

DE RUXQBA 960 1152350  
ZNY XXXXX KKK ZNM  
P 252340Z

~~TOP SECRET~~  
Handle Via BYEMAN  
CHANNELS ONLY

BT  
XXXXX  
GUARD 568  
GUARD PASS WHIG

AA H112/4

~~TOP SECRET~~ 252340Z APR 75 CITE CHARGE 4029.

PRIORITY WHIG.

HANDLE VIA BYEMAN CHANNELS ONLY

HEXAGON

FOR WHEELER/HUTCHISON FROM ANDERSON.

SUBJECT: CONTAMINATION OF HEXAGON VEHICLE FILM PATHS.

REFERENCE: WHIG 0584.

1. AS REQUESTED IN PARAGRAPH 3B OF THE REFERENCED TWX, THE SPECIFIC CONTAMINANTS AND THE CORRECTIVE ACTIONS TAKEN ARE:

A. 1202-1 - THE FILM ON THE B-SIDE RIPPED IN THE SUPPLY AND FINALLY SEPARATED IN THE FINE FILM PATH; FOREIGN PARTICLES WERE FOUND AT THE APEX OF THE TEAR.

B. 1204-1 - AN EPOXY RELAY PANEL IN RV-4 RUPTURED AND PEICES OF EPOXY WERE WRAPPED UP IN THE FILM STACK OF RV-3 AND RV-4. CORRECTIVE ACTION: (1) THE RELAY PANEL WAS COVERED WITH TAPE FOR SUCCEEDING FLIGHTS. (2) FOR A LONG TERM FIX THE PROCESS WAS REVISED.

C. 1207-3 - A CONNECTOR CAP WAS FOUND IN THE RV AND THE FILM

DISTRIBUTION		
SAFEC	A	I
CARDS		
LD		
SSA		✓
SSB		✓
SSC		
SSD		
SSG		
SSH		
SSJ		✓
SSK		
SSL	1	✓
SSM		
SSN		
SSO		
SSP		
SSQ		
SSR		
SSS		

PAGE 2 CHARGE 4029 ~~TOP SECRET~~

WAS RIPPED BUT NOT SEPARATED. REWINDING THE RIPPED FILM THROUGH A LOW CLEARANCE AREA WOULD HAVE RESULTED IN A COMPLETE SEPARATION.

AN INSPECTION REVEALED CAPS IN RV-3 OF SV-8 AND RV-4 OF SV-9.

CORRECTIVE ACTION: (1) MORE DETAILED INSPECTIONS AND BETTER CONTROL IN THE CANISTER DOWN CONFIGURATION HAVE BEEN INSTITUTED IN BUILDING 156. (2) PERKIN ELMER AND MDAC HAVE INITIATED NUMBERING AND CONTROL OF THEIR CONNECTOR CAPS. LOCKHEED HAS COLOR CODED THEIR CONNECTOR CAPS.

D. 1208-1 - A ONE-FOURTH INCH LONG PIECE OF SAFETY WIRE WAS FOUND IN THE FILM STACK IN THE RV. IT HAD PUNCTURED THE FILM. REWINDING THE PUNCTURED FILM THROUGH A LOW CLEARANCE AREA WOULD HAVE RESULTED IN A COMPLETE SEPARATION. CORRECTIVE ACTION: BUILDING 156 PROCEDURES HAVE BEEN REVISED TO ACCOUNT FOR ALL SAFETY WIRE FRAGMENTS.

E. SV-9 AT BUILDING 156 - A PIECE OF STRIPPED INSULATION JAMMED THE 4 INCH DIAMETER ROLLER OF THE FILM EXIT VESTIBULE (FEV).

CORRECTIVE ACTION: REPAIR PROCEDURES HAVE BEEN REVISED TO ELIMINATE CABLE REPAIRS IN THE SU.

