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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

25X1

COUNTRY : USSR

DATE DISTR. 3 JUL 52

SUBJECT : Reinterrogation on EF-150 Information

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PLACE ACQUIRED: 25X1

NO. OF ENCLS. 3
(LISTED BELOW)

DATE ACQUIRED

SUPPLEMENT TO 25X1

DATE OF INFORMATION:

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1. Q. Is the designation "Heavy bomber" a German or Soviet designation? What is their system of classifying bombers as to light, medium, and heavy? /In the USA most recent practice is to base designation on the combat radius of the basic design mission; zero to 1000 NM being a light, 1000 to 2500 NM being a medium, and over 2500 NM being a heavy bomber./ If the Soviet designation system is by take-off gross weight or bomb load, what are the weight values for each designation?

A. The type designation for the EF-150 airplane as given previously 25X1 should have been "medium" instead of "heavy". Classifications as used by the Germans were based on both bomb load and range. I do not know of any official specifications for the different classes. The terms "heavy" or "medium" used for any particular airplane are based roughly on its comparison with currently existing aircraft. The conception of what constitutes a "medium" bomber might, therefore, change as aircraft in general grow larger. The Russians also called the EF-150 a medium bomber, but I do not know whether they were using an official Russian designation or were simply referring to the airplane in the same way that the Germans did. I have no knowledge of the Russian method of designation.

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2. Q. Some early reports indicated [redacted] and attack version of the EF-150 in addition to the bomber and reconnaissance versions. [redacted] familiar with such a version and if so, what were its distinguishing characteristics and disposition?

A. Only the bomber and reconnaissance versions were planned. There were no rocket installations or any other features to indicate a ground attack airplane.

3. Q. [redacted] indicate a retractable turret at the aft portion of the crew compartment. This turret utilized two 20-mm cannon firing rearward, 90° to starboard, port and elevation. [redacted] the high speed of the aircraft deleted the armament requirements. Does this statement imply that this particular turret was originally designed into the aircraft and then deleted or that no such turret was considered?

A. I am positive that there were never any plans for an upper turret, retractable or not. His statement that "the speed of the aircraft reduced the armament requirements" was in line with the attitude that prevailed among Junkers engineers at the time the EF-150 design was initiated.

4. Q. Previous reports describe a crew compartment with four members and a fifth crew member as the tail gunner whereas [redacted] lists a total of four crew members including tail gunner. What is the seating arrangement within the crew compartment?

A. Reinterrogation on crew arrangement only added to the confusion. During both the original interview and the reinterrogation, the crew arrangement of the EF-150 airplane was discussed in considerable detail. During the most recent discussions a rough template of a crewman and seat was made and placed in various positions on a sketch of the cockpit [redacted] I remember that when I sat in the pilot's seat in the mockup of the airplane, there was a good forward visibility (through the canopy, not through the nose window). Without shifting around in the seat, I could look downward (about 40° to 50° below the horizon) and slightly forward to see through the small windows located on the side of the fuselage. [redacted] the interior arrangement of the airplane thus does not agree with the external appearance of the airplane as shown on the original sketches [redacted] commented that he thought the template used was somewhat too large in relation to the sketch of the airplane but the use of a smaller template would only increase the aforementioned discrepancy. [redacted] that the most probable explanation is that his memory concerning the canopy or window configurations is faulty, but he does not know just where or how. The sketches used during the reinterrogation are given in this report as Enclosures (A) and (B). Concerning the other crew stations, there is also some disagreement with the original report. Enclosure (B) gives a vertical view of the seating arrangement. [redacted] discussion said that there were five (5) seats in the forward compartment. The commandant sat in an extreme forward position, as I described previously. The pilot sat in the left-hand seat of the forward pair also the same as previously described. The right-hand seat could be used for a co-pilot. I was told, however, that it was not to be used as such; at least in the bomber version. The left rear position was for the radio operator, and the right rear position was for the flight mechanic-gunner. [redacted] did not include this last crew station at all and had the radio operator serving as a gunner. The two aft seats could be pivoted 180°. All seats could be ejected as I stated previously. In addition to personnel in the forward compartment, there was a tail gunner.

