

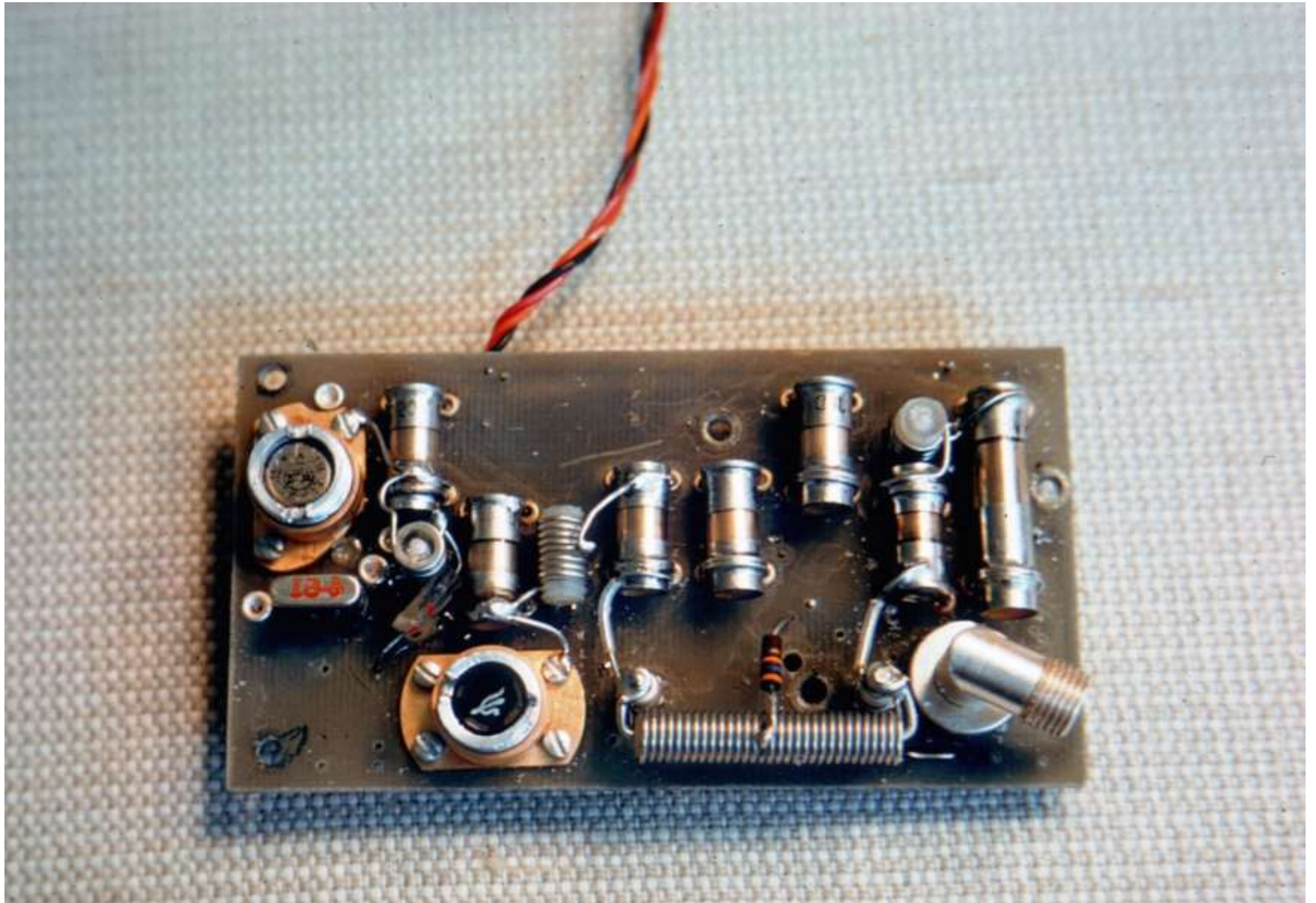
Project OSCAR original Board of Directors around 1960



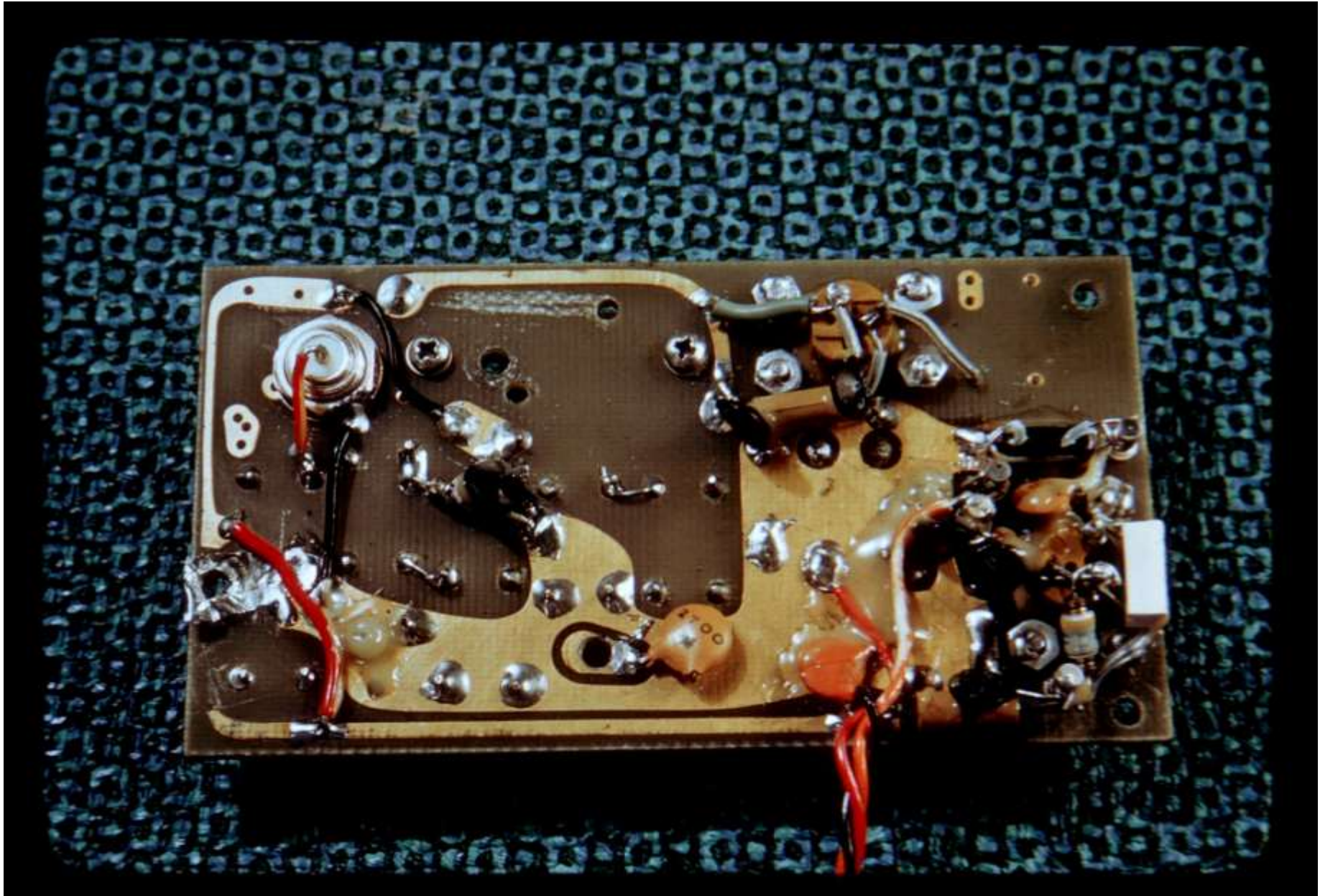
Lance Ginner of Project OSCAR holding OSCAR 1



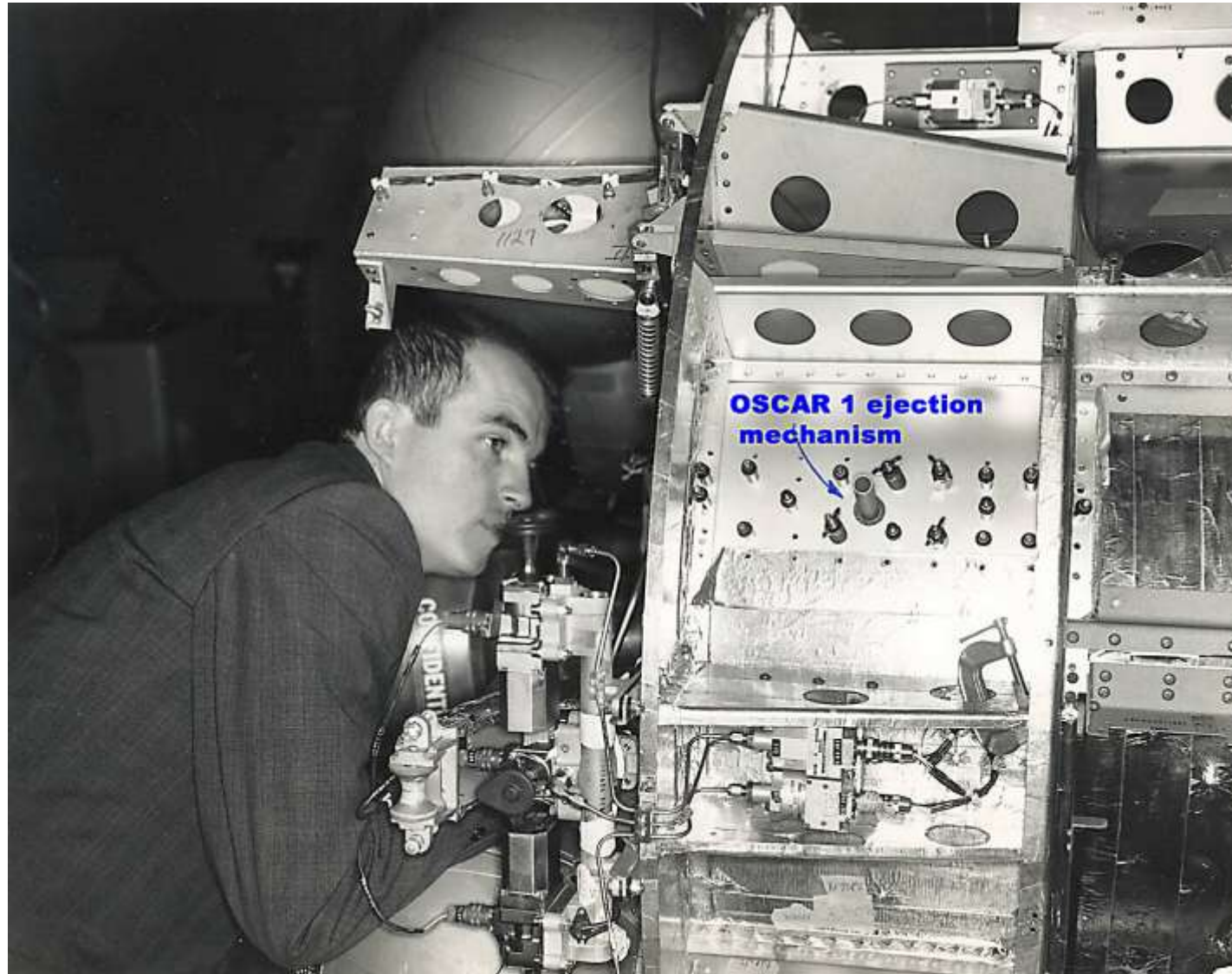
OSCAR 1 transmitter



OSCAR 1 transmitter (bottom)



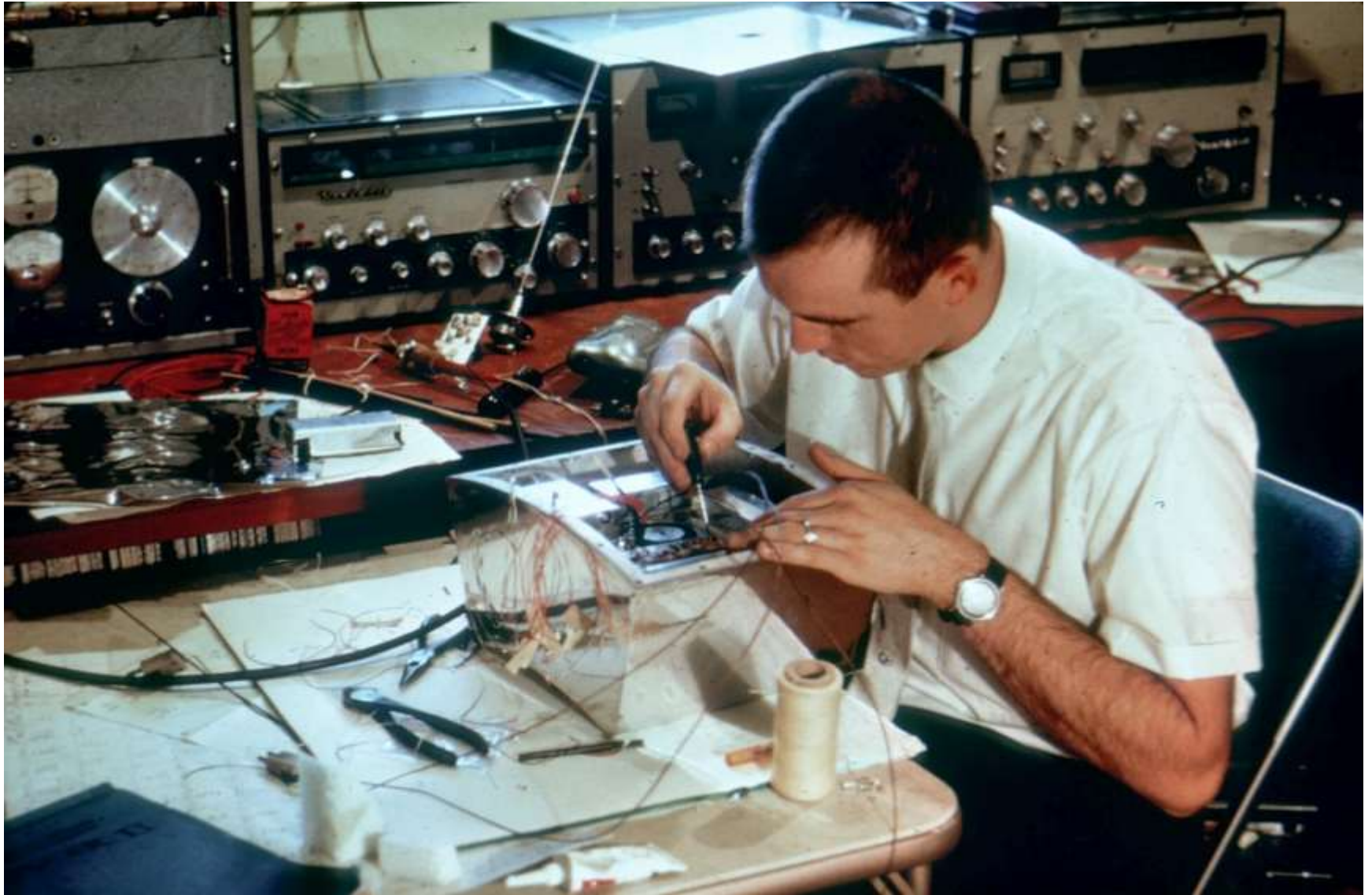
Lance Ginner of Project OSCAR inspecting mount for OSCAR 1



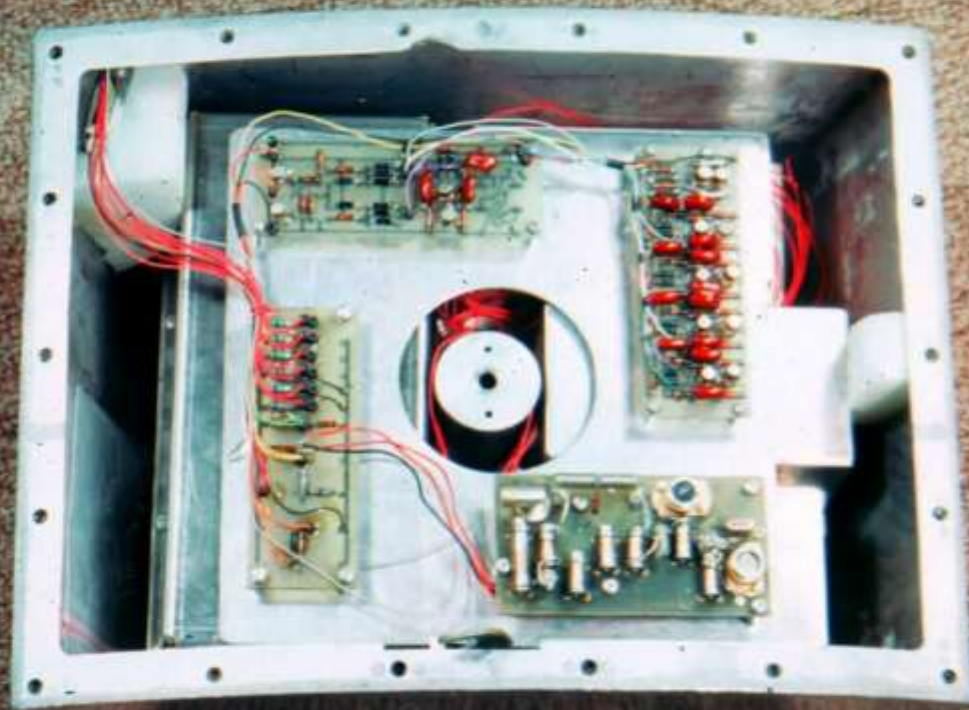
OSCAR 1 launch on Agena rocket Dec. 12, 1961 from Vandenberg AFB



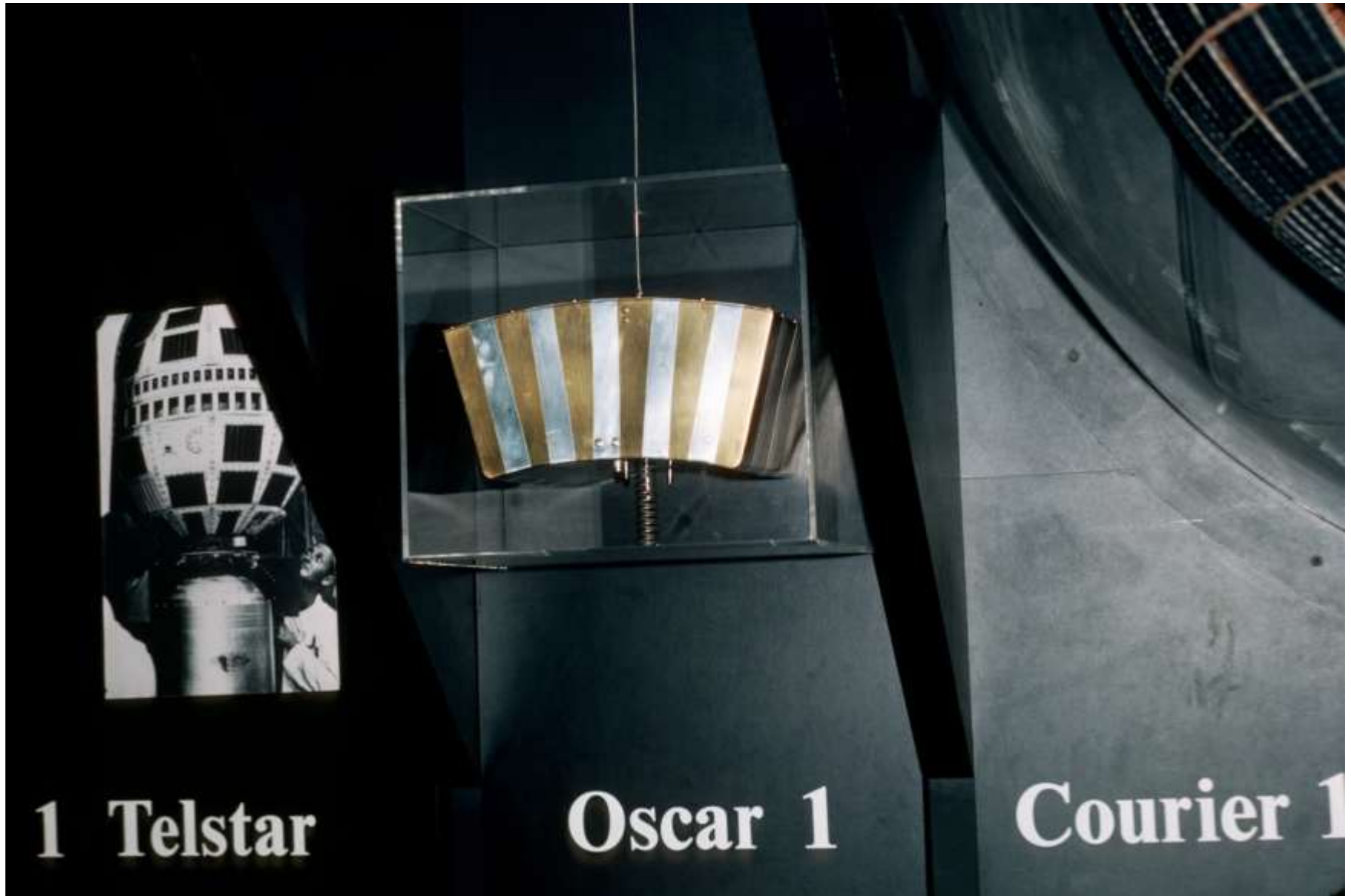
Lance Ginner of Project OSCAR constructing OSCAR 2