F. SENSOR SUBSYSTEM S/N 16 AT THE PERKIN ELMER FACTORY - THE 4 INCH ROLLER OF THE FEV JAMMED AND THE FILM TORE WHILE THE FILM WAS REWINDING. THE ROLLER WAS SCORED AND FRAGMENTS OF ALUMINUM, EPOXY,

~~TOP SECRET~~ WORKING COPY  
Handle Via BYEMAN  
CHANNELS ONLY

~~TOP SECRET~~

Handle Via BYEMAN

CHANNELS ONLY

PAGE 3 CHARGE 4029 ~~TOP SECRET~~  
AND STAINLESS STEEL WERE FOUND. CORRECTIVE ACTION: SU CLEANING  
TECHNIQUES HAVE BEEN REFINED AND FEV CLEANING TECHNIQUES ARE BEING  
EXAMINED.

2. IN ADDITION TO THE SPECIFIC CORRECTIVE ACTIONS CITED ABOVE,  
THE FOLLOWING ACTIONS HAVE BEEN TAKEN:

A. INTEGRATED VEHICLE TEST FACILITY BUILDING 156.

(1) A SUBGROUP, CHAIRED BY THE SPO (LTC WILDE), HAS BEEN  
ESTABLISHED TO CLARIFY AND ENFORCE BUILDING 156 FACILITY CLEANLINESS.

(2) A COORDINATING GROUP INCLUDING SPO REPRESENTATIVES HAS  
BEEN ESTABLISHED TO INSURE UNIFORM AND EFFECTIVE CLEANING AND CON-  
TAMINATION CONTROL PROCEDURES. AMONG THE TOPICS CONSIDERED BY THIS  
GROUP WAS BLOWING VERSUS VACUUMING AS A TECHNIQUE FOR CLEANING  
ASSEMBLIES. VACUUMING WITH A FILTER HAS BEEN SELECTED AND IS USED  
UNIFORMLY AT BUILDING 156.

(3) A SINGLE POINT OF RESPONSIBILITY FOR CONTAMINATION  
CONTROL (R. KNOWLES) HAS BEEN ESTABLISHED. THESE RESPONSIBILITIES  
INCLUDING "POLICING" ALL ASSOCIATE'S PROCEDURES.

B. BRIDGEHEAD - CHIPS AND FRAGMENTS VACUUMED FROM THE CANISTER  
ARE SENT TO MDAC FOR ANALYSIS AND THEN TO PERKIN ELMER. BOTH MDAC  
AND PERKIN ELMER ANALYZE THE CHIPS AND FRAGMENTS TO DETERMINE

PAGE 4 CHARGE 4029 ~~TOP SECRET~~  
POSSIBLE SOURCES.

C. PERKIN ELMER DANBURY PLANT (OTD)

(1) SINGLE POINT RESPONSIBILITY FOR CONTAMINATION CONTROL  
(D. KESSLER).

(2) ALL CLEAN ROOM PERSONNEL HAVE BEEN RETRAINED ON CON-  
TAMINATION CONTROL PROCEDURES.

(3) SPECIFICATIONS FOR CHIP PRODUCING OPERATIONS HAVE BEEN  
REVISED. THESE REVISIONS INCLUDE THE USE OF SPECIAL TOOLS AND THE  
REQUIREMENT FOR INSPECTION DURING ANY CHIP PRODUCING OPERATIONS.

(4) TOOLS HAVE BEEN DEVELOPED TO CAPTURE CHIPS PRODUCED  
DURING ASSEMBLY.

(5) AND AUDIT OF SENSOR SUBSYSTEM MANUFACTURING FLOW FOR  
CONTAMINATION CONTROL WILL BE COMPLETED BY MID-MAY.

(6) DESIGN ACTIVITIES HAVE BEEN INITIATED TO REDUCE THE  
SUSCEPTIBILITY OF THE 4 INCH ROLLER OF THE FILM EXIT VESTIBULE,  
AND TO REDUCE THE USE OF EPOXY DURING ASSEMBLY.

D. PERKIN ELMER TUA FACILITY (EOD)

(1) A SINGLE POINT OF RESPONSIBILITY HAS BEEN ESTABLISHED

(R. RUNG).