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5. Q. Detailed performance calculations based upon the previously accepted configuration show that at a take-off gross weight of 54 m tons the aircraft is definitely overweight for the thrust available. How certain is [redacted] weight estimation of 55-60 m tons is accurate? 25X1

A. Weight of the airplane is from my memory, which may be faulty, especially in airplane design details.

6. Q. In the preliminary design stage reports tell of a four engine configuration being considered. Performance analysis show definite need for more thrust. [redacted] any knowledge of a possible four engine version of the EF-150? 25X1

A. There were definitely no plans for a four engine version of the EF-150.

7. Q. Is the correct designation of this aircraft EF-150 or simply 150?

A. The correct designation is "EF-150", but it was frequently referred to in conversations as simply the "150". [redacted] 25X1

[redacted] 25X1

8. Q. [redacted] estimate of span of 37-38 meters is about 8 meters larger than previous reports. Also previous reports do not mention fuel tanks on the wing tips. Is it possible that the wing span has been increased and the fuel tanks added to the EF-150? The EF-140 was modified by increasing its span by one meter panels and tip tanks. Also the EF-140 is a low wing aircraft. Is it not possible that [redacted] may be confusing EF-140 and EF-150? Is it possible that the same external tip tanks were intended for both the EF-140 and EF-150? 25X1

A. My estimate of wing span is also based on memory which may or may not be correct. The wing as originally designed was not changed to increase the span. Wing tip fuel tanks used on the EF-150 were similar to, but larger than, those used for the EF-140. [redacted] 25X1
[redacted] if any discrepancies in this information exist it is due entirely to [redacted] inability to remember certain details and not so much to confusion between the EF-140 and 150. 25X1 25X1

9. Q. Fuel tanks size and location given by [redacted] drawings are completely at variance with the location and size previously reported. Does [redacted] know the respective capacities of his alleged fore and aft fuselage and wing tip tanks? Also the capacity of the additional bomb bay tank for the reconnaissance version? 25X1 25X1

A. Reinterrogation on the fuel tank location and capacity reiterates [redacted] previous opinion concerning their location. However, it was brought out in reinterrogation that the fuselage fuel tanks were rectangular and not round. There were two fuselage tanks, each approximately 1.6 x 1.85 x 2.6 m and two wing tip tanks. The dimensions of the tip tanks previously given are from memory. The tip tanks were completely filled with fuel that is, no empty compartments within the outline [redacted] There were no internal wing tanks. I do not know how many liters of fuel the tanks in the airplane were supposed to hold. 25X1 25X1

10. Q. Are the speeds of 1050 kph and 900 kph quoted [redacted] the Soviet requirement for the EF-150 or are these estimates based upon wind tunnel tests and/or performance calculations? What engine installations are these speeds quoted for; what gross weight and altitude correspond to these speeds? What is Soviet definition of cruising (design) thrust setting as related to normal or military thrust? 25X1

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A. The speed figures submitted to the Russians in the original design proposal were about 100 kilometers per hour less than those
25X1 mentioned [redacted] After the Russians analyzed these proposals they insisted on increasing range and speed. The German engineers were not at all confident that they could meet the new demands, but told the Russians they would try their best. I know that wind tunnel tests on the EF-150 were run by the Russians at ZAGI, but do not know whether these tests had anything to do with the performance requirements being increased. I have no knowledge concerning weight, altitude or engine configurations coincident with the speed figures given. /Answers to questions concerning definition of cruising setting were rather
25X1 vague. [redacted] trying to describe jet engine power settings in the terminology used for reciprocating engines. He thought that cruising power settings for jet engines were "20 to 25% less thrust than that for full power"./

11. Q. What are the gross weight, engine installation and power setting, and rate of climb coincident with the ceiling listed of 12,000 meters?

A. I do not know the weight, power settings, rate of climb, and engine installation for the 12,000 meter ceiling.

12. Q. Wing sweepback angle as shown on enclosures is about 15° at the quarter chord. Previous information indicates wing sweepback at about 35° which appears more compatible with high speeds
25X1 quoted. Does [redacted] recall any wing thickness ratios or aspect ratios?

A. I do not remember seeing or hearing any figures concerning sweep-
25X1 back, thickness ratio, or aspect ratio. [redacted]
25X1 [redacted]

13. Q. The crew compartment canopy shown on the enclosures is different in shape and positioning from the previous reports. Could [redacted] 25X1
be confusing the EF-140 canopy with the EF-150?

25X1 A. I believe that the canopy configuration [redacted]
25X1 [redacted] is probably incorrect, but do not know in what way. /See also answer No 4 above./

14. Q. In the bomber version what occupies the fuselage center section between the fuel tanks besides the bomb bay compartment and bombs? Previous information locates the main fuel tank in the top position of this fuselage section. In the [redacted] sketch, what is 25X1
supposed to occupy this space besides bombs?

