RESTRICTED

Tactical Mission REPORT

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By authority of
C.G., Twentieth Air Force
21 Mar 49 Ltr 3
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MISSION NO. 325 330
FLOWN 14 AUG 1945
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HEADQUARTERS
TWENTIETH AIR FORCE
APO 234

7-55-54

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FOREWORD

This Tactical Mission Report covers the last series of operational strikes (Missions Number 325 - 330) against the Japanese Empire, flown on 14/15 August 1945.

HEADQUARTERS
TWENTIETH AIR FORCE
APO 234

TACTICAL MISSION REPORT

Field Order No. 20 — Missions No. 325, 326, 327, 328, 329 and 330.

Targets: Hikari Naval Arsenal (90.32-671); Osaka Army Arsenal (90.25-382); Marifu Railroad yards (90.30-2202); Nippon Oil Refinery (90.6-1066); Kumagaya and Isesaki Urban Areas.

14/15 August 1945

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Prepared by: A-2 Section
Twentieth Air Force

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HEADQUARTERS
TWENTIETH AIR FORCE
APO 234

SUBJECT: Report of 4 Precision Attacks and 2 Incendiary Strikes Against Targets on Honshu on 14-15 August, 1945

TO : Commanding General, U.S. Army Strategic Air Forces, APO 234, San Francisco, California

1. IDENTIFICATION OF REPORT:

a. Major Operations on this Date: Field Order Number 20, dated 13 August 1945, Headquarters Twentieth Air Force, directed the 58th, 73rd, 313th, 314th and 315th Bombardment Wings to attack 4 precision targets and 2 urban areas on Honshu with maximum effort. Field Order Number 121, Headquarters 313th Bombardment Wing, dated 14 August 1945, also directed the 313th Wing to attack 4 Japanese mine fields.

b. Operations Reported Herein: This Tactical Mission Report includes the following maximum-effort missions:

Mission Number	Wing	Force Assigned	Target
325	58th	4 Groups	*Hikari Naval Arsenal (90.32-671) Tokuyama, Honshu
326	73rd	4 Groups	**Osaka Army Arsenal (90.25-382) Osaka, Honshu
327	313th	3 Groups	**Marifu Railroad Yards (90.30-2202) Iwakuni, Honshu
328	315th	4 Groups	*Nippon Oil Refinery (90.6-1066) Tsuchisaki, Honshu
329	314th	2 Groups	*Kumagaya (Honshu) Urban Area
330	314th	2 Groups	*Isesaki (Honshu) Urban Area

*Primary visual and radar targets
**Primary visual targets

(1) The Fuji Textile Mill (90.24 - 2140/1141) was a secondary visual target for the 73rd Wing and the Nakajima Aircraft Company (90.25 - 1635) was designated as a primary radar target. The Otake Army Depot (90.30) was a secondary visual and primary radar target for the 313th Wing. No last resort targets were specified.

c. Operations Reported Separately: The attack by the 313th Wing against 4 Japanese mine fields is included in a separate Tactical Mission Report covering Twentieth Air Force mining operations for July and August of 1945.

2. MISSION PLANNING:

a. Selection of Targets:

(1) Targets Considered: The most important precision targets that had not been attacked successfully and the remainder of the 180 designated small urban areas that had not been bombed successfully were considered in the selection of the targets for these missions.

(2) Targets Selected and Reasons: The above-mentioned targets were selected in order to take advantage of the weather and yet compress the attacks in the minimum possible time. The precision targets (Hikari Naval Arsenal, Osaka Army Arsenal, and Marifu Railroad Yards) were planned for attack during the day with attacks by night on the urban areas and the Nippon Oil Refinery precision target. In the event that weather was unfavorable on the date for the day missions they were to be postponed until the following day with no change in the night attacks. This would allow a one-day leeway to make a weather decision.

b. Importance of Targets:

(1) Mission Number 325 - Hikari Naval Arsenal: Located on the northern shore of the Inland Sea, 10 miles southeast of Tokuyama, this target is one of the enemy's 4 or 5 most important naval arsenals and one of the 10 most important arsenals in all Japan. It has a ground area of 28,700,000 square feet, a roof area of 4,450,000 square feet, 268 large buildings and countless small buildings. Of the target construction, 15.5 per cent is of steel and light material construction. This arsenal produces all types of ordnance.

