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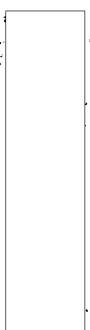
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Shaw

VEHICLE 35 DEBRIS LOCATION ANALYSIS

2 NOVEMBER 1972



HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

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REF ID: A66542

PRIOR ANALYSIS OF DEBRIS

● GLASS SEGMENTS REPRESENT A SEGMENT OF STEREO MIRROR

/ FUSED SILICA MATERIAL

/ PHYSICAL DESCRIPTION

(ASSUME SEGMENT CRASHED INTACT AND SHATTERED ON IMPACT)

● ELECTRONICS CARD IS FROM ONE OF TWO ATTITUDE CONTROL

ELECTRONICS BOXES IN AGENA

/ PHYSICAL DESCRIPTION OF COMPONENTS, USE OF WIRE

WRAP TECHNIQUE

● 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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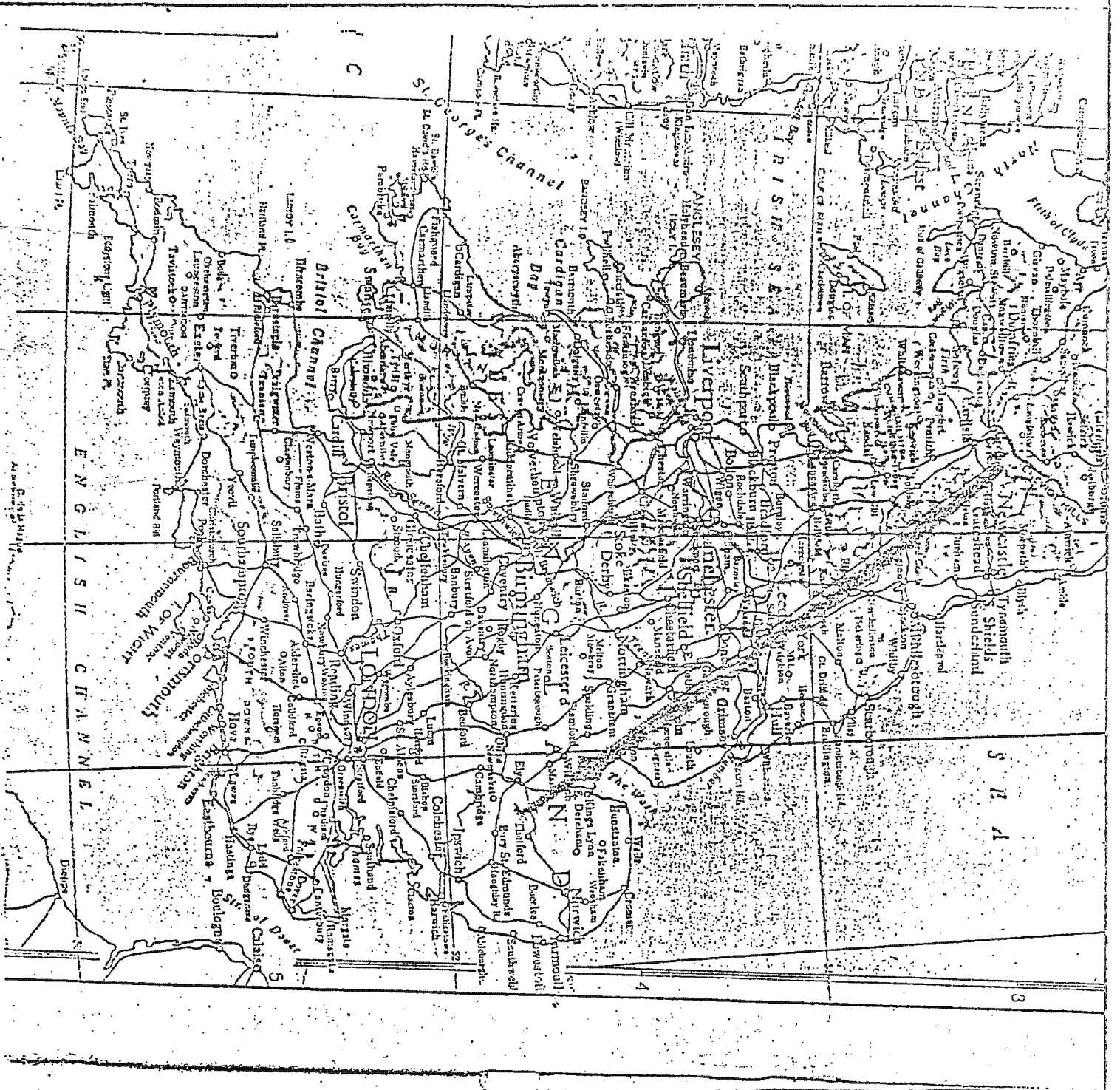
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IN TRACK DISPERSION ANALYSIS