A. The bomb bay section of the fuselage shown on the original sketches is entirely devoted to carrying bombs in the bomber version of the aircraft. The only fuel carried in this section was the removable bomb bay tank to be installed in the reconnaissance version of the EF-150. Capacity of this bomb bay tank is unknown, but I believe the dimensions previously given are approximately correct.

25X1 15. Q. Previous reports regarding the airplane have stated that the rear main gear was hydraulically actuated. [redacted] states that it is electrically actuated. It is understood that the rear main gear is partially retracted during the take-off run. The question remains whether the partial retraction is accomplished electrically or hydraulically. It is understood that the complete retraction of both landing gears is accomplished hydraulically.

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A. The landing gear was hydraulically operated. As I stated before, the gear could not be partially retracted to change the attitude of the plane for take-off.

16. Q. Previous reports indicated that the horizontal stabilizer is hydraulically actuated but electrically controlled. [redacted]

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A. [redacted]

17. Q. Previous reports indicate that single-point refueling is definitely incorporated in this airplane. [redacted] there are no plans for single-point refueling. 25X1

A. I once saw the EF-140 refueled by pumping fuel in the reverse direction through the normal fuel system. This could also be done with the EF-150, but this method was considerably slower than the normal method of filling the tanks individually. From reading magazine articles, I am familiar with single-point ground and inflight refueling but there was no such system used in any of the airplanes built at Podberesje.

18. Q. Previous reports have stated that the exit for the rear gunner is actuated through a pneumatic system. [redacted] 25X1 states that the door is operated hydraulically. It is possible that the normal operation of the door is hydraulic with a pneumatic emergency system. Confirmation is requested on this point.

A. The tail gunner's exit door was hydraulically operated. Pneumatic systems were not used at all in the EF-150 airplane. The emergency system for the tail gunner's exit door consisted of a separate reservoir and hand pump.

25X1 19. Q. [redacted] previous reports stated that thermal anti-icing is employed. Previous reports have merely indicated that the hot air is taken from the engine. [redacted] states that the hot air is filtered exhaust gases. It is desirous to know how the hot air is tapped off from the exhaust pipe. 25X1

A. To the best of my knowledge hot exhaust gases were tapped off of the engine section just downstream from the turbine. The gas was ducted from the engine through a filter, a blower, and then to the surfaces to be de-iced. Control of the system was accomplished by turning the blower on or off.

20. Q. Previous reports have indicated that the windshield is electrically heated. Report No [redacted] states that there are two panes

25X1 [redacted]

Both bits of information might be true. However, it is desirous that they be confirmed.

25X1 A. /After the original interrogation [redacted] remembered that the dehydrating material was "Silika Gel"./ I do not believe that there were any provisions for electrical or hot air heating of the windshield.

21. Q. Previous reports have stated that the trim tabs are spring loaded and adjusted manually from the cockpit. [redacted] states that the trim tabs are moved through electro-mechanical actuators. 25X1

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A. I reiterate that the trim tabs were to be actuated by means of electrical-mechanical actuators. There were no springs, weights or aerodynamic balances employed in actuating the trim tabs.

22. Q. Previous reports have indicated that the control surfaces are actuated through an electrically operated hydraulic power control system. [redacted], however, states that the flight control surfaces are actuated by push-rods and torque tubes in connection with a hydraulically servo boost mechanism. [redacted] stated that no known research was being conducted on a pure-power flight control system.

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A. I believe the system used in the EF-150 was a hydraulic servo boost system and not a servo power system. [redacted] if the pilot had direct connection through the wheel and pedals to the control surfaces or whether movement of the wheel and pedals sent a signal to a power unit which in turn actuated the control surfaces. He stated that the former was the way in which the EF-150 system operated.

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23 & 24 Q. Lyulka Engine

Question [redacted] again on the type of engine, ie, turbojet, by-pass or ducted fan types. Several bits of information infer that the Lyulka engines possibly may not be of the conventional turbojet type. [redacted] indicated an overall diameter of 64 inches for the Lyulka type. This appears somewhat excessive for a standard axial flow turbojet configuration. In addition, information has been reviewed where Lyulka in 1937 (Soviet propaganda regarding date) "worked out the construction details of a twin air-reaction engine with an annular combustion chamber and an axial compressor". Direct familiarization with the factory developing the engine during 1947-1948 revealed an engine configuration with "three or four air scoops attached to the side of the engine". These scoops were in addition to the main air intake. Since [redacted] has indicated he saw a metal mockup of the Lyulka engine, it is requested that thorough review of his knowledge of the mockup details be made.

