1. [redacted]
2. [redacted]
3. [redacted]

24 NOV 1969

~~SECRET~~ C/[redacted] Copy No. [redacted]

17 Sheets

[redacted]

[redacted]

[redacted]

PROGRAM MANAGER'S MEETING

13 NOV. 69

A/P TOPICS:

- REVIEW OF CR-8 REQUALIFICATION
- READINESS REVIEW OF CR-9

~~SECRET~~ C/[redacted]

~~SECRET~~

C/ [redacted] Copy No. [redacted]

ASCENT QUALIFICATION TEST
CR-8

OBJECTIVE

- QUALIFY THE UTB MODIFICATIONS INCORPORATED IN THE CR SUBSYSTEM (ASCENT MODE)
  - I/R BOBBLER
  - SUPPLY CASSETTE TENSION SERVO
  - SUPPLY CASSETTE BRAKE LOCKED - NO POWER DURING ASCENT

~~SECRET~~

C/[redacted] Copy No. _____

ASCENT QUALIFICATION TEST
CR-8

TEST PLAN

- O SYSTEM IN FLIGHT CONFIGURATION EXCEPT DISIC AND TAPE RECORDER SUBSYSTEM NOT INSTALLED
- O [redacted] SIMULATION - 3.5G, 14 TO 20 1/2 HZ, 35 SECOND DURATION
- O ACOUSTIC SIMULATION - 156 DB, 50 TO 10,000 HZ. (+25% OVER NOMINAL THORAD/AGENA PROFILE), 3 MINUTE DURATION
- O SYNTHESIZED SHOCK - 11G MAX, 15 TO 450 HZ PER THORAD/AGENA PROFILE
- O RESONANCE SEARCH - 1/4G, 14 TO 50 HZ CONDUCTED PRIOR TO AND AFTER SCHEDULED TEST
- O OPERATIONAL VERIFICATION BETWEEN EACH TEST
- O SYSTEM FUNCTIONAL VERIFICATION AT COMPLETION OF TESTS
- O SYSTEM DISASSEMELY FOR INSPECTION

ASCENT QUALIFICATION TEST
CR-8

TEST RESULTS

- UTB MODIFICATIONS ARE QUALIFIED FOR LAUNCH
  - DRUMS ROTATED IN BOTH DIRECTIONS BUT NO SLACK LOOPS DEVELOPED
  - POST TEST OPERATIONS CONFIRMED ACCEPTABLE FILM PATH MAINTAINED
- ANOMALIES DID OCCUR WHICH COULD CAUSE OPERATIONAL FAILURES

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- ROTARY SWITCH MOUNTING NUTS ON SWITCH PROGRAMMER BACK OFF

CAUSE

- INSUFFICIENT LOCKING

CORRECTIVE ACTION

- INSTALLED SECOND JAM NUT WITH LOC-TITE ON THREADS

ANOMALY

- T3 TIMER IN SWITCH PROGRAMMER TIMED OUT LATE

CAUSE

- WIPER WIRE ON S-3 ROTARY SWITCH BROKEN WHEN MOUNTING NUT BACK OFF

CORRECTIVE ACTION

- SAME AS ABOVE

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- ROLLER GUIDE IN CHUTE ASSEMBLY BROKE

CAUSE

- MACHINED ROD PRODUCED NOTCH SENSITIVE GUIDE

CORRECTIVE ACTION

- GUIDE REDESIGNED TO GIVE ADDED STRENGTH
- NEW GUIDE QUALIFIED BY OVERDESIGN

ANOMALY

- ROTARY SWITCH GROUND ADJUST KNOB FELL OFF ON SWITCH PROGRAMMER

CAUSE

- SET SCREW BACKED OUT

CORRECTIVE ACTION

- INSTALLED SET SCREW WITH LOC-TITE ON THREADS

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- A.O. BOOT CLAMP CAME LOOSE

CAUSE

- CLAMP SCREWS BACKED OUT

CORRECTIVE ACTION

- SAFETY WIRE CLAMP SCREWS

ANOMALY

- BARREL/CONIC INTERFACE BOLT TORQUE INCREASED

CAUSE

- RE-USED GROUND TEST STEEL BOLTS

CORRECTIVE ACTION

- TITANIUM SCREWS ARE INSTALLED AT FINAL SYSTEM ASSEMBLY (ONE TIME USE)

