SIS DESIGN
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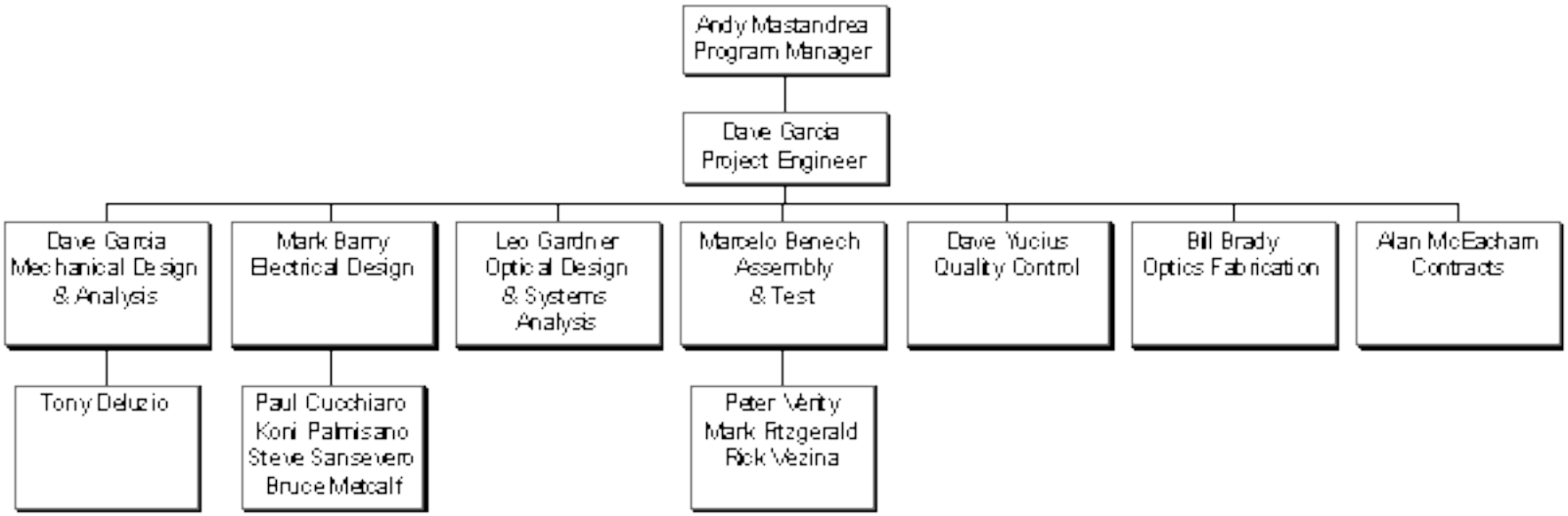
GUVI Organization



Comparison of GUVI and SSUSI/SIS

- Spacecraft Interface
  - Redesign mounting feet to introduce 7.2 deg angle.
  - Each GUVI Mounting foot is a three-piece titanium assembly (SSUSI/SIS feet were G-10 & aluminum; NIS feet were titanium)
- Housing
  - Updating drawings to proper standards
  - Added ribs to stiffen housing near scan motor.
- Scan Assembly
  - Scan step rate changed
    - GUVI limb step 68 msec; SSUSI/SIS limb step 110 msec
  - Modified position vane to account for the 7.2 deg mounting angle. (GUVI NADIR LOS is perpendicular to spacecraft deck.)
- Cover Assembly
  - Minor improvements to the pinpuller assembly (surface finishes & additional lubrication.)
  - Changing cover opening angle from 90 to 105 degrees. Minor design change.

GUVI to SSUSI/SIS Comparison (cont.)

- Thermal Control
  - Eliminated SSUSI/SIS scan motor radiator(graduation cap)
  - Added 52 sq. in radiator to housing.
- Sun Sensor Assembly - deleted from GUVI.
- Reference Cube - Recent change since the SSG CDR.
  - Maintained at same location for GUVI and SSUSI/SIS.
  - GUVI cube will be a 0.75 inch glass cube bonded to an invar mount.
  - SSUSI/SIS cube was a 0.5 inch diamond turned aluminum cube.
  - SSG & APL have agreed to use the 0.75 inch cube which requires a local envelope waiver of 0.25 inch. (APL will supply cube)
- Electrical
  - Several changes to interface wiring between spectrometer, SSG electronics box and the APL electronics boxes.
  - Modified connector designations per APL requirements.

Scan Mirror Test Results

- Testing performed on SSUSI/SIS unit #1 during its retrofit @ SSG in September & October 1997.
- Tests were performed at room temperature and at atmospheric pressure
- Results indicate the the scan mirror design with the IMC motor/gearhead and the SSUSI/SIS coupling will meet the GUVI settling time requirement for the limb steps.

Cover Assembly

- Hinged aperture cover - Cover open angle changed from 90 to 105 degrees.
- Pinpuller assembly & bellows actuators have successfully operated on the SBV/MSX Instrument, SSUSI and NEAR.
  - Successfully flown on SBV and NEAR; SSUSI flights pending.
- Minor changes to pinpuller for GUVI:
  - Black anodize finish added to spring spacers.
  - Assembly process modified to add Braycote 601 to pin.
- APL will be supplying bellows actuators for GUVI testing at SSG.

Scan Assembly

- Stepped system:Object space scan step = 0.4 degrees
- Total object space scan = 140 degrees
- Mirror caged by cover assembly during launch.
- Mechanical assembly is an exact duplicate of the SSUSI SIS.
  - IMC Scan Motor/Gearhead 008-976-2

    (4ph - 15^0 - VR motor with a 75:1 gearhead)
  - Coupling 7366-3321: Engineered by SSG & APL for SSUSI.
  - Thrust washers: G-10 Glass epoxy/teflon
  - Bearings: Envex 1228
  - LED & Fiber optics for position sensing of start & nadir mirror positions.

Slit Mechanism Assembly

- Located at the focus of the primary mirror.
- One fixed slit, two motor driven apertures on blades.
- Background measurements can be taken when both slits are commanded to the "IN" position.
- GUVI Slit Mechanism is an exact duplicate of SSUSI slit mechanism.
  - IMC 008-076-13 Step motor (4ph - 15^0 - VR)
  - Magnet stops for accurate positioning of blades & position readout.
  - Slit apertures fabricated on beryllium copper masks.

Pop-up Mirror Assembly

- Two position fold mirror - polished bare beryllium with ARC #1200 coating
- Normal position:"Out" position allows optical beam to image on the primary detector.
- "In" position folds beam to back-up detector assembly.
- GUVI Pop-up Assembly will be an exact duplicate of SSUSI Pop-up Assy.
  - IMC 011-858-8 Step Motor (4ph - 90^0 - PM)
  - Beryllium mirror
  - Magnet stops for accurate positioning & position readout

    (readout for out position only)
- None