(2) Mission Number 326 - Osaka Army Arsenal: This target, located in the eastern part of the city of Osaka, 7 miles from Osaka Harbor, is one of Japan's most important arsenals. It manufactures all types of ammunition, shells, bombs, primers, propellants and fuzes. Although the small area of explosives storage indicates relatively little shell loading, the 100-acre extension to the east has increased the importance of the arsenal and it is reported to be manufacturing guns up to 16 inches in size. There are 183 buildings in the target area.

(3) Mission Number 327 - Marifu Railroad Yards: The Marifu Railroad Yards at Iwakuni, on the Sanyo main line, are 8 to 10 tracks wide and approximately 3000 feet long. These yards have no repair facilities or roundhouses.

(4) Mission Number 328 - Nippon Oil Refinery: This target is located immediately north of and along the bank of the Omono River on the northwestern outskirts of the port town of Tsuchisaki, 5 miles northwest of the city of Akita. It is one of the most important targets in the Japanese petroleum industry, processing crude oil from the fields around Akita, the largest natural petroleum producers in the Japanese homeland. The annual crude capacity was estimated in 1944 at 1,320,000 barrels. This capacity has increased in importance since, unlike most existing refineries in Japan proper, it is not dependent on imported petroleum. The tankage capacity of the plant is believed to be in excess of operating requirements.

(5) Mission Number 329 - Kumagaya Urban Area: Kumagaya, located about 40 miles northwest of the Imperial Palace of Tokyo and 8 miles southeast of Koizuma, is a center of aircraft parts (airframe and engine) production for the Nakajima Aircraft Company. It is also one of

the most important dispersal centers for Nakajima production.

(6) Mission Number 330 - Isesaki Urban Area: This target, located about 55 miles northwest of the Imperial Palace of Tokyo and 8 miles west-northwest of Ota, is reported to be another center of aircraft parts (airframe and engine) production for the Nakajima Aircraft Company. It is also a possible dispersal center for Nakajima production.

c. Time Factors:

(1) Selection of D-Day: At the time these missions were planned, peace negotiations were under way with Japan. The Commanding General gave orders for all Wings to be prepared to dispatch maximum effort forces on minimum time notice. Because it appeared that negotiations were being delayed by the enemy, these missions were ordered for 14-15 August.

(2) Selection of Target Time: Target times depended upon weather at the target for daylight precision strikes and upon daylight returns for night strikes.

d. Munitions and Fuel Loadings:

(1) Selection of Bombs and Fuzes:

(a) Mission Number 325 - Hikari Naval Arsenal:

1. Bomb Selection: High explosive, 500-pound General Purpose bombs with .01 second delay nose fuzes and non-delay tail fuzes were to be used on this mission.

2. Reason for Selection: The primary buildings of this target area are of saw-tooth and monitor-type construction and are well dispersed, with the built-up section less than 15 per cent of the total area. The 500-pound high explosive bombs were chosen because it was believed that they would be large enough to destroy many of the individual buildings and to damage seriously the entire target area. The .01 second delay nose fuze was chosen because it would allow bomb burst 6 to 10 feet below roof level, thus effecting maximum damage to building contents. The non-delay tail fuze was selected to give ground-level burst to "near-miss" bombs.

(b) Mission Number 326 - Osaka Army Arsenal:

1. Bomb Selection: High Explosive, 2000-pound, General Purpose bombs with .025 second delay nose and tail fuzes were to be used on this mission.

2. Reason for Selection: The 2000-pound General Purpose bombs were chosen for this mission because the buildings in the target area were either of single-story or multi-story type. Maximum damage to these structures could be obtained best by blast and cratering action, thereby causing collapse of structures or inflicting structural damage. The 2000-pound bomb with its relatively high charge weight and its penetrating qualities, would have the best chance of destroying or seriously damaging the target installations. The .025 second delay nose and tail fuzes were selected to permit adequate delay for penetration of the structures, allowing detonation of bombs at the optimum depth which was just below the top floor level on the multi-story buildings and just below the floor level on the single-story buildings. The fuzing selected would allow sufficient ground penetration of the "near miss" bombs to

obtain maximum size craters, resulting in undermining of building foundations and vertical structural members.