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Mikulin Engines

[redacted] the EF-140 had two Mikulin engines rated at 4300-4500 kilograms (9460-9900 lbs) thrust each which were later developments of the Mikulin engines installed in the EF-132, whose ratings were not known. In addition, [redacted] Mikulin engines planned for the EF-150 have a rating of 4900-5000 kilograms (10,780 - 11,000 lbs) thrust each. Information previously received has indicated only two models of Mikulin engines, one rated at approximately 6000 lbs thrust and installed in the EF-131, 140 aircraft and another rated at approximately 10,000 - 10,500 lbs and planned for installation in the EF-150 aircraft. Request [redacted] be reinterrogated on the ratings of the Mikulin engines. In addition, [redacted] also observed metal mockup of Mikulin engines, details regarding general engine configuration are also desired.

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A. Reinterrogation on engines disclosed that the mockup was of an engine pod and not of the engine itself. The mockup was made in sufficient detail to show that there was a single air intake (no auxiliary doors or scoop) and a single exhaust. [redacted] showed [redacted] a ducted fan engine which had concentric exits for jet exhaust and ducted air. He thought the mockup of the engine he had seen excluded this possibility. The dimensions of the pod, I believe, indicated a centrifugal type jet engine for both Mikulin and Lyulka engines. Overall dimensions of the

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pod mockups, as I remember them, were 1.6 m in diameter x 3.4 m long for the Mikulin and 1.8 m x 3 m long for the Lyulka. [Figures given for the thrust of these engines are also as] remembers them, but he repeated that engines were not in his field of interest. This last observation may also account for his description of three Mikulin engines whereas other [ ] have described two.]

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25. Defensive Armament

a. Tail turret

Q. (1) How does gunner in tail turret aim his two tail turret guns? What is the designation of the gun? characteristics?

(2) Sketch the tail turret gunsights.

(3) Can the tail guns be aimed at night against other flying airplanes which cannot be seen by the tail gunner?

(4) Is the range of the target furnished automatically? If so, by what means--optically, infra-red, radar, etc?

(5) Does the tail gunner look through a large cylindrical tube mounted horizontally at eye level and extending through the tail into the air stream? Such a tube might be an optical periscope which allows the tail gunner to scan the area of the tail hemisphere.

(6) What type of power is employed in the turret drive motors, electric or hydraulic?

(7) How many rounds of ammo may be loaded for each gun? What is the duration of fire of the tail guns?

A. I remember that a periscope sight was designed by Eng Erwin Handke. I recall that this sight was mounted vertically and was about 20 centimeters in diameter by 1.3 m long. I do not remember its exact location. I am sure that it was vertical because an actual sight was once installed in the mockup and the Russians ordered a cover made for the part that projected below the fuselage. The cover was to prevent unauthorized persons from seeing the sight. [ ] Handke's periscope looked something like Fig 19 (T5-III) of the Air Intelligence Guide.] I have no knowledge of gun designation, duration of fire, or rate of fire. The method of range computation is also unknown to me. [ ] information on night sighting equipment.] The kind of turret drive motors is also unknown to me, but they were probably hydraulic.

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b. Mid-upper turret

Q. (1) Are there space provisions behind the canopy for installation of an upper turret?

(2) What mounting provisions for such a turret have been observed?

(3) Do such mounts indicate the possibility that this turret may be retracted into the fuselage when it is not in use?

(4) Can you sketch the retractable mount and describe its operation?

(5) How does the gunner sight the guns of the turret?

(6) Does the gunner use an optical periscope for scanning?

(7) Are there any electrical inputs? (radar range, search or track)

(8) How much ammo per gun?

A. There was no mid-upper turret, either retractable or otherwise.

c. Forward Guns

(1) Q. How many fixed guns are in the nose of the aircraft? Where are they located? How much ammo per gun? How aimed? How ranged?