- VEHICLE SPIN STABILIZED DURING AGENA BURN
- ESTIMATE VEHICLE ESSENTIALLY BROADSIDE AT BEGINNING OF REENTRY
- VEHICLE TUMBLED AS SENSIBLE ATMOSPHERE WAS REACHED - EXPERIENCED REENTRY SEQUENCE SIMILAR TO VAST II
- 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

/ PLANNED: 110.45°

/ LMSC ESTIMATE: 106.1°

/ DEBRIS LOCATION: 109.8°

② LOCAL AZIMUTH BASED ON 109.8° INCLINATION: 324.4 ± 0.2°
TRUE AZIMUTH

③ WIND DISPERSION EFFECTS

/ WIND DATA NOT YET AVAILABLE

/ HIGH BALLISTIC COEFFICIENT ITEMS NOT SIGNIFICANTLY

AFFECTED ($\leq \frac{1}{2}$ N.M.I.)

Less THAN

/ PREDICT STEREO MIRROR SEGMENT ESSENTIALLY ON ORBIT TRACE

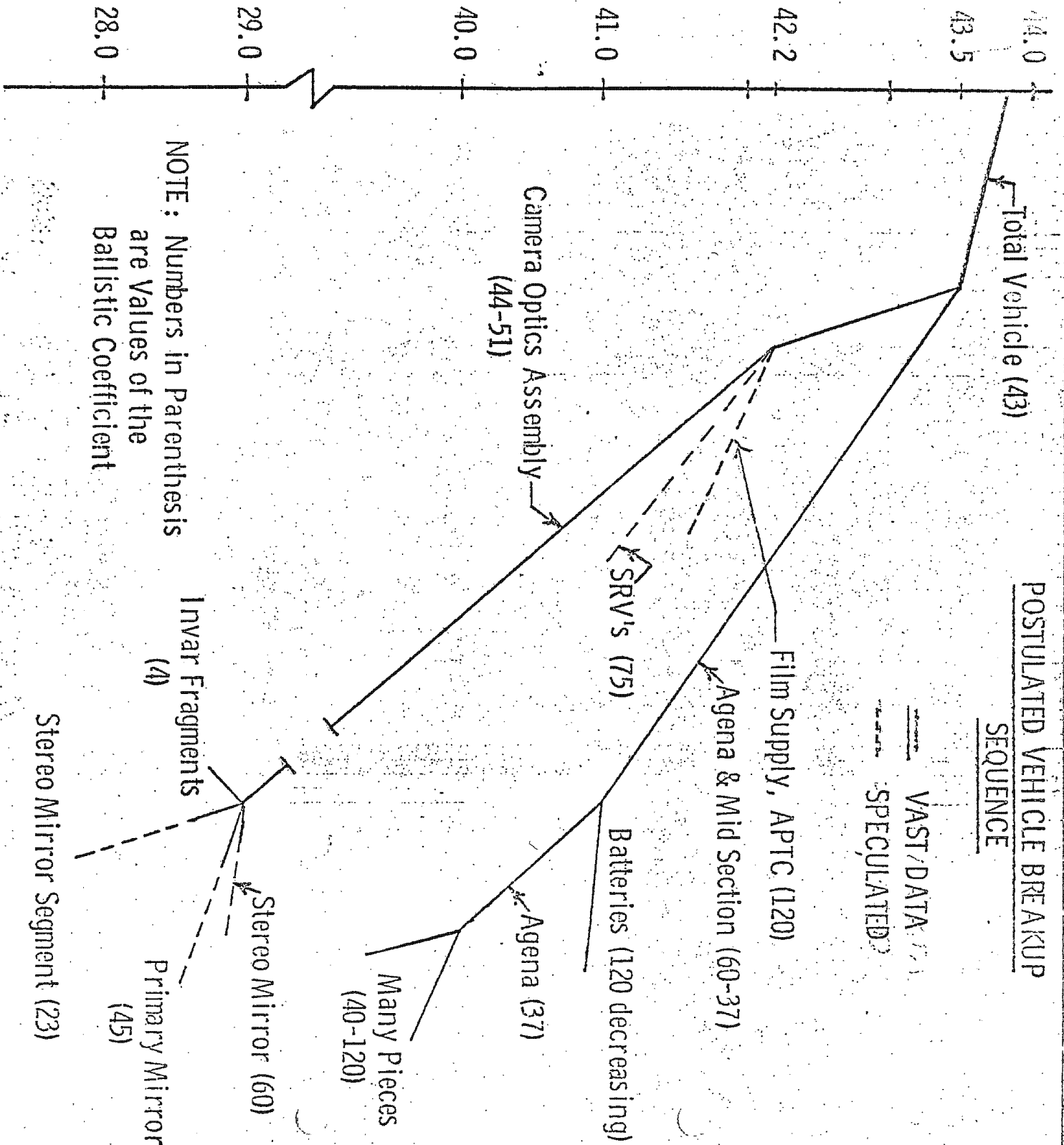
/ ELECTRONICS ARE DISPLACED CROSS TRACK APPROXIMATELY 3 N.M.I.

④ PRINCIPLE ELEMENTS (MIRRORS FILM ROLL, REENTRY VEHICLES, APTC)

SHOULD LIE WITHIN 1 N.M.I. OF A LINE PASSING THROUGH THE STEREO
SEGMENT LOCATION WITH ABOVE AZIMUTH

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ALTITUDE - N. MILES



