LE LABO DU PILOTE · FREE EXTRACT

Passing your pilot medical examination

One station from chapter 3, in full, exactly as it appears in the guide.
By an airline pilot, former nurse.

2026-27 EDITION

Free extract
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CLASS 1 & CLASS 2 · LAPL

What you are holding

This PDF reproduces, uncut, a passage from chapter 3 of the guide “Passing your pilot medical examination”: **The ECG (electrocardiogram)**. Chapter 3 walks through the medical station by station, from the medical history questionnaire to the three possible outcomes. It is the longest chapter of the guide.

The guide does not replace the advice of an aeromedical examiner (AME) or the regulations in force, and it never gives an opinion on anyone's fitness.

Chapter 3: The examination from the inside (extract)

The ECG (electrocardiogram)

What the examiner is looking at. The ECG records the electrical activity of the heart at rest. The examiner is looking for abnormalities incompatible with flight safety, and they also know that a trace is not binary: some features are of no consequence, others are not. It is they who interpret, in your context, not you on your own. What interests them as much as the day's trace: the **comparison with your previous traces**. **Periodicity (checked against the text, MED.B.010(a)(1)(i) for Class 1, (a)(1)(ii) for Class 2)**: for **Class 1**, an ECG at the initial examination, then every **5 years until 30**, every **2 years until 40**, **every year until 50**, and at **every** revalidation or renewal examination thereafter. For **Class 2**: at the initial examination, at the first examination after 40, at the first examination after 50, then every 2 years. And in every case, an ECG is done "when clinically indicated". From 40, a cardiovascular risk assessment is added in Class 1 as in Class 2 (MED.B.010(b)(5)), every five years between 40 and 49 then more often; and in Class 1, an extended cardiovascular assessment at the first examination after 65, then every four years (MED.B.010(a)(3)).

Avoidable mistakes.

- Arriving stimulated (too much coffee, intense exercise just beforehand, a sleepless night): as we saw in Chapter 2, that can disturb the trace and the heart rate.
- Stiffening up on the couch: an ECG is done relaxed. Muscular tension interferes with the trace, literally.

- Panicking at a technical word heard or read on the report. A term that worries you is a question to put to the AME, not a diagnosis to hunt for alone on the internet at 11 p.m.

The question to ask beforehand. "If something on my trace warrants a further opinion, how does that work, what will you ask of me, and from whom?"

> **The pilot's and the nurse's take: the ECG, my signature station**
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> I have done thousands of electrocardiograms. I worked in cardiology and then in the emergency department, and in emergency you do one on almost everybody: as soon as someone arrives with a medical complaint, there is an ECG. Suffice to say I know that machine by heart, for having set it up thousands of times, and for having been on the other side of it, on the couch.
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> **The procedure, concretely.** It is done bare-chested. Six electrodes are placed on the upper chest, three on one side, three on the other, and one on each limb: ten in all. Depending on the equipment, these are self-adhesive patches with a little gel, or small suction cups that hold by suction; on the limbs, patches or clips with a metal plate against the skin. The gel is the same sort as the one used for scans on pregnant women's abdomens, cold, and it is in fact the only thing you will feel. If somebody is very hairy, the area is shaved a little: without direct contact with the skin, the electrode picks up the signal poorly. On women, the left breast sometimes has to be lifted slightly to position an electrode properly. None of this is painful: with an ECG you feel absolutely nothing.
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> The ten electrodes are connected by cables to the machine. A button is pressed, the recording starts, thirty to forty-five seconds, no more. The trace comes out on paper, readable straight away: recent machines already flag anything out of the ordinary by themselves, and the doctor reads the trace as it comes out. All in all, between

setting up, recording, removing the electrodes and cleaning off the gel, allow three to four minutes.

Why you are asked not to move. A contracting muscle interferes with the signal: the trace becomes dirty. It is a very simple thing, but one movement, one bit of tension, and it has to be started again. So: lying down, relaxed, still.

What may show up on a trace. An ECG is not binary, good on one side, bad on the other. It is the doctor who reads and who interprets, in the context of the person in front of them. A trace may show small features without that necessarily meaning anything, and it is the doctor, and they alone, who says what they are worth in your context. I, for example, naturally beat slowly, and I have had a small feature on my trace for ever; I live with it perfectly well, but what it means is not for me to tell you. If something warrants a closer look, the doctor may ask for a cardiologist's opinion, or fit a Holter monitor: a recording of the heart over a long period. "Looking more closely" does not mean "problem".

My ritual, when it is my turn. I try to be as relaxed as possible. I close my eyes, I breathe slowly, not too hard, so as not to interfere with the trace. I let my body genuinely let go. The worst thing is to push your rate up for nothing by tensing over "is my heart beating too fast". Let go. The rest is preparation, and it is mostly played out the day before: no stimulants, no alcohol, not three coffees in the morning, well hydrated, rested. And more broadly, good habits (sleep, a little exercise, eating properly) show on a trace as they do on everything else.

And if it has to be done again? It happens all the time, and it is never a problem. An electrode coming unstuck, the machine, a watch you forgot to take off, hiccups, an urge to scratch, a thousand reasons that have nothing to do with your heart. I have seen ECGs redone five or six times without the person being responsible in any

way. It costs nothing, you start again, and that is that. If it is redone, do not imagine the worst: most often it is the electrode, not you.

The pilot's and the nurse's take: what is written at the bottom of the trace

I have placed thousands of electrodes, in cardiology and then in the emergency department. I took training in reading the ECG at the Lausanne university hospital, not to substitute myself for the doctor, but so that in the event of a serious abnormality I could go and fetch them immediately instead of waiting for them to be free. It is a reflex that has never left me: when my trace comes out of the machine, I take a look at it.

The machine writes its own conclusion. At the bottom of the paper, beside the traces, the device prints a short automatic summary, in plain words. If it has spotted something, it is written there, in black and white. You can read it in a second.

Two precautions, and they matter. **That summary is not a diagnosis**: it is a machine proposing a reading, and it is the doctor who decides. It sometimes flags a perfectly benign feature, and it sometimes gets it wrong. And **reading a trace requires training**: I am not inviting you to interpret yours, I am simply telling you that this line exists and that you are entitled to look at it.

For my part, I always read the same thing on it: a conduction feature I have carried for ever, known, documented and stable. It has never caused a problem at any examination. That is exactly what the section above says: a trace is not binary, and a known feature is worth more than a discovery.

The rest, in the guide

> **Chapter 1 · The system, in ten pages.** The certificates, who examines what, validity periods by age, revalidation versus renewal.

> **Chapter 2 · The countdown, from D-90 to the day.** What to do, when, in what order, with the medical placed before training costs.

> **Chapter 3 · The examination from the inside.** The other stations: questionnaire, mental health, proposed treatment, ECG, audiogram, vision, lab tests, EEG, and the three outcomes.

> **Chapter 4 · Complicating cases.** Six situations, reviewed by aeromedical examiners.

> **Chapter 5 · If it goes wrong.** Referral, unfitness, appeals: the time limits and the steps to take.

> **Chapter 6 · The annex for your country, and microlights.** Kept up to date online for twelve months.

> **Printable tools.** Documents to bring, countdown sheet, questions for the AME, template letter to obtain your medical file.

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