(c) Mission Number 327 - Marifu Railroad Yards:

1. Bomb Selection: High explosive, 500-pound, General Purpose bombs with .1 second delay high explosive nose fuzes and .01 second delay tail fuzes were selected for this mission, to be dropped on an intervalometer setting of 25 feet.

2. Reason for Selection: The 500-pound bomb was selected because of the multiple number of hits possible and because it was the smallest bomb that would effectively destroy railway rolling stock. It was believed that damage to both rolling stock and trackage could be obtained best by the earth displacement of cratering bombs which uproot tracks and overturn rolling stock. The .01 second delay tail fuze was chosen because it would allow the bomb burst to create optimum-size craters. The .1 second delay nose fuze was for assurance purposes only.

(d) Mission Number 328 - Nippon Oil Refinery:

1. Bomb Selection: High explosive, General Purpose bombs of 100 pound and 250 pound sizes, with high explosive, non-delay tail fuzes, but no nose fuzes, were chosen for this mission. These bombs were to be released on an intervalometer setting of 35 feet.

2. Reason for Selection: This target is made up of refining and distilling units containing numerous vats, tanks and a network of pipes. The structures housing these installations are small and are scattered throughout the target area. The 100-pound high explosive bombs were selected because a multiple number of direct hits would be obtainable while allowing maximum tonnage to be carried. It was believed that the blast and fragmentation effect of the small bombs would be sufficient to damage the buildings seriously and to destroy the other installations. Nose fuzes were to be omitted because delay fuzes which would permit sufficient safety in releasing multi-clustered bombs were not available. The non-delay tail fuzes were selected because they would allow bomb burst of roof structures level from which blast effect would severely damage structures and destroy building contents. This delay would also allow maximum blast and fragmentation effect on the other target installations. The intervalometer setting was considered the minimum for multicluster bombs of this type.

(e) Mission Number 329 - Kumagaya Urban Area:

1. Bomb Selection: A mixed load of M47 incendiary bombs and E46 incendiary clusters were to be carried on this mission. The M47 bombs carried instantaneous nose fuzes and the incendiary clusters were fuzed to open 5000 feet above the target. All bombs were to be dropped on an intervalometer setting of 25 feet.

2. Reason for Selection: This target was primarily of light industrial and residential construction and was considered ideal for incendiary attack with M47 and M69 bombs. The required density was 225 tons of bombs per square mile. Mixed loads were to be used to increase total tonnage and to equalize the take-off loads of each aircraft. The fuzing and intervalometer setting were selected to give a maximum uniform density, proper penetration, and efficient functioning of bombs and clusters.

(f) Mission Number 330 - Isesaki Urban Area:

1. Bomb Selection: Bombs, fuzing and intervalometer setting for this mission were the same as for the mission against Kumagaya.

2. Reason for Selection: The reasons for selection of the bombs, fuzing and intervalometer setting for this mission were the same as those for Mission Number 329. The force assigned was believed sufficient to achieve a minimum density of 225 tons of bombs per square mile.

(2) Bomb Loading:

a. Bomb load estimates were as follows:

Mission Number	Wing	Target	Expected Bomb Load (pounds)
325	58th	Hikari Arsenal	12,000
326	73rd	Osaka Arsenal	14,000
327	313th	Marifu Railroad Yards	12,000
328	315th	Nippon Oil Refinery	20,500
329	314th	Kumagaya	16,000
330	314th	Isesaki	16,000

b. Ammunition Loading: Ammunition loading for these missions was in accordance with established policy.

c. Gasoline Loading: Fuel load estimates were as follows: 58th and 313th Wings, 7100 gallons; 73rd and 314th Wing 6700 gallons; and 315th Wing, 6300 gallons.

d. Flight Planning:

(1) Routes:

(a) Mission Number 325 - Hikari Naval Arsenal:

Route	Reason for Choice
Base to Iwo Jima	
to	
3243N - 13233E	Iwo Jima was the first assembly.
to	
3256N-- 1320530E	This was a reassembly point at I Shima.
to	
3324N - 1314230E	This was the point of Tsurima Saki, an easily identified departure point on the northeast side of Kyushu. This initial point was Tsukuishi Bana on the northern shore of Beppu Wan, easily identified for a good approach to the target.
to	
Target	
to	
Iwo Jima to Base	

Tactical Doctrine

(b) Mission Number 326 - Osaka Army Arsenal:

Route	Reason for Choice
Base to Iwo Jima	Iwo Jima was the first assembly.

to	
3320N - 13435E	This was a reassembly point
to	
3350N - 13445E	This was an easily identified departure point on the approach to Osaka Wan.
to	
3416N - 13504E	This easily identified initial point, 2 miles south of the city of Koda, made the best approach to the target
to	
Target	A right turn was specified after the attack.
to	
3441N - 13545E	This point was to avoid flak defenses.
to	
3353N - 13608E	This point was land's end.
to	
Iwo Jima to Base	Tactical Doctrine.

(c) Mission Number 327 - Marifu Railroad Yards:

Base to Iwo Jima	Iwo Jima was the first assembly
to	
3243N - 13233E	I Shima was a reassembly point.
to	
3306N - 13201E	Hoto Shima, easily identified, was the departure point.
to	
3343N - 13209E	The initial point, Ya Shima, could be easily identified for a good approach to the target.
to	
Target	
to	
3432N - 13212E	
to	
3432N - 13250E	This point was to avoid heavy flak defenses at Hiroshima.
to	
3309N - 13313E	This point was land's end.
to	
Iwo Jima to Base	Tactical Doctrine.

(d) Mission Number 328 - Nippon Oil Refinery:

Base to Iwo Jima	Tactical Doctrine.
to	
3658N - 14054E	This easily identified point on the eastern coast of Honshu was chosen for landfall.
to	
3827N - 1391430E	The initial point, Awa Shima, could be easily identified for a good approach to the target.
to	
Target	A right turn was specified after the attack.
to	

3816N - 14131E	This point was chosen for land's end.
to	
Iwo Jima to Base	Tactical Doctrine

(e) Missions Number 329 and 330 - Kumagaya and Isesaki Urban Areas:

Base to Iwo Jima	Tactical Doctrine
to	
3545N - 14105E	This dead reckoning point was chosen to avoid the Chosi defenses.
to	
3609N - 14019E	This initial point on the northern part of Kasumiga Ko could be easily identified for the best radar approach to the target.
to	
Targets	Two Groups attacked Kumagaya and 2 Groups attacked Isesaki. A left turn was specified after each attack.
to	
3438N - 13854E	This point was designated as land's end.
to	
Iwo Jima to Base	Tactical Doctrine.

(2) Navigational and Radar Factors:

(a) Summary: The 58th, 73rd and 313th Wings were to fly formations for the daylight missions while the 314th and 315th Wings were to fly night missions by individual aircraft. The three daylight strikes were to use Iwo Jima as the first assembly point. The islands in the Iwo Jima area are excellent radar check points which can be used to position the aircraft in case of undercast conditions. This assembly area is the only radar check point between base and the scheduled landfall point. All reassembly areas are prominent coastal points which can be identified easily by all radar operators. These points also were considered excellent for radar wind runs and for positioning aircraft in case of undercast conditions. The formations were to fly a "race-track" course in order to obtain constant radar pictures on their scopes. The 314th Wing, scheduled to go north of Tokyo, would have good radar navigation along the chain of islands between Iwo Jima and Japan. These could be used for LOPs, navigation fixes or for wind determination. The Tokyo area is very distinctive and no difficulties were expected in radar navigation. The 315th Wing was to have only Iwo Jima as a check point between base and landfall but the prominent point chosen for landfall would make navigation fairly easy.