A. There was one gun on each side of the nose. I do not know installation details, but each gun barrel was located about 135° from vertical and approximately 1.2 to 1.3 m from the center of the fuselage when looking at the airplane from the front. I do not know the amount of ammunition, rate of fire, or method of range determination. The gunsight was similar to that described for the tail gunner /25 a above/. /Its location is shown on Enclosures (A) and (B)./

d. Passive Protection

(1) Q. Describe any armor plate or bullet resistant glass installed in the aircraft for protecting the crew members or engines.

A. Armor plate was installed behind each seat extending from the bottom of the seat to a point somewhat above the position of the occupant's head. Armor plate was also placed on the floor under each seat. I do not believe that any bulletproof glass was installed in the EF-150. There was no armament protection provided for the engine.

(2) Q. Describe any electronic warning devices.

A. I have no knowledge of electronic warning devices, if any.

26. Bombing Capabilities

a. Q. Describe methods of suspending bombs in the bomb bay.

A. I do not know details of the methods of supporting bombs in the bomb bay, but was told that it was essentially the same as that used by Junkers during the war with modifications necessary to accommodate the larger bombs.

b. Q. Where is the bomb sight located?

A. The bomb sight was located in the extreme forward position in the nose /the commandant's station shown on Enclosure (B)./

c. Q. Describe the appearance of the bomb sight and any markings on it.

A. The only bomb sight I saw or heard of was an old German sight taken from Dessau. I do not know its designation.

d. Q. Describe any equipment which allows bombing to be conducted at night or through clouds where the target is not visible by eye.

A. I was told that the airplane was to have radar bombing equipment, but I have no further details.

25X1 27. Q. [redacted] bomb load as one - 3000 kg or several bombs totaling 3000 kg. Could [redacted] estimate dimensions of the 3000 kg bomb? [redacted] the first indication of this capacity bomb and any supplemental information available concerning it is desired.

A. I saw only a mockup of the 3000 kg bomb. It appeared to me that it was a conventional bomb except for the size and the fact that the nose was somewhat more pointed than other bombs I have seen. /Enclosure (C) is a reproduction of [redacted] original sketch of this bomb/

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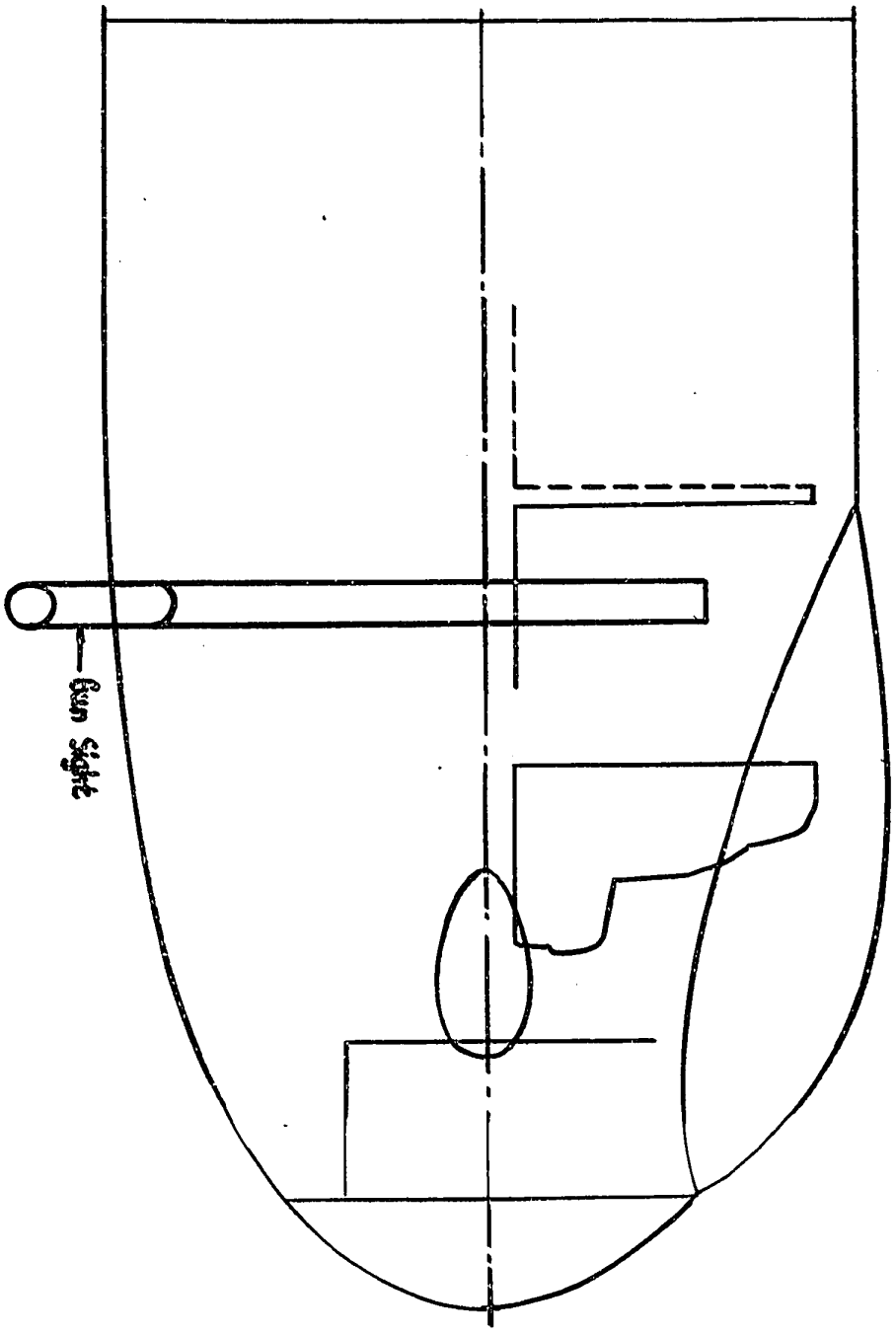
ENCLOSURE (A) Side View of EF-150 Cockpit
ENCLOSURE (B) Top View of EF-150 Cockpit
ENCLOSURE (C) Sketch of 3000 kg Bomb



