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Cover Page: Two Coronados of VPB-13, operating from the USS KENNETH WHITING, downed this MAVIS on 10 May in a 17-mile running battle near Fukue Shima, west of Kyushu.

Enclosures: Data Table--Japanese Combat Aircraft.

Count of Operational Aircraft.

Known Your Enemy: Japanese Antitank Warfare.

Two Maps: Japanese Defense Installations on Iwo Jima as plotted from P. I. reports and ground study.

[1]

UNEASINESS IN JAPAN

With Okinawa about to be written off, Japan took stock of the situation last week and found the outlook grim. There was a tinge of desperation in various Tokyo announcements as spokesmen sought to condition the public for an expected invasion of the homeland. Like the nervous sleeper in the flat below, Japan sits up nights waiting for the other shoe to drop.

The Japanese public has been told by no less than Premier Suzuki that Okinawa was to be the decisive battle, that Japan itself might rise or fall on the outcome

¹Pages referred to are indicated by italic figures enclosed by brackets and refer to pages of original exhibit.

of the battle in the Ryukyus. Newspapers and commentators were quick to echo the spirit of his fright talk. When the Naha-Shuri defense line was broken, the Japanese public must have known that a decisive phase was at hand. There was Okinawa all but lost; there was the ubiquitous Third Fleet hammering at Kyushu; there was the 11th Army Air Force raiding the northern Kurile Islands, and over all were the B-29s with the power to pick a city and obliterate it.

Tension mounted in Tokyo, or what was left of it. There was the publicly-aired conviction that the next Allied operation would be against the home islands. While the Tokyo Radio talked of elaborate underground structures for "a long war", the Japanese military took the wraps off "the home defense team" of pilots and aircraft. Carrier pilots of the Third Fleet suddenly found they had to beat off "a sky full of Japanese planes", manned by crack pilots who apparently had been saved up for some such final showing. Moreover, U. S. airmen reported the expert Jap flyers were coming up with new fighters which outperformed American Corsairs. (Identity of this new Japanese fighter plane has not been established, but elsewhere in this issue is a discussion of a possible new enemy plane recently shot down over Okinawa.)

Tokyo talked, too, of converting remnants of the Imperial Fleet into a suicide fleet or suicide units. English language broadcasts were beamed to North America pointing out that the recent shakeup in the Japanese Navy was calculated to put that arm on a suicide basis under new commanders who had originated and were versed in suicide tactics. There was even talk of converting the free balloon experiment into a direful threat to the U. S. mainland by means of suicide pilots. Propagandists said the pilotless balloons had demonstrated that such bags could get to the West Coast in 100 hours, so now the Japanese would send them over with pilots to spot targets for bombs in the balloons. Still other propagandists broadcast elaborate descriptions of vast underground fortifications and supply areas in the homeland which, they said, would introduce "a new kind of underground warfare."

It was all reminiscent of Germany's promises to her people of unlimited "secret weapons" before the end of the war in Europe.

Meanwhile, B-29s poured relentless destruction on Japan's principal cities in a terrible, methodical order. Tokyo, Yokohama, Nagoya, Osaka and Kobe—down the Tokaido line with train-like regularity and then back again, went the Superforts. On 5 June they were over Kobe, the end of the line, and two days later they were back at Osaka for the second time in a week. The Kobe raid was the 15th incendiary raid on the Empire. In the subsequent raid on Osaka HE bombs were mixed with 2,500 tons of incendiaries. The HE was aimed at Osaka Arsenal, Japan's largest. Before the Osaka raid, it was computed that a total area of nearly 90 square miles has been burned out or blasted to rubble in Japan's six major cities.

(At this point in the Exhibit the following items appear:

1. Aerial view of Tokyo showing damage effected through incendiary raids.
2. Aerial view of Osaka showing damage effected through incendiary raids.

The foregoing material will be found reproduced as Items Nos. 255, and 256, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[2]

UNIDENTIFIED AIRCRAFT

From Air Group 9 come gun camera photographs of a possible new Japanese fighter which was shot down on 5 May over Okinawa. This aircraft was first reported to be a GEORGE but an examination of the photos shows that its only GEORGE-like features are general wing shape and twin gun installations. Features not characteristic of GEORGE 11 are:

- Long nose.
- Low wing and excessively long fillets.
- Narrow but tall fuselage aft of fillets.
- Full length rudder similar to TONY's.
- Notched out tail plane with fairly short chord.

While it is reported that the new version of GEORGE has a low wing, there has been no indication that the fuselage and empennage would be redesigned or

that the engine would be set farther forward. GEORGE 11 presents a very stubby, heavy appearance. The aircraft pictured here gives that impression only in side view because of the depth of fuselage; its narrowness from above, if fillets are discounted, is almost like OSCAR. The tail wheel appears to be non-retractable since no cover plates are visible.

Two conclusions may be drawn: (1) that the aircraft is the new GEORGE 21 which seems unlikely for the reasons stated, and (2) that it is a new type Navy fighter hitherto unphotographed—perhaps SAM 11.

(Two photographs, each showing two separate views, of an unidentified Japanese plane over Okinawa, referred to *supra*, will be found reproduced as Items Nos. 257 and 258, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[5]

NEW AIR COMMANDS IDENTIFIED

Identification of two important new Japanese air commands, the 6th Air Army and the 1st Mobile Base Air Force, has been made through recently captured documents.

Prior to the Okinawa campaign, only five air armies were known to exist. Several items recovered on Okinawa, however, mentioned the 6th Air Army. A "Very Secret" order, dated 6 February 1945, issued by the 19th Air Sector Command gave the jurisdiction of the new Army. (CINCPAC-CINCPOA Item No. B-18,287.) The order states:

"Imperial headquarters will plan the execution of Ten Air Operation in the East China Sea area as a joint Army-Navy function. The 6th Air Army, chiefly, will carry out aerial operations north of Okinawa (including Okinawa) and the 8th Air Division, generally, will carry out operations south of Okinawa (Okinawa included)."

Since it is known that an air army is a high echelon of command with a tactical and administrative responsibility over a large area, it is presumed that the jurisdiction of the new army also includes Kyushu. The 8th Air Division is based on Formosa. The Ten ("Sky") operation is apparently the name applied to the air defense of Okinawa and the Ryukyu area.

Japanese air armies previously identified include the 1st in the Empire, 2nd in Manchuria, 3rd in Southeast Asia, 4th in Southwest Pacific, and 5th in China.

Mention of the 1st Mobile Base Air Force (Kido Kichi Kokubutai) and its number designation, 1KFGB was found in a notebook on Okinawa. (CINCPAC-CINCPOA Item No. B-18,066.) A Base Air Force is the tactical equivalent of a Navy Air Fleet and operates under the CinC, Combined Fleet. The area covered by the 1st Mobile Base Air Force and its equivalent administrative air fleet is not known, but it is presumed to be an important sector of the Japanese homeland defense.

[6]

JAPANESE FIGHTER DIRECTION

A description of Japanese fighter director methods, as they existed in April 1944, was captured on Luzon (ADVATIS Translation No. 74, ATIS Current Translations No. 156, 21 March 1945). Particularly interesting is the dependence of the Japanese on reconnaissance planes—which should make good targets—and on a constant speed and course of the attacking planes.

The physical system is not unlike our own shore-based system in basic respects. Various radars reports to a control station which we would call a filter center. At this location plots are displayed and evaluated and action is taken. (Apparently each radar reports bearing and range from itself and does not convert to a common reference point; nor does it appear to use any sort of "grid" system.) The Japanese have an organization designated an "intelligence squad" which would compare to our intercept team. One sketch indicates that D/F equipment is used in some manner for tracking their own intercepting aircraft.

Numerous references in the document indicate that Japanese radar bearing and range discrimination are not reliable. Furthermore, the enemy does not seem to have any search radar which is dependable for altitude determination on incoming raids.

To compensate for shortcomings in bearing, range and altitude from their radar, scouting planes are sent out initially to contact our raids. These scouts shadow

and report position, type, strength, altitude, etc., as an aid to directing the intercepting group. This would suggest the conclusion that our raids frequently will be spotted by Japanese reconnaissance planes, which will act as shadows and not as attacking units. The reconnaissance planes represent an important cog in the intercept system.

Due to the time element required in the filter center, the method of radio relay, and the fact that mechanical methods are utilized for computation of vectors, much time is wasted; time lag in plot is an obvious conclusion. All computation is on the premise that the "enemy raids" will remain on almost constant course and speed. This suggests that a few diversionary raids with marked changes in course and speed might create confusion in Japanese intercepts.

After their intercepting aircraft are given the initial "vector" and "range" on the "point of encounter" (intercept position), the subsequent changes in vector seem to be given in a manner similar to our clock-code method; e. g., "03.10" equals "right front ten kilometers."

(Copies of two photographs, each reflecting six views, of a Japanese "George" 11-Fighter, Interim Model, will be found reproduced as Items Nos. 259 and 260, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[11]

DEMOLITION SQUADS IN SALLYs

On 24 May six SALLYs carried Japanese "commandos" to Yontan airfield, Okinawa, in attempts to destroy U. S. aircraft and installations. The planes attempted wheels-up, power-off landings, but all except one which landed on the airfield, crashed and burned killing their occupants before any damage could be done. All planes were SALLY 2s, fitted with Type 100 1450 hp engines, the Army counterpart of the Kasei 11.

None of the six aircraft carried guns or armor plate or, as far as could be determined, radio gear. The top turrets had been removed and pieces of corrugated roofing, beaten flat, were nailed to boards 1 by 6 inches and tied over the turret hole with rope to inside structural members. Such aircraft maintenance as could be observed was extremely poor. Screws were cross-threaded or not screwed completely into place or were left out altogether. Ill-fitting pieces of fairing, apparently from other planes of the same model, had been forced into place. Much patchwork was noted and tires were considerably worn. In two of the planes were found small pieces of cardboard, 2 by 10 inches. Around the cardboard were wound five sizes of plain soldering wire, small pieces of which could be cut off and used as substitutes for burned-out fuses. Fuse boxes had some regular fuses installed and some short pieces of wire as substitutes, a possible indication of a shortage of fuses. Flare release racks were found on two aircraft, the flares doubtless being intended for use in the landings. One light smoke bomb was found, probably to be used to hide the raiders, once they were landed.

Extra bomb bay fuel tanks of approximately 130-gallon capacity were found in all the crashed aircraft. It is not clear why these would be needed, since SALLY's

(Photographs appearing at this point in the Exhibit include:

1. Two views of the Japanese plane, "Sally 2", one showing a tail section after attempted landing on Yontan airfield, Okinawa, and the other showing a plan after "wheels-up" landing on Yontan airfield.
2. View of a Japanese "Sally 2" plane after "wheels-up" landing on Yontan airfield.
3. Two views showing wreckage of two more "Sally 2s" near Yontan airfield.

The foregoing photographs will be found reproduced as Items Nos. 261, 262, and 263, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

normal range (at 75 per cent Vmax) without them is approximately 1200 miles, and from the nature of the operation it would not seem that a return trip for

the planes was anticipated. Oil tanks on one aircraft were only one-quarter full, indicating that the engines were badly worn or that the tanks were intentionally not filled in order to save oil.

The pilot of the one SALLY that landed most nearly intact is believed to have been inexperienced for these reasons: The automatic pilot was in operation and had never been turned off; controls were operational and functioned satisfactorily at the time of inspection, but the pilot had made a poor attempt at leveling off before landing, thereby striking the runway hard and injuring some of his passengers; main line switches and magneto switches were still on at the time of inspection.

The entire operation against Yontan airfield was in the familiar suicide tradition, a move of desperation, neither well-planned nor well-executed. It was not successful even if measured objectively in terms of physical damage done for losses taken.

(An aerial view of destruction wrought by American carrier based planes on Kanoya airfield will be found reproduced as Item No. 264. EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

DUMMY AIRCRAFT

Increased use of dummy aircraft on Japanese homeland fields is evident in many recent reconnaissance photographs. Photographs of three fields are reproduced here to illustrate the trend and to show some of the more obvious differences between the dummies and the real aircraft.

