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TRANSFER THE QUARTZ BLOCK/TELESCOPE/ ROLLER MECHANISM UNIT FROM THE ROLLER MECHANISM CART TO THE OPTICAL TABLE

GP-B SCIENCE MISSION PROCEDURE

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1. SCOPE

This document provides the procedure for transferring the Science Mission Quartz Block/Telescope Assembly, P/N 23521 from the Roller Mechanism (RM) in the Roller Mechanism Cart to the Optical Table in the Class 10 Cleanroom. This procedure assumes that the QB/T assembly has been transferred from the X-Y Quartz Block Precision Manipulator Cart (abbreviated as X-Y Cart) to the RM Cart, in accordance with P0394.

1.1 Acronyms

The following acronyms are used in this document

QB	Quartz Block
RM	Quartz Block Roller Mechanism
RM Cart	Roller Mechanism Cart
X-Y Cart	X-Y Quartz Block Precision Manipulator Cart
SIA	Science Instrument Assembly
QB/T	QB and Telescope Assembly, bonded together
QB/T/RM	Quartz Block/Telescope Assembly in Roller Mechanism

2. APPLICABLE DOCUMENTS

2.1 Plans and Procedures

P0059 GPB Contamination Control Plan
P0057 Stanford Magnetic Control Plan
P0394 Transferring the Quartz Block / Telescope Assembly from the X-Y Cart to the Roller Mechanism Cart

3. GENERAL REQUIREMENTS

3.1 Environmental Requirements

This procedure will be conducted in the Stanford Class 10 Cleanroom in the HEPL facility.

3.1.1. Cleanliness

The Class 10 clean room where this integration takes place shall be maintained at the cleanliness levels per GPB Contamination Control Plan P0059. Certified Class 10 cloth garments shall be worn in the Class 10 clean room.

3.1.2 Particulate Contamination

All parts and tools shall be cleaned at least to the cleanliness levels of the rooms where they are used for assembly or testing. In addition, all flight parts shall be maintained at level 100 cleanliness per GP-B Contamination Control Plan (P0059). Take all necessary precautions to keep tools and handling equipment free of particulate contamination.

To the maximum extent possible, personnel shall keep parts of their bodies downstream of the QB/T, relative to the HEPA wall.

3.1.3. Magnetic Contamination

All parts and tools shall be screened per Procedure P0057. Tools to be sprayed with Freon from pressure can (filtered to < 0.2 micron) prior to use, or when contaminated.

3.1.4. Electrostatic Discharge Control

The particle ionizer should always be upstream of the QB/T relative to the fan wall, to prevent electrostatic charge buildup on the QB/T.

3.2 Integration and Test Personnel

3.2.1 Integration and Test Director

The Integration and Test Director (ITD) shall be Dr. Doron Bardas. He has overall responsibility for the implementation of this procedure and shall sign off the completed procedure.

3.2.2 Personnel

All engineers and technicians participating in this procedure shall work under the direction of the ITD who shall determine whether the person is qualified to participate in this procedure. Personnel participating in this procedsure are nominally J. Efraín Alcorta, and J. Stamets, or others that the ITD may deem necesary.

3.3 Safety

3.3.1 General

Personnel working in the Class 10 Cleanroom must be cognizant of the base of the Precision Manipulator, and take special care to avoid tripping or bumping into it.

Safety Engineering to be notified prior to any major movement of the Quartz Block or Telescope. (i.e., any movement other than rotations or minor adjustments)

3.3.2 Hardware Safety

Extreme care must be taken to avoid accidentally bumping or scratching the QB/T. Extreme care must be taken to avoid touching the polished surfaces of the QB/T.

3.3.3 Maximum Number of People in Cleanroom

Under normal operating conditions, there shall be no more than 5 people in the Class 10 Cleanroom. This is to avoid violating legal make up air requirements, and to provide an efficient workspace. Exceptions must be for short periods only, and be approved by the test director.