SIDE VIEW of EF-150 COCKPIT

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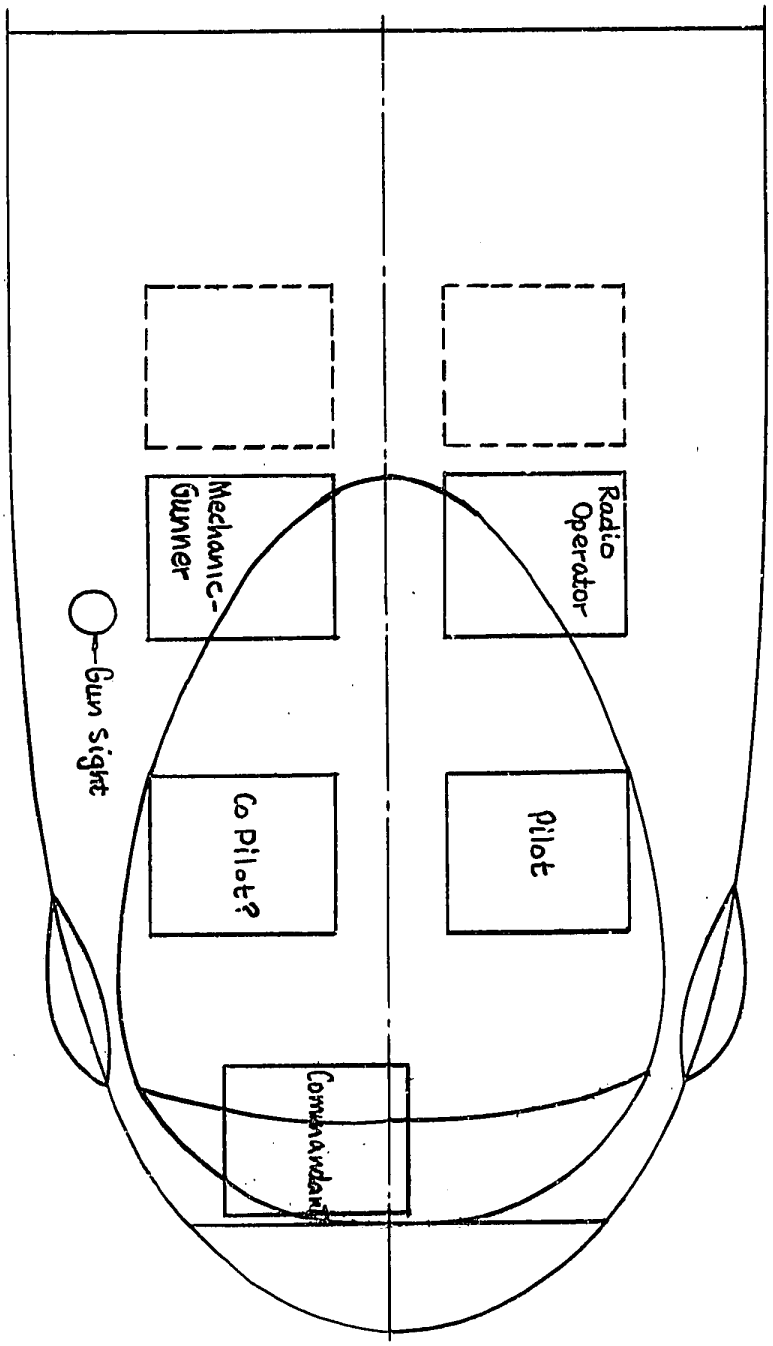
Enclosure (A)



