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ELECTRONICS FACILITIES IN CUBA

CIA HISTORICAL REVIEW PROGRAM
RELEASE AS SANITIZED
1999

ANNEX 8

SOVIET BLOC LAND RADAR EQUIPMENT
IN CUBA
AS OF OCTOBER 1960

CIA/RR EP 60-73-S8

November 1960

See Figure 21 of CIA RR EP 60-73

CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

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A review of pertinent intelligence reports has been made in an attempt to determine the existence of Soviet Bloc radar equipment in Cuba. Unfortunately, there has been no positive reporting on this subject -- most reports have been based on rumors or hearsay. Thus it is impossible to state definitely that certain types of Bloc radar are deployed in Cuba. The meager evidence available, however, does point to the probable existence of some types of radar in Cuba. Applicable reported incidents are as follows:

On 28 June the Soviet merchant ship, Baltiysk, unloaded, under maximum security, 3000 tons of cargo at Havana. The cargo was military equipment including radar and other electronic items. About 20 Soviet technicians reportedly also were debarked in Havana. In addition to the military cargo, 5000 tons of chemical fertilizer were unloaded. , believes the cargo included bazookas and possibly some rocket arms and considerable electronic equipment, including radars. although it acknowledged reports of aircraft parts in the shipment, feels that the secrecy of the transaction was due to the origin of the cargo and the fact that radar and possibly some new, small weapons were involved.

radar shipments originating in Prague were being sent through Antwerp to Cuba aboard Panamanian-Flag vessels. These shipments were documented as tools and spare parts for agricultural machinery. To date, no verification of this report was been obtained.

The Soviet merchant ship, Ilya Mechnikov, arrived in Havana on 8 September with what appeared to be a major arms shipment from the USSR. Various types of military equipment reportedly were unloaded, and one description of the cargo included "long-range reflectors," "small electric plants about 5 feet each," and "radar equipment."

An observer who managed to enter Baracoa Military Airfield reported that he saw four very large boxes. One box, which was uncrated, contained a large, metal, air-conditioned van, through the open door of which were visible panels of electronic equipment. Baracoa (23°03' N - 82°34' W) is located approximately 14 miles west of Havana.

Another report states that radar sites exist between Mariel (22°59' N - 82°45' W) and Baracoa. These radars are mobile and have an approximate range of 30 miles. This report seems doubtful for the distance between these two points is only about 15 miles. A second report, however, states this radar line extends from Mariel to Caibarien (22°32' N - 79°28' W), or a distance of approximately 200 statute miles. According to this report, about 20 radars with a range of 30 miles exist along this northern coast line. The approximate position of one radar is given as between Santa Fe and Mariel. This source further reports the night use of truck-mounted radars as follows:

It is difficult to determine the accuracy of the above reports, and in the case of the unloading of the Baltiysk it is possible that a good majority of the information is fictional. On the other hand, it is impossible to discount all reporting referring to radar, and it is probable that unidentified types of Soviet Bloc radar exist in Cuba.

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The term "long-range reflectors" used above, implies a radar used for early warning or an associated function -- such as target acquisition or as part of a GCI stations. Many Soviet radars can be included in this general category, but the most likely would be the P-8 or P-10 (nicknamed KNIFE REST A and KNIFE REST B or C, respectively). (See the illustrations.) Another, but lesser, possibility would be a P-20 (TOKEN) type.

The description of a van is not sufficient to speculate on a specific type of radar or a particular function. It is quite possible, however, that the source observed a radar van.

The first type of radar -- the one with approximately a 30-mile range, fits the general description of a gun-laying radar. This possibility is partly supported by the reported offloading of anti-aircraft artillery. In this category likely types would be the SON-4 or SON-9 (nicknamed WHIFF and FIRE CAN, respectively). The truck-mounted gap-fillers could be the relatively new radar nicknamed FLAT FACE (Soviet designation believed to be P-15). This radar reportedly has a low altitude detection capability. Recently sets of this type were given to the Chinese Communists.

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FLAT FACE

Designation:

US

FLAT FACE

USSR/SATELLITE:

Function: Unknown - believed to be Early Warning or Acquisition. Could perform a limited ground control intercept role in conjunction with a height-finding equipment.

Visual Observations: FLAT FACE was first sighted in February 1959, in the Soviet Zone of Germany, and later, the same month, in Hungary. Sightings of this equipment have been made at heavy artillery and early warning installations.

Physical Characteristics: FLAT FACE consists basically of a three axle, communications type truck having two light-weight elliptically-shaped parabolic reflectors mounted on the forward end of the body. The reflectors are mounted one above the other in the horizontal plane. In transit, the reflectors lie face down on top of the truck with their hinged tips draped down the sides of the body. When seen on the highways of East Germany, the FLAT FACE vehicle has been towing a small trailer that appears to be a generator.

