

Battery Safety Terminals

The Battery Safety Terminal (BST) is a device which is used to minimise the risk of any electrical fire in the engine bay if the vehicle is involved in a collision. BMW have been using BST's as part of their safety package for around 20 years; a cutaway section of the BMW device is shown below in Figure 1. Other European vehicle manufacturers use similar devices however they are not always integrated with the battery terminal.

The BST is controlled by the SRS (i.e. airbag) control module. Figure 1 below shows the main components of a typical BST. The cable end is terminated with a self-locking taper which is inserted into a matching hole in the battery terminal. The BST uses an explosive charge to physically separate the cable from the positive battery terminal, which then disconnects the main power feed to the engine bay. For safety and vehicle visibility, power is still supplied to the vehicle lighting circuits.

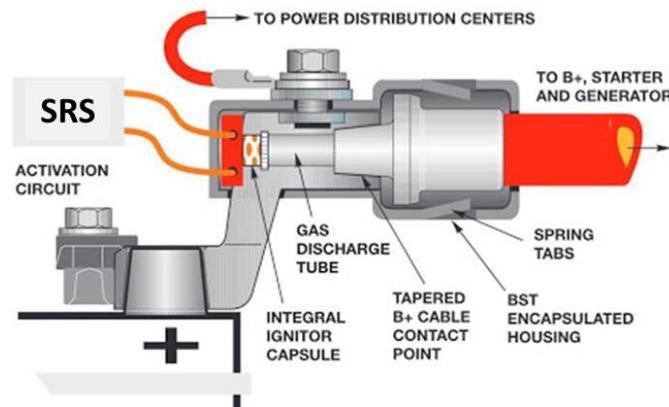


Fig. 1

If a vehicle is involved in a collision, the SRS control module will activate the explosive charge if required (Fig. 2). This separated the cable from the battery which isolates power to the engine bay.

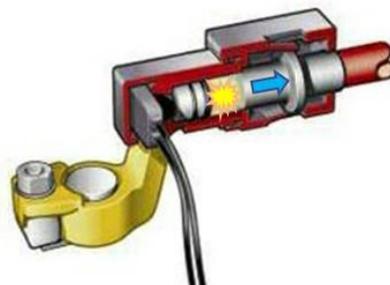


Fig. 2

Once the cable has separated, the spring-loaded tabs hold the cable away from the terminal preventing it from contacting the terminal (Fig. 3). Once a BST has been triggered, it must be replaced as it cannot be reset.

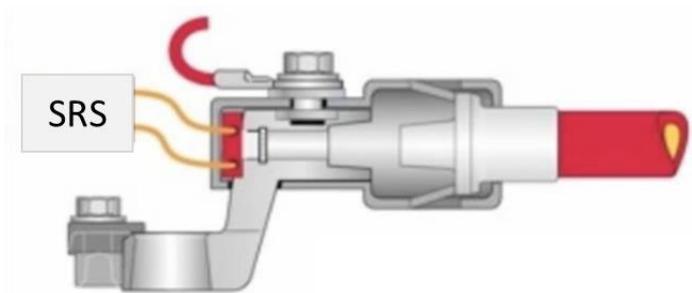


Fig. 3

Battery Replacement in Vehicles with a BST

When replacing a battery in a vehicle which is fitted with a BST, additional care must be taken to avoid excessive twisting or bending loads on the terminal or wire, to avoid dislodging the cable end from the taper.

The battery replacement process is the same as for any other late model vehicle. As with all vehicles, **do not over-tighten the battery terminals**. Do not use an impact driver or electric screwdriver to tighten the battery terminals. The terminal nut does not need to be excessively tight for the terminal to lock against the battery post.

If a jump start is required, never connect a jumper clamp directly to a BST type battery terminal. The vehicle will have jump points installed in the engine bay which must be used.

Other similar devices

Some vehicles may also be fitted with a similar device installed in the battery mounted power distribution board to isolate accessory power circuits from the battery. The BMW example below (Fig. 4) has a small fuse under the cover at the top of the picture which can be triggered by the control module in a similar way to the BST if required.



Fig. 4