

VOLTAGE STABILIZER MGB, MG AUSTIN HEALEY & SPRITE

Part Number: BHA4602P

A LITTLE HISTORY

Many British cars produced through the mid-1960s have moving-iron gauges that are fed directly from the battery through a wire that is live when the ignition is switched on. Fuel gauges of this type have two characteristics; the needle jumps off empty as soon as the ignition is switched on, and the needle bounces all over the places when you hit a bump. The readings on these gauges are also affected by the battery voltage, which means they may be erratic or inaccurate as the voltage varies. The new gauges introduced by Smiths in the 60s were based on bimetallic heating elements, and they eliminated these problems. These gauges behave differently; the needles of the fuel or temperature gauge drift up off the lowest reading slowly when the ignition is turned on. The new gauges required the addition of a voltage stabilizer. The original Smiths voltage stabilizer is simply a mechanical voltage regulator that takes battery voltage (13.4-14V) and reduces it to 10 volts. Inside the stabilizer is a bimetallic strip, an insulated heating wire coil, and contact points. Over time, they fail for a variety of reasons and repairing them is problematic. The Smiths voltage stabilizer came in many configurations – the type and number of terminals depended upon the application, but that all perform the exact same function, providing the gauges a steady 10V.

ABOUT THE VOLTAGE STABILIZER

The supply of genuine Smiths' stabilizers has dwindled to a few part numbers. The ones we have carried in recent years have varied considerably, even when ordered from the same source under the same number, they have had a variety of terminal combinations, which is confusing, and the reliability of some has been suspect.

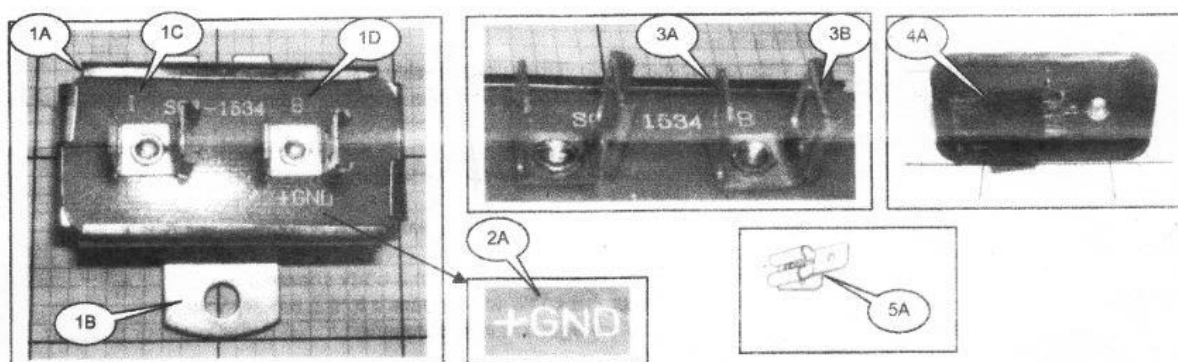


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Reproducing all the original stabilizers would be cost prohibitive, so it was set out to reproduce a stabilizer that would meet the needs of all the various applications. It was also decided to go to solid state components to improve the quality and simplify the construction, which kept the cost down. The case (1A) is a clone of the housing used on the late Smiths' stabilizers. It is grounded to the chassis through the mounting bracket (1B). The instrument terminals are indicated by an "I" (1C) and the power in or battery terminals are indicated by a "B" (1D) just as they always have been. We provide one male spade (3A) and one female spade connector (3B) for both terminals to make it easy to hook up on the original wiring connectors. We include two "piggyback" connectors (5A) which can be placed on one or both male spade terminals on the stabilizer (3A), giving you more places to connect wires with female spade connectors, something triumph owners will appreciate. The solid state components are polarity sensitive and therefore have a positive ground and a negative ground version of the stabilizer. The polarity of the unit is clearly indicated (2A) and it must be strictly observed.

Before you do any testing:

- Locate the stabilizer. Consult your workshop manual for the location.
- Remove the wires from the stabilizer, marking them clearly so you can connect them correctly later.
- Remove the stabilizer and clean all the electrical connections, including the ground connection- the points of contact between the mounting tab and the body sheet metal.
- Reinstall the stabilizer, connect the wires
- Using a voltmeter, measure the voltage at the battery (this is the battery voltage referred to below).

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WITH ½ TANK, GAUGE READS HIGH

- Remove the wire(s) from the "I" terminal.
- Connect a voltmeter between the "I" terminal and a good clean ground on the chassis.
- Turn on the ignition.
If the voltmeter shows.
 - a) the same voltage as you measured in step 1.
 - b) It remains there for 20-30 seconds without changing.
it is probable that the points inside the stabilizer are not opening and you should replace it.

WITH ½ TANK, GAUGE READS LOW

Rule out a problem with the sending unit first,

- Make sure the wire(s) are properly connected to the sending unit.
- Verify that there is adequate fuel in the tank.
- Disconnect the wire on the sounding unit that goes to the gauge (usually green-black).
- Switch on the ignition and observe the volt meter reading and compare it to the battery voltage.
- If the voltage at the "B" wire is less than battery voltage, the wire connected to "B" is damaged or broken and that must be found and corrected.

WITH ½ TANK, GAUGE READS EMPTY

- Remove the wires from the stabilizer, marking them clearly so you can connect them correctly later.
- Locate the wires that were connected to the "B" terminal.
- Connect a voltmeter between the "B" wires and a clean ground on the body sheet metal.
- Switch on the ignition and observe the voltmeter reading and compare it to the battery voltage.
- If the voltage at the "B" wire is less than battery voltage, the wire connected to "B" is damaged or broken, that must be found and connected.
- If the voltage at the "B" wire is the same as battery voltage, switch off the ignition.
- Measure the resistance of each of the "I" terminal wires from end to end. Resistance over a few Ohms indicates a problem in the wire that must be corrected.

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- If no problems are found with the wires and the gauge still reads empty, reconnect the voltage stabilizer.
- Perform the "Gauge Reads Low" series of tests listed above.

INSTALLATION TIPS

- Verify that the polarity of the stabilizer you have matches to polarity of the vehicle.
- Locate the original stabilizer. Consult your workshop manual for the location if necessary.
- Remove the wires from the stabilizer, marking them "B" and "I" so you can connect them correctly later. Clean the electrical connectors on the wires.
- Remove the original stabilizer and clean the ground connection on the body sheet metal.
- install the new stabilizer in the original location and secure it with the original screw and washer.
- Connect the wires marked "B" to the "B" terminal. Connect the wires marked "I" to the "terminal."

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