



AMS-02 Weekly Activity Report, July 15, 2005

Upcoming Events:

- AMS Thermal Working Group (TWG) – July 20-22, 2005 – Geneva (CERN)
- AMS General Technical Interchange Meeting (TIM) with Phase II Safety Review Dry Run – July 25-29, 2005 – Geneva (CERN)
- Cryocooler Splinter Meetings (Tentative) – July 25-26 – Geneva (CERN)
- Cryocooler Electronics Meetings (Tentative) – July 28-29 – Zurich (ETH)
- Uninterruptible Power Supply (UPS) Critical Design Review (CDR) – August 8, 2005 – Taiwan
- USS-02 Extruded Beams Delivery – August 13, 2005
- STA Vacuum Case Delivery (on dock at STADCO) – (schedule under review – subject to weld inspection and review)
- AMS-02 Phase II Safety Review – Date TBD (Schedule under review) – JSC
- AMS-02 Technical Electronics Meeting (TEM) @ CSIST – September 26-30 – Taiwan

Upcoming Tests:

- High Rate Data Link (HRDL) Tests @ ISS Systems Integration Laboratory – July 2005 – JSC, Houston
- Interface Plate Static Test – Date TBD – Location TBD
- Lower Joint Static Test – Date TBD – Location TBD
- STA Sine Sweep Test – January 2006 – INFN, Terni, Italy
- STA Acoustic Test – April 2006 – ESTEC, Noordwijk, Netherlands
- Full Assembly Modal & Static Tests – May 2006 – IABG, Munich, Germany

General:

- Work is continuing on preparations for the Phase II Safety Review. Authors continue to update the component descriptions for inclusion in the Phase II Safety Data Package (SDP). Presentations for the review are being prepared for a dry run presentations beginning July 11.

USS-02 and GSE Manufacturing:

- Discussions with representatives of Alcoa this week revealed that the extruded beams for the Unique Support Structure – 02 (USS-02) will not be manufactured in time to meet the scheduled delivery date. According to Alcoa, the problem is that the subcontractor responsible for making the dies failed to complete the entire die set required to produce the extrusions in time to meet the schedule. Alcoa expects the dies to be delivered on July 12 with production to follow. The delivery schedule for the extruded beams is expected to slip approximately one month. ESCG AMS engineers reiterated our concern and the importance of meeting their committed delivery date. Alcoa agreed to review their manufacturing schedule to determine what was in the queue in front of us to ensure



that we are not being bumped by lower priority orders. Hopefully that will buy back some of the time. Alcoa has also agreed to keep pushing on the floor manager and Quality Assurance (QA) personnel to push the beams through as rapidly as they can. This delivery is critical because any delay here will delay the assembly of the USS-02.

- A manufacturing priority list for the USS-02 piece parts was updated and provided to the AMS manufacturing planner and project personnel.
- The Payload Attach System/Ring Imaging Cherenkov Counter (PAS/RICH) Bracket was received from the vendor and is being inspected by Quality Assurance (QA) personnel.
- The metal finish on all the Center Body Box Joints was completed. The machining of the Sill Tube is complete.
- The Floor Frame with diamond plate flooring for the Primary Support Stand is warping more than expected due to welding. The drawing was redlined to minimize non critical welding to minimize the warping of the structure.
- Inspections of piece parts are continuing in Bldg 10 Quality Assurance:
 - The Upper USS-02 VC Joints are complete.
 - The Lower USS-02 VC Joints are complete.
 - The PAS/RICH Brackets are currently on the Coordinate Measuring Machine (CMM).
- Interim dispositions were prepared for four Discrepancy Reports (DRs) written against AMS-02 hardware:
 - Two DRs are for the four Interface Joints, Upper, for the USS-02. The discrepancies are out of tolerance in true positions for the shear pin holes. Maximum out of tolerance are about .0062 inch, and they can be compensated with the eccentric bushings.
 - One DR is for the three Interface Joints, Lower, for the USS-02. The discrepancies are out of tolerance for the bolt hole locations relative to the shear pin holes. Maximum out of tolerance are about .021 inch, and they can be compensated with the eccentric bushings.
 - One DR is for the 3X3 angle for the Primary Support Stand (PSS). The discrepancies are out of tolerance for the hole locations due to warpage along the length of the angle. It is possible that the clearance of the holes on the angle and the mating parts can compensate for the out of tolerance. Therefore, it is to be fit checked at the next assembly.
- In USS-02 drawing activity:
 - The USS-02 Buildup Assembly drawings are being updated to incorporate comments and redlines by AMS-02 designers.