In spite of the painstaking care the Japanese have taken, the dummies look flimsy at best. They seem to warp and twist out of shape, either because of our gunfire or the elements. They are irregular and not precise enough to fool the eye when studied in photographs. Their very construction defeats their purpose, since the three-dimensional effect of solidity and strong shadow is weak. On the other hand, when these dummies are covered with camouflage netting the general effect can be attained and is more convincing.

To give a good idea of the lengths to which the Japanese have gone in the construction of dummy aircraft, a selection of typical drawings is published here. The original drawings were a part of two complete sets of blueprints captured on Okinawa (see "Weekly Intelligence", Vol. 1, No. 43). The dummies depicted are probably intended to represent NATE, SONIA and SALLY. How many other types of planes have been drawn or constructed is not now known. Several mediocre imitations of FRANK were spotted around Yontan Field on Okinawa (photos in "Weekly Intelligence", Vol. 1, No. 43).

Construction of dummies follows a pattern, not unlike stage scenery. The main members are of cedar and are comparable in size to our structural lumber. The lighter bracing and stiffeners are of common pine. All are nailed and spiked in place in a designated order. Structurally, the designs are only fair, as evidenced by their disintegration. Over this rough framework platform is woven the finish "basket". The coarseness of this weave allows the sun to penetrate and thereby to soften shadows cast on the ground. This is particularly noticeable in the Kanoya photograph. The "undercarriage", while elaborate for the SALLY and SONIA types, even including wooden wheels, consists generally of simple posts. Sometimes gasoline drums are used as supports, in much the same manner as they are beneath wrecked aircraft used as decoys.

(The following photographs appear at this point in the Exhibit:

1. Aerial photograph of Kanoya airfield.
2. Aerial photograph of Kikuchi airfield, Kyushu.
3. Aerial photograph of a Japanese airfield showing camouflaged dummy planes.

The foregoing material will be found reproduced as Items Nos. 265, 266, and 267, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

Three rendered sketches have been prepared from these Japanese drawings. Conventional shadows have been cast in an effort to show how these dummies would appear from the air. Gasoline drums have been drawn into each sketch to give scale. The shapes of the "aircraft" are true to the types imitated, but dummies seen to date have fallen far short of the shapes intended in the drawings.

Certain observations are pertinent. Though dummies to date have been flimsy,

are not faithful copies of the drawings, do not cast strong shadows and disintegrate under gunfire, they nevertheless look enough like the real thing from altitude under combat conditions. When covered with camouflage netting they are particularly hard to distinguish from operational aircraft. A recent report based on reconnaissance for mid-May (Report No. 659, InterpRon Two of 28 May 1945) shows that a total of 139 dummies are present on ten fields in Kyushu and Honshu, not including the large number shown in the Kanoya photograph. While these aircraft may be easy to distinguish on a photograph with a high power glass, they present a difficult spotting problem to pilots under combat conditions. For that reason, effort will be made in the future to publish any information on the subject which may be helpful in exposing to air personnel the Japanese use of dummy aircraft.

At this point in the Exhibit the following items appear:

1. Sketch of dummy Japanese plane, a "Sally."
2. Two sketches of dummy Japanese planes, a "Nate" and a "Sally."
3. Sketches showing captured drawings for construction of "Sally" dummies.
4. Sketches showing captured drawings for construction of "Nate" and "Sonia" dummies.
5. TAIC model photos of a "Baka," primarily a Japanese glider and secondarily a powered plane, being released from a Japanese "Betty" and of a "Baka" in flight.

The foregoing material will be found reproduced as Items Nos. 268 through 272, respectively, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

FURTHER ANALYSIS OF BAKA'S PERFORMANCE

Detailed analysis by TAIC of the aerodynamic characteristics of BAKA has led to a revision of the theoretical range, speed and glide angle estimates. BAKA is primarily a glider and *secondarily* a powered plane. The rockets greatly increase its speed for a short time, but cause only a slight range increase over its maximum glide range. Maximum horizontal range when released at 27,000 feet is 55 miles. Fifty-two of these miles would be travelled at a glide speed of 229 mph and at a glide angle of $5^{\circ}35'$; during the other three miles, the use of rockets would accelerate the speed to 535 mph in level flight. At a 50° or greater diving angle, maximum speed would be 618 mph. Whether the rockets were used at the beginning or the end of the run, or, whether they were used to climb would not appreciably affect the maximum range.

Against ships protected by heavy armor, presumably the rockets would be used at the end of the run in a torpedo approach, the pilot attempting to score a hit close to the water line. If launched from a distance, however, BAKA would be vulnerable to attack by fighters before reaching a position to complete effectively its own attack. Lacking maneuverability, BAKA could take but little evasive action in its unpowered glide and its only method of escape would be to fire one or more of its rockets. In this event, the increased velocity secured from the rocket would dissipate before BAKA could reach its target and its final terminal velocity would be substantially decreased.

Destruction of the parent aircraft is *extremely important* inasmuch as special fuselage modifications are necessary, and the available supply of adaptable parent aircraft controls the number of BAKAs that can be launched.

The accompanying range graph can be used to ascertain the estimated theoretical range of BAKA when launched from any determined altitude. It is not believed practical that release of BAKA will be made at altitudes in excess of 20,000 feet, so that the maximum practical range remains approximately 35 miles.

(A graph showing an estimation of the range of "Baka" will be found reproduced as Item No. 273, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

AIRFIELD DAMAGE REPAIR

Extensive damage inflicted upon Japanese airfields by U. S. bombers has led the enemy to issue special orders for the repair and camouflage of the damage. In addition, signals have been arranged to indicate to returning enemy pilots which of the damaged portions have actually been repaired and which have been merely camouflaged.

A Staff Order of the Fourth Air Division, dated 8 September 1944 and recently captured on Okinawa (CINCPAC-CINCPAC Item B-17564-F) states that every effort must be made to repair bomb damage but, if it cannot be repaired before morning, it should be camouflaged. An accompanying diagram, reproduced below, illustrates the use of signal panels to indicate camouflaged damage and the location of repaired portions of a typical strip.

A complete translation of the document follows:

"1. All bomb damage to runways by air raids should be repaired if at all possible, overnight.

"2. When the above is impossible, at least a part of the runway should be repaired by the next morning and made serviceable.

"3. Unrepaired bomb damage on runways should be camouflaged by dawn, using camouflage nets and other available materials. Camouflage should convince enemy aerial reconnaissance that the previous day's damage has been completely repaired. Speedy repair should then be undertaken. However, damage repair should not be delayed for purposes of camouflage.

"4. Partial repair described in Item 2 and 3 above should be marked off according to the attached diagram. Red signal panels are placed next to camouflaged bomb damage and facing the repaired runway area. Panels are placed so that the sides of one will be parallel to those of the others."

(A diagram illustrating the use of signal panels to indicate camouflaged damage and the location of repaired portions of a typical strip, referred to *supra*, will be found reproduced as Item No. 274, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

OXYGEN GENERATING APPARATUS

The oxygen generating apparatus now used in FRANK, NICK and other Japanese Army aircraft delivers an unusually large amount of oxygen for its low weight and will not explode if struck by shrapnel or bullets. In these respects it is much superior to conventional oxygen storage installations.

An examination of the equipment discloses that its main components are three generator tubes with individual filter attachments, the enclosing container and the immediate tubing and the necessary electrical connections.

The generator tube is of thin sheet iron or steel construction, plated with rust-proof metal, with soldered side and end plate seams. A socket and suitable electrical contact is provided at its lower end, while the smaller but similarly constructed filter cylinder is soldered in its insert recess at the opposite end. Overall dimensions are: generator length 1 foot 6 $\frac{3}{8}$ inches; overall length including filter 2 feet 3 $\frac{3}{8}$ inches; generator diameter 3 $\frac{1}{2}$ inches; filter diameter 2 $\frac{1}{4}$ inches.

The oxygen-producing material is a mixture of potassium chlorate (KClO₃), iron, iron oxide and asbestos fiber. The action of the generator is initiated by an electric current heating a chrome-iron resistance wire, about which is wrapped a paper fuze. The fuze in turn ignites a fuze train which finally ignites the main compound. The mixture of constituents in contact with the fuze is richer in iron and iron oxide than is the remainder of the compound. Oxygen is produced by the heat-decomposition of the KClO₃. The iron oxide is a catalyst which allows the reaction to occur at a lower temperature, and the iron metal may act both as a heat source in reaction with the oxygen produced and as a catalyst.

(A front view of an oxygen generating apparatus with one cylinder missing will be found reproduced as Item No. 275, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

The enclosing container for the generator components is constructed of what seems to be aluminum alloy. The components of the case (back panel, doors and base) are apparently formed by a die-stamping process. At the time of the stamping, cooling perforations of about $\frac{3}{4}$ -inch diameter are formed, spaced

at about $1\frac{1}{2}$ inches between centers. Overall dimensions are: length 1 foot $8\frac{3}{4}$ inches; width 1 foot $\frac{1}{8}$ inch; depth $5\frac{1}{8}$ inches. Assembly consists of a back panel to which is riveted a base or socket holding section.

Two outward-swinging doors are hinged on each side of the back plate above the base, and are fitted with two bar-and-lever type latches. Other constructional details may be ascertained from photographs. An instruction plate with wiring and tubing diagram is secured to the front of the base.

The gross weight of the equipment (three generator-filter tubes, the container, and part of the tubing) is 25 pounds $4\frac{1}{2}$ ounces. Each tube has a duration of 75 minutes, according to the attached nameplate. No volumetric computations have yet been made but it is believed that the generator delivers ample oxygen for any altitude the airplane may operate. An idea of duration per unit weight may be gained from the results of the quotient of time of delivery over weight, which shows that the equipment delivers 8.95 minutes of O_2 per pound of apparatus. Two disadvantages of the unit are that the generator reaction, once started, cannot be stopped. This, in turn, often necessitates by-passing a large amount of oxygen at lower altitudes. The long duration of oxygen production is apparently intended to counteract this.

(At this point in the Exhibit there appear two views on a plate captioned "Shades of Darius Green," including:

1. View of an oxygen generating apparatus.
2. View of a Japanese aircraft, a photograph of which was capture on Okinawa.

The foregoing will be found reproduced as Item No. 276, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

JAPANESE ELECTRIC TORPEDO

A Japanese electric "wakeless" torpedo, with a possible range greater than any other electrically-driven type known, has been recovered on Saipan.

Only incomplete information is available on the weapon, designated as Type 92, Mod. 1. On the example recovered and examined by MEIU No. 4, the warhead was missing and numerous parts which would have given additional indications of the torpedo's operation and capabilities had been removed, possibly by souvenir hunters.

(A photograph of a Type 92, Model I Japanese Torpedo will be found reproduced as Item No. 277, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

The range dial on the weapon is calibrated from 0 to 14000. Although the unit of measurement is not given, it is presumed to be meters, inasmuch as that unit of measurement has always been used by the Japanese to indicate range. If that is the case on this weapon, the maximum setting would give the torpedo a range almost twice as great as any other electric torpedo extant. This maximum range can probably be achieved only at a much reduced speed, however. At the estimated maximum speed of 28 knots, it is believed the torpedo would have an effective range of approximately 3000 yards.

The weapon is apparently modeled after the German G7E electric torpedo. Without the warhead, it is 19 feet, $1\frac{7}{8}$ inches long, and 21 inches in diameter. It has two batteries of 52 cells each and each cell has a voltage of 2.05. The batteries are 62 inches long, $14\frac{3}{4}$ inches wide, and 10 inches high. The motor is driven by direct current. Twin propellers, turning in opposite directions stabilize the torpedo during its run. Four tail vanes with horizontal and vertical rudders are mounted on the trailing end. No information is available on the type of warhead or explosive device used, or on the type of submarine capable of carrying the torpedo. As far as is known, the torpedo has not yet been used in combat by the Japanese.