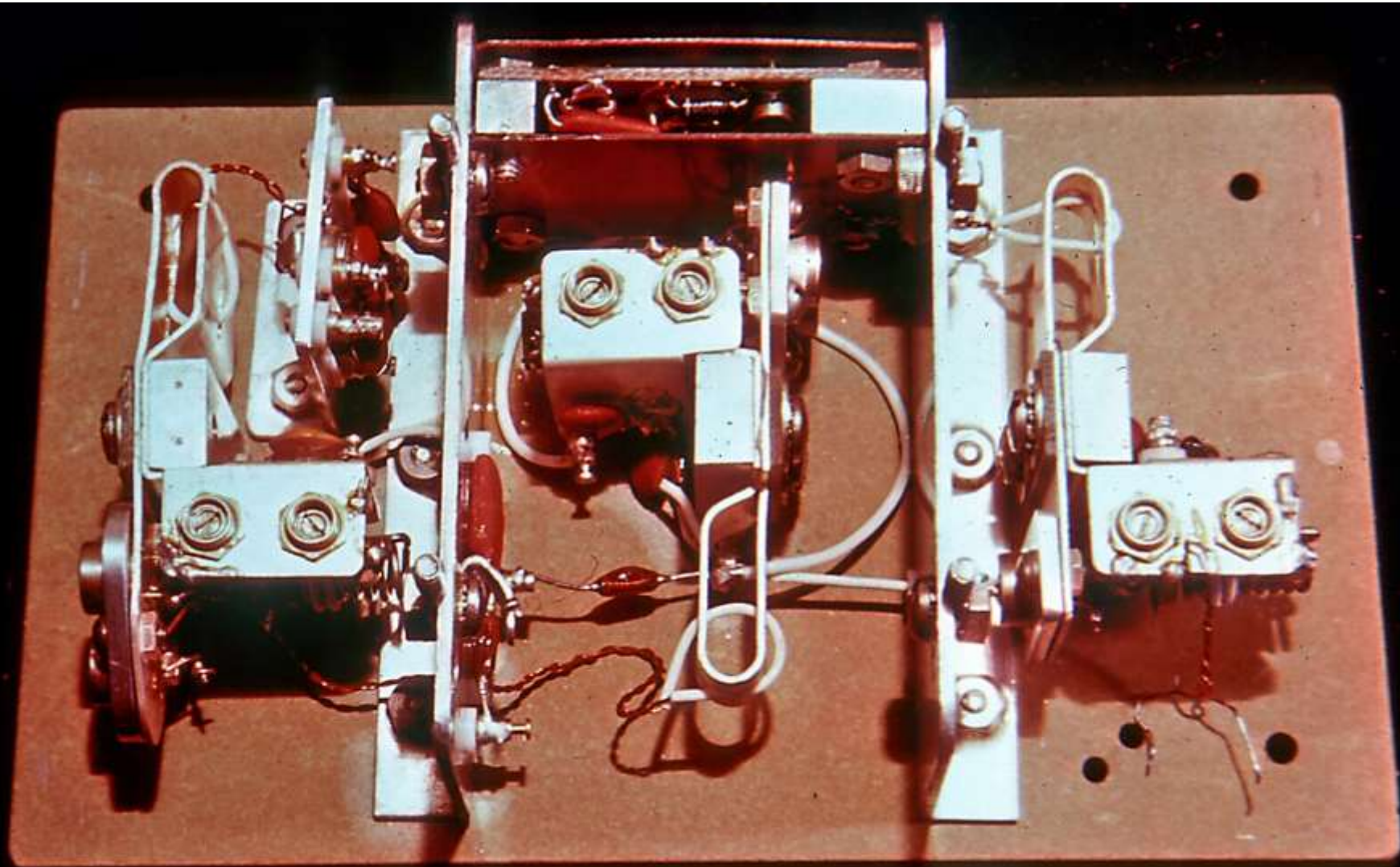
inside OSCAR 2



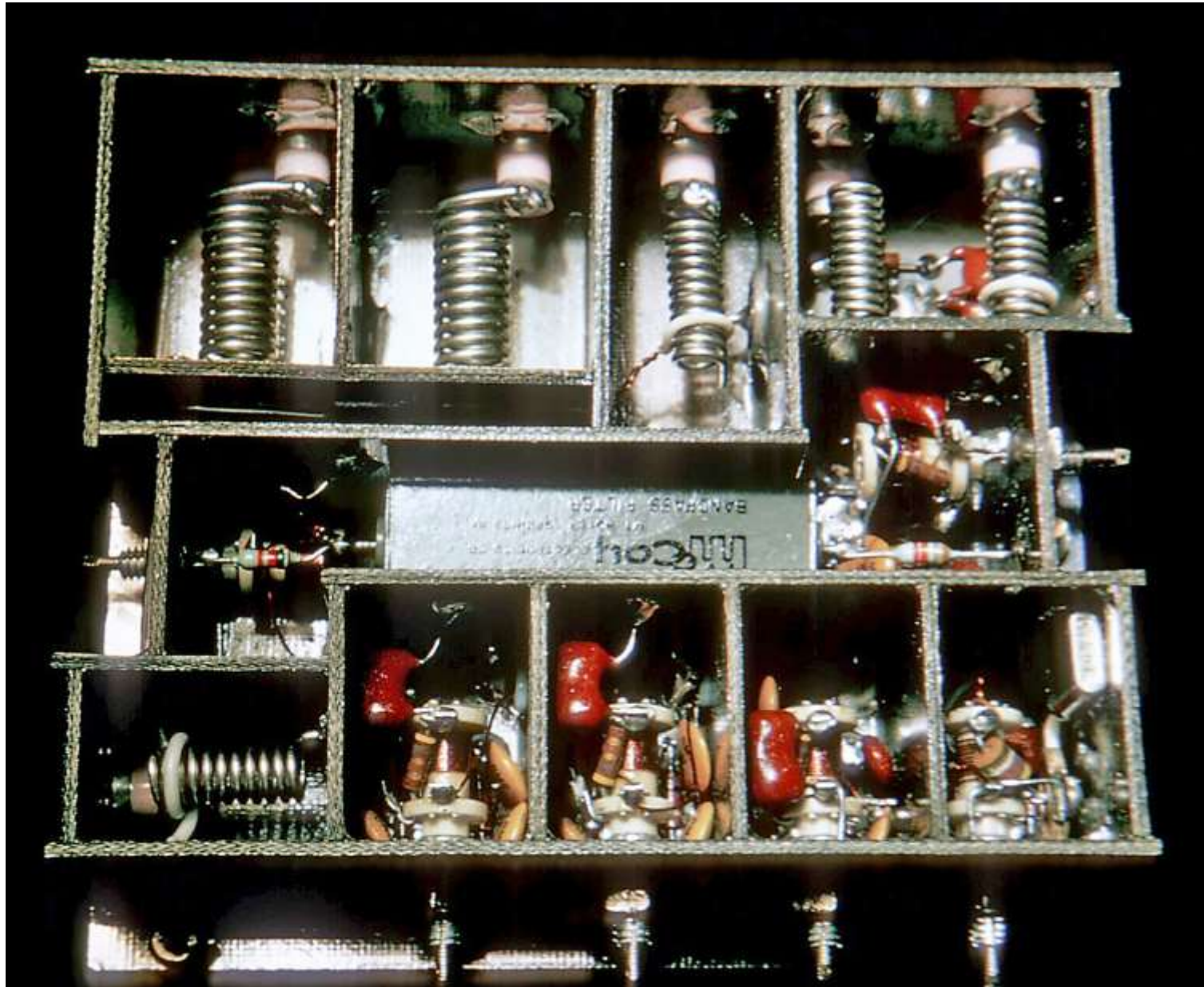
OSCAR 1 model on display at National Air and Space Museum (1976)



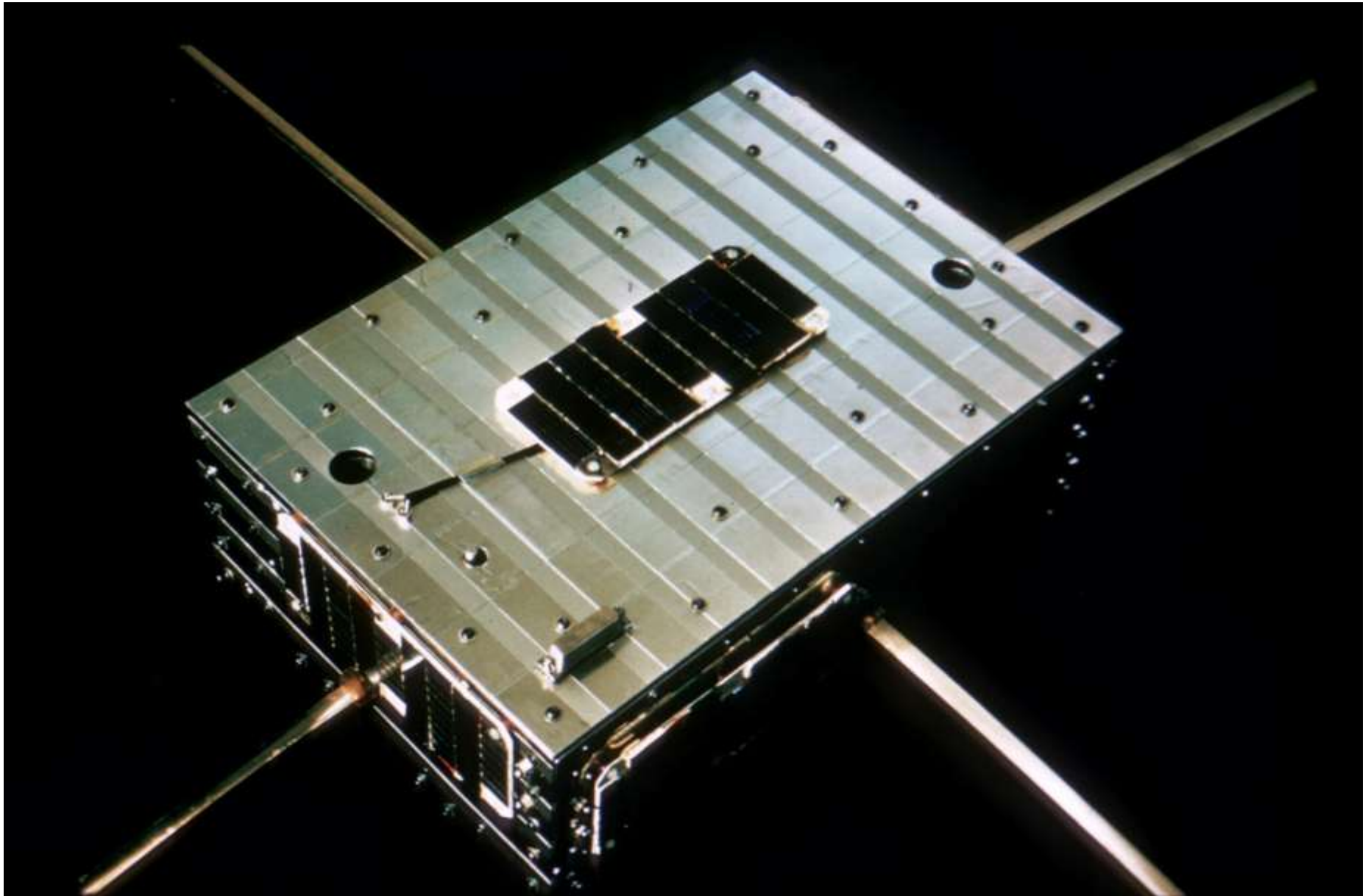
OSCAR 3 transmitter linear power amplifier



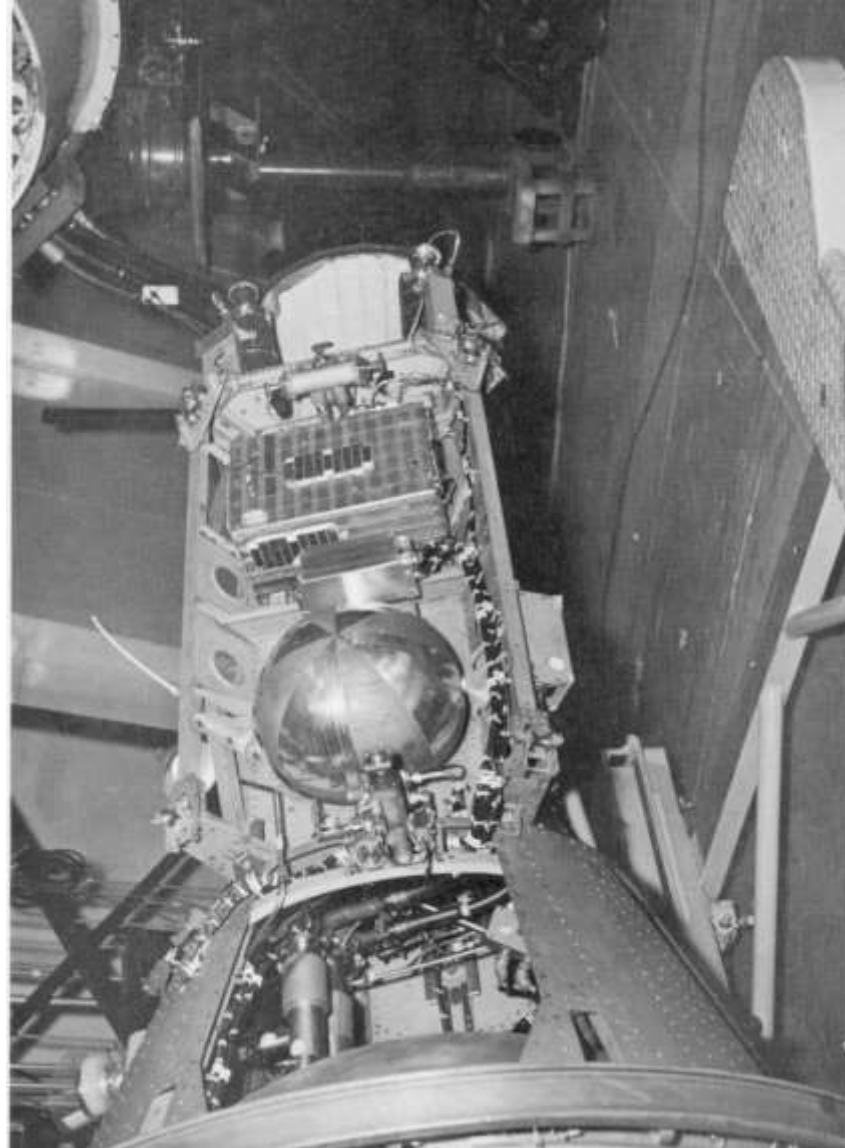
OSCAR 3 receiver IF section



OSCAR 3, launched March 9, 1965



OSCAR 3 mounted in rocket. (launched March 9, 1965)



OSCAR 4 team

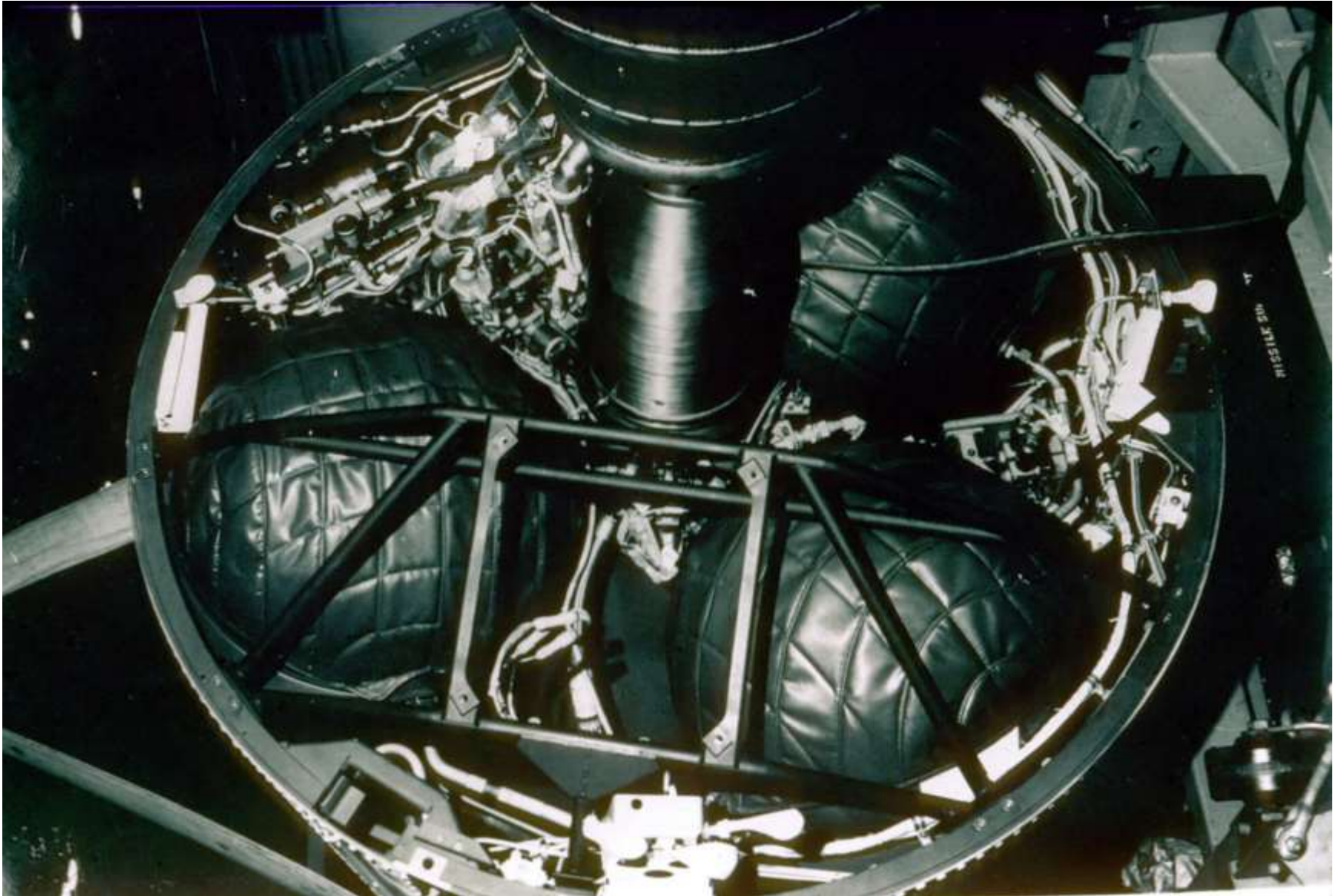
OSCAR 4 was launched Dec. 21, 1965



Inside OSCAR 4



OSCAR 4 mounted in rocket (Launched Dec. 21, 1965)



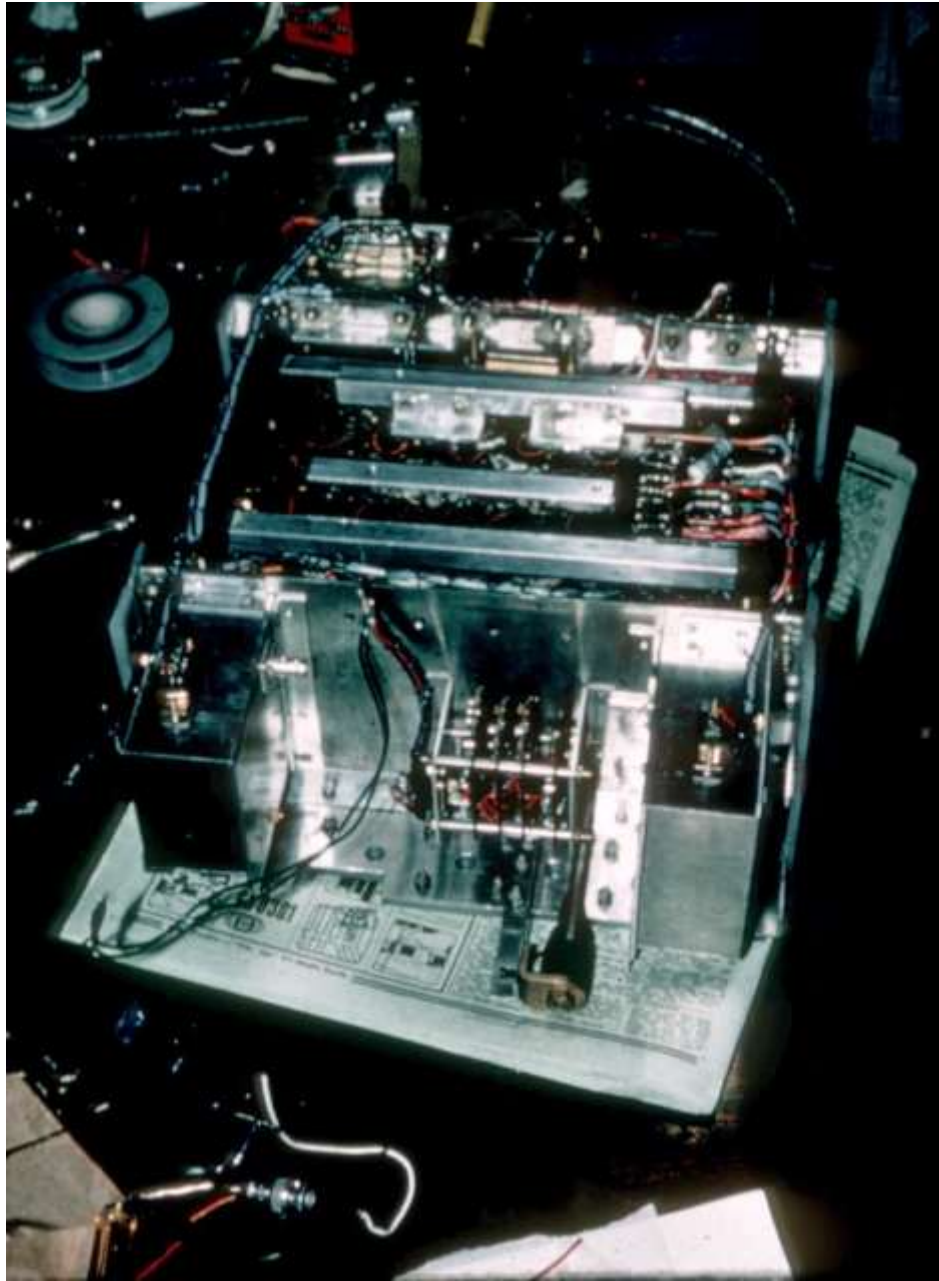
Delivery of Australis-OSCAR 5 to USA



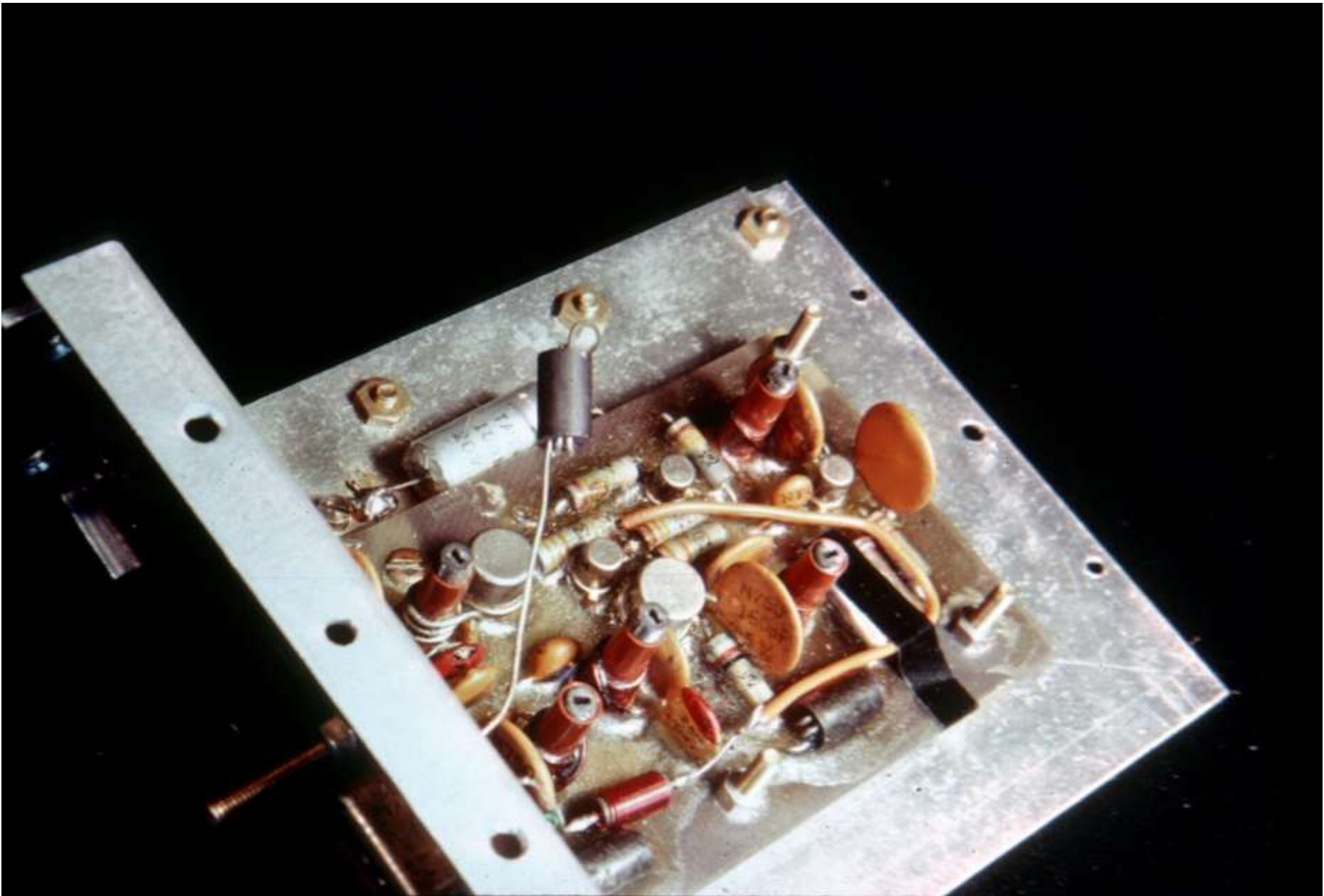
First AMSAT Board of Directors (1969)



