

Measuring the fuel gauge circuit

As an example for this task, the fuel gauge circuit of the Alfa Romeo Montreal is shown in fig 1. For more details, consult the complete diagram. The circuit is protected by a fuse.

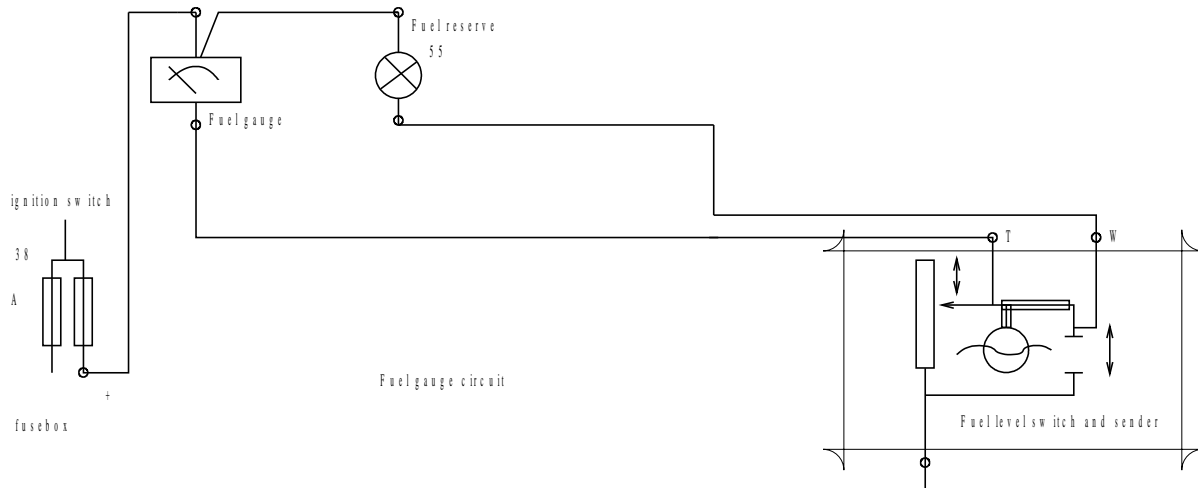


Fig. 1 Partial diagram of a fuel gauge circuit

Assignment

1. Using your demonstration car, check to see how the fuel gauge is connected. Use the demonstration car's electrical diagram for this. Locate the various components.
 2. Draw your own partial diagram of the fuel gauge circuit and mark the measurement points for the task.
 3. If desired, add simple malfunctions to the circuit on the car such as:
 - broken wire
 - poor ground connection
 - defective fuse
 - extra resistance at the potentiometer
- Make sure that the measurement points are accessible for the students.

For this task, the fuel tank sender needs to be removed. It is also possible to disconnect the wiring from the tank sending unit and mount a separate potentiometer.

As an example, figure 2 shows a number of measurement points in the circuit along with a number of measurement tasks.

In this case, the negative multimeter probe should be connected to the negative pole of the battery.

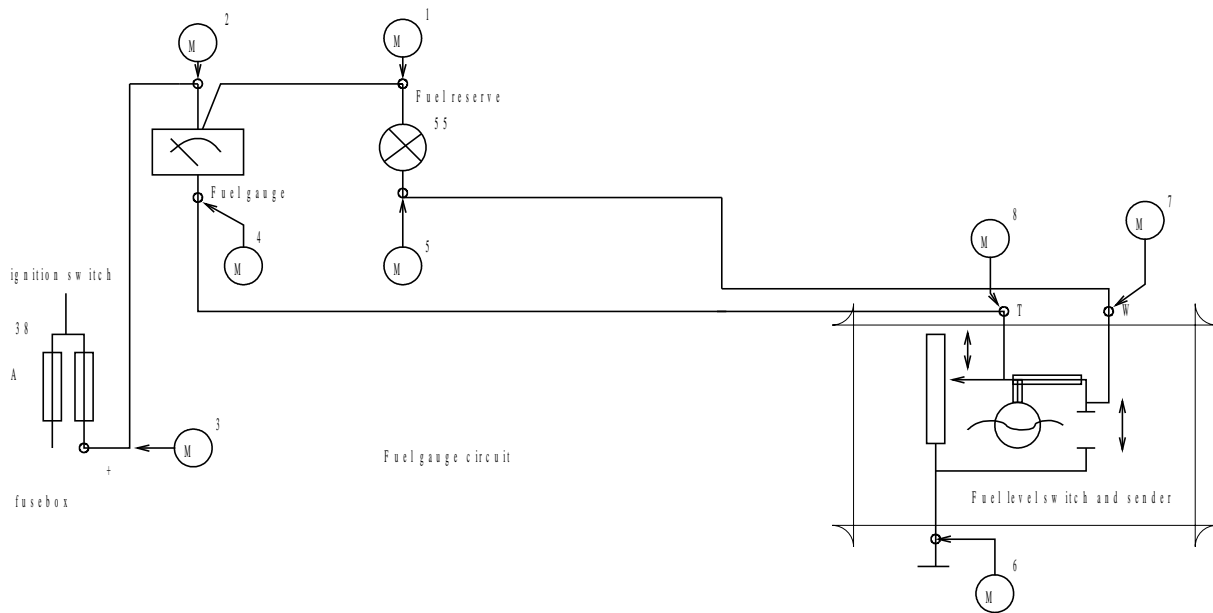


Fig. 2 Fuel gauge diagram with possible measurement points

Measurement tasks

Fill in the chart below with voltmeter readings in the following situations.

- situation 1: the ignition switch is on and float is at 'minimum'
- situation 2: the ignition switch is on and float is at 'maximum'
- situation 3: the 'W' connection is disconnected from the tank and attached to the ground connection. Float at 'maximum'.

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
situation 1											
situation 2											
situation 3											

Conclusion:

The measured values in situation 1 are normal / abnormal
 If they are abnormal, give a possible cause.

The measured values in situation 2 are normal / abnormal
 If they are abnormal, give a possible cause.

The measured values in situation 3 are normal / abnormal
 If they are abnormal, give a possible cause.