(b) Mission Number 325 - Hikari Naval Arsenal: The radar initial point for this mission, 3324N - 1314230E, is a prominent point on the northeast coast of Beroru Wan. The radar navigation from reassembly to the initial point was to be along the peninsula coast, giving the operators good wind run points. Hikari Arsenal is located on the coast line and gives a distinct radar return. The various reference points in the area should make it an easy target for identification and direct radar synchronous bombing. The target is located between two

distinct radar points at Hiburi-Misaki and Murozumi. The best reference point is a very small island, 3 miles south of the target, which can be seen at very long range. Radar operators could obtain excellent results if blind bombing were necessary.

(c) Mission Number 326 - Osaka Army Arsenal: The initial point for this mission, 3416N - 13504E, located on the peninsula at Kada, has been used successfully on most previous Air Force missions into Osaka. The arsenal in Osaka cannot be identified by radar and area radar bombing was believed to have little value because of the bombed-out areas surrounding the target. Offset bombing at high altitudes was not recommended because of the lack of distinct offset aiming points. The assigned primary radar target is the Nakajima Aircraft Company at Handa. This target does not resolve itself as a single radar return but its location, between Handa and Narawa, which smear together in a separate signal, makes it a fair target for blind bombing.

(d) Mission Number 327 - Marifu Railroad Yards: The initial point for this mission is the most southern island in the Seto-Nai-Kai and should be good for a radar check point as well as for a wind run point. The radar navigation from the departure point is along the distinctive shore line which each operator could use for wind checks or position fixes. The target is only fair for radar bombing but using Otake Army Depot as secondary visual target this mission would have an excellent radar target. The Otake Army Depot is located on a prominent coastal projection and radar operators could use the coast line as reference point in locating the target.

(e) Mission Number 328 - Nippon Oil Refinery: This mission was to follow the coast from Chosi Point to a well-defined coastal point at 3658N - 14054E and to an island initial point at 3827N - 139143OE. This island point should be identified easily and should serve as an excellent wind run point. The approach from the initial point, Awa Shima, is a distance of 81 nautical miles along the western coast of Honshu. Although this coast is fairly smooth, it has several points which can be used in determining range. If necessary, the distinctive projection north of Akita can be used as a reference point, though the city of Akita can be identified at a minimum range of 40 miles. The assigned target is located at the mouth of the Omono Gawa which can be used as a reference point. The target, which gives a separate radar return, should be good for direct synchronous bombing by individual aircraft.

(f) Missions Number 329 and 330 - Kumagaya and Isesaki:

Both these incendiary missions were to use a common initial point. This point, 3609N - 14019E, is the northermost corner of the "Y" shaped Kasumiga Ko, which gives a well-defined radar shore line. The initial point can be easily identified at the landfall point. Although Isesaki is a good radar target, radar navigation from the initial point to the target may prove difficult. Isesaki is located 75 nautical miles inland with only one good radar axis from the southeast which avoids all mountainous terrain. The scheduled run is upwind and difficulty from heat thermals may be expected at the release point. For these reasons the altitude was to be 15,000 feet, thus providing good radar navigation, good rate checks in synchronous bombing, and avoiding heat thermals as much as possible. A river with several outstanding bridges runs parallel to the scheduled route and by following this river the radar operators could find the triangle of cities, Isesaki, Maebashi and Takasaki. All three cities have excellent returns and could be identified from a range of 15 to 20 nautical miles. The same radar and navigational factors were applied in planning the miss-

ion to Kumagaya. The target is in the same vicinity, and the Ione Kawa and bridges could be used as reference points to identify the target. This city gives an excellent return and the scheduled bombing was to be by radar synchronous methods at an altitude of 15,000 feet.

(3) RCM Factors:

(a) On Missions Number 325, 326 and 327, daylight precision strikes, each flight squadron was to be equipped to barrage jam the 72 to 84 and 190 to 210 megacycle regions and to spot jam gun-laying and searchlight radar signals appearing outside the barrage.

(b) Two special RCM aircraft were to be used for the night attack on Isesaki because the scheduled route passed over the Ota defenses. These special aircraft were to be equipped to barrage and spot jam radars controlling flak and searchlights. Additional amounts of rope were to be carried and dispensed to infest the area.