XI-5

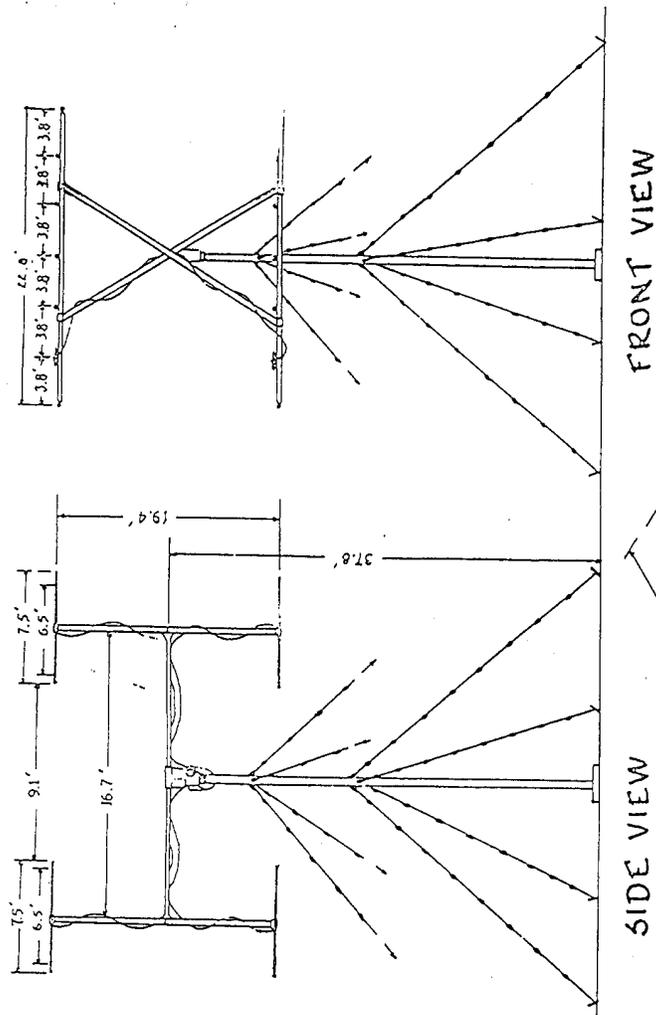
August 1959

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KNIFEREST A

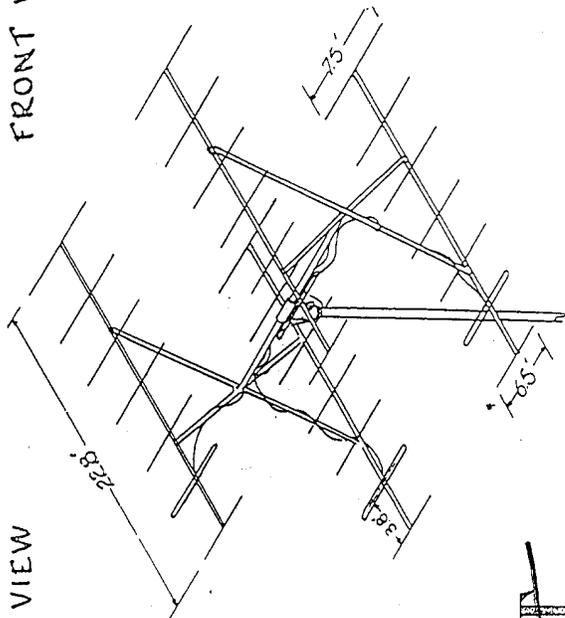
(ALSO KNOWN AS P-8)

THE KNIFEREST A IS A METRIC RADAR WITH ELECTRONIC CHARACTERISTICS SIMILAR TO THE DUMBO AND RUS II RADARS, AND HAS FOUR, SEVEN ELEMENT ARRAYS. THIS RADAR DIFFERS FROM KNIFEREST B WHICH HAS FOUR, NINE ELEMENT ARRAYS. THIS RADAR FIRST APPEARED IN 1952 AND IS A STANDARD SOVIET EW AND GAP-FILLER.

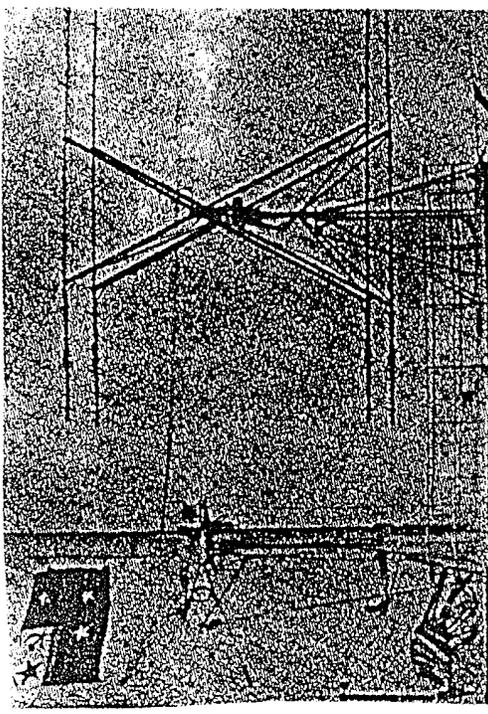
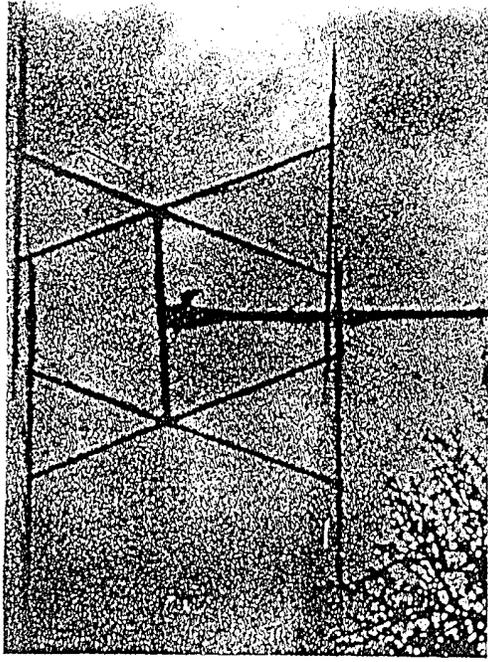