Australis-OSCAR 5 structure



Australis-OSCAR 5 electronics



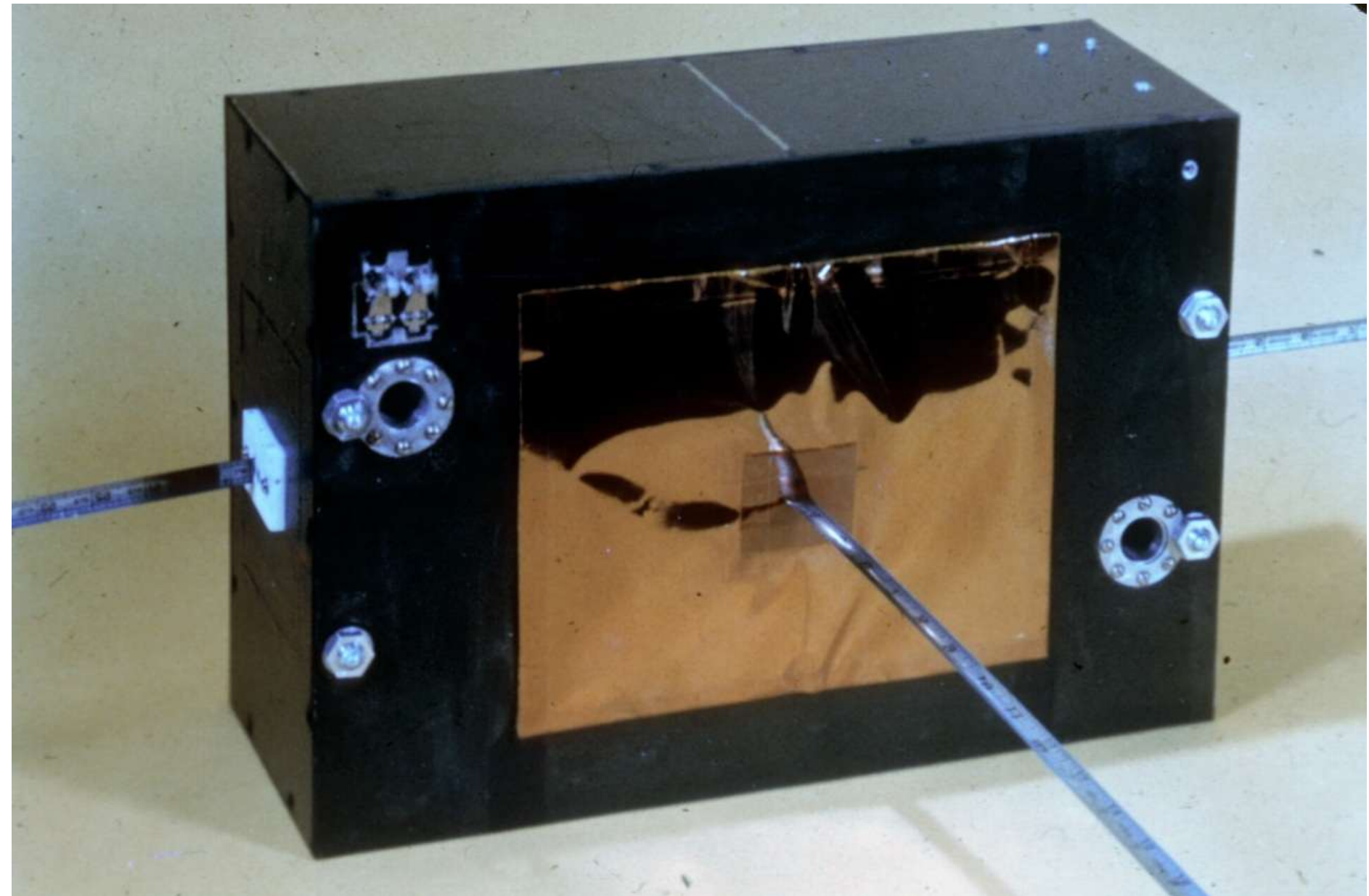
Australis-OSCAR 5 checkout



Australis-OSCAR 5 on display



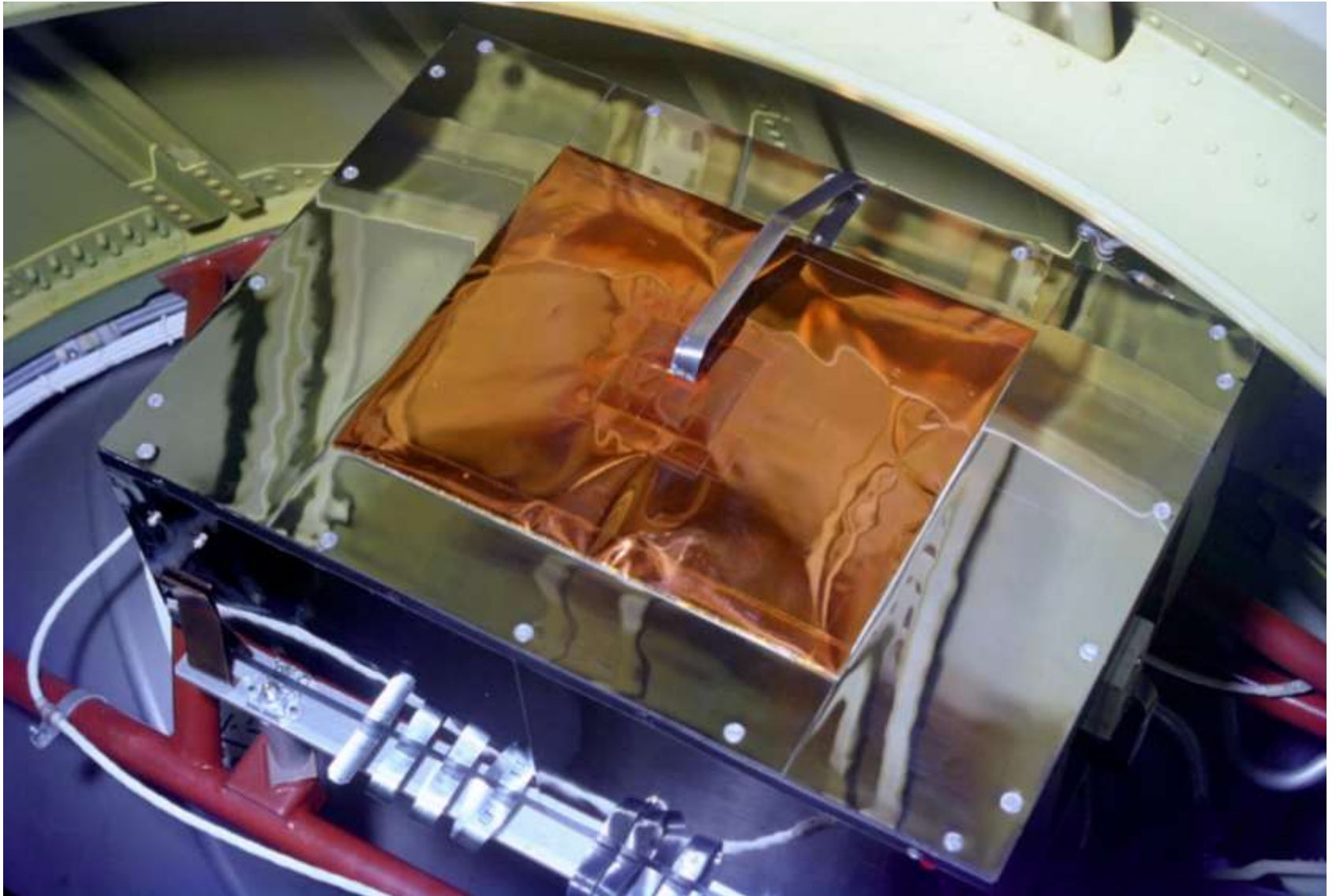
Australis-OSCAR 5 satellite



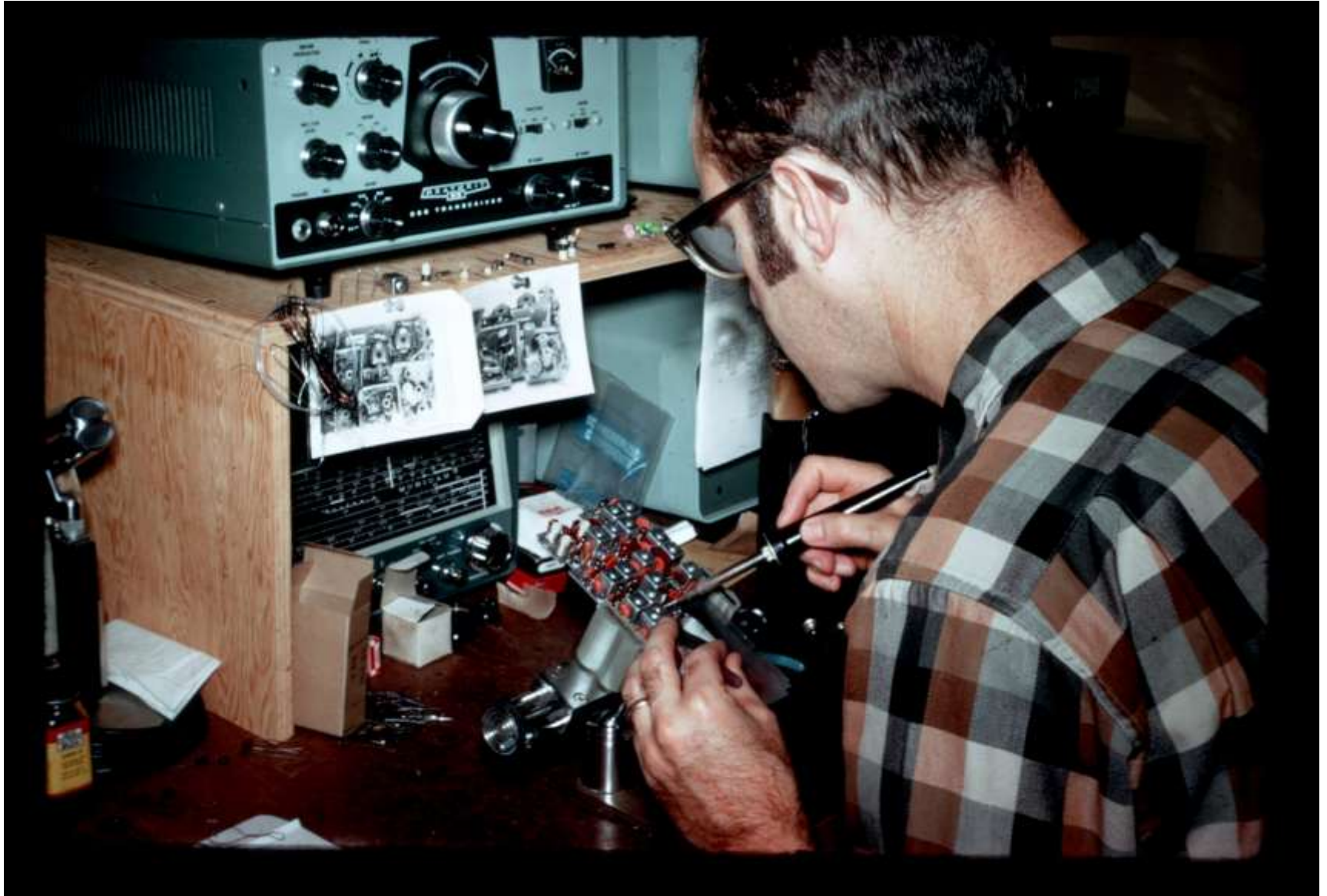
Mounting Australis-OSCAR 5 in Delta rocket



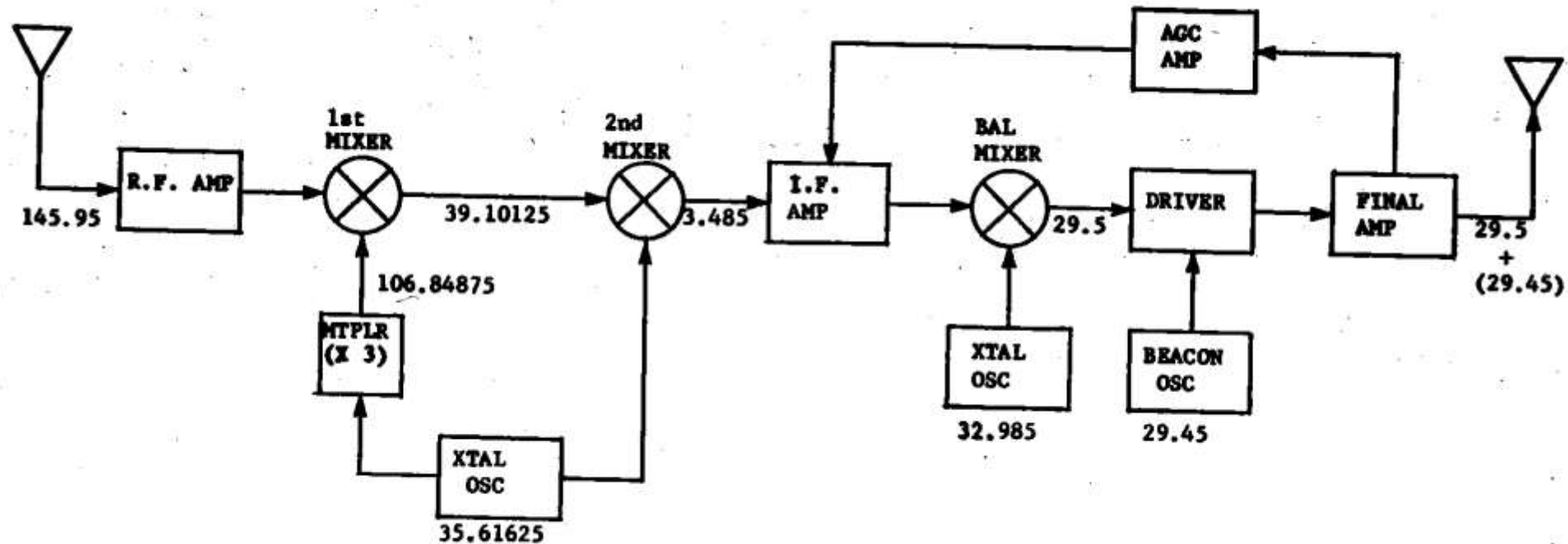
Australis-OSCAR 5 mounted in NASA Delta rocket (launched Jan 23, 1970)



Dick Daniels building AMSAT-OSCAR-6 2-to-10-meter Transponder



A-O-6 2-to-10-meter transponder schematic diagram

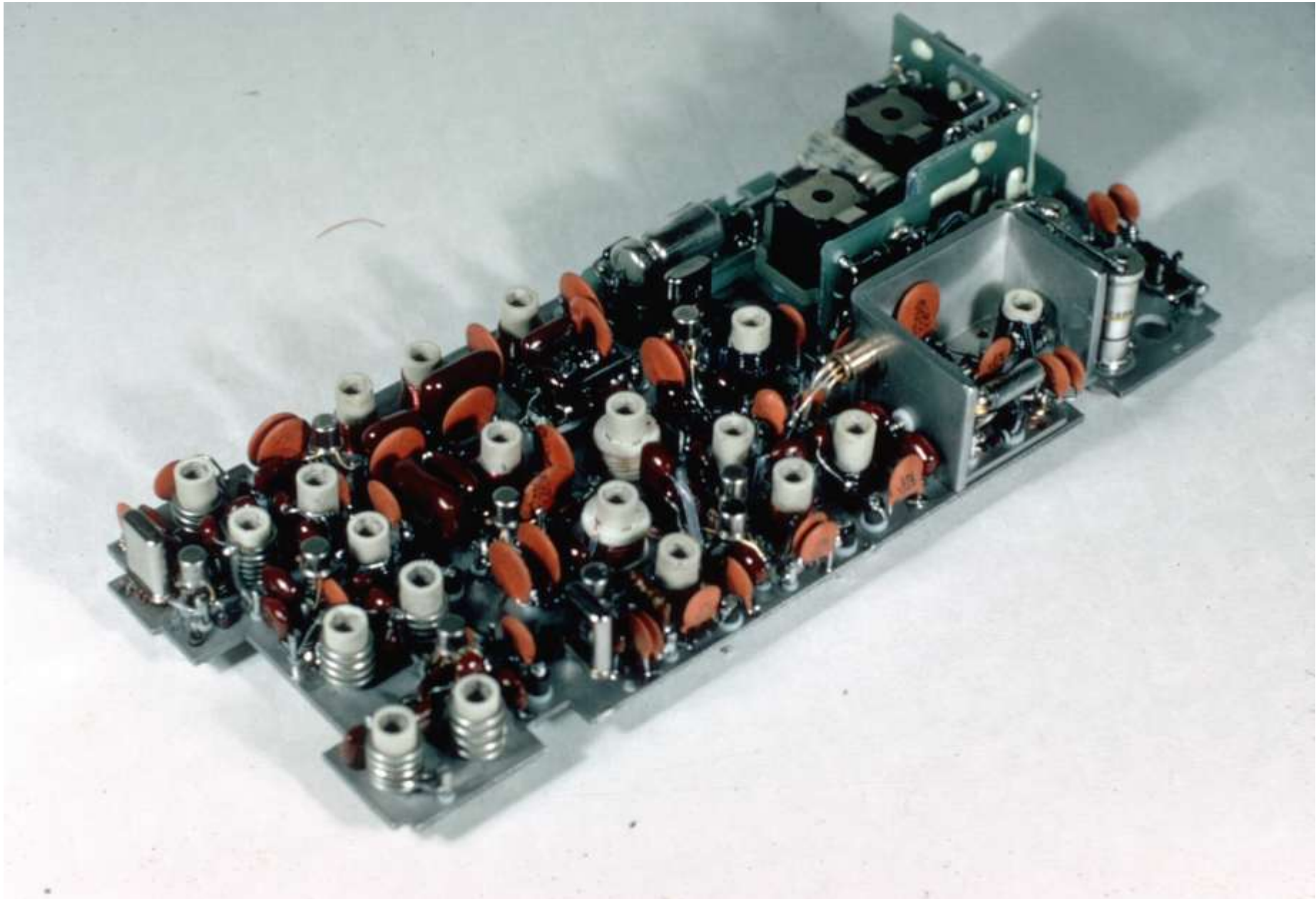


Basic Block Diagram of the AMSAT 2-10 meter linear Repeater

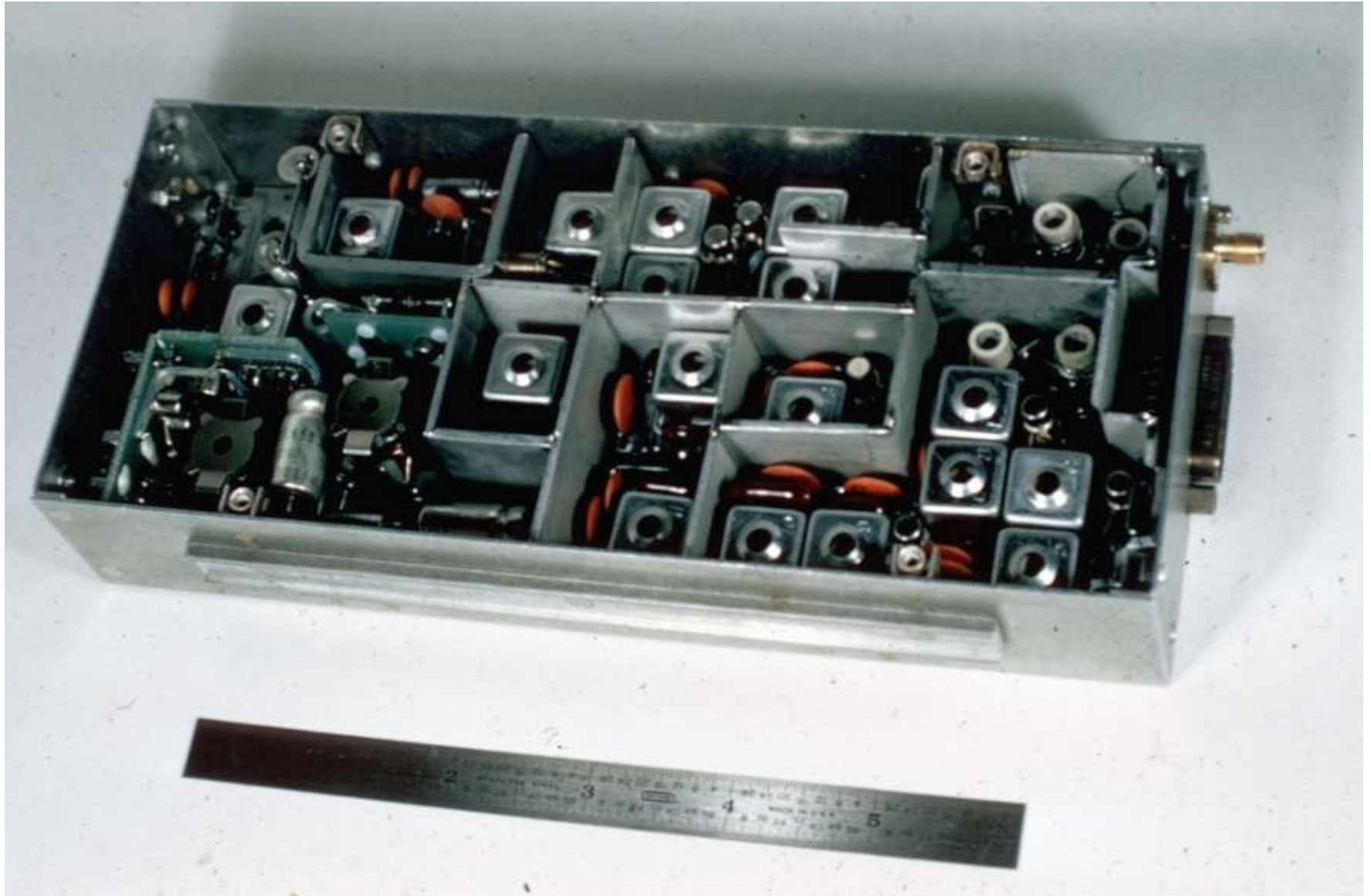
To determine repeater output frequency

1. Determine difference between input frequency and 145.95 MHz.
2. If input frequency is above 145.95 MHz, subtract difference from 29.5 MHz.
3. If input frequency is below 145.95 MHz, add difference to 29.5 MHz.

