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BIF-107W-20014-72

Pol-A-3-hh(1)

cy 2, 9 pgs total

*Sw*

VEHICLE 35 DEBRIS LOCATION ANALYSIS

2 NOVEMBER 1972

R. G. STERN

HANDLE VIA BYEMAN  
CONTROL SYSTEM ONLY

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PRIOR ANALYSIS OF DEBRIS

- o GLASS SEGMENTS REPRESENT A SEGMENT OF STEREO MIRROR
  - / FUSED SILICA MATERIAL
  - / PHYSICAL DESCRIPTION

(ASSUME SEGMENT CRASHED INTACT AND SHATTERED ON IMPACT)
- o ELECTRONICS CARD, IS FROM ONE OF TWO ATTITUDE CONTROL ELECTRONICS BOXES IN AGENA
  - / PHYSICAL DESCRIPTION OF COMPONENTS, USE OF WIRE WRAP TECHNIQUE
- o TANK IS SECONDARY PROPULSION SYSTEM NITROGEN PRESSURANT TANK
  - / PHYSICAL SIZE, WEIGHT

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SURVIVABILITY

BASED ON PRIOR ANALYSIS AND VAST EXPERIMENTAL DATA, THE  
FOLLOWING ELEMENTS SHOULD SURVIVE REENTRY ESSENTIALLY  
INTACT:

- / STEREO MIRROR
- / PRIMARY MIRROR
- / REENTRY VEHICLES
- / FILM SUPPLY
- / APTC

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IN TRACK DISPERSION ANALYSIS

- 0 VEHICLE SPIN STABILIZED DURING AGENA BURN
- 0 ESTIMATE VEHICLE ESSENTIALLY BROADSIDE AT BEGINNING OF REENTRY
- 0 VEHICLE TUMBLED AS SENSIBLE ATMOSPHERE WAS REACHED - EXPERIENCED REENTRY SEQUENCE SIMILAR TO VAST II
- 0 ESTIMATE STEREO MIRROR SEGMENT DID NOT BREAK OUT UNTIL BREAKUP OF CAMERA OPTICS ASSEMBLY

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DEBRIS IMPACT PATTERN ANALYSIS

① INCLINATION OF TRAJECTORY

/ [REDACTED]  
/  
/

(b)(1)  
(b)(3)

① LOCAL AZIMUTH BASED [REDACTED]

TRUE AZIMUTH

(b)(1)  
(b)(3)