NOTE: Numbers in Parenthesis are Values of the Ballistic Coefficient

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PREDICTED IMPACT POINTS OF SIGNIFICANT ITEMS
(REFERENCED TO STEREO MIRROR FRAGMENT)

- PRIMARY MIRROR
 - / INTACT - DOWNRANGE 28 TO 33 MILES
 - / FRAGMENTS - 40 N.MI. UP RANGE TO 33 N.MI. DOWNRANGE
- STEREO MIRROR
 - / INTACT (EXCEPT FOR FRAGMENT) - DOWNRANGE 38 TO 44 N.MI.
 - / FRAGMENTS - 40 N.MI. UP RANGE TO 44 N.MI. DOWNRANGE
- REENTRY VEHICLES
 - / DOWNRANGE UP TO 70 N.MI.
 - / POSSIBILITY ALSO EXISTS OF AN UP RANGE IMPACT
- FILMS SUPPLY & APTC
 - / DOWNRANGE UP TO 160 N.MI.
- SKIN PANELS AND OTHER DEBRIS
 - / 500 N.MI. UP RANGE - 160 N.MI. DOWNRANGE

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RECOMMENDATIONS

- ② 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
- ③ EMPHASIZE SEARCH FOR MIRRORS
- ③ EXTEND SEARCH FROM 40 N.M.I. UP RANGE TO 160 N.M.I. DOWNRANGE
- ③ PROVIDE INFORMATION OF ADDITIONAL RECOVERED ITEMS
- / REVISE IMPACT ESTIMATES

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