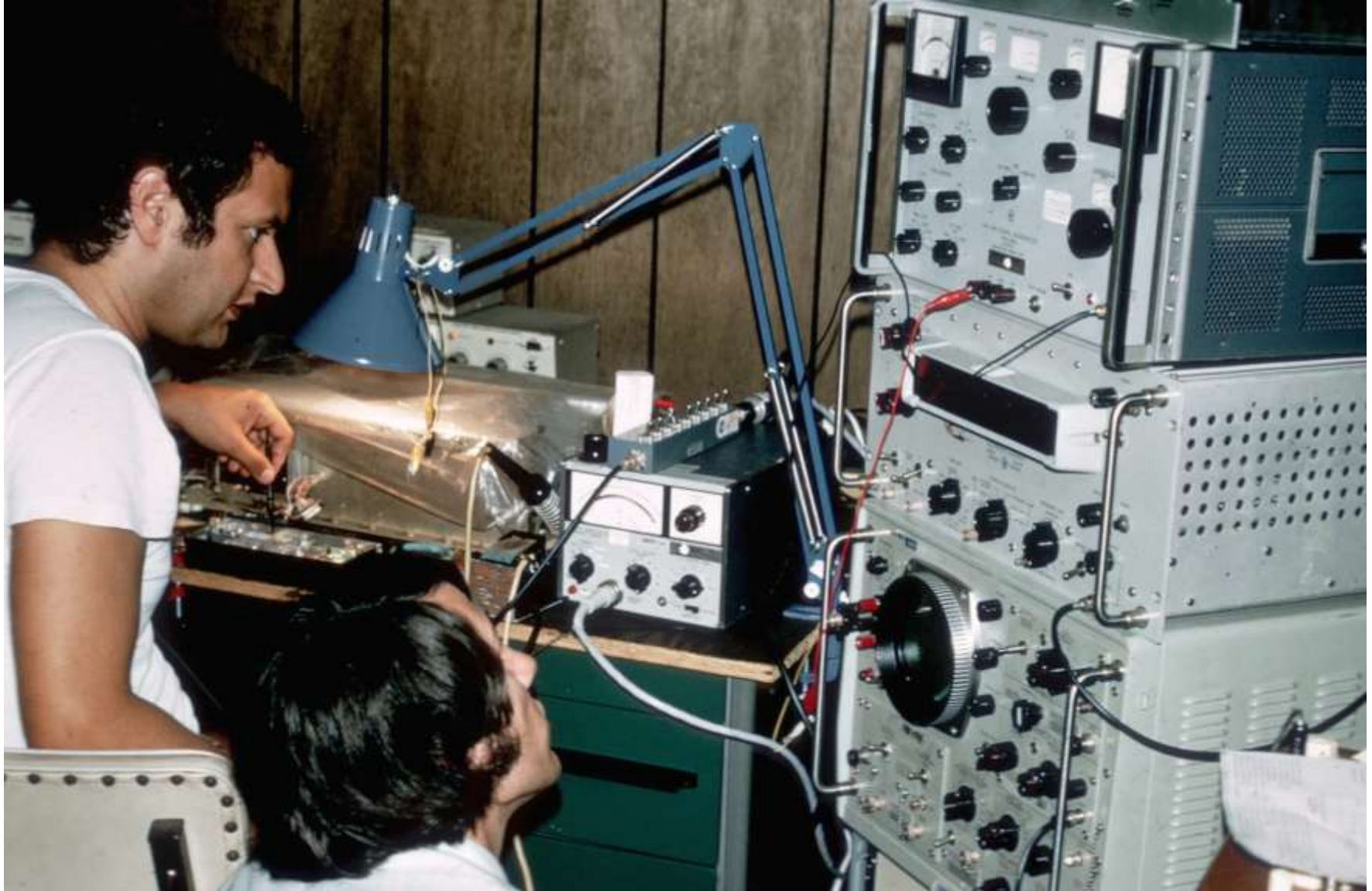
A-O-6 2-to-10-meter transponder



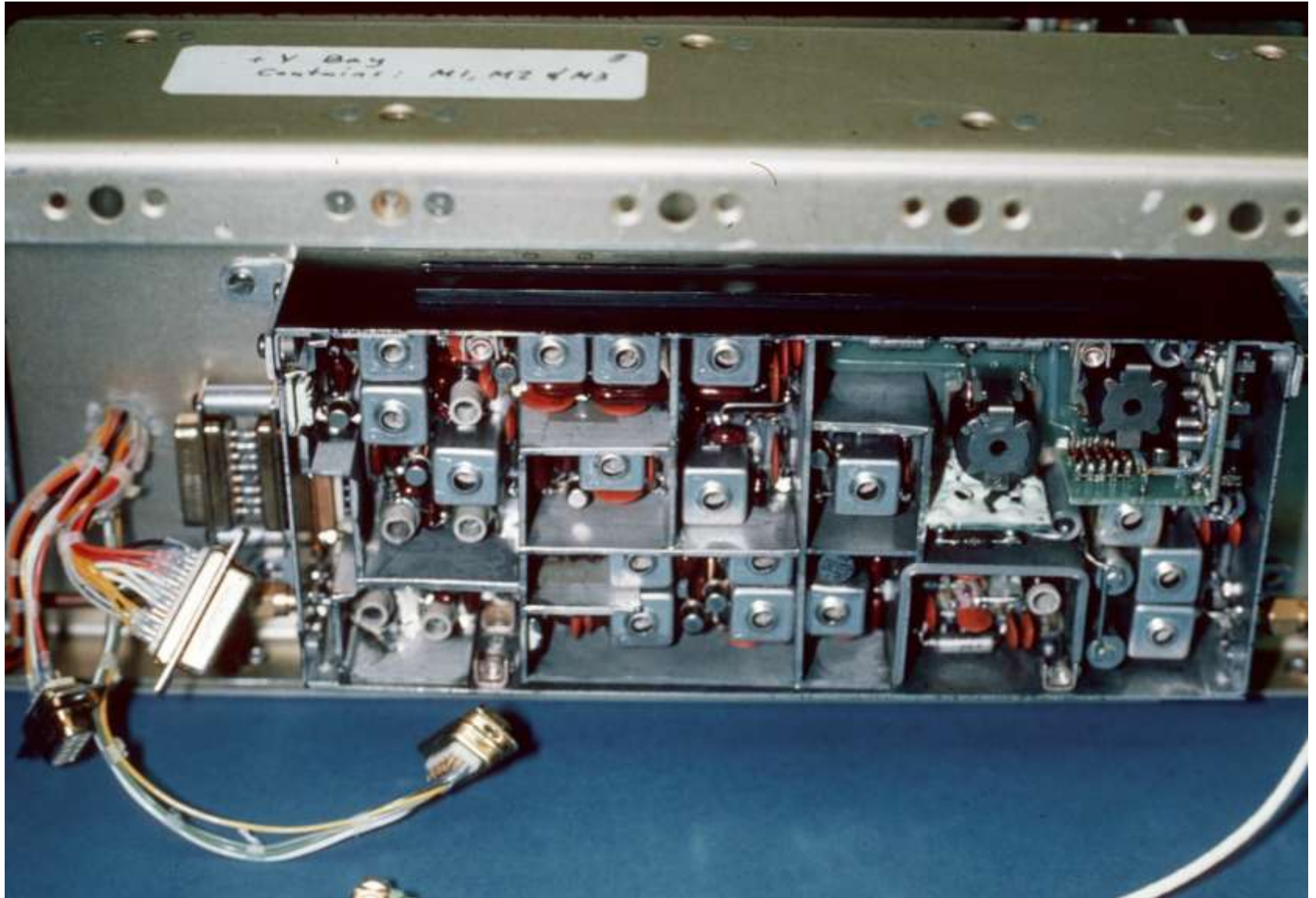
A-O-6 2-to-10-meter transponder in its enclosure



Perry Klein and Jan King testing 2-to-10-meter transponder



2-to-10-meter transponder mounted on AMSAT-OSCAR 6

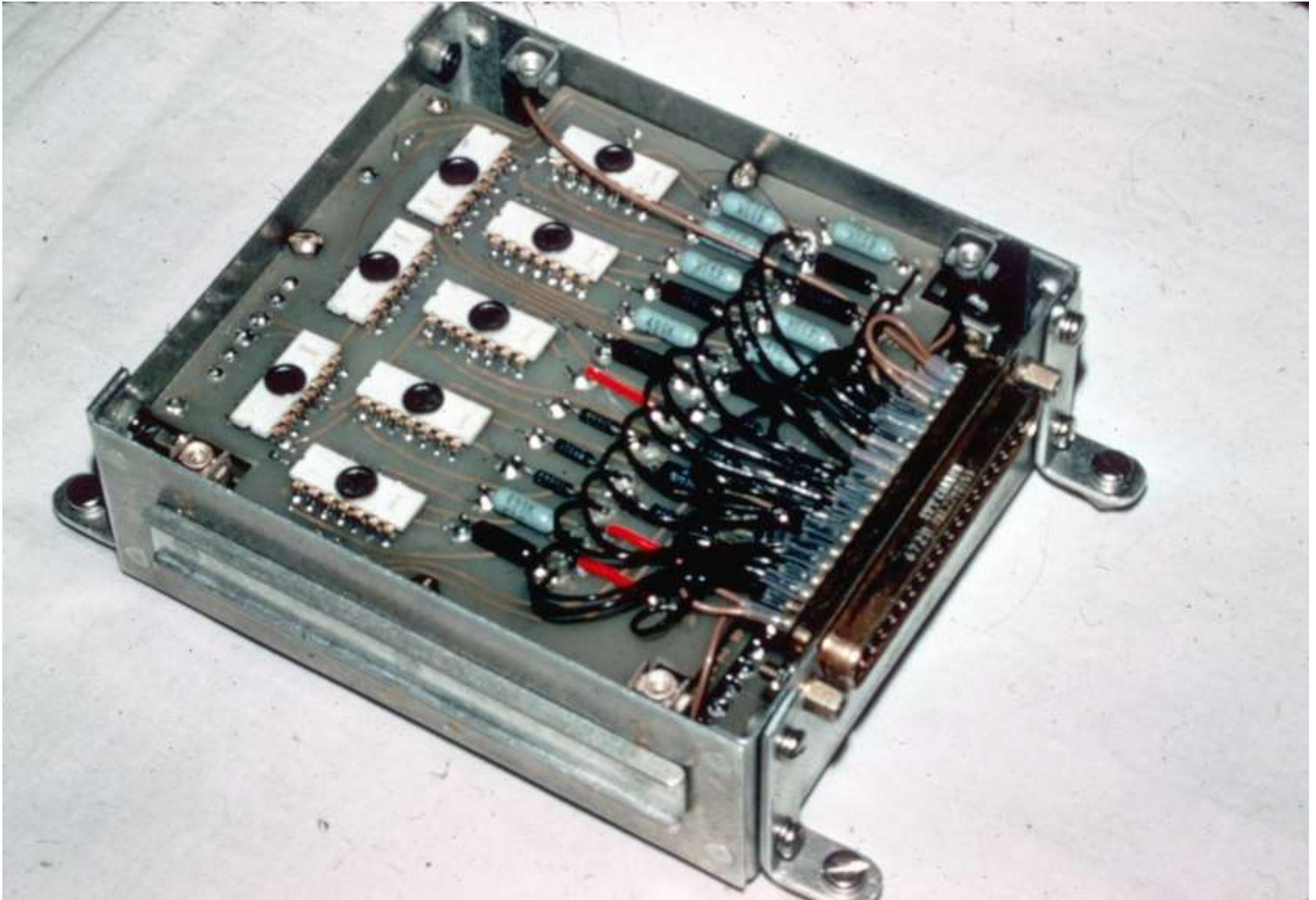


AMSAT-OSCAR 6 structure

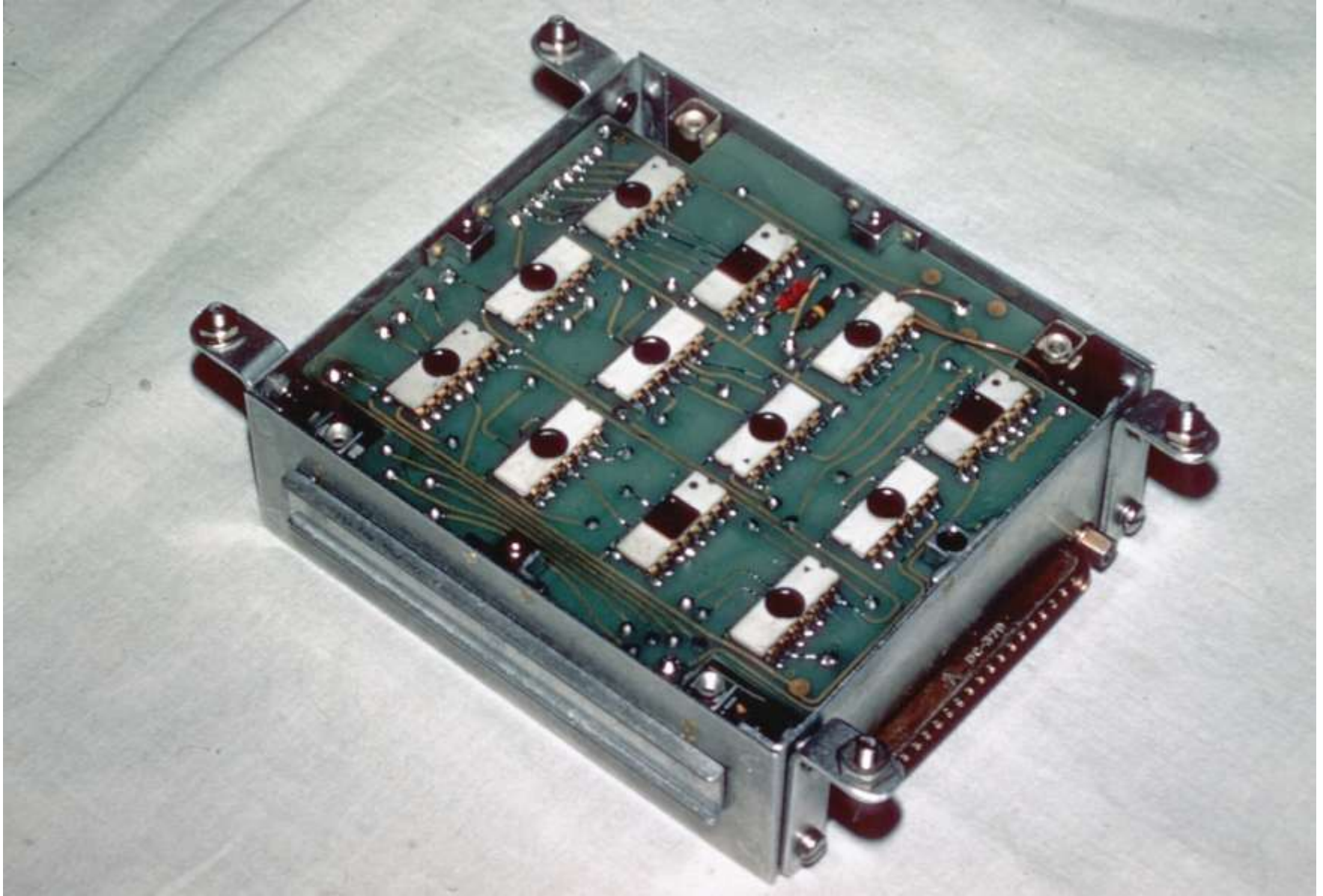


AMSAT-OSCAR 6

Morse code telemetry encoder (top)



AMSAT-OSCAR 6 Morse code telemetry encoder (bottom)



Sample frame of AMSAT-OSCAR-6 Morse Code telemetry data

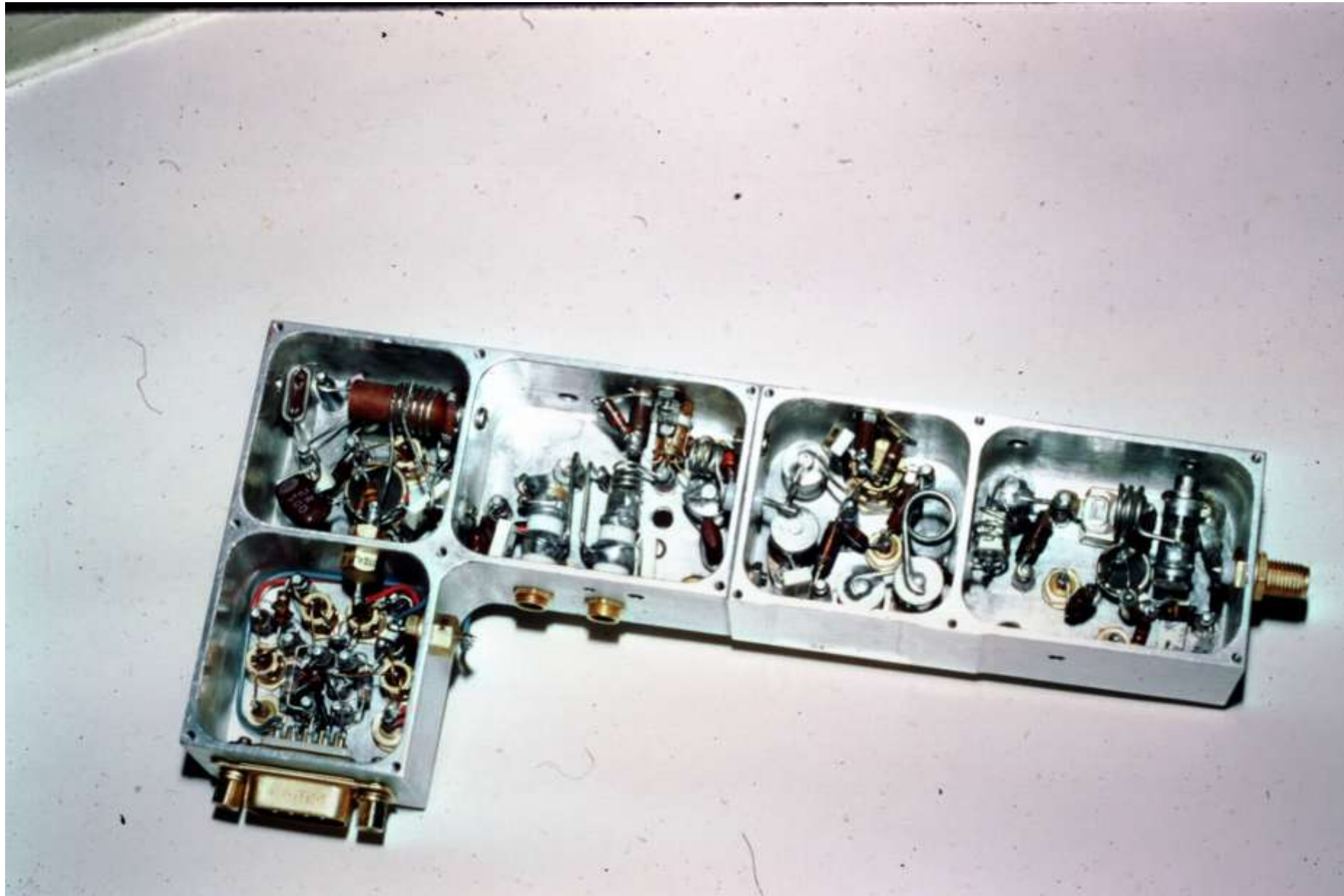
Sample Frame of Morse Code Telemetry Data