(c) The night targets of Kumagaya and Nippon Oil Refinery (Akita) did not require the use of special jamming aircraft. Aircraft of the 314th Wing, attacking Kumagaya, were to be equipped with at least one electronic jammer and 50 units of rope.

(d) Search was to be continued for enemy radars in the 20 to 3000 megacycle regions.

(4) Flak Factors:

(a) Mission Number 325 - Hikari Naval Arsenal: Hikari Arsenal was defended by 16 heavy antiaircraft guns, while adjacent Tokuyama defenses on the northwest side had 34 heavy antiaircraft guns. The planned approach from the southwest would avoid the flak defenses of Saeki and Oita en route to the target. This was believed to be the best flak approach because it allowed a run chiefly over water and avoided completely the Tokuyama flak defenses. A sharp breakaway to the right was specified in order to remove the B-29s from the field of fire of enemy shipping in the Inland Sea. Because of the meager defenses of the target area a base altitude of 15,000 feet was planned.

(b) Mission Number 326 - Osaka Army Arsenal: Photographs showed the city of Osaka to be protected by 289 heavy antiaircraft guns in a close-in area defense. Since it would be necessary to penetrate to the center of the city in order to bomb the target, almost all of these weapons would be within range of the attacking aircraft at some time during the bomb run or on the breakaway. The axis from the southwest over the bay was believed to be the safest approach to the Osaka area. It was the closest approach to a downwind run without encountering the Kobe defenses and it allowed a bomb run chiefly over water. The scheduled breakaway to the east was downwind, removing aircraft from the heavily defended area in the shortest possible time. Because of the heavy defenses and because this approach had been used repeatedly, a base altitude of 20,000 feet was specified for this mission.

(c) Mission Number 327 - Marifu Railroad Yards: The Iwakuni area was defended by 25 heavy antiaircraft guns, with 125 heavy guns just east of this area at Kure. The safest approach was from the west but this approach would have put the aircraft over Kure-Hiroshima Wan before breakaway. Consequently, the planned approach was from the south, avoiding flak areas en route to the target. The scheduled breakaway was north and around the remaining defenses at Hiroshima. A base

altitude of 15,000 feet was specified.

(d) Mission Number 328 - Nippon Oil Refinery: Photographs revealed 10 heavy antiaircraft guns, 6 medium weapons and 1 searchlight in the Akita area. This was a very poor night defense and only meager and inaccurate flak was expected. Medium weapons would have little effect on aircraft at the planned base altitude of 10,000 feet. The planned route avoided other flak areas.

(e) Mission Number 329 - Kumagaya: No antiaircraft defenses were apparent on photographs of the Kumagaya area. The 60 heavy guns at nearby Ota were avoided on the planned axis of attack. Little or no flak was expected at the planned altitude of 14,000 feet and the route was to avoid other flak areas.

(f) Mission Number 330 - Isesaki: Although no flak defenses had been observed in the Isesaki area the only possible radar approach would bring the aircraft within the effective range of the 60 heavy guns of the Ota defenses. A previous mission (Mission Number 313 to Maebashi) using the same approach, however, had encountered only meager and inaccurate flak. Only meager and inaccurate flak was expected from the Ota area at the planned base altitude of 15,000 feet and the route was to avoid other defended areas.

(5) Assembly Points: Assembly points were to be as listed under Flight Planning, Part (1), of this section.

(6) Departure Points: Departure points were to be as listed under Flight Planning, Part (1), of this section.

(7) Initial Points: Initial points were to be as listed under Flight Planning, Part (1), of this section.

(8) Rally Points: No rally points were specified for these missions.