FRONT VIEW

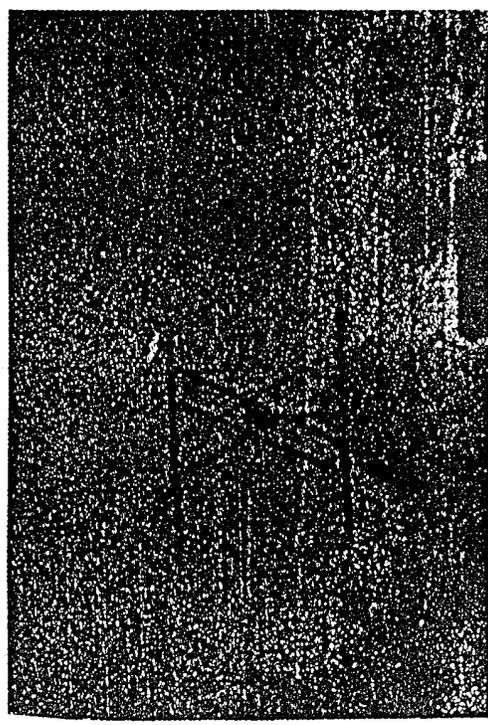
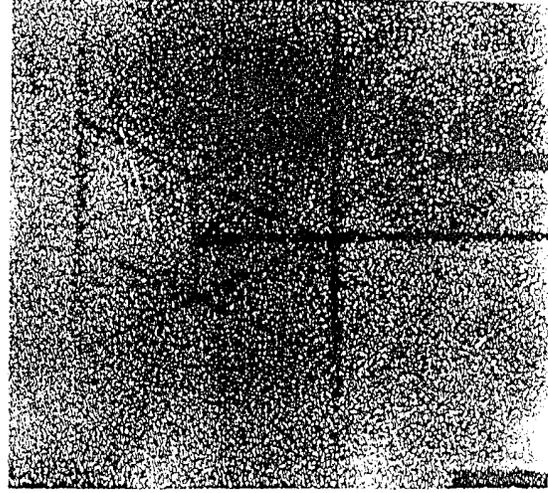
SIDE VIEW



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KNIFEREST A

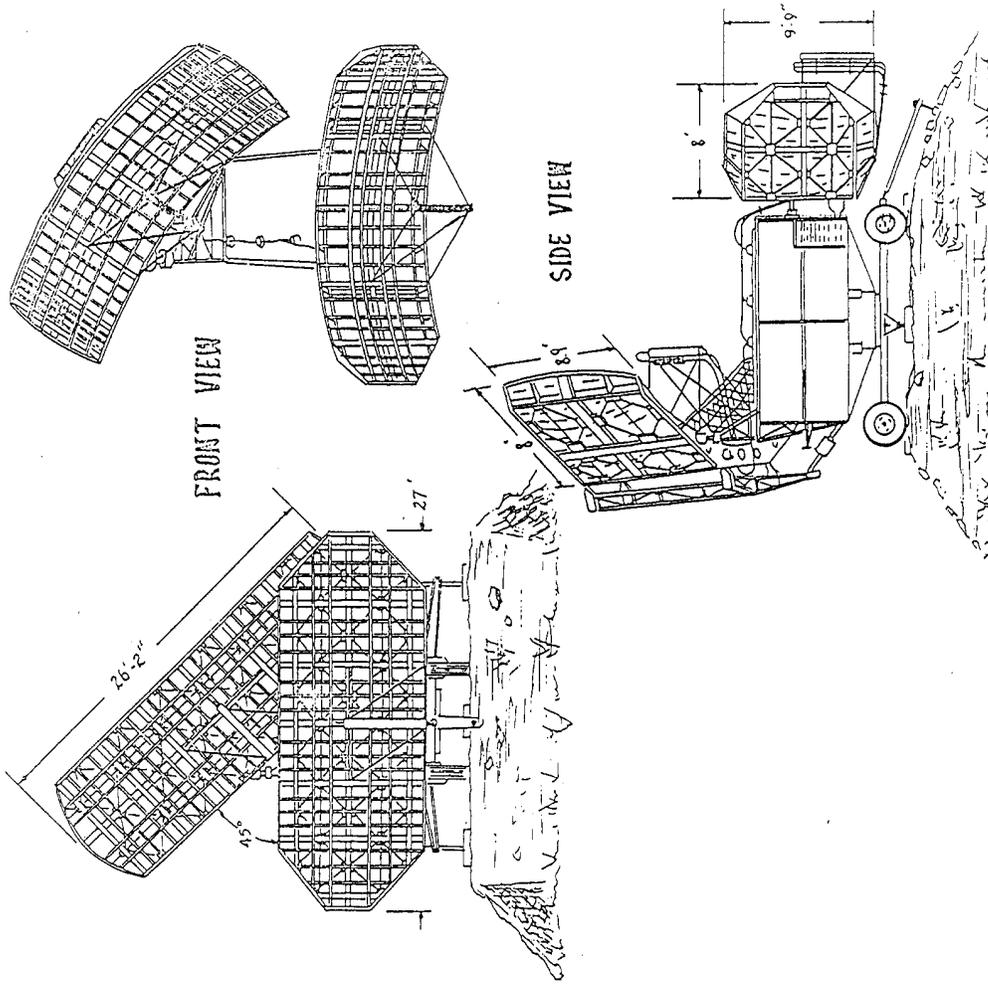


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TOKEN

THE TOKEN IS THE STANDARD SOVIET EW/GCI RADAR. THIS RADAR FIRST APPEARED IN EAST GERMANY IN 1952 AND IS NOW PREVALENT THROUGHOUT THE WHOLE SOVIET BLOC. IT IS A V-BEAM RADAR AND PROVIDES RANGE, AZIMUTH, AND ALTITUDE INFORMATION.