HI	171	118	139	156
	248	200	297	214
	362	377	324	380
	431	499	400	404
	586	570	562	543
	622	619	638	637 HI

Project Manager Jan King troubleshooting AMSAT-OSCAR 6



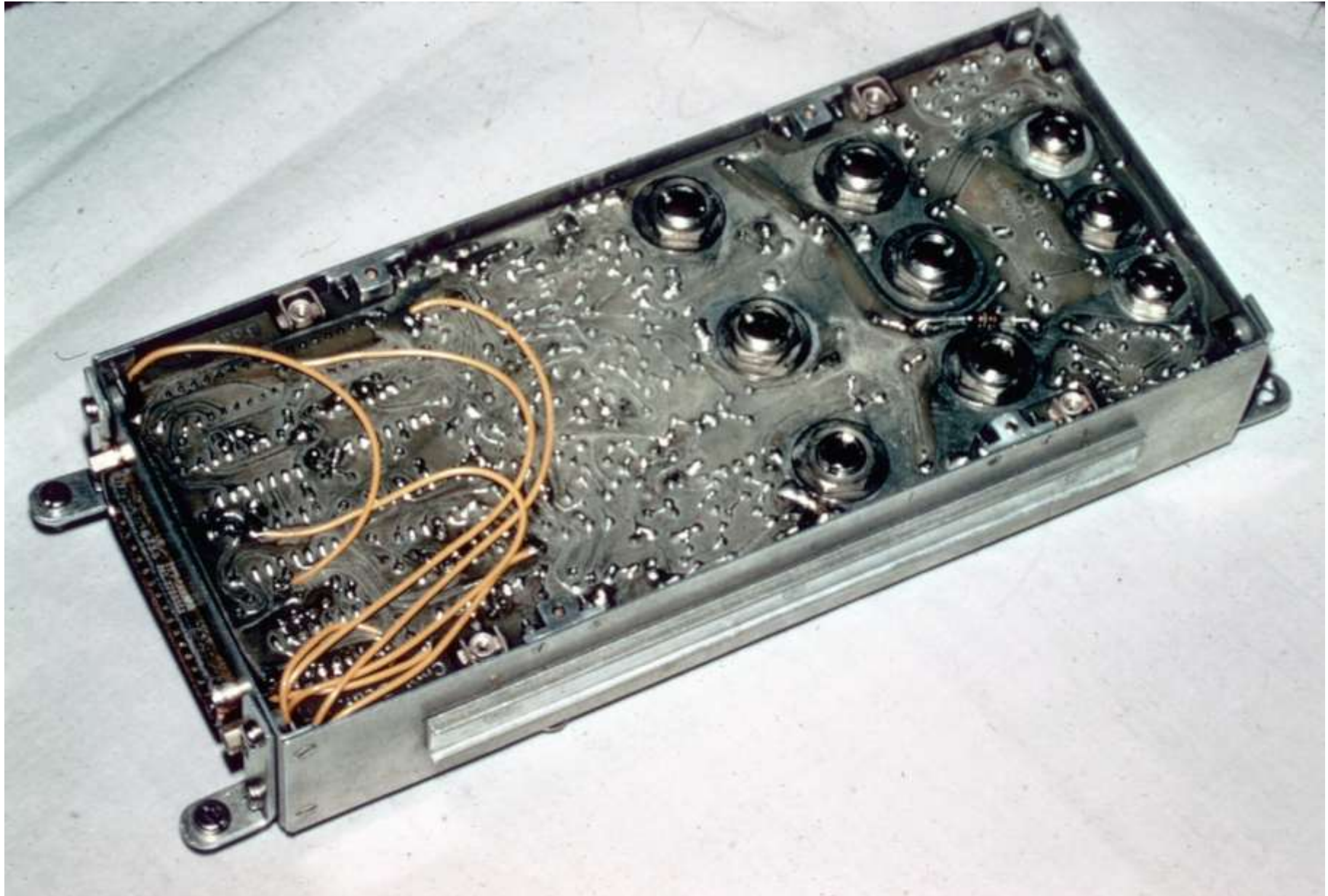
AMSAT-OSCAR-6 70-cm beacon



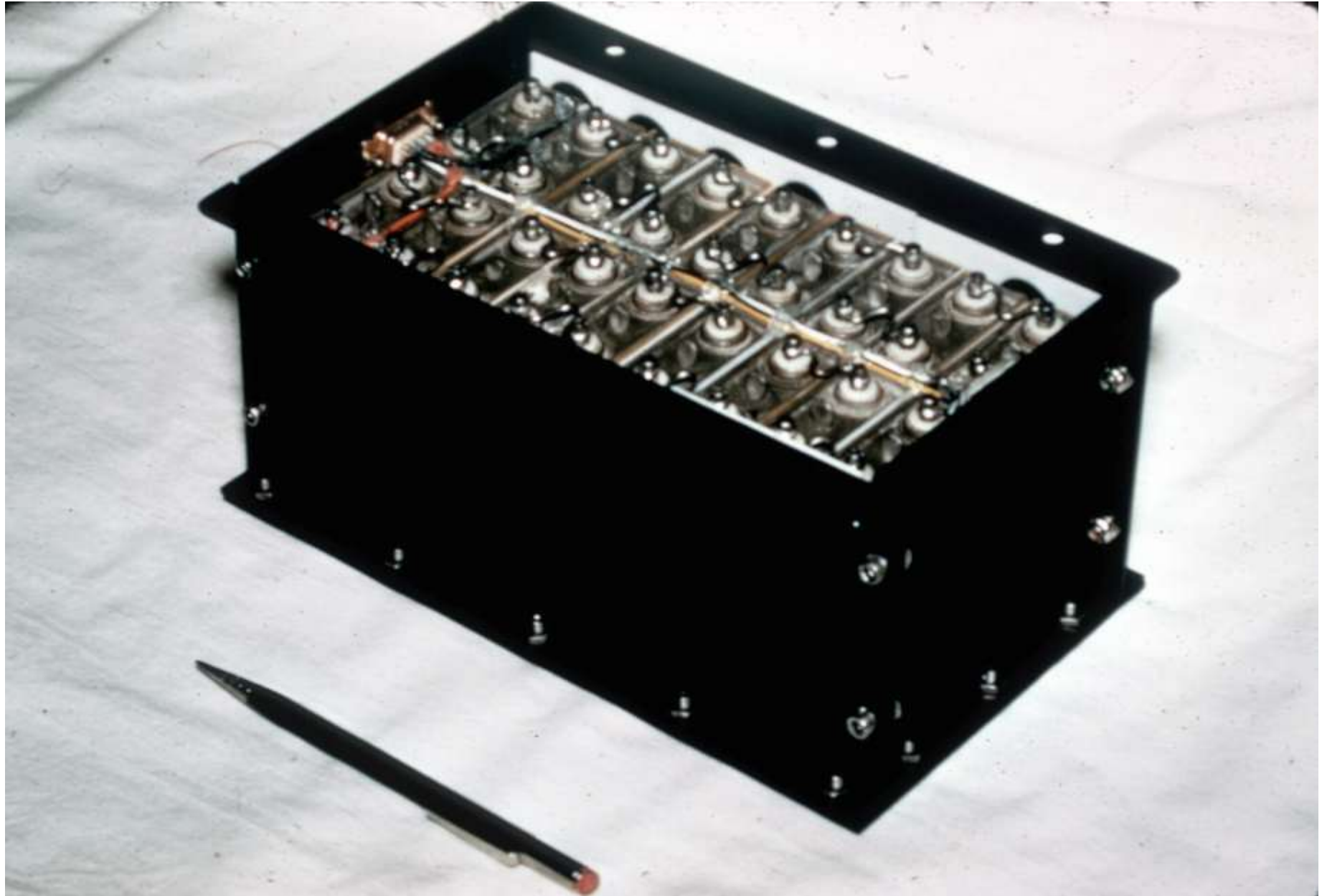
Gary Hendrickson with AMSAT-OSCAR 6



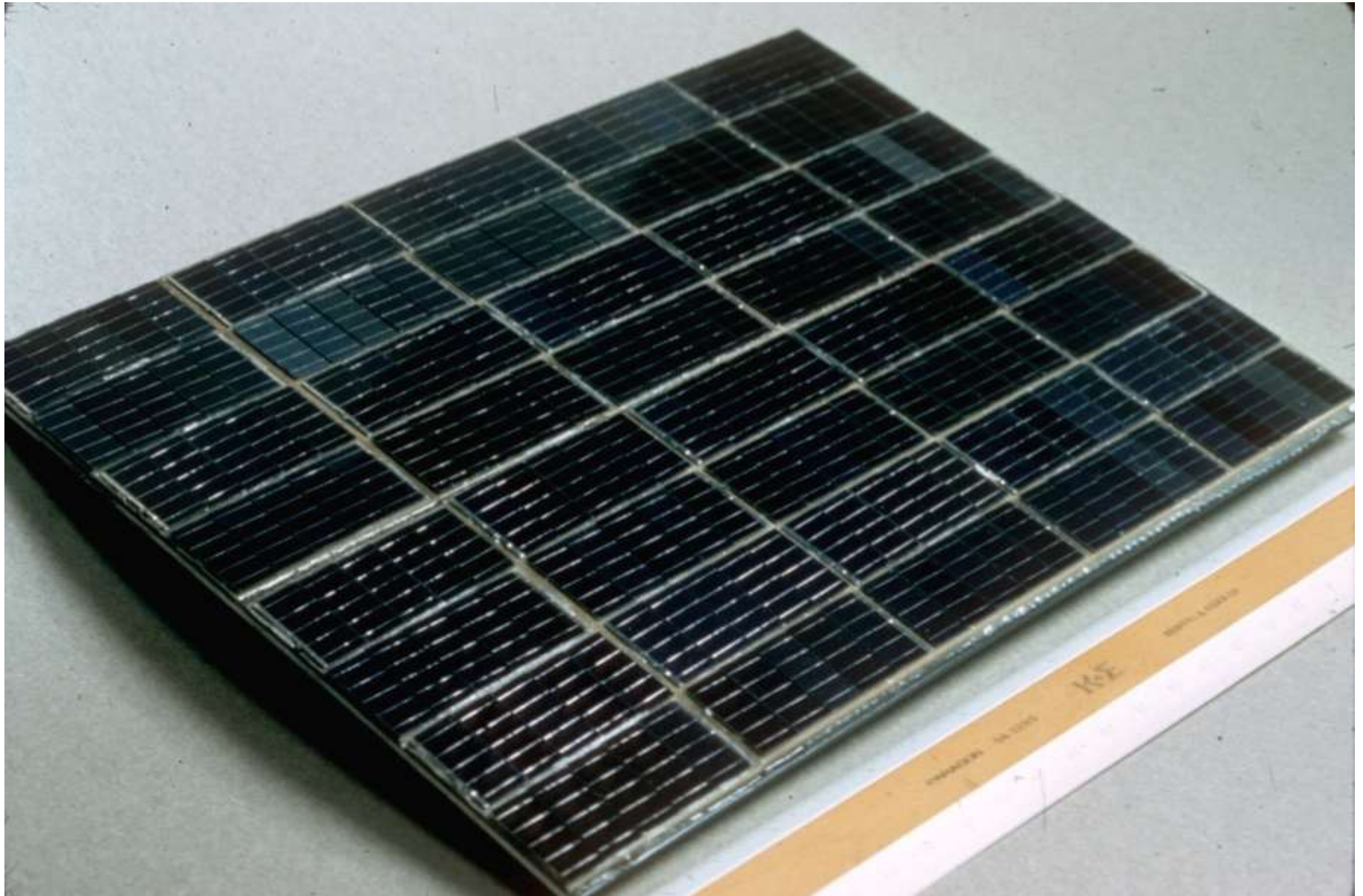
AMSAT-OSCAR-6 command decoder



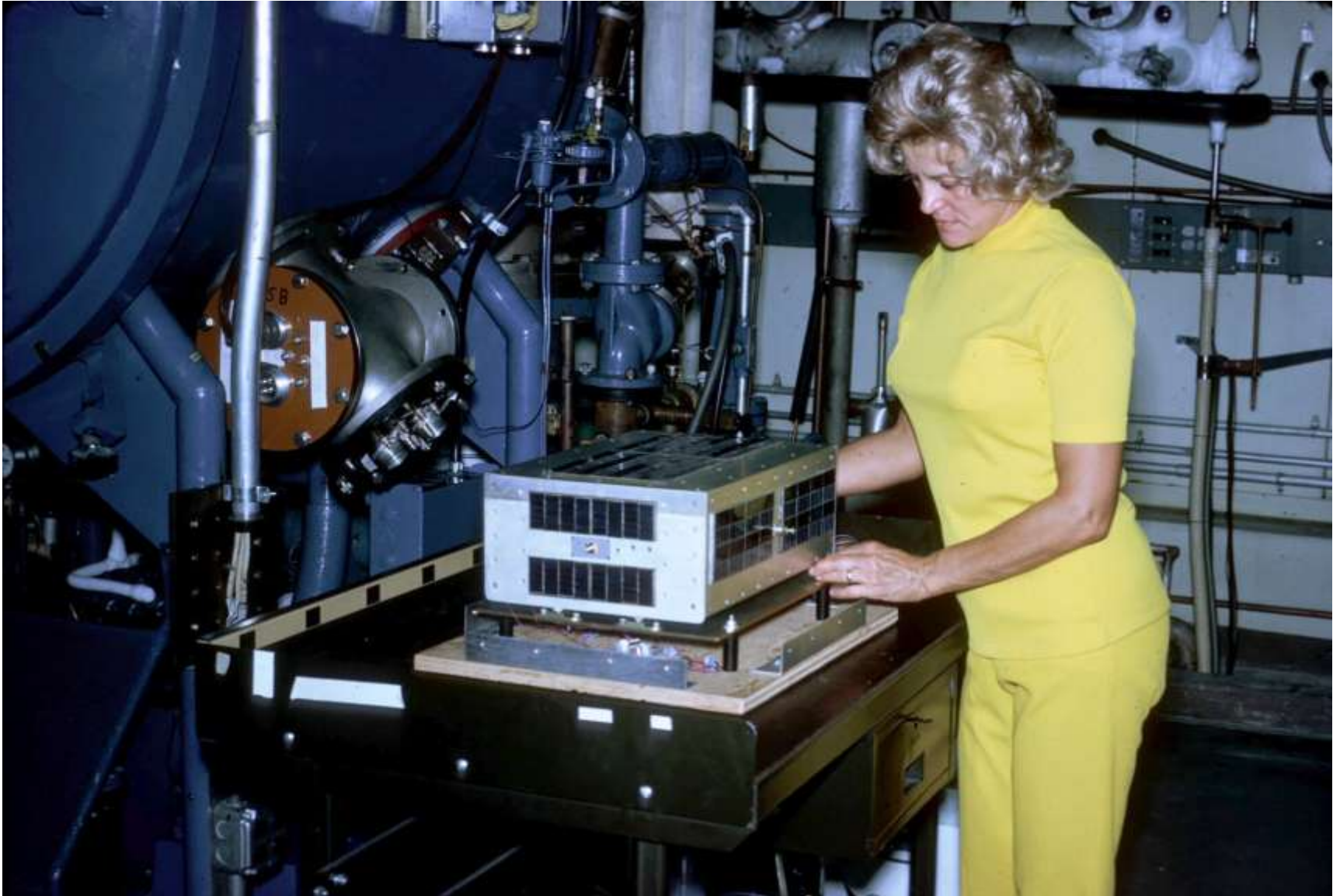
AMSAT-OSCAR 6 Nickel-Cadmium battery



AMSAT-OSCAR 6 solar panel



Marie Marr prepares AMSAT-OSCAR-6 for thermal-vacuum tests



AMSAT-OSCAR 6

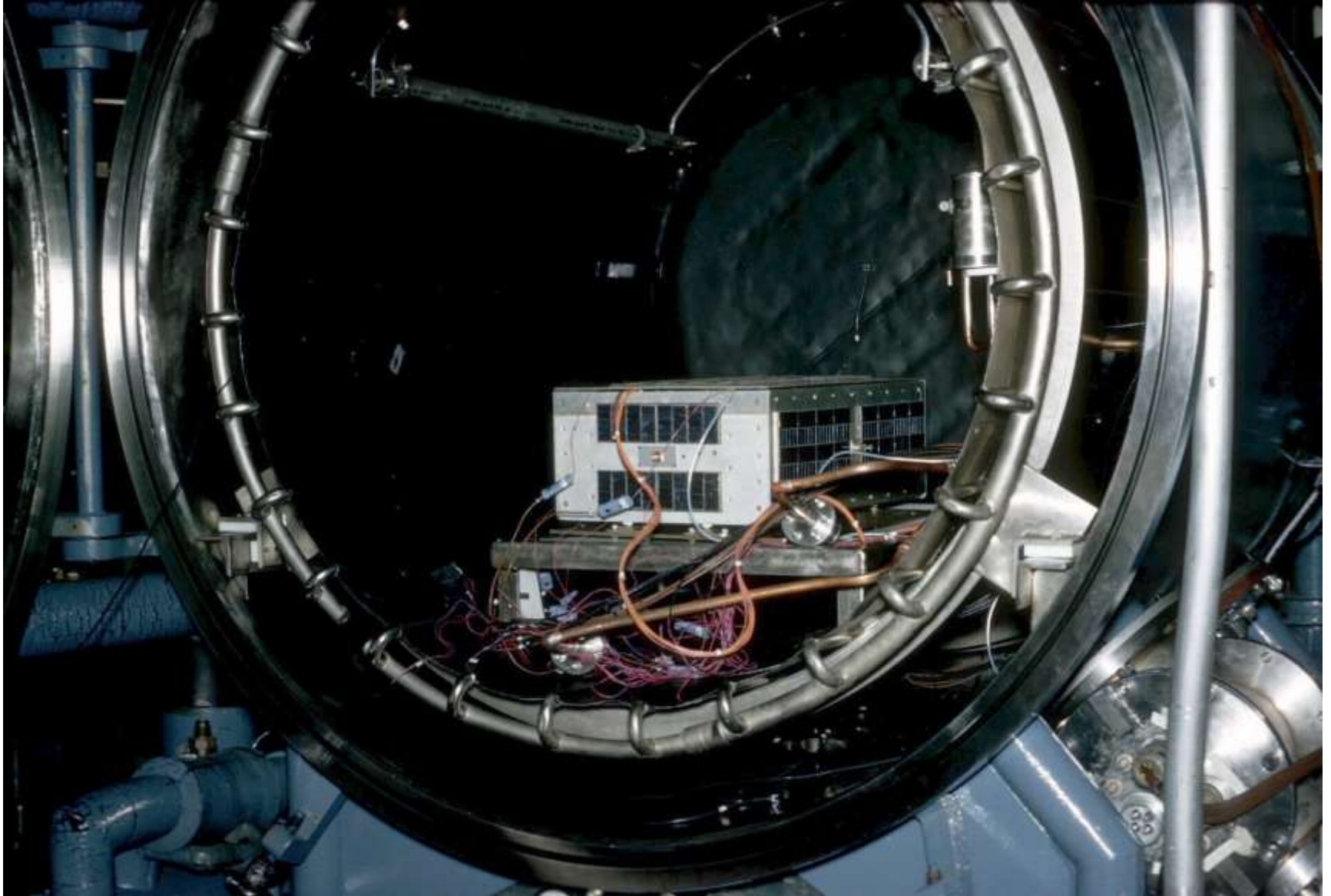
ready for thermal-vacuum tests



AMSAT-OSCAR 6 goes into the thermal-vacuum chamber



AMSAT-OSCAR 6 in thermal-vacuum chamber



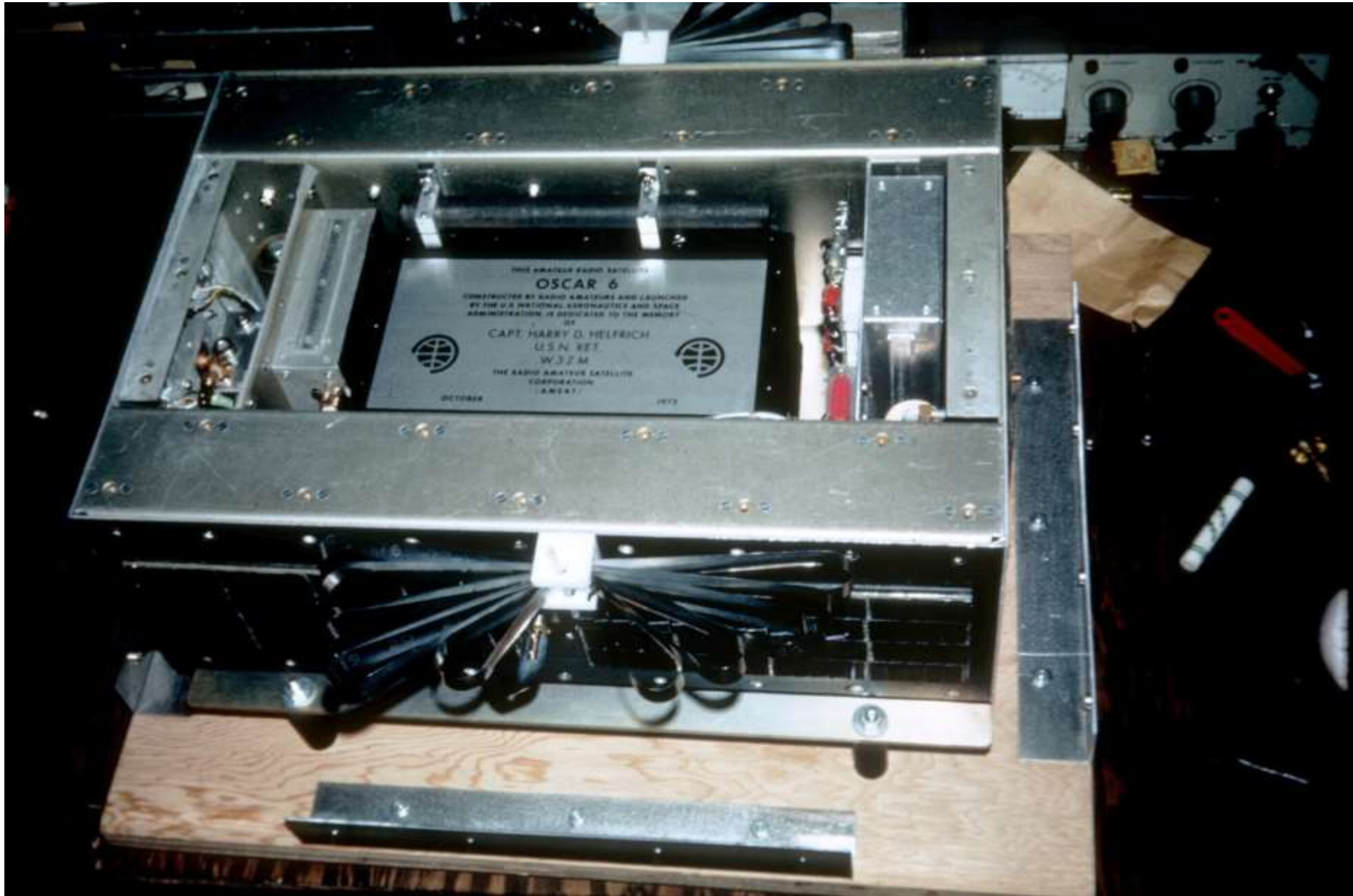
AMSAT-OSCAR 6 antenna tests in anechoic chamber



Bucky Moore encapsulating A-O-6 2-to-10-meter transponder



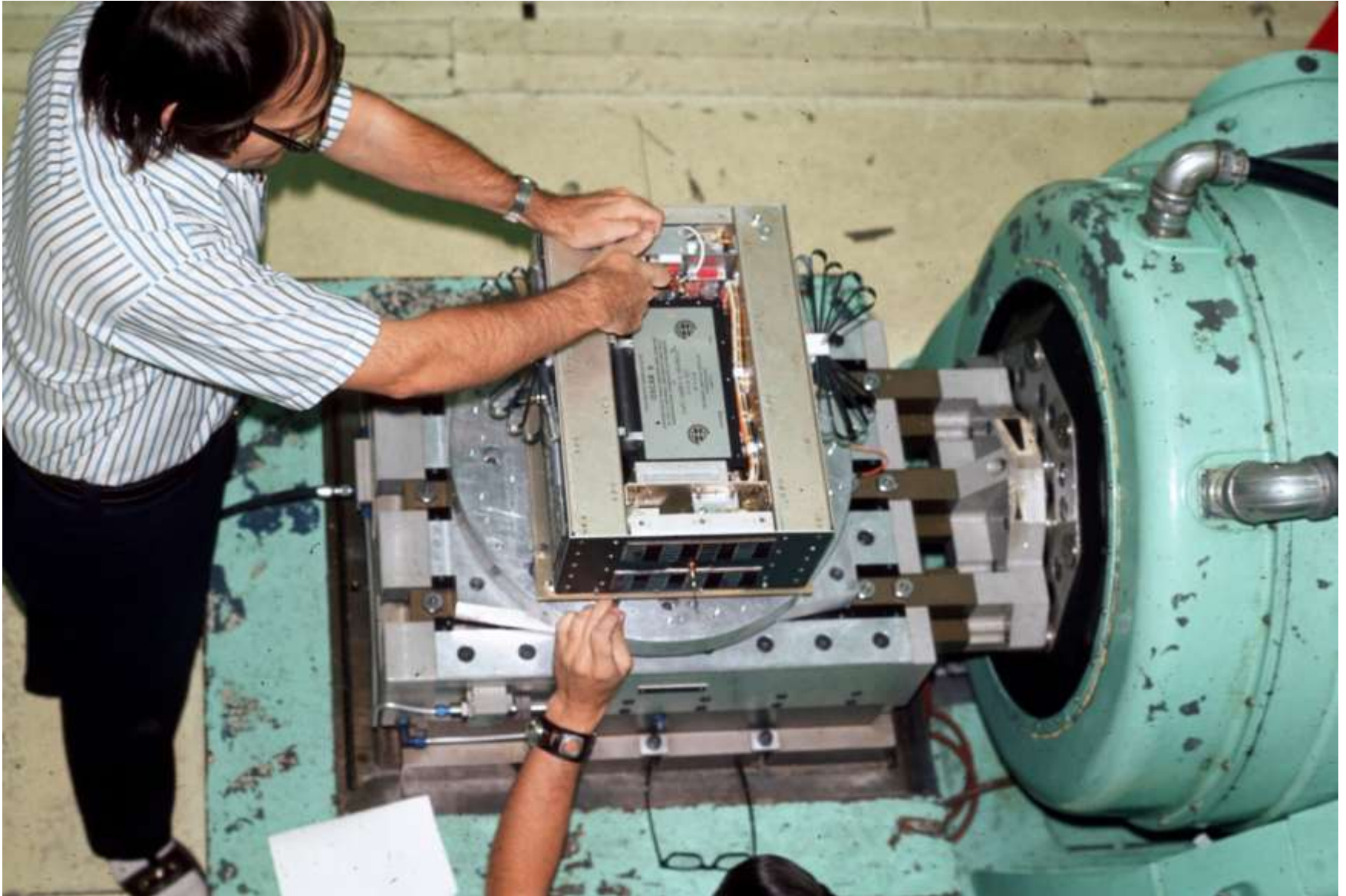
AMSAT-OSCAR 6 fully assembled



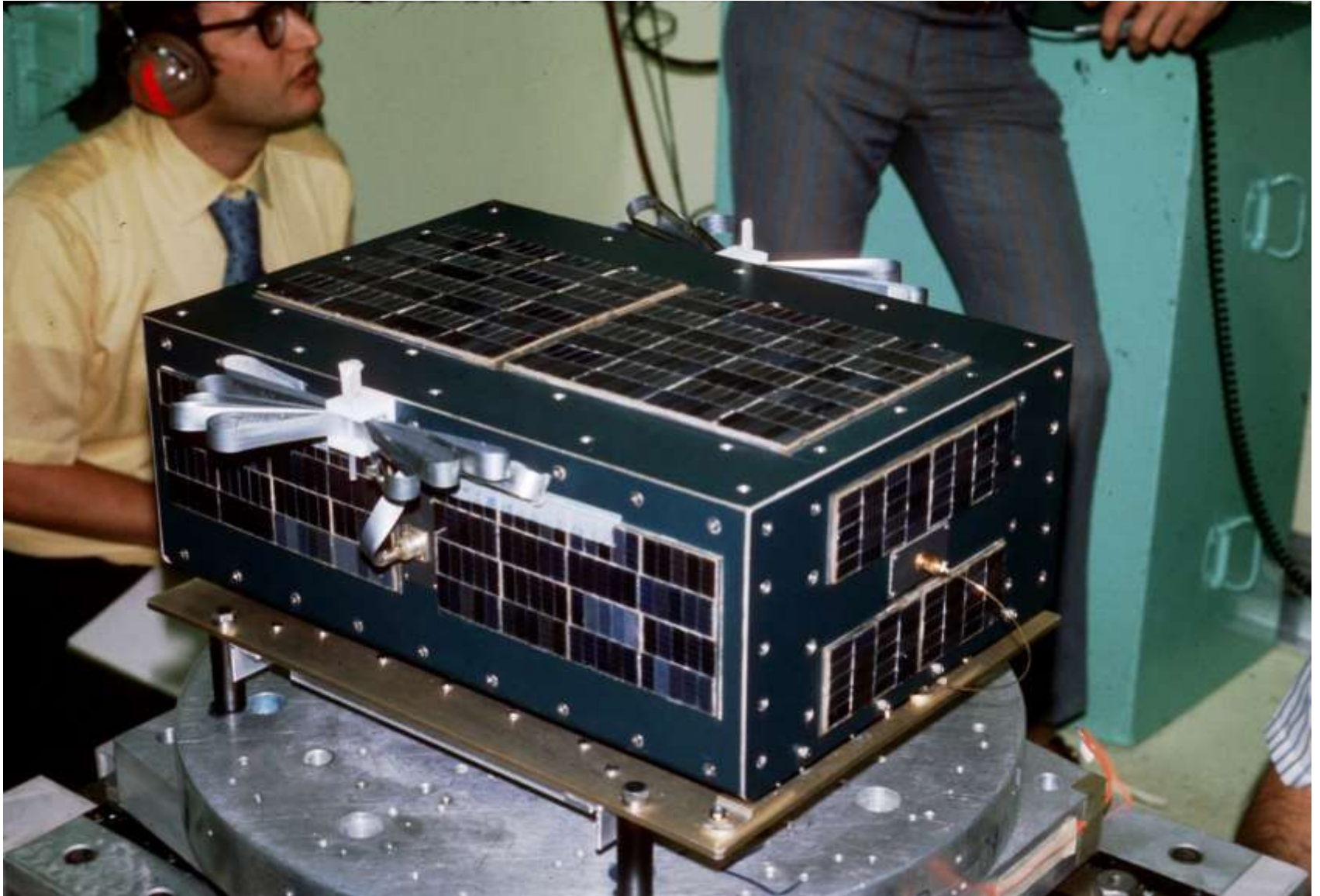
AMSAT-OSCAR 6 memorial plaque dedicated to Harry Helfrich



AMSAT-OSCAR 6 mounted for vibration test



AMSAT-OSCAR 6 ready for vibration test



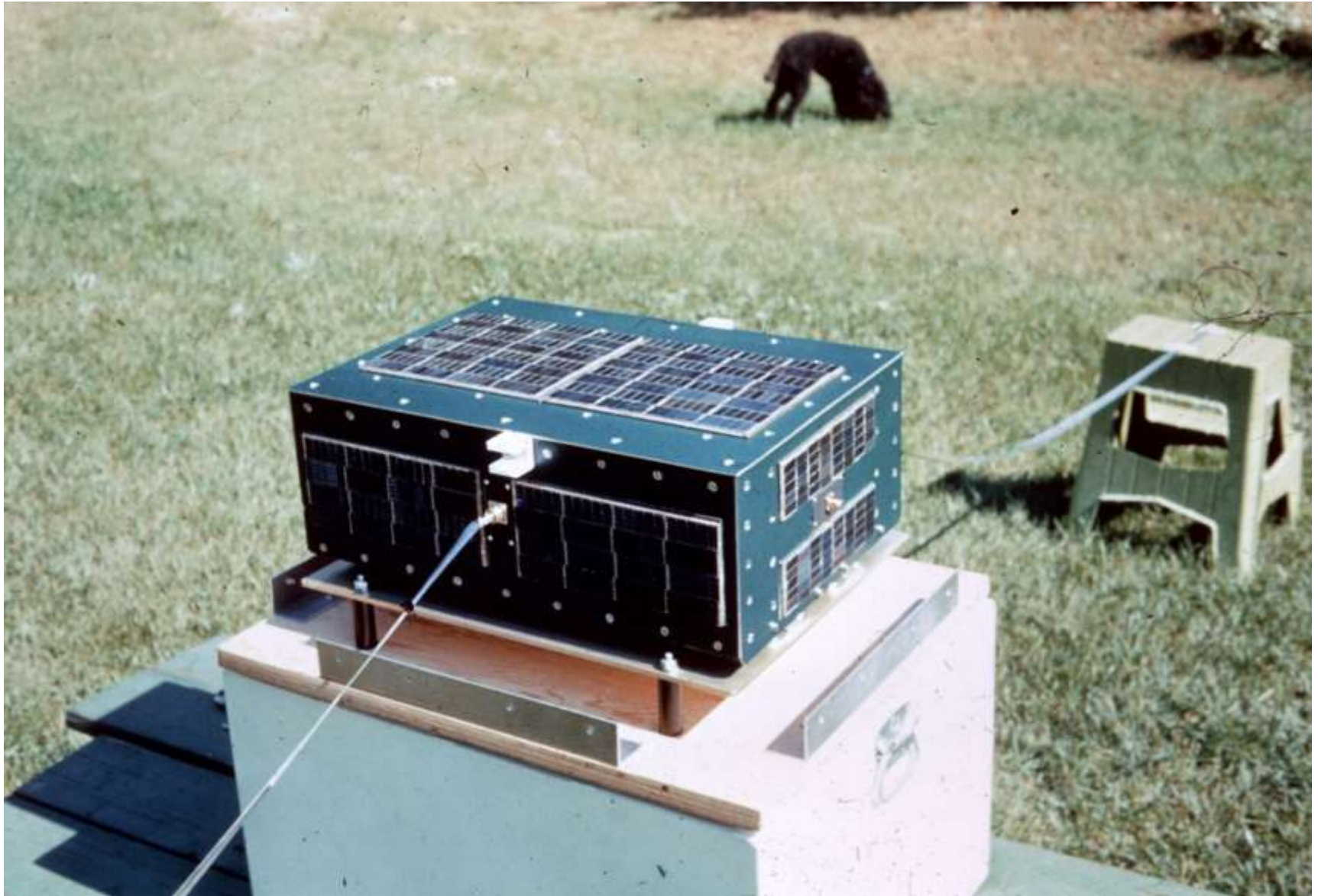
John Tomascello with A-O-6 during vibration test