(9) Route Back: The return routes were to be as listed under Flight Planning, Part (1) of this section.

e. Bombing Factors:

(1) Bombing Altitudes, Axes of Attack, Length and Time of Bomb Runs, Drift and Forces:

Mission Number	Wing	Force (Group)	Axis of Attack (Degrees)	Bomb Run (Miles)	Time of Bomb Run (Minutes)	Bombing Altitude (Feet)	Drift (Degrees)
325	58th	4	20	41½	8 3/4	15,000	7 R
326	73rd	4	43	43	8 3/4	20,000	5½ R
327	313th	3	9	31	6 3/4	15,000	8 R
328	315th	4	28	87	21	10,000-11,000	4 R
329	314th	2	270	53	14 3/4	14,000-14,800	1 L
330	314th	2	281	65	18	15,000-15,800	3 R

(2) Mean Points of Impact: (See photographs of mean points of impact in Annex A, Part II).

(a) Mission Number 325 - Hikari Naval Arsenal: Three mean points of impact were chosen for this mission, 1 in the forging and foundry area in the north, 1 in the central area, and 1 in the eastern area. Probable circular errors of 1000 feet for the northern and eastern points and 1500 feet for the central point would include all important structures.

(b) Mission Number 326 - Osaka Army Arsenal: Two mean points of impact were chosen for this target. Probable circular errors of 1500 feet on each of these points would include all installations in the target area.

(c) Mission Number 327 - Marifu Railroad Yards: One mean point of impact in the center of the target was selected for both visual and radar release. A probable circular error of 1500 feet would include all the target facilities.

(d) Mission Number 328 - Nippon Oil Refinery: One mean point of impact in the center of the target area was selected for this mission.

(e) Mission Number 329 - Kumagaya: One mean point of impact was selected for this target. A probable circular error of 3000 feet would include 0.6 square mile and the greater part of the urban area.

(f) Mission Number 330 - Isesaki: One mean point of impact was chosen for this target. A probable circular error of 3000 feet would cover 0.5 square mile and take in almost all of the urban area.

(3) Other Bombing Factors:

(a) Daylight Missions - Missions Number 325,326,327:

Planning of the bombing altitudes, axes of attack and initial points for the three daylight precision missions was done in consideration of five important factors: (1) wind direction and velocity; (2) flak conditions in the target area; (3) easily recognized initial points, for both radar and visual sighting; (4) predicted surface winds in the target area; and (5) position of the sun at the time of attack. All the selected axes of attack more nearly conformed to the conditions named than any other possible approaches to the target areas. For Mission Number 327 against the Marifu Railroad Yards it was mandatory that an axis be selected that was at least 20 degrees to the longitudinal axis of the railroad yards. Approximately 435 aircraft, carrying a gross tonnage of 3050 tons of bombs, were expected to be airborne for these 3 missions. It was believed that 2684 tons (88 per cent) of this total would be released at the primary targets, 40 per cent of which would fall within 1000 feet of the assigned mean points of impact.

(b) Night Missions - Missions 328, 329 and 330:

1. The night precision attack of the 315th Wing against the Nippon Oil Refinery at Tsuchizaki was expected to include approximately 140 aircraft carrying a total gross tonnage of about 1400 tons. Direct radar synchronous bombing was to be used.

2. The night incendiary attacks of the 314th Wing (Missions Number 329 and 330) against Kumagaya and Isesaki were to include a total of 180 aircraft carrying a gross tonnage of 1440 tons of bombs. Of this tonnage 1325 tons (92 per cent) were expected to be released at the 2 primary targets of which 40 per cent were expected to fall within areas considered ample for total destruction of the 2 targets. The aircraft of the 314th Wing were to be supplemented by 20 aircraft from the Eighth Air Force, 10 of which were to join the 2 Groups attacking Kumagaya and 10 to join the 2 Groups attacking Isesaki.

f. Defensive Tactics:

(1) Fighter Escort and Sweeps: The Seventh Fighter Command was directed to furnish 2 Groups of fighters as escort for Mission 326 against the Osaka Army Arsenal and 2 Groups of fighters for a sweep on the Nagoya area.

(2) Coordination of Attacks: These missions were to be coordinated with a mission of the 313th Wing against 4 Japanese mine fields.

(3) RCM: Defensive radar counter measures were to be as described under Flight Planning, Part (3) of this narrative.