TOP VIEW of EF-150 COCKPIT

Enclosure (B)

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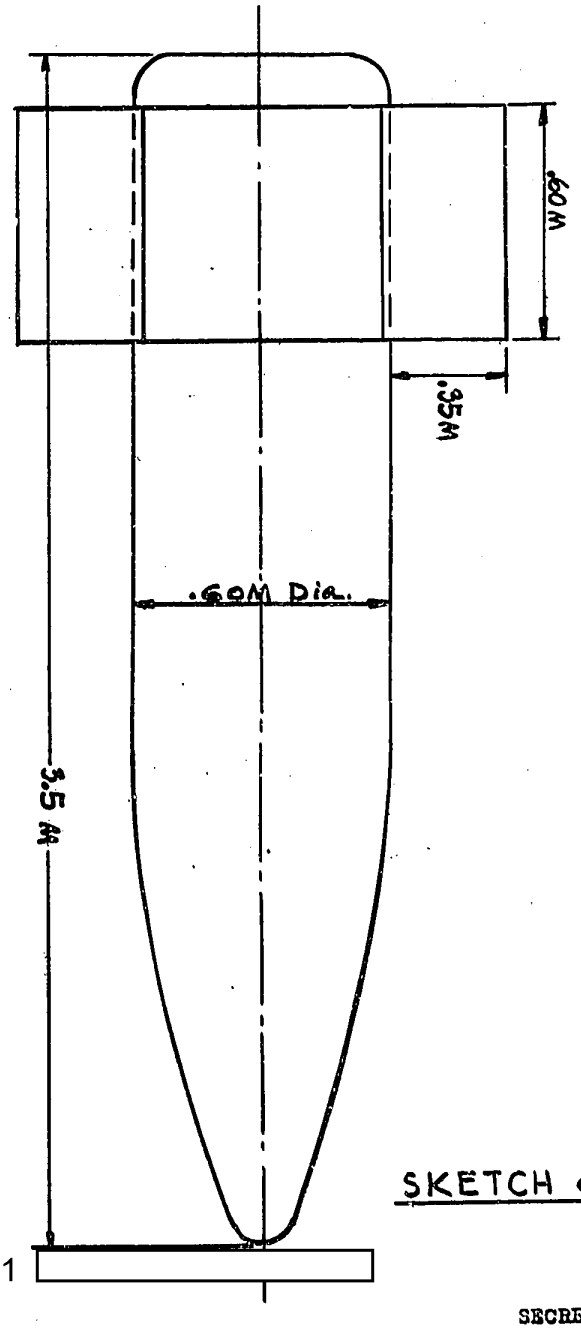

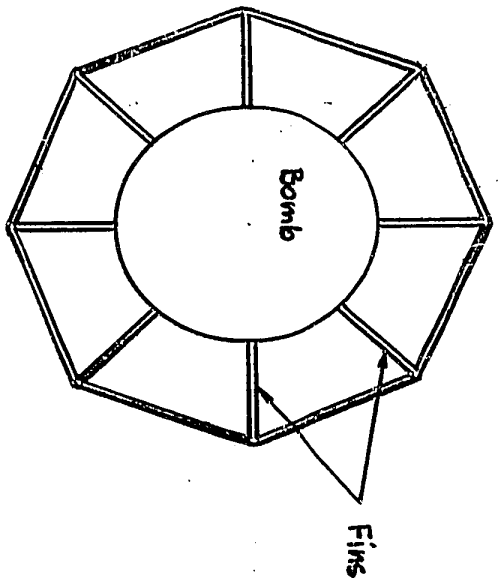

SKETCH of 3000 KG BOMB

Enclosure (C)

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