Troubleshooting a problem with AMSAT-OSCAR 6



AMSAT-OSCAR 6 backyard solar power test



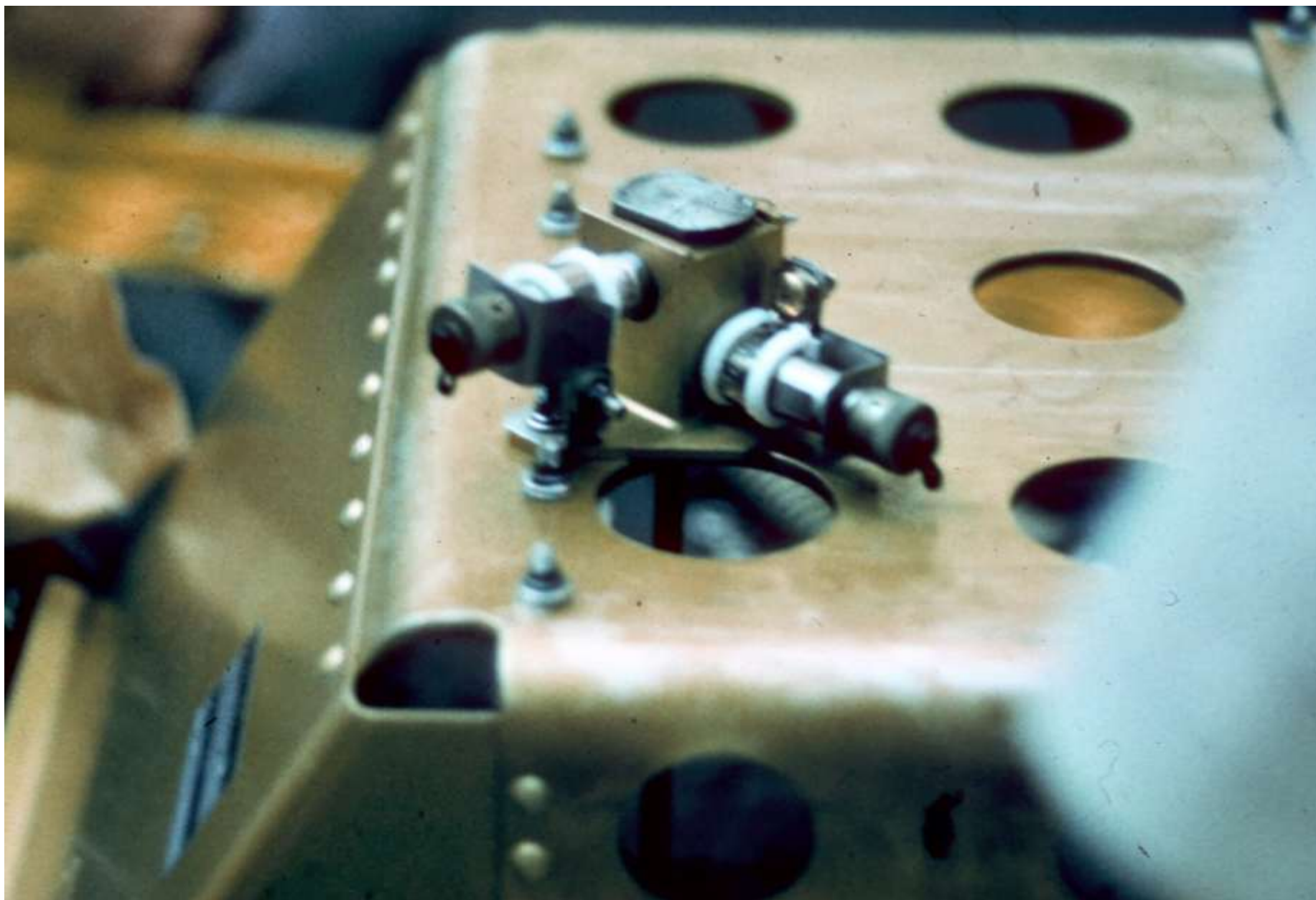
AMSAT-OSCAR 6 ready for travel



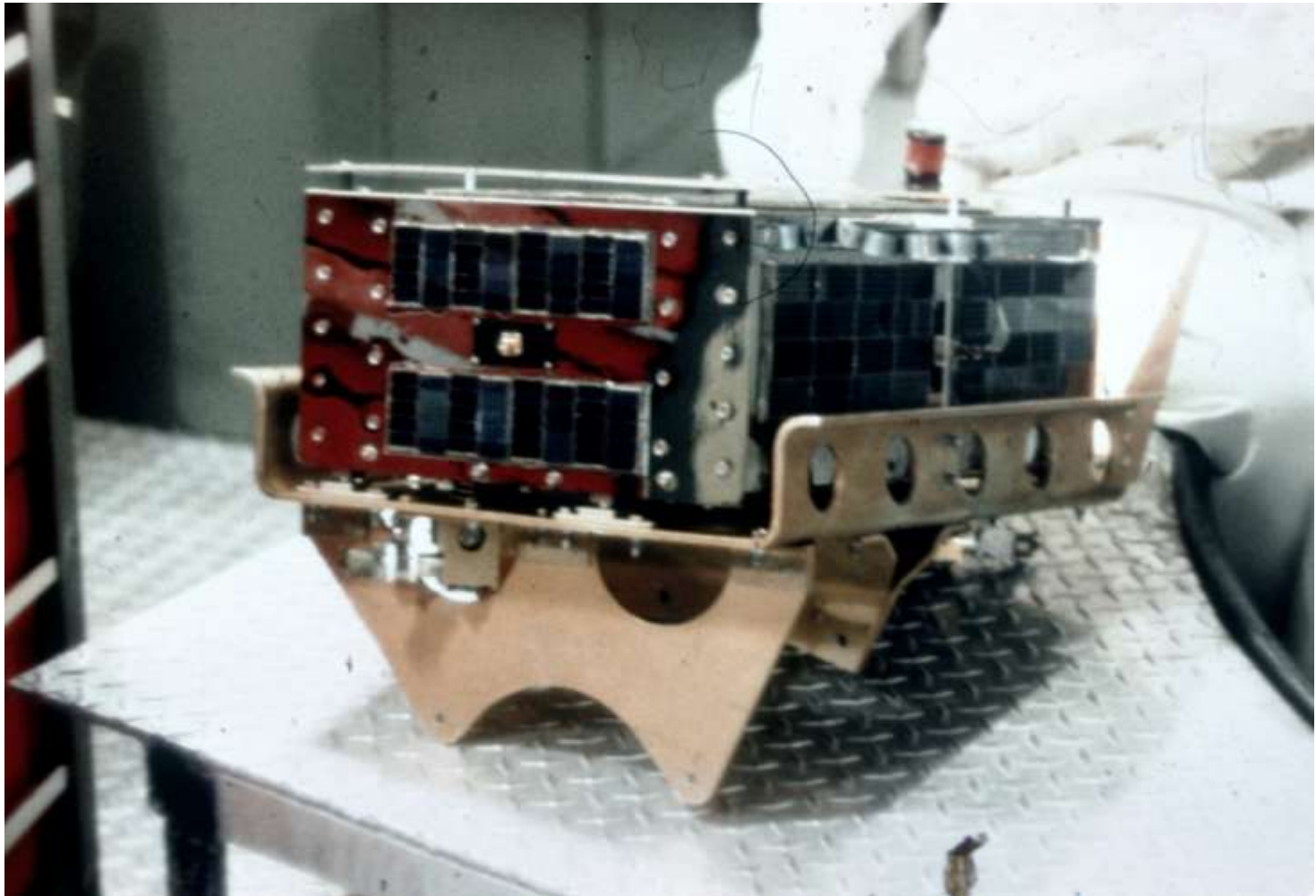
ITOS weather satellite team examines AMSAT-OSCAR-6 before launch



AMSAT-OSCAR 6 bolt cutter



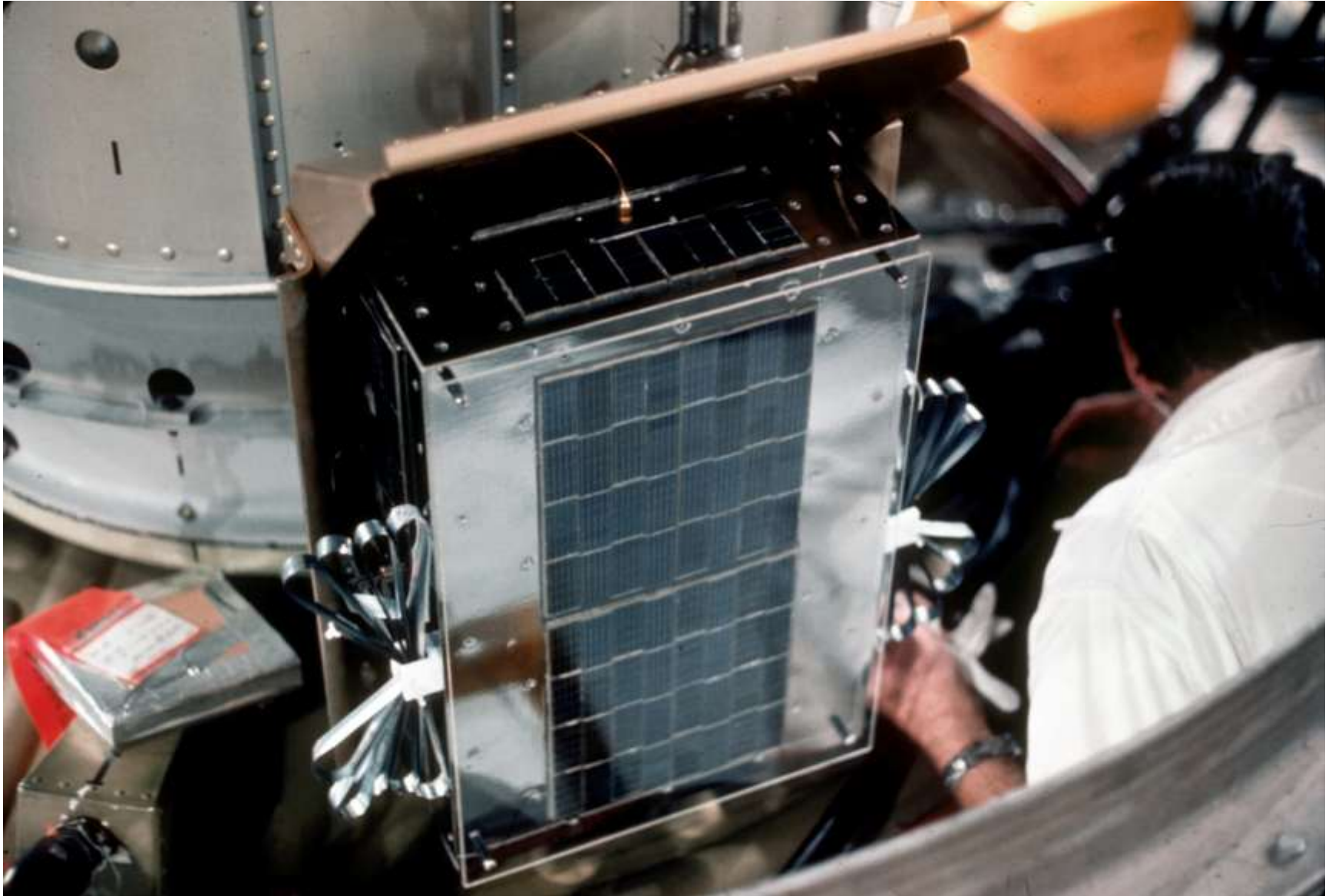
AMSAT-OSCAR 6 in mounting tray



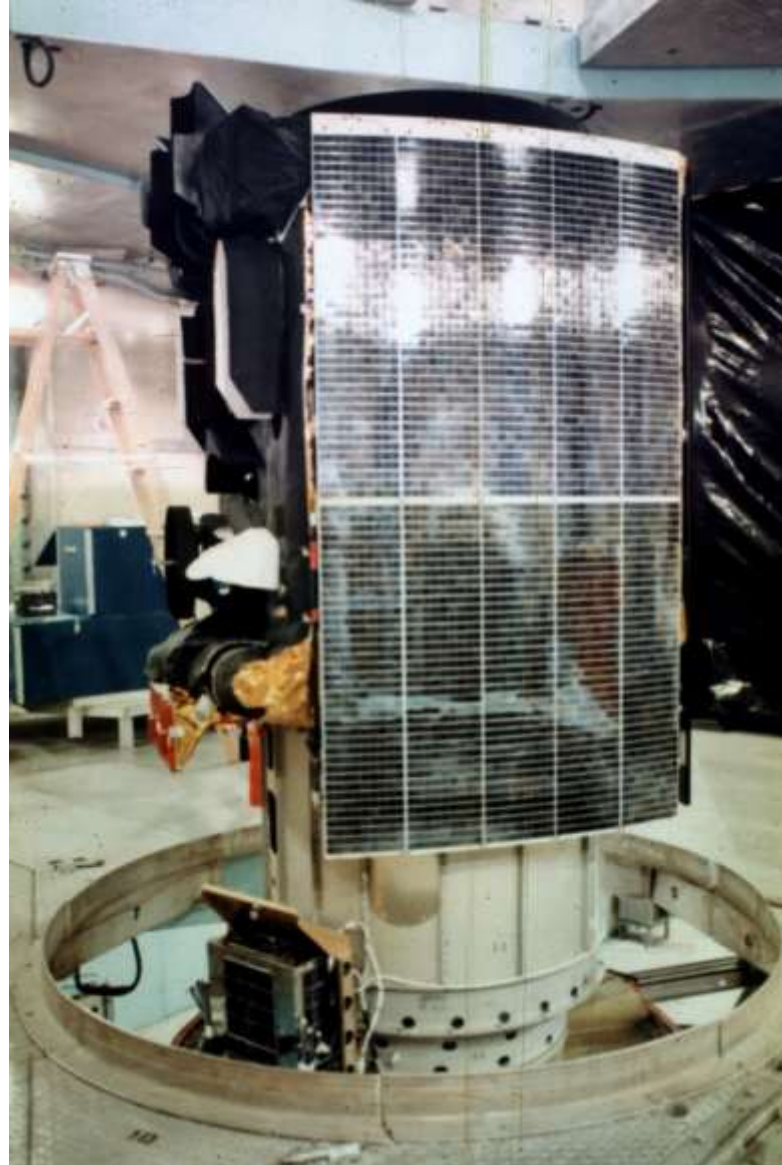
Mounting AMSAT-OSCAR 6 in Delta rocket



AMSAT-OSCAR 6 mounted in Delta rocket



AMSAT-OSCAR 6 mounted below ITOS satellite on Delta rocket

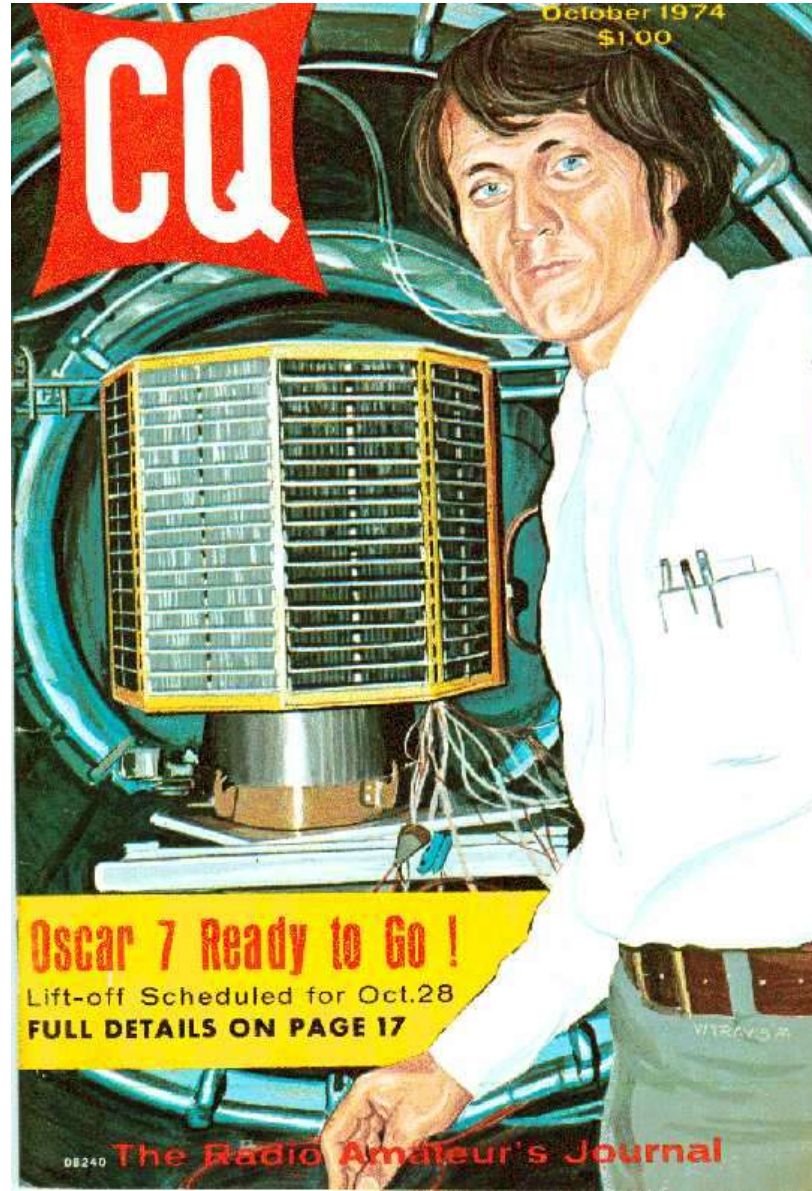


AMSAT-OSCAR 6 launch by NASA

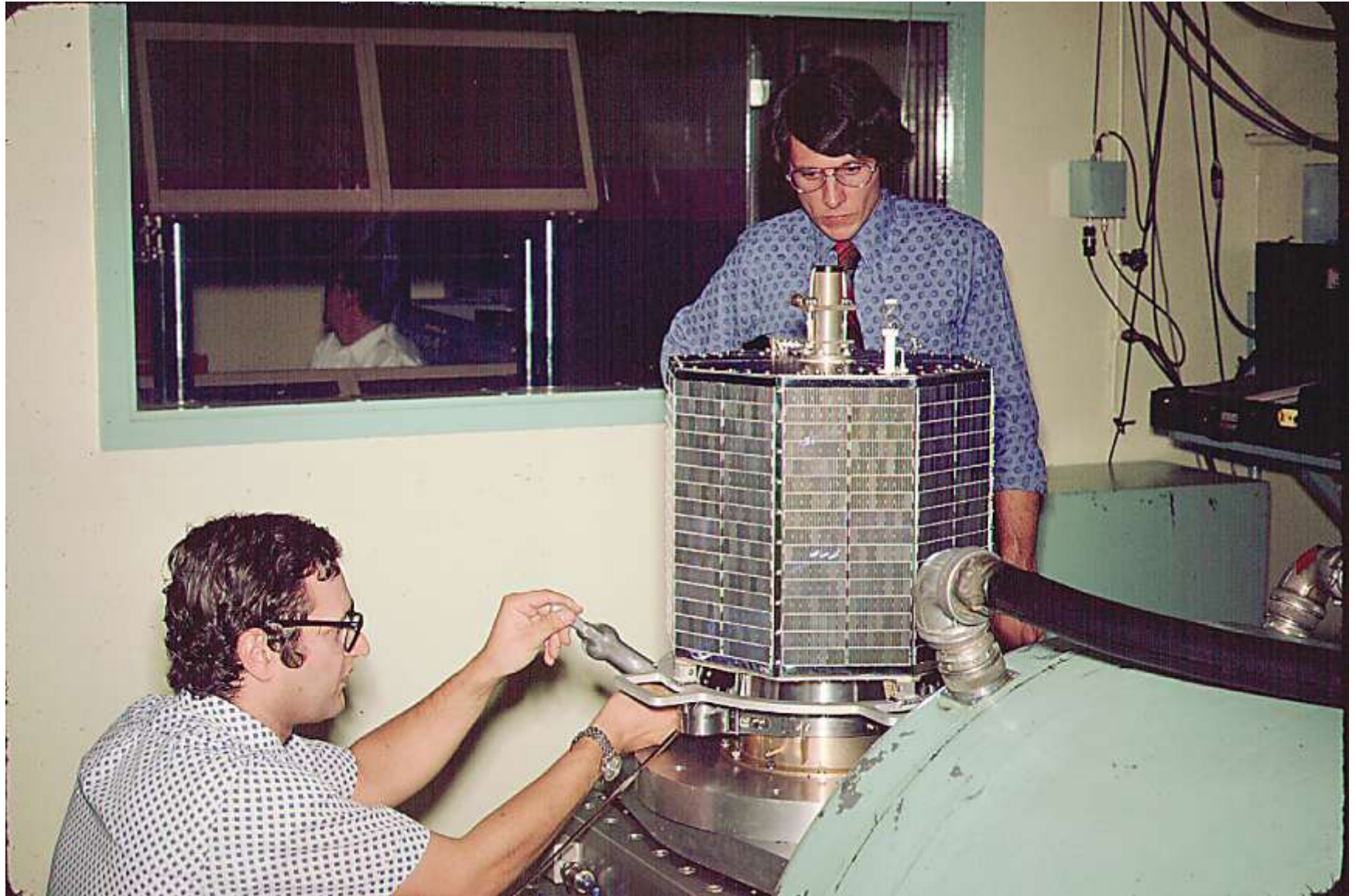
October 15, 1972, Western Test Range



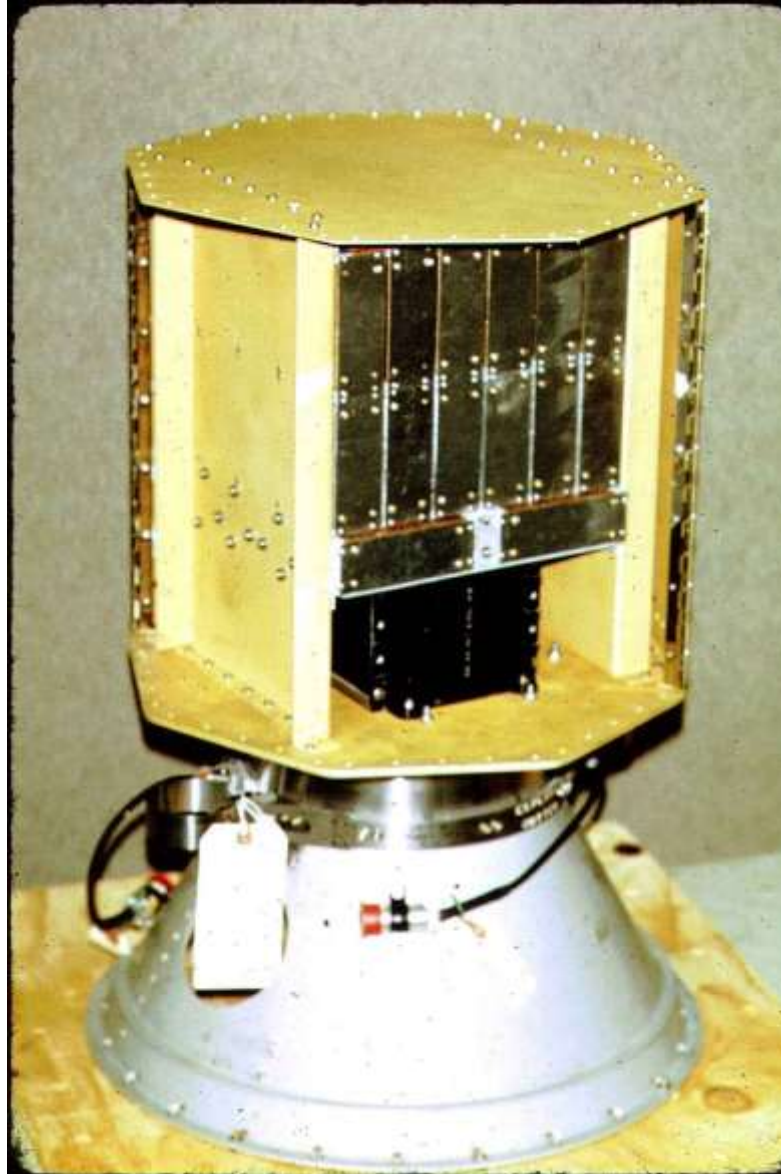
Jan King with AMSAT-OSCAR 7 (cover of CQ Magazine, Oct. 1974)



