

MODULE 02 FIELD EXERCISE

Battery, Cable, Fuse & Power Check

TASK: Verify the condition of a battery, a cable, a fuse, and an AC outlet using a multimeter.

CONDITION: Given a multimeter and access to a battery, a cable, a fuse, and an AC outlet in your home, workplace, or vehicle. The outlet reading is optional and takes a meter marked CAT II or better; skip it otherwise.

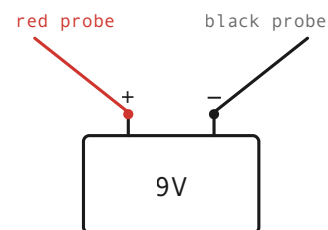
STANDARD: Each reading taken and logged with the correct dial setting, correct probe placement, and a pass/fail call against the listed expected range.

SAFETY FIRST

Task 5 (AC outlet) is optional and takes a meter marked CAT II or better on its face; if yours is not marked, or you are unsure, skip the outlet and the exercise still stands. Hold the probes only by their insulated handles. Never touch the metal tips once the circuit is live. Confirm the dial is set to AC volts (V with a wavy line, not a straight line) before touching anything.

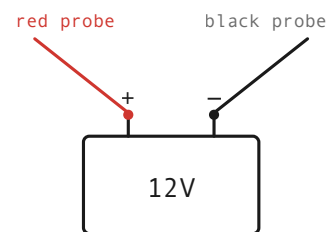
Task 1 · Battery voltage, no load

1. Set the dial to DC volts.
2. Plug black into COM, red into the $V\Omega mA$ jack (marked INPUT on some meters).
3. Touch the red probe to the battery's positive terminal, black probe to negative.
4. Read the display. A fresh 9V battery reads close to 9V; below 7.2V, it is dead. A vehicle's 12V battery at rest reads about 12.6V; below 12.0V, it is weak.



Task 2 · Battery voltage, under load

1. Keep the meter on DC volts, same probe placement as Task 1.
2. While the battery is powering a device (a flashlight or a radio), or while someone cranks a vehicle's starter, read the display again.
3. Compare to Task 1. A battery that holds steady is good. A battery that sags hard under load has failed, even if Task 1 looked fine.



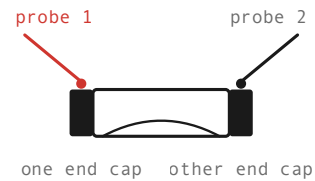
Task 3 · Cable continuity

1. Unplug the cable from power. Set the dial to continuity (the sound-wave symbol).
2. Touch one probe to one end of a single conductor, the other probe to that same conductor's far end.
3. A steady tone or near- 0Ω means the wire is intact. Silence means it is broken.



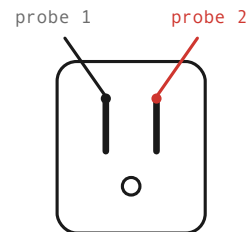
Task 4 · Fuse check

1. Remove one fuse from a vehicle, flashlight, or appliance (power off first).
2. Set the dial to resistance or continuity.
3. Touch a probe to each end of the fuse.
4. Near- 0Ω or a tone means the fuse is good. OL means it is blown.



Task 5 · AC outlet voltage (read the safety note first)

1. Set the dial to AC volts.
2. Insert one probe fully into each slot, holding only the insulated handles. Order does not matter for AC.
3. Read the display: about 120V in the US, about 230V elsewhere, depending on region.



Task 6 · Field notes

Record any reading that failed, any fault found, or any reading that passed but should be rechecked.

#	Task	Meter Setting	Expected Range	Your Reading	Pass / Fail
1	Battery, no load	DC Volts	~9V / <7.2V dead (9V) ~12.6V / <12.0V weak (vehicle)		
2	Battery, under load	DC Volts	Holds steady = good Hard sag = failed		
3	Cable continuity	Continuity	Tone / near-0Ω = good Silence = broken		
4	Fuse check	Resistance / Continuity	Near-0Ω / tone = good OL = blown		
5	AC outlet	AC Volts	~120V (US) ~230V (other regions)		