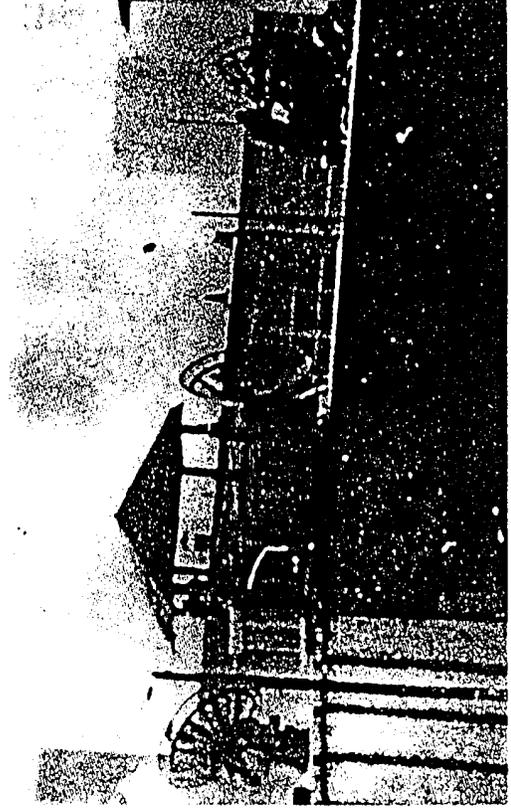
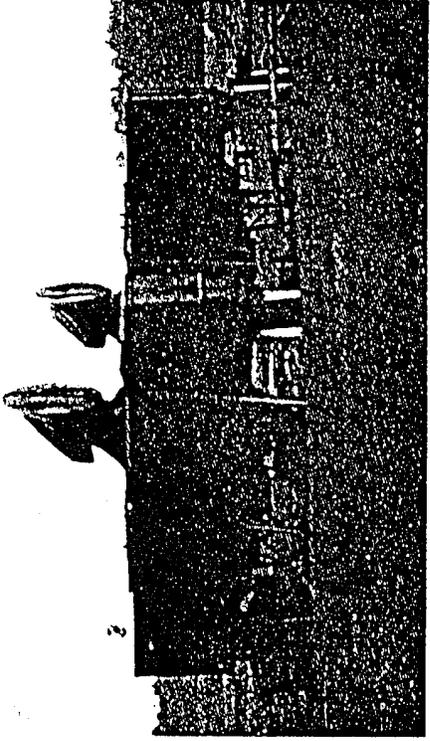
THE TOKEN IS A COPY OF THE US AN/CPS-6 AND HAS APPEARED IN SEVERAL MODIFICATIONS. IT IS BELIEVED THAT THE STRIKE OUT IS A MODIFICATION OF THE TOKEN. THESE VISIBLE MODIFICATIONS ARE, BOTH SAILS OF THE STRIKE OUT ARE IDENTICAL TO THOSE OF THE TOKEN EXCEPT FOR THE TWO REFLECTORS BEING IN A HORIZONTAL POSITION AND THE VERTICAL ATTACHMENT (END BOX) FITTED TO ONE END OF THE LOWER REFLECTOR. THE BIG MESH IS ANOTHER V-BEAM RADAR WITH SAILS SLIGHTLY LONGER AND WIDER THAN THOSE OF THE TOKEN AND APPEAR TO HAVE A THINNER MESH STRUCTURE. MOST DISTINGUISHING DIFFERENCE FROM A FAR DISTANCE IS THE POINTED APPEARANCE OF THE TOP OF THE SLANT SAIL OF THE BIG MESH AS COMPARED TO THE BLUNT TOP OF THE TOKEN SLANT ANTENNA.



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WHIFF



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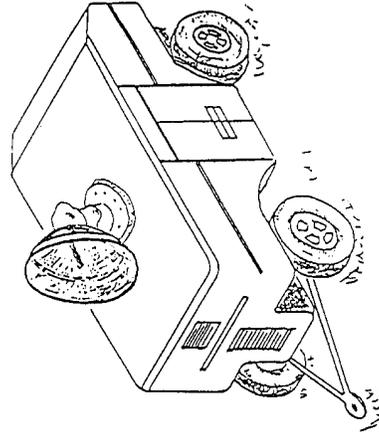
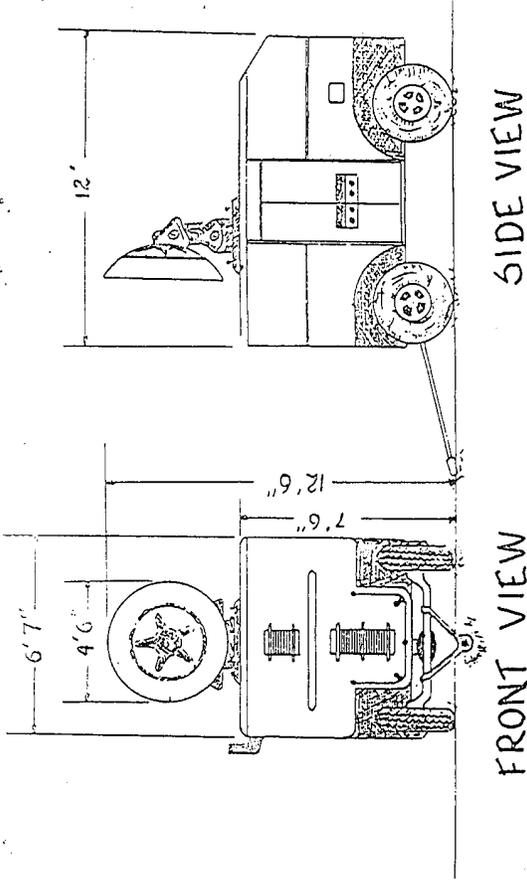
FIRE CAN

(ALSO KNOWN AS SON 9)

THE FIRE CAN GL RADAR IS SIMILAR TO BOTH THE WHIFF AND FIRE DISH. IT IS DISTINGUISHED BY THE SIZE OF ITS VAN AND ITS ANTENNA. THE FOLLOWING TABLE SHOWS THE COMPARATIVE DIMENSIONS OF THE FIRE CAN, WHIFF AND FIRE DISH.

