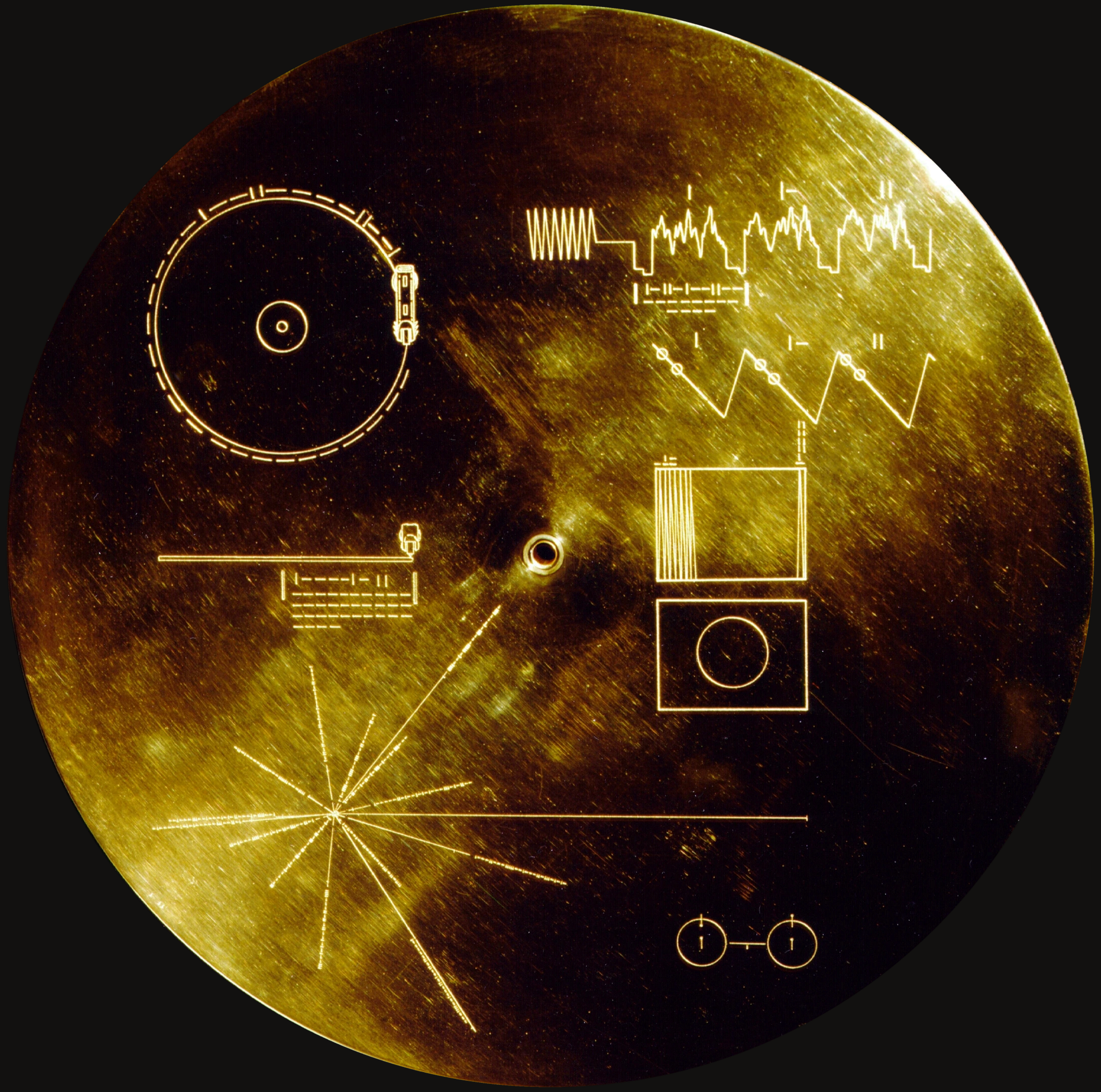
THE SOUNDS OF EARTH · VOYAGER 1 AND VOYAGER 2 · 1977

The Voyager Golden Record
The Cover

NASA · Jet Propulsion Laboratory

Gold-plated aluminium cover of the record, engraved on both faces



The cover of the record, photographed by NASA/JPL on 4 September 1977 (GPN-2000-001978, JPL p24652b).

Notice

A note written for this poster, from the descriptions of the cover published by NASA and its Jet Propulsion Laboratory.

Voyager 1 and Voyager 2 each carry the same record: a 12-inch disc of gold-plated copper holding greetings, music and natural and man-made sounds from Earth, and signals from which a technological civilization could rebuild pictures. An aluminium cover, plated with gold, shields it from micrometeorites and tells whoever finds it how to play it. The diagrams are engraved on both faces of the cover, since those on the outer face will wear away in time.

Upper left: playing the record

The record is drawn from above with its stylus, set where playing begins, at the outer edge: it is played from the outside in. The binary number around it gives the time of one turn of the record, 3.6 seconds, counted in units of 0.70 billionths of a second, a period tied to a fundamental transition of the hydrogen atom. Below it, the record and stylus seen edge on, with a binary number for the playing time of one side, about an hour.

Upper right: building the pictures

The top drawing is the signal that opens a picture. A picture is traced from it as a series of vertical lines, as television traces horizontal ones. Lines 1, 2 and 3 are marked in binary, with the length of a line, about 8 milliseconds. Below, the lines are drawn upright, interlaced so that the picture comes out right; then a whole picture of 512 vertical lines; then a copy of the first picture on the record, so that the decoding can be checked. It holds a circle, which comes out round only when the width and height of the picture are in the right ratio.

Lower left: the pulsar map

The map first flew on the plaques of Pioneer 10 and 11. It places the solar system among 14 pulsars, whose precise periods are given.

Lower right: the hydrogen atom

Two circles show the hydrogen atom in its two lowest states, joined by a line and the digit 1: the time of the transition between them is the unit of time for the cover and for the decoded pictures.

The uranium clock

A spot of very pure uranium 238, two centimetres across, with an activity of about 0.00026 microcurie, is electroplated onto the cover. Half of it decays in 4.51 billion years, so the proportion of its daughter elements to the uranium left would tell a finder how long ago the spot was laid down: a check on the time of launch, which the pulsar map also records.

Photograph: NASA/JPL, 4 September 1977, GPN-2000-001978 (JPL p24652b). Public domain (U.S. Government work). Courtesy NASA/JPL-Caltech.

The notice is not a period text: it was written for this poster in 2026, from NASA's descriptions.