3.4 Quality Assurance

Transfer shall be conducted on a formal basis to approved and released procedures. The QA program office shall be notified of the start of this procedure. A Quality Assurance representative designated by B. Taller shall review any discrepancy noted during this procedure, and approve its disposition. Redlines shall be stamped by the QA rep. The QA representative will nominally be A. Nakashima. Upon completion of this procedure, the QA program engineer, B. Taller or P. Unterreiner, will certify his concurrence that the effort was performed and accomplished in accordance with the prescribed instructions by signing and dating his

3.5 Red-line Authority

Authority to red-line (make minor changes during execution) this procedure is given solely to the ITD or his designate. Approval by the Integration Manager shall be

required, if in the judgment of the ITD or QA program engineer, experiment functionality may be affected.

4. REQUIRED EQUIPMENT

Flight Prototype Hardware

Hardware	Part Number
Quartz Block /Telescope Assembly	23521

Ground Support Equipment

QB Roller Mechanism
Roller Mechanism Cart
Silver Plated Bolts for clamping halves of Roller Mechanism

Tools and Miscellaneous

Allen wrenches, various

5. TRANSFER THE QB/T/RM FROM RM CART TO OPTICAL TABLE

5.1 Initial Setup

Record Start Date and Time _____

Notify Safety prior to starting Section 5.

5.1.1 Clear the work area such that the room layout is approximately as shown in Figure 1. The X-Y Cart has been moved out of the Class 10 Cleanroom. The Quartz Block /Telescope Assembly is horizontal in the Roller Mechanism on the Roller Mechanism Cart, as shown in Figure 2.

5.1.2 Remove the plastic on top of the table (if plastic wrap is on), and clean the top surface of the table with isopropanol.

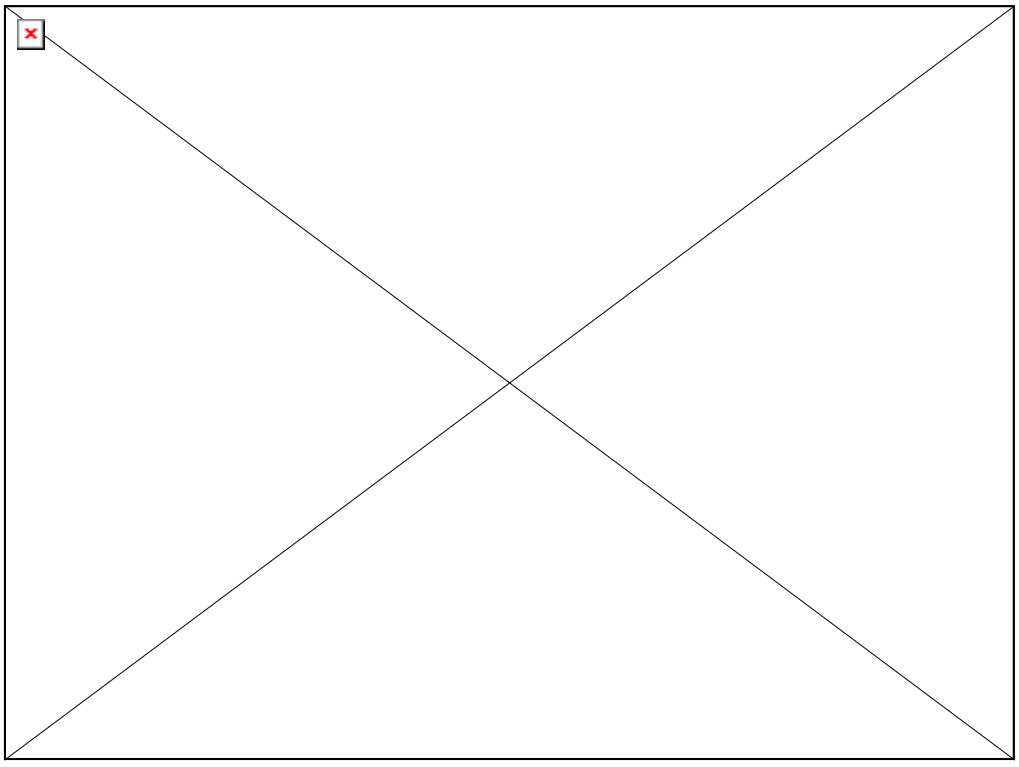

Figure 1. Class 10 Room Layout at Start of Procedure (not to scale)

