Measuring the back-up/reversing light circuit

As an example for this task, the reversing light circuit of the Alfa Romeo Montreal is shown in fig 1. For more details, consult the complete diagram.
The circuit is powered through the light switch and protected by a fuse.

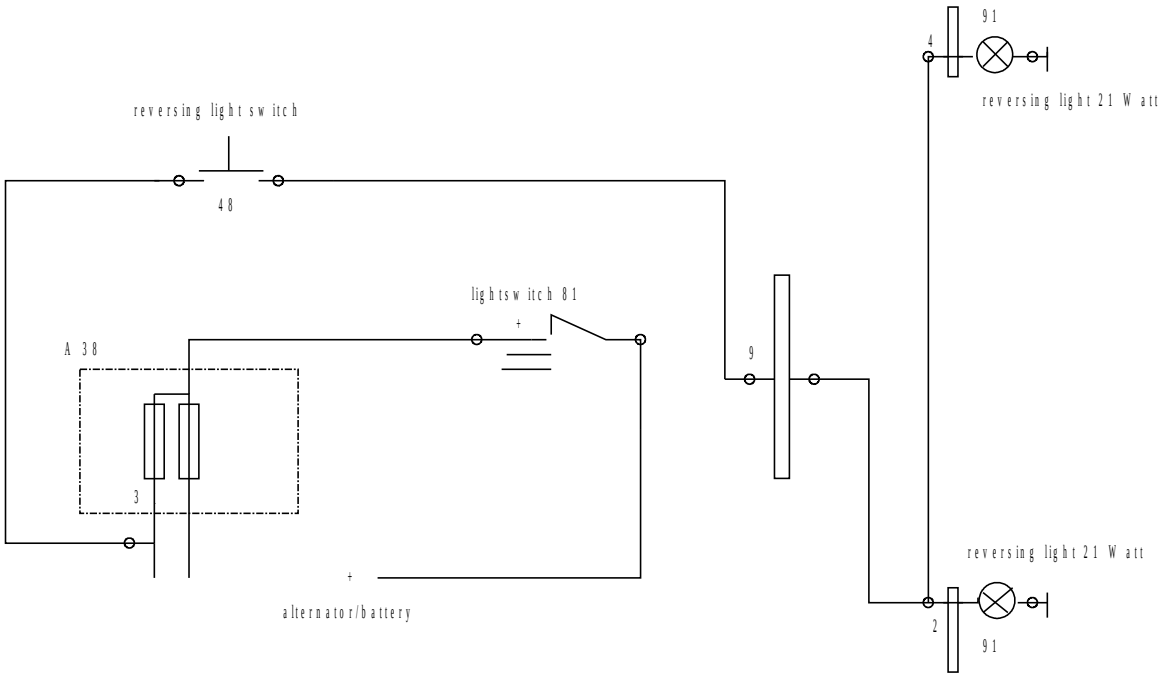

Fig. 1 Partial back-up/reversing light diagram

Assignment

1. Using your demonstration car, check to see how the back-up/reversing lights are connected. Use the demonstration car's electrical diagram for this. Locate the various components.

2. Draw your own partial diagram of the back-up/reversing light 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
•burnt-out fuse or wrong amp fuse
•extra resistance at the switch
•bulb too weak or too strong (24 V i.p.v. 12 V).

Make sure that the measurement points are accessible for the students.

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

Here, the negative probe on the multimeter must be connected to the negative pole of the battery.

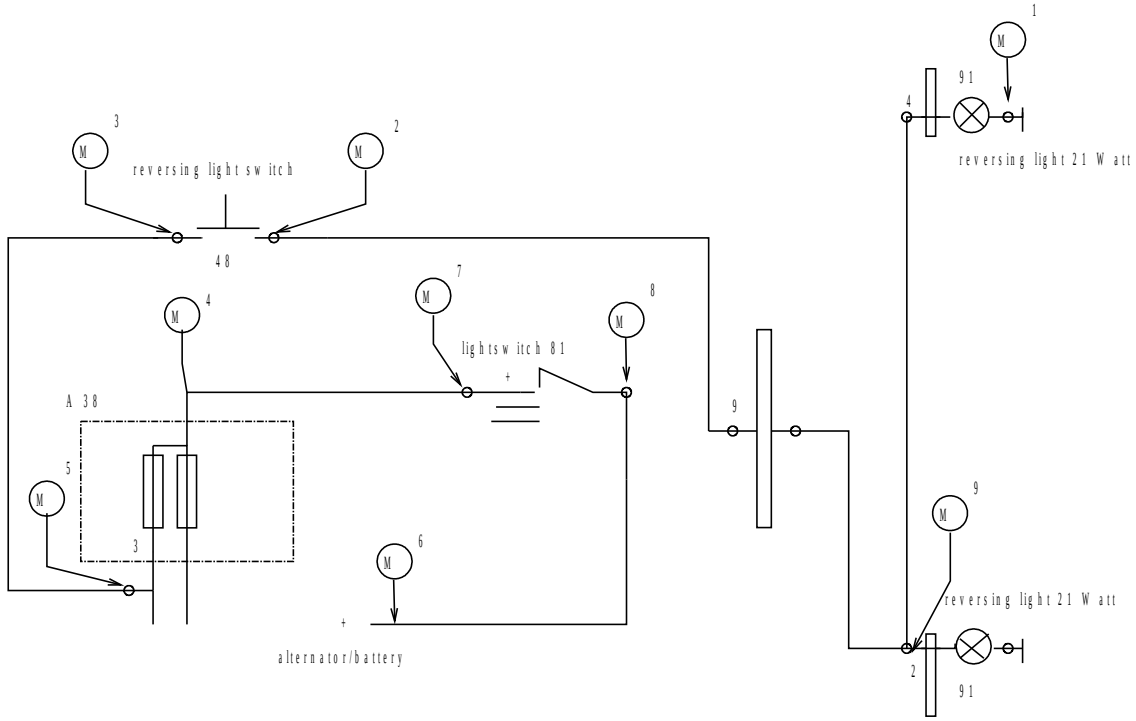

Fig. 2 Back-up/reversing light diagram with possible measurement points

Measurement tasks

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

situation 1: lights are off and the back-up/reversing light switch is open
situation 2: lights are on and the back-up/reversing light switch is open.
situation 3: lights are on and the back-up/reversing light switch is closed.

	M1	M2	M3	M4	M5	M6	M7	M8	M9
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.