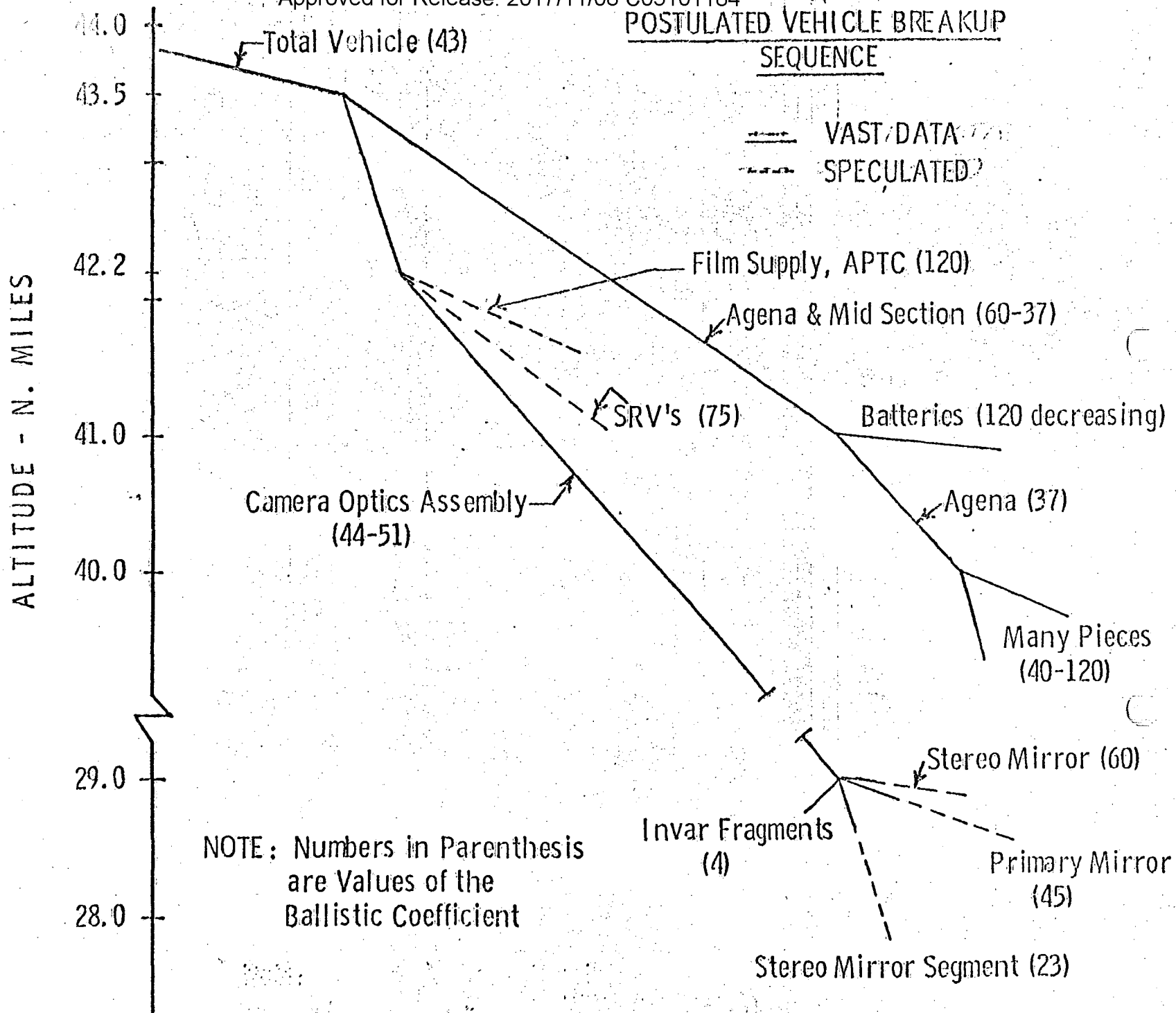
① WIND DISPERSION EFFECTS

/ WIND DATA NOT YET AVAILABLE  
/  
/ HIGH BALLISTIC COEFFICIENT ITEMS NOT SIGNIFICANTLY  
AFFECTED ( $\leq \frac{1}{2}$  N.MI.)  
*↑*  
*LESS THAN*  
/ PREDICT STEREO MIRROR SEGMENT ESSENTIALLY ON ORBIT TRACE  
/ ELECTRONICS ARE DISPLACED CROSS TRACK APPROXIMATELY 3 N.MI.

① PRINCIPLE ELEMENTS (MIRRORS FILM ROLL, REENTRY VEHICLES, APTC)  
SHOULD LIE WITHIN 1 N.MI. OF A LINE PASSING THROUGH THE STEREO  
SEGMENT LOCATION WITH ABOVE AZIMUTH

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# POSTULATED VEHICLE BREAKUP SEQUENCE



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PREDICTED IMPACT POINTS OF SIGNIFICANT ITEMS

(REFERENCED TO STEREO MIRROR FRAGMENT)

① PRIMARY MIRROR

/ INTACT - DOWNRANGE 28 TO 33 MILES

/ FRAGMENTS - 40 N.MI. UP RANGE TO 33 N.MI. DOWNRANGE

① STEREO MIRROR

/ INTACT (EXCEPT FOR FRAGMENT) - DOWNRANGE 38 TO 44 N.MI.

/ FRAGMENTS - 40 N.MI. UP RANGE TO 44 N.MI. DOWNRANGE

① REENTRY VEHICLES

/ DOWNRANGE UP TO 70 N.MI.

/ POSSIBILITY ALSO EXISTS OF AN UP RANGE IMPACT

① FILMS SUPPLY & APTC

/ DOWNRANGE UP TO 160 N.MI.

① SKIN PANELS AND OTHER DEBRIS

/ 500 N.MI. UP RANGE - 160 N.MI. DOWNRANGE



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RECOMMENDATIONS

- ① SEARCH ALONG A NARROW GROUND TRACK PASSING THROUGH STEREO MIRROR FRAGMENT
  - / ESTABLISH TRACK ALONG A GREAT CIRCLE USING A TRUE HEADING FROM THE FRAGMENT OF 324.4 DEGREES
- ② EMPHASIZE SEARCH FOR MIRRORS
- ③ EXTEND SEARCH FROM 40 N.MI. UP RANGE TO 160 N.MI. DOWNRANGE
- ④ PROVIDE INFORMATION OF ADDITIONAL RECOVERED ITEMS
  - / REVISE IMPACT ESTIMATES

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