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U. S. NAVAL TECHNICAL MISSION TO JAPAN  
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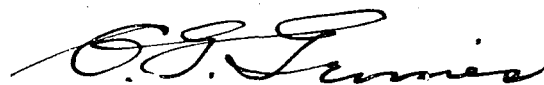
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To : Chief of Naval Operations.  
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KYUSHU Defense Systems.  
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1. Subject report, covering Target O-56(N) of Fascicle O-1 of reference (a), is submitted herewith.

2. The investigation of the target was accomplished by Lt. Col. T. M. Hinkle, USMC; Major A. Bennet, AUS; Major G. P. Donaldson, AUS; Major B. J. Verbeck, AUS; First Lt. R. B. Parker, AUS; First Lt. R. C. Baldrige, AUS; and Lieut. P. D. Lacy, USNR. First Lt. R. C. Baldrige prepared the report.



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31062

**RESTRICTED**

**O-56(N)**

**JAPANESE FIELD AND AMPHIBIOUS EQUIPMENT  
KYUSHU DEFENSE SYSTEMS**

**"INTELLIGENCE TARGETS JAPAN" (DNI) OF 4 SEPT. 1945**

**FASCICLE O-1, TARGET O-56(N)**

**FEBRUARY 1946**

**U.S. NAVAL TECHNICAL MISSION TO JAPAN**

# SUMMARY

## ORDNANCE TARGETS

### JAPANESE FIELD AND AMPHIBIOUS EQUIPMENT KYUSHU DEFENSE SYSTEMS

With the increasing loss of its ships, the Japanese Navy placed more and more emphasis on ground and defensive weapons. Some ships' guns were converted to howitzers or placed on tanks. Large quantities of crude mortars of various sizes and types were manufactured. The newest amphibious tank was converted into a torpedo-launching vehicle.

Both the Japanese Army and Navy attempted to copy the United States "Bazooka" (rocket launcher) and M1 rifle. The Army version of the former was successful, but neither version of the latter proved to be a satisfactory weapon.

The Navy's 12cm multiple rocket launcher was a crude copy of the German "Nebelwerfer", and the 28-barrel, 12cm, electrically-operated, ship-borne, anti-aircraft rocket-launcher proved to be the latest and most satisfactory of the Japanese types.

Although a light, crude 8cm mortar was in mass production for use by the Navy ground forces, no radically different mortars were encountered.

A mobile anti-aircraft gun, the Type 4, 75mm, was the newest of its kind in the Japanese Army. It is similar to the German Flak 41. The Type 3, 12cm anti-aircraft gun was considered effective against U.S. B-29's and hence, research which had been previously started on a newly built Type 5, 150mm anti-aircraft gun was halted.

Of the Japanese tanks inspected, the Type 3 medium tank probably posed the greatest threat to Allied armor. A Type 4 medium tank was reported, as well as a Type 5 medium tank equipped with an 88mm gun, but neither was found complete. As a whole, it may be said that Japanese armor was greatly inferior to that of the United States.

The Japanese plan for the defense of KYUSHU was characterized by rigid defense of the beaches, lack of depth, and a comparatively small reserve for counterattack.

Inspection of the Sasebo Air Defense Center revealed that it operated with moderate efficiency. Its principal defects were as follows:

1. Low performance of search radar.
2. Lack of IFF.
3. Lack of fighter direction radar and control.
4. Poorly equipped night fighters.
5. Low degree of accuracy of fire control radars.
6. Lack of automatic fire control equipment.

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## INTRODUCTION

This report consists of preliminary information on some Japanese ground weapons and techniques not generally known to U.S. technical intelligence prior to the cessation of hostilities with Japan.

Descriptions and measurements are from actual observations, except as otherwise noted.

Some new weapons, such as the Type 5, 150mm anti-aircraft gun, are not included in this report. This weapon is an enlarged version of the Type 3, 120mm gun. U.S. Army Technical Intelligence has made a comprehensive study of this weapon.

Types 2 and 4, 20mm anti-aircraft guns were encountered, but these are only further modifications of the well-known Type 98, 20mm anti-aircraft gun.

A heavy version of the Type 2 amphibious tank was found. It is known as the Type 3 Medium Amphibious Tank and shows no marked differences in principle from its prototype. The Types 4 and 5 Medium Tanks were also investigated by U.S. Army Technical Intelligence and information thereon may be procured from that agency.

The Sasebo Air Defense Plan is believed to be typical of those of similar localities in Japan and is therefore presented.

## REFERENCES

### Related Reports:

1. "Japanese Infantry Weapons", CINCPAC-CINCPOA Bulletin 55-45.
2. "Japanese Artillery Weapons", CINCPAC-CINCPOA Bulletin 152-45.
3. "Flak Memorandum No. 4", CINCPAC-CINCPOA Bulletin 92-45.
4. "Handbook of Japanese Military Forces", War Department TM-E 30-480.
5. "Catalogue of Enemy Ordnance Material", Office of the Chief of Ordnance.
6. Ordnance reports of the 5250th Technical Intelligence Composite Company. (Available at War Dept. Washington, D.C.).

Part I - WEAPONSA. ROCKET LAUNCHERS1. 7cm Anti-Tank Rocket Launcher (Army)

The 7cm anti-tank rocket launcher is similar in design to the U.S. Anti-Tank Rocket Launcher M1 and the German anti-tank launcher; however, it is much heavier and therefore considerably less portable than the U.S. weapon. It fires a smaller projectile than the German weapon.

The rocket tube is cylindrical in shape and consists of two separate parts so that it may be disassembled for carrying purposes. When the launcher is placed in a firing position, the two halves are clamped together by

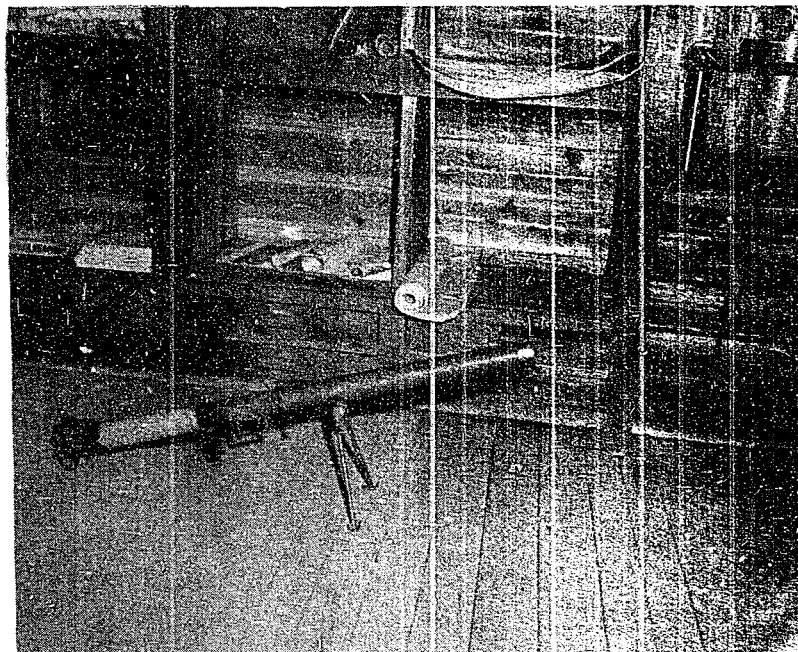


Figure 1

SIDE VIEW, JAPANESE ARMY TYPE 7cm ANTI-TANK ROCKET LAUNCHER

means of three adjustable bolts, hinged at the base of the front half, which overlap into hooks on the rear half. It was noted that the parts of different launchers are not interchangeable. A folding bipod is attached approximately eight inches from the rear of the front half of the tube. On the rear half are a pistol-type grip, a percussion type firing mechanism, a protective frame, a burlap shoulder rest, and a loop used in steadying the piece.

Because of the unusually heavy weight for a weapon of its type, the launcher must normally be fired from the prone position or from an emplacement where the bipod may rest upon the ground. The firing mechanism is cocked manually and is released by means of a pull cable which extends forward of the pistol grip. The sight consists of an open peep and two blade sights aligned vertically. The theoretical range for the two blades is not known.

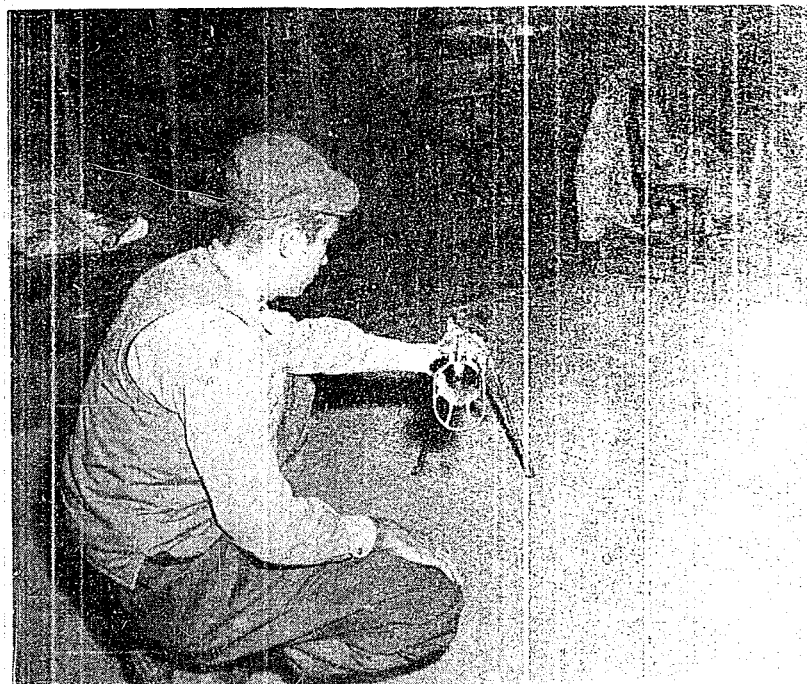


Figure 2  
REAR VIEW, ANTI-TANK ROCKET LAUNCHER  
(SIGHTS AT LEFT OF TUBE)



Figure 3  
FIRING MECHANISM OF 7cm ANTI-TANK ROCKET LAUNCHER

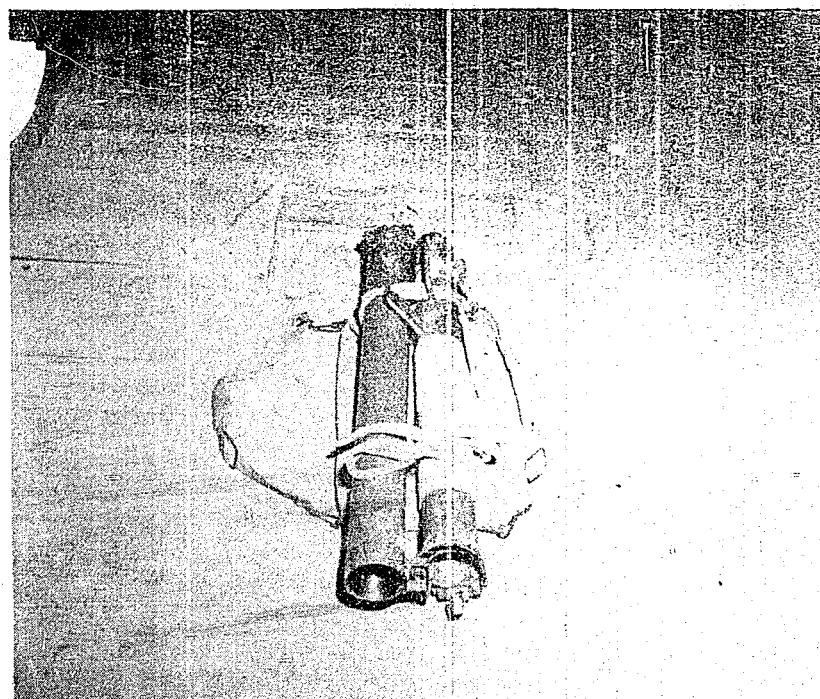


Figure 4  
7cm ROCKET LAUNCHER AND ACCESSORIES

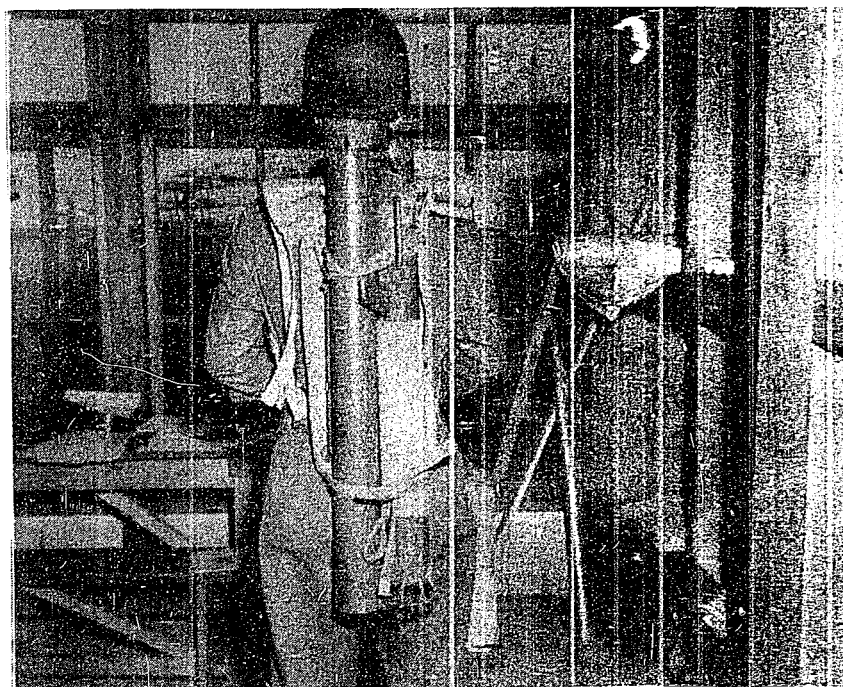


Figure 5  
METHOD OF CARRYING 7cm ANTI-TANK ROCKET LAUNCHER



A straw-lined cushion-back board with shoulder strap and straps for securing the launcher is provided to facilitate long distance movements of the launcher by one man. A burlap face piece serves as protection from the back blast of the rockets. There are eye holes cut into the face piece but no protection for the eyes is provided.

## 2. 8cm Anti-Tank Rocket Launcher (Navy)

This weapon is the first Japanese rocket launcher of its type to be reported. Previously, information had been received from German sources indicating that the Japanese were experimenting with anti-tank weapons similar to our rocket firing "Bazooka", however, the Japanese weapon was described as a copy of a similar German weapon and the launchers examined do not resemble any other known launchers.

The launcher consists of two angular troughs, bolted together at each side to form a hexagonal tube. Riders for the projectile are secured to the lower trough. At the left side of the weapon, immediately to the rear of center is a one piece, non-adjustable, bar type sight 1'3-3/4" long. The rear of the sight is an open peep; the front is a circle with cross hairs. The firing mechanism consists of a spring-activated percussion hammer with striker. It is manually cocked and held in position by a latch. The latch is released by pressure on the pivoted trigger, attached by a cable. The weapon has a wooden shoulder rest attached to its left side just aft of the sight bar.

Dimensions of the launcher are as follows:

Length overall .....	4'10 3/4"
Width of tube .....	6 1/2"
Length of bipod .....	1'0"
Height of tube .....	5 1/2"
Length of sight bar .....	1'3-3/4"

No ammunition was recovered with the launcher, but examination of the trough indicates that a projectile 7-8cm in diameter could be used.

## 3. 12cm Multiple Rocket Launcher (Navy)

This experimental weapon represents the Japanese Navy's attempt to copy the principle of the German "Nebelwerfer". Only a few were made and these were never used in combat.

The Japanese refer to this weapon as a 12cm, 6-mounting rocket gun. It consists of a cage or framework of steel rods to serve as barrels, which is set upon an axle supported by two steel wheels. Attached to the axle are two trails about five feet long, equipped with spikes.

There are seven openings in the barrel framework, six of which are loaded with rockets. The framework is made of 1/2" steel rods supported by three circular discs.

There is no provision for traverse, except lifting the trails and shifting the entire weapon. An elevating handle and elevation jamming handle are located at the left of the piece above the axle.

The firing mechanism consists of a lanyard attached to a pulley-like revolving disc at the base of the barrel framework. Attached to this disc is a firing arm, which acts as a striker. A pull on the lanyard revolves the disc and firing arm. The latter strikes the firing pins, set at the base of each of the six individual "barrels", which detonates the rockets. The spring-loaded firing arm is cammed up and then released to hit the firing pins with sufficient force to drive them forward. A fast, contin-



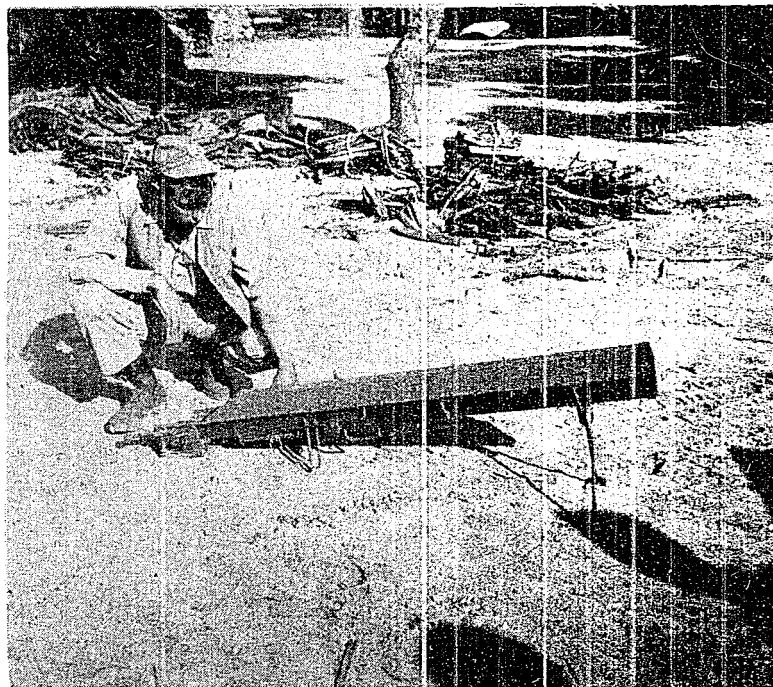


Figure 6

RIGHT SIDE VIEW OF NAVY TYPE ANTI-TANK ROCKET LAUNCHER

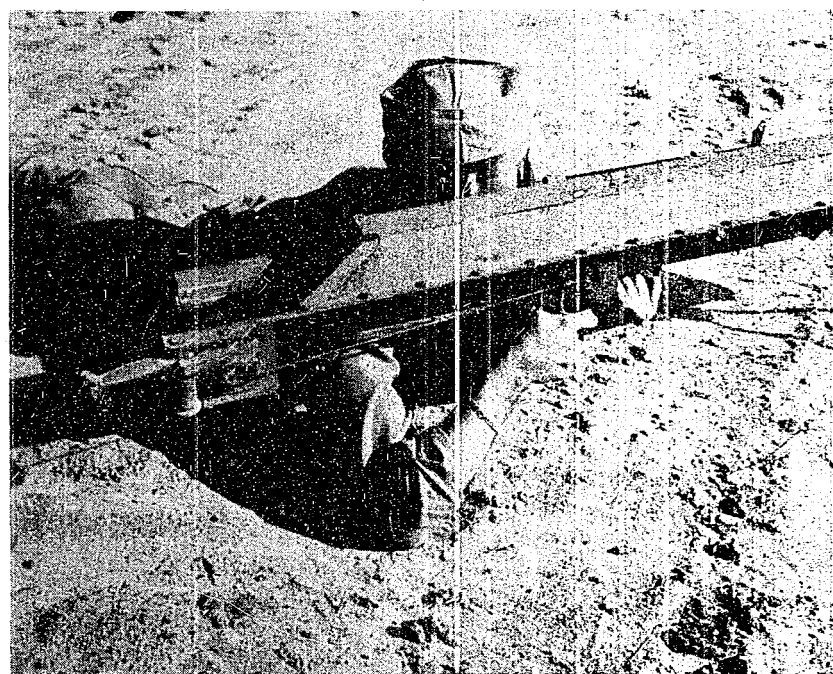
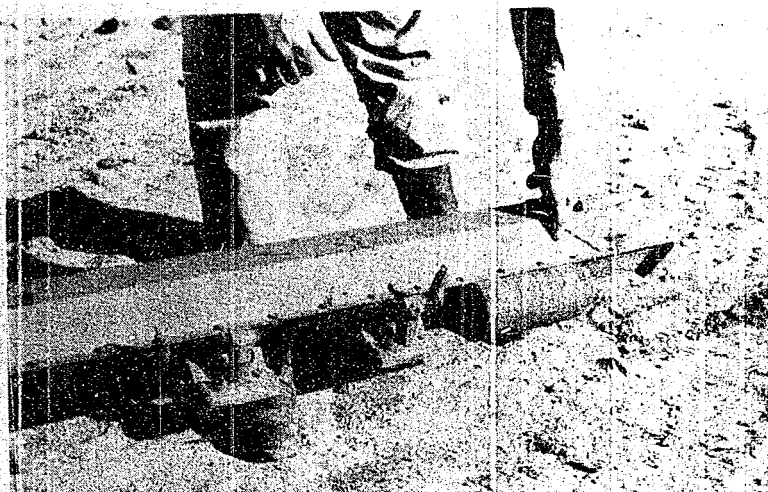


Figure 7

FIRING MECHANISM OF NAVY TYPE ANTI-TANK ROCKET LAUNCHER



*Figure 8*  
REAR VIEW OF NAVY TYPE ANTI-TANK ROCKET LAUNCHER



*Figure 9*  
SIGHT BAR AND SHOULDER REST OF ANTI-TANK ROCKET LAUNCHER

uous pull on the lanyard results in the six rockets being fired in rapid succession.

Both high explosive and incendiary rockets were to have been fired from this weapon.

Due to its light weight and mobility, it could be easily towed by one man, and only one man is required to fire the piece.

Characteristics of the launcher were as follows:

Length of barrel framework .....	40"
Overall length .....	82"
Width (hub to hub) .....	43"
Weight (loaded) .....	528 lbs
Maximum range .....	5000 yds*

\*According to Japanese

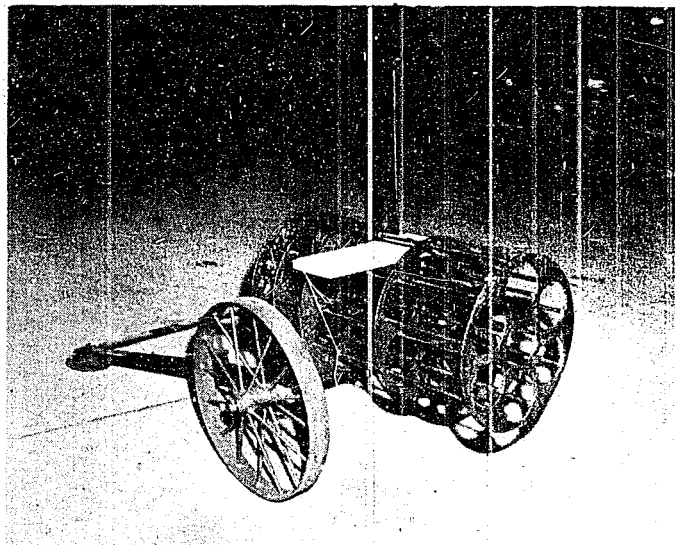


Figure 10  
RIGHT FRONT VIEW OF 12cm MULTIPLE ROCKET LAUNCHER

#### 4. 12cm, 28 Barrel Anti-Aircraft Rocket Launcher (Navy)

Although this weapon is known to have been designed for anti-aircraft defenses aboard ships, complete examples have been found among the equipment of the Sasebo Naval Guard Forces and it is possible that they may have been intended for ground use. Electrical connections in the firing mechanism had been severed, but all other parts seemed to be in good condition. The weapons were manufactured at the Sasebo Naval Arsenal in 1944 and 1945.