	WHIFF	FIRE CAN	FIRE DISH
VAN LENGTH	21'	12'	16'6"
VAN WIDTH	6'9"	6'7"	6'9"
VAN HEIGHT	17'7"	12'6"	16'6"
(WITH ANTENNA)			
VAN HEIGHT (WITHOUT ANTENNA)	10'6"	7'6"	10'
DIA. OF REFLECTOR	6'	4'6"	6'

THE FIRE CAN REFLECTOR IS SOLID AS COMPARED WITH THE PERFORATED REFLECTORS ON THE WHIFF AND FIRE DISH.



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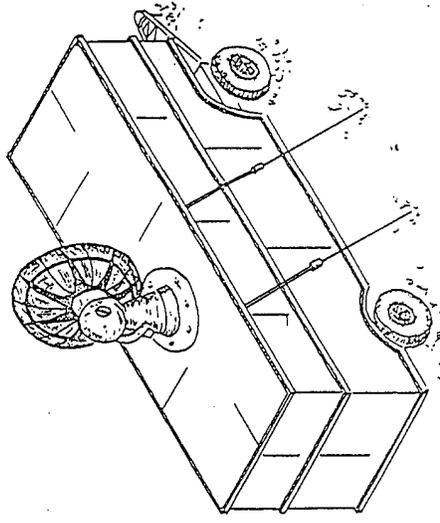
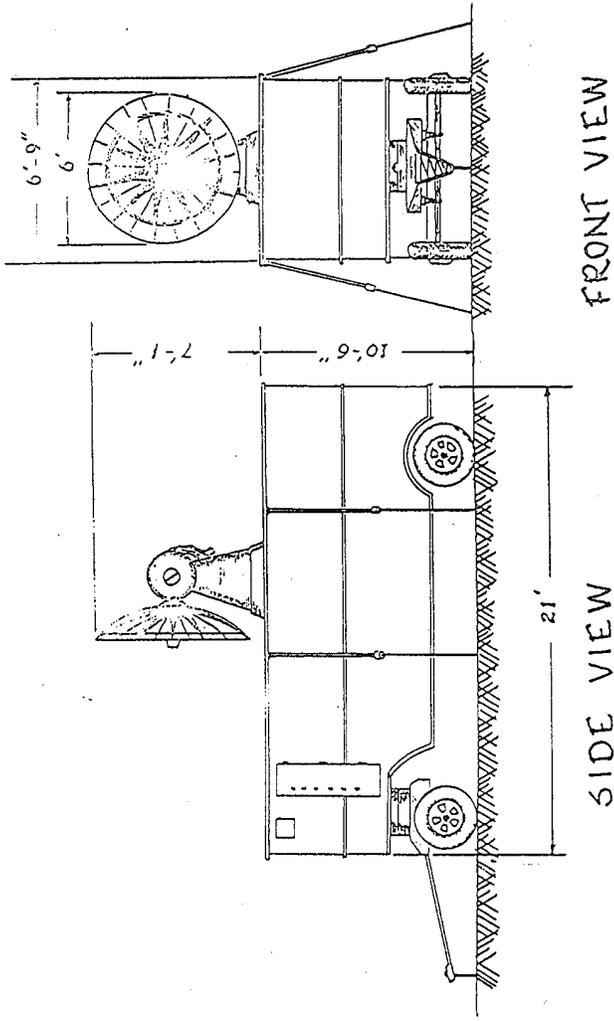
REVISION 15 JAN 60

WHIFF

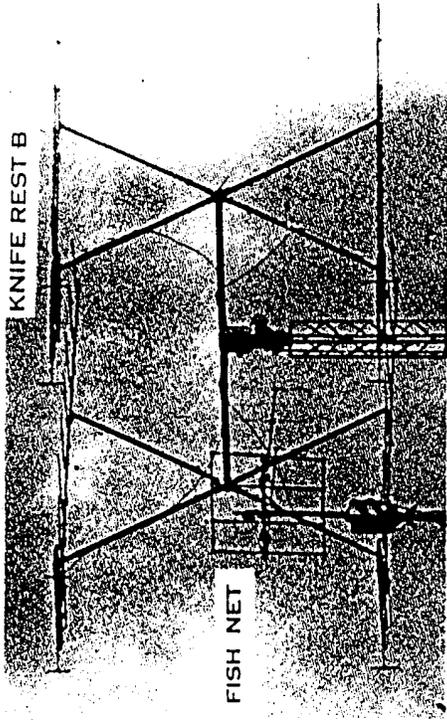
THE WHIFF GL. RADAR IS A COPY OF THE US SCR-584. THIS RADAR IS SIMILAR TO BOTH THE FIRE CAN AND FIRE DISH IN APPEARANCE. THE DISTINGUISHING CHARACTERISTICS OF THE WHIFF MAY BE FOUND IN THE SIZE AND CONFIGURATION OF ITS REFLECTOR AND ITS VAN. THE FOLLOWING TABLE SHOWS THE COMPARATIVE MEASUREMENTS OF THE WHIFF, FIRE CAN AND FIRE DISH.

	WHIFF	FIRE CAN	FIRE DISH
VAN LENGTH	21'	12'	16'6"
VAN WIDTH	6'9"	6'7"	6'9"
VAN HEIGHT (WITH ANTENNA)	17'7"	12'6"	16'6"
VAN HEIGHT (WITHOUT ANTENNA)	10'6"	7'6"	10'
DIA. OF REFLECTOR	6'	4'6"	6'

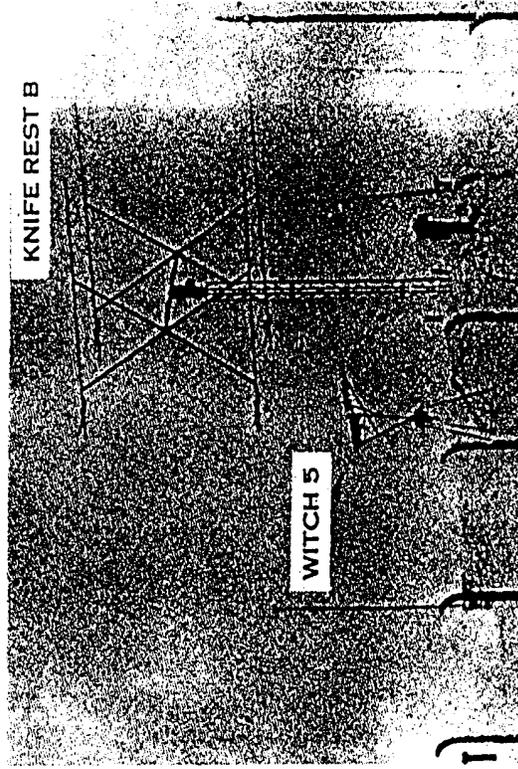
THE REFLECTOR OF THE WHIFF ANTENNA IS CHARACTERIZED BY ITS TEN WIDE SPOKES RADIATING FROM THE CENTER.



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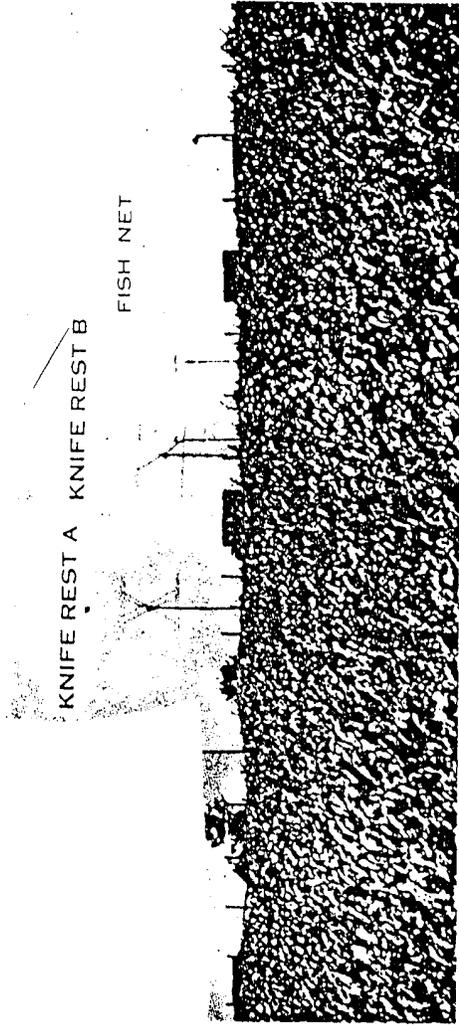


KNIFEREST C KNIFEREST B RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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KNIFEREST A RADAR OBSERVED WITH OTHER ASSOCIATED RADARS.



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FLAT FACE

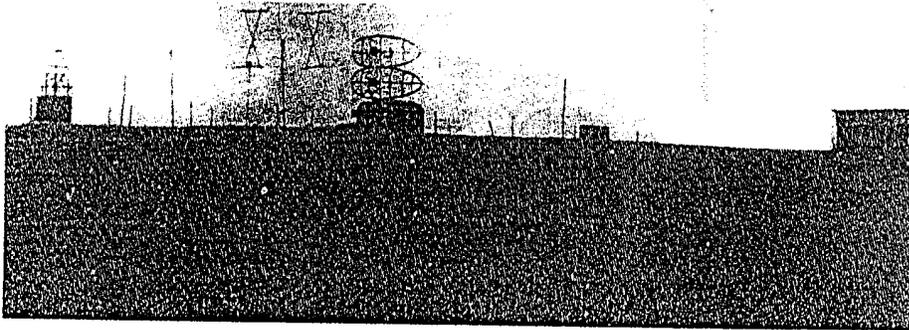


Figure FF-1. FLAT FACE at an operating site with a SCORE BOARD, KNIFE REST and a ROCK CAKE.

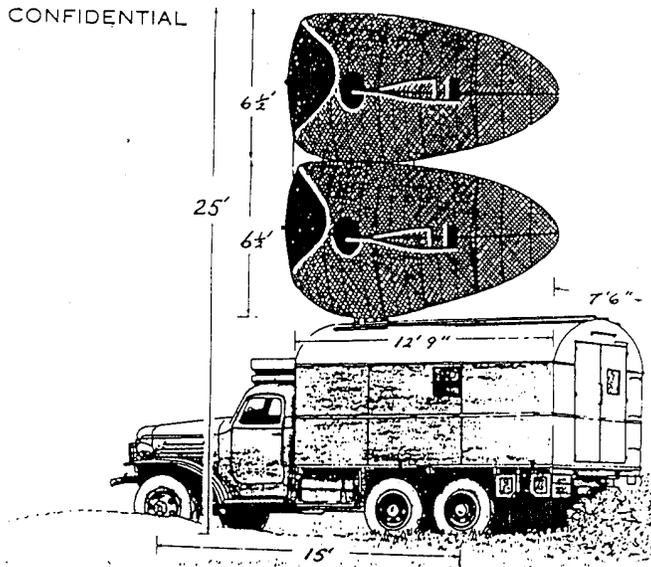


Figure FF-2. FLAT FACE - Dimensional Drawing.