Perry Klein and Jan King prepare AMSAT-OSCAR 7 for vibration test



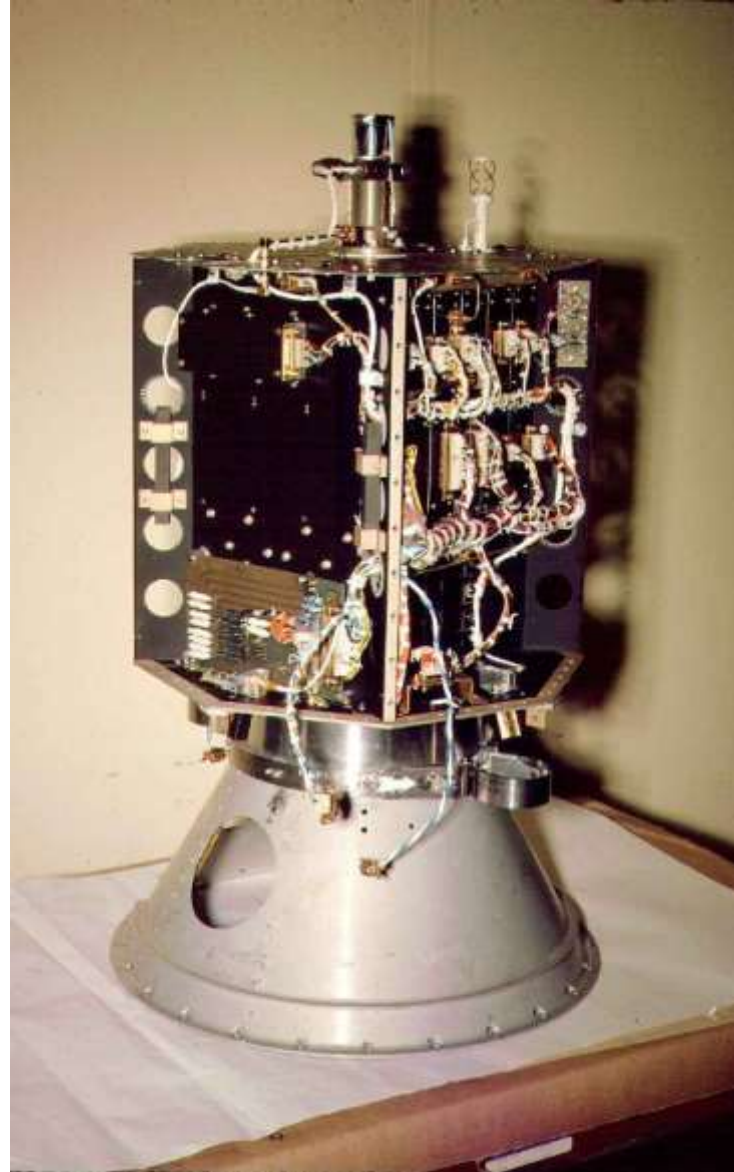
Inside AMSAT-OSCAR 7 showing modules and battery



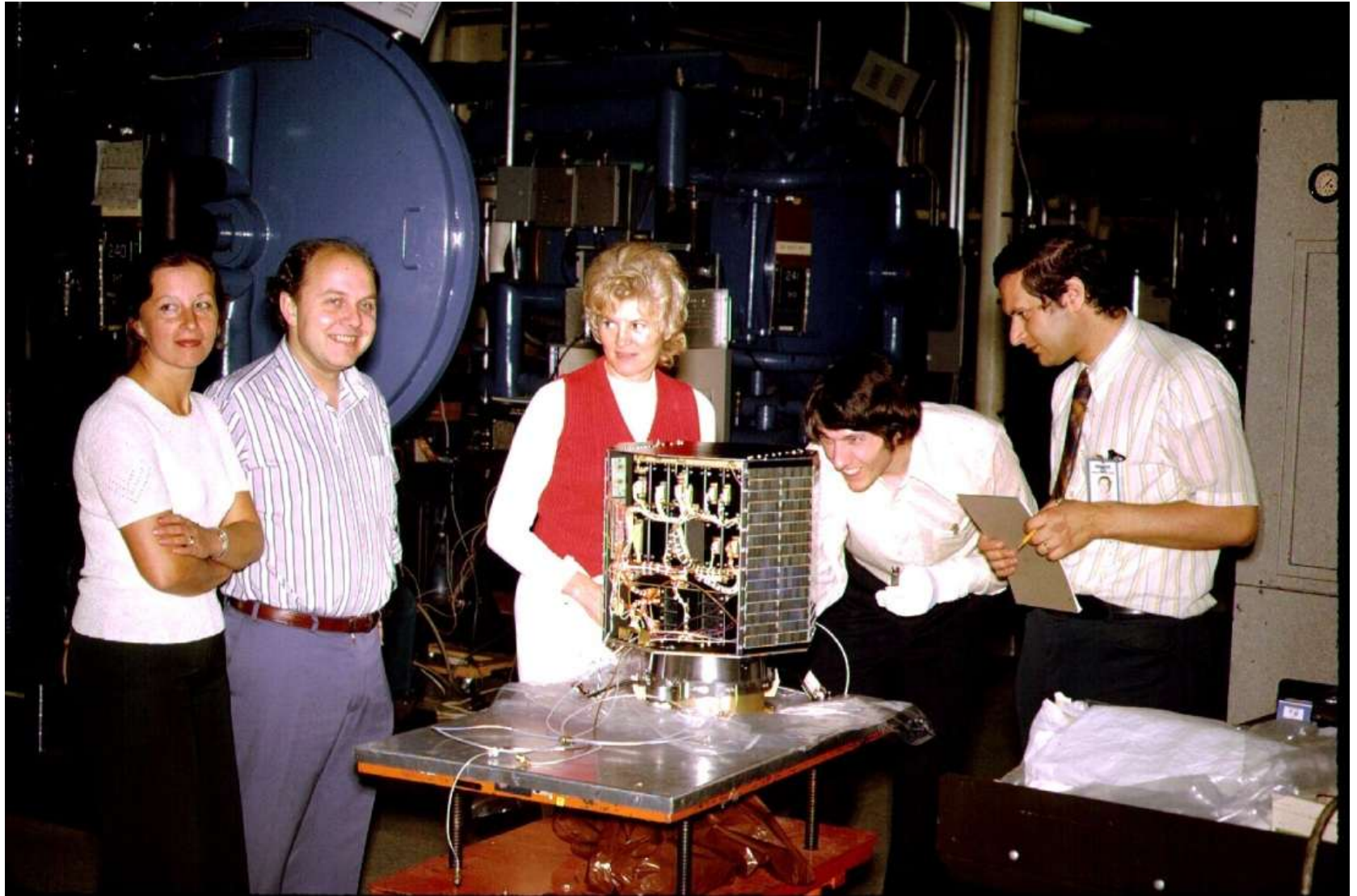
Marie Marr assembling A-O-7 wiring harness



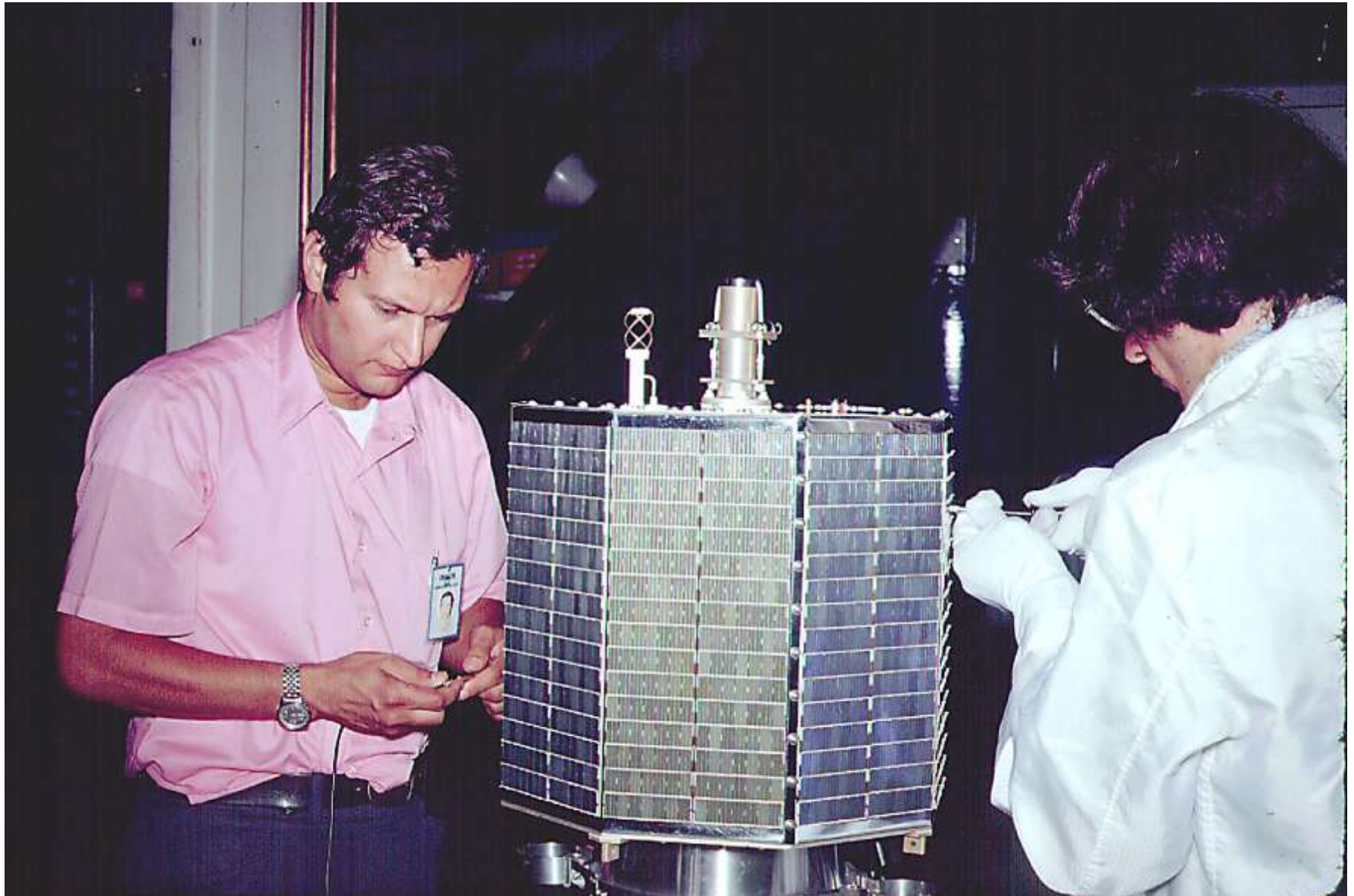
AMSAT-OSCAR 7 with modules and wiring harness



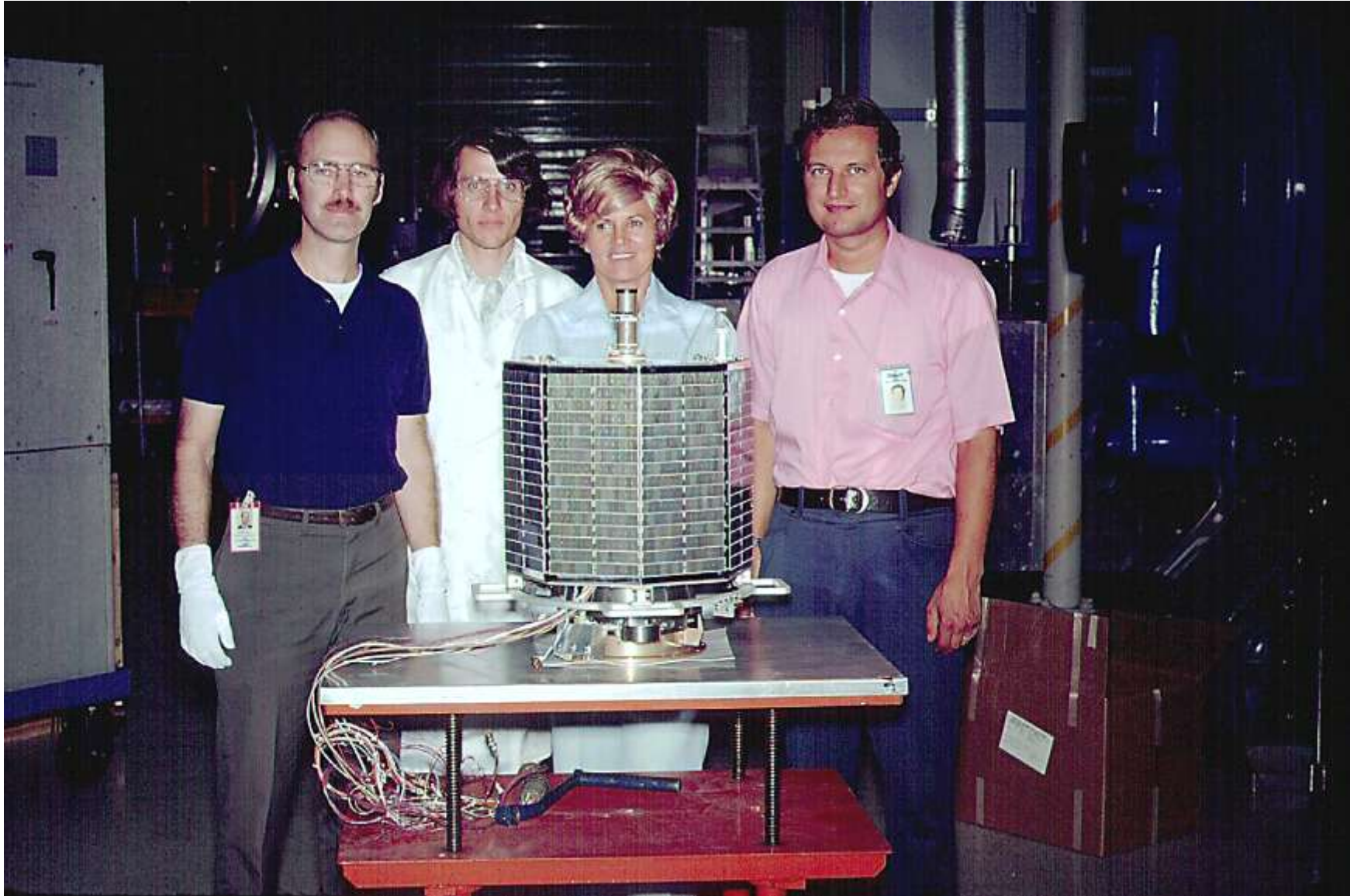
Preparing A-O-7 for thermal-vacuum tests. (Karin & Karl Meinzer from AMSAT-DL on left)



Getting AMSAT-OSCAR 7 ready for thermal-vacuum tests



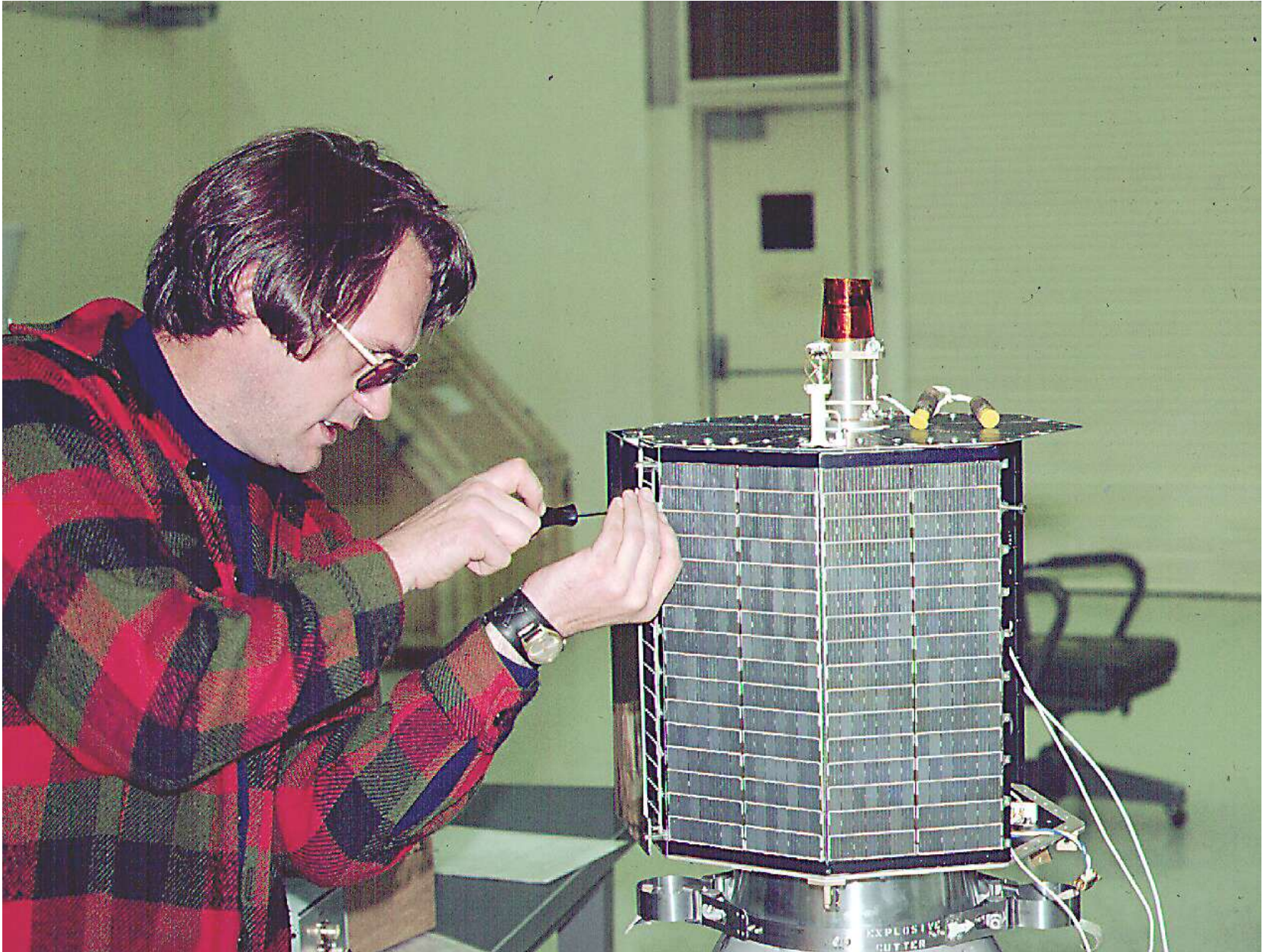
AMSAT-OSCAR 7 before thermal-vacuum test (1974)



Lance Ginner (Proj. OSCAR), Karl Meinzer (AMSAT-DL), Jan King examine AMSAT-OSCAR 7 70cm-2m transponder



Tom Clark with AMSAT-OSCAR 7



Carrying OSCAR 7 into airplane at Dulles Airport



DC-10 Captain inspecting A-O-7 before strapping to seats



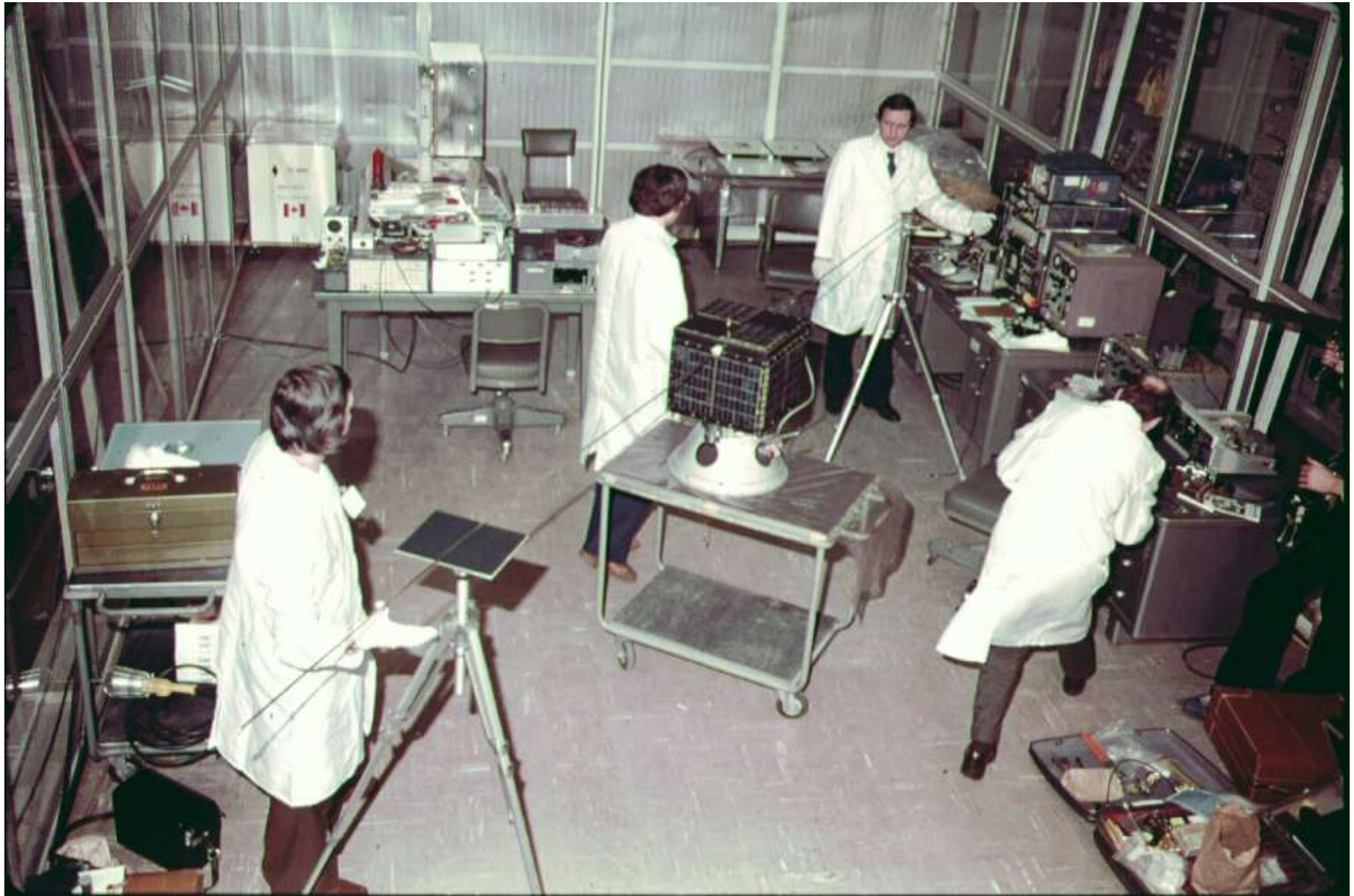
AMSAT-OSCAR 7 mounted in NASA Delta rocket. Launch was Nov. 15, 1974.