(A photograph showing two views of a Japanese torpedo, one being of the tail and after body, and the other of the interior of the battery compartment will be found reproduced as Item No. 278, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

VARIATION IN SCS

(Various views of the Japanese Type E Model Vessel referred to as "Sugar Charlie Sugar" and mentioned *infra*, will be found reproduced as Item No. 279, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

Photographs above are among the first received showing details of the standard economy Type E (mod) Sugar Charlie Sugar with foremast centered on the foredeck and a thin mainmast on the afterdeck. Shown below is a recent good photograph of the Type E (mod) with masts at forecastle and bridge. The two mast arrangements constitute the major variations found on this economy type. In other respects details of the two ships illustrated are very similar but among minor variations which may be observed in the future are placement of lifeboats and size of stack.

The foremast-centered variation of SCS can be distinguished from the larger (2300-ton) three-hatch Sugar Charlie Love by the position of the foremast with respect to hatches. At most, a mast can serve two hatches. If centered, it can serve the entire foredeck, which can have but two hatches—as on a Sugar Charlie Sugar. If the mast is forward of center it can serve only a part of the foredeck and a third hatch must be present—as on a Sugar Charlie Love. (See opposite page.)

(The following photographs appear at this point in the Exhibit:

1. View of a Japanese vessel referred to as "Sugar Charlie Sugar" with foremast at forecastle.
2. Photographs of two types of Japanese cargo vessels referred to as "Sugar Charlie Love" and "Fox Tare Dog."

The foregoing material will be found reproduced as Items Nos. 280 and 281, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

I-24, MIDGET SUB CARRIER

The sketch below, reproduced from a drawing by a prisoner who served aboard the Japanese submarine I-24, illustrates how a midget submarine was transported to Pearl Harbor for the sneak attack of 7 December 1941. Other midgets were transported similarly for attacks on Sidney, Australia, and in the Solomons area. In the two years the POW was aboard, from April 1941 to May 1943, seven midget submarines were launched from the I-24. The prisoner's disclosures are contained in ONI Digest of Information from Prisoner of War Sources.

The smaller craft was carried on the main deck abaft the conning tower and was secured to the pressure hull by means of heavy clamps, the POW said. One of the clamps was released from within the midget, the rest from within the mother sub. No unusual difficulty was experienced in maintaining trim when diving with the small craft aboard.

Due to the limited range of the small subs, return to the "mother" ship was not planned, and was not accomplished in any of the seven instances. Crews of the midgets were expected to scuttle their boats after accomplishing their missions, and save themselves if possible.

(A sketch showing a Japanese submarine I-24 carrying a midget submarine will be found reproduced as Item No. 282, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

CAMOUFLAGE VS PHOTO INTERPRETATION ON IWO JIMA

Pre-invasion photo interpretation of installations on Iwo Jima compared favorably with later ground studies of the island in areas where vegetation was sparse. In wooded areas, among pandanus trees and in heavy scrub growth, installations frequently were impossible to see and many which were not sheltered by natural growth were so well camouflaged it was impossible to determine whether an object was a military installation or a natural ground formation.

Along the barren beaches of the southern isthmus, interpretation of aerial photographs was comparatively easy, although dummy positions, revealed after-

ward by ground study, were so well constructed they were difficult to distinguish from the authentic.

Near the airfields, 500 to 800 yards from the beaches, blockhouses, covered artillery and large pillboxes, were observed and correctly interpreted. Smaller pillboxes and mortar emplacement, often as effective against our forces as the larger installations, could not be observed in photographs. Even on the ground frequently they could not be spotted from more than 15 yards' distance. Many of the smaller pillboxes used an effective camouflage of wire netting covered with brush over the fire lanes.

Interpretation of antiaircraft defense was more than 95 per cent accurate even though all these positions were well camouflaged. One of the few errors was the classification of a six-gun heavy AA battery as automatic AA. The average diameter of revetments for this heavy gun battery was slightly less than 16 feet. The revetment of a nearby twin-mount automatic AA battery was slightly more than 15 feet. Nets and brush across the revetments obscured characteristics so that positive identification of either battery was impossible.

Approximately 30 percent of the casemated coast artillery and field artillery positions were observed in aerial photographs before heavy gunfire blasted away

(At this point in the Exhibit two items appear, as follows:

1. Photograph showing Japanese camouflage of a pillbox and a spigot mortar position.
2. Five views showing various types of Japanese camouflage technique.

The foregoing material will be found reproduced as Items Nos. 283 and 284, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

vegetation concealing other positions which allowed for a greater percentage of correct interpretation. Natural vegetation was used extensively on all positions. Camouflage discipline as evaluated from photographs was excellent during construction of positions. Materials used for covering blended into the surrounding terrain and vegetation, while earth from excavations was planted with grass to obliterate traces of military activity. Heavy coast defense guns and field artillery were well concealed under trees.

Emplacements for machine guns and 150-mm mortars have similar characteristics. Consequently, a few of the latter were interpreted as machine gun positions. Small mortar or rocket emplacements were unobserved in photographs.

CINCPAC-CINPOA Bulletin No. 136-45, concerning a ground study of the defense installations of Iwo Jima, points out the limitations of excellent vertical photographs. The two maps enclosed with this issue of "Weekly Intelligence" show (1) a plot of defense installations on Iwo as determined from photo interpretation on D-15, and (2) positions plotted from a ground study of the island.

A review of aerial photographs, supplemented by a ground study knowledge of the island, disclosed most of the larger installations, such as the CD guns at the East Boat Basin. These casemates were discovered by comparing changes in the ground noted in successive sorties dated from 15 June 1944 to 4 February 1945, listed in Supplement to Defense Installations of Iwo Jima, CINCPAC-CINPOA Bulletin No. 137-45.

Despite excellent camouflage and camouflage discipline, stereo pairs revealed the height of the concrete position in which the CD gun was emplaced. The photographs taught photo interpreters not to rely solely on the best sortie of a strategic area, but to study thoroughly all differences in terrain as revealed at different dates. It is of utmost importance that aerial photographs of strategic areas be obtained at an early date and at frequent intervals thereafter for comparative studies. Low stereo obliques of beach areas were excellent in uncovering camouflaged beach positions.

Operational maps, including contours and terrain features, were made from aerial photographs where there were discrepancies occasioned by absence of ground control. The extremely rugged terrain was not portrayed on the contours of the situation map. Depth of draws and ravines was hidden by tall trees, and stereo comparagraphs could not determine heights beneath this vegetation. This resulted in little more than a general picture of the terrain for unit commanders. These limitations serve to point out the need for vectographs or some type of three-dimensional picture covering the area assigned to each tactical commander,

(At this point in the Exhibit two photographs appear, as follows:

1. Photograph showing Casemated CD Guns over East Boat Basin, Iwo Jima.
2. Photograph showing U. S. Marines blowing up a cave harboring Japanese snipers on Okinawa.

The foregoing material will be found reproduced as Items Nos. 285 and 286, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[33]

OKINAWA DEFENSE DOCTRINE

The situation facing U. S. troops poised for assault against Okinawa appeared to be a formidable one. From seven to eight possible centers of resistance were believed disposed within the immediate area of the proposed zone of action. Photographs revealed prepared defenses around Katchin Hanto on the east side of the island sufficient to indicate a regimental position.

But an agreeable surprise was in store for us. By the evening of the initial landing day our forces were approximately two days ahead of schedule. Fortifications overlooking the Hagushi beaches had been abandoned. Yontan airfield, reputed to be one of the best in the Pacific, had been left practically intact. Antiaircraft emplacements either had dummy guns or were empty. In a sense, the enemy handed U. S. troops their primary objective on a silver platter.

This new "factual reasoning" on the part of the Japanese could not be explained immediately. However, a recent report from the III Phib Corps clarifies the enemy's failure to oppose our landing.

In previous operations, it is pointed out; the enemy defended his important beach areas and airfields with the utmost tenacity, withdrawing to a final defensive line only when he was driven from his forward positions. On Okinawa the Japanese were forced to deviate from such a course because they had insufficient troops available for defense of the island. Consequently, the enemy chose the more important military installations to defend, leaving the others to be destroyed by his retreating forces.

"It is definitely known," the report asserts, "that the Japanese high command issued orders to the forces in the Yontan-Katena area to destroy the airfields should we initiate a landing in that sector. The force was then to join the 62nd Division for a defense of southern Okinawa.

"This indicates that the enemy did not intend to make a concerted stand in the Yontan-Katena area. Instead, he chose the narrow approaches to southern Okinawa where he could concentrate all his defenses in depth and employ the minimum force necessary to halt a further advance. The extensive network of dummy and unoccupied positions in the area further substantiates such plans."

A captured document sheds additional light on the Japanese tactical plan for the defense of other islands in the Nansei Shoto. The document refers to the "Okinawan Type of Defense" as the plan to be followed.

"From an analysis of this document," the report points out, "it would appear that the so called 'Okinawan Type of Defense' is a definite tactical plan or scheme of defense approved by the Japanese High Command. Its primary purpose is the conservation of manpower. Important beach areas and even airfields are temporarily abandoned while the main defense line is held in force.

"This main defense line is organized in depth and makes maximum use of terrain consistent with the size of the force and frontage to be held. It is so designed to enable the defenders to fight a long 'war of attrition', denying the invader use of [34] captured installations."

The enemy's appreciation of terrain and tactical use of weapons on Okinawa was excellent, the report states. First line defenses were prepared on forward slopes where automatic weapons were emplaced. Flat trajectory fire was utilized to its maximum extent. During bombardment the Japanese moved back to prepared defenses on the reverse slope, reoccupying forward positions when the bombardment lifted.

When forced from forward positions, the enemy withdrew to the crest of ridges, from which plunging fire was delivered on advancing troops. Once dislodged from the ridges, he continued his defense in fortified positions on reverse slopes.

Other Japanese tactics, it is pointed out, differed little from those encountered on previous operations. They included night infiltrations, raiding parties, wire cutting and miscellaneous harassing actions.

"The term 'organization' is complimentary to enemy units encountered by the III Corps," the report states. "Miscellaneous air and ground units were thrown together in last-minute confusion and in practically no instance did they carry out the duties assigned them. The lone exception to this was the organized resistance on Motobu Peninsula."

According to the report, Japanese equipment was lacking in quantity. This is substantiated by a 32nd Army order of 23 March 1945 to the 1st Special Infantry Regiment which read: "In view of the limited amount of equipment available, each unit will utilize what it already possesses and devise methods to increase its supply of equipment."

Consistent with the order were various POW statements referring to bamboo spears and hand grenades as the only weapons issued many of the labor troops. These poorly equipped labor units, according to POWs, were nicknamed the Bimbo Butai, or "Poor Unit."

The Japanese made extensive use of Okinawa natives in various branches of the service, and it is assumed that all able-bodied Okinawans were subject to service as reservists.

A captured dispatch dated September 1941, written by the commanding officer of the 24th Division, states: "Reservists can be employed as army troops and with their main strength carry on diversionary (raiding) warfare. They also can be employed to work in rear areas as replacements for front line troops, or in such duties as collecting intelligence, security, guarding and liaison. Care should be taken that the execution of these (training) plans will not seriously interfere with making a livelihood: Such things as arms and uniforms are not specially provided Guard Units (reservists). Therefore, the commanders will use available equipment."

(Two sketches made from a document captured on Okinawa, revealing the organization of "fire points" will be found reproduced as Item No. 287, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[36]

ENEMY CRITICISMS OF OWN ARTILLERY MANEUVERS

Weakness in their own artillery training were described in a Japanese critique of maneuvers held on Iwo Jima before the Allied landings. Details were set forth in a document captured on the island and translated as CINCPAC-CINCPAC Item No. 4569.

Colonel Kaido, who commanded the island's artillery group which was made up of several units of various organizations, presided at the critique, and outlined shortcomings in training as revealed in the maneuvers.

