SSTL SPECIAL HANDLING
ATTITUDE CONTROL & TRANSLATION SYSTEM
BASELINE LABORATORY VEHICLE

- 8-25 LBS
- 6-100 LBS
- RADIATION COOLED
- HYPERSONIC BI-PROPELLANT
- MODULAR UNITS

- 0.5 DEG POINTING TOLERANCE
- 0.004 DEG/SEC RATE TOLERANCE
- MULTIPLE MODES: MANUAL AND AUTOMATIC
- COMPUTER INDEPENDENT ELECTRONICS; HORIZON SENSORS AND BNG REFERENCE

AEROSPACE CORPORATION

CONFIDENTIAL
DOUGHERTY, J. ET AL. 4/96

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MIRROR TECHNOLOGY

- PRIMARY AND TRACKING MIRRORS
- "EGG-CRATE" CONSTRUCTION
- MATERIAL - FUSED SILICA
- WEIGHT - 1020 LBS. EACH
- THICKNESS -
  - FACE PLATE 0.9 INS.
  - BACK PLATE 0.5 INS.
  - CORE 0.22 INS.
- OPTICAL TOLERANCE -
  - 1/10 WAVE LENGTH
TRACKING MIRROR GIMBAL SYSTEM

ACTS - ATTITUDE CONTROL/TRANSLATION SYSTEM
ATS - ACQUISITION & TRACKING SCOPE

BLOCK DIAGRAM
DIRECT VIEWING AND TRACKING SYSTEM

CHARACTERISTICS

FIELD OF VIEW - 40°

ZOOM RANGE - 100X to 1000X

GROUND RESOLUTION - 4"
ACQUISITION AND TRACKING SCOPE

CHARACTERISTICS:

APERTURE 8" - 10"
ZOOM RANGE 60X - 120X
FOV 15X - 4°
120X - 0.5°

MAX. GROUND RESOLUTION ~ 3'
WEIGHT ~ 500 LB
PEAK POWER ~ 500 W
WIDE BAND READOUT

- 2 x 50 MHE VIDEO CHANNELS
- X-BAND STEERABLE ANTENNA - 3 FT. DISH
- 150 SQ. IN./MIN. FILM READOUT
  (6 IN. SCAN WIDTH)
- SINGLE 3I GROUND STATION
- WEIGHT ≤ 500 LBS
- PEAK POWER ~ 630 W

SECRET - SPECIAL HANDLING
LABORATORY VEHICLE ARRANGEMENT

PRESSURIZED COMPARTMENT
- Consoles & Displays
- Crew Equipment
- Camera
- Film
- Film Handling
- Processors
- DRV's
- Computers
- ATS
- EC/LS
- Telemetry, Tracking, Communications, Voice
- ACTS Electronics

UNPRESSURIZED COMPARTMENT
- Thruster Sectors
- Fuel Cells
- Propellants
- Cryogenics
- Heat Exchangers
- ECLS Pumps
- Crew Transfer Tunnel
ENVIRONMENTAL CONTROL AND LIFE SUPPORT
BASELINE LABORATORY VEHICLE

- Dual gas atmosphere, O₂ back-up
- 5 psia O₂/H₂ "shirtolevee"
- Supercritical O₂ storage
- Molecular sieve for CO₂ control
- 5 minute compartment repressurization
- Open suit loop for emergency

- Heat exchangers & coldplates
- Inner wall heating
- Space radiator

- Collect metabolic wastes
- Process & store waste matter
- Vacuum debris collection
ELECTRICAL POWER SYSTEM
BASELINE LAB VEHICLE

- Three 1000 hr. fuel cell modules
- 2.0 kW average power
- 4.5 kW peak power

- Two H₂ and two O₂ tanks
- 30 day capacity

CRYOGENIC STORAGE

FUEL CELL

SUPERCRITICAL

APOLLO TYPE
STRUCTURAL ARRANGEMENT

- Combined radiator tube and stiffening frame (12 required)
- Beaded external skin
- Aluminized mylar insulation 30 sheets
- Integrally stiffened internal shell
- Corrugated skin
- Extruded frames (26 required in MM, 6 required in FWD LM)
- Unpressurized pressurized laboratory module
- Mission module
COMMUNICATIONS/ DATA HANDLING

BASELINE LAB VEHICLE

SGIS
- TRACKING - R, F, A
- TELEMETRY

REAL TIME - 64 Kbps
STORAGE - 1024 Kbps

CONTAINING - 1 Kbps

REAL TIME
STORAGE DATA

VOICE - DUPLEX

WIDEBAND DATA
- 20 Mbps

BACK-UP TELEMETRY
- STATUS DATA
- 1 Kbps

SECURITY
- CONDITION/MULTIPLEX/RECORD
- MONITOR/ALARM
- TIMING

TELEPRINTER
- DISPLAYS

SECRET SPECIAL HANDLING

AEROSPACE CORPORATION

SECRET
TITAN III DESCRIPTION

MAJOR FEATURES

- PERFORMANCE
  32,800 LBS @ 80°-80/130 N. MI.
- TOTAL THRUST AT LIFTOFF - 3 MILLION POUNDS
- 7 - SEGMENT SOLIDS
- CORE - 2 STAGES
  NO TRANSTAGE
  STAGE 1 ENGINES - 15:1 NOZZLE EXPANSION RATIO
- REDUNDANT FLIGHT CONTROL SYSTEM
- BOOSTER INERTIAL GUIDANCE SYSTEM DURING ASCENT (BIGS)
- GEMINI INERTIAL GUIDANCE SYSTEM BACKUP (GIGS)