(2) SIX NEW SPECIFICATIONS HAVE BEEN INSTITUTED COVERING

~~TOP SECRET~~

Handle Via BYEMAN

CHANNELS ONLY

PAGE 5 CHARGE 4029 ~~TOP SECRET~~  
CONTAMINATION CONTROL, CLEAN ROOMS, CONTAMINATION PRODUCING OPERA-

~~TOP SECRET~~  
Handle Via BYEMAN  
CHANNELS ONLY

TIONS, PARTICLE COUNT MONITORING, SOLDERING AND PARTS CLEANING.

(3) THE TOOLS DEVELOPED BY OTD TO CONTROL CHIPS PRODUCED DURING ASSEMBLY ARE BEING USED AT EOD.

(3) CAPITAL EQUIPMENT HAS BEEN PURCHASED. THIS PURCHASE INCLUDES A NEW CENTRAL VACUUM SYSTEM OF TWICE THE PRESSURE HEAD AND THE REPLACEMENT OF A HYDRAULIC HOIST.

(5) CONTAMINATION REMOVED FROM THE TAKEUP DURING AND AFTER VIBRATION IS MEASURED AND ANALYZED.

3. PARAGRAPH 2 OF THE REFERENCED TWX SUGGESTED CONSIDERATION OF AN ENGINEERING TEST OF REWIND DURING 1210-4. NO ENGINEERING TESTS OF REWIND HAVE BEEN PLANNED FOR THE FOLLOWING REASONS:

A. THE ONLY SIGNIFICANT DIFFERENCE BETWEEN SV-10 AND THE PREVIOUS VEHICLES THAT HAVE ATTEMPTED REWIND IS THE 180 DEGREE BUILDER ROLLER IN TUA'S NUMBER 2,3 AND 4.

E. THE 180 DEGREE BUILDER ROLLER WAS DESIGNED TO PRECLUDE MIS-STACKING ON THE TAKEUP IN THE FORWARD DIRECTION DUE TO FILM UNFLATNESS. BECAUSE IT IS NOT IN CONTACT WITH THE FILM STACK DURING REWIND IT HAS NO SIGNIFICANT EFFECT ON FILM TRACKING IN THE REVERSE DIRECTION. DEMONSTRATION OF PROPER FILM STACKING IN THE FOR-

PAGE 6 CHARGE 4029 ~~TOP SECRET~~

WARD DIRECTION ON RV-2, 3 AND 4 WILL VALIDATE ALL ASPECTS OF THE 180 DEGREE BUILDER ROLLER. IN ADDITION, FILM FLATNESS TOLERANCES ON FLIGHT STACKS HAVE BEEN IMPROVED THUS INCREASING SAFETY MARGINS.

C. THE 180 DEGREE BUILDER ROLLER WAS QUALIFIED BY SPOOLING OVER ONE MILLION FEET OF FILM AND SV-10 HAS BEEN TESTED THROUGH ITS FACTORY AND FIELD FLOW TO FULL REWIND VELOCITY (-63 IPS).

4. PARAGRAPH 3C OF THE REFERENCED TWX REQUESTED AN ASSESSMENT OF PROBABILITY OF REWINDING ON 1213. THE PROBABILITY OF DEMONSTRATING FULL CONTROL OF CONTAMINATION BY SV-13 IS NOT HIGH. THE SENSOR SUBSYSTEM FOR SV-13 WILL BE DELIVERED FROM PERKIN ELMER IN LATE MAY OR EARLY JUNE AND ALL FOUR TAKEUPS FOR SV-13 ARE ALREADY AT MDAC. HENCE MUCH OF THE EQUIPMENT WILL HAVE BEEN FABRICATED PRIOR TO FULL IMPLEMENTATION OF THE CORRECTIVE ACTIONS. HOWEVER, THE PROGRESS OF THE CONTAMINATION CONTROL PROGRAM WILL BE MONITORED REPEATEDLY AND SPECIFIC RESULTS EVALUATED AFTER EACH RECOVERY. MY PERSONAL EVALUATION IS THAT WE WILL PROBABLY NOT REWIND UNTIL BLOCK IV.

E-2 IMPDET

~~TOP SECRET~~  
BT

NN

~~TOP SECRET~~  
Handle Via BYEMAN  
CHANNELS ONLY

N