(4) Enemy Fighter Reaction:

(a) Missions Number 325, 326 and 327: Few enemy fighters were expected to oppose the daylight missions. Not more that one Group of friendly fighters were believed necessary as escort for the mission against Osaka but an additional Group was to be employed in order to destroy any enemy fighters and transportation or airfield facilities encountered. The 2 Groups of fighters making the sweep against the Nagoya area were to seek out any air interceptors and strafe grounded aircraft or installations.

(b) Missions Number 328, 329 and 330: The 3 night missions were expected to encounter nil to negligible opposition. Not more than 5 to 10 aircraft had ever opposed B-29 attacks in the Tsuchizaki area and not more than 10 to 15 were expected to be airborne in opposition to the incendiary strikes against Kumagaya and Isesaki.

g. Air-Sea Rescue: (See charts in Annex A, Part VII, of this report) Air-sea rescue facilities were to be in accordance with established policy of the Twentieth Air Force.

3. EXECUTION OF MISSIONS:

a. Takeoff: (For details on the separate missions see Annex E, Consolidated Statistical Summary).

Mission Number	Wing	Aircraft Airborne Pathfinders	Aircraft Airborne Main Force	First Take-off	Last Take-off
325	58th	0	167	132010Z	132217Z
326	73rd	0	161	132015Z	132147Z
327	313th	0	115	131900Z	132021Z
328	315th	0	141	140642Z	140858Z
329	314th	12	63	140752Z	140839Z
	313th		14	140815Z	140916Z
330	314th	12	71	140845Z	141005Z
	73rd		10	140802Z	140835Z
Twentieth Air Force Total:		24	742*	131900Z	141005Z

*This total does not include 5 Super Dumbo, 4 wind run, 2 RCM and 1 photo aircraft.

b. Routes Out: (See Annex A, Part I, for navigation track chart). No navigational deficiencies were reported on these missions. Individual aircraft accomplished long range navigation to the assembly points in the case of the daylight strikes and to the target areas in the case of the night missions. Radar was used as a navigational aid and for wind determination for the daylight strikes and for wind determination, navigation and bombing on the night attacks.

c. Assemblies: Assemblies for the daylight missions were effected as planned.

d. Targets:

(1) Primary: A total of 713 aircraft, including 23 pathfinder aircraft, bombed the primary visual and primary visual and radar targets from 140255Z to 141739Z at altitudes of from 10,200 to 25,100 feet. A total of 4462.7 tons of bombs were dropped.

(2) Targets of Opportunity: Ten aircraft dropped 65.4 tons of bombs on targets of opportunity as follows: Saeki, Nakamura, Shimizu, Nobeoka, Nagahama, Matsumaru, Wakayama, Kiwasa, Saganoseki, Sendai and Koizumi. Four of these aircraft also bombed their primary targets.

(3) Remainder of Force: Forty-seven aircraft were non-effective on these missions.

(4) Route Back: The return route was flown as briefed. Eighty-nine aircraft landed at Iwo Jima.

(5) Landing: Aircraft landed as follows:

Mission Number	Wing	First Landing	Last Landing
325	58th	141035Z	141345Z
326	73rd	140953Z	141211Z
327	313th	140904Z	141056Z
328	315th	142307Z	150200Z
329	314th	142133Z	142314Z
	313th	142109Z	142240Z
330	314th	142254Z	150041Z
	73rd	142100Z	142250Z
Twentieth Air Force Total:		140904Z	150200Z

(6) Fighter Escort and Sweeps: (See Annex A, Part VIII, for details on fighter activities for these missions) A total of 151 fighters of the Seventh Fighter Command were airborne for these missions, 2 Groups escorting the B-29 mission to Osaka and 2 Groups attacking the Nagoya area.

(7) Loss and Damage:

(a) Enemy Aircraft: No claims were made by B-29s or escorting fighters on these missions.

(b) Friendly Aircraft: No B-29s were lost on these missions. Thirty-three aircraft received minor damage from enemy antiaircraft fire. Four fighters were lost in the sweep on the Nagoya area, 2 to enemy flak and 2 to unknown causes. Three of the 4 pilots were rescued. Four fighters were damaged by enemy flak.

(8) Execution Vