
Background: - There are compatibility issues between fuel Gauges and Sender units used across the range of TR2-6, in addition some need a voltage stabiliser and some do not.

This information sheet explains the differences and what will work with what.

What are the issues: -

Design of Fuel gauges and the sender units used to drive them evolved through the 50' and 60's and beyond such that the variable resistance of the sender unit needs to be of the correct type to drive a specific gauge. This is further complicated by some cars being Positive earth and others Negative earth plus the introduction by RevingtonTR of completely new gauges with modern internals (that look identical when mounted in the dashboard) along with high quality sender units.

Gauge types: -

Gauges fall into 3 categories,

- a. **TR2-3B original gauges.** These fall into the group known as 'FG' type and the older PG type with an 'X' prefix to the second part of the Smiths Jaeger part number printed on the face (the FG part numbers were just a more modern way of saying the same thing: the 'FG' Prefix denoted Fuel Gauge, and the 'PG' prefix was Petrol Gauge). Inconveniently the PG prefix was later used to identify Pressure Gauges, some with similar part numbers, which has left a rather messy assortment of part numbers; inconvenient if you are in the gauge industry but does not affect us here. The fuel gauges in this category have a 3 ohm 'empty' to 80 ohms 'full' calibration meaning they require a sender unit with this resistive range. The 'FG' (and 'PG') type is easily identified, regardless of part number by the two hex calibration nuts and slots below the terminals on the back, The construction/operation of these gauges is of the two coil 'Magnetic Bias' or 'Moving Iron' type rather than a Wheatstone Bridge (similar principle).

We have identified there are two gauges with the same Triumph part number but different part references on the gauge face and two separate fuel gauge sender part numbers. Difficulties have arisen in the past when early gauges have been mixed with later sender units and vice versa but as the general characteristics of both gauges and sender units are the same we do not have an explanation for this. The two standard gauges and sender units are: -

- Gauge 106964A (with PG163 printed on the face) most likely intended to work with sender unit part number 202137 (marked ST-202137R 80085/1 on the top)
 - Gauge 106964B (with FG2530/20 printed on the face) most likely intended to work with sender unit part number 203610 (marked FT3331/02 on the top face)
- RevingtonTR added the suffix A and B to the gauges to differentiate between them. These gauges are not polarity sensitive.

- b. **TR4-6 original gauges.** The half shrouded gauges fitted to later model cars have part numbers prefixed 'BF' (just visible under the shroud). Which stands for **B**imetal type **F**uel gauge, these are not compatible with the earlier 'FG' or 'X' type sender units. The changeover point was a period in the 60s when the
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older FG gauges were being replaced by the cheaper Bimetal 'BF' gauges. These gauges have a 240 ohm 'empty' to 20 ohms 'full' calibration meaning they require a sender unit with this resistive range.

c. TR2-6 Modern gauges with an original style face but with modern internals.

1. *TR2-2B new fuel gauges* have modern internals, are polarity sensitive and conveniently have a 3 ohm empty to 80 ohms full calibration meaning they require a sender unit with this resistive range. They SHOULD work with an original sender but to avoid issues we recommend our gauge and sender unit kit RTR8546PK or NK (Positive or Negative earth) which will avoid any compatibility issues.
2. *TR4-6 new fuel gauges* have Bi Metal internals with a 240 ohm empty to 20 ohms full calibration meaning they require a sender unit with this resistive range and will therefore work with an original sender unit. These gauges are negative earth only and require a stabilizer – original gauges were not polarity sensitive but the new units are. We supply these negative earth.
3. *TR2-6 Special gauges* to operation with 'dip' type sender units. See below. These gauges have a 68 ohm 'empty' to 3 ohms 'full' calibration to match the resistive range of the dip sender unit.

The best way to be sure of a gauge's internal type is to look at the pointer and tap the side of the case, if it does nothing, it's a modern unit. If you move the case from side to side and the pointer flops around and goes from one side to the other when tipped upside down as though it is not connected to anything, it's a moving iron FG type. If the pointer stays in the same place and vibrates or wobbles for a moment it is a 'BF' bimetal type.

Sender Units: -

All TR2-6 irrespective of the gauge type employed, require a sender unit which changed resistance from empty to full. There are three resistive ranges applicable: -

1. **3 ohm empty to 80 ohms full.**
 - a. TR2-3B Standard sender units. See part numbers above
 - b. TR2-3B Adjustable sender RTR8514. Float is adjustable for height and radius.
2. **240 ohm empty to 20 ohms full**
 - a. TR4-6 Standard sender unit 214465
 - b. TR4-6 high quality sender unit 214465-1. Float is adjustable for radius.
 - c. TR4-6 high quality sender unit RTR8514-1. Float is adjustable for height and radius.
3. **68 ohm empty to 3 ohms**
 - a. We have a range of dip type senders in a depth range of 250mm to 300mm to suit all TR2-6 tanks. Part number RTR8547-250 to 300 where the last 3 digits are the depth in mm. 10mm increments.

Voltage stabilisers: -

The only units that require a voltage Stabilizer are all bimetal Gauges with either a BT or BF (**B**imetal **T**emperature or **F**uel) prefix to the part number. Any gauge with a plastic case does not require a stabilizer, nor do fuel gauge calibrated to be operated by a dip pipe sender unit. Pressure gauges (even the bimetal ones) do not need stabilizers either.

Original stabilizers were not polarity sensitive but new electronic ones RTRI8024 are.