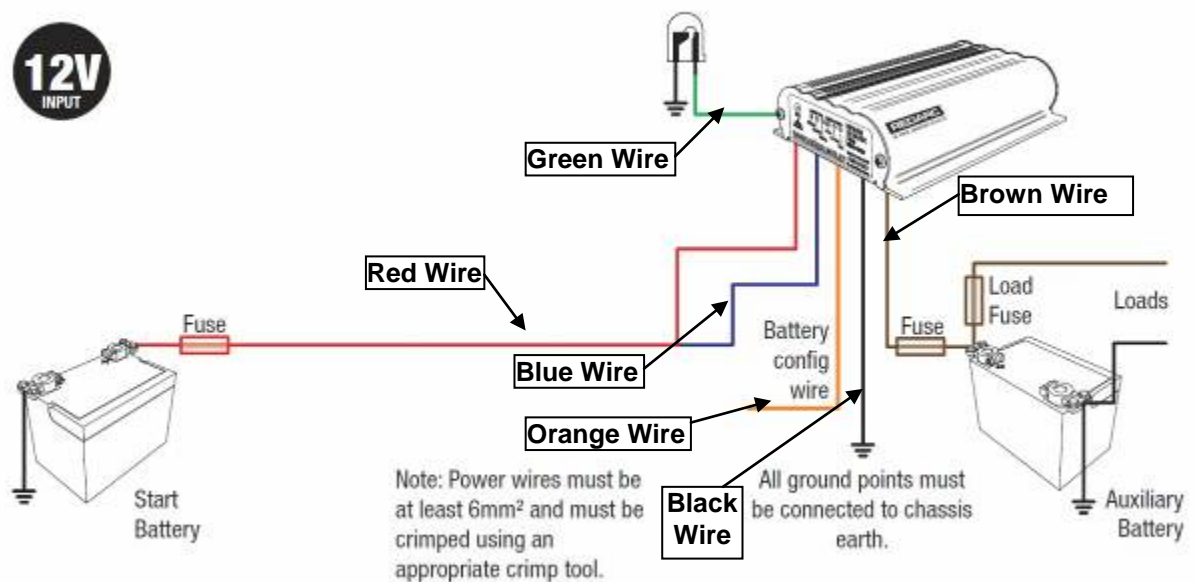
Do not fasten any wires to brake or fuel lines.

If the charging circuit is not working after correct installation, please consult a qualified Automotive electrician for assistance.

**CAUTION:** Make sure all wires are securely fastened away from any hot, sharp or moving surfaces.

Refer to diagram below for a typical setup of a 12V Battery connected with a BCDC Charger.

For detailed steps on how to wire the BCDC charging circuit, go to page 15.



Installation Setup diagram courtesy of REDARC Electronics.

# WIRING – AUX BATTERY CHARGING SYSTEM

1. Disconnect main battery terminals, negative terminal first.

2. **RED WIRE**

Connect BCDC Red Wire to Positive Terminal on Vehicle Main Battery. This wire must have a fuse as close as possible to the positive terminal of Main Battery. Use the fuse listed below for the BCDC being installed.

Fuse Guide	
Type of BCDC	Fuse Size (A)
BCDC 1220/1220-IGN	30
BCDC 1225/1225-LV	40
BCDC 1240/1240-LV	50

When lengthening the wire, use the wire size listed below for the BCDC being installed.

Input Battery Positive – Wire Size Guide		
Type of BCDC	Length (m)	Recommended Wire Size (mm <sup>2</sup> )
BCDC 1220/1220-IGN	1-3	3.5 mm <sup>2</sup> OR 6mm auto
	3-5	5.7 mm <sup>2</sup> OR AWG 8
	5-9	10.2 mm <sup>2</sup> OR AWG 8
BCDC 1225/1225-LV	1-5	7.71 mm <sup>2</sup> OR AWG 8
	5-9	13.56 mm <sup>2</sup> OR AWG 6
BCDC 1240/1240-LV	1-5	13.56 mm <sup>2</sup> OR AWG 6
	5-9	20.28 mm <sup>2</sup> OR AWG 4

3. **BLUE WIRE**

*For BCDC 1220/1225/1240*

Connect BCDC Blue Wire to Positive Terminal of Vehicle Start Battery (12V Positive Supply).

*For BCDC 1220-IGN/1225-LV/1240-LV*

Connect BCDC Blue Wire to Vehicle Ignition Power (12V Accessories).

4. **ORANGE WIRE**

Leave orange wire disconnected. Tape back to loom. If installing a different type of battery, refer to Redarc BCDC user manual for correct installation.

5. **GREEN WIRE**

If customer requires a visual indicator to show when the BCDC is charging the aux battery, connect green wire to positive terminal of a LED. Connect LED negative terminal to ground. The LED can be placed inside the vehicle on the dash.

**NOTE: This wire can be left disconnected if visual indicator is not required.**

6. **BLACK WIRE**

Connect BCDC Black Wire to Chassis Ground/Earth.

**NOTE: Do not connect to vehicle tub.**



## 7. **BROWN WIRE**

Connect BCDC Brown Wire to Positive Terminal on Auxiliary Battery. This wire must have a fuse as close as possible to the positive terminal of Aux battery. Use the fuse listed below for the BCDC being installed.

<b>Fuse Guide</b>	
<b>Type of BCDC</b>	<b>Fuse Size (A)</b>
BCDC 1220/1220-IGN	30
BCDC 1225/1225-LV	40
BCDC 1240/1240-LV	50

When lengthening the wire, use the wire size listed below for the BCDC being installed.

**NOTE: The BCDC brown wire may be connected directly to the aux battery positive terminal without any extra wire length added on to it.**

<b>Output Battery Positive – Wire Size Guide</b>	
<b>Type of BCDC</b>	<b>Recommended Wire Size (mm<sup>2</sup>)</b>
BCDC 1220/1220-IGN	3 mm <sup>2</sup> OR 5mm auto
BCDC 1225/1225-LV	7.71 mm <sup>2</sup> OR AWG 8
BCDC 1240/1240-LV	7.71 mm <sup>2</sup> OR AWG 8

8. Connect Negative Terminal of Auxiliary Battery to Chassis Ground/Earth.
9. Reconnect Vehicle Main Battery Terminals.

## **TESTING**

Start the engine.

Observe the LEDs on the BCDC Charger.

### **Normal Operation:**

Under battery type, the AGM/Gel LED must be blinking.

Under charge status, one of the three LEDs (boost, absorption or float) must be blinking.

### **Faulty Operation:**

If all the LEDs on the BCDC are blinking at the same time, consult the Redarc BCDC user manual or a qualified auto electrician to diagnose the issue.