Principal criticism was directed at gun crews who were satisfied to drop shells or barrages merely in an enemy area, and did not score direct hits on the target. Crews were warned that the ammunition supply for the defense of the island was small and there was little hope for replenishment; therefore, they must perfect their work so that they hit every target.

Faulty firing preparations were responsible for their inability to hit desired targets, the critique stated. In many cases calculation of firing data was incorrect and corrections were inaccurate, obstructions to aiming instruments were not cleared away, sighting and aligning points were improperly chosen, and guns which should have fired in battery frequently missed the signal and fired singly. Furthermore, mortar base plates were not firmly embedded, it was said.

Another weakness mentioned in the document was the poor discipline shown officers and men alike during maneuvers. Incidents were brought to light in which gun crews received orders from battery commanders and then acted independently in carrying them out. Liaison suffered because subordinates refused to obey orders from superiors, and many of the officers "lacked spiritual power and bravery, and were unsatisfactory in dress, physical bearing and command."

Several gun squad leaders were unsatisfactory, failing to exhibit proper leadership. Others were said to have stood around their guns like spectators while firing was in progress.

In other instances, squad leaders made errors in firing because they had failed to establish liaison with the platoon commanders. Some squad leaders failed completely to give firing orders, did not understand the method of handling the

gun or how to change from direct to indirect sighting, nor could they direct the fire of the gun or properly designate targets to be brought under fire.

In the Japanese Army, a noncommissioned officer in charge of artillery observation has many duties. Primarily, he must be able to take over the duties of the fire control platoon commander, or even the company commander. He must reconnoiter the enemy situation, calculate some of the firing data, and spot artillery bursts.

Personnel performing this function during the Iwo maneuvers lacked experience and most of them were unaware of their duties. Observation suffered. During actual firing of problems, reports were sent in from observers concerning enemy targets and spotting of bursts without any previous check by noncoms in charge.

[37] Signal NCOs received their share of blame in the critique: "Most of them just stood around as onlookers, leaving liaison to subordinates. They were inexperienced, deficient in their sense of responsibilities, and did not understand their duties."

If a hitch occurs in Japanese artillery liaison, it is the duty of the Signal NCO to go to the scene and take charge. In event of a complete breakdown, he must re-establish contact by previously-arranged methods.

Attached NCOs without specific duties must be given work such as forwarding reports and acting as messengers. They should not, says the report, be allowed just to "sit around putting logs on the fire."

Apparently platoon leaders spent considerable time in dugouts receiving orders from company commanders by telephone or messenger and transmitting the orders to subordinates in a like manner. It was noted that too many of them failed to acquaint themselves with the targets, reconnoiter objectives and determine methods of fire. They delegated these responsibilities to the noncoms. They lacked knowledge of the various duties of the NCOs and many of them knew little of the equipment they were using.

Additional drill on command and technique of fire, was threatened for those officers who "do not call out the sensing of bursts, who deliberate over what to call the sensing, who issue commands slowly, make mistakes in commands, bury themselves in handbooks and firing tables, or busy themselves looking through telescopes".

(A photograph of an open site for a Type I 47 mm. Antitank Gun recovered on Iwo Jima will be found reproduced as Item No. 288, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[38]

WEEKLY COVERAGE REPORT

Photos received at CinCPac-CinCPOA during period from 25 May 1945 to and including 1 June 1945

Sorties herein listed will be screened for duplicating coverage before distribution is affected.

*Prints only received.

JAPAN

Goto Beto: Good vertical and trimetrogon coverage of areas indicated

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
Tri Met.....	153.1 mm.....	26,700'.....	Terrain Shoreline		
	153.7 mm.....		1PRS-5MF48-ITV.....	17806-4.....	5/27
	154.5 mm.....		1PRS-5MF48-IRO.....	17807-4.....	
			1PRS-5MF48-ILO.....	17808-4.....	
Tri Met.....	153.1 mm.....	25,000'.....	Fukue		
	153.7 mm.....		1PRS-5MF51-TV.....	17809-5.....	4/1
	154.5 mm.....		1PRS-5MF51-RO.....	17810-5.....	
V.....	24'.....	25,000'.....	1PRS-5MF51-LO.....	17811-5.....	
			1PRS-5MF51-IV.....	17852-6.....	4/1

JAPAN—Continued

Honsu: Good vertical, trimetrogon and split-vertical coverage of areas indicated

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
			Nagoya		
Tri Met	154.2 mm	31,000'	3PR-5M216-1V-21BC	17473-809	5/17
	152.0 mm		3PR-5M216-1R-21BC	17474-809	
	152.0 mm		3PR-5M216-1L-21BC	17475-809	
V	24"	31,000'	3PR-5M216-2-21BC	17476-810	5/17
Split Vert	40"	31,000'	3PR-5M216-3R-21BC	17477-811	5/17
			3PR-5M216-3L-21BC	17478-811	
			Shoda Shima; Osaka		
Tri Met	154.3 mm	32,000'	3PR-5M217-1V-21BC	17479-812	5/17
	152.7 mm		3PR-5M217-1R-21BC	17480-812	
	153.1 mm		3PR-5M217-1L-21BC	17481-812	
V	24"	32,000'	Kobe; Osaka		
Split Vert	40"	32,000'	3PR-5M217-2-21BC	17482-813	5/17
			3PR-5M217-3R-21BC	17483-814	5/17
			3PR-5M217-3L-21BC	17484-814	
			Numazu; Tokyo		
Tri Met	154.2 mm	32,000'	3PR-5M219-1V-21BC	17503-815	5/17
	153.1 mm		3PR-5M219-1R-21BC	17504-815	
	154.6 mm		3PR-5M219-1L-21BC	17505-815	
V	24"	32,000'	3PR-5M219-2-21BC	17506-816	5/17
			Kushimoto Tomo		
Tri Met	152.3 mm	31,000'	3PR-5M220-1V-21BC	17507-817	5/17
	152.6 mm		3PR-5M220-1R-21BC	17508-817	
	153.1 mm		3PR-5M220-1L-21BC	17509-817	
V	24"	31,000'	3PR-5M220-2-21BC	17510-818	5/17
Split Vert	40"	31,000'	3PR-5M220-3R-21BC	17511-819	5/17
			3PR-5M220-3L-21BC	17512-819	
			Yokkaichi; Nagoya		
Tri Met	151.9 mm	31,600'	3PR-5M223-1V-21BC	17532-826	5/18
	153.7 mm		3PR-5M223-1R-21BC	17533-826	
	154.0 mm		3PR-5M223-1L-21BC	17534-826	
V	24"	31,600'	Yokuska; Nagoya		
Split Vert	40"	31,600'	3PR-5M223-2-21BC	17535-827	5/18
			3PR-5M223-3R-21BC	17536-828	5/18
			3PR-5M223-3L-21BC	17537-828	
			Hiratsuka; Chigasaki		
Tri Met	153.0 mm	32,500'	3PR-5M221-1V-21BC	17513-820	5/18
	153.9 mm		3PR-5M221-1R-21BC	17514-820	
	153.0 mm		3PR-5M221-1L-21BC	17515-820	
V	24"	32,500'	3PR-5M221-2-21BC	17516-821	5/18
Split Vert	40"	32,500'	3PR-5M221-3R-21BC	17517-822	5/18
			3PR-5M221-3L-21BC	17518-822	
			Kuwana; Nagoya		
Tri Met	153.0 mm	30,000'	3PR-5M222-1V-21BC	17519-823	5/18
	154.8 mm		3PR-5M222-1R-21BC	17520-823	
	153.6 mm		3PR-5M222-1L-21BC	17521-823	
V	24"	30,000'	3PR-5M222-2-21BC	17522-824	5/18
Split Vert	40"	30,000'	3PR-5M222-3R-21BC	17523-825	5/18
			3PR-5M222-3L-21BC	17524-825	
			Hitachi		
V	12"	12,000'	5M196-76V-21BC	17663-829	4/2
V	24"	12,000'	5M196-78V-21BC	17664-830	4/2
V	12"	11,500'	5M196-51V-21BC (Shisuoka)	17666-832	4/2
V	12"	11,330'	5M196-27V-21BC (Hitachi A/C)	17667-833	4/2
V	12"	12,100'	5M196-26V-21BC (Shisuoka)	17668-834	4/2
			Hitachi (A/C)		
V	12"	10,900'	5M196-1V-21BC	17669-835	4/2
V	24"	10,500'	5M196-2V-21BC	17670-836	4/2
V	12"	10,500'	5M196-4V-21BC	17671-837	4/2
V	12"	12,500'	5M196-201V-21BC	17672-838	4/2
V	12"	12,500'	5M196-202V-21BC	17673-839	4/2
V	12"	13,000'	5M196-203V-21BC	17674-840	4/2
V	12"	12,000'	5M196-204V-21BC	17675-841	4/2
V	6"	11,500'	5M196-28V-21BC	17676-842	4/2
V	24"	14,000'	5M196-101V-21BC	17677-843	4/2
V	12"	14,000'	5M196-104V-21BC	17679-845	4/2
V	24"	13,500'	5M196-105V-21BC	17680-846	4/2
V	12"	13,500'	5M196-106V-21BC	17681-847	4/2
V	12"	13,500'	5M196-108V-21BC	17689-849	4/2
V	12"	13,500'	5M196-112V-21BC	17690-850	4/2
V	12"	13,500'	5M196-113V-21BC	17691-851	4/2
V	6"	13,500'	5M196-114V-21BC	17692-852	4/2
V	12"	13,500'	5M196-117V-21BC	17694-854	4/2
V	12"	14,000'	5M196-119V-21BC	17695-855	4/2
V	12"	13,450'	5M196-120V-21BC	17696-856	4/2
V	12"	13,500'	5M196-214V-21BC	17697-857	4/2
V	12"	13,500'	5M196-213V-21BC	17698-858	4/2
V	12"	13,300'	5M196-212V-21BC	17699-859	4/2
V	12"	13,000'	5M196-211V-21BC	17700-860	4/2
V	12"	13,500'	5M196-210V-21BC	17701-861	4/2
V	12"	13,400'	5M196-208V-21BC	17702-862	4/2

JAPAN—Continued

Honsha: Good vertical, trimetrogon and split-vertical coverage of areas indicated—Continued

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
			Hitachi (A/C)		
V	12"	13,000'	5M196-207V-21BC	17703-863	4/24
V	12"	13,000'	5M196-206V-21BC	17704-864	4/24
V	12"	12,300'	5M196-205V-21BC	17705-865	4/24
			A/C Prop. Plant		
V	12"	22,000'	5M126-110V-21BC	17920-866	4/30
V	24"	22,000'	5M126-111V-21BC	17921-867	4/30
V	12"	22,000'	5M126-112V-21BC (Toyahaski)	17922-868	4/30
			A/C Prop. Plant		
V	12"	21,000'	5M126-113V-21BC	17923-869	4/30
V	24"	21,000'	5M126-114V-21BC	17924-870	4/30
V	12"	21,000'	5M126-116V-21BC	17925-871	4/30
V	12"	21,000'	5M126-115V-21BC	17926-872	4/30
V	12"	21,000'	5M126-118V-21BC (Hanamatsu)	17927-873	5/1
			A/C Prop. Plant		
V	12"	21,000'	5M126-117V-21BC	17928-874	4/30
			Tachikawa		
V	12"	20,000'	5M126-101V-21BC	17929-875	4/30
V	6"	20,000'	5M126-102V-21BC	17930-876	4/30
V	12"	20,000'	5M126-103V-21BC	17931-877	4/30
			A/C Prop. Plant		
V	12"	21,000'	5M126-104V-21BC	17932-878	4/30
V	24"	21,000'	5M126-105V-21BC	17933-879	4/30
V	24"	21,000'	5M126-107V-21BC	17934-880	4/30
V	12"	22,000'	5M126-108V-21BC	17935-881	4/30
V	12"	22,000'	5M126-109V-21BC	17936-882	4/30
			Hamamatsu		
V	24"	19,700'	5M126-51V-21BC	17938-884	4/30
V	12"	20,600'	5M126-26V-21BC	17940-886	4/30
V	24"	20,600'	5M126-27V-21BC	17941-887	4/30
V	24"	19,000'	5M126-1V-21BC	17942-888	4/30
V	24"	19,000'	5M126-2V-21BC	17943-889	4/30
V	12"	18,200'	5M126-80V-21BC	17945-891	4/30
V	12"	17,500'	5M126-81V-21BC	17946-892	4/30
V	12"	18,000'	5M126-82V-21BC	17947-893	4/30
V	12"	17,500'	5M126-79V-21BC	17948-894	4/30
V	24"	18,300'	5M126-76V-21BC	17949-895	4/30
V	24"	18,050'	5M126-78V-21BC	17950-896	4/30
V	24"	18,200'	5M126-77V-21BC	17951-897	4/30