The rocket launcher has the appearance of a large rectangular, segmented box, mounted on a rotary pedestal. The rockets are arranged in five layers. Each of the top three layers hold six rockets, and the lower two layers hold five each. The troughs are 4'11" long and approximately 5½"

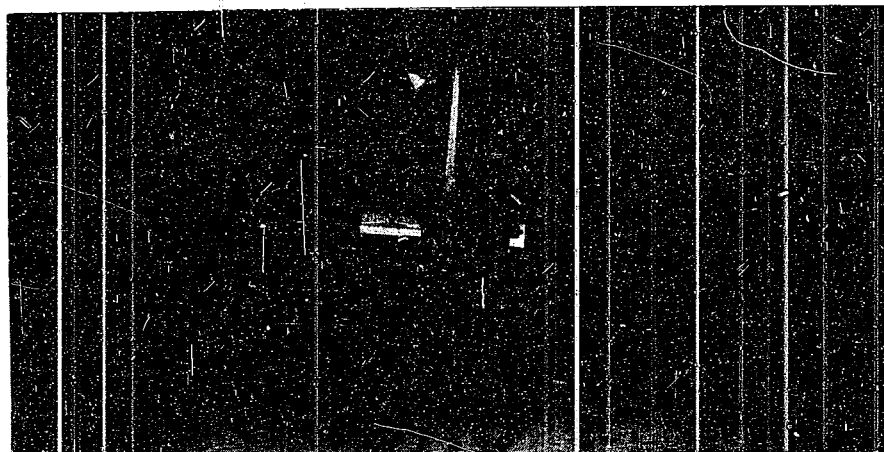


Figure 11  
LEFT SIDE VIEW OF 12cm MULTIPLE ROCKET LAUNCHER



Figure 12  
REAR VIEW OF 12cm MULTIPLE ROCKET LAUNCHER

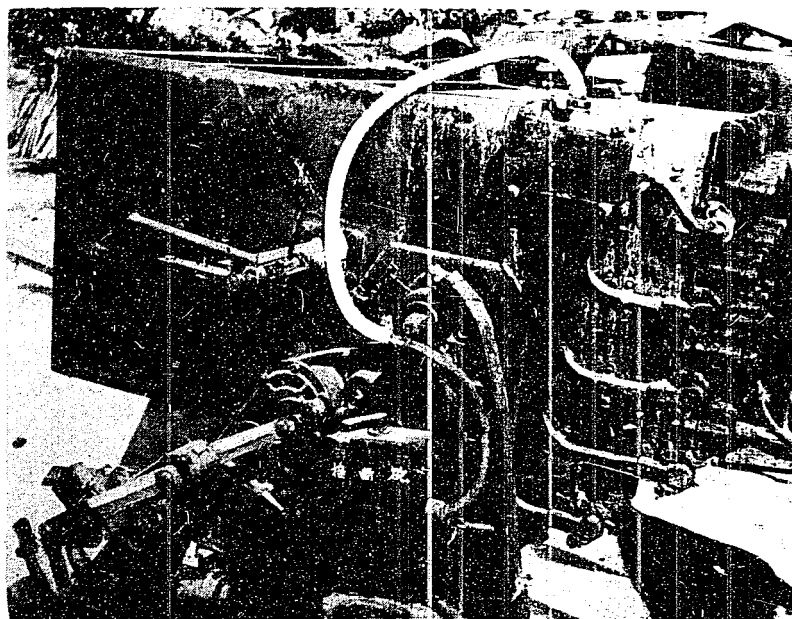


Figure 13  
LEFT SIDE VIEW OF 28 TUBE ROCKET LAUNCHER  
SHOWING ELEVATING AND FIRING MECHANISM

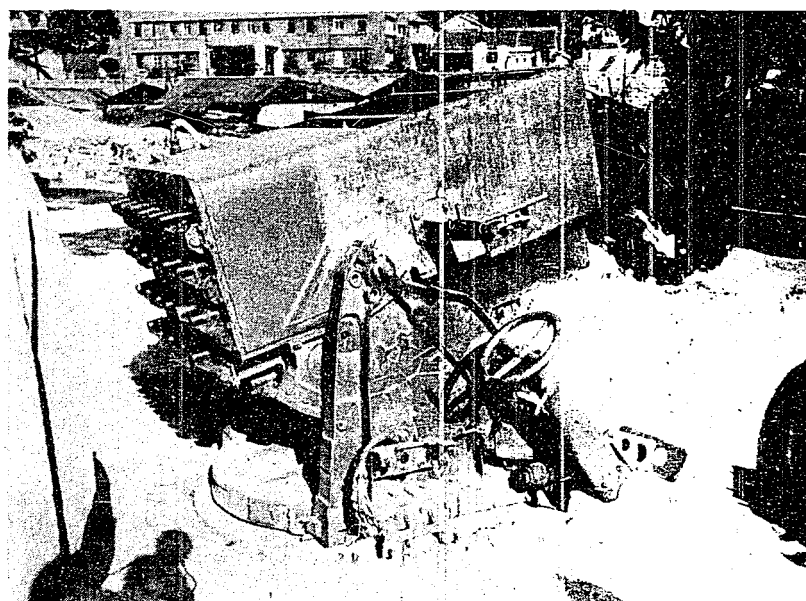
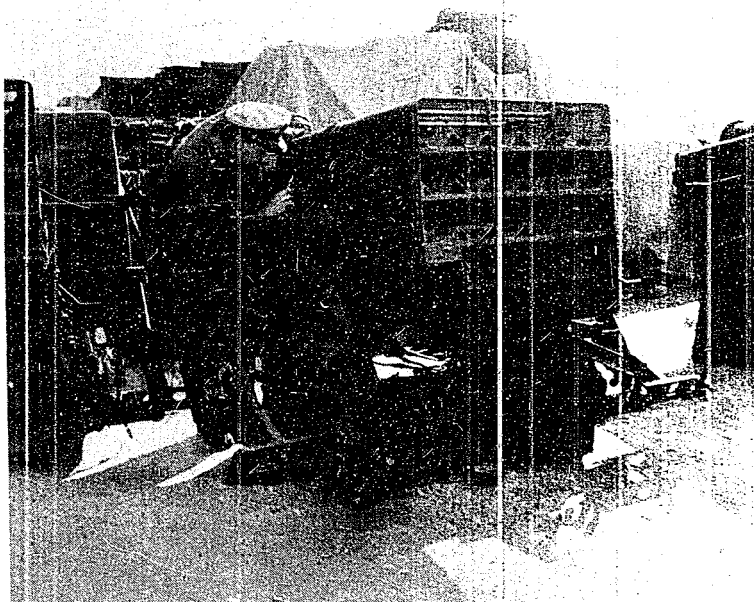
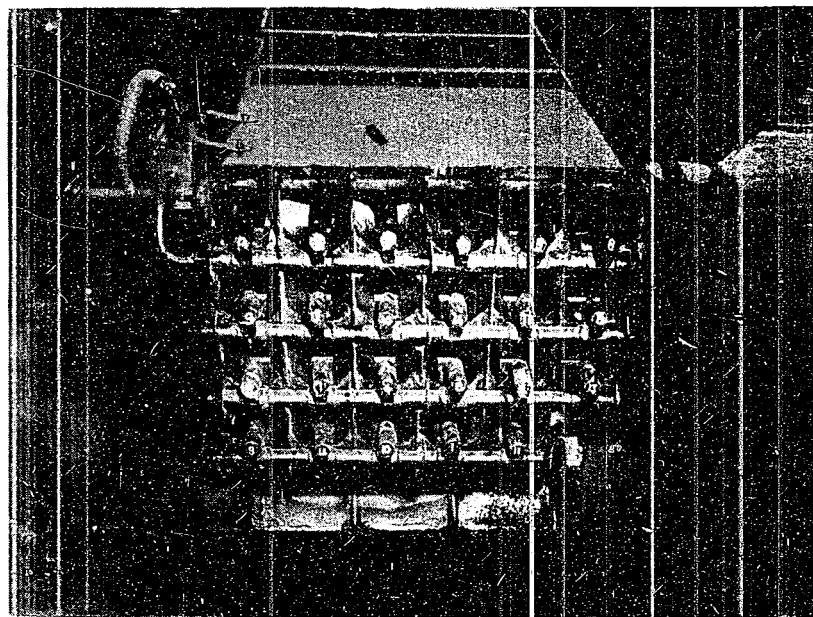


Figure 14  
RIGHT SIDE VIEW OF 28 TUBE ROCKET LAUNCHER



*Figure 15*  
RIGHT FRONT VIEW OF 28 TUBE ROCKET LAUNCHER



*Figure 16*  
REAR VIEW. NUMBERS INDICATE FIRING ORDER

wide. Seats for the two operators are located on each side of the weapon. The entire weapon sits on a circular base 3'6" in diameter.

The multi-barrel rocket launcher is designed for two-man operation. The gunner sits on the left of the weapon. He lays the gun for elevation and operates the firing mechanism by means of foot pedals. The assistant gunner sits at the right and operates the traversing handwheel, a steering wheel-like device directly in front of his seat. The sighting mechanism is a simple open type. Each gunner has a 'T' shaped device with a sliding bar graduated from 0 to 10, laterally, in both directions. The front sight is a simple bead, mounted on a pedestal. The main gunner's rear sight has three peeps mounted vertically on a pedestal. The assistant gunner's rear sight is mounted similarly but has only one peep.

The rockets are fired by electrically driven percussion type strikers and are ignited in pairs. A switch located in a box 12" high and 7-7/8" wide at the right of the gunner acts as a safety device, as well as a means of arming the piece. When the handle at the top of the box is in its rearward position, all circuits are broken even though the foot pedal is pressed. When the handle is forward, the only break in the circuit is in the trigger device actuated by the foot pedal. When the gunner begins to track he must close the switch, then operate the elevating crank until his target is lined up and within range. Then, by pressure on a foot pedal, he pulls the electrical trigger and fires all twenty-eight rockets in sequence. Numbers on the rear of each striker indicate the firing order. There is no symmetric plan for the order of firing. A diagram of the spacing of the numbers is shown.

Diagram Showing Spaces of Numbers

12	5	2	7	3	6
9	13	10	14	11	8
6	1	4	8	4	13
9	14	10	1	11	
12	5	2	7	3	

The main electric cable runs through a box at the upper left rear of the piece, where it is separated into five smaller cables which run to the various layers of rocket troughs.

The elevating arc at the left of the weapon is graduated from 0° to 90°, but the weapons seemed to be at least 5° below perpendicular when the indicator reads 90°. The traversing circle is graduated from 0° to 180° in both directions.

## B. MORTARS

### 1. 8cm Mortar, Type 3 (Navy)

The Type 3 Mortars examined are of a different design from the Type 3 8cm Mortars which were used during the war. The weapons appear to have been made for use aboard ship or in a fixed emplacement, as the base must be bolted down to achieve stability. Difficulty in disassembly and carrying of the weapon makes it unsuitable for mobile ground use unless it is vehicle-mounted. The freedom of traversing and elevating mechanisms indicates that the weapon may possibly be used for anti-aircraft fire, using a time fuze projectile; however, the elevating arcs on some of the weapons were graduated in meters of horizontal range.

The tube is of standard design except that there is a collar for the attachment of the elevating clamps approximately 1'6" above the base. The bore is 3'9 3/4" long. The base cap, spherical projection, and fixed firing pin are similar to those of the U.S. 81mm Mortar. The base consists





Figure 17

SIDE VIEW OF BASE OF 8cm MORTAR.  
GRADUATIONS FOR ELEVATION AND TRAVERSE ARE IN DEGREES

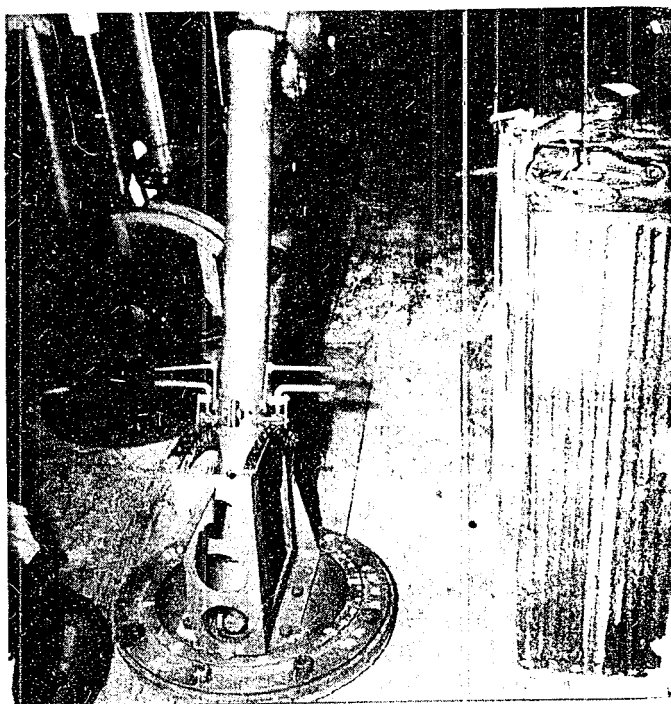


Figure 18

REAR VIEW OF JAPANESE TYPE 3 8cm MORTAR



of three circular metal discs. The two exterior discs are 1'10 $\frac{1}{2}$ " in diameter and are equipped with eight bolts for securing the weapon to the floor of its emplacement. The interior disc rotates within the outer discs. This provides complete freedom of the traverse. The elevating arc bracket and socket to receive the spherical projection of the tube are bolted to the inner disc. The outer disc is graduated in degrees and the angle of traverse may be read from the graduations, as indicated by an index line on the inner disc. The elevating bracket is a metal rack with two arcs through which the tube rides. Each arc has ten holes into which clamps attach to the tube project. Graduatiions beside the holes indicate the angle of elevation, or as previously stated, the horizontal range. Range graduations are from 0 to 3200 meters which is the maximum range using the full propelling charge. The fastening clamps, when pulled upward, disengage from the holes allowing the tube to move freely

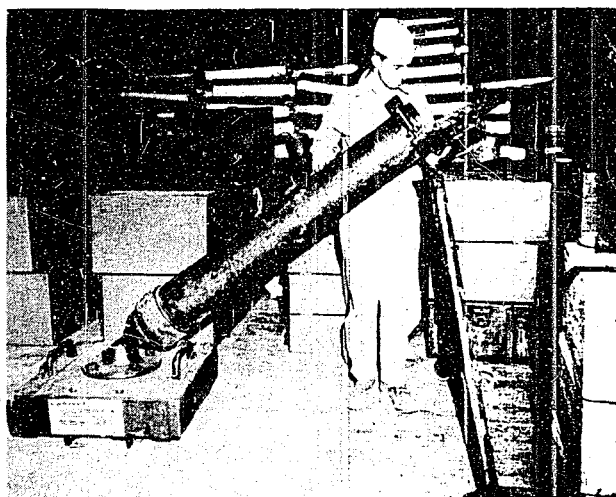


Figure 19

RIGHT SIDE VIEW OF JAPANESE SHORT 15cm MORTAR

in a vertical plane. Range is controlled by seating the clamps in the appropriate holes. There is a cylindrical rod approximately 8" long welded to the upper rear of the elevating bracket. This rod is used to facilitate traversing. The mortar has no recoil mechanism.

## 2. 15cm Mortar (Navy)

Nameplates on these weapons indicate that they are 15cm Mortars; however, the actual bore measured 6.37" (163mm). They were manufactured at KURE in April, 1945. 12cm Mortars, identical except for size, were also found. There was no mechanism provided for traversing the weapon and range could be controlled only by variation of the propellant charge in the projectile, as the mortar was designed to fire at a constant angle of elevation of 45°; there was no range control shaft in the tube. Cross level adjustments could be accomplished by use of a cross level bar and hinged yoke. The only sighting equipment found with the weapon was a plumb-type bracket at the left of the barrel collar to indicate the 45° angle, and a sighting line on the tube.

The barrel is a typical mortar tube 4'10  $\frac{3}{4}$ " long, but inside, near the base, is a jacket approximately  $\frac{3}{8}$ " thick and 1'1" long. The purpose of this liner is unknown. It is possible that it is present only to stop the downward movement of the projectile and thus prevent premature firing, or it may be used to form a recess for a variable-size propellant charge.

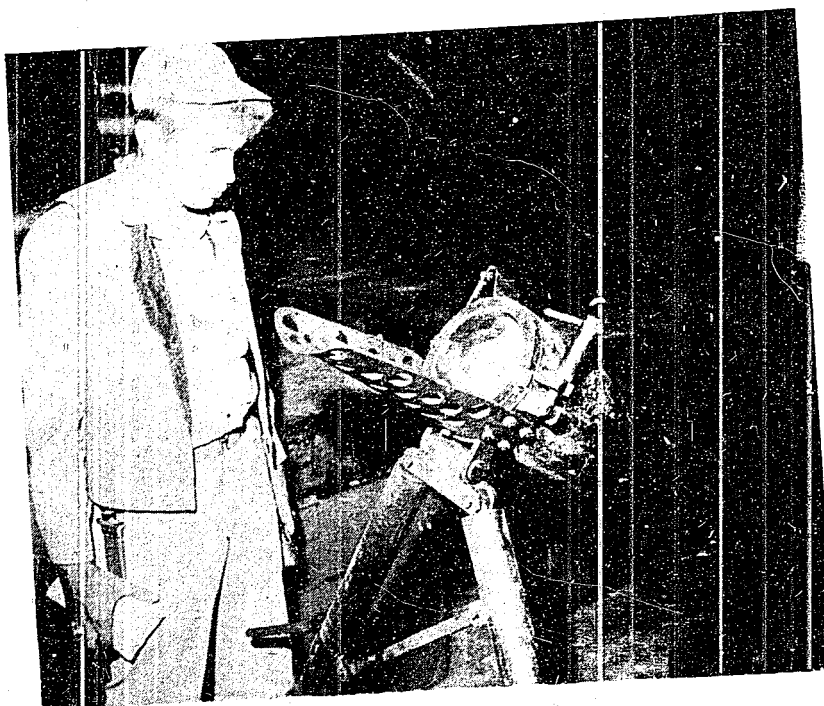


Figure 20  
RIGHT FRONT VIEW OF MORTAR SHOWING YOKE,  
COLLAR CLAMP, 45° INDICATOR AND LOADING TRAY

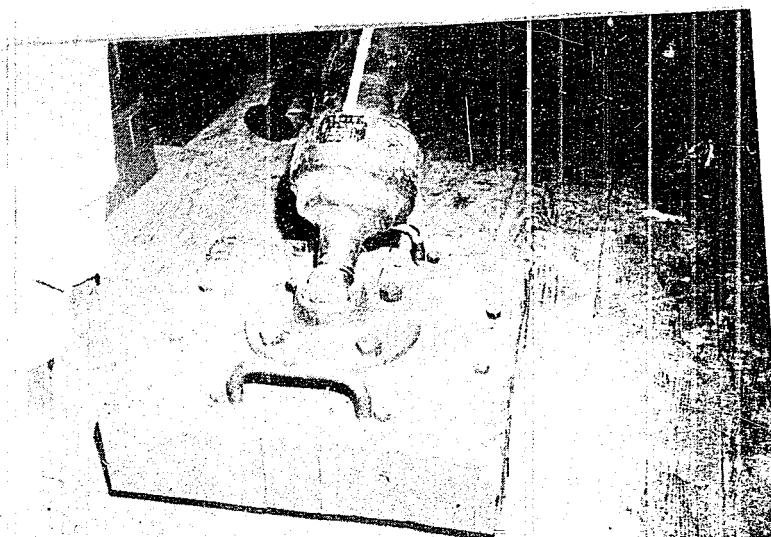


Figure 21  
BASE OF JAPANESE SHORT 10cm MORTAR

The exterior base and spherical projection of the tube are of standard design. There was no firing mechanism with the mortars and apparently no firing pin aperture in the base of the tube; however, there was a threaded well at the left of the base through which a percussion type firing mechanism or an electrical lead might be inserted.

The tripod is of standard design with legs 3'11" long and a sliding bracket 1'4½" long. A collar mounted on the hinged yoke fits around the muzzle of the tube and clamps at the right side. On the left of the collar is the 45° angle indicator and a plate on which instructions in the use of the indicator were written. There is a perforated metal tray 1' long which extends forward from the tube mounted on the collar.

The base is a wooden block 2'3½" square and 6½" thick, to which a circular base with a socket is bolted. There are metal bands and carrying handles bolted to each end of the wooden base. When the mortar is in firing position, the handles are in the front and rear position rather than at the side as on mortars previously examined.

### C. ANTI-AIRCRAFT GUNS

#### 1. 75mm AA Gun, Type 4 (Army)

This weapon was the best mobile anti-aircraft gun produced by the Japanese. It was intended to replace the widely-used Type 88 (1928) 75mm gun.

Descriptive data are as follows:

Type .....	Type 4 (1944)
Bore .....	75mm
Length in calibers .....	53 (approx.)
Maximum ceiling .....	39,360 feet
Horizontal range .....	17,500 yards
Rate of fire .....	6 rds/min
Limits of elevation .....	0° to 85°

The construction and basic design of this piece follows that of the 8cm (88mm) Type 99, a Japanese copy of the German Flak 36. A horizontal sliding wedge breech block functions semi-automatically in that the cartridge is ejected on counter recoil and closes automatically as a round is rammed home. No evidence of a power rammer was found. The top carriage is of the pedestal type, mounted on four outriggers. Figure 22 shows the pedestal and outrigger detail. The pedestal contains a vertical spring equilibrator connected to the two elevation racks by a chain.

These guns were intended to be director controlled, and each gun has self-syn receivers for fuze, angle of train, and quadrant elevation information. Data were set at the guns by means of zeroing lagmeters (i.e. volt meters). Mechanical dials are present for calibration purposes. Figure 23 shows the left side of a gun with the elevation setter's hand-wheel, lagmeter, and two mechanical dials. The top of the fuze-setting mechanism is visible in the lower right hand corner of Figure 23 and in greater detail, in Figure 22. This type fuze setter has three receptacles for ammunition. Also on the left hand side of the gun is the assembly for case one firing (local control) minus the sights. No optical gear for these guns had been received at FUKUOKA prior to the end of the war.

Figure 24 shows the left hand side of a Type 4 gun at maximum elevation and Figure 24A shows the right hand side in travelling position. A trained crew is supposed to emplace one of these guns in three minutes. Figures for rate of fire were given by a Japanese colonel who had not seen the guns fire. It is believed that the actual rate is substantially

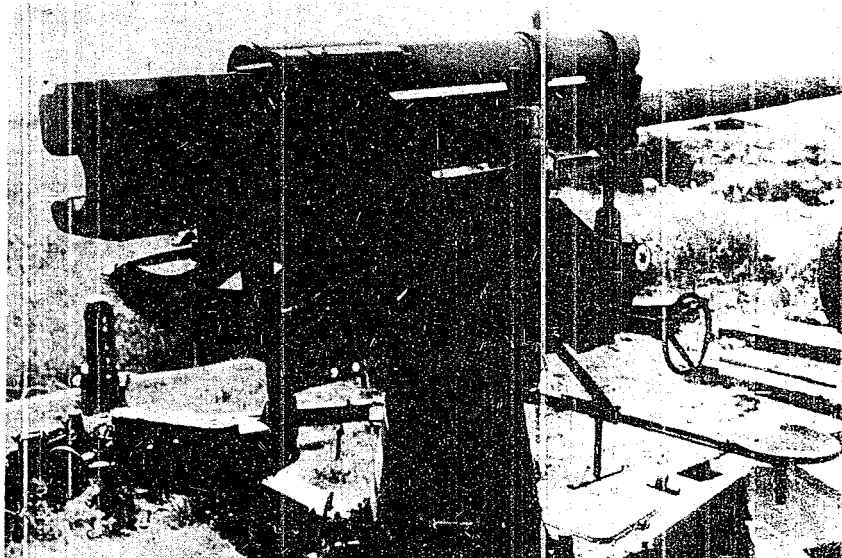


Figure 22  
TYPE 4, 75mm AA GUN, RIGHT SIDE

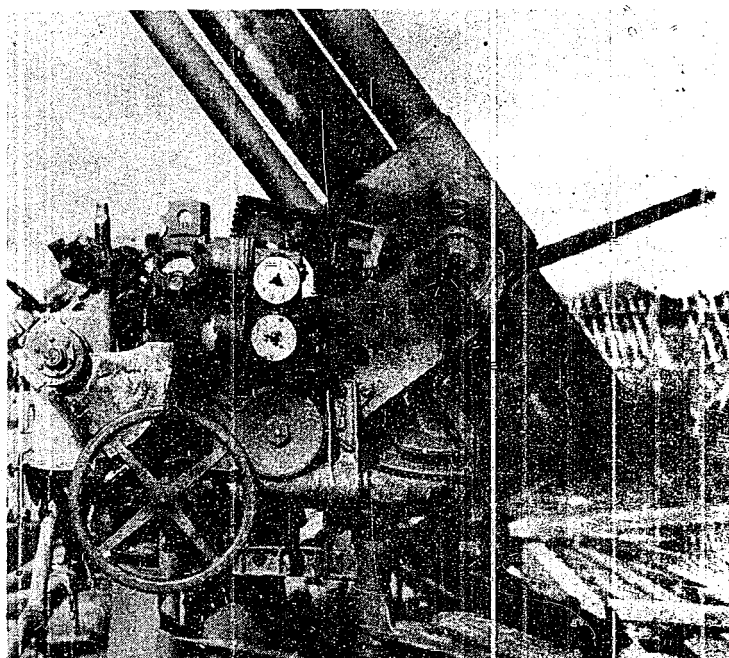


Figure 23  
TYPE 4, 75mm AA GUN, LEFT SIDE.  
DETAIL VIEW OF ELEVATION HANDWHEEL, MECHANICAL DIALS,  
DATA RECEIVER, AND LOCAL CONTROL ASSEMBLY.

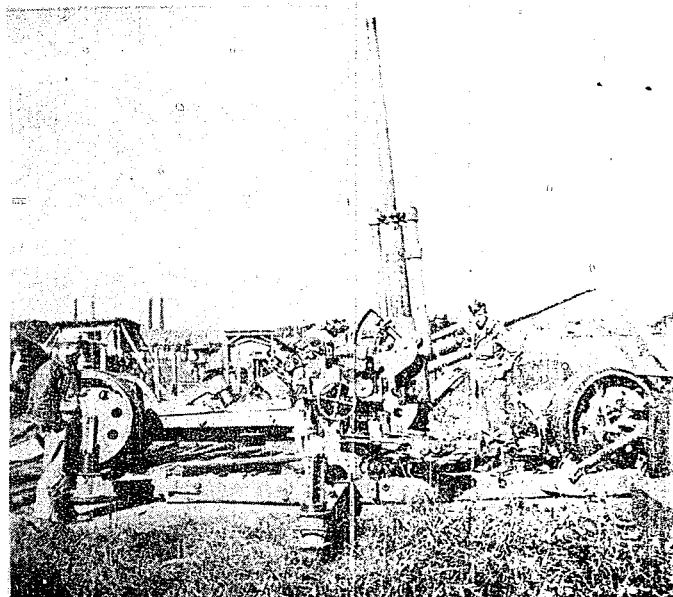


Figure 24  
TYPE 4, 75mm AA GUN, LEFT SIDE.  
GUN AT MAXIMUM ELEVATION (90°)

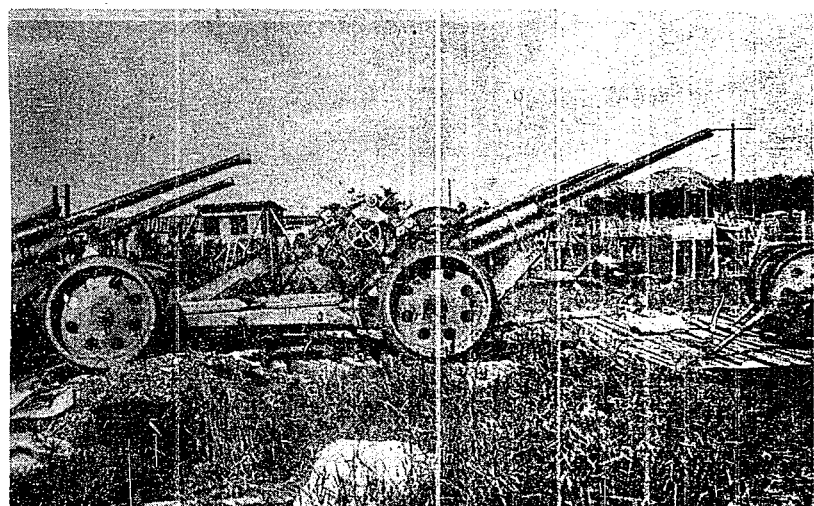


Figure 24A  
TYPE 4, 75mm AA GUN IN TRAVELLING POSITION,  
RIGHT SIDE VIEW

higher.

## 2. 120mm Anti-Aircraft Gun, Type 3 (Army)

These guns are permanently emplaced in concrete mountings and have no tactical mobility. Appearance is characterized by large gun housings which completely cover the breech end of the gun, as well as nearly all of the personnel. A loading tray and power rammer are similar to the Japanese Navy Type 98, 10cm AA gun, previously reported on. The method of fuze setting is also identical with the Type 98, consisting of a fixed rack which engages the toothed fuze gear as the loading tray pivots into position. Two large recoil cylinders are located above the barrel and project slightly beyond the gun housing. Recuperator and counter recoil buffers are smaller cylinders, located below the barrel, slightly to the

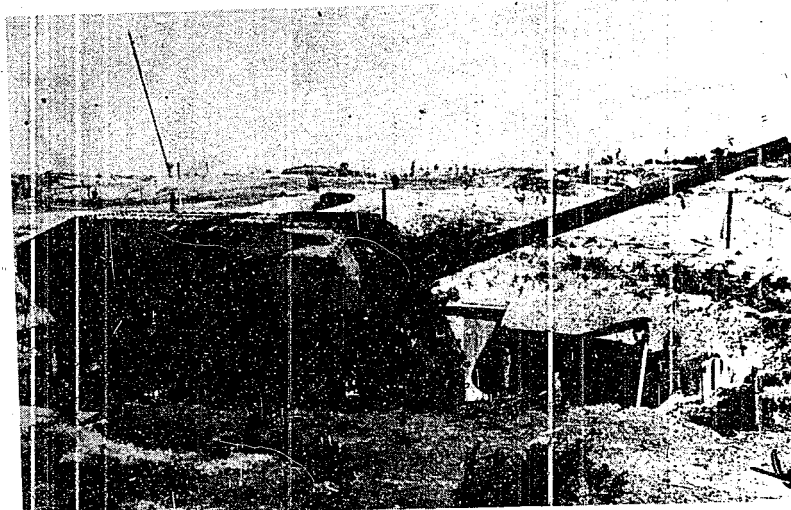


Figure 25

RIGHT SIDE OF 120mm AA GUN

right of center. Fuze, azimuth and elevation data are received electrically from the director and proper settings are obtained by zeroing a lagmeter (i.e., voltmeter). Mechanical dials are present for orienting purposes.

Characteristics of the gun are as follows:

Type .....	Type 3 (1943)
Bore .....	120mm
Length in calibers .....	56 (6.72 meters)
Muzzle velocity .....	2820 ft/sec
Horizontal range .....	21,800 yards
Maximum ceiling .....	45,900 feet
Practical rate of fire .....	15 rds/sec*
Limits of elevation .....	-8° to 90°
Maximum fuze setting .....	50
Length of recoil (maximum) .....	32cm

\*Note: Battery personnel gave a rate of fire of 30 rds/min.

## 3. Amphibious Tank, Type 4 (Navy)

This amphibian was called by the Japanese the "Type IV Special Combustion Boat".

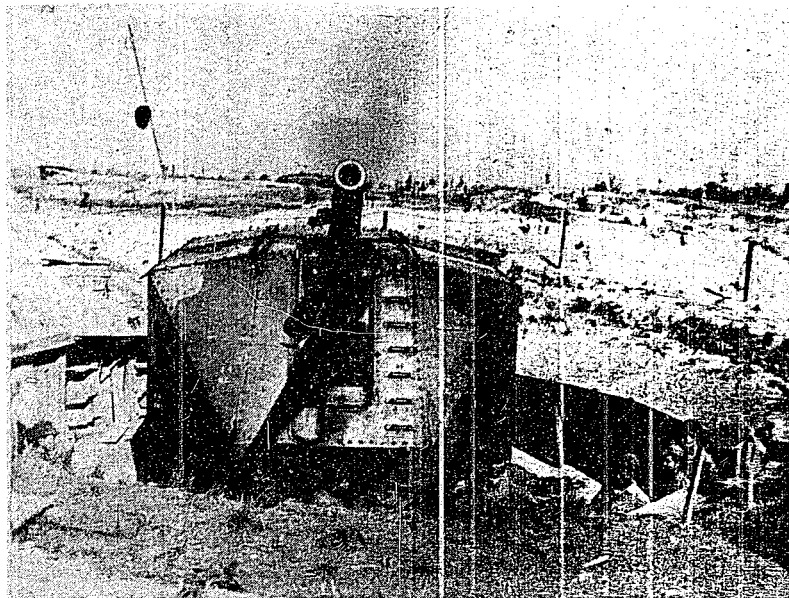


Figure 26  
FRONT VIEW OF GUN AND EMPLACEMENT

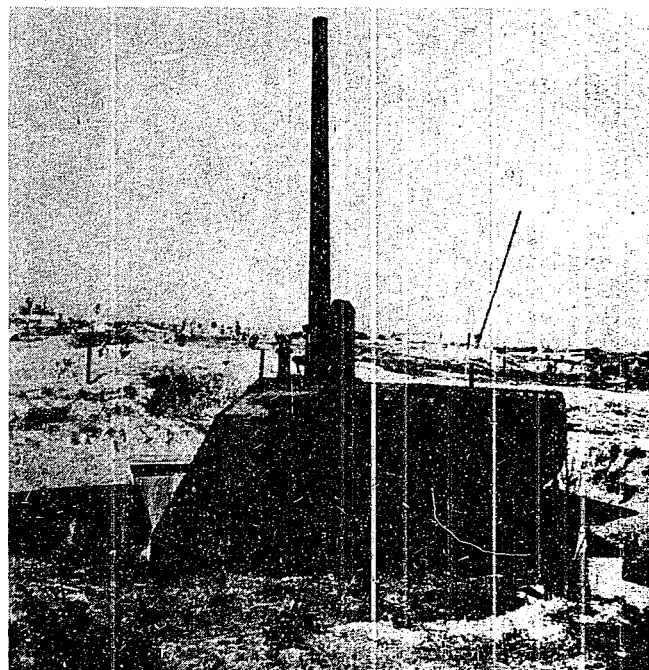


Figure 27  
RIGHT SIDE OF 120mm AA GUN, 90° MAXIMUM ELEVATION



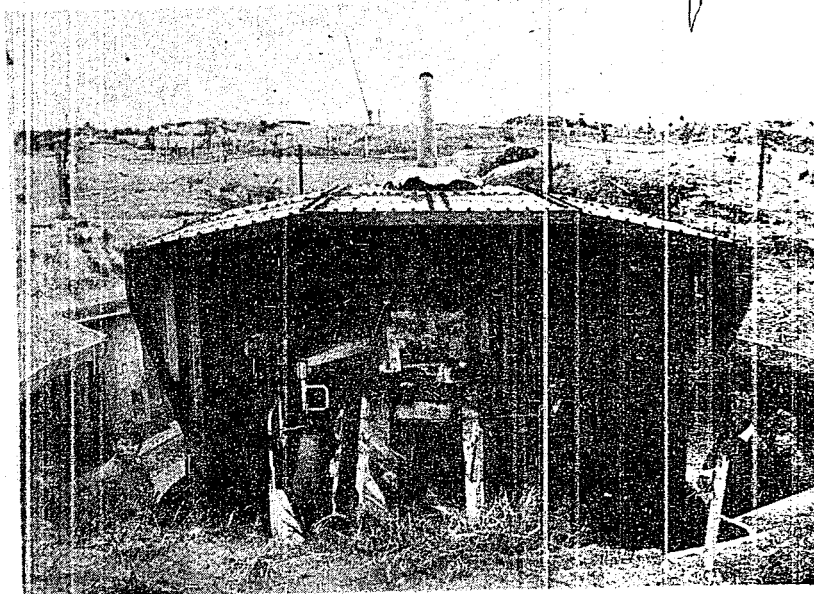


Figure 28

REAR VIEW OF GUN, SHOWING BREECH MECHANISMS  
AND EXTENT OF PROTECTION

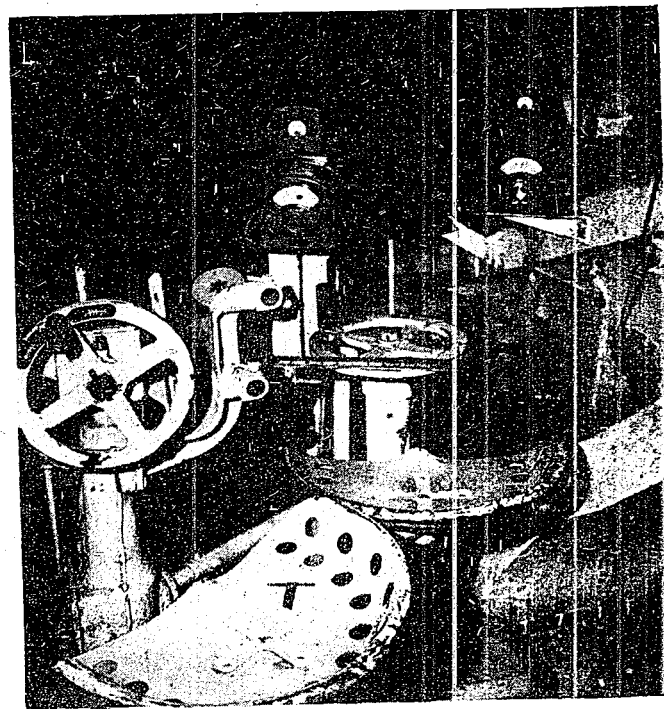


Figure 29

DETAILED VIEW OF AZIMUTH AND ELEVATION SETTERS' POSITION  
ON LEFT OF GUN. THE FOUR MECHANICAL DIALS ARE USED FOR  
ORIENTATION; DATA ARE RECEIVED ON THE ELECTRICAL METERS.



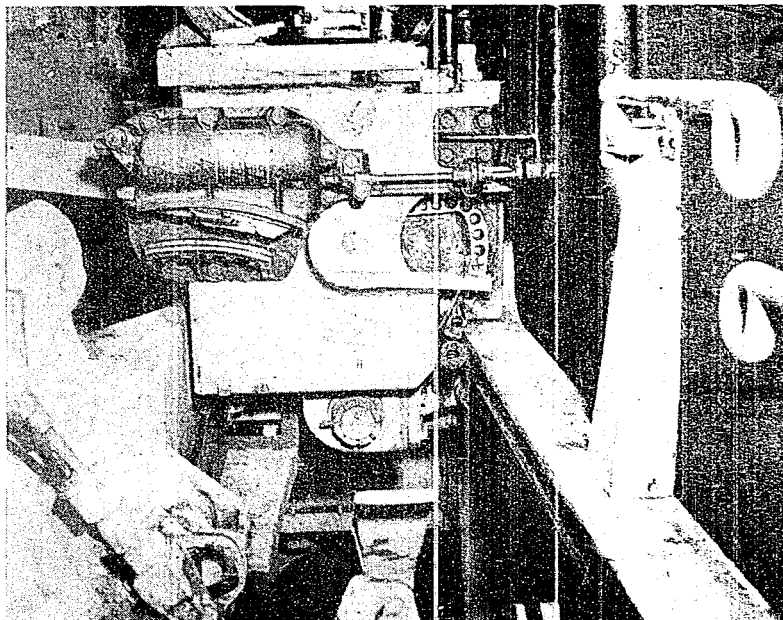


Figure 30

DETAIL VIEW OF THE BREECH OF A 120mm AA GUN SHOWING  
LOADING TRAY, FUZE SETTER, BREECH HOUSING, AND  
RAMMER SHOE. MECHANICAL LINKAGE TO THE FUZE CUTTER IS  
FROM FUZE SETTER'S HANDWHEEL ON THE RIGHT OF THE GUN.

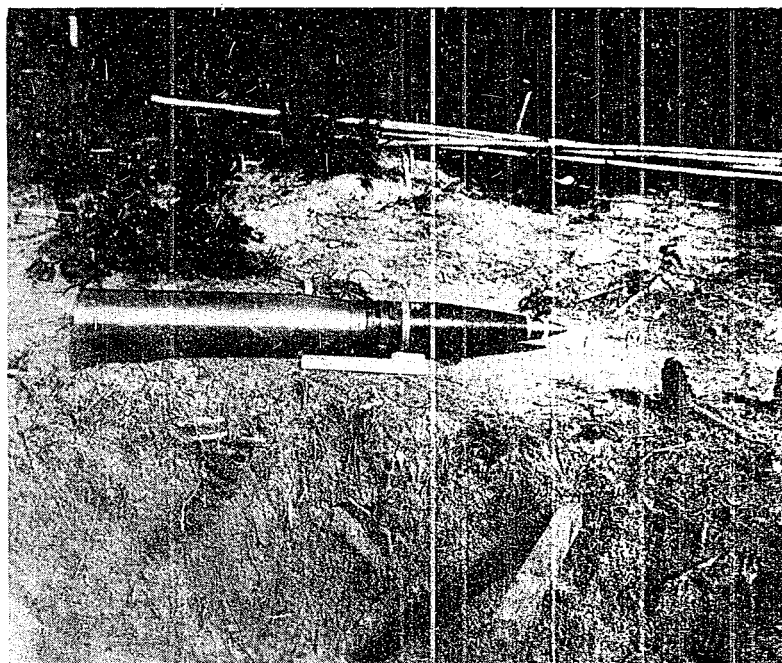


Figure 31

VIEW OF A COMPLETE ROUND OF 120mm AA AMMUNITION



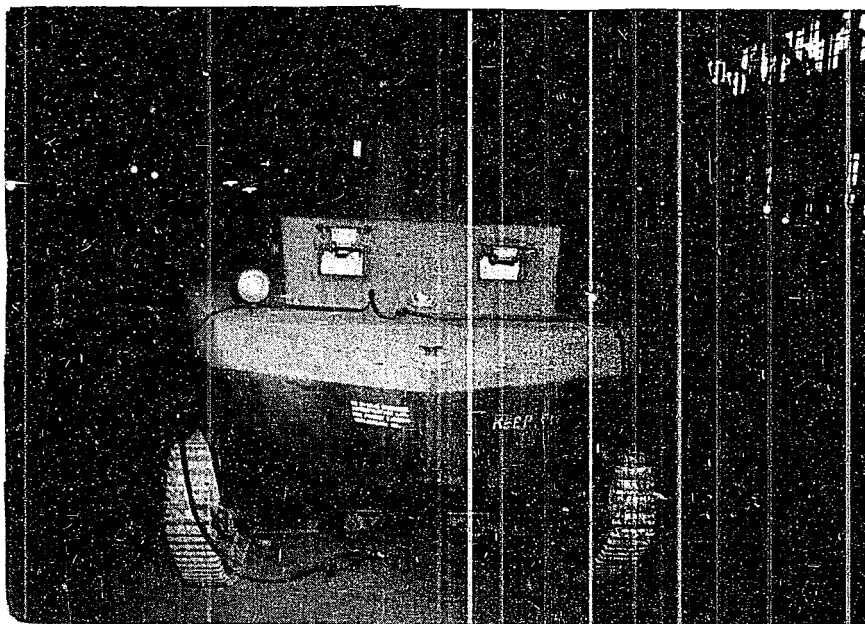


Figure 32  
FRONT VIEW OF TYPE 4 AMPHIBIOUS TANK

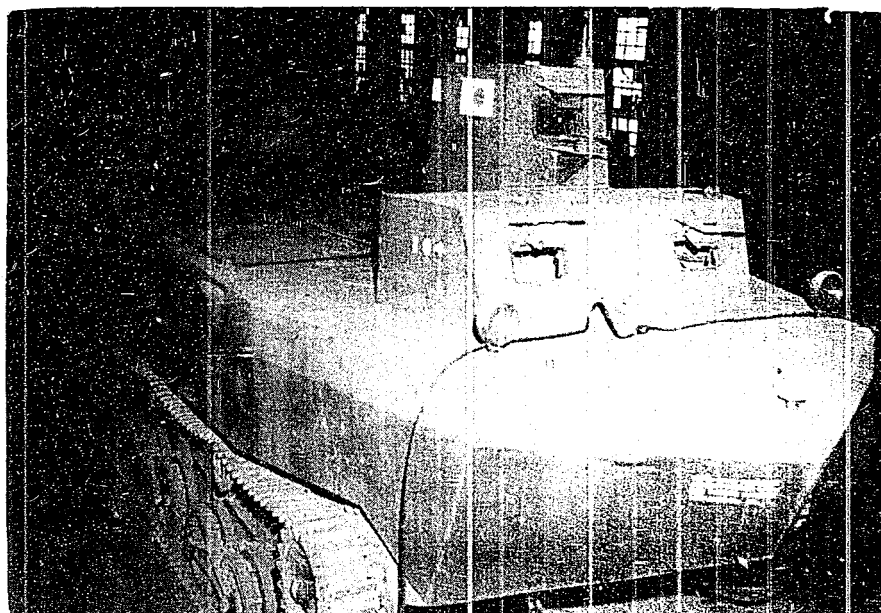


Figure 33  
RIGHT FRONT VIEW SHOWING CONNING TOWER  
OF TYPE 4 AMPHIBIOUS TANK

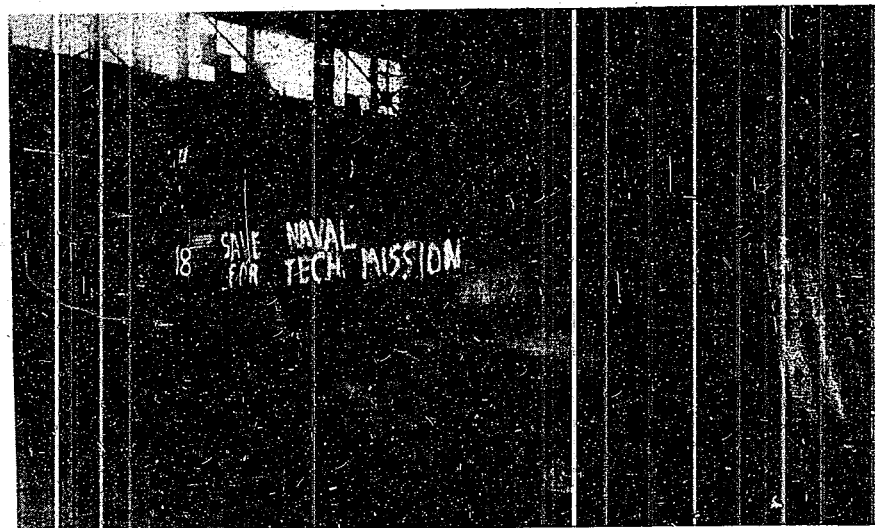


Figure 34  
LEFT REAR VIEW OF TYPE 4 AMPHIBIOUS TANK

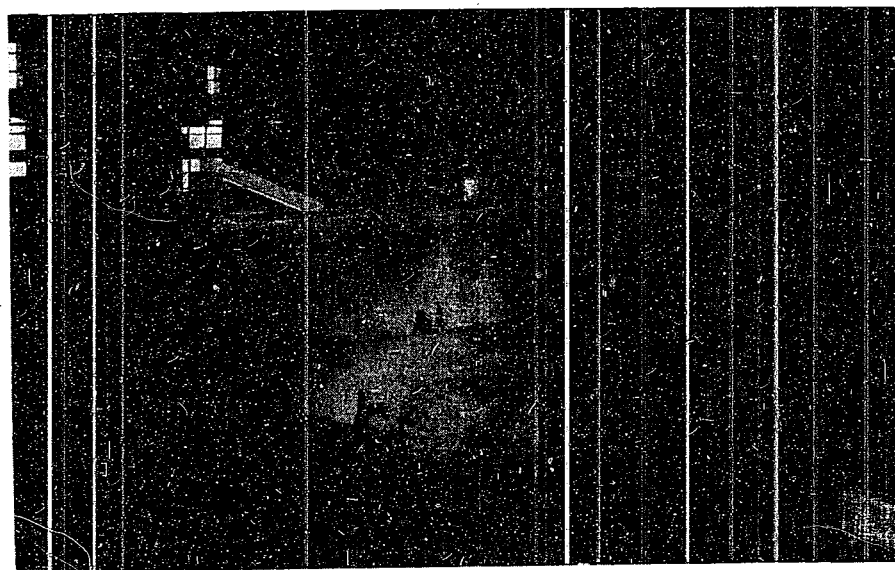


Figure 35  
RIGHT REAR VIEW OF TYPE 4 AMPHIBIOUS TANK

housed position, the propellers are almost drawn up within the inner casing, only one blade projecting. Propellers can be worked independently or together with the tracks. The twin rudders are similarly housed.

c. Original Design

Originally, the tank, designed in 1943, was intended for landing a raiding party. It was planned to lash the tank on the outer casing of a large submarine. During transport, the engine would be sealed in its watertight casing, the flooding valves opened and the interior of the tank flooded.

On approaching an enemy beach, the submarine would surface and after the tank had drained, the flooding valves would be closed, the engine case opened and the driving shafts connected. The tank was then either driven off the submarine, or the submarine would submerge leaving the tank waterborne and ready to proceed under its own power. On landing, propellers and rudders would be housed. It was said to be capable of carrying a raiding party of 35 men and their equipment. It is not known to have been used operationally.

d. Modification

The change from offensive to defensive policy resulted in this tank being modified in 1944 to a torpedo carrier. Stowage with release gear for two torpedoes was fitted, but only old type torpedoes were supplied. In the modified form, it was never used in combat; its first operational appearance would have been during the invasion of Japan.

While no accurate figure of the number actually completed is known, it appears that no more than 100 would have been available for the invasion. About 40 were built at YOKOSUKA, others being produced at KURE and SASEBO.

So far as could be ascertained, no trials had taken place in launching from a submarine, and for anti-invasion purposes, the tanks were to be hidden in caves and launched from the shore at night for attacks on shipping in the transport area.

The tank examined was fitted with a small directional three-colored signalling lamp, for the leader to use in signalling the time to fire. The tactics to be employed are not known, but this signalling light appears to indicate that a number of tanks would have operated together. No other signalling equipment was fitted.

These tanks were another example of weapons to be used in a suicide role. On reaching their target, both torpedoes would have been released simultaneously at short range. On completion of the attack the tank would probably have been scuttled, there being no intention to attempt to return ashore and reload.

Consideration was given to fitting smoke apparatus but no tanks were known to have been so fitted.

4. Navy Medium Tank, Type 97, Modified

This Navy tank was to have been used to support Navy ground forces. It mounts a Navy 12cm gun or a standard arms turret.

a. Hull

The hull is identical to that of the standard Type 97 tanks which were encountered throughout the war. It is made of riveted and welded steel plate, 5/8" thick on front, 7/8" on the sides, and 3/8" in the rear.

b. Turret

The turret is similar in construction to that mounted on the improved Type 97 tank (medium). It is rounded at the front and tapered on each side so as to form an elongated after-portion permitting added recoil space for the turret gun. It is mounted a few inches to the right of the center line of the tank. Armor thickness is 5/8" on all sides and 3/8" on top. The turret is mounted on a geared track and may be traversed 360° in either direction. A large rectangular box containing spare parts and accessories is mounted on the flat rear surface.

c. Armament

The principal weapon of the tank is a short-barreled 12cm naval type gun labeled "Mark 5", mounted in the turret. It is known as a self-propelled long-recoil type, short 12cm gun. The mounting consists of a concentric spring type recoil mechanism set in a rectangular steel plate. Angle baffle muzzle brakes found on all guns appear to be a modification added after the gun was manufactured. The tube is of monoblock construction.

The breech block is an interrupted thread type which is hinged at the right. Firing mechanism is a spring-driven, lanyard-actuated percussion type. There is a cylindrical well approximately two inches in diameter and 3/4" thick surrounding the firing pin aperture in the face of the breech block. A large steel plate bolted to the top of the breech ring apparently serves only as a counterweight for the muzzle brake.

An interesting feature of the firing mechanism is a mechanical safety which locks the breech while the gun is being fired. The safety is activated by pulling the lanyard and is held in position until after the firing pin has been released.

The operating handle is located directly under the breech ring. It swings in an arc pivoted on the breech block hinge. When it is opened, a cam riding in a slot in the handle forces the firing pin guide housing to the rear, cocking the piece. The seer is cammed forward into the seer notch in the firing pin shaft thus holding the pin in a retracted position until the lanyard is pulled.

A single piece extractor located at the right of the breech ring is pivoted by the movement of the breech block.

No sight was found but a sight mount and range drum, graduated from 0 to 4000 meters, were located at the left of the breech. Traversing and elevating mechanism were also located at the left of the breech. Apparently the gun was manned by only one man.

Ammunition racks were provided for twenty-seven rounds of ammunition, but practice ammunition was the only type located. It was 24 3/4" long overall, had a shell case 11 3/4" long, was painted black, and had a well to receive a nose fuze.

Characteristics of the weapon are as follows:

Length of bore ..... 56 3/4"

Number of lands and grooves ..... 24  
Length of rifling ..... 45"  
Overall length (without muzzle brake) ..... 59½"  
Recoil mechanism ..... Concentric spring  
Length of recoil ..... 13" (approx.)  
Maximum elevation ..... 20° (approx.)  
Maximum depression ..... 10° (approx.)  
Traverse ..... Turret traverse only (360°)  
Breech block ..... Interrupted thread

Secondary armament for the tank is one 7.7mm machine gun mounted forward at the left side of the hull. No machine guns were recovered but mountings indicate that the type was the standard Type 97 tank gun.

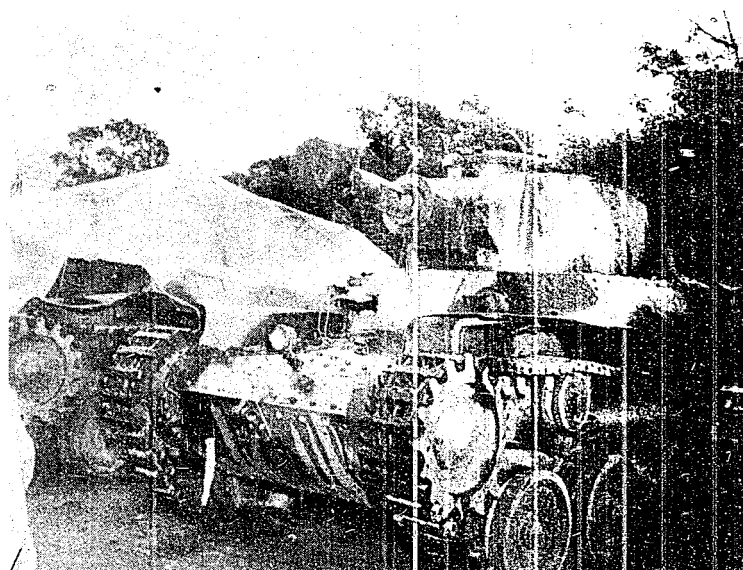


Figure 36  
MODIFIED TYPE 97 JAPANESE MEDIUM TANK

d. Suspension System

The suspension system is the same as that of the standard Type 97 tank. There are six bogie wheels on each side, four mounted in pairs and two independently sprung. The drive sprocket is at the front and the idler at the rear. There are three small return rollers on each side. No protective armor is provided for the steel tracks but the forward portions are covered by fenders of thin sheet metal.

e. Engine

The engine is believed to be a 12-cylinder radial type. There is a ventilator located directly above the engine compartment on the after portion of the hull. The tank is driven from the right side. Maximum speedometer reading is 60KPH.