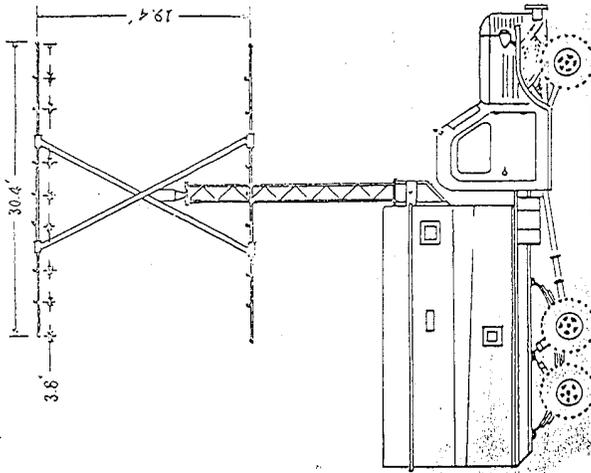
XI-6

August 1959

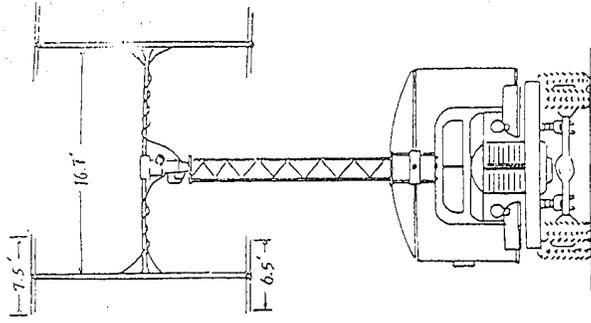
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KNIFEREST B KNIFEREST C

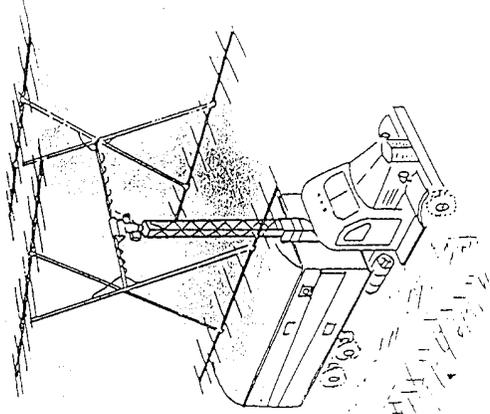
THE KNIFE REST B RADAR IS BELIEVED TO BE AN IMPROVED VERSION OF THE KNIFE REST A AND IS IDENTIFIED BY ITS FOUR, NINE ELEMENT YAGI ARRAY AND LATTICE TYPE TOWER. THE KNIFE REST A HAS A FOUR, SEVEN ELEMENT YAGI ARRAY. KNIFE REST B IS MOBILE AND HAS A MAST ABOUT 10 FEET HIGH. KNIFE REST C HAS THE SAME CONFIGURATION AS KNIFE REST B EXCEPT FOR BEING MOUNTED ON A MAST APPROXIMATELY 40 FEET HIGH. BOTH TYPES ARE GAP-FILLERS AND METRIC RADARS.



SIDE VIEW



FRONT VIEW

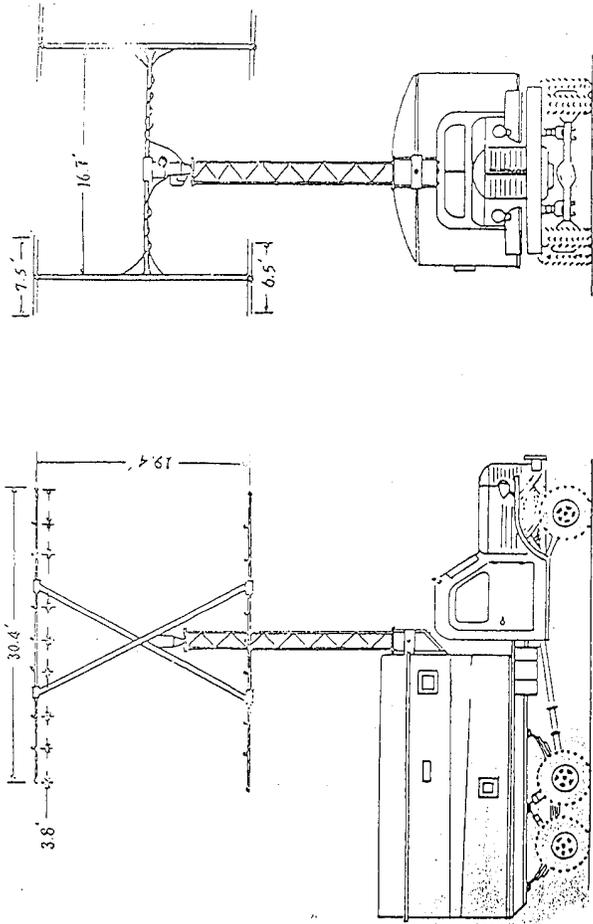


KNIFEREST 'B' KNOWN AS
KNIFEREST 'C' WHEN EMPLOYED
ON GROUND WITH HIGHER
TOWER



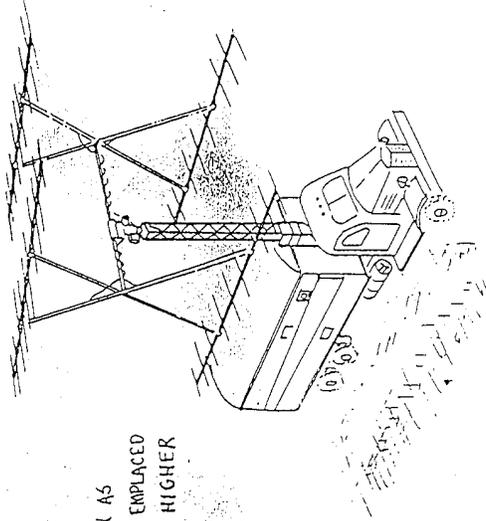
KNIFEREST B KNIFEREST C

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SIDE VIEW

FRONT VIEW



KNIFEREST "B" KNOWN AS
KNIFEREST "C" WHEN EMPLOYED
ON GROUND WITH HIGHER
TOWER

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FLAT FACE

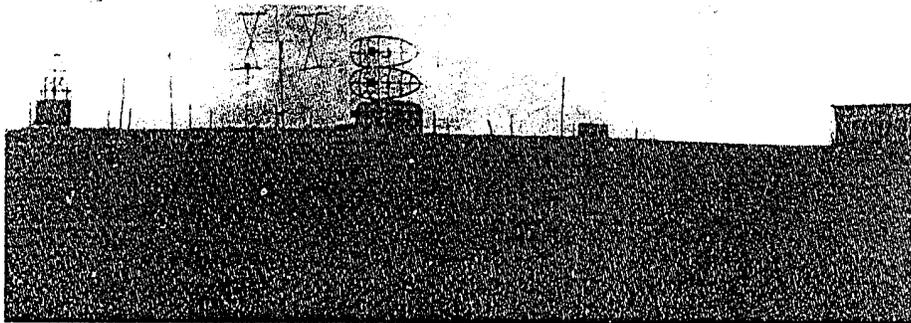


Figure FF-1. FLAT FACE at an operating site with a SCORE BOARD, KNIFE REST and a ROCK CAKE.

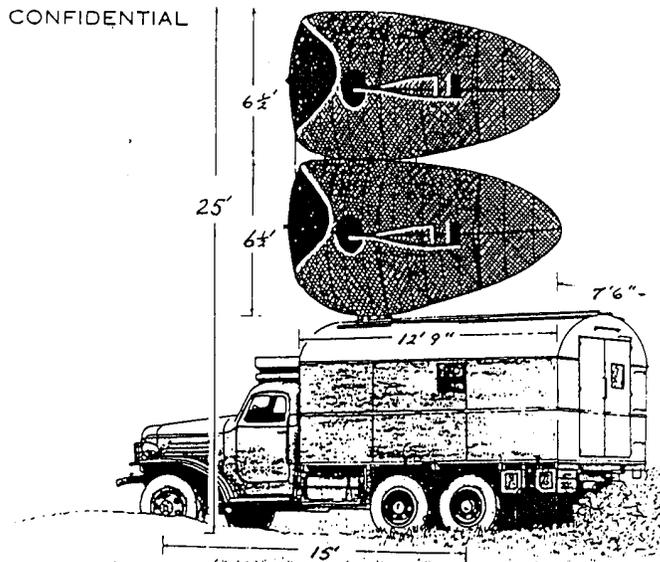
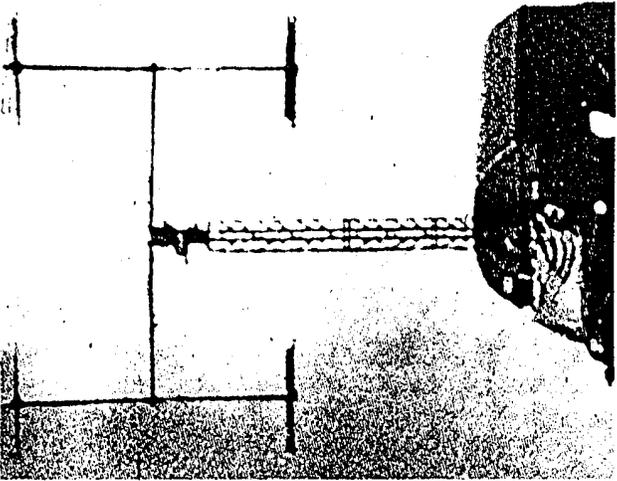


Figure FF-2. FLAT FACE - Dimensional Drawing.

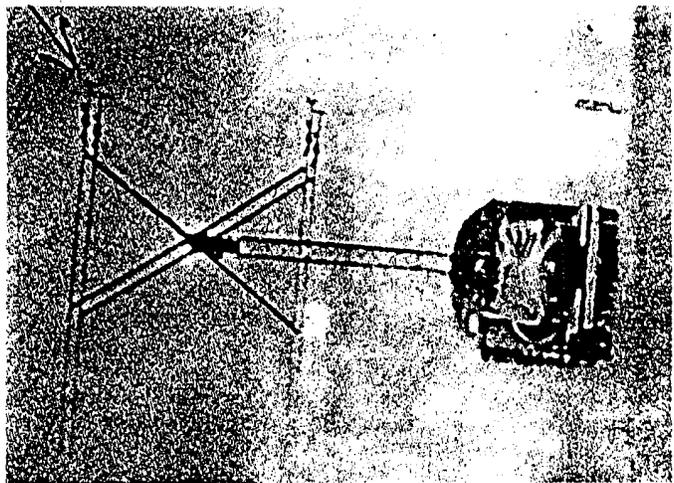
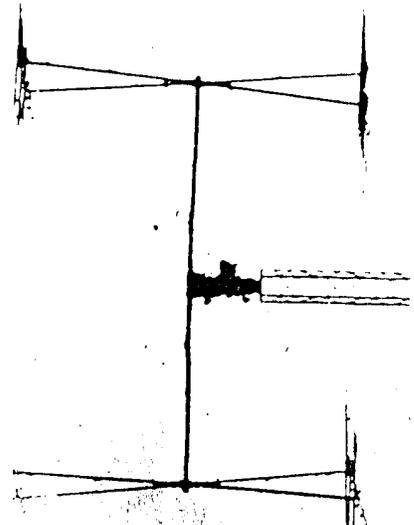
XI-6

August 1959

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KNIFEREST B
KNIFEREST C



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