AMSAT® The Radio Amateur Satellite Corporation

NEWS RELEASE

FOR IMMEDIATE RELEASE

NUMBER 97-01
MARCH 3, 1997

PHASE 3-D INTEGRATION ENTERS HOMESTRETCH

ORLANDO, FLORIDA (AMSAT News Service) AMSAT teams from a number of countries recently converged on the Phase 3-D Integration Lab in Orlando to install the first ten electronic and communications modules into the new Phase 3-D International Satellite. These activities came just a few short weeks after many of the spacecraft's electronic modules, along with the satellite's main flight battery, also arrived in Orlando from the AMSAT-Germany (AMSAT-DL) Laboratory in Marburg.

In a joint statement issued on February 28th, Werner Haas, DJ5KQ, AMSAT-DL Vice President and Keith Baker, KB1SF, AMSAT-NA Executive Vice President, outlined recent progress made on the satellite. Phase 3-D remains scheduled for launch by the European Space Agency (ESA) on the next flight of their new Ariane 5 vehicle (Ariane 502) from Kourou, French Guyana, in early July.

"We are most happy to be here and to participate with our international partners in the final integration of Phase 3-D", said Werner. "The cooperation with the American integration team in Orlando has been excellent." Werner also expressed his gratitude to Lou McFadin, W5DID, P3-D Integration Laboratory Manager and the other members of his Orlando Lab team for their hard work in preparing the satellite for the final integration phase.

Soon after his arrival, Peter Guelzow, DB2OS, AMSAT-DL Digital Integration Manager, successfully accomplished a major integration milestone by powering up and then configuring the spacecraft's onboard Internal Housekeeping Computer (IHU). This was a critical task that had to be accomplished before the individual flight electronic modules could be switched on and tested. Peter gained considerable experience as a Command Station and part of the IHU design team for all previous Phase 3 satellites. Chuck Green, N0ADI, was also on hand during these recent activities in Florida to assist Peter with IHU computer hardware as well as to discuss placement of Phase 3-D's digital experiment (called RUDAK) into the spacecraft.

The remainder of P3-D's equipment control and testing will now be performed in the Orlando Integration Lab using an external control computer and terminal checkout system called COTE (short for "Checkout Terminal Equipment"). Among his many other P3-D tasks, it was also Peter's job to both design and fabricate the COTE.

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In addition to his duties as AMSAT-DL's Vice President, Werner Haas has also been responsible for coordinating the entire communications suite for Phase 3-D. While in Orlando, Werner performed a final bench test on each of the electronic modules prior to their installation into the satellite. Under Werner's watchful eye, most of the modules had already been subjected to extensive testing at AMSAT-DL's Laboratory in Marburg. These tests required at least 1000 hours of problem-free operation before each module could be labeled "flight certified" and shipped to Orlando.

A team from AMSAT-OH (a subsidiary of the Radio Amateur Technology Society, RATS, in Finland) was also on hand in Orlando during this time to install their 10 GHz hardware. Using a redundant 7 Watt solid state power amplifier and traveling-wave tube (TWT) amplifier provided by AMSAT-DL, the TWT delivered a measured 60 Watts of clean RF output while installed in the spacecraft. Prior to their arrival in Orlando, Michael Fletcher, OH2AUE, and Harri Leskinen, OH2JMS, had already been to Marburg where their equipment easily passed its flight readiness review. DJ4ZC and DJ5KQ were well satisfied by the excellent construction quality of their transmitter as well as the perfect operation of the 10 GHz hardware while installed in the spacecraft.

Dr. Karl Meinzer, DJ4ZC, President of AMSAT-DL and Project Leader of the P3-D satellite, was available to assist the team by telephone. Unfortunately, a number of launch details remained to be clarified with ESA to permit Karl to participate personally during this visit. However, Karl, along with many other European module builders, is expected to attend the next integration meeting now tentatively scheduled for late March in Orlando. Final testing and alignment of all the flight electronic modules will also be performed at that time.

A Hungarian group under the leadership of Dr. Bandi Gschwindt, HA5WH, was also slated to arrive in Orlando in mid-March to deliver and install the three flight Battery Control Regulator (BCR) modules for P3-D. The BCRs will control all power within the spacecraft. Bandi reports that the flight units were now completing their final burn-in tests. In addition, Yoshiyuki Takeyasu, JA6XKQ, from the Japanese AMSAT group (JAMSAT) arrived on February 28th, carrying JAMSAT's flight SCOPE camera. Yoshi installed and successfully powered up the SCOPE in the satellite on March 1st.

Back in Germany, Konrad Mueller, DG7FDQ, AMSAT-DL's Structural Specialist and the person responsible for fabrication of the flight momentum wheels for the spacecraft, was putting the finishing touches on the flight wheels prior to their imminent shipment to Florida. Just prior to their departure from Germany, Werner and Peter received a high quality, fully populated circuit-board for control of the momentum wheels from Chuck Green.

It is a very busy time for the project. However, so far, integration and testing are progressing on schedule for Phase 3-D's July launch on Ariane 502.

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