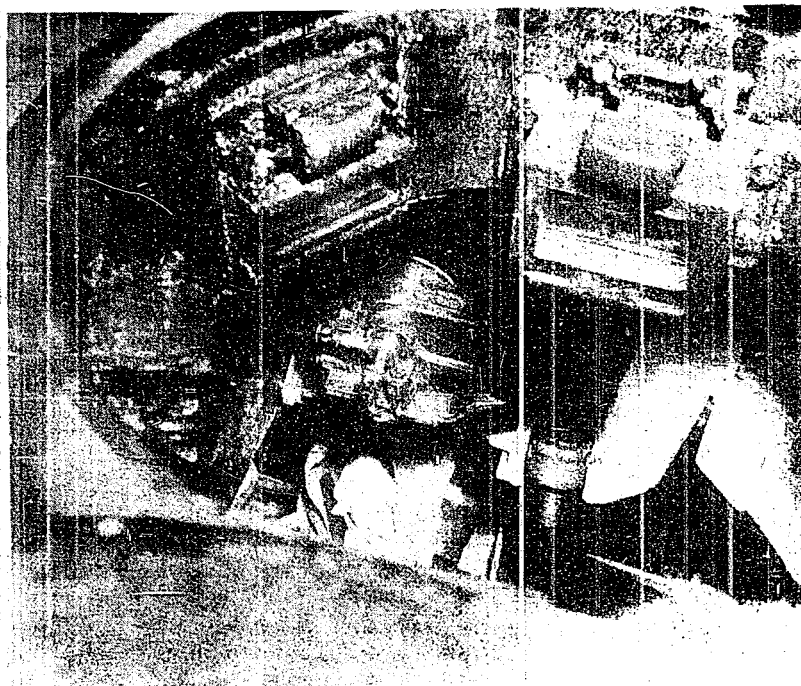


Figure 37  
BREECH MECHANISM OF MARK 5, 12cm NAVAL TYPE GUN

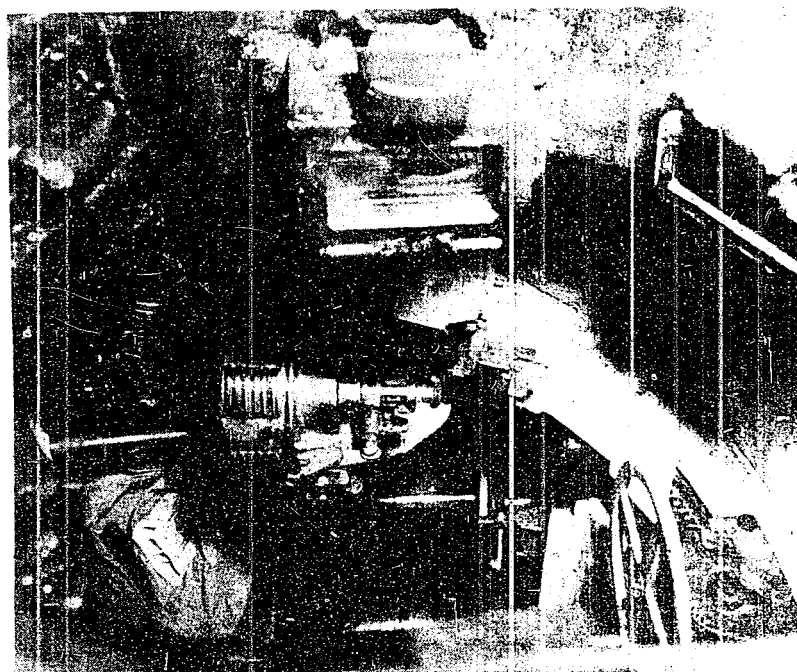


Figure 38  
OPEN BREECH OF SHORT 12cm GUN



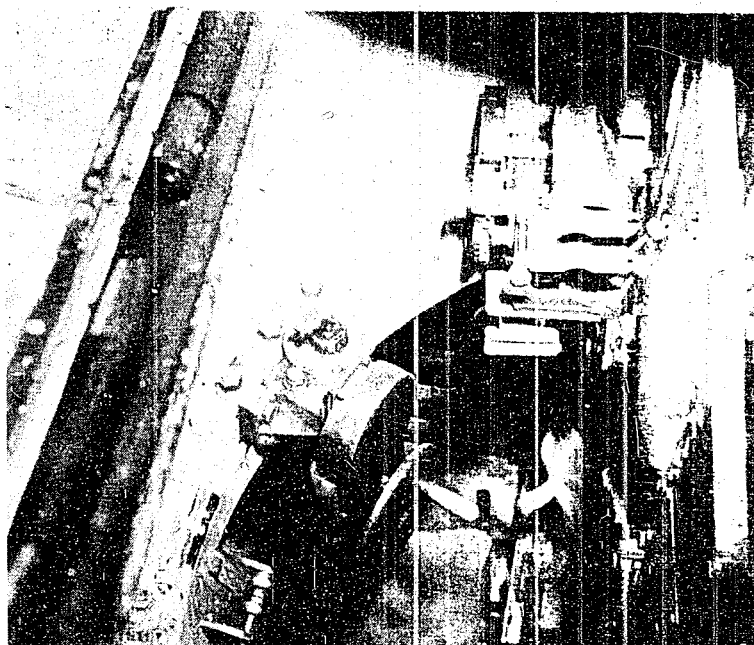


Figure 39  
LEFT SIDE OF 12cm GUN SHOWING SIGHT MOUNT  
AND TRAVERSING HANDWHEEL.

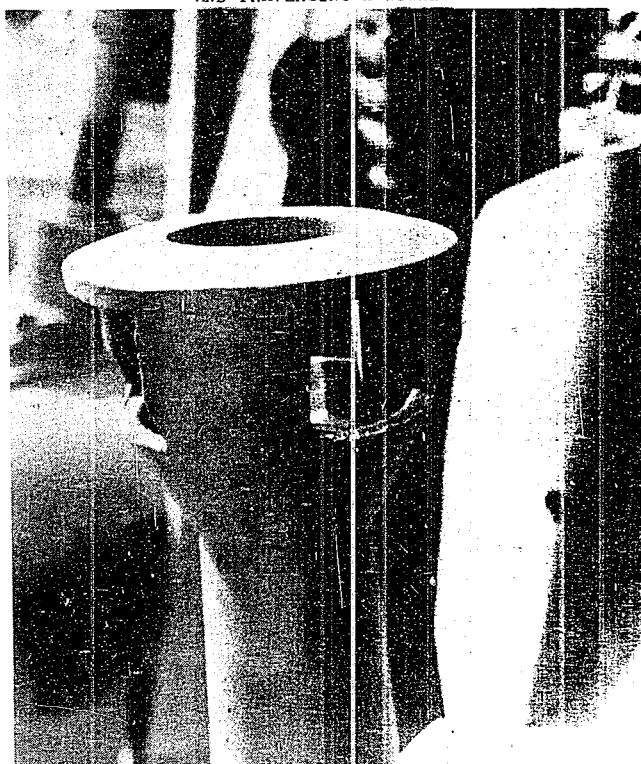


Figure 40  
MUZZLE BRAKE ON 12cm SHORT NAVAL GUN  
ON TYPE 97 TANK (MODIFIED)

## f. Conclusions

The tank chassis and hulls have apparently not been modified and it is probable that the armament was converted from the 47mm gun after the tanks had been completed. The guns seem to have been designed for a different mount; examination of the tubes and the ammunition indicate that they may be the same as the 12cm short naval gun normally mounted on shipboard for anti-aircraft and anti-submarine use. It is probable that the tanks, as they are now equipped, were produced for use as mobile close support artillery weapons.

5. Medium Tank, Type 3, (Army)

This tank was apparently developed from the Type 97 medium tank but is much more heavily armed and armored. It is superior in construction and performance to any Japanese tank previously reported. According to information received from personnel of the unit which operated the tank, it weighs approximately twenty tons and has a maximum speed of 30 KPH on roads and 20 to 24 KPH cross country.

## a. Hull

The shape of the hull is similar to that of the Type 97 except that it is more angular. The front surface consists of one flat surface tapered up toward the driver's window, rather than the ricochet plates used on the older tank. There is no cupola for the driver's seat. The engine compartment has squared corners rather than sloping plates. The hull is of bolted, rather than riveted, construction. Armor thickness of the front plates is 1.45 inches, the sides 1 inch, and the rear and top of the engine compartment  $\frac{1}{2}$  inch. A Type 97, 7.7mm machine gun is mounted at the left in front.

## b. Turret

The Type 3 tank mounts a 75mm gun in an electrically-controlled turret. The shape of the turret is similar to that of the Type 97 Modified tank which carries a 47mm gun; however, its size is much larger to accommodate the bigger gun. The gun is the same as the Type 90 field gun which was the Japanese Army's most modern field piece. It has a maximum elevation of 45 degrees and a maximum range of 1500 yards. Traverse is accomplished by movement of the turret which will traverse 360 degrees in either direction. A fixed sight is used with the gun. There are racks for forty rounds of ammunition in the turret. Armor thickness is approximately  $\frac{1}{2}$  inch at the top, 1 inch at the sides, and 1.8 inches at the front. The turret is 8' long, 2'6" high, and has a front face 3'7" wide.

## c. Suspension System

The suspension system is identical with that of the Type 97 tank. There are six bogie wheels, two independently sprung and four mounted in pairs. The drive sprocket is at the front and the idler at the rear. There are three return rollers at the top.

d. The engine is the same as the six cylinder diesel engine used in Type 97 tanks.

6. "Cannon" Tank (Army)

The tanks examined were designated by no type number, but were referred to by personnel of the unit which operated them as "Cannon" tanks. They had the same hull, suspension system, engine and chassis as the Type 97 tanks, but mounted a special turret designed for the Type 90, 75mm gun.

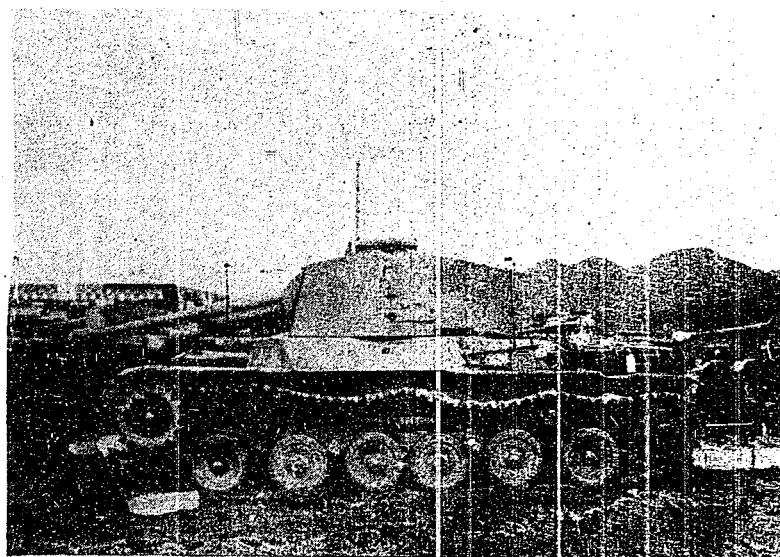


Figure 41  
SIDE VIEW OF TYPE 3, MEDIUM TANK

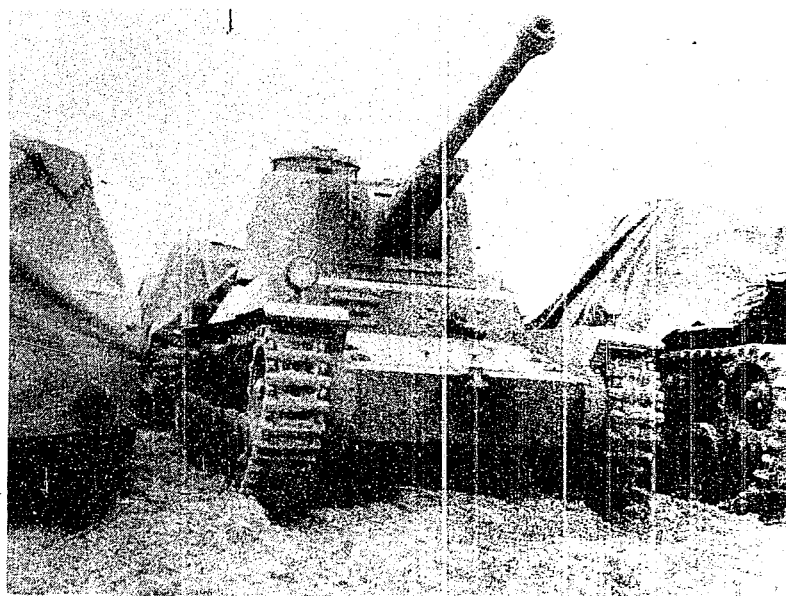


Figure 42  
FRONT VIEW OF TYPE 3, MEDIUM TANK

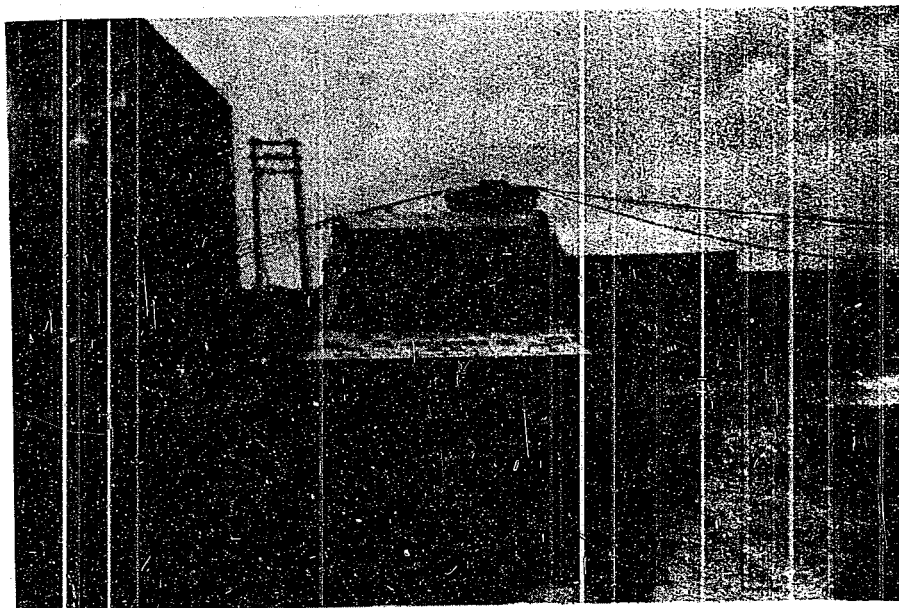


Figure 43  
REAR VIEW OF TYPE S, MEDIUM TANK

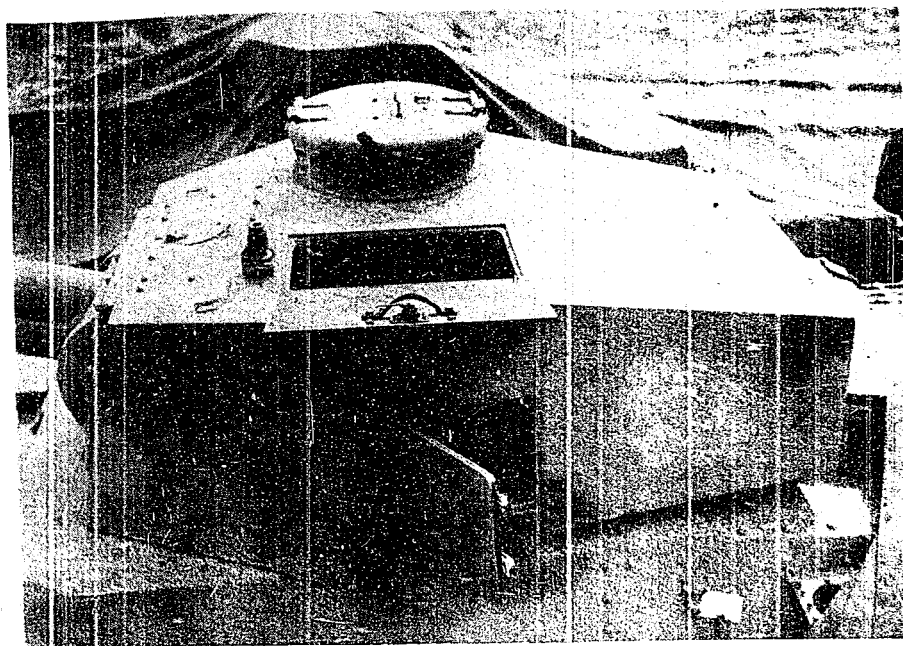


Figure 44  
TURRET VIEW OF TYPE S, MEDIUM TANK

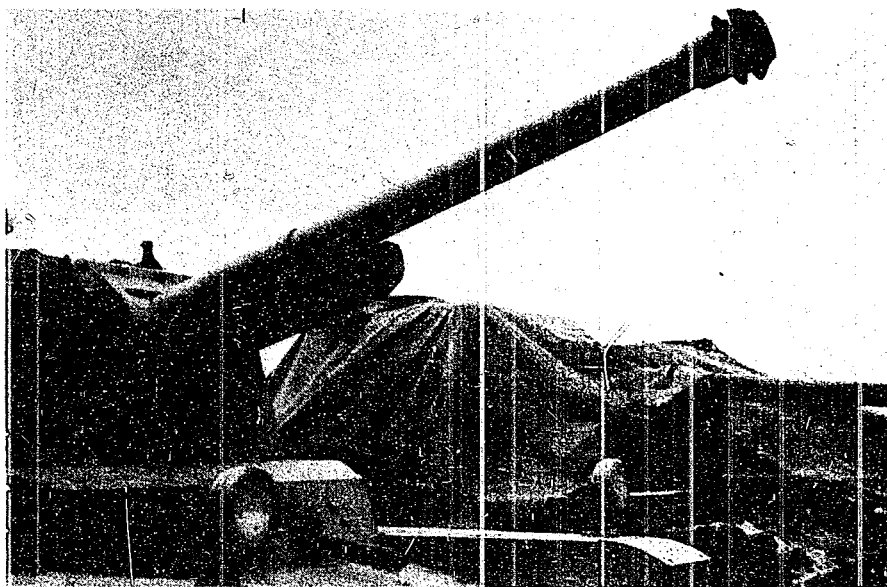


Figure 45  
TYPE 90, 75mm GUN ON TYPE 3 MEDIUM TANK

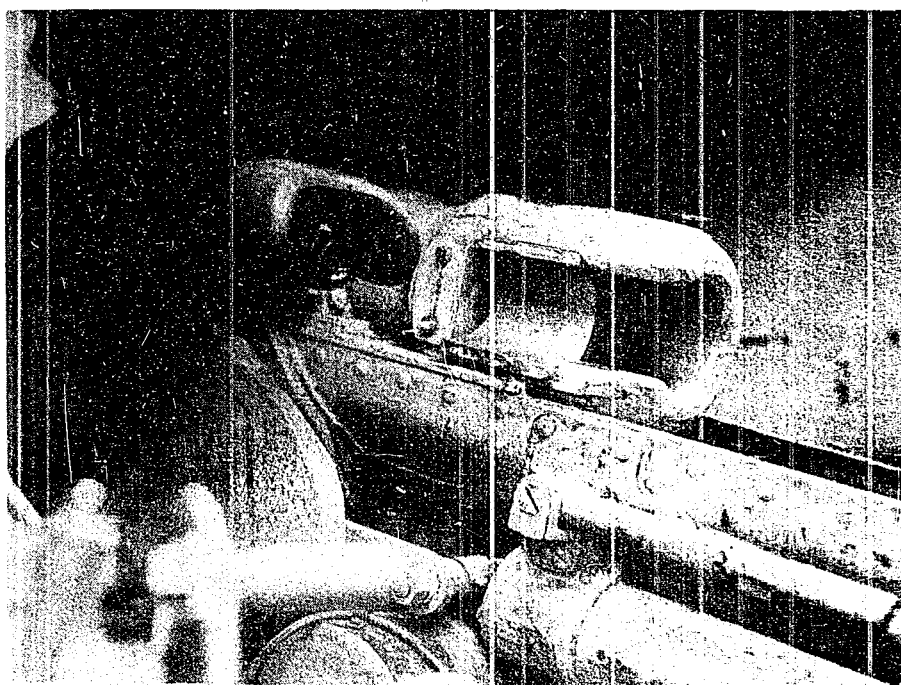


Figure 46  
BREECH OF TYPE 90 GUN AND FIXED SIGHT



Figure 47  
FRONT VIEW OF JAPANESE "CANNON" TANK



Figure 48  
LEFT REAR VIEW OF JAPANESE "CANNON" TANK



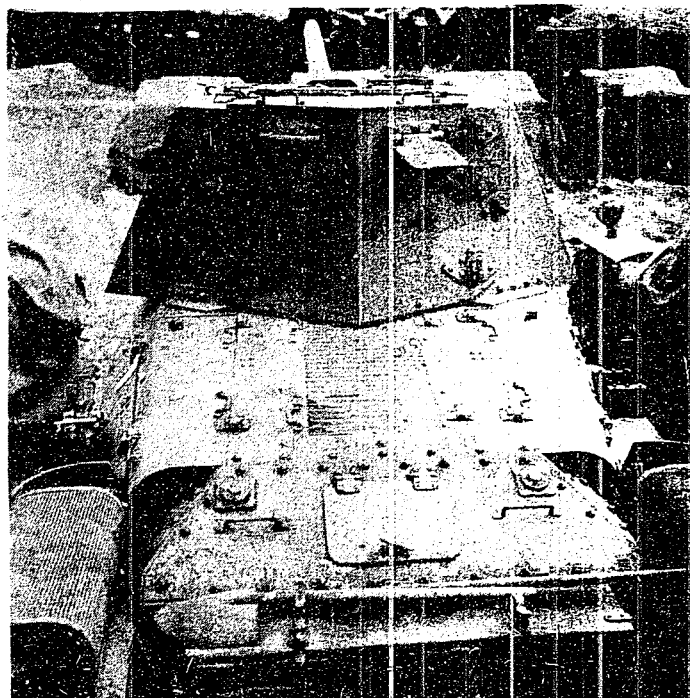


Figure 49  
REAR VIEW WITH TURRET CLOSED

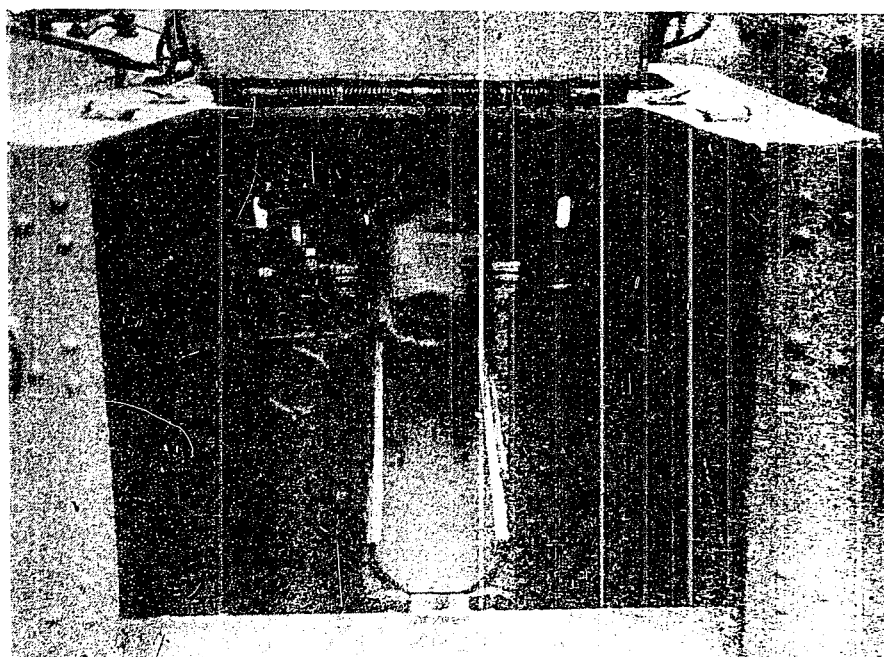


Figure 50  
VIEW OF BREECH OF GUN AND TURRET  
WITH REAR PORT OPEN





Figure 01

SIDE VIEW OF TURRET WITH ALL HATCHES OPEN.  
NOTE SIGHT PROJECTING THROUGH THE HATCH TOP IN FOREGROUND

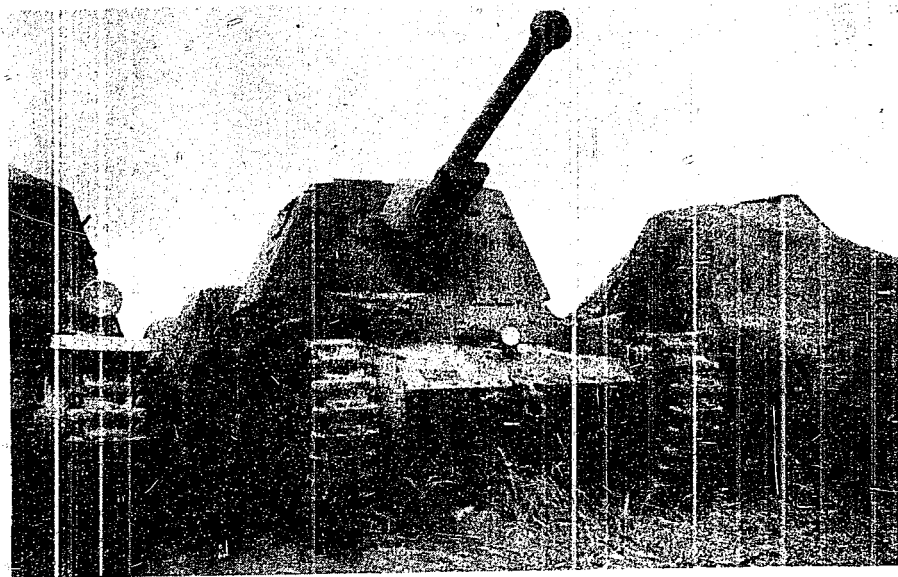


Figure 02

RIGHT FRONT VIEW OF "CANNON" TANK

The turret on the tank was designed so that the entire rear position and part of the top could be opened, converting the weapon into a self-propelled field gun. The gun is the same as the Type 90 field gun. It has a maximum elevation of  $45^{\circ}$  and traverses approximately  $15^{\circ}$  in either direction. There is no provision for traverse of the turret. All operating mechanisms of the gun are located at the left of the breech. The sight is the standard panoramic type used with the field gun. In order to manipulate the sight, a hatch, located directly over the sight mount, must be open to allow the sight to project above the top of the turret. There are two horizontal and two vertical vision slits on each side of the gun in the face of the turret. Armor thickness of the turret is approximately  $5/8$  of an inch.

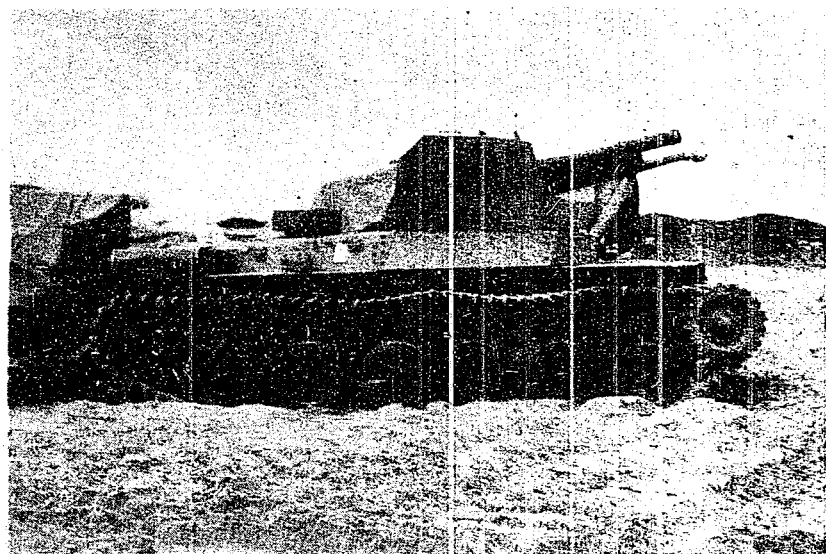


Figure 55

SIDE VIEW OF JAPANESE SELF-PROPELLED 150mm HOWITZER

#### 7. Self-Propelled 105mm Howitzer (Army)

Information on this gun has been secured previously, as some of the weapons were captured in the Philippines; however, additional information is available. The chassis, hull, engine, and suspension system are identical to those of the Type 97 medium tank. The gun is the same as the Type 91, 105mm Howitzer. It is mounted in a high, open shield which is not capable of being traversed. The gun itself may be traversed approximately  $15^{\circ}$  in either direction and elevated to  $45^{\circ}$ . It is operated from the left of the breech and uses the standard panoramic sight. Firing capabilities of the weapon are considered to be the same as those for the Type 91 Howitzer and, according to personnel of the unit which operated the weapon, it was used as a field gun rather than a tank destroyer. Mobility characteristics are the same as for the Type 97 tank.

#### 8. Armored Personnel Carrier, Type 1 (Army)

These armored personnel carriers are full track laying vehicles and are components of a Japanese armored brigade. They are powered by four-cylinder diesel engines and are used for transporting troops and supplies under combat conditions. They carry no armament and are not designed for



Figure 54

RIGHT FRONT VIEW OF SELF-PROPELLED HOWITZER

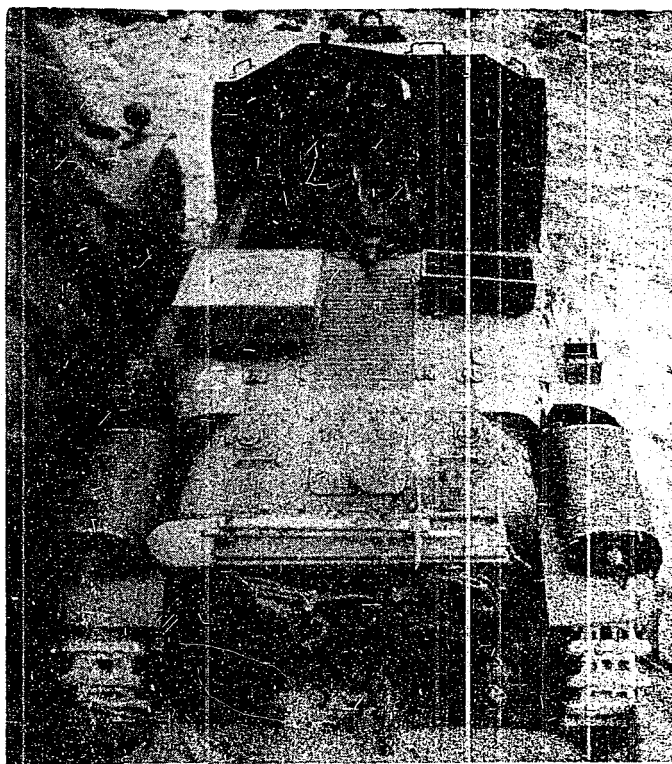


Figure 55

REAR VIEW OF SELF-PROPELLED HOWITZER

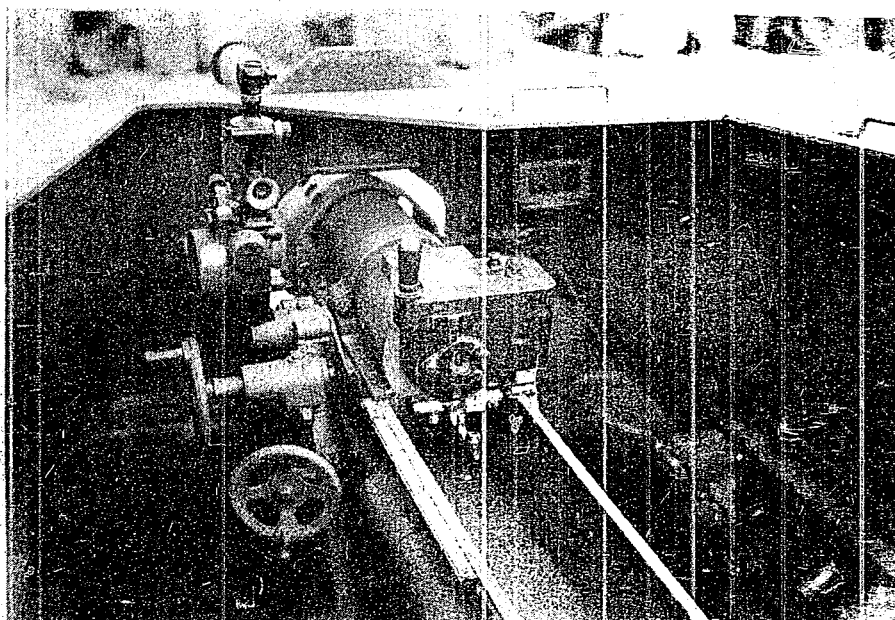


Figure 56  
BREECH AND OPERATING MECHANISMS OF TYPE 91, 105mm HOWITZER

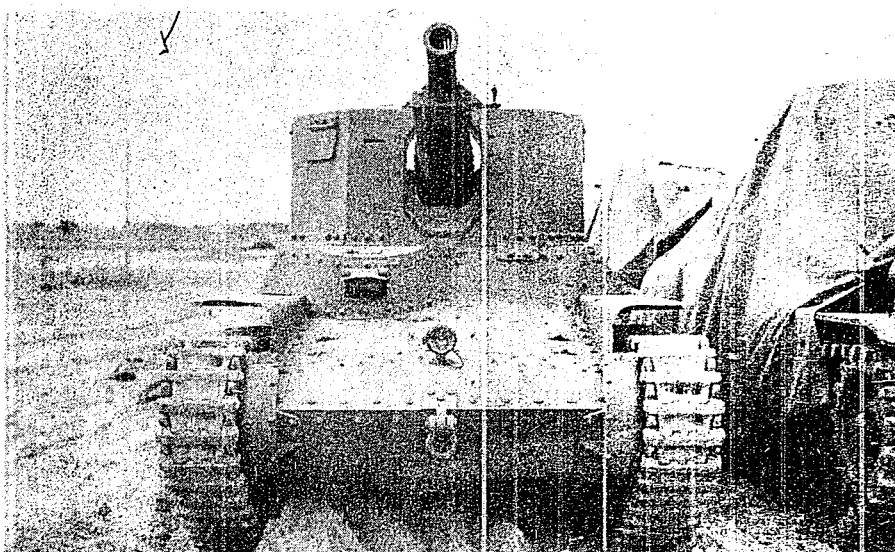


Figure 57  
FRONT VIEW OF JAPANESE SELF-PROPELLED 105mm HOWITZER

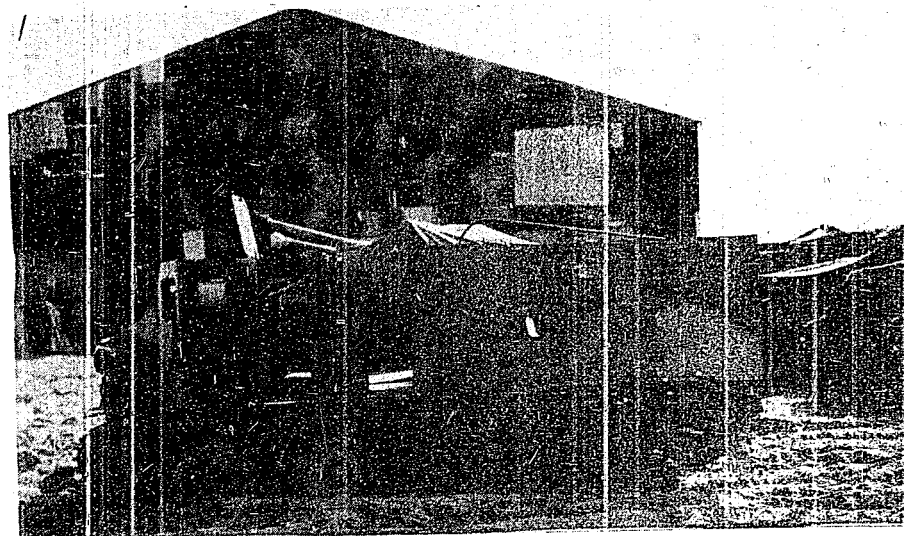


Figure 58  
SIDE VIEW OF ARMORED PERSONNEL CARRIER WITH ALL HATCHES OPEN

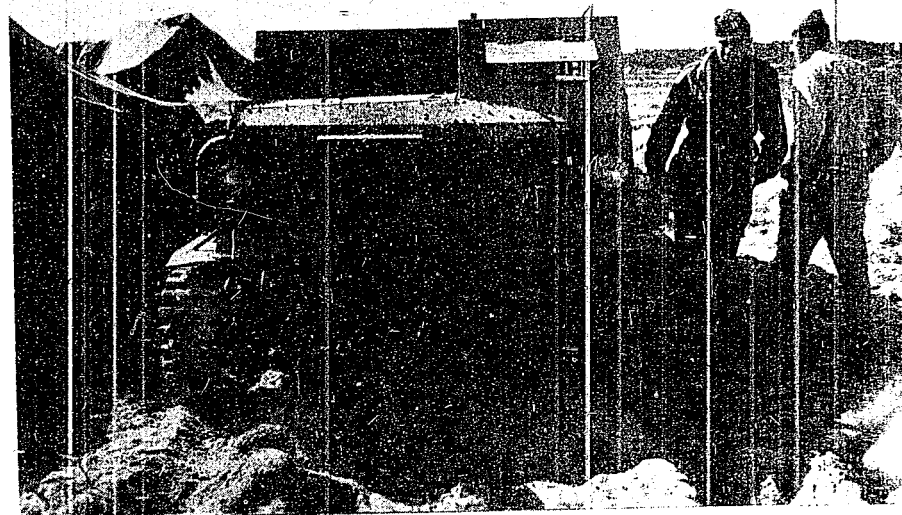


Figure 59  
FRONT VIEW OF ARMORED PERSONNEL CARRIER

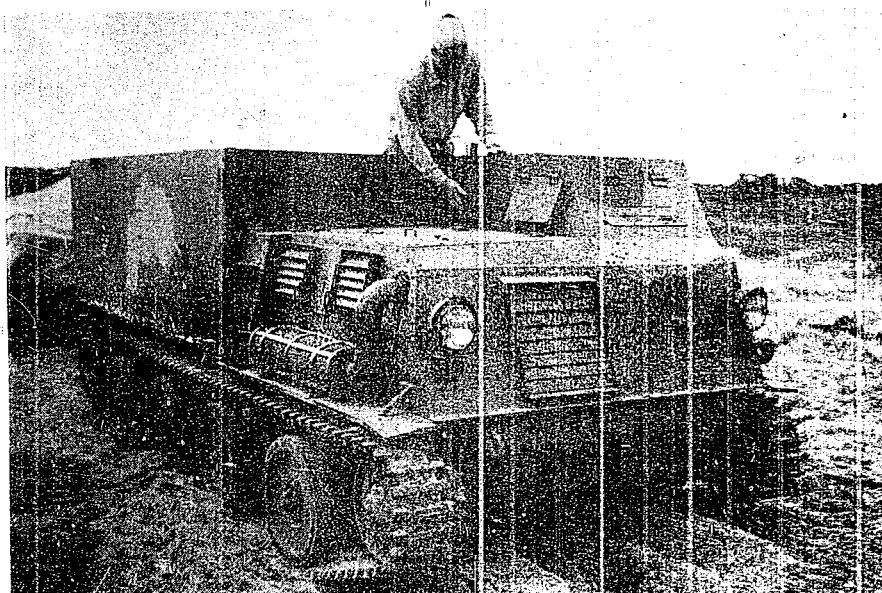


Figure 60  
RIGHT FRONT VIEW OF ARMORED PERSONNEL CARRIER  
SHOWING ENGINE COMPARTMENT



Figure 61  
REAR VIEW OF ARMORED PERSONNEL CARRIER



use as combat vehicles. No type number was assigned to the vehicles. They are referred to by the Japanese as "Armored Wagons".

The body is 9'11" long and 6'8" wide. It has a front armor plate 0.292" thick, side armor 0.265" thick and rear armor 0.185" thick. There are seats for twelve persons in the body and two additional seats directly behind the driver's compartment. Beneath the floor boards, there are compartments for carrying ammunition or supplies. There is an entrance hatch on each side, forward of the seats and a double hatch at the rear. Entrance hatches are also provided for the driver and the two passengers who ride behind him.

The suspension system has four large bogie wheels independently sprung. The drive sprocket is at the rear and idler at the front. There are two return rollers.

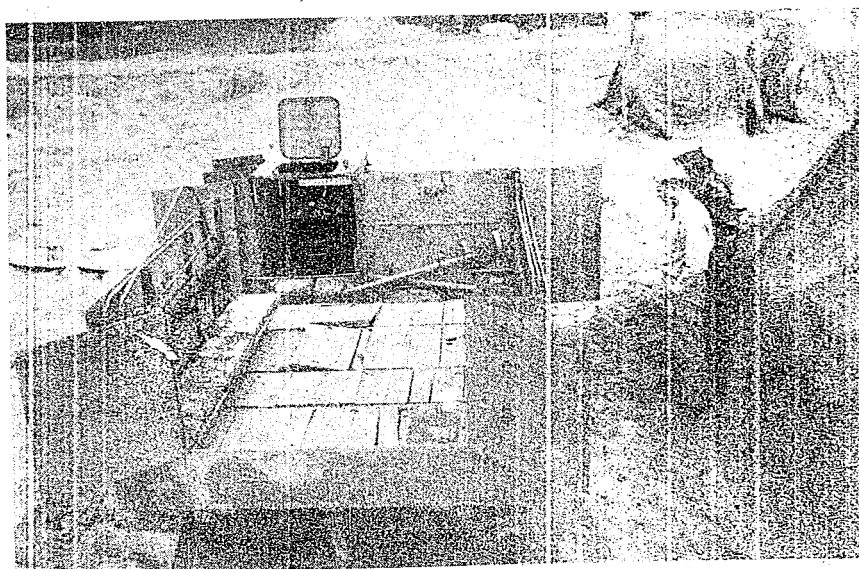


Figure 62

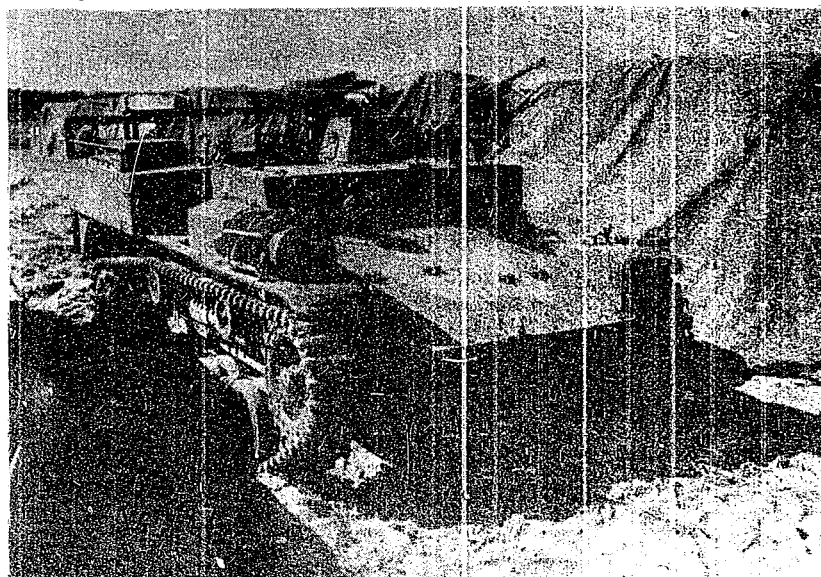
REAR VIEW OF ARMORED PERSONNEL CARRIER  
SHOWING SEATS AND SEGMENTED FLOOR BOARD

#### 9. Armored Reconnaissance Car (Army)

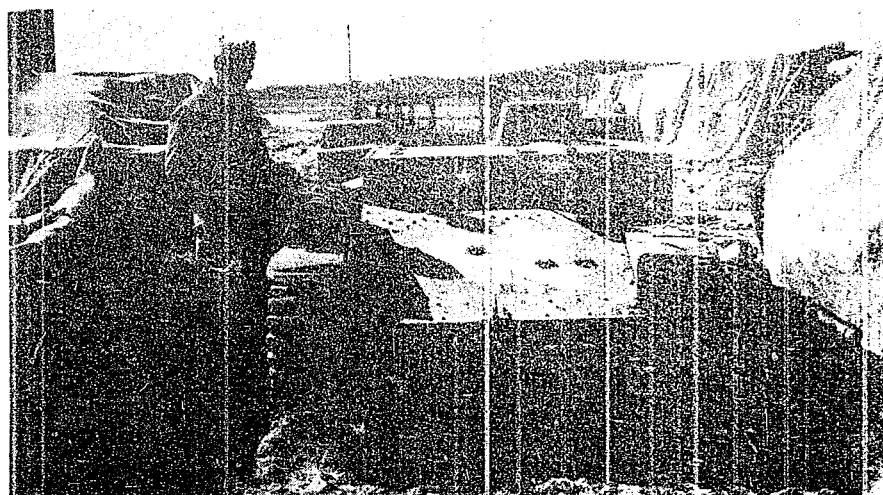
These reconnaissance cars are full track laying vehicles employed by Japanese heavy artillery organizations. They are reportedly not used as prime movers but are equipped with a towing hook and are said by the Japanese to be able to pull six tons. They are used as advanced observation cars and as wire-laying vehicles. The rear door of the vehicle is equipped with reels for the laying of communications wire. The car is powered by a four-cylinder diesel engine and has a reported speed of 40KPH on roads and 30KPH overland. It has a maximum cruising capacity of 300 kilometers or six hours. It weighs 3 tons, is 3½ meters long, 2 meters high, and 2 meters wide. It is reported that the vehicle will climb and incline of 33° at a speed of 6KPH.

The body is equipped to carry six passengers. There is storage space for equipment behind the seats. An anti-aircraft machine gun is sometimes

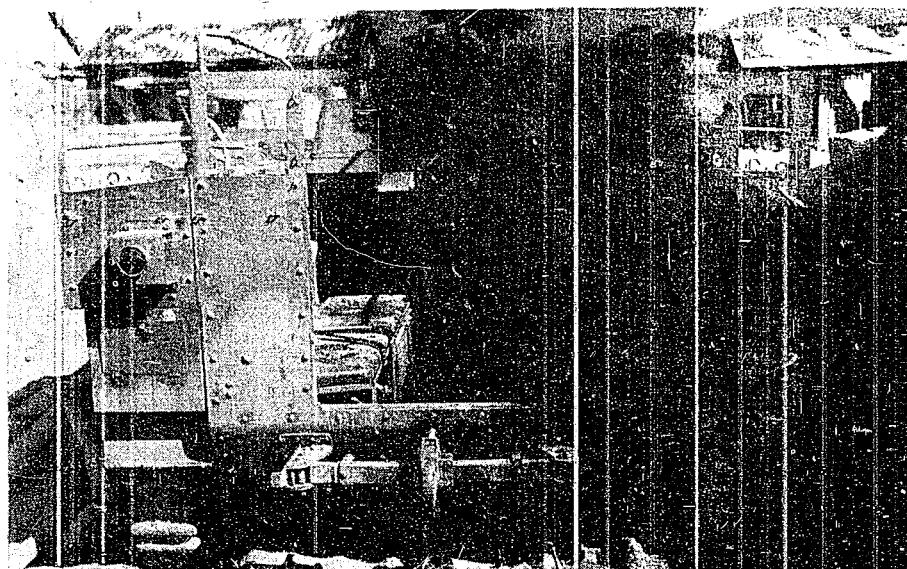




*Figure 63*  
*RIGHT FRONT VIEW OF JAPANESE ARMORED RECONNAISSANCE CAR*

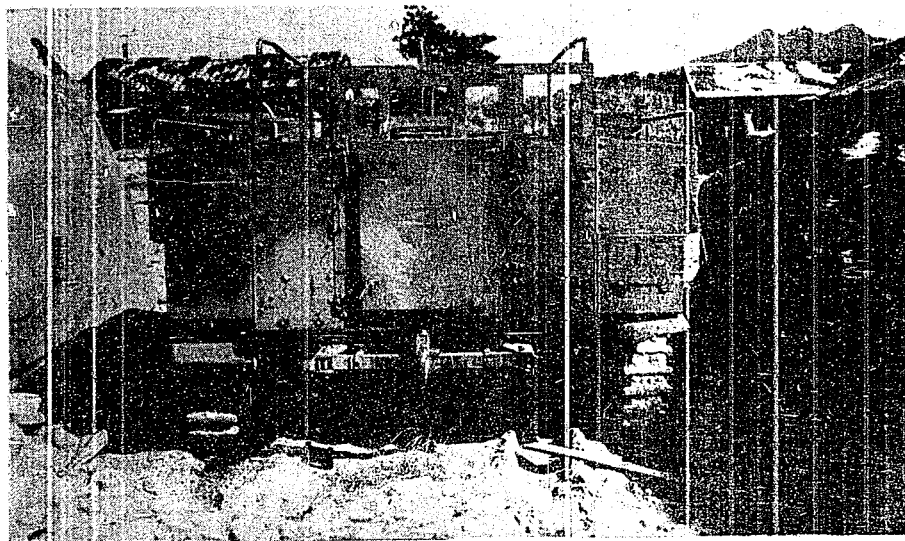


*Figure 64*  
*FRONT VIEW OF JAPANESE ARMORED RECONNAISSANCE CAR*



*Figure 65*

*RIGHT REAR VIEW OF JAPANESE ARMORED RECONNAISSANCE CAR*



*Figure 66*

*REAR VIEW OF JAPANESE ARMORED RECONNAISSANCE CAR*

mounted on the forward portion. Overall armor is 0.287".

The suspension system has four bogie wheels on each side, mounted in pairs. The drive sprocket is mounted high and at the forward end of the track. There is a large trailing idler at the rear and two return rollers. The track is 8" wide.

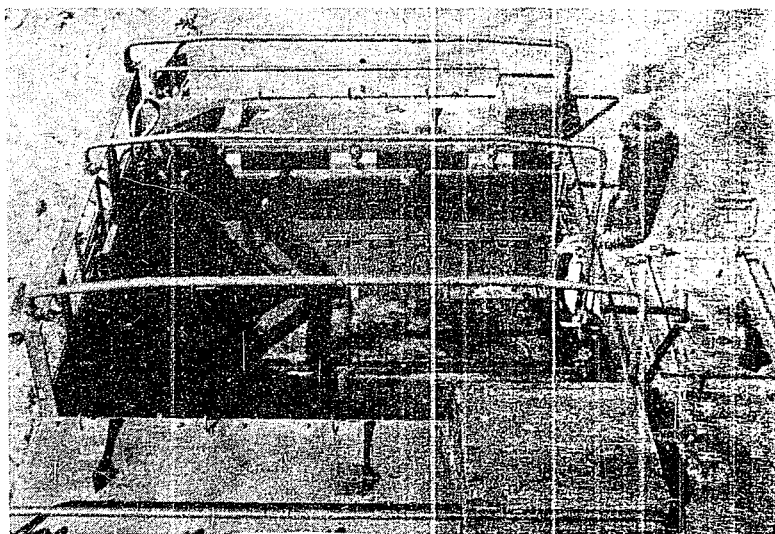


Figure 67

OVERHEAD VIEW OF BODY OF JAPANESE ARMORED RECONNAISSANCE CAR

#### 10. Armored Railway Train (Army)

As a matter of interest, photographs of a Japanese armored train are included in this report. The photos illustrate the intricate detail and great pains taken by the Japanese to perfect their camouflage. The train



Figure 68

SIDE VIEW OF ARMORED RAILWAY CAR  
MOUNTING TYPE 92 HMG FORE AND AFT  
(PART OF CAMOUFLAGED ARMORED TRAIN)

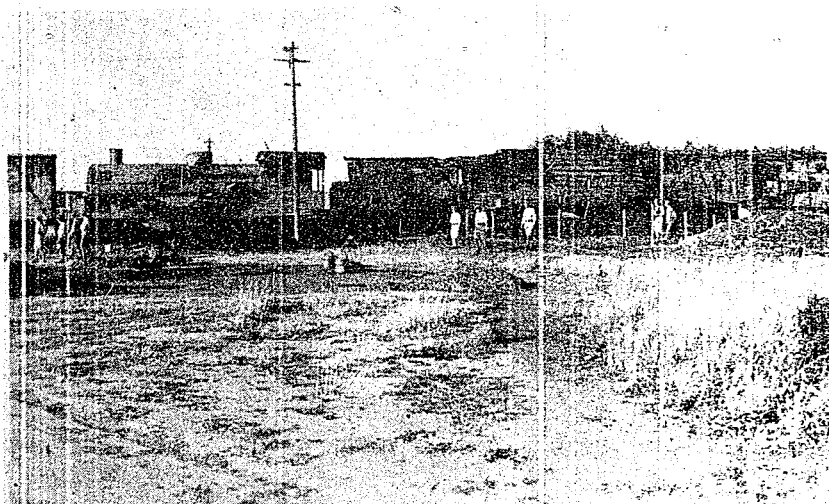


Figure 69  
CAMOUFLAGED ARMORED RAILWAY TRAIN

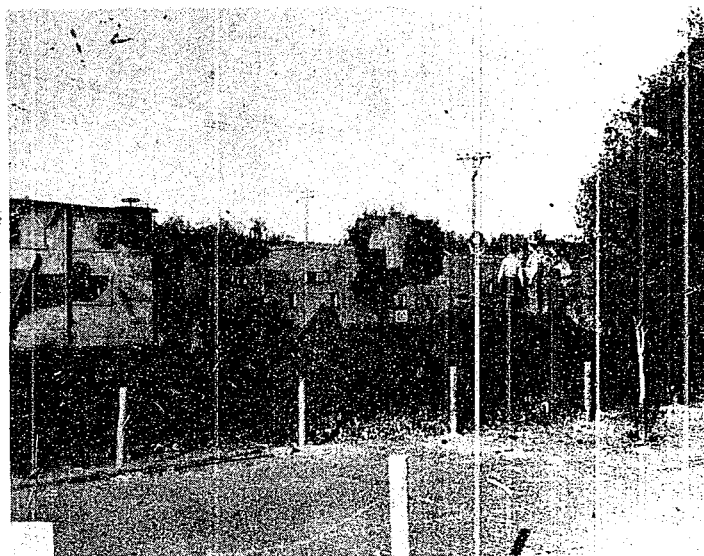
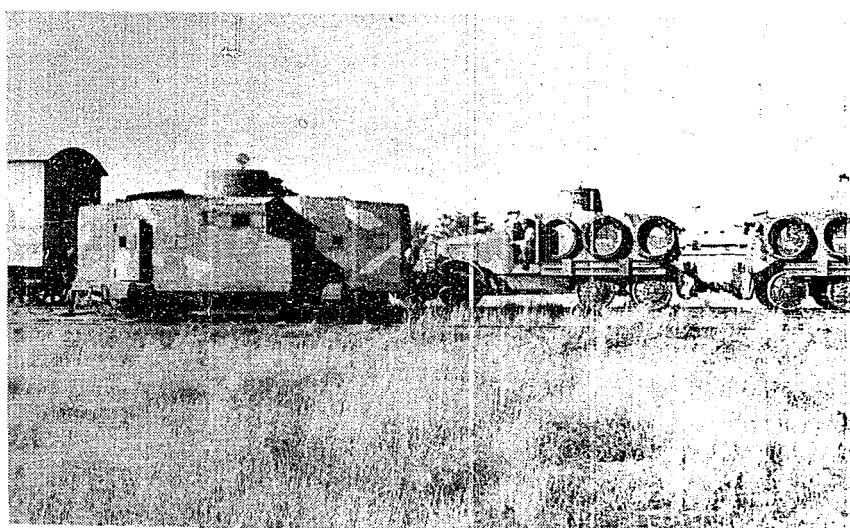
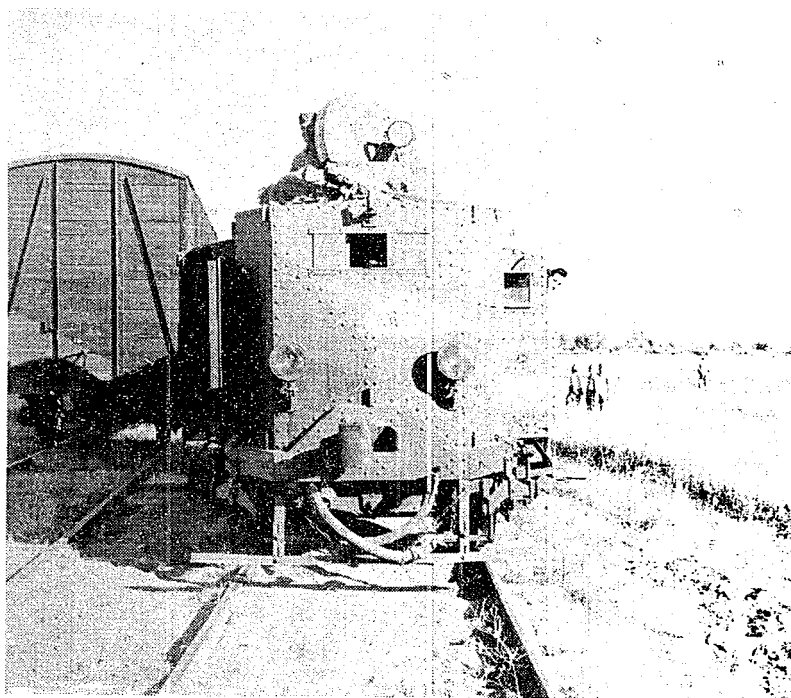


Figure 70  
SIDE VIEW OF ARMORED RAILWAY CAR  
MOUNTING 75mm GUN, TYPE 41  
(PART OF CAMOUFLAGED ARMORED TRAIN)



*Figure 72*  
SIDE VIEW OF ARMORED RAILWAY ENGINE  
AND "SUMIDA" ARMORED CAR

consisted of eight armored cars, a locomotive and tender. All cars were reinforced with 3/8" armor plate, had sleeping quarters for the men, and contained 12-14 rifle ports on each side. Two of the cars had HMG turrets mounted fore and aft, while one car had a Type 41, 75mm gun mounted in a center turret. A cleverly camouflaged locomotive and tender were placed in the center of the train. Immediately to the front of the engine was a tank car camouflaged to look like a locomotive. Paradoxically, no effort had been made to have the smoke exit via the camouflaged engine, and apparently the smoke just issued forth from the side of the real engine. Communication lines ran the length of the train, one telephone being placed in the center of each car. At each end of the train, a 60cm infantry searchlight was mounted, both having a 360° traverse.

## Part II - DEFENSE OF KYUSHU

### A. GENERAL ORGANIZATION

This part of the report presents the Japanese plan for the defense of KYUSHU as gained through an interview with the Chief of Staff of the Japanese 16th Area Army, Colonel AKITA, Imperial Japanese Army.

In preparation for defense against the anticipated invasion of KYUSHU, the Japanese assigned fourteen divisions and five brigades there.

They anticipated that the U.S. landing, if it were made in 1945, would be made in November, in the southern part, with the Miyazaki area the most probable place and ARIAKE WAN and FUKIAGE HAMA the next most likely. If the landing did not occur until 1946, they anticipated a landing in the FUKUOKA area. No preparation had been made, but plans were under consideration for defense against landings made elsewhere. The defense of the outlying islands off the coast of KYUSHU was to be left to the detachments thereon, who would defend them to the end, as no aid could be sent them.

The entire island's land defense was under the Army, even the Sasebo General Area, which was garrisoned and defended by Navy troops, including Navy special landing forces.

They anticipated that the objective of the initial invasion would be the securing of KAGOSHIMA WAN and Kanoya Airfield, with the suitability for airfield construction of the terrain in the Miyazaki area making that locality the most probable scene for the main landing, with secondary assaults in ARIAKE WAN to secure the Kanoya Airfield.

Accordingly, the defense of these areas was assigned to twelve divisions, with two divisions, the 25th and 77th, in mobile reserve north of KAGOSHIMA WAN. The Japanese plan called for a rigid defense of the beaches, with little depth to the defenses. Their aim was to stop the invasion forces at the beach, with defenses located either on the beach or on the first high ground inland, relying on fire from all weapons, including artillery, to inflict as much damage as possible before and during landing. All beaches were covered by mutually supporting pillboxes and other types of gun positions at, or just above the waterline.

All units assigned to beach defense were to hold to the last man, counter-attacking in small, local thrusts and utilizing infiltration to the greatest extent possible. Up to 50% of all personnel were assigned duties of making "close quarter attacks" against tanks, utilizing hand-placed demolition charges. Tank mines were not to be used extensively, due mainly to the lack of material, but plans called for their normal, but not extensive, use to obstruct normal routes of approach.

Upon the development of the Allied assault, the reserve divisions would move, largely on foot, to the area under attack and mount an all-out counter attack



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to throw the invasion forces off the beaches. The Japanese planned this to take place within the first two weeks after landings began, because they believed that if the invasion were not defeated within that time, it could not be repelled.

Meanwhile, the divisions, other than the depot divisions, would begin moving south, again largely on foot, to join the counter offensive.

The backbone of their planned resistance to invasion was counter offensive. No cross island defenses were organized. No defenses in depth were ordered.

In each area, all artillery was planned initially to be under a single command, but due to anticipated breakdown of communication, control by divisions of artillery in each division sector was expected. The Chief of Staff reiterated past intelligence in indicating that centralized control of artillery was not possible.

Terrain was utilized in the construction of defenses in a manner comparable to that found on OKINAWA, according to the Chief of Staff. Supply of ammunition and food was planned by having each position supplied with stores for one month, with additional stocks in Army depots in the same general area where the reserve divisions were.

The use of suicide boats was planned, but their place in the defense of KYUSHU was still incomplete. One paratroop unit was available in the Miyazaki area, but the Chief of Staff indicated that it was under Air Force control and his manner of discussing it indicated that it would not be readily available to the ground forces commander.

An interesting point on the organization of Japanese divisions was brought out in the fact that the divisions bearing numbers in the one hundred block were designed for a purely defensive role, and were organized and equipped accordingly. They would be ordered to occupy a defensive area and hold it to the last. The divisions in the two hundred block, were offensive units, and were so equipped and organized. Plans were, originally, that they were to be in the mobile reserve, but availability of troops and the territory to be defended made it necessary to commit several of these offensive divisions to a defensive mission.

#### B. SASEBO NAVAL BASE AIR DEFENSE SYSTEM

A description of the air raid warning and defense control system for the Sasebo Naval Base and the surrounding Defense Area follows. The central point of this system was the Air Defense Center at the Sasebo Naval Base Headquarters. Here, air warning information was received, and the progress of all raids in KYUSHU carefully followed. If attack of the Sasebo Defense Area became imminent, defense measures were effected and controlled from this point.

Air warning or defense centers could be Army, Navy, or civilian. Each center was responsible for the collection and evaluation of air raid information in its area. The areas covered by the various centers often overlapped and usually information to any center came both from military and civilian warning points.

The Sasebo Air Defense Center was the major naval center on KYUSHU; a minor center was located at KANOYA. The Sasebo Center was located within the compound of the Naval Base Headquarters. The Base administrative buildings, radio towers, and antennas were located above ground. The Air Defense Center, however, was located two levels below ground. The following equipment was also located at this level: electric power distribution center, emergency diesel power supply, ventilating equipment, and four medium-power radio transmitters. The communications unit was located three levels below ground. The following equipment was installed there: the main incoming telephone cable



frame, 30 radio receivers for handling radio traffic, and a communication center that dispersed and received radio traffic within the base.

The information coming into the Sasebo Air Defense Center could be divided into three categories (listed in order of importance): points within the defense area, other warning or defense centers in KYUSHU, and other centers in the Empire. Both radar and visual warning points were employed. The identification of planes, as to friend or foe, was limited to visual identification, since the Japanese had no automatic system in use. The military warning points were often equipped with searchlights that could be used for identification of planes at night.

The Sasebo Air Defense Center could be divided into the following units: Air Raid Warning, Communications, Area Defense Control, and Air Raid Alarm. Sketch 1 shows the functions of, and the lines of communications for the four component units.

The Air Raid Warning unit was responsible for the collection of information and the presentation of it for use by the Officer-in-Charge of the Defense Center. Telephone circuits to other defense centers and air bases in KYUSHU, to the Kure and Maizuru Naval Bases, and to the lookout posts in the Sasebo area were used to supply information. This information was received in the five intelligence rooms shown in Sketch 2. The Tajima radar station and battery headquarters was responsible for the collection of radar information in the Sasebo Defense Area. This collection was made through radio circuits from the surrounding naval radar stations. After collection and evaluation, this information was telephoned to the AA Battery Control Room. Then the information was plotted and displayed by the warning unit for use by the Officer-in-Charge of the Defense Center.

The Air Defense Control unit was responsible for alerting and informing the Sasebo and Omura Air Bases and the AA Batteries in the Base Defense Area as to the progress of air raids that might enter this area. Telephone circuits were maintained with all AA Batteries in the area. During air attack, the conditions of readiness, firing, and damage of each battery were followed and displayed on the Battery Condition Panel.

The Communications unit was located below the Defense Center. Its radio receivers copied incoming radio messages and transmitted outgoing messages through a wire link to the Radio Transmitting Station.

The Air Raid Alarm unit was responsible for alerting civilians and non-combatant military personnel when air attacks were imminent. At one time, alarms were sent by voice over the Nagasaki Broadcast Station. However, this was abandoned and the wire alarm circuits and low-power radio transmissions were used entirely in the late stages of the war. The low-power radio telephone transmitter for this purpose was located at the Base Headquarters.

Sketch 1 shows the methods of gathering air warning information and controlling defense measures. The diagram shows the normal operation of the system. Two emergency features not shown, are: the use of radio communications in case of cable failures and an entire shift of area defense to TAJIMA if the Headquarters Center were damaged.

Sketch 2 shows the flow of information in the Air Defense Center. The floor plan of this center is given in Sketch 4. Figures 73 through 88 illustrate the equipment and component parts of the Defense Center.

Each intelligence room had a telephone switchboard and telephone positions receiving warning messages. This information was sent by messenger to the plotting table and was also flashed on the raid report panels. Each raid report showed warning post, time, direction of discovery, type of plane, number of planes, altitude, and course. The control of the raid report panels were from Intelligence Rooms 1,3,4,5 and the Battery Control Room.

Raids were usually discovered in other defense zones or areas first. In the case of the raids on other portions of the Empire, radio messages were received and defense status shown on the Empire Defense Map. This map divided the Empire and its approaches into zones. When a zone was alerted to possible air attack, the zone was illuminated green. If the zone was attacked, the illumination was switched to red. There was a northern and southern defense zone for KYUSHU plus several sea approach zones.

When a raid entered one of the zones or approach zones of KYUSHU, the lookouts were alerted and a plot kept on the main board in the central room.

As a raid further approached the Sasebo Defense Area, the main plot was continued. In addition, the approach plot in the AA Battery Control Room tracked the raid. The Tajima Station furnished most of this information. Batteries in the area were alerted and supplied all possible information. The Omura and Sasebo Air Bases were alerted and fighters might be sent up.

As a raid entered the Sasebo Area, the status of the batteries was shown on the Battery Condition Panel. The various battery conditions shown were: readiness, discovery of the enemy, battery firing, searching with lights, and damage.

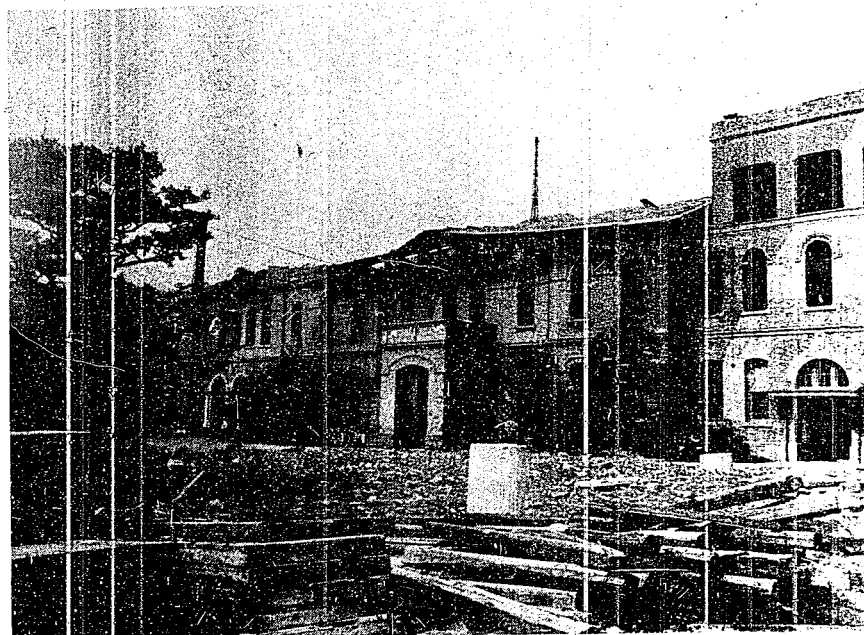
Intercept flights from the various air bases were recorded on blackboards in the Central Room. The Area Defense Map indicated the sighting of the enemy and firing by the various batteries. In addition, this map indicated the presence of night fighters in the various approach sectors. These approach sectors were about 30° wide. This information was relayed to the batteries to protect the intercepting planes from battery fire.

The defense center was well arranged; however, many methods were undergoing changes due to increasing danger of air attack damage, improvements of search radar networks, and some rearrangements of information flow and presentation.

This Defense Center could handle its job with moderate efficiency. The major limitations of this or any other Japanese defense system lay in intelligence gathering and control equipment. These limitations were:

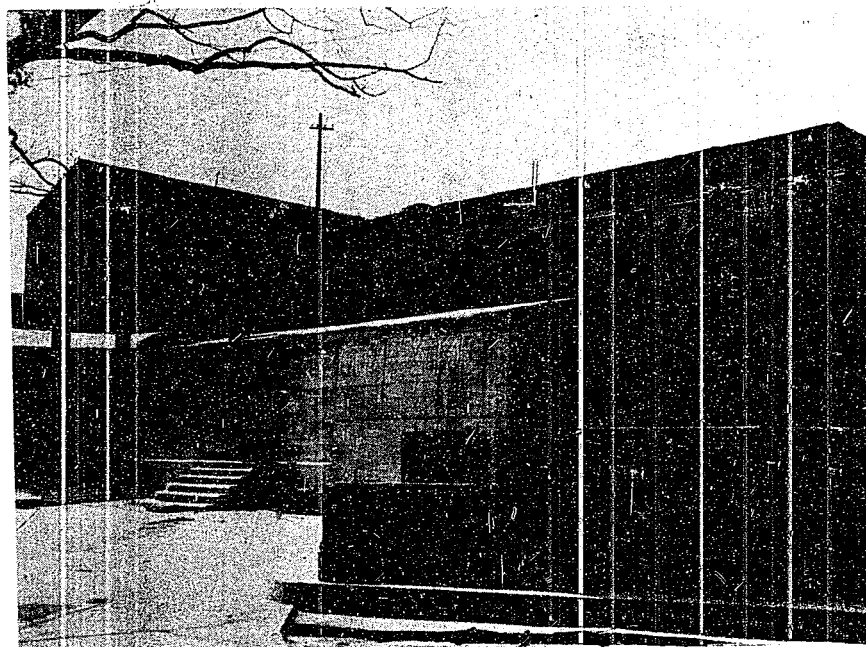
1. Relatively lower performance of search radar.
2. Lack of IFF.
3. Lack of fighter direction radar and control.
4. Poorly equipped night fighters.
5. Low degree of accuracy of the fire control radars.
6. Lack of automatic fire control equipment.

These are basic deficiencies in air defense with which no highly effective defense system can function properly.