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- THERMO SHIELD FASTENERS POPPED OUT OF RETAINERS

CAUSE

- IMPROPER INSTALLATION & POSSIBLE RE-USE OF FASTENERS

CORRECTIVE ACTION

- SELECTIVE INSTALLATION AND 100% INSPECTION TO VERIFY PROPER INSERTION
- INSTRUMENT SHIELDING REDESIGNED FOR IMPROVED INSTALLATION
- RESTRICT USE OF FASTENERS TO ONE-TIME ONLY

ANOMALY

- LOOSE DEBRIS IN SYSTEM

CAUSE

- DUST, METAL SHAVINGS, STRING NOT REMOVED BY PRE-TEST CLEANING

CORRECTIVE ACTION

- REDUCE MODIFICATION WORK AFTER SYSTEM VIBRATION
- RE-STRESS CLEANING PROCEDURES IN SYSTEM ASSEMBLY

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- OSFG PROGRAMMER INOPERATIVE

CAUSE

- TERMINALS BROKEN ON TRANSFORMER MODULE

CORRECTIVE ACTION

- POT TERMINALS WITH RTV

ANOMALY

- ECCENTRICITY FUNCTION OUTPUT HAS DISCONTINUITY IN OUTPUT SIGNAL

CAUSE

- POTENTIOMETER WIPER LOSES CONTACT AT ONE SPOT IN CYCLE DUE TO INSUFFICIENT WIPER PRESSURE

CORRECTIVE ACTION

- ALL POTENTIOMETERS TO BE REFURBISHED
  - INCREASE WIPER PRESSURE
  - INCREASE WIPER CONTACTS FROM 2 TO 3

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- CABLE CONNECTOR CAME LOOSE CAUSING LOSS OF T/M MONITORS

CAUSE

- IMPROPER INSTALLATION

CORRECTIVE ACTION

- ADD ITEM IN FINAL ASSEMBLY PROCEDURE TO VERIFY EACH CONNECTOR IS FULLY ENGAGED IN DETENT

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- SCREW BECAME LOOSE IN #2 SCAN HEAD ASSEMBLY

CAUSE

- SCREW REMOVED FOR SPECIAL TEST - IMPROPER INSTALLATION AFTER TEST

CORRECTIVE ACTION

- ALL INSTALLATIONS TO BE MADE PER FLIGHT STANDARDS WITH SCREWS GLYPED IN PLACE

ANOMALY

- SHIM WASHER FOUND INSIDE #2 DRUM

CAUSE

- SHUTTLE ASSEMBLY SHIM LODGED IN DRUM DURING MANUFACTURING ASSEMBLY

CORRECTIVE ACTION

- VERIFICATION MADE THAT SHIM DID NOT COME FROM CR-3 SHUTTLE ASSEMBLY

ASCENT QUALIFICATION TEST
CR-8

ANOMALY

- DRUM ROLLER SEPARATED FROM SUPPORT BLOCKS

CAUSE

- POOR EPOXY BOND ON INSTALLATION

CORRECTIVE ACTION

- INSPECT ALL ROLLERS UNDER MAGNIFICATION TO VERIFY EPOXY BOND

ANOMALY

- SLIT WIDTH MECHANISM BINDING ON INSTR #1 AS INDICATED BY T/M MONITOR

CAUSE

- NOT DETERMINED BY INSPECTION

CORRECTIVE ACTION

- TO BE INVESTIGATED IN BOSTON TEST LAB

READINESS REVIEW
CR-9

SPECIAL TEST PLAN - PRE-FLIGHT

- INCORPORATE CORRECTIVE ACTIONS RESULTING FROM THE ASCENT QUAL TEST
- THOROUGHLY CLEAN
- ASSEMBLE SYSTEM IN ENVIRONMENTAL TEST CONFIGURATION
- CONDUCT ACCEPTANCE LEVEL VIBRATION TEST
  - INPUTS
    1G, 14 TO 20 HZ
    1/4G, 20 TO 50 HZ
    1G, 50 TO 2000 HZ
  - DURATION - APPROX. 3.5 MINUTES
  - LIMITING - INSTR. SUBSYSTEM 6G
    - DSIC SUBSYSTEM 3G
- CONDUCT SYSTEM FUNCTIONAL VERIFICATION
  - 3 REV'S ORBITAL SIMULATION WITH A TO B TRANSFER
- DISASSEMBLE SYSTEM FOR INSPECTION
- BEGIN FLIGHT PREPS