Izu Shichito: Good vertical and split-vertical coverage of areas indicated

TV	153.0 mm.	32,500'	Torishima 3PR-5M221-1V-21BC	17528-20	5/18
V	24"	32,500'	O-Shima; Sumisu-Jima 3PR-5M221-2-21BC	17529-21	5/18
Split Vert.	40"	32,500'	Sumisu-Jima; Torishima; O-Shima 3PR-5M221-3R-21BC 3PR-5M221-3L-21BC	17530-22 17531-22	5/18

Koshiki Retto: Good vertical and oblique partial coverage

V	24"	20,000'	VD5-149A	17602-1	5/13
V	24"	20,000'	VD5-149B (1)	17603-2A	5/13
V	24"	20,000'	VD5-149B (2)	17603-2B	5/13
V	153.3 mm.	20,000'	VD5-149D	17604-3	5/13
O	24"	20,000'	VD5-149E	17605-4	5/13

Kyushu: Good vertical, trimetrogon and split-vertical coverage of areas indicated

Tri	152.3 mm.	31,000'	Jaeki 3PR-5M220-1V-21BC	17497-499	5/17
Met.	152.6 mm.		3PR-5M220-1R-21BC	17498-499	
	153.1 mm.		3PR-5M220-1L-21BC	17499-499	
V	24"	31,000'	3PR-5M220-2-21BC	17500-500	5/17
Split Vert.	40"	31,000'	3PR-5M220-3R-21BC 3PR-5M220-3L-21BC	17501-501 17502-501	5/17
			Kokubu A/F		
V	12"	16,000'	5M80-21BC-101V	17538-502	4/18
V	12"	16,000'	5M80-21BC-102V	17539-503	4/18
V	12"	16,000'	5M80-21BC-103V	17540-504	4/18
V	24"	16,500'	5M80-21BC-104V	17541-505	4/18
V	12"	17,000'	5M80-21BC-105V	17542-506	4/18
V	24"	16,000'	5M80-21BC-106V	17543-507	4/18
V	24"	16,000'	5M80-21BC-108V	17545-509	4/18
V			5M80-21BC-109V	17546-510	4/18

JAPAN—Continued

Kyushu: Good vertical, trimetrogon and split-vertical coverage of areas indicated—Continued

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
[59]			Nittagahara *A/F		
V	24''	18,000'	5M181-21BC-207V	17547-511	4/18
V	12''	18,000'	5M181-21BC-206V	17548-512	4/18
V	12''	18,000'	5M181-21BC-205V	17549-513	4/18
V	24''	18,000'	5M181-21BC-204V	17550-514	4/18
V	24''	18,000'	5M181-21BC-203V	17551-515	4/18
V	12''	18,000'	5M181-21BC-202V	17552-516	4/18
V			5M181-21BC-201V	17553-517	4/18
			Oita		
V	24''	15,500'	5M182-77V-21BC	17554-518	4/20
V	24''	15,500'	5M182-76V-21BC	17555-519	4/20
V	12''	15,275'	5M182-78V-21BC	17556-520	4/20
V	12''	14,200'	5M182-54V-21BC	17557-521	4/21
V	12''	14,490'	5M182-53V-21BC	17558-522	4/21
V			5M182-52V-21BC	17559-523	4/21
V	12''	14,300'	5M182-51V-21BC	17560-524	4/21
V	12''	15,000'	5M182-79V-21BC	17561-525	4/20
V	12''	14,990'	5M182-55V-21BC	17562-526	4/21
			Kanoya		
V	12''	16,700'	5M183-113V-21BC	17563-527	4/21
V	24''	17,000'	5M183-112V-21BC	17564-528	4/21
V	12''	17,000'	5M183-111V-21BC	17565-529	4/21
V	24''	17,000'	5M183-108V-21BC	17567-531	4/21
V	24''	16,550'	5M183-107V-21BC	17568-532	4/21
V	24''	16,000'	5M183-105V-21BC	17570-534	4/21
V	12''	16,500'	5M183-104V-21BC	17571-535	4/21
V	12''	17,000'	5M183-102V-21BC	17572-536	4/21
V	12''	16,500'	5M183-101V-21BC	17573-537	4/21
V	24''	17,000'	5M184-211V-21BC	17574-538	4/21
V	12''	16,500'	5M184-210V-21BC	17575-539	4/21
V	12''	16,500'	5M184-209V-21BC	17576-540	4/21
V	12''	16,500'	5M184-208V-21BC	17577-541	4/21
V	12''	16,000'	5M184-207V-21BC	17578-542	4/21
V	24''	16,000'	5M184-206V-21BC	17579-543	4/21
V	12''	16,400'	5M184-205V-21BC	17580-544	4/21
V	12''	16,050'	5M184-204V-21BC	17581-545	4/21
V	12''	17,000'	5M184-203V-21BC	17582-546	4/21
V	12''	17,350'	5M184-202V-21BC	17583-547	4/21
V	12''	17,100'	5M184-201V-21BC	17584-548	4/21
			USA A/F		
V	12''	15,800'	5M185-77V-21BC	17585-549	4/20
V	24''	15,000'	5M185-78V-21BC	17586-550	4/20
V	12''	15,500'	5M185-76V-21BC	17587-551	4/20
V	12''	14,000'	5M185-1V-21BC	17589-553	4/21
V	24''	14,500'	5M185-2V-21BC	17590-554	4/21
V	12''	15,300'	5M185-4V-21BC	17591-555	4/21
V	12''	14,500'	5M185-6V-21BC	17593-557	4/21
V	24''	14,500'	5M185-5V-21BC	17594-558	4/21
			Kushire		
V	24''	17,000'	5M187-201V-21BC	17595-559	4/21
V	24''	17,000'	5M187-202V-21BC	17596-560	4/21
V	12''	16,000'	5M187-203V-21BC	17597-561	4/21
V	12''	17,000'	5M187-204V-21BC	17598-562	4/21
V	12''	17,000'	5M187-205V-21BC	17599-563	4/21
V	24''	16,000'	5M187-206V-21BC	17600-564	4/21
V	12''	16,500'	5M187-207V-21BC	17601-565	4/21
			Kanoya A/F		
V	12''	15,200'	5M195-101V-21BC	17634-566	4/22
V	12''	15,200'	5M195-102V-21BC	17635-567	4/22
V	12''	15,000'	5M195-103V-21BC	17636-568	4/22
V	24''	15,000'	5M195-105V-21BC	17638-570	4/22
V	12''	15,400'	5M195-106V-21BC	17639-571	4/22
V	24''	15,500'	5M195-108V-21BC	17640-572	4/22
V	12''	15,300'	5M195-112V-21BC	17643-575	4/22
V	12''	16,000'	5M195-114V-21BC	17644-576	4/22
V	12''	16,000'	5M195-115V-21BC	17645-577	4/22
V	12''	16,000'	5M195-116V-21BC	17646-578	4/22
V	12''	16,000'	5M105-201V-21BC (Kushira)	17710-579	4/26
			Kanoya		
V	12''	16,000'	5M104-202V-21BC	17711-580	4/26
V	12''	16,000'	5M104-201V-21BC	17712-581	4/26
V	12''	6,500'	5M104-204V-21BC	17713-582	4/26
V	12''	16,000'	5M104-203V-21BC	17714-583	4/26
			Kokuba		
V	12''	24,300'	5M106-201V-21BC	17715-584	4/26
V	6''	16,500'	5M106-202V-21BC	17716-585	4/26
V	12''	25,000'	5M106-203V-21BC	17717-586	4/26
V	12''	16,500'	5M106-204V-21BC	17718-587	4/26
V	12''	16,800'	5M106-205V-21BC	17719-588	4/26
V	12''	16,000'	5M106-206V-21BC	17720-589	4/26

JAPAN—Continued

Kyushu: Good vertical, trimetrogon and split-verticle coverage of areas indicated—Continued

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
			Isumi A/F		
V	12"	16,120'	5M108-52V-21BC	17721-590	4/27
V	6"	16,000'	5M108-51V-21BC	17722-591	4/27
V	24"	16,000'	5M108-53V-21BC	17723-592	4/27
V	24"	17,000'	5M108-80V-21BC	17725-594	4/27
V	12"	16,700'	5M108-77V-21BC	17726-595	4/27
			Kokubu		
V	12"	10,000'	5M110-111V-21BC	17727-596	4/27
V	24"	11,000'	5M110-109V-21BC	17728-597	4/27
V	12"	11,000'	5M110-108V-21BC	17729-598	4/27
V	12"	11,000'	5M110-106V-21BC	17731-600	4/27
V	6"	11,000'	5M110-105V-21BC	17732-601	4/27
V	12"	11,000'	5M110-103V-21BC	17734-603	4/27
V	24"	11,000'	5M110-102V-21BC	17735-604	4/27
V	24"	10,000'	5M110-101V-21BC	17736-605	4/27
			USA A/F		
V	12"	22,000'	5M97-6V-21BC	17737-606	4/26
V	12"	22,200'	5M97-7V-21BC	17738-607	4/26
V	12"	17,000'	5M97-5V-21BC	17739-608	4/26
V	6"	25,200'	5M97-2V-21BC	17740-609	4/26
V	12"	11,000'	5M111-107V-21BC (Kokubu)	17741-610	4/27
			Miyakonojo		
V	12"	11,000'	5M111-104V-21BC	17742-611	4/27
V	12"	11,000'	5M111-103V-21BC	17743-612	4/27
V	12"	11,000'	5M111-101V-21BC	17744-613	4/27
V	12"	14,500'	5M103-101V-21BC (Miyasaki)	17746-615	4/26
V	12"	14,000'	5M102-105V-21BC (Nittagahara)	17747-616	4/26
			Kanoya A/F		
V	12"	16,500'	5M112-201V-21BC	17748-617	4/26
V	12"	17,200'	5M112-202V-21BC	17749-618	4/26
V	12"	17,020'	5M112-204V-21BC	17750-619	4/27
V	12"	16,000'	5M112-206V-21BC	17751-620	4/27
V	12"	16,000'	5M112-205V-21BC	17752-621	4/26
V	12"	17,300'	5M112-203V-21BC	17753-622	4/27
			Kushira A/F		
V	12"	16,000'	5M113-201V-21BC	17754-623	4/27
V	12"	14,360'	5M113-202V-21BC	17755-624	4/27
V	12"	16,500'	5M113-203V-21BC	17756-625	4/27
V	12"	15,000'	5M113-204V-21BC	17757-626	4/27
V	12"	15,000'	5M113-206V-21BC	17758-627	4/27
V	12"	15,000'	5M113-205V-21BC	17759-628	4/27
			Isumi A/F		
V	12"	16,200'	5M114-82V-21BC	17760-629	4/28
V	24"	17,100'	5M114-78V-21BC	17761-630	4/28
V	24"	16,400'	5M114-81V-21BC	17762-631	4/28
V	12"	17,400'	5M114-79V-21BC	17763-632	4/28
V	12"	17,200'	5M114-76V-21BC	17764-633	4/28
V	24"	16,390'	5M114-80V-21BC	17765-634	4/28
V	24"	17,200'	5M114-77V-21BC	17766-635	4/28
			Miyasaki A/F		
V	12"	12,000'	5M115-53V-21BC	17773-638	4/28
V	12"	12,000'	5M115-52V-21BC	17774-639	4/28
V	12"	12,700'	5M115-51V-21BC	17775-640	4/28
			Kokubu		
V	24"	12,500'	5M116-105V-21BC	17776-641	4/28
V	24"	12,000'	5M116-104V-21BC	17778-643	4/28
V	12"	12,000'	5M116-103V-21BC	17779-644	4/28
V	12"	12,000'	5M116-102V-21BC	17780-645	4/28
V	12"	12,000'	5M116-101V-21BC	17781-646	4/28
V	24"	12,000'	5M116-106V-21BC	17782-647	4/28
			Miyasaki A/F		
V	12"	13,000'	5M109-28V-21BC	17783-648	4/27
V	12"	12,800'	5M109-30V-21BC	17784-649	4/27
V	24"	12,790'	5M109-26V-21BC	17785-650	4/27
V	12"	12,000'	5M109-1V-21BC	17786-651	4/27
V	24"	12,000'	5M109-3V-21BC	17787-652	4/27
V	12"	12,000'	5M109-1V-21BC	17789-654	4/27
V	6"	13,000'	5PFM109-27V-21BC	17790-655	4/27
V	24"	15,800'	5M109-29V-21BC	17791-656	4/27
			Miyakonojo		
V	12"	11,500'	5M117-110V-21BC	17792-657	4/28
V	12"	11,000'	5M117-102V-21BC	17793-663	4/28
V	12"	11,000'	5M117-101V-21BC	17799-664	4/28
			Kanoya		
V	12"	17,000'	5M118-208V-21BC	17800-665	4/28
V	12"	16,500'	5M118-207V-21BC	17801-666	4/28
V	12"	15,300'	5M118-206V-21BC	17802-667	4/28
V	12"	17,000'	5M118-205V-21BC	17867-668	4/28
V	12"	17,000'	5M118-204V-21BC	17868-669	4/28
V	12"	17,000'	5M118-203V-21BC	17869-670	4/28