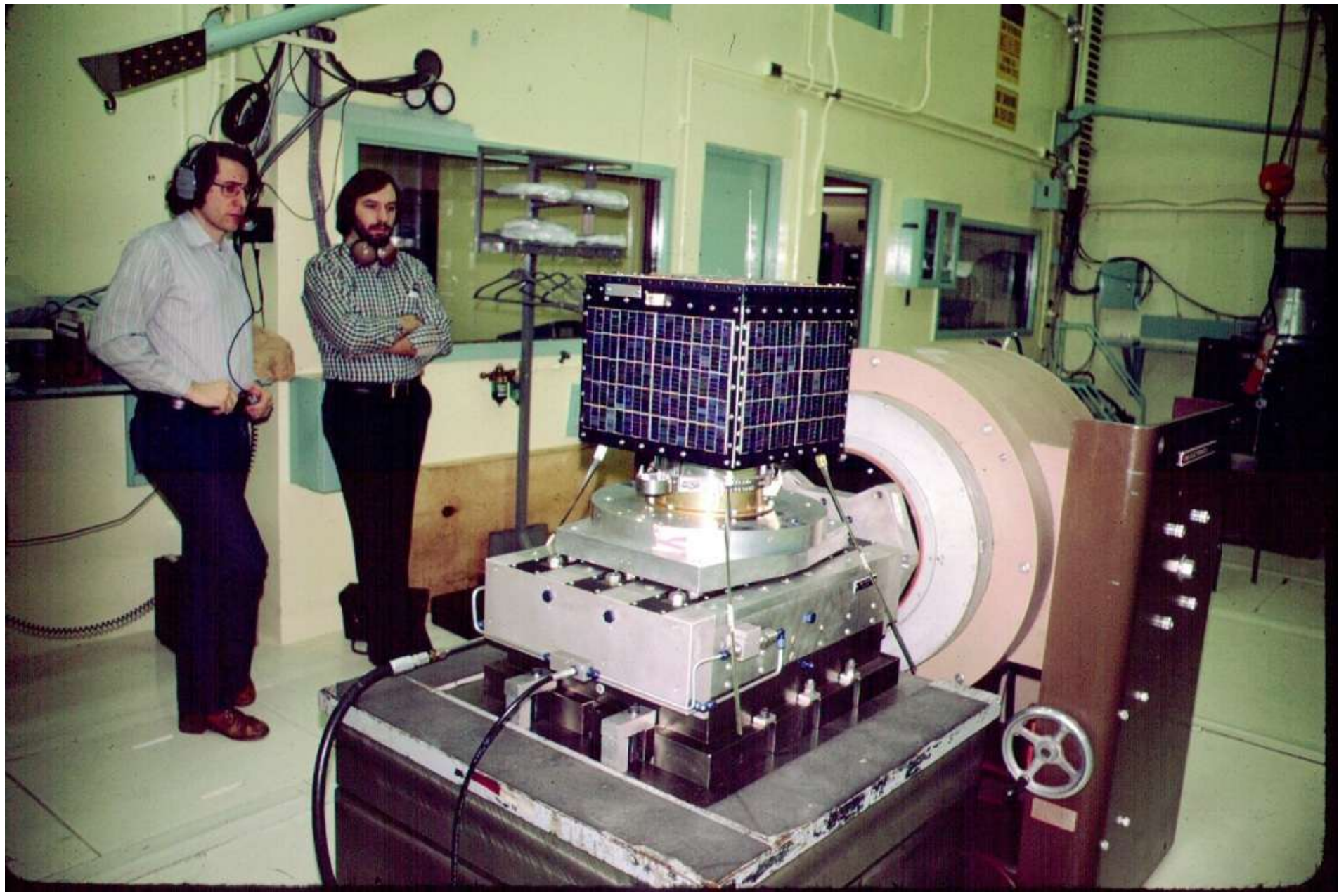
Jan King cleans AMSAT-OSCAR 8 solar panels



AMSAT-OSCAR 8 RF testing



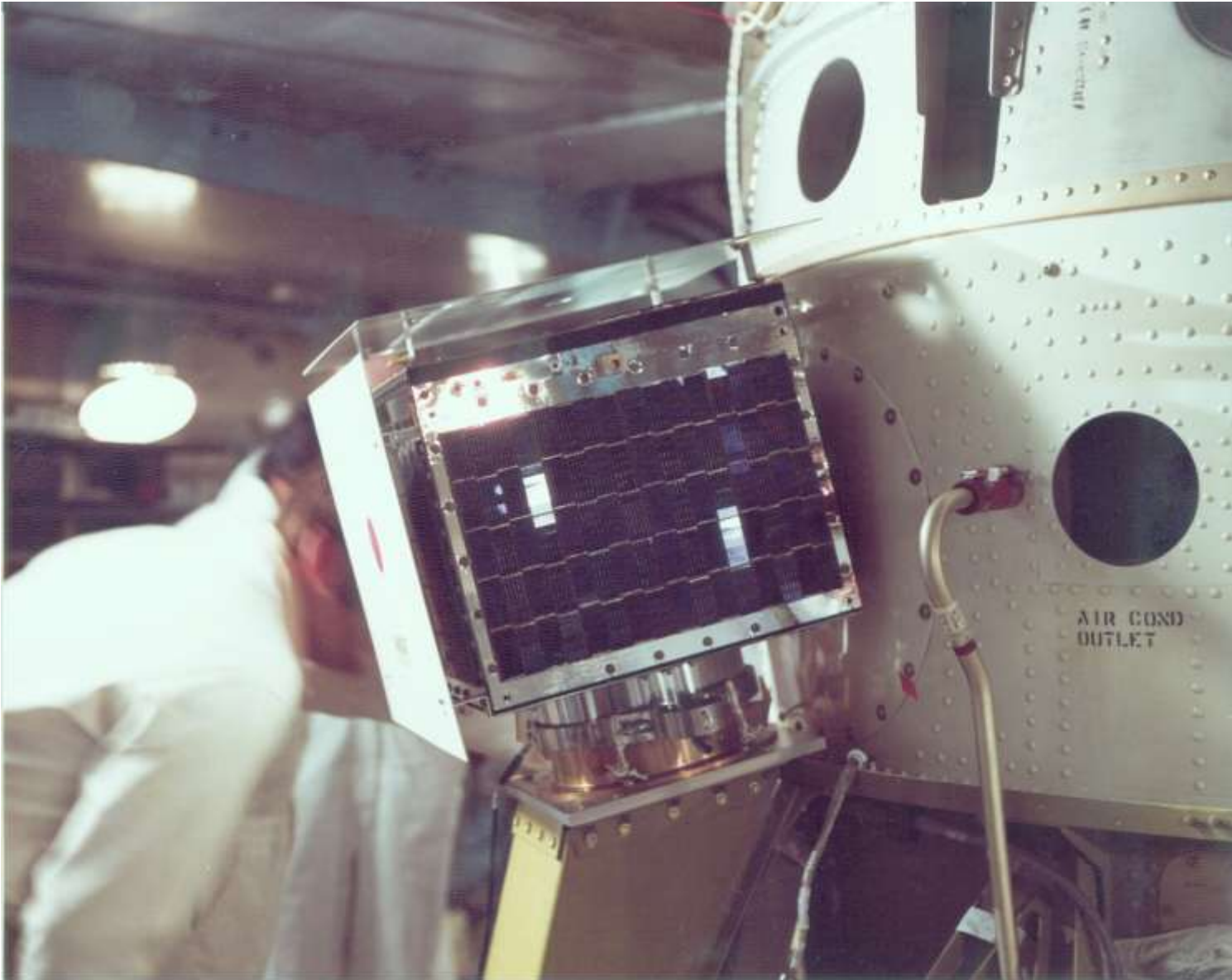
AMSAT-OSCAR 8 vibration test



Installation of AMSAT-OSCAR 8 on NASA Delta rocket



AMSAT-OSCAR 8 mounted on NASA Delta rocket



AMSAT-OSCAR 8 on NASA Delta rocket.
Launch was March 5, 1978.

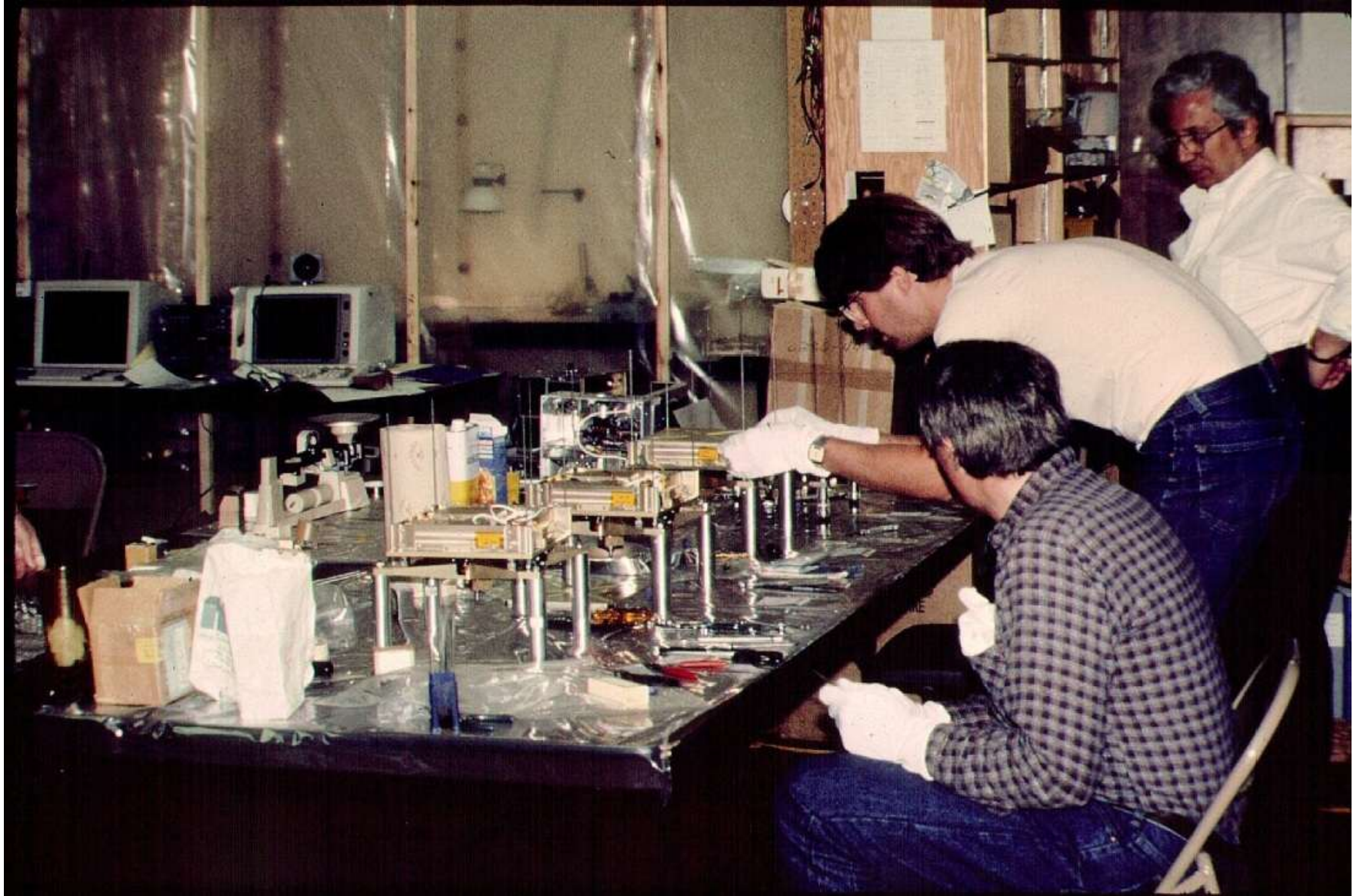


Fuji-OSCAR 12 built by JAMSAT

Launched from Japan Aug. 12, 1986



4 Microsats under construction.
They were launched on Jan. 22, 1990



4 Microsats on Ariane adapter ring.
Launch was Jan. 22, 1990 from Kourou.

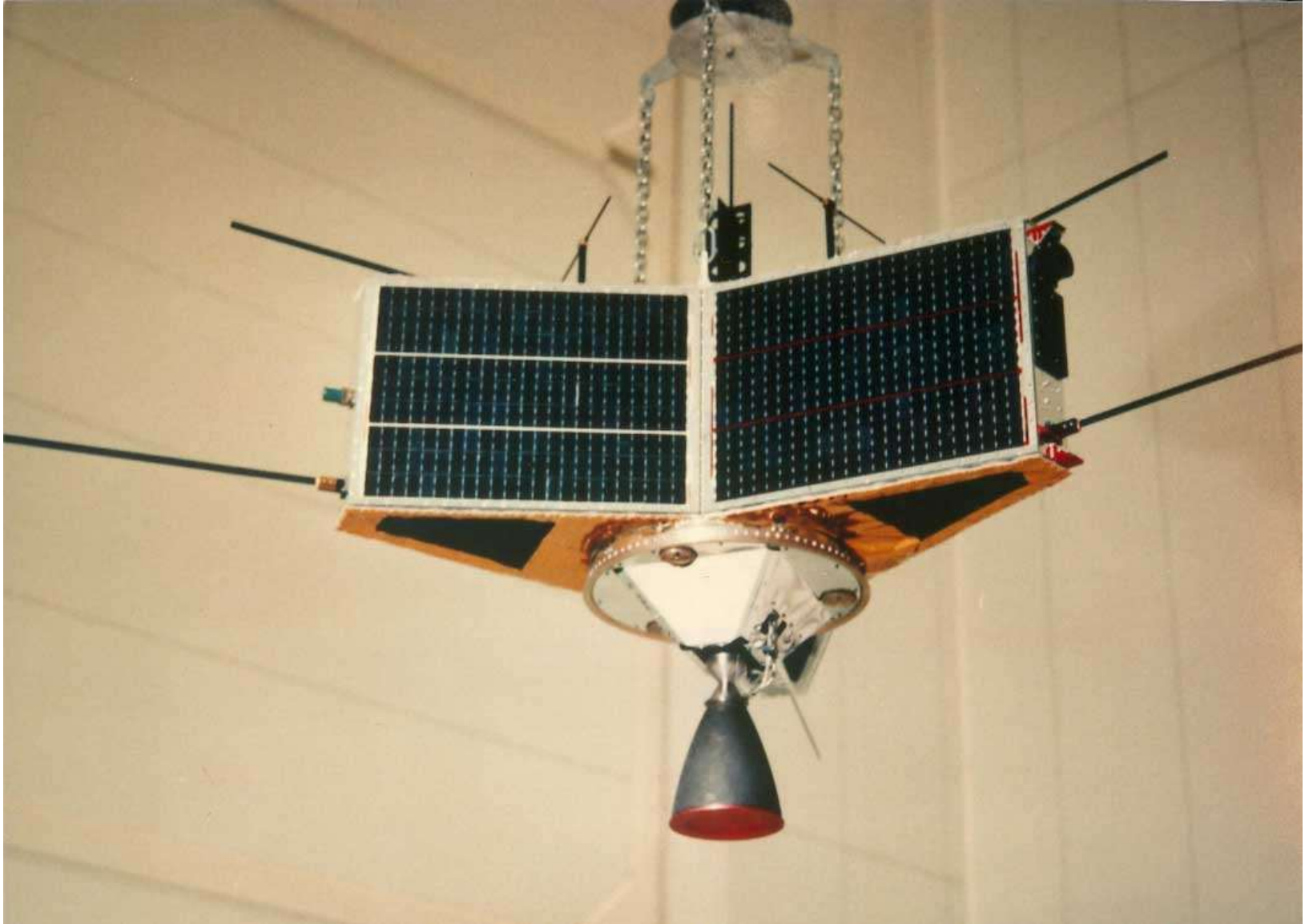


LUSAT-OSCAR 19 Microsat Argentinean postage stamp



AMSAT-OSCAR 13

launched June 15, 1988



AMRAD-OSCAR 27 satellite built in VA launched Sept. 26, 1993



CubeSat model

Size is 10 x 10 x 10 cm.



Prof. Bob Twiggs (Stanford U.) with P-POD multiple CubeSat launcher



NASM Curators Martin Collins & Paul Ceruzzi with Microsat mechanical test model



Perry Klein discusses Microsat with General Dailey, Director of the Air and Space Museum



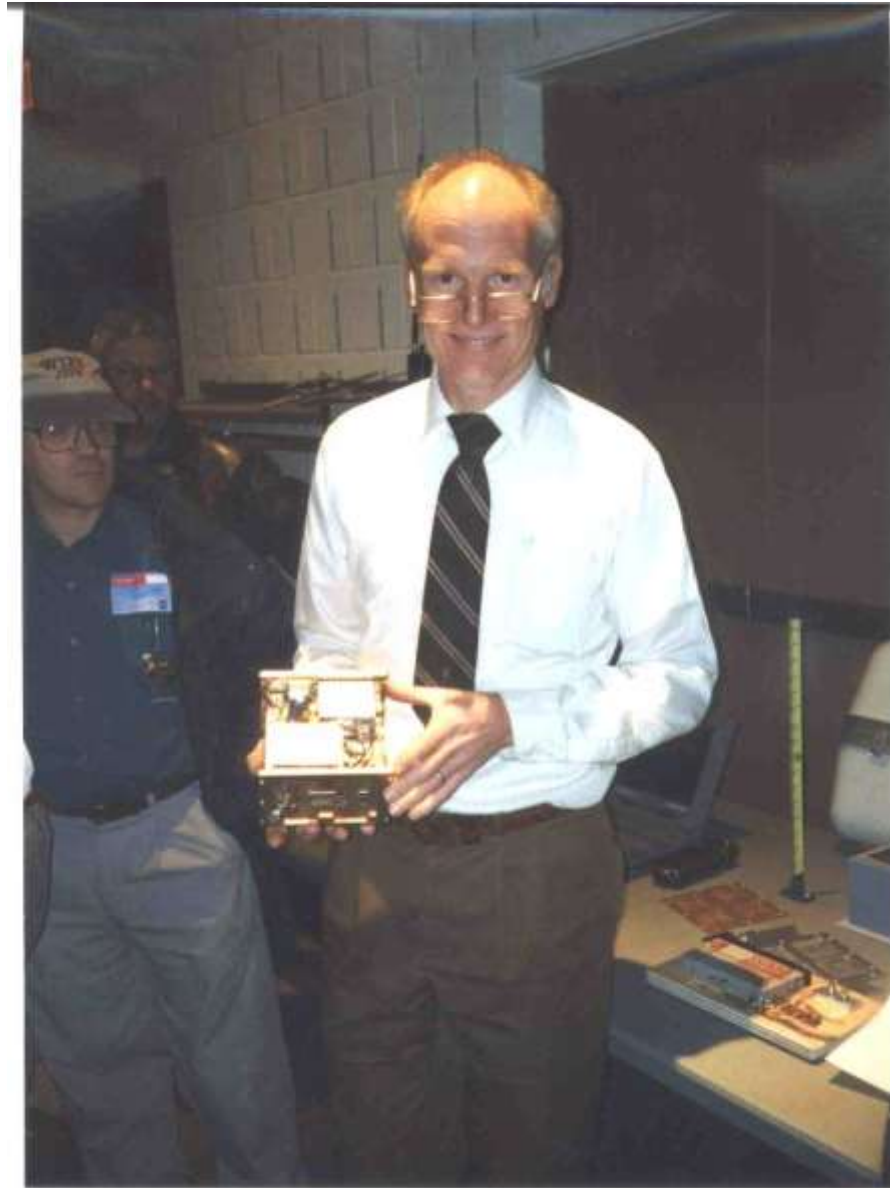
U.S. Naval Academy PCSat (OSCAR 44) Launch was Sept. 30, 2001



U.S. Naval Academy Midshipmen with their PCSat satellite



Bob Bruninga of U.S. Naval Academy holds a PicoSat



Senator John Glenn with school-kids constructing miniature Microsats



AMSAT-OSCAR 51 (Echo) satellite launched June 28, 2004



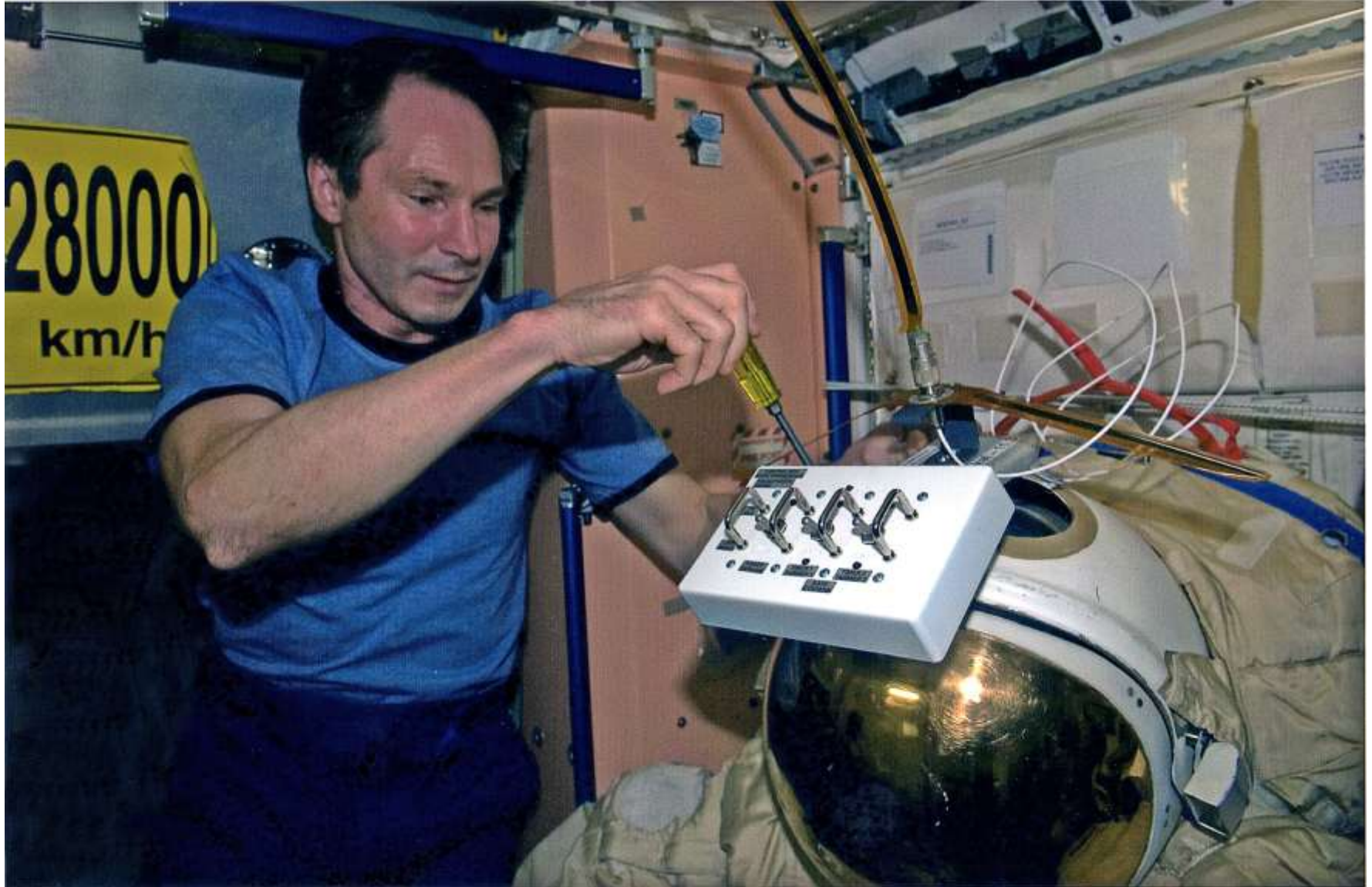
Microsat mechanical test model at American History Museum



SUITSAT aboard the ISS



Preparing SUITSAT for launch from the ISS



SUITSAT in space after launch from the ISS on Feb. 3, 2006



OSCAR satellite display at Udvar-Hazy Center

Amateur Satellites

Amateur satellites have been a small but important part of space activity since the beginning of the Space Age. In contrast to large-scale, expensive government programs, amateur satellites demonstrate that the “little guy” can build working, useful satellites with commercial off-the-shelf components and small budgets.

Oscar I, the first amateur satellite, was launched in 1961 and inaugurated a series of communications satellites developed by the amateur radio community. Since that time, more than 40 Oscars (Orbiting Satellites Carrying Amateur Radio) have been launched. Amateur satellites have proven to be an ideal way to introduce college students to space technology. And as electronics have become more compact, powerful, and durable, amateur satellites have become an important way to demonstrate the potential of small spacecraft.

OSCAR 1 on display at Air and Space Museum Udvar-Hazy Center



PCSat thermal test model at Air and Space Museum Udvar-Hazy Center

