



THE SOURCE FOR CLASSIC  
LAND ROVER PARTS

www.roversnorth.com

# Fuel Tank Sending Unit – Series II, IIA

## Directions

### About these sending units...

The Smiths 'F' series petrol tank sending units were fitted to a wide range of vehicles. The design is simple and perfectly functional, if a bit dated. The main body (1a) is die cast. The cavity for the resistance coil has a flat cover plate sealed with a cork composite gasket (1d) and secured with 4 screws (1e). The large round gasket (1f) seals the sending unit to the tank.

### The Resistance Coil and the Moving Contacts

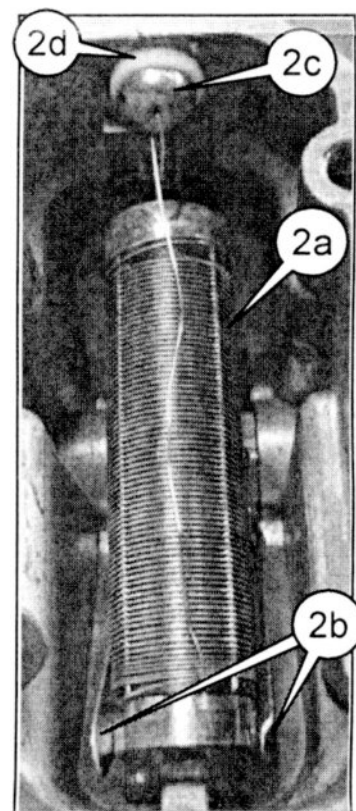
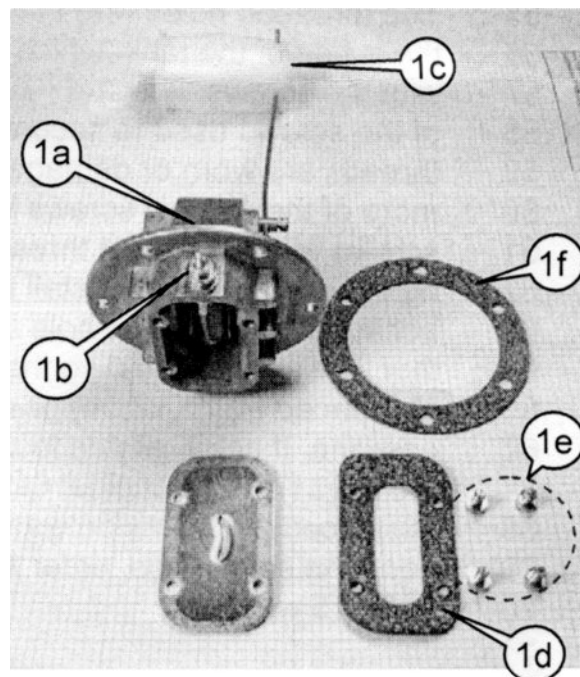
The performance of the sending unit is dependant on many factory, but a key component is the coil inside the rectangular cavity. The coil is made by wrapping a special resistance wire around a non-conductive core. The windings (2a) are evenly spaced and secured so the coils don't slide around or bunch up as the pair of moving contacts (2b) slide across the windings.

### What about the Electrical Terminal?

The resistance wire is soldered to the head of the terminal screw (1b, 2c) which passes through the body of the sender. The screw is sealed and insulated from the body of the sender by a special nylon bushing (2d). The screw has two nuts—one to secure the screw, and a second to secure the wire going to the fuel gauge. As you undo (and retighten) the outer nut when connecting the wire, make sure the screw itself **DOES NOT ROTATE!** If it rotates enough, the fine wire soldered to the head of the screw may break and the sending unit will no longer work. *Note: From time to time we get calls from customers concerned because the hollow rheostat cavity will fill with fuel. This is a design feature of the original Smiths sending unit and does not pose a safety hazard as long as the cover plate is in place and there are no leaks. Always disconnect the battery prior to removing the cover plate from the installed unit.*

### Testing the Unit Before Installation

Connect the sending unit wire to the screw terminal (1b), and ground the body of the sender to the chassis. Turn the ignition key to run position, and move the float (1c) slowly through its range of motion and watch the needle on the fuel gauge. The instrument should follow the motion of the float from full to empty. Please note that you cannot use a digital ohm meter to check the operation of the sender. Unless the meter has a sampling function, the readings will be very erratic and jump from low to high resistance and back as the float arm is moved. An older analog meter can be used if it has a 0-100 Ohm scale. Verify that the tank itself is grounded to the chassis/body; the sender is grounded through the body of the tank through the 6 mounting screws. If there are any doubts about the ground through the tank itself, you may run a wire from one of the mounting screws to the chassis.



## Fuel Tank Sending Unit – Series II, IIA

### Fitting the Sending Unit

Test fit the sender in the tank without the gasket. The body of the sender has rounded corners (3a) at the flange to make sure the sender will fit the opening in the tank. Check the alignment of the holes for the mounting screws.

### Sealing the 6 Mounting Screws

The threaded holes (4a) in the mounting flange go straight through to the inside of the tank, which means gasoline will be in direct contact with the screws. It is not uncommon for gas to weep past the threads of the screws used to secure the sending unit, particularly when the threads are worn or damaged. This frequently happens when one or more of the original screws have been lost and replaced by larger screws with a different thread pitch. Make sure all 6 screws can be tightened before you install the sender. If a screw cannot be tightened because the threaded hole is stripped out, you will need to correct that. We suggest sealing the threads on the screws with Hylomar AF (Advanced Formulation) gasket dressing which is impervious to gasoline. If not available locally, we recommend Genuine high-performance flexible gasket (RNL206).

### Sealing the Mounting Flange

Ensure that the mounting flange on the tank is clean. The gasket supplied with the sending unit is made of Viton, which is inert in modern gasoline/alcohol blends. The use of a gasket sealer on the round mounting gasket is a matter of personal preference.

Although every effort has been made to ensure the accuracy and clarity of this information, any suggestions that you may have that will improve the information (especially detailed installation note) are welcome. Please use the simple email form on the Contact US page on the Rovers North website [www.roversnorth.com](http://www.roversnorth.com)

If you prefer, you may call our Technical Sales team at 1-800-403-7591. So many people call us for help that we are often not able to answer the calls as fast as we'd like, and you may be asked to leave a message. We apologize in advance for the inconvenience and will do our best to get back to you within 2 business days.