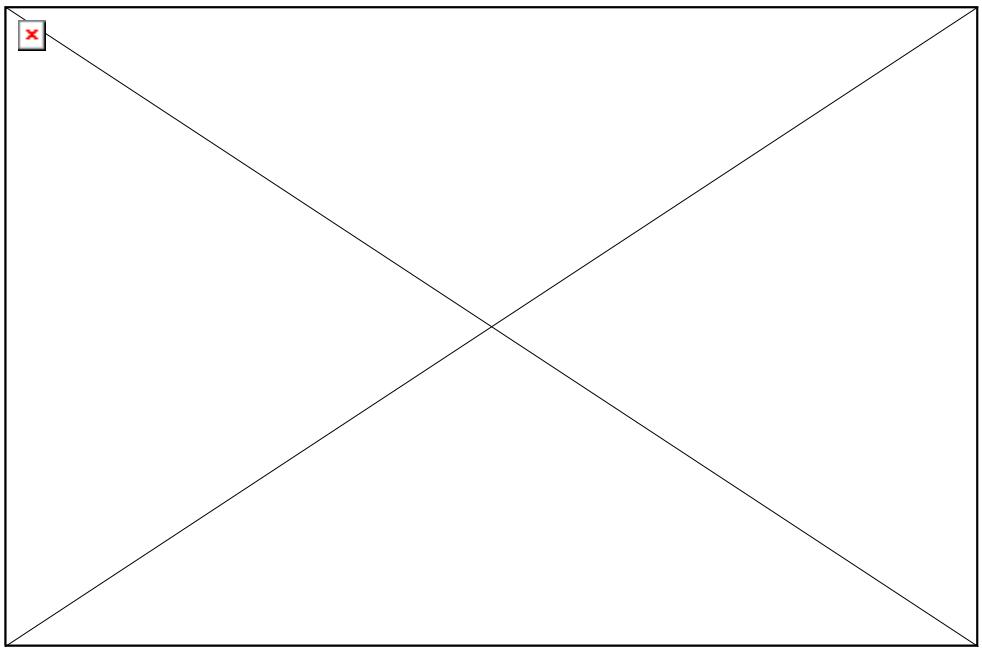

Figure 2. Side View of RM Cart with QB in RM (not to scale)

5.2 Transfer QB/T/RM to Optical Table

5.2.1 Position the RM cart perpendicular to the long dimension of the optical table (i.e. with the QB Z-axis parallel to the surface of the HEPAs. The RM should be as close a possible to the HEPAs.

5.2.2 Roll the RM cart as close as possible to the optical table.

5.2.3 Manipulate the height of the RM cart with the foot pedal so that the RM support dumbbell shaped bars with the square ends, just above (1/8 inch) the level of the table.

5.2.4 Unlatch the two hooks which wrap around the front dumbbell (on the pivot side), one on each end.

5.2.5 Carefully lift the RM so that it clears the hinges, and slide the QB/T/RM Unit completely onto the table, supported on its 4 square ends of the two dumbbell bars. Be careful not to jar the QB/T at any transition points.

CAUTION: Extreme Care must be taken not to touch or jar the QB/T

5.2.6 Position the RM cenetered across the short end of the table nearest the HEPAsm with the Telescope facing south. . Clamp the RM to the optical table, with the four special black anodized C-clamps.

5.2.7 After completion of this procedure, the bond is monitored at least weekly.

6. PROCEDURE COMPLETION

The results obtained in the performance of this procedure are acceptable.

Integration Engineer _____ Date _____

Integration and Test Director: _____ Date _____

The information obtained under this assembly and test procedure is as represented and the documentation is complete and correct.

QA Representative _____ Date _____

QA Assurance: _____ Date: _____

7. DATA BASE ENTRY

The following data shall be entered into the GP-B Data Base:

1) Name, number and revision of this procedure

2) Date of successful completion of procedure.

3) Part numbers and serial numbers of QB and Telescope.