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JAPAN—Continued

Kyushu: Good vertical, trimetrogon and split-vertical coverage of areas indicated—Continued

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
			Kanoya		
V	12''	16,500'	5M118-202V-21BC	17870-671	4/28
V	12''	17,000'	5M118-201V-21BC	17871-672	4/28
V	12''	17,000'	5M118-209V-21BC	17872-673	4/28
			Kushira		
V	12''	17,000'	5M119-205V-21BC	17873-674	4/28
V	12''	16,500'	5M119-201V-21BC	17874-675	4/28
V	12''	16,500'	5M119-203V-21BC	17875-676	4/28
V	12''	16,580'	5M119-202V-21BC	17876-677	4/28
V	12''	17,000'	5M119-204V-21BC	17877-678	4/28
			Miyazaki		
V	6''	15,000'	5M120-5V-21BC	17878-679	4/29
V	12''	15,000'	5M120-4V-21BC	17879-680	4/29
V	6''	15,000'	5M120-3V-21BC	17880-681	4/29
V	24''	15,500'	5M120-2V-21BC	17881-682	4/29
V	12''	15,000'	5M121-30V-21BC	17883-684	4/29
V	6''	15,500'	5M121-31V-21BC	17884-685	4/29
V	12''	16,200'	5M121-28V-21BC	17885-686	4/29
V	24''		5M121-27V-21BC	17886-687	4/29
			Miyakonojo		
V	24''	15,000'	5M121-26-21BC	17887-688	4/29
V	24''	15,775'	5M121-29V-21BC	17888-689	4/29
			Kokubu		
V	24''	12,000'	5M122-101V-21BC	17889-690	4/29
V	12''	12,000'	5M122-102V-21BC	17890-691	4/29
V	12''	12,000'	5M122-103V-21BC	17891-692	4/29
V	12''	12,000'	5M122-104V-21BC	17892-693	4/29
V	12''	12,000'	5M122-105V-21BC	17893-694	4/29
V	12''	12,000'	5M122-106V-21BC	17894-695	4/29
V	24''	12,000'	5M122-107V-21BC	17895-696	4/29
V	12''	12,000'	5M122-108V-21BC	17896-697	4/29
[40]			Kanoyo		
V	12''	18,000'	5M124-204V-21BC	17898-699	4/29
V	12''	18,600'	5M124-203V-21BC	17899-700	4/29
V	12''	18,000'	5M124-202V-21BC	17900-701	4/29
V	12''	18,500'	5M124-201V-21BC	17901-702	4/29
			Kushira		
V	12''	18,000'	5M125-204V-21BC	17902-703	4/29
V	12''	17,000'	5M125-203V-21BC	17903-704	4/29
V	12''	17,400'	5M125-202V-21BC	17905-706	4/29
V	12''	18,100'	5M125-205V-21BC	17906-707	4/29
V	12''	17,000'	5M125-201V-21BC	17919-708	4/29
			Kanoya		
V	12''	14,000'	5M123-107V-21BC	17952-709	4/29
V	12''	14,000'	5M123-105V-21BC	17954-711	4/29
V	6''	14,000'	5M123-104V-21BC	17955-712	4/29
V	6''	14,000'	5M123-103V-21BC	17956-713	4/29
V	12''	14,000'	5M123-102V-21BC	17957-714	4/29
V	24''		5M123-101V-21BC	17958-715	4/29
V	153.4 mm.	15,000'	CV12-785 (SW Kyushu)	17937-716	5/12
V	24''	13,000'	CV12-788 (Kanoya)	17966-717	5/12
V	24''	12,000'	CV12-783 (Isuni)	17967-718	5/12
V	152.3 mm.	15,000'	CV12-788V (SW Kyushu)	17968-719	5/12
V	24''	15,000'	CV12-800 (Kanoya A/F)	17969-720	5/12
O	24''	13,000'	CV12-811 (Kumanoto)	17970-721	5/14
V	24''	13,000'	CV12-812 (Tachiari)	17971-722	5/14
V	24''	11,400'	CV12-816 (Kumanoto)	17972-723	5/14
V/O	8 1/4''	Var	CV12-781 (Kanoya A/F)	17987-731	5/13
V	152.3 mm.	15,000'	CV12-790V (SW Kyushu)	17988-732	5/13
O	152.6 mm.	15,000'	CV12-790P (SW Kyushu)	17989-732	5/13
V	24''	13,000'	CV12-793 (Kanoya)	17990-733	5/13
V/O	24''	11,000'	CV12-795 (Saeki S/P Base)	17991-734	5/13
			SW Kyushu		
O	24''	1,000'	CV12-805	17992-735	5/14
V	12''	10,000'	CV12-807	17993-736	5/14
V	152.3 mm.	10,000'	CV12-813	17994-737	5/14
V	12''	10,000'	CV12-820	17995-738	5/14
O		Var	CVL29-74	17996-739	5/15
			Ariake Wan		
O	24''	900'	CVL26-97A	17997-740	5/13
O	24''	1,000'	CVL26-98A	17998-741	5/13
			Tozau to Tomitak		
O	24''	1,000'	CVL26-98S	17999-742	5/13
			Nakatsu-Nobeoka		
V	24''	11,800'	CV15-66	18000-743	5/14

JAPAN—Continued

Shikoku: Good vertical, trimetrogon and split-vertical coverage of areas indicated

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date taken
Tri Met	152.3 mm	31,000'	Matsuyama; Muya		
	152.6 mm		3PR-5M220-1V-21BC	17491-75	5/17
	153.1 mm		3PR-5M220-1R-21BC	17942-75	
V	24"	31,000'	3PR-5M220-1L-21BC	17493-75	
Split Vert	40"	31,000'	3PR-5M220-2-21BC	17494-76	5/17
			3PR-5M220-3R-21BC	17495-77	5/17
			3PR-5M220-3L-21BC	17496-77	
Tri Met	153.0 mm	30,000'	Murto; Kokutu		
	154.8 mm		3PR-5M222-1V-21BC	17525-78	5/18
	153.6 mm		3PR-5M222-1R-21BC	17526-78	
V	24"	13,000'	3PR-5M222-1L-21BC	17527-78	
V	24"	13,000'	CV20-166A (Matsuyama A/F)	18003-79	5/14
			CV12-819 (Koehi A/F)	18004-80	5/14

Tsu Shima: Good vertical, trimetrogon and split-vertical coverage of areas indicated

V	24"	15,000'	1PRS-5MF45-2V (Cape Ko)	17817-13	3/24
V	24"	23,800'	1PRS-5MF46-V (Shimond Is.)	17818-14	3/26
Tri Met	153.0 mm	23,800'	Tsushima Island		
	152.6 mm		1PRS-5MF46-1TV	17819-15	3/26
	153.0 mm		1PRS-5MF46-1RO	17820-15	
V	40"	23,800'	1PRS-5MF46-1LO	17821-15	
			1PRS-5MF46-LV	17822-16	3/26
Tri Met	153.1 mm	26,700'	Tsushima		
	153.7 mm		1PRS-5MF48-1TV	17823-17	3/27
	154.5 mm		1PRS-5MF48-1RO	17824-17	
Tri Met	153.1 mm	26,700'	1PRS-5MF48-1LO	17825-17	
	153.7 mm		1PRS-5MF51-TV	17826-18	4/1
	154.5 mm		1PRS-5MF51-RO	17827-18	
			1PRS-5MF51-LO	17828-18	
V	24"	25,000'	Shipping—Tsushima Island		
			1PRS-5MF51-2V	17849-19	4/1
Split Vert	40"	25,000'	Tsushima Island		
			1PRS-5MF51-RV	17850-20	4/1
			1PRS-5MF51-LV	17851-20	

CHINA: Good trimetrogon coverage of areas indicated

Tri Met	153.0 mm	16,500'	Halikiang to Faichuanche		
	154.2 mm		468BG-5MF28-TV	17613-922	2/14
	154.0 mm		468BG-5MF28-RO	17614-922	
			468BG-5MF28-LO	17615-922	
Tri Met	153.1 mm	21,000'	Miuchiatsu to Lintsicheng		
	153.7 mm		1PRS-5MF33-2TV	17616-923	2/22
	154.5 mm		1PRS-5MF33-2RO	17617-923	
			1PRS-5MF33-2LO	17618-923	
Tri Met	154.2 mm	31,000'	Tsingtao; Hotse; Haiyang		
	153.8 mm		1PRS-5MF40-TV	17619-924	3/9
	154.8 mm		1PRS-5MF40-RO	17620-924	
			1PRS-5MF40-LO	17621-924	
Tri Met	153.0 mm	21,200'	Tangshan; Chingsien		
	154.2 mm		1PRS-5MF41-TV	17622-925	3/9
	154.0 mm		1PRS-5MF41-RO	17623-925	
			1PRS-5MF41-LO	17624-925	
Tri Met	153.0 mm	21,000'	Suning; Shupu; Linghsien		
	154.2 mm		1PRS-5MF41-2TV	17625-926	3/9
	154.0 mm		1PRS-5MF41-2RO	17626-926	
			1PRS-5MF41-2LO	17627-926	
Tri Met	153.0 mm	21,000'	Chiayang; Taokowchen		
	154.2 mm		1PRS-5MF41-3TV	17628-927	3/9
	154.0 mm		1PRS-5MF41-3RO	17629-927	
			1PRS-5MF41-3LO	17630-927	
Tri Met	153.0 mm	27,200'	Liushuchwang; Yuanping		
	154.2 mm		1PRS-5MF43-1TV	17647-928	3/16
	154.0 mm		1PRS-5MF43-1RO	17648-928	
			1PRS-5MF43-1LO	17649-928	
Tri Met	153.0 mm	27,500'	Hsien; Nampotsum		
	154.2 mm		1PRS-5MF43-2TV	17650-929	3/16
	154.0 mm		1PRS-5MF43-2RO	17651-929	
			1PRS-5MF43-2LO	17652-929	
Tri Met	153.0 mm	13,500'	Yencheng to Shangtang		
	154.2 mm		1PRS-5MF44-TV	17653-930	3/22
	154.0 mm		1PRS-5MF44-RO	17654-930	
			1PRS-5MF44-LO	17655-930	
Tri Met	153.0 mm	15,000'	Taiyuan; Paoting; Fenyang		
	154.2 mm		1PRS-5MF47-TV	17829-931	3/27
	154.0 mm		1PRS-5MF47-RO	17830-931	
			1PRS-5MF47-LO	17656-931	

