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ADDENDUM TO SAT STUDY OF 7 FEBRUARY 1966.

16ADVON
4 March 1966

PURPOSE:

In an attempt to better define the weapon release point and the 64 foot parachute sighting, additional information was obtained and evaluated on the following items:

- a. Number four tail cover.
- b. The ground impact point of survivor Buchanan.
- c. The descent path and water pick-up point of survivor Messinger.
- d. Approximate bearings of sightings made by ships in the area at time of collision.
- e. Approximate bearing on descending parachute sighting by pharmacist in Garrucha.

ANALYSIS:

- 1. Number four tail cover:

Assumed conditions at release:

- a. Release altitude equal 28,000 feet.
- b. Release velocity equal 400 ft/sec.
- c. Ground track equal 256 degree.

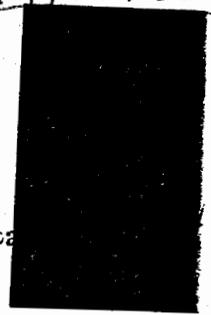
Further assuming that weapon 4 tumbled (CDS=18.0) to 25,000, 20,000 and 15,000 then lost the tail cover. Then calculating theoretical trajectories based on the above conditions. The impact points would be:

<u>Tail Cover Rel. Alt.</u>	<u>N-S Comp.</u>	<u>E-W Comp.</u>
25,000	X=-4375 ft	Y=5600 ft
20,000	X=-3967 ft	Y=2890 ft
15,000	X=-3583 ft	Y= 919 ft
Actual impact point	X= -900 ft	Y= 5340 ft

X and Y are measured from SAT assumed release point.
X associated with North Positive and South Negative.
Y associated with East Positive and West Negative.

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It can be seen from these values that the actual impact point of the tail cover is an average of 3000 feet north of the theoretical values. This would place the release point 500 feet outside the dispersion area defined in the SAT report.

The only conclusion that should be drawn from this study is that if the SAT assumed release point is corrected it would be in a northerly direction.

2. The ground impact point of survivor Buchanan:

Theoretical trajectories on survivor Buchanan with seat still attached indicates that his parachute deployed between 5 and 10 thousand feet. Using winds assumed in the SAT study his actual impact point was slightly south and west of the theoretical impact point.

3. The descent path and water pick-up point of survivor Messinger:

Fisherman Alfonso Simo aboard the USS Ability pinpointed the pickup point of Maj Messinger, survivor from the B-52. This point was located at longitude $01^{\circ} 37' 20''$ W and latitude $37^{\circ} 12' 20''$ N. This location is slightly north and west of the theoretically determined impact point assuming that Messinger opened his parachute 4 seconds after ejection from the aircraft. The winds as determined in the SAT report were used. It was also assumed the aircraft velocity had reduced to 400 ft/sec on a heading of 256° and altitude reduced to 28,000 feet.

In an attempt to account for the 0.4 body burden found in Messinger, a study was made to determine if the contamination clouds from either weapon 2 or 3 could intercept Messinger as he descended to his water impact location. Assuming the contaminated cloud rises rapidly and plateaus at an inversion layer of 6000 feet then moves with the assumed wind an interception could possibly occur between a range of 30K to 40K on a 300 degree heading. Thus possibly explaining the body burden. It was brought out in the testimony that Messinger had removed his oxygen mask during descent consequently could have had numerous respirations as he passed through the cloud.

4. Approximate bearings of sightings made by ships in the area at the time of collision: On the day of the accident the Spanish Oceanographic ship B/H Juan de la Cosa was near the fishing village of Carboneras. After observing three red flares and smoke on a bearing of 245° they then proceeded to the area. As they approached, a message was received from the ship Cabo S. Vicente indicating that they saw a large whole parachute falling to the water. The approximate location was $37^{\circ} 10'$ North and $01^{\circ} 42'$ West. Additional messages from other ships in the area also confirmed these sightings.

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5. Approximate bearing on descending parachute sighting by pharmacist in Garrucha:

Discussions with the pharmacist of Garrucha disclosed that he was on his roof at the time of the accident and saw a large white parachute descending and impacting in the sea. There were two separate readings taken on his sighting. One was 79° 15' true and the other was 83° 15' true. Both sightings generally pass through the Able I sea search area based on the position supplied by witness Francisco Simo Orts.

In addition to the pharmacist his assistant also saw the parachute descending. He was located a mile to a mile and one half away. He gave his position as being at the entrance to Maricielo. A reading on his sighting was taken as 93° true. This passes through the southern part of the Able I area.

CONCLUSIONS:

Studies completed as of this date on the above discussed items are not conclusive enough to suggest any positive movements of either the Able I sea search area or the assumed release point. However, studies on survivors Messinger and Buchanan and weapon four tail cover do indicate that if the assumed release point were moved, it would do so in a northerly direction and not to any magnitude such that new ground search areas, not already covered, would be defined. Further studies will be made on the trajectories of Messinger, Buchanan and number four weapon tail plate. Any conclusive results from these studies will be forwarded immediately.

Although it can be postulated that a mid-air low order detonation of No. 4 weapon occurred, there are several factors which do not support such a theory. The following discussion, therefore, is an elaboration of Solution 3 of the SAT dated 7 February 1966.

a. It is considered that the testimony of Senor Orts is reliable, since other elements of the situation described by him were factual and have been accepted. His account of the large chute and the object suspended by it is an extremely credible description of an essentially complete Mark 28FI in its fully retarded mode.

b. The existence of peculiarly contaminated parts of the B-52 and KC-135 does not appear to be pertinent to the condition of No. 4 weapon. The engine nacelle was found in an area of relatively high contamination, therefore it was probably "dusted" after ground impact. Although the part of the B-52 tail section anomaly cannot be explained as simply, it nevertheless can be shown that there are many inconsistencies in the measured ground contamination pattern.

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c. The most probable land areas where a detached weapon secondary might have impacted have been searched thoroughly and repeatedly. All possible ground depressions, small areas of disturbed soil and suspicious holes have been examined by probing or digging with negative results.

d. With the exception of the detached tail plate of No. 4 weapon, no other identifiable parts of the bomb have been found on land. It is considered that an unrestrained low order detonation of the HE would have expelled relatively large pieces of the nose fairing firing set, firing components, etc., as opposed to the more severe fragmentation resulting from explosion at ground impact as represented by weapons 2 and 3. Further, if a more violent explosion of the primary of No 4 had occurred, it is extremely improbable that the tail section and parachute would have remained intact.

In summary, it is therefore further considered that the events described as Solution 3 constitute the most valid explanation relative to the loss of No. 4 bomb.

a. No. 4 bomb was struck by another bomb or part of one of the two airplanes with sufficient force to displace the tail plate and deploy the 64 foot chute.

b. No further damage occurred.

c. Contamination of airplane parts is not pertinent to this situation.

d. A diligent and well-organized search has not revealed any further positive evidence relating to No. 4 weapon.

e. An appropriate assembly was observed to descend and splash into the Mediterranean Sea.

It is firmly concluded that a reasonably intact Mark 28FI bomb now lies somewhere in a predictable area on the floor of the Mediterranean.

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STAFF STUDY

ADDENDUM TO SAT TEAM STUDY OF 7 FEBRUARY 1966

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