

SEVENTH AMATEUR SPACECRAFT IN ORBIT

OSCAR 7 LAUNCHED

by Joe Kasser, G3CZ/W3

November 15, 1974, was a special day for Perry Klein, K3JTE, the president of AMSAT, the Radio Amateur Satellite Corporation, for not only was it the day on which the AMSAT-OSCAR 7 spacecraft was launched, it was his birthday.

To cover the launch, two telephone circuits and a number of short wave radio frequencies were employed. The Spacecraft command station conference circuit linked VK3ZDH in Australia, VE3QB in Ottawa, VE2BYG in Bagotville, with K3JTE and W3GEY at the Goddard Spaceflight Center in Maryland. The Net conference circuit linked W3ZM (operated at W3KRV), the AMSAT net control station, W1AW, the American Radio Relay League net station, WA3NAN, the club station at the Goddard Spaceflight Center, W6AB the club station at the Western Test Range and WA4DGU at the Goddard Spaceflight Center. W6AB, W3ZM and WA3NAN between them, transmitted the launch proceedings on the 15, 20, 40, and 75 Meter Bands, while on 20 Meters, WA4JID relayed W3ZM towards Europe.

In the Washington, D.C. area, where AMSAT has its headquarters, the proceedings were also transmitted on the 2 Meter repeater maintained by AMSAT. This link was used as an intercom circuit and a special receiver was set up by WA3JDY (now W4ART) so that some FCC officials could listen in to the launch proceedings. Unfortunately, a tube failed in the W3ZM two meter transmitter and all that the FCC officials heard was an apparently unmodulated repeater carrier. When this was discovered, WA3NAN took over the 2 Meter relay and all the remaining activity was available in the D.C. area.

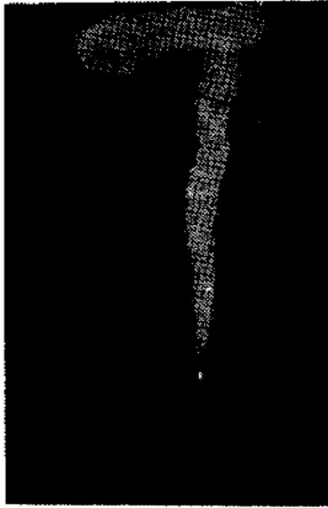
At 1711 GMT the voice of Dick Daniels (WA4DGU) echoed around the world, "5, 4, 3, 2, 1, 0 . . . we have lift off!" and AMSAT-OSCAR 7 was off. Up, up and away flew the Delta rocket carrying AMSAT-OSCAR 7, the NOAA 4 weather satellite and the Spanish INTASAT.

The first spacecraft to be separated from the rocket was the NOAA 4 weather satellite, then came the turn of AMSAT-OSCAR 7. Separation was confirmed, and all frequencies became silent as everyone waited for confirmation of telemetry reception.

Within a minute of separation G3IOR who was in contact with W3ZM on 20 Meters, reported that he was receiving telemetry from the 435.1 MHz beacon. GB2SM then confirmed reception of signals from AMSAT-OSCAR 7. Conditions on 20 Meters were not very good and so DJ3OS, DL9GU, and DJ8IM telephoned in to the AMSAT phone operated by W3ASK, with telemetry information. Minutes later DK2ZF telephoned in a complete telemetry frame, reporting that he had first acquired signals from the spacecraft at 1828:46 GMT. His telemetry data were,

183	175	195	199	244	201	201	270	300	370	344	351		
455	450	456	456	544	501	548	550	602	655	602	651	HI.	HI.

showing that all values were nominal and the spacecraft was performing as anticipated. The first report of reception from North America came from K7BBO who reported receiving signals at 1846:37 GMT.



The condensation trail of the launch vehicle is shaped by the wind, (photo by K6PGX)

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however, the count should vary about a mean value. The clock should increment approximately one count every 15 minutes, since there are 96 fifteen-minute intervals per day.

Repeater Test Points - Channels MC-5B, TT-54, 55, 56, 57, and 59. Test points are provided from both repeaters which monitor critical performance parameters. Some, such as the oscillator test points, will indicate a constant value whenever the 70cm-to-2m repeater is on, while others, such as the two-to-ten meter repeater P.A. emitter current, or the modulator output or envelope level of the 70cm-to-2m repeater, will indicate accurately the user activity on the active repeater.

Calibration Channels - Channels MC-6D, TT-18 and 40. A precision, temperature compensated, voltage reference is generated by the instrumentation switching regulator and is provided as the reference voltage for the thermistors as well as the calibration input to both telemetry encoders. The value of this reference is 0.497V and should be accurate to within ± 0.001 volts. An additional channel is used on the teletype telemetry encoder to verify the zero point of the dual slope integrator utilized as part of the analog-to-digital converter.

AMSAT-OSCAR 7 QSL CARDS

This beautiful multicolored QSL card is available from AMSAT in return for your reception report of the AMSAT-OSCAR 7 satellite. The cards were donated by K5FZU and the Hesse Envelope Company of Dallas, Texas.



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A special RTTY Link took place on the 20 Meter band between K3IVO and PA0AA. The amateurs at PA0AA, the club station of VERON, the Netherland Amateur Radio Society, had built a special computer that would receive the telemetry from the spacecraft which was being transmitted in Morse code, automatically convert the Morse code to RTTY code and transmit it on the 20 Meter band. K3IVO monitored their transmissions and relayed the data on 2 Meters into the Washington area.

The Spanish built INTASAT was placed into orbit a few minutes after the separation of AMSAT-OSCAR 7.

AMSAT-OSCAR 7 is an international spacecraft in the true sense of the word for it was designed and built by amateurs in the USA, Canada, Germany and Australia. The design was coordinated by AMSAT and final assembly took place in the basement of Jan King, W3GEY.