CHINA: Good trimetrogen coverage of area indicated—Continued

V/O	F. L.	Alt.	Sortie No.	Jiepoa #	Date taken
Tri Met.....	153.1 mm..	15,000'	Tai San; Shsinyang 1PRS-5MF48-1TV.....	17657-932	3/27
	153.7 mm.....		1PRS-5MF48-1RO.....	17658-932	
	154.8 mm.....		1PRS-5MF48-1LO.....	17659-932	
Tri Met.....	153.1 mm..	16,000'	Hsu-I to Taitzu Mt. 1PRS-5MF48-2TV.....	17660-933	3/27
	153.7 mm.....		1PRS-5MF48-2RO.....	17661-933	
	154.5 mm.....		1PRS-5MF48-2LO.....	17662-933	
Tri Met.....	153.0 mm..	14,500'	Shen-Men-Kou to Sna Liu Chi 1PRS-5MF50-1TV.....	17682-934	3/30
	154.2 mm.....		1PRS-5MF50-1RO.....	17683-934	3/30
	154.0 mm.....		1PRS-5MF50-1LO.....	17684-934	3/30
Tri Met.....	153.0 mm..	14,500'	Ku Shih to Tanpoc 1PRS-5MF50-2TV.....	17685-935	3/30
	154.2 mm.....		1PRS-5MF50-2RO.....	17686-935	
	154.0 mm.....		1PRS-5MF50-2LO.....	17687-935	

KOREA: Good vertical coverage of Kwan-Ni

V.....	40''.....	25,000'	1PRS-5MF-RV.....	17848-49	4/1
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MALAY STATES: Good vertical coverage of areas indicated

V.....	24''.....	26,000'	Singapore; Bakum 444BG-5MR60-V.....	17812-137	4/13
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NETHERLANDS EAST INDIES

Lingga Archipelago: Good vertical coverage of areas indicated

V.....	24''.....	21,500'	Selat Boeja; Tempah Strait 468BG-5MR62-V.....	17813-1	4/16
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Thailand: Good vertical coverage of areas indicated

V.....	154.0 mm..	25,000'	Ban Hland Khao; Ban Luk Jang 462BG-5MR45A-1V.....	17706-146	4/10
V.....	154.0 mm..	25,000'	G. Phiphi 462BG-5MR45A-2V.....	17707-147	4/10
V.....	152.7 mm..	25,000'	Dbu Rong Jang; Ban Vang Ban 462BG-5MR45A-3V.....	17708-148	4/10
V.....	152.7 mm..	25,000'	Banna G Muk 462BG-5MR45A-4V.....	17709-149	4/10

MANSEI SHOTO

Amami O Shima: Good vertical partial coverage

V.....	24''.....	15,000'	CV9-396A.....	17853-90	5/17
V.....	24''.....	12,000'	CV9-396C.....	17854-91	5/17
V.....	24''.....	9,700'	CV9-399A.....	17855-92	5/18
V.....	24''.....	7,000'	CV9-399F (Nazeko).....	17856-93	5/18
V.....	24''.....	9,000'	CV9-401 (Kakeroma Shima).....	17857-94	5/18
V.....	12''.....	6,500'	CV9-402.....	17858-95	5/18
V.....	154.0 mm..		CV17-675A (Kakeroma).....	17859-96	5/7
V.....	24''.....		CV17-676P.....	17860-97	5/7
V.....	24''.....	10,000'	100 CVL26-1 (Honiya).....	17861-98	5/18
V.....	12''.....	10,000'	100 CVL26-2 (Koniya).....	17862-99	5/18
V.....	24''.....	Var	CVL27-78V.....	17863-100	5/18
O.....	24''.....	Var	CVL27-78O.....	17864-101	5/18
[41] V/O.....	155.0 mm..	Var	CV20-821 (Seso Ko).....	17962-102	3/27

MANSEI SHOTO—Continued

Ishigaki: Good vertical partial coverage

V/O	F. L.	Alt.	Sortie No.	Jicpoa #	Date
V.....	24''.....	10,000'.....	CVE28-57A.....	18737-50...	4/29

CORRECTION: Previously reported under Miyako as Jicpoa No. 16737-102 in Bulletin No. 46, dated 28 May 1945. This number is hereby cancelled

Kikaiga: Good vertical and oblique partial coverage

V.....	24''.....	9,500'.....	CV9-398A.....	17803-68	5/17
O.....	24''.....	2,500'.....	CV10-458 (Wan A/F).....	17804-69	5/10
V.....	24''.....	7,000'.....	CV12-769 (Wan A/F).....	17959-70	4/20
V.....	24''.....	12,000'.....	CV12-771 (Wan A/F).....	17960-71	4/20
V.....	24''.....	13,000'.....	CV12-775.....	17961-72	4/20
V.....	24''.....	12,000'.....	CV9-399E (Wan A/F).....	18001-73	5/18

Koshiki Retto: Good vertical partial coverage

V.....	153.4 mm.....	20,000'.....	VD5-149C.....	17805-5	5/13
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Minami Daito: Good vertical partial coverage

V.....	24''.....	7,000'.....	CV12-766.....	17814-23	4/17
V.....	153.4 mm.....		CV12-767.....	17815-23	4/17
V.....	154.1 mm.....	5,000'.....	CV124-174 (Minami Jima).....	17963-25	4/21
V.....	12''.....	10,000'.....	CV12-764 (Minami Jima).....	17964-26	4/17

Osumi Gunto: Good vertical and oblique coverage of Kuchinoyerabu

V/O.....	155.0 mm.....	4,300'.....	CV20-106.....	17973-35	4/2
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Tokara Gunto: Good vertical coverage of areas indicated

			Takara Shima		
V.....	24''.....	14,500'.....	CV9-396B.....	17974-4	5/17
V.....	12''.....	6,500'.....	CV9-397A.....	17975-5	5/17
V.....	24''.....	6,300'.....	CV9-399B (Yokoate Shima).....	17976-6	5/18
V.....	24''.....	9,000'.....	CV9-399C (Takara Shima).....	17977-7	5/18
V.....	24''.....	11,000'.....	CV9-399D (Ko-Takara).....	17978-8	5/18
V.....	12''.....	6,300'.....	CV9-400 (Takara).....	17979-9	5/18

Tokuno: Good vertical and oblique partial coverage

			Tokuno A/F		
O.....	24''.....	2,000'.....	CV10-455.....	17767-81	5/10
V.....	24''.....	10,000'.....	CV9-398B.....	17768-82	5/17
V.....	84''.....	2,400'.....	CV20-129.....	17769-83	4/20
O.....	15''.....		CV20-138.....	17770-84	

WEEKLY PHOTO DISTRIBUTION

Following sorties were given general distribution during week of 28 May to 3 June 1945 and have been previously listed in "Weekly Coverage Report":

Locality	Sortie No.	Jicpos No.
JAPAN—Honshu.....	3PR-5M113-2-21BC.....	14597-519
	3PR-5M78-3L-21BC.....	13767-341
	3PR-5M78-3R-21BC.....	13766-341
	3PR-5M78-2-21BC.....	13765-340
	3PR-5M78-1V-21BC.....	13762-339
—Kyushu.....	3PR-5M147-3.....	15615-282
	3PR-5M147-3.....	15616-282
	3PR-5M147-2.....	15614-281
	3PR-5M117-3R-21BC.....	14632-190
	3PR-5M117-2-21BC.....	14681-189
	3PR-5M121-3R-21BC.....	14855-204
	3PR-5M121-3L-21BC.....	14856-204
	40BG-4MR7.....	12008-68 (V)
	3PR-5M103-3L-21BC.....	14517-173
	3PR-5M103-3R-21BC.....	14516-173
	3PR-5M103-2-21BC.....	14515-172
KOHEA.....	462BG-5MF21-TV1.....	13553-6
	462BG-5MF21-RO.....	13554-6
	462BG-5MF21-LO.....	13555-6
MANSEI SHOTO—Kikaiga.....	VD5-102A.....	16304-36
	VD5-102B.....	16305-37
—Tokuno.....	CV38-18.....	17172-70

(A photograph showing the use by Japanese of assorted materials to camouflage a landing craft will be found reproduced as Item No. 289, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

[42]

FLAK OVER JAPAN

During the first ten months of sustained air operations over Japan antiaircraft fire, while considerable, did not prove as extensive as had been anticipated. As a result of greater concentration of fire power and increasing experience, however, the enemy AA is already improving in both accuracy and intensity.

An analysis of operations extending into May 1945 reports that over cities and industrial areas the fire seemed to come principally from heavy AA guns. Defenses in those areas apparently were designed to combat heavy bombers operating at high altitudes. Airfield defenses, however, in anticipation of low-flying attacks by lighter aircraft, have been characterized by a preponderance of medium and light AA weapons.

Search and fire control radar have been employed with varying success. Accurate tracking by searchlights has been reported in several instances by B-29s. On some occasions, however, after picking up targets and passing them for several seconds successfully from light to light, the searchlight defenses seem to become confused. In other instances, pick-ups were made only after searching, probably indicating the use of sound locators rather than radar. Most accurate of the searchlights were those aboard ships in Tokyo Bay.

Planes illuminated by searchlights were fired upon; those which were not illuminated usually escaped attack. Apparently AA batteries at night are restricted to firing at lighted targets, although it is known that gun-laying radar sometimes is used. Such radar is generally employed with heavy batteries in industrial or other built-up areas. Comparatively poor results with such fire indicate either inferior performance of equipment or effective radar counter measures on the part of attacking aircraft.

The Japanese early warning system is based on the ubiquitous picket boat, land-based radar and visual observation station. Detection by boat crews apparently is either visual or aural, with the warning to the home islands being CW (continuous wave) or by voice, if urgent. Picket boats are generally well equipped with AA medium and light weapons.

In addition to the normal land-based defenses, Japanese are employing various types of supplementary weapons. In harbor cities, ship-based AA usually contributes to the defense of the area. In such cases, the volume, and generally the accuracy and range of AA fire is increased greatly. Vari-colored bursts are generally indications of naval AA fire. Rockets, "balls of fire", phosphorous

projectiles, balloons towed by aircraft, and other novel devices have been used, but none of these has resulted in any appreciable damage to attacking planes.

More complete analysis of Japanese AA defenses and the operational significance of such defenses have been published in Flak Intelligence Memorandum No. 6, entitled "Flak Over Japan". (CINCPAC-CINCPOA Bulletin No. 127-45).

[43]

AA FIRING BY HEAVY NAVAL GUNS

Additional evidence that the Japanese are employing the heavy guns of battleships and cruisers as antiaircraft weapons is contained in a notebook captured and translated as CINCPAC-CINCPOA Item No. 12,170. The use of such guns for AA purposes has been reported previously by naval aviators who have encountered major units of the Japanese fleet.

In late December operations one of our patrol bombers picked up the enemy task force which had shelled Mindoro the day before. With radar control, the bomber let down through the overcast to within eight miles of the Japanese force and broke out on its starboard beam. The task force showed little concern until the plane got within six miles, when each enemy unit started evasive action and began to circle. At this time, two of the larger ships favored the aircraft with one-half broadside each from their main batteries. No purely antiaircraft guns were fired from the force, just these tremendous broadsides of service ammunition. The search plane went off about 75 miles and returned, this time getting to within five miles before the ships broke formation and started evasive circling. Once again, the ships fired a broadside at the one aircraft in the distance. Although the air crew kept a sharp lookout, they could see no bursts, possibly because of the low visibility.