- The alignment template drawing was checked and uploaded to the Engineering Drawing Review System (EDRS) for review, approval and release.

Vacuum Case:

- The second Multi Purpose Lift Fixture (MPLF) was proof loaded for the Vacuum Case (VC) lift configuration. The MPLF will be used to remove the Vacuum Case from the Shipping Fixture the week of July 11.
- Work was initiated on the preparation of a Task Performance Sheet (TPS) to remove the VC from the Shipping Fixture. Once it is removed, work will begin on the thermal blankets, silver Teflon tape application, and other closeout activities that were not completed at STADCO.
- The Second Article at STADCO is on schedule to be welded this week. Inspections will take place after the weld is successfully completed.
- Match Drill operations of the Structural Test Article (STA) VC to its Shipping Fixture are in work at STADCO and expected to be completed the week of July 11. This operation is not in the critical path and is being performed early in order to save schedule later in the program.
- The Flight VC data package and Weld Development report were received from STADCO and are in review.
- Decals for the Vacuum Case Shipping Fixture (VCSF) are in production at the JSC Decal Lab. The decal will be installed on the VCSF the week of July 11.
- The initial design and drawings for the installation guide that will be used to install the Vacuum Case (VC) into the Vacuum Case Test Fixture (VCTF) was reviewed and completed. The drawings were submitted to the AMS-02 Test Lead for review.

Testing:

- Work is continuing on updates to the Test Plan for the Static and Modal Testing of the AMS-02 Payload. The Test Plan will be reviewed with IABG personnel at the Test Meetings to be conducted in Munich on July 29.
- A STEP file of the Vacuum Case was generated for transfer to IABG. Attempts are being made to import the STEP file into Pro-E to test, but difficulties are being encountered due to the file size. A resolution to this problem is in work.

Avionics:

- Work was initiated on preparations for the Uninterruptible Power Supply (UPS) Battery Pre-delivery Acceptance Review to be conducted at Yardney-Lithion on July 18.



- Preparations for the AMS-02 testing in the ISS Systems Integration Laboratory (ISIL) are continuing. The ISIL testing is scheduled for the week of July 11.
- Power Distribution System (PDS) documentation updates produced by Carlo Gavazzi Space (CGS) in response to Review Item Discrepancies (RIDs) from the PDS Critical Design Review (CDR) were reviewed. Approval of the updated documentation will close out several items being tracked in the Open Paper Management Tool (OPMT).
- Design activity is continuing to determine the routing for the Magnet Discharge Cables between the Vacuum Case connections, the Dump Diodes, and the Cryomagnet Avionics Box (CAB). Additional analysis is being performed to minimize loop inductance of this circuit.

Structural Analysis:

- Pretest analysis is continuing leading up to the testing meetings at IABG in Munich. The present work is being concentrated towards defining the actuator inputs required to perform the Full Static Test of the AMS-02 Payload. This will help determine which test stand will be required to perform the test at IABG.
- A meeting with representatives of the NASA Materials Group is scheduled for July 12 to discuss the minimum requirements for allowing preload to be considered a locking feature. This is currently the only remaining issue surrounding the requirements allowed for fasteners on AMS-02.
- Post processing of the Upper Support Ring Finite Element Model (FEM) analysis is in progress. A judgment will be made to determine if the FEM needs further modification pending an initial assessment of the stresses and the overall structural behavior of the FEM.
- Work is continuing on the combining of the USS-02 stress models into one or two separate USS-02 models. This model will be used for the ground transportation loads as well as pre-test analysis.

Thermal:

- The draft of the Thermal Control System (TCS) Description for Phase II SDP was completed.