*Figure 73*

ADMINISTRATION BUILDINGS, SASEBO NAVAL BASE HQ  
AND FRONT ENTRANCE TO UNDERGROUND COMMAND POST



*Figure 74*

SIDE ENTRANCE TO UNDERGROUND AIR DEFENSE COMMAND POST

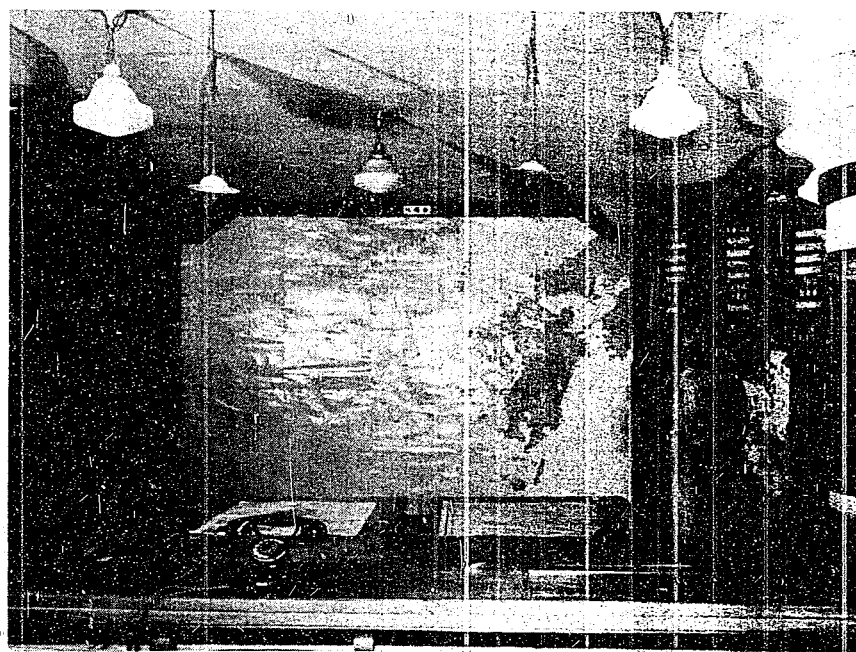


Figure 75  
MAIN PLOT, CENTRAL ROOM, AIR DEFENSE CENTER

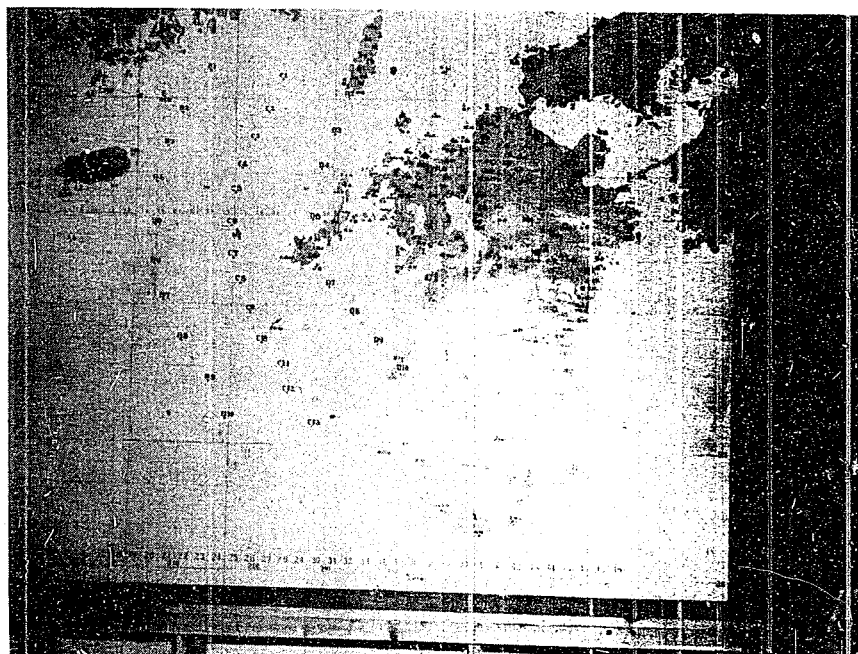


Figure 76  
CLOSEUP OF MAIN PLOT SHOWING APPROACHES TO  
KYUSHU, SOUTHERN HONSHU, AND WESTERN SHIKOKU

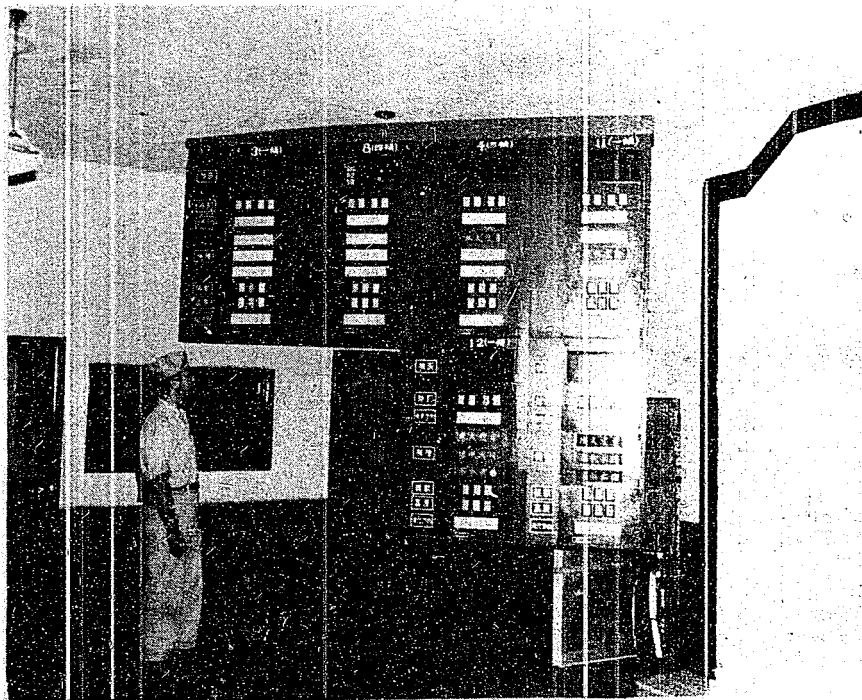


Figure 77  
PLOTING TABLE

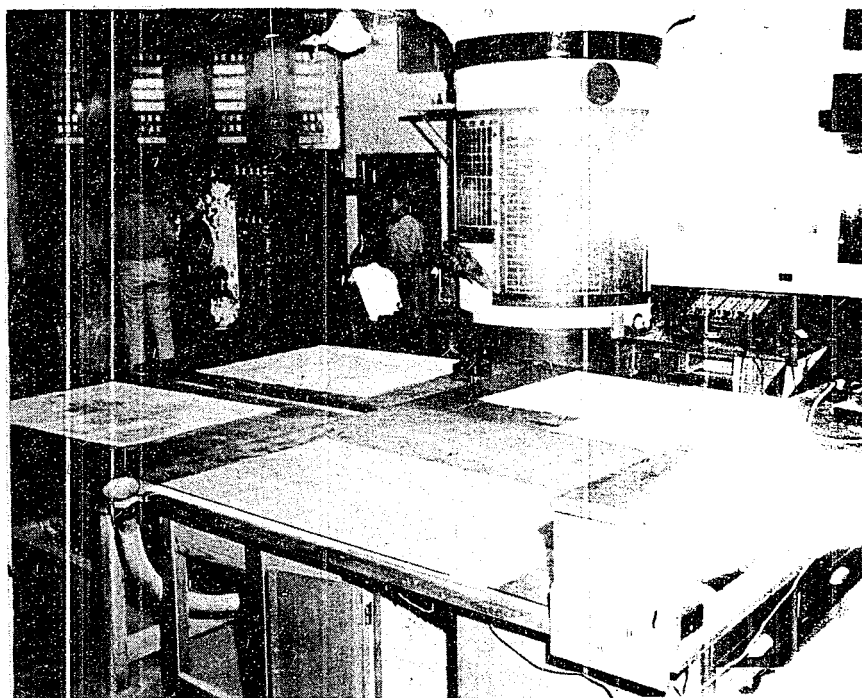


Figure 78  
RAID REPORT PANEL TO LEFT OF MAIN PLOT

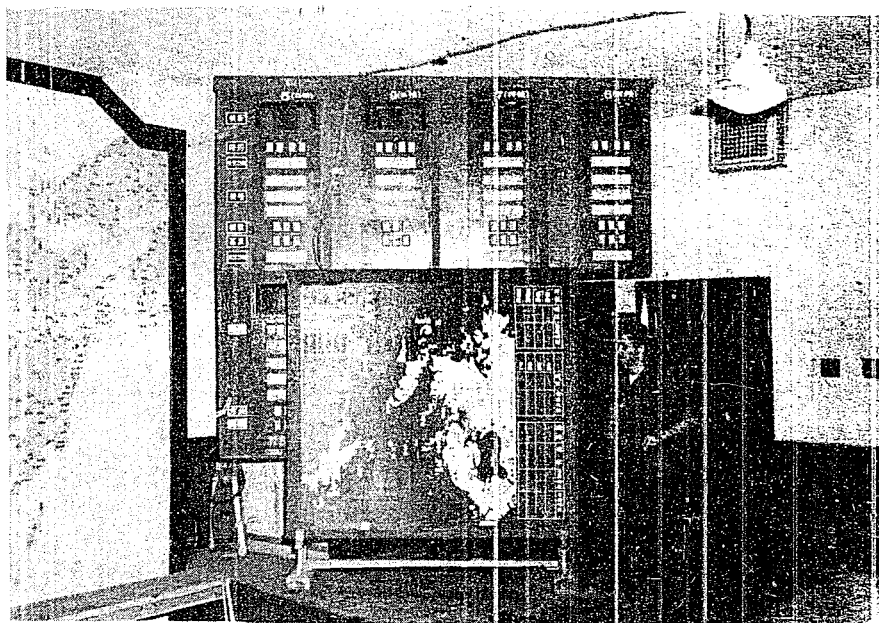


Figure 79  
RAID REPORT PANEL TO RIGHT OF MAIN PLOT  
AND SASEBO DEFENSE MAP

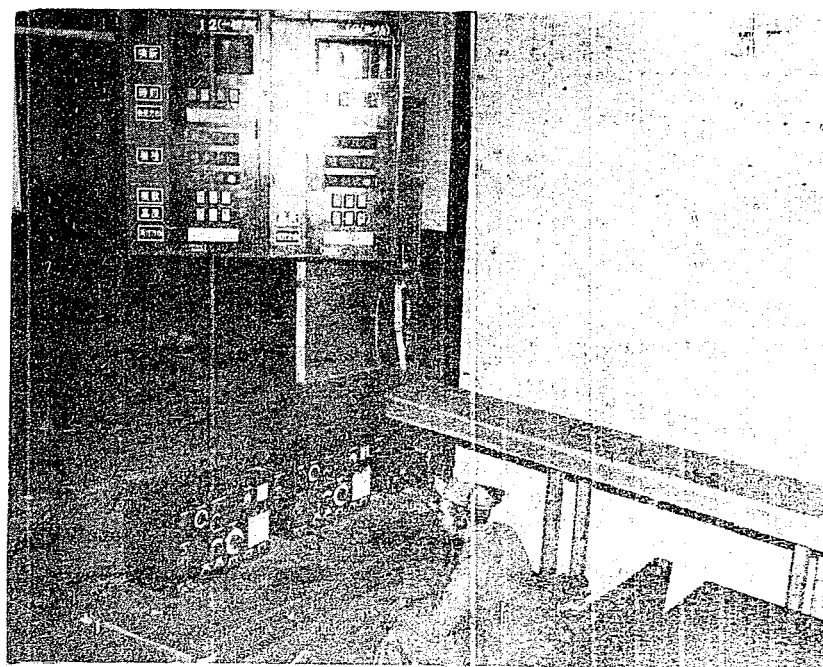


Figure 80  
RADIO RECEIVERS IN CENTRAL ROOM  
IN PIT FORWARD OF MAIN PLOT



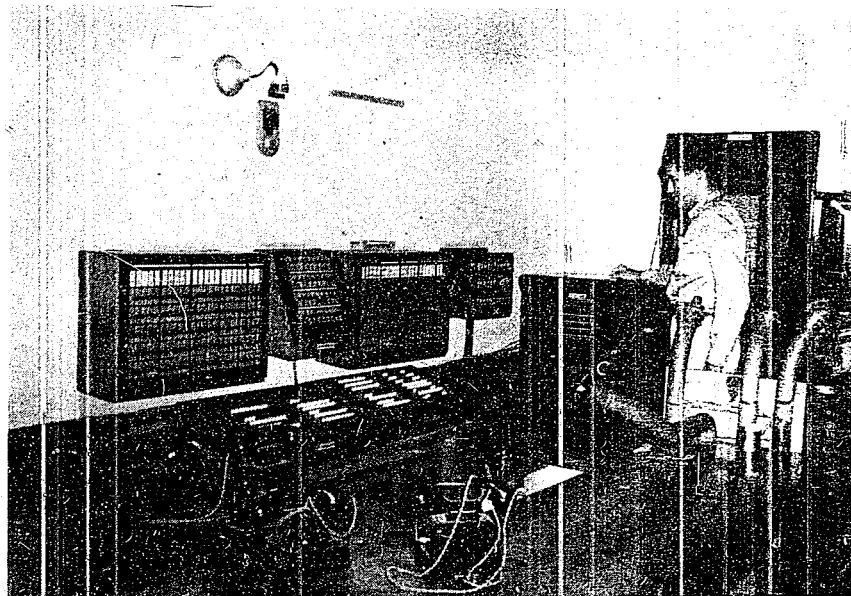


Figure 81  
INTELLIGENCE ROOM

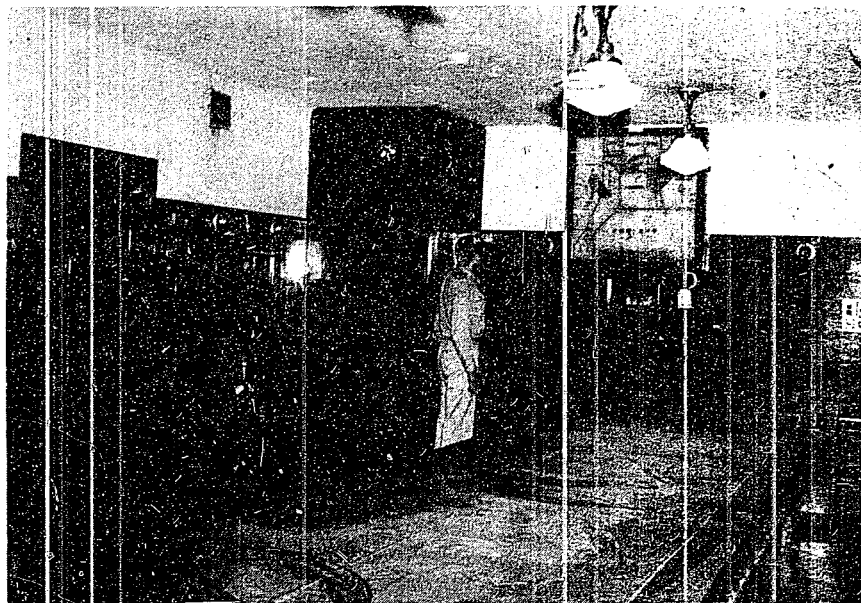


Figure 82  
OPERATIONS ROOM



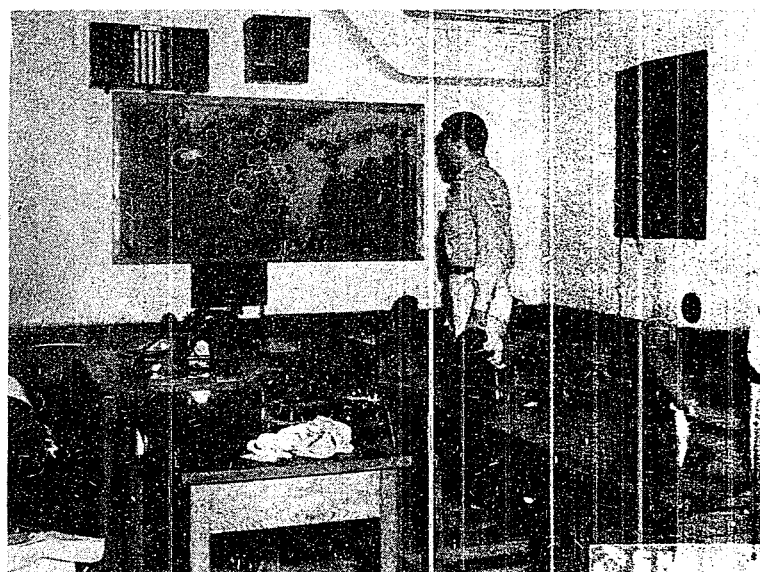


Figure 83  
APPROACH FLOT A-A BATTERY CONTROL ROOM

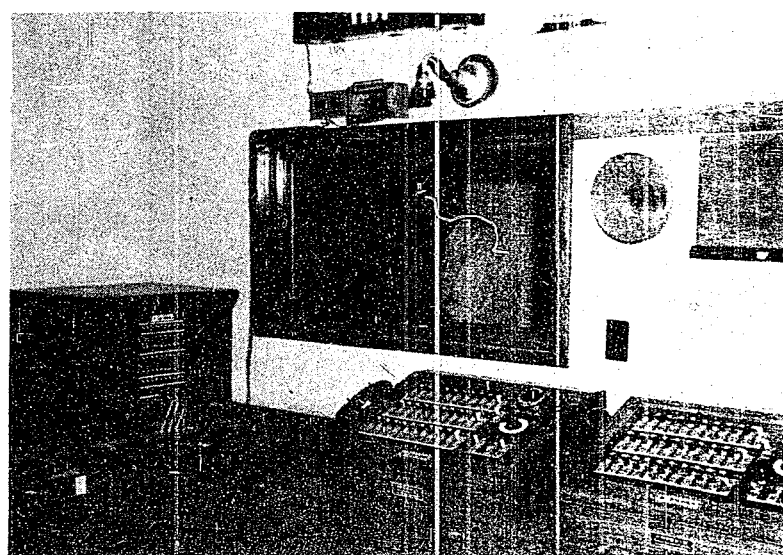


Figure 84  
BATTERY CONTROL EQUIPMENT AND RADIO BOOTH

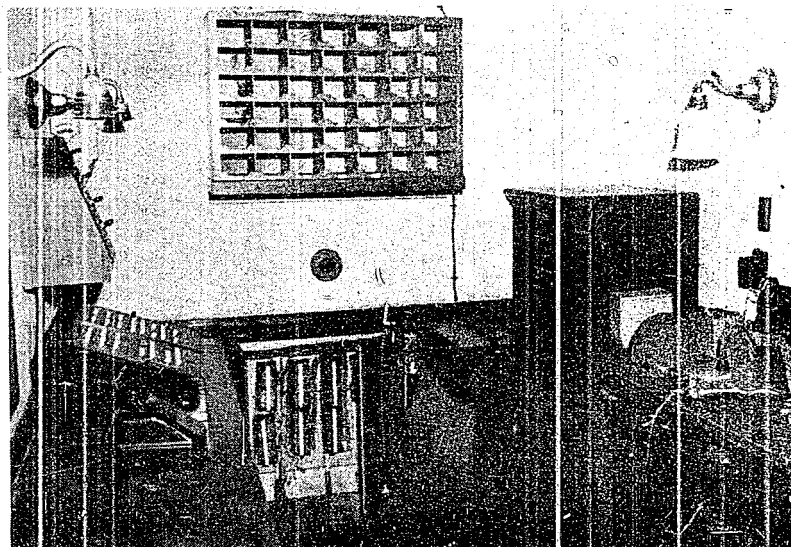


Figure 85  
AIR RAID WARNING ROOM

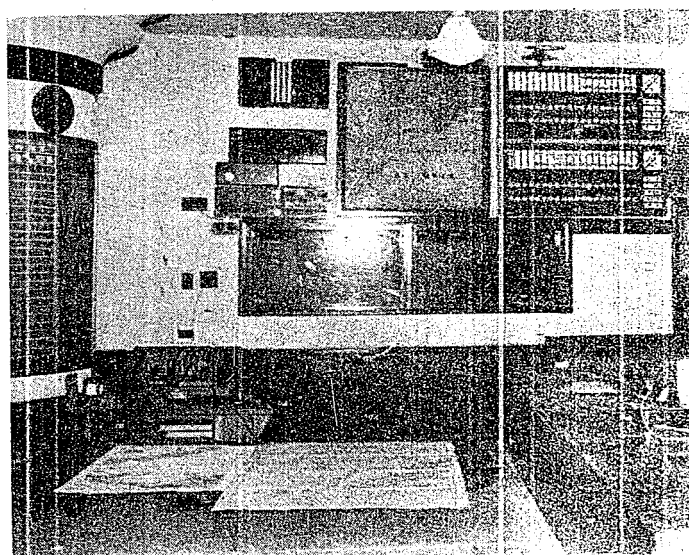


Figure 86  
EMPIRE DEFENSE MAP AND BATTERY CONDITION PANEL

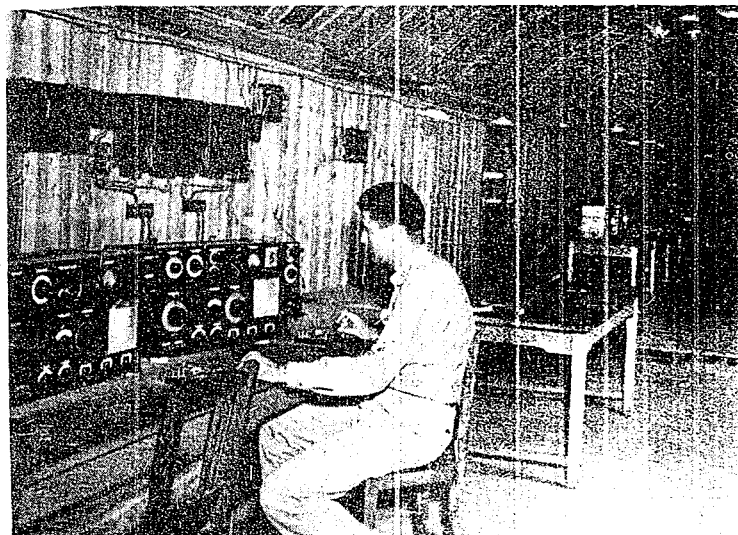


Figure 87  
RECEIVING ROOM, HEADQUARTERS COMMUNICATION UNIT

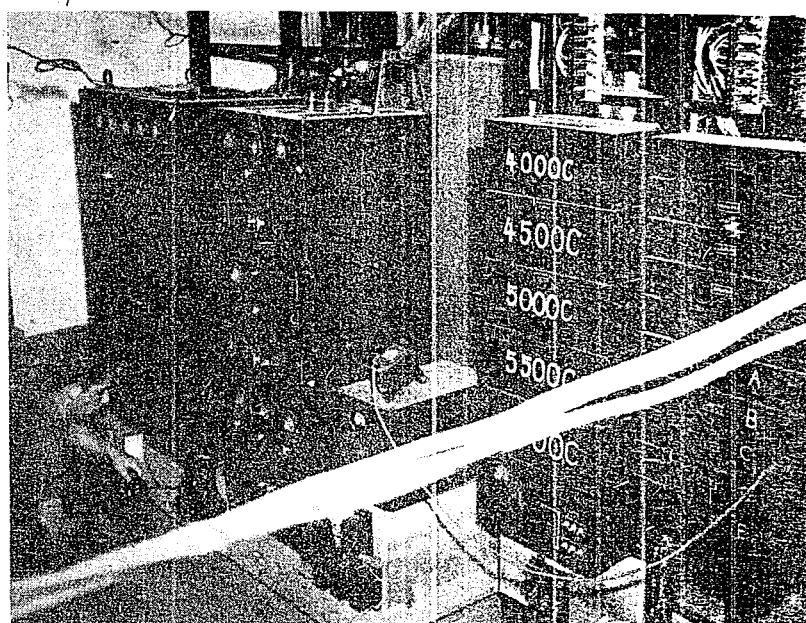


Figure 88  
AUXILIARY RADIO LINK TO HARTS  
FOR EMERGENCY REMOTE CONTROL  
TO TRANSMITTERS WHEN LAND LINES FAIL

LIST OF NAVAL AIR DEFENSE POSTS, AND THEIR EQUIPMENT  
UNDER CONTROL OF THE SASEBO NAVAL BASE HEADQUARTERS

## TAJIMA

1 Mk 11 Radar  
 2 Mk 13 Radars  
 1 Radio Transmitter  
 11 Radio Receivers  
 2 12cm Telescopes  
 1 8cm Telescope

## UKUJIMA

1 Mk 11 Radar  
 2 Mk 13 Radars  
 1 Mk 113 Radar  
 1 Radar Intercept Receiver  
 1 Type 95 Short Wave Transmitter  
 1 Type 2 Mk 5 Transmitter  
 1 Radio Transmitter  
 1 150cm Searchlight  
 1 Searchlight (complete)  
 1 12cm Telescope

## O SEZAKI

1 Mk 11 Radar  
 2 Mk 13 Radars  
 1 Mk 11B Radar  
 1 Radar Intercept Receiver  
 1 Type 95 Mk 5 Short Wave Transmitter  
 1 Type 2 Mk 5 Transmitter  
 1 Radio Transmitter  
 1 Receiver  
 1 12cm Telescope

## MESHIMA

1 Mk 11 Radar  
 2 Mk 13 Radars  
 2 Radar Intercept Receivers  
 1 Type 95 Mk 5 Short Wave Transmitter  
 1 Type 2 Mk 5 Transmitter  
 2 Radio Transmitters  
 1 Receiver  
 1 12cm Telescope

## MATSUSHIMA

1 Mk 13 Radar  
 1 Mk 12 Radar  
 1 Radio Transmitter  
 1 150cm Searchlight

## MATSUSHIMA (Cont'd)

1 Searchlight Computer  
 1 Sound Detector  
 1 12cm Telescope

## TSURIKAKE SAKI

2 Mk 13 Radars  
 2 Mk 113 Radars  
 2 Radar Intercept Receivers  
 2 Radio Transmitters  
 1 12cm Telescope  
 2 Receivers

## NOMSAKI

2 Mk 13 Radars  
 2 Mk 113 Radars  
 2 Radar Intercept Receivers  
 2 Radio Transmitters  
 1 Receiver  
 1 12cm Telescope

## KUROSHIMA

1 150cm Searchlight  
 1 Searchlight Computer  
 1 Sound Detector  
 1 12cm Telescope  
 1 Searchlight Control Radar

## KARATSU

1 Radio Transmitter  
 1 12cm Telescope

## TOMIOKA

1 Radio Transmitter  
 1 12cm Telescope

## NARAO

1 Radio Transmitter  
 1 8cm Telescope

## IMARI, HOSHIKA, HIRADO, MAKATSURA

YURITAKE, SAKITO, NAGAURA  
 1 Searchlight Computer  
 1 150cm Searchlight  
 1 Sound Detector  
 1 12cm Telescope

## KITAUOME, HIRASHIMA, OTATE SHIMA

1 150cm Searchlight  
 1 Searchlight Computer  
 1 12cm Telescope  
 1 Radio Transmitter

In addition to the above posts, the following named radar stations on KYUSHU feed into the Naval Defense Center at KANOYA:

TOI MISAKE  
 TOMITAKA  
 SATA MISAKE

MARURAZAKI  
 NOMA MISAKE  
 KUCHINO ERABU

COMMUNICATION FACILITIES

(Telephone circuits to the Intelligence Rooms of Air Raid Warning Unit at Sasebo Naval Base Headquarters)

Room #1

- (a) Iki Air Defense Center
- (b) Tsushima Air Defense Center
- (c) Goto Retto Air Defense Center
- (d) Sasebo Area Lookout Net

Room #2

- (a) Omura Air Base
- (b) Sasebo Air Base
- (c) Kanoya Air Base
- (d) Izumi Air Base
- (e) Hakata Air Base
- (f) Kagoshima Air Base

Room #3

- (a) Saga Air Defense Center

Room #3 (Cont'd)

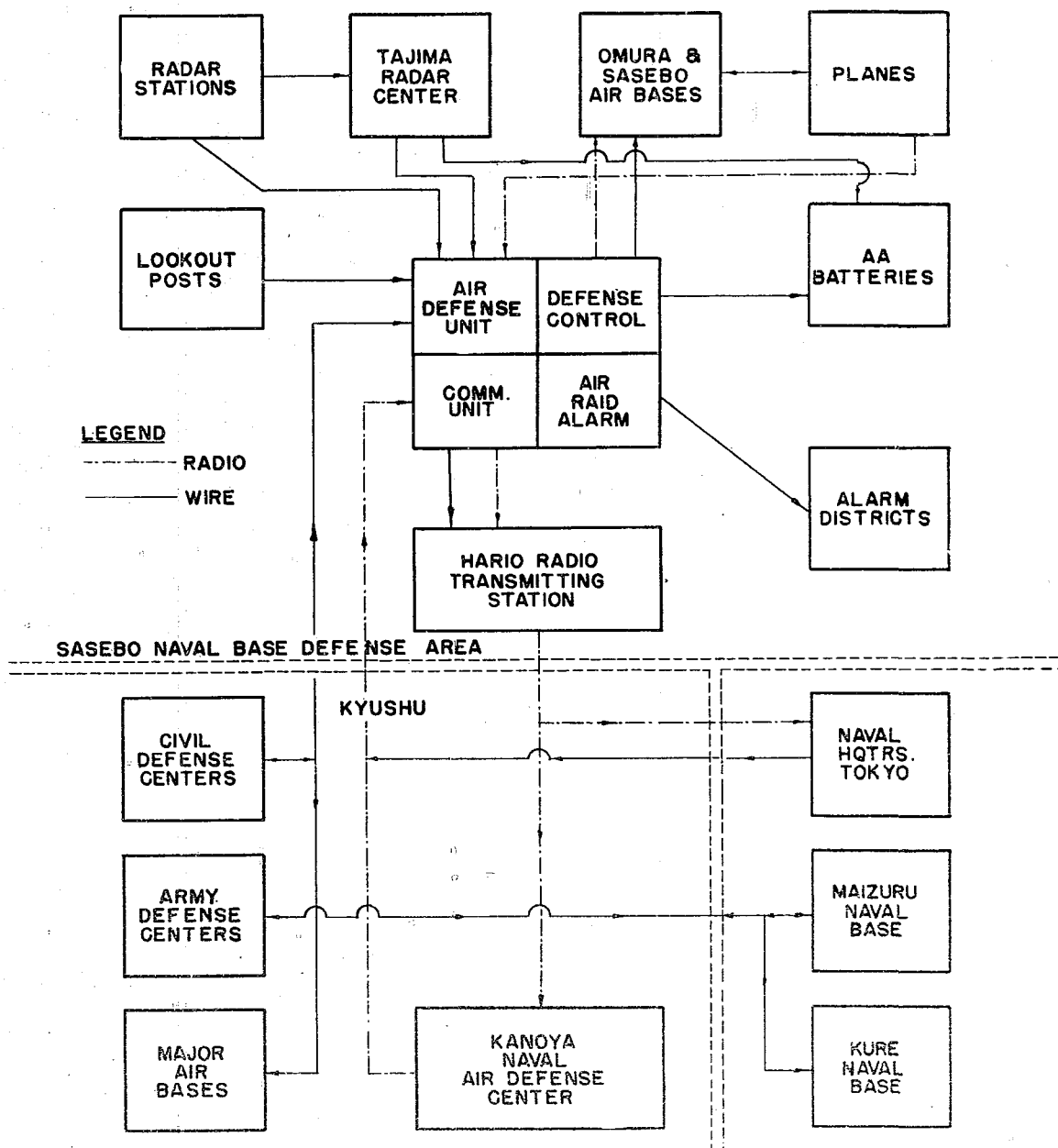
- (b) Nagasaki Air Defense Center
- (c) Hando Air Defense Center

Room #4

- (a) West Area Army Center, HAKATA
- (b) Kumamoto Army Division
- (c) Nagasaki Fortress Headquarters
- (d) Kure Naval Base
- (e) Maizuru Naval Base