Naval fliers who attacked and sank the Japanese battleship YAMATO in April reported that antiaircraft salvos were fired at them by the main batteries of that vessel. Although the U. S. pilots reported heavy explosions nearby they suffered no damage.

The notebook captured on Saipan reflects the content of a lecture delivered by a Warrant Officer at the Mie Naval Air Group. According to the student who penned the notes: "Each and every type of naval gun is used for antiaircraft firing, including the heaviest weapons on our battleships." Initially, percussion-fuzed projectiles were used in an effort to bring down hostile aircraft, but the obvious ineffectiveness of such shells prompted the development of a special time-fuzed projectile. The notes mention the "Komochi Dan" shell as an example of this type round.

The student made no claims as to the actual ranges at which the heavy guns conduct AA fire, but listed the following classes of ships, showing calibers and ranges:

36 cm (14.1 in.)	ISE Class (BB-XCV)	35,000 meters
20 cm (7.8 in.)	NACHI Class (CA)	27,800 meters

Of these ships, two of the ISE Class, the ISE and the HYUGA, and two NACHI Class cruisers remain.

The student had little to say about methods of fire control except for a vague reference that "the first step in firing is to set the sight for a range of 10,000 meters." This is thought to refer to local control sighting apparatus. The notes add that "four rounds per gun are available for firing at an airplane flying in to bomb and since the NACHI has ten guns, forty rounds can be fired. However, since this will not bring the plane down, we use a method of firing now to bring the planes [44] within a barrage." Just how this is accomplished is not indicated, but in the absence of AA directors, barrage fire is the only feasible type of fire control to be employed by such guns.

In the case of the patrol bomber the ships may have been attempting to "bring the planes within a barrage," as discussed in the notes, either with service ammunition or perhaps with shrapnel rounds which burst far beyond the target aircraft.

The employment of main batteries, particularly of cruisers and destroyers, against aircraft is certainly practicable provided proper time-fuzed high explosive or shrapnel projectiles are developed. So far, this Japanese unorthodox use of main batteries has not proved very effective against our aircraft. It has startled air crews who suddenly find themselves among flak bursts while still miles from the nearest source of AA fire.

AIR COMBAT NOTES

In a recent night interception, a BETTY was observed without exhaust patterns, indicating that the Japanese may have developed an effective exhaust flame damper. Another BETTY vectored by two F6Fs demonstrated excellent evasive action by spiraling in dives, changing air speed radically, changing course and using cloud cover. At the same time, the enemy confused the radar scope by effectively dispensing "window". The armor and damage control were good, judging from the plane's ability to evade fighters, even after taking damaging hits.

Jettisoning of burning objects by Japanese night fighters, presumably to create the illusion of a "plane destroyed", has been reported. By the use of such tactics, the Japanese apparently hope to escape or maneuver for a more favorable attack position. Such deception is not new with the Japanese. As early as 1943, it was reported that enemy pilots, under attack by U. S. interceptors would dive and, at the same time, release black smoke from the nacelle to create the illusion of a fatal hit.

A ZEKE hit several times in a recent action continued straight ahead on the water, without taking evasive action. An F4U following saw the ZEKE strike the water four or five times, each time bouncing up and regaining flying speed. Finally the F4U scored hits and exploded the ZEKE.

An Avenger pilot on a night patrol over Okinawa spotted a bogie, and diving, expended all his ammunition without success. Not wishing to lose his prey, the Avenger pilot turned, engaged the enemy with rockets, and shot the wing off the Jap plane. Two of three rockets fired scored.

[45]

11TH YEAR TYPE 12CM CD GUN

Eleventh Year Type 12 cm coast defense guns encountered on Luzon and Iwo Jima are believed similar to other types of 12 cm dual purpose and coast defense guns used by the Japanese. Many of these have been naval guns converted for use on land.

The bore characteristics of the 11th year type are identical to those of the 3rd year type 12 cm 45 caliber coast defense gun. Both have a maximum range of approximately 13,000 yards and a maximum muzzle velocity of about 2,090 feet per second when fired with a full propellant charge. Semi-fixed ammunition is used. Besides the HE projectiles with time fuzes recovered, documents mention a "Star" and practice projectile. Fuzes prescribed include the 5th year type nose fuze modification 1, a Type 92 fuze, and another 30 second time fuze.

The recoil tubes, two above and one below the barrel in contrast to the usual three above, simplify identification of the weapon. The breech block, although of the familiar hand-operated horizontal sliding type, does not pass all the way across the breech ring. The slot in the rear of the breech ring is cut in keyhole shape. This saves weight but increases the difficulty of loading.

The gun is of the built-up type with uniform right-hand rifling. It is mounted on a rectangular upper carriage. Its conical base sometimes may be imbedded in a rock foundation. Elevation control is on the left of the piece and traverse on the right with appropriate scales on the sides of the gun. Both the elevation and traverse operators were provided with 15 power, 4-degree sights and had speaking tubes for communication. Besides the normal range scale, a range correction scale is at the left of the piece. It is believed an operator is employed for each, with the elevation handwheel operator normally firing the gun. Firing also may be accomplished by a lanyard attached to the right side of the breech block.

(At this point in the Exhibit, there appears a photograph of a front view of a Japanese 45-caliber Post Defense Gun on Luzon. This photograph will be found reproduced as Item No. 290, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

The guns recovered on Luzon were manufactured in March 1944 by the Sasebo Naval Ordnance Depot, and it is possible that these 11th Year Type weapons were made to replace the well-known 3rd Year Type 12 cm CD guns.

Both on Iwo Jima and on Luzon, the guns were found in casemated positions and could not be elevated above 25 or 30 degrees. The fields of fire were limited by the firing slits to about 60°. On Luzon the emplacements were oval-shaped, 15 feet wide and 30 feet long, and constructed of coconut logs covered by earth.

On Iwo the emplacements were concrete casemates. Information on this weapon has been collated from reports of Iwo Jima observers, from the 5250th TIC Company and from Item B-3833 which appeared in CINCPAC-CINCPHA Translations and Interrogations No. 25.

Condensed data on the gun follows:

Bore diameter	120 mm.
Overall length of gun	18 ft. 3¼ in.
Length of tube	17 ft. 3¼ in.
Length of rifling	14 ft. 8½ in.
Number of lands	36
Length of upper recoil cylinders	4 ft. 7 in.
Length of lower recoil cylinder	2 ft. 5¼ in.
Max. elevation (scale reading)	50 degrees
Max. depression (scale reading)	10 degrees
Transverse	350 degrees
Diameter of lower carriage	4 ft. 2 in.
Height of gun	6 ft. 11 in.
Maximum muzzle velocity	2,090 ft. sec.
Maximum range	13,000 yds.

(Two views showing the mechanism of a Japanese 11th Year Type 12 cm. Gun located on Iwo Jima will be found reproduced as Item No. 291, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

RIFLE GRENADE LAUNCHER

(A photograph of a large Spigot-type Grenade Launcher will be found reproduced as Item No. 292, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

A new, spigot-type rifle grenade launcher which is slightly larger (27 mm. in diameter) than the previously encountered type has been recovered in the Philippines.

This launcher may be used with both 6.5 mm. and 7.7 mm. rifles. From its measurements it was found by the 5250th TIC Company that Type 3 high explosive and incendiary rifle grenades might be fired from this launcher. It is likely that the smoke rifle grenade and Type 91 grenade with spigot attachment also may be fired. (For description of grenades see CINCPAC-CINCPHA Bulletin 135-45, Japanese Grenades.)

The new launcher differs also in method of attachment to the rifle. To attach, the knurled sleeve is unscrewed to allow the two prongs of the adapter to slide and catch on the rear of the front sight mount. The sleeve is then tightened, locking the prongs in position behind the sight mount. Two smaller projections fit around the bayonet lug to increase stability.

(A photograph of a Japanese Improvised Armored Car captured in the Philippines will be found reproduced as Item No. 293, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

PRODUCTION OF INTELLIGENCE MATERIAL

Production of intelligence material in support of an operation invariably strains available printing and reproduction resources. An intelligence activity cannot be judged solely on the quantity of output, nor are there any figures that would represent the total efforts of all hands. The figures here presented are only for the maps produced by Army Engineers and distributed through JICPOA, and the JICPOA production of photographic prints and printed intelligence material. When it is realized that in the periods considered, much more material was originated and distributed by other agencies, the magnitude of the task can be appreciated.

Assault maps, bombardment charts and air support maps produced in the Central Pacific Area since the Gilbert Islands operation in November 1943 totaled 8,375,776 sheets weighing 354.2 tons. The volume for each operation has risen steadily, from 8.7 tons of material for the Gilberts to 121 tons for the Okinawa campaign. Tonnages prepared in this area alone for each major Pacific operation are shown in an accompanying graph. It should be borne in

mind that much additional material in this category, such as air target and shore bombardment charts, was prepared elsewhere.

Printed and mimeographed material in the year beginning 1 June 1944 amounted to 72,909,000 sheets weighing 729 tons. (The standard printed sheet such as that used in "Weekly Intelligence" carries a total of eight pages—four on each side; mimeographed sheets carry two pages). Peak printing load for the year was during the week of 27 January, when 5,200,000 sheets were printed.

The greatest production increase was in the photographic field. The number of contact print turned out jumped from 59,565 in the first quarter of 1943 to an estimated 3,000,000 (weighing 78.75 tons) for the second quarter of 1945. The principal increase occurred after inauguration of aerial reconnaissance flights over Japan and nearby areas, with resultant preparation of mosaics.

(At this point in the Exhibit, three items appear as follows:

1. Two graphs, one illustrating quarterly production of contact print photographs and the other illustrating production of maps and charts for major Pacific operations.
2. A graph illustrating the monthly production of printed and mimeographed intelligence material for the Central Pacific area, 1 June 1944 to 31 May 1945.
3. A photograph showing fire bombs being dropped from B-29's on Yokohama.

The foregoing material will be found reproduced as Items Nos. 294, 295, and 296, EXHIBITS-ILLUSTRATIONS, Hewitt Inquiry.)

HEWITT INQUIRY EXHIBIT No. 70

MESSAGE ENCODED AND RECEIVED HINDUQUENY NO 7 JAN. 1945

"TA"

27 JAN. 45

From: Chicago: Tals #010.

To: Foreign Minister—Tokyo.

He ta hai [OH] kaku kyō [WH an fu an] how shun [BY] ao tai gen wa ka shō
tokei ni shō

hai ka wa tai kaku shō tai wa a fu se ya ku 1 gun shō FUD 1 ku wa shō [pā ra
ma] ga wa e shō shō shō se ru ga te pan no han ga ki YV a hi shō kyō an ni
hi ki ka he shō tai ji shō. Ma ta sei ha kaku kyō [ma] an ta ya] dō 1 pā 8 wa shō
IK AU MI JH NI YO NJ

te ki se kō ba ku wa n ac shō shō en sei kun 1 / hai gi.

HARADA.

(In last shape)

KIHO

The Tai army now on the northern frontier, including police amounts to over 10,000. On the 21st a portion of them were sent to PIHOMA. At MEI-SATATA they were bombed by the enemy.

"LA"

15 JAN. 1942

From: Foreign Minister #601.

To: Kyoto: Harada.

Kaku nen ki shō shō 1475 nitan(ehi) (new para)

Kin 3 sen 5 hyaku jō en, wa ri | kin 6, wa ta shō | ki ri | ki | yori shō ga ku
den shō shō —

Tooo.

Note: (No copy of coded mes. on hand. Obtained from Army).

He year (civil?) of last year 1475 I am telegraphing increased amt of 3310 yen gov't expenses from private fund.

Tooo.

From: Harada

To: Foreign Minister, Tokyo.

1. The lower classes who were rounded up in the recent drive were leaders of the subversive party, and it is only natural that Thailand, at a time when rumors have been rife and in spite of the fact that it looked like the work of spies, should put the blame on the Japanese.