Measuring the cooling fan circuit

As an example for this task, the cooling fan circuit of the Alfa Romeo Montreal is shown in fig 1.
For more details, consult the complete diagram.
The circuit is protected by two fuses.

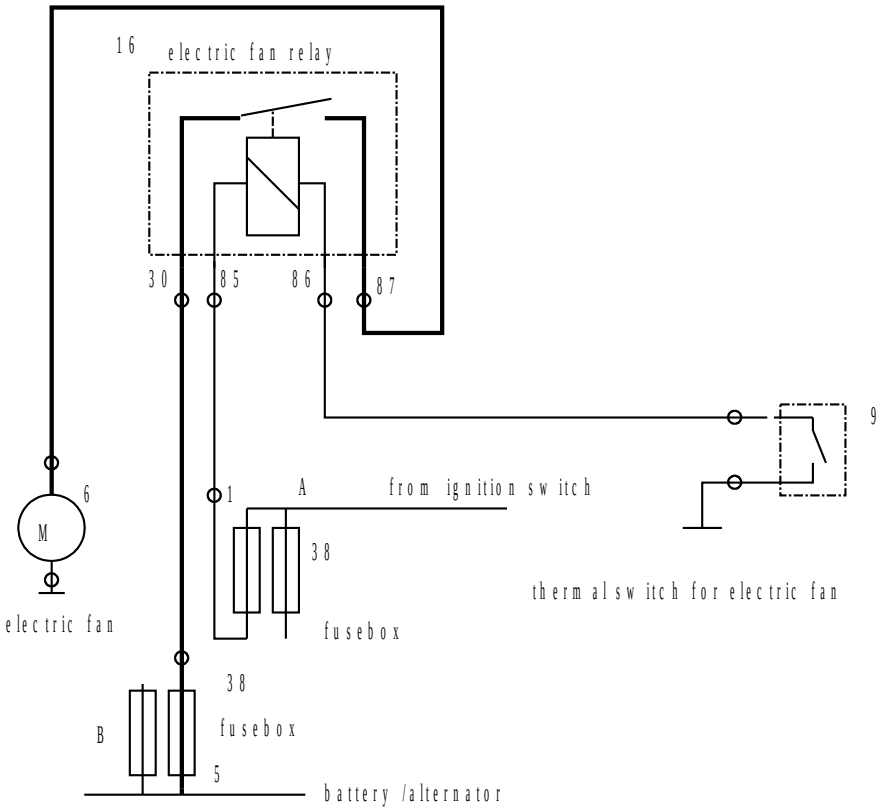

Fig. 1 Partial diagram of the cooling fan circuit

Assignment

1. Using your demonstration car, check to see how the cooling fan is connected. Use the demonstration car's electrical diagram for this. Locate the various components.
Watch out for rotating parts!

2. Draw your own partial diagram of the cooling fan 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
•defective relay
•defective thermal switch

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.

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

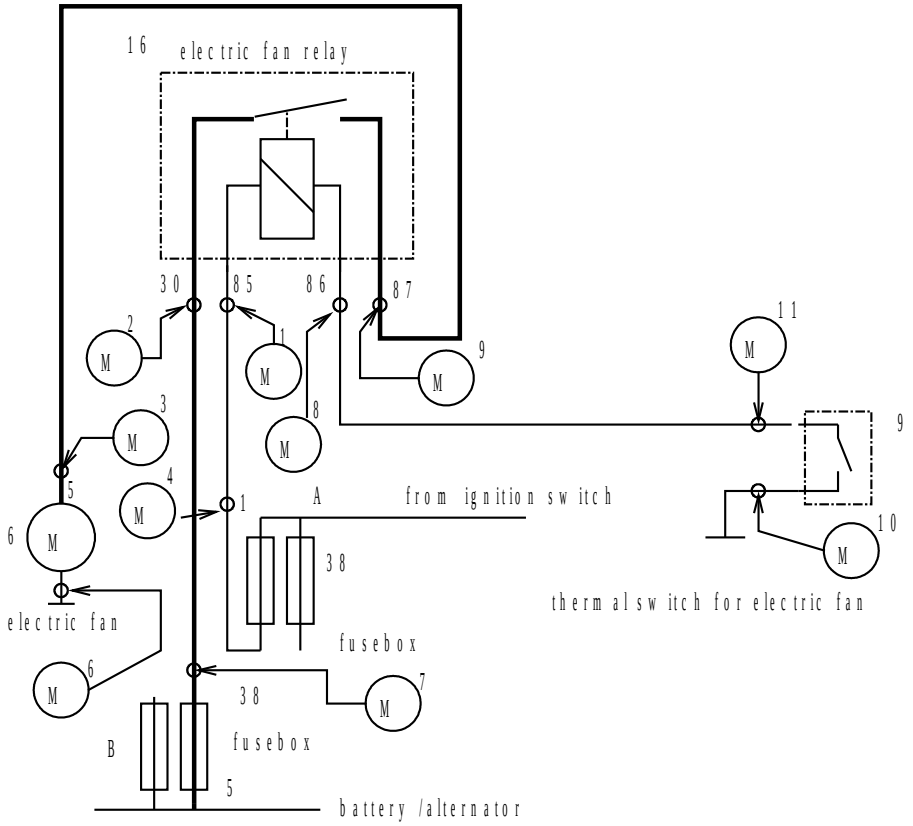

Fig. 2 Cooling fan diagram with possible measurement points

Measurement tasks

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

situation1: ignition switch off
situation 2: ignition switch on / fan off
situation 3: ignition switch on / fan running

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

Conclusions:
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.