READINESS REVIEW
CR-9

- CONFIGURATION DIFFERENCES
  - FROM CR-6
    - PULSATING PRESSURE MAKE-UP SYSTEM
    - PAN INSTRUMENT SUPPLY CASSETTES HAVE SERVO TENSION CONTROL
    - INTERMEDIATE ROLLER ASSY HAS TENSION BOBBLER
  - FROM CR-7
    - S/C TENSION SERVO
    - I/R BOBBLER
    - ASCENT CONFIGURATION
  - FROM CR-8
    - STB MATERIAL UTILIZED
  - FROM CR-6, CR-7, CR-8
    - SPLIT LOAD ON #1 INSTRUMENT (800' SO242/340)
    - PMU LOW LEVEL DISABLED

READINESS REVIEW
CR-9

- SPECIAL SYSTEM VIBRATION TEST
  - RTV APPLICATION STICK FOUND-STICK IS NORMALLY USED IN MANUFACTURING SHOP
  - NO OPERATIONAL FAILURES ATTRIBUTED TO VIBRATION TEST
- SYSTEM VERIFICATION TEST ANOMALIES
  - DELAY TIMER IN SLOPE PROGRAMMER TIMED OUT EARLY (SINGLE CHANNEL HAYDON TIMER)
  - SWITCH PROGRAMMER TIMER #1 TIMED OUT BUT FAILED TO START TIMER #2 AND #3 (FOUR CHANNEL HAYDON TIMER)
    - CAUSE OF BOTH ANOMALIES ATTRIBUTED TO NOISE SENSITIVITY AND SUSCEPTABILITY OF HAYDON TIMER
    - CORRECTIVE ACTIONS - REPLACE HAYDON TIMERS, CONDUCT SUBSYSTEM THERMAL ALTITUDE TESTS, VERIFY SYSTEM PERFORMANCE
    - ADDITIONAL ENGINEERING ANALYSIS IN PROCESS
      - ALTERNATE TIMER PROCUREMENT
      - IMPOSE SYSTEM EMC TESTS
    - CONSTANT TENSION ASSEMBLY - S/C TENSION SERVO
      - ERRATIC LINEAR MOTION OBSERVED DURING DYNAMIC OPERATIONS
        - CAUSE - SIDE LOADING BY NEGATOR SPRING
        - CORRECTIVE ACTION - STRAIGHTEN END OF NEGATOR SPRING TO REDUCE LOADING FROM CURL

~~SECRET~~

C [redacted] Copy No. ____

READINESS REVIEW
CR-9

PRE-FLIGHT SCHEDULE

- O INSPECTION AND MODIFICATIONS COMPLETE - OCT 16
- O SYSTEM VIBRATION - OCT 17
- O POST VIBRATION SYSTEM VERIFICATION - OCT 18
- O INSTRUMENT CLEANING - OCT 24
- O PYRO INSTALLATION - NOV 4
- O SRV PRE-FLIGHT ASSEMBLY - NOV 12
- O INSTRUMENT READINESS TEST - NOV 12 | 6
- O SYSTEM ASSEMBLY & FLIGHT LOAD - NOV 17
- O FINAL OPERATIONAL VERIFICATION - NOV 19
- O RECEIVING CHECKOUT AT VAFB - NOV 20
- O AGENA MATE AND CONFIDENCE TEST - NOV 21
- O LAUNCH CHECKOUT - NOV 26

~~SECRET~~ C [redacted]

READINESS REVIEW
CR-9 [redacted]

- CHANGES TO [redacted] FOR MISSION 1108
  - ALL MAJOR PROGRAMS MODIFIED TO ACCEPT ASCENDING/ DESCENDING MODE OF OPERATION
  - DAILY SUMMARY REPORTING PROCEDURES CHANGES TO BETTER HANDLE CASE WHEN ONE CAMERA FAILS
  - DAILY SUMMARY REPORTS CHANGED AS DESIRED BY SOC
- TESTS OF [redacted] FOR MISSION 1108
  - CPX INVOLVING ONLY HQ. COMM CENTER AND HQ. COMPUTERS RUN 1 NOV. '68
  - RESULT OF CPX: [redacted] READY FOR MISSION 1103