Room #5

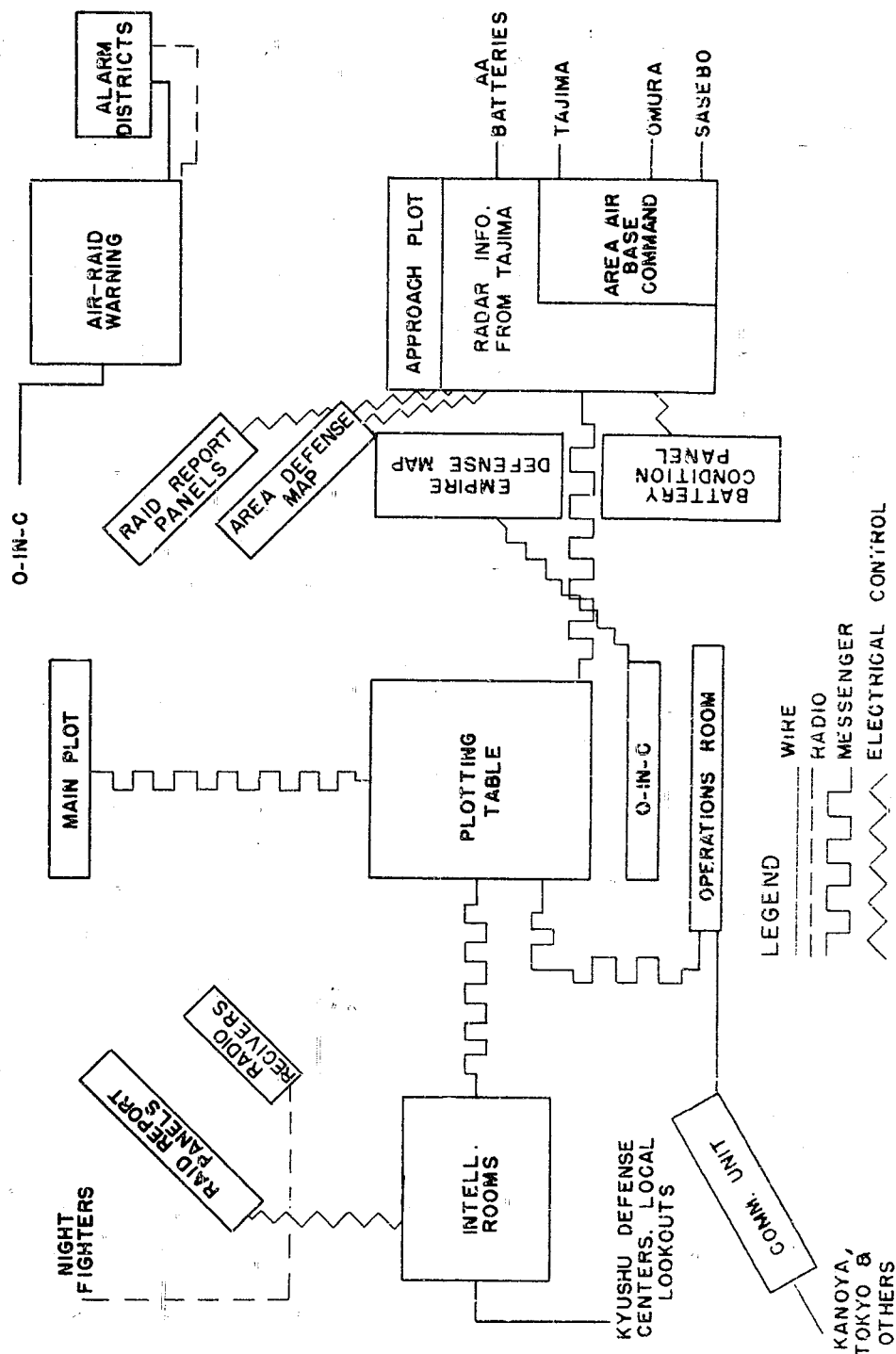
- (a) Karatsu Air Defense Center
- (b) Hirado Air Defense Center
- (c) Kagoshima Air Defense Center



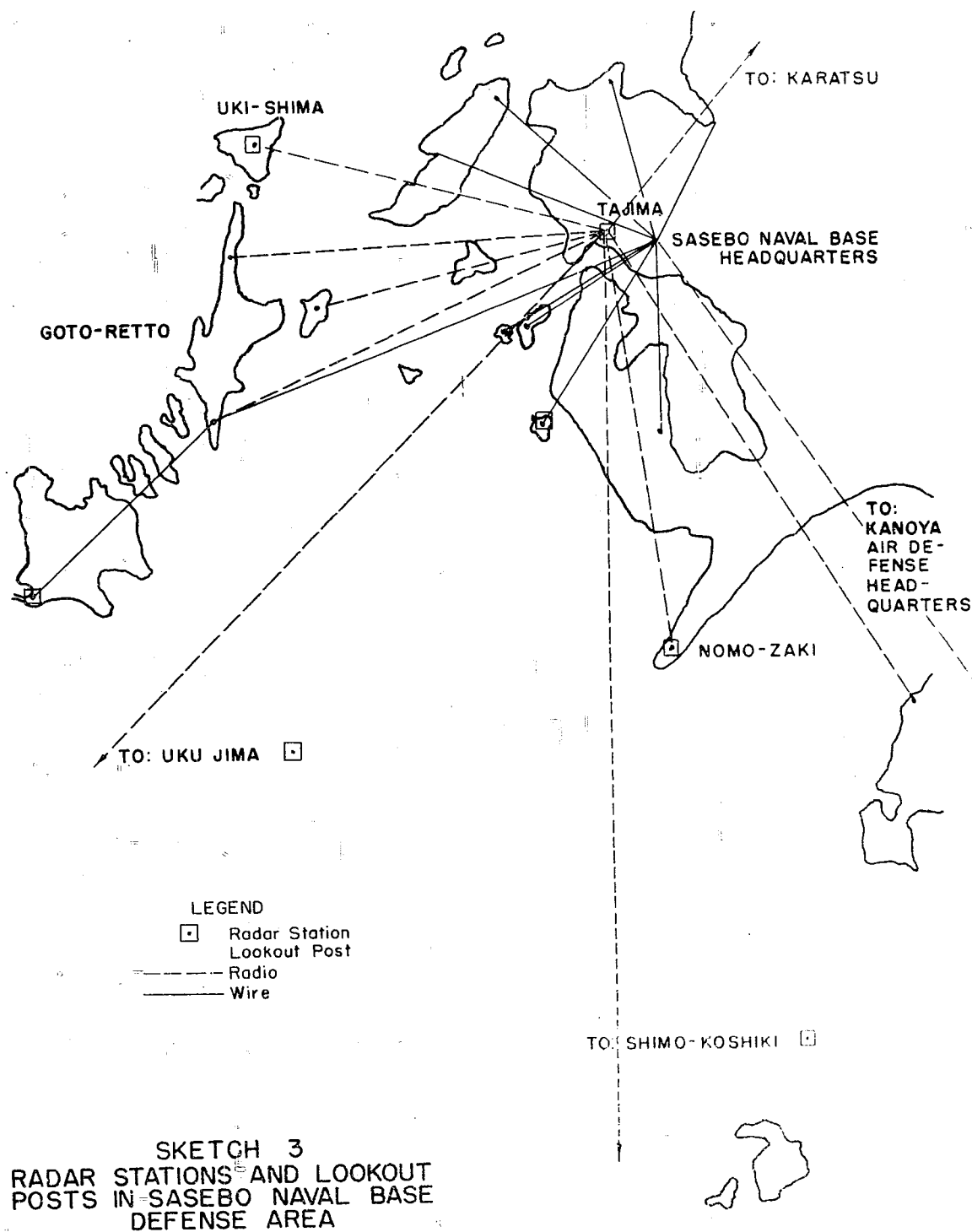
## SKETCH 1

AIR-RAID WARNING AND DEFENSE SYSTEM  
FOR SASEBO NAVAL BASE DEFENSE AREA

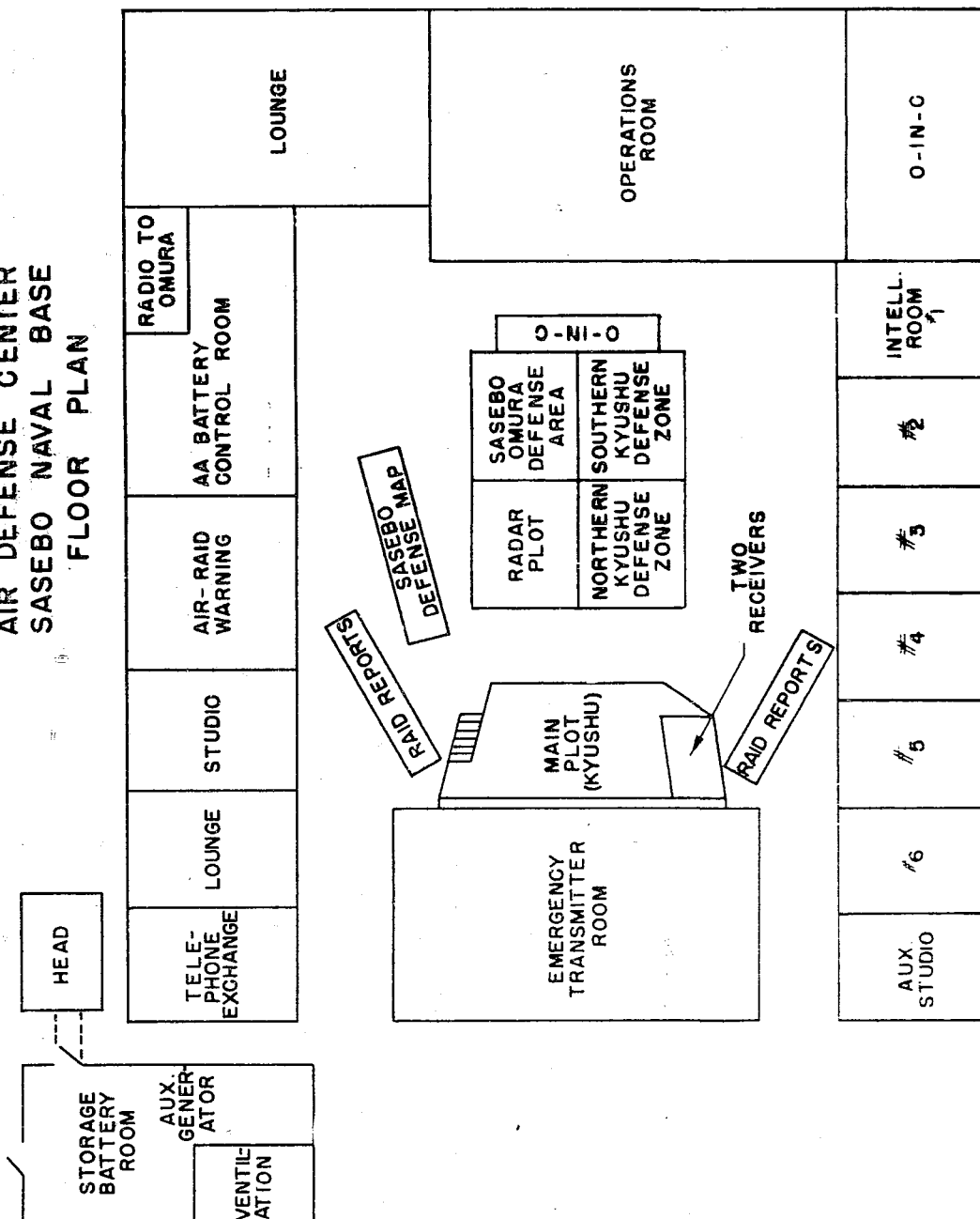
SKETCH 2  
FLOW DIAGRAM OF SASEBO NAVAL BASE DEFENSE CENTER







SKETCH 4  
AIR DEFENSE CENTER  
SASEBO NAVAL BASE  
FLOOR PLAN



## ENCLOSURE (A)

## LIST OF DOCUMENTS FORWARDED THROUGH ATIS TO WDC

NavTechJap  
No.SubjectATIS No.

ND50-3231

Map, Japanese Defense of KYUSHU.

4095

## ENCLOSURE (B)

## LIST OF TECHNICAL INTELLIGENCE COMPANY ORDNANCE INTELLIGENCE REPORTS

Report No.Subject

1. Japanese 20mm Anti-Aircraft, Anti-Tank Gun, Type 98.
2. Japanese 20mm H.E. and A.P. Ammunition used with Oerlikon Type Dual-Purpose Gun.
3. Japanese 75mm Mobile Field AA Gun, Type 88 (1928 Model).
4. Japanese Two-Meter Range-Height Finder.
5. Japanese Target Speed and Course Angle Calculator, for use with 75mm mobile AA Gun, Type 88.
6. No Record.
7. Computing Disc for use with sound locating apparatus in conjunction with Japanese 75mm AA Gun Type 88.
8. Japanese 37mm Infantry Rapid Fire Gun, Model 94.
9. Japanese 75mm Mountain Howitzer, Type 41.
10. Japanese 70mm Infantry Battalion Howitzer, Model 92.
11. Japanese Vickers Type (cal. .303) Aircraft Machine Gun.
12. Japanese 8mm Automatic Pistol "Nambu" Pattern, Model 14.
13. Japanese Caliber .256 Arisaka Rifle, Model 38.
14. Japanese Model 89 Grenade Discharger Cleaner.
15. Japanese Armor Piercing Mine (Magnetized).
16. Japanese Model 89 Grenade Shell.
17. Japanese 40cm Base Range Finder.
18. Japanese 50mm Flare Discharger.
19. Japanese Type 97 Fragmentation Grenade.
20. Japanese 10cm Anti-Aircraft Binoculars, Model 1929.
21. Japanese Three-Power Telescope and Tripod.
22. Japanese 20mm Aircraft Cannon Ammunition.
23. Japanese Caliber .256 Meiji 44 Carbine, with folding bayonet.
24. Japanese 75cm Base Range Finder.
25. Japanese (Smith and Wesson Type) Revolver.
26. German Aircraft Machine Gun (MG17).
27. Japanese Caliber 50 Aircraft Machine Gun, Type B.
28. Japanese 75mm Mountain Gun, Type 94.
29. Japanese Packing of Ammunition as found in New Guinea.
30. "Czech Bren Type" Automatic Rifle, Cal. .312.
31. Japanese Light Machine Gun, Type 96, "Juki" HMG Mount.
32. Extension adapter for Japanese Type 92 "Juki" HMG Mount.
33. Japanese Type 100 Double-Barrel Flexible Aircraft Gun, 7.92mm.
34. Japanese 25mm AA-AT Gun, Type 96.
35. Japanese Type 98 Flexible Aircraft MG, 7.92mm.
36. Japanese Rifle, Cal. 7.7mm (.303") Type 99.
37. Japanese 25mm Gun Dual Mount.

## ENCLOSURE (B), continued

<u>Report No.</u>	<u>Subject</u>
38.	Japanese Rifle, Type 97, with telescopic sight.
39.	Japanese Triple Barrel Signal Pistol.
40.	Japanese 5.7cm Tank Gun, Type 97.
41.	Japanese Type 95 (1935) 4 x 4 Passenger Car.
42.	German Air Rifle, Cal. .22, Model 27.
43.	Japanese Spin Stabilized Rocket.
44.	Japanese Type 95 B (1935B) 13-ton Prime Mover.
45.	Japanese 12cm, 45 Cal. 10 yr. (1935) AA Gun.
46.	Japanese Type 51 (1908) Six-Inch Gun.
47.	Japanese Combination Prime Mover and Wrecker.
48.	Japanese Type 3 Land Mine and Coconut Booby Trap.
49.	Japanese Type 94B (1934B) 6 x 4 Diesel Truck.
50.	Japanese Mobile Type 96 (1936) 25mm Gun.
51.	Japanese Type 92B (1932) 8-ton Prime Mover.
52.	Japanese 81mm Barrage and Flare Mortar Shells.
53.	Japanese Type 2 (1942) Combination AA Fuze.
54.	Japanese and United States Interchangeability of 81mm Mortars and Ammunition.
55.	Japanese Paratroop Weapons.
56.	Japanese Combination Prime Mover and Bulldozer.
57.	Japanese Ceramic Hand Grenades.
58.	Japanese Armored Tracked Personnel Carrier.
59.	Japanese Armored Railroad Ammunition Car.
60.	Japanese Army 7 yr. Type, 30cm Howitzer, Short.
61.	Japanese Type 97 (1937) 15cm Mortar Firing Tests.
62.	Japanese Self-Propelled 15cm Howitzer.
63.	Japanese Type 97 Improved Medium Tank.
64.	Japanese Truck Locomotive.
65.	Japanese Type 95A (1935A) 13-ton Prime Mover.
66.	Japanese Type 98 Correction Finder Firing Readjustment Calculation Plate.
67.	Japanese Octuple .50 cal. Machine Gun Mount.
68.	Japanese Anti-Aircraft Director, Type 2 (1942), Model 2, Modification 3.
69.	Japanese Rockets and Launchers.
70.	Japanese Type 4 (1944) Model 2 Firing Mechanism.
71.	Japanese Toho Wheeled Tractor.
72.	Japanese Mortars on Leyte.
73.	Japanese Type 90 (1930) 75mm Field Gun.
74.	Japanese Type 01 (1941) 7.7mm Heavy Machine Gun.
75.	Japanese Tank and Anti-Tank Weapons, Firing Tests.
76.	Mechanical Sight for Japanese 47mm Anti-Tank Gun.
77.	Japanese Improvised Armored Cars.
78.	Speed Ring Sights for Japanese 12cm AA Guns.
79.	Japanese Full Tracked Combat Car.
80.	Japanese KATO General Purpose Tractor.
81.	Aircrete packing of Type 92, 70mm Howitzer Ammo.
82.	Japanese Type 99 Belt Fed 20mm Oerlikon A/C Gun.
83.	Japanese Type 2 (1942) 15cm Ship Mounted Mortar.
84.	Improvements in Japanese Ammunition Packing.
85.	Japanese Half-Track Vehicle.
86.	Japanese 105mm Sectional Steel Cartridge Cases.
87.	Japanese 12cm, 45 Caliber 11 Year Type Gun.
88.	Japanese Large Spigot-Type Rifle Grenade Launcher.
89.	Japanese Improvised Mortars and Ammunition.
90.	Japanese Chemically-Fuzed Grenade.
91.	Japanese Type 1, Self-Propelled 75mm Gun.
92.	NISSA Cab over Engine Trucks, Japanese.

## ENCLOSURE (B), continued

<u>Report No.</u>	<u>Subject</u>
93.	Japanese Non-Skid Track Attachment.
94.	Japanese Type 92 (1932) Tankette.
95.	Japanese Fuze Setters for 12cm AA Gun.
96.	Japanese Type 98, 4-ton Prime Mover.
97.	Japanese Improvised Weapons on Negros, P.I.
98.	Japanese 4½ Meter Base Periscope.
99.	Japanese Flame Throwing Tanks.
100.	Japanese 40mm Ho-301 Automatic Aircraft Cannon.
101.	Japanese Short 20cm Gun.
102.	Japanese 37mm, Type Ho-203 Aircraft Cannon.
103.	Japanese Naval Short Mortars.
104.	Japanese Athey Type Artillery Trailers.
105.	Japanese Rifle, Semi-Automatic (Garand type).
106.	Japanese Rifle, Type 99, Modifications.
107.	Japanese Periscope Sights.
108.	Japanese Rifle, Type 38, 7.7mm.
109.	Japanese Reflector Type Tank Sight.
110.	Japanese B.C. Scope, 10 x 4.5.
111.	Japanese Tracking Binoculars.
112.	Japanese Submachine Gun (experimental).
113.	Japanese Rocket Launchers.
114.	Japanese Elbow Scope.
115.	Japanese Panoramic Sights.
116.	Japanese Collimator Sights.
117.	Japanese Gunner's Quadrant.
118.	Japanese Wind Velocity Calculator.
119.	Japanese Telescopic Sight.
120.	Japanese AA Binoculars.
121.	German Type Telescopic Sight for the Japanese 88mm AA Gun.
122.	Japanese Observation Binocular, 15 Meter (experimental).
123.	Japanese 57mm HO 401 Aircraft Cannon.
124.	Japanese Experimental 10cm (winged bullet).
125.	Japanese, 30 Year Type, Carbine and Rifle.
126.	Japanese 6 Meter Base Height Finder for Use with 15cm AA Gun.
127.	Japanese "Keki" Type AA Director and Fire Control Equipment for Type 2, 20mm Mobile AA Cannon.
128.	Japanese Type 3 (Modified) 6.5mm Heavy Machine Gun.
129.	Japanese Type 4, 75mm AA Gun.
130.	Japanese 105mm Recoiless Gun.
131.	Japanese Type 4 AA Director for 15cm AA Gun.
132.	Japanese 81mm Recoiless Gun.
133.	Japanese Type 2 AA Director.
134.	Trends of Japanese Army AA Director Development.
135.	Japanese 13mm, Type 2, Modification 1 Flexible, Aircraft Cannon.
136.	Japanese Type 4, 7cm Hollow Charge Rocket.
137.	Japanese Armor.
138.	Japanese Aircraft Cannon (experimental).
139.	Japanese Type 96, 15cm Mortar.
140.	Korea Report No. 2 - AA Director, Type 2 for Type 99, 8cm AA Gun.
141.	Korea Report No. 3 - Binoculars, Periscopic, Type 3 (1943).
142.	Korea Report No. 4 - Periscope, Type Undetermined, (10 x 50, 30mm objective).
143.	Korea Report No. 5 - Periscope, 6 Meter.

## ENCLOSURE (C)

## LIST OF EQUIPMENT SHIPPED TO OIL, INDIANHEAD, MD.

<u>NavTechJap No.</u>	<u>Item</u>	<u>No. Shipped</u>
(ARTILLERY)		
JE0-75 to 79	7.7mm Type 92 Light Machine Guns	5
JE0-67	7.7mm Model 92 Heavy Machine Guns	5
JE3-93	7.7mm Model 97 Tank Machine Guns	5
-70 to 73		
JE3-67	7.7mm Type 99 Light Machine Guns	5
JE22-3476(A-G)	13mm Modif 93713 Guns (Rifles)	7
JE10-3208(1-3)	13mm Machine Guns	3
JE3-3 and 4	37mm Type 94 Anti-Tank Guns	2
JE3-43 and 44	47mm Type 1 Anti-Tank Guns	2
JE3-8 and 10	70mm Type 92 Battalion Howitzers	2
JE3-53 and 54	75mm Type 38 Field Artillery Guns	2
JE3-45 and 46	75mm Model 41 Mountain Guns	2
JE3-48 and 50	75mm Type 94 Mountain Guns	2
JE0-51 to 55	8cm New Type Mortars (Tubes and Mounts)	5
JE3-300 to 304	81mm Type 99 Mortars, Complete	5
JE3-22 to 26	9cm Type 97 Mortars with Bipods and Base. Plates	5
JE3-80	9cm Mortar	1
JE3-81	Accessories for 9cm Mortar	1
JE12-00012 to	10cm Howitzers	3
-00014		
JE3-55 and 56	105mm Type 91 Howitzers	5
2-48		
2-50 and 51		
JE2-26 to 30	10mm Self-Propelled Howitzers	5
JE21-3201	12cm Type 3 Howitzer	1
JE3-59	12cm Type 2 Mortars (Tubes, Bipods, and Base Plates)	2
JE21-3203	12cm Mortar	1
JE21-3204	15cm Mortar (Complete)	1
JE0-72 and 73	15cm Type 93 Mortar Tubes (3) with 2 Base Plates, 3 Bipods	3
JE0-46 to 50	15cm New Type Mortars (Tubes, Bipods, and Base Plates)	5
JE21-4043 (1-5)	15cm Mortars	5
JE3-16 and 18	15cm Type 4 Howitzers	2
JE2-36	15cm Howitzers	3
JE21-4499	250 kg Bomb Rocket Mortar	1
JE0-70	Grenade Dischargers	5
JE21-3210	Semi-Automatic Rifle (M-1 Copy)	1
JE21-3209	Semi-Automatic Rifle (Experimental)	1
JE0-69	Type 100 Automatic Rifles	5
JE21-3220(1-8)	Type 97 Machine Guns (Tank)	3
JE21-3211	Heavy Machine Gun Mount	1
JE0-68	3rd Year Type Heavy Machine Gun Tripods	5
JE10-3109 SD	Type 3 Machine Gun Synchronizer	1
JE10-3117 SD 1	Machine Gun Synchronizer Model	1
JE10-4144	Type 6 Magazines	1 Box
JE10-4145	Type 98 Magazines	1 Box
JE3-305 to 308	Miscellaneous Artillery Accessories	4 Boxes

## ENCLOSURE (C), continued

<u>NavTechJap No.</u>	<u>Item</u>	<u>No. Shipped</u>
(ROCKET LAUNCHERS)		
JE0-59 to 61	12cm Multiple Tube Rocket Launchers	3
JE21-3214	12cm Dual Purpose Rocket Launcher	1
JE21-3205	12cm Rocket Launcher	1
JE3-61 to 64	Anti-Tank Rocket Launchers	5
-66		
(MISCELLANEOUS)		
JE2-6 to 10	Type 97 Tanks	5
JE2-11 to 15	Type 3A Fixed-Turret Tanks	5
JE2-16 to 20	Type 3B Electric-Turret Tanks	5
JE21-3215	Type 4 Amphibious Tank	1
JE21-3208	Radio Controlled Miniature Tank	1
JE2-1 to 5	Armored Personnel Carriers	5
JE3-76	Light Armored Car (Half-Track)	1
JE3-77	Amphibious Truck	1
JE2-31 to 35	Reconnaissance Cars	5
JE2-41 to 45	Prime Movers	5
JE21-4110	Type 93 Non-Magnetic Land Mines	2
-4088		
JE21-4041	Type 3 Seashore Land Mine	1
JE21-4042	Type 5 Strike Mine	1
JE10-4023(1-5)	Yardstick Anti-Tank Mines	5
JE10-4024	Fuzes for Yardstick Mines	6 Boxes
JE10-4100(1-10)	Wooden Box Land Mines	11
-4035		
JE21-4090	Wooden Box Mine	4
JE10-4106	Tape Measure Land Mine	1 Box
JE10-4915(1-5)	Terra-Cotta Land Mines (Small)	5
JE10-4033(1-5)	Attack Mines (Not Lunge)	5
JE10-4016	Conical Hand Mines	5 Boxes
JE21-4081(1-2)	Large Hemispherical Land Mines	2
JE21-4413	Bag Mines	1 Box
JE10-4031	Land Mine Fuzes	1 Box
JE10-4103	Frangible Grenades	1 Box
JE10-4104	Frangible Smoke Grenades	1 Box
JE10-4025	Model 4 Pottery Hand Grenades	1 Box
JE10-4036	"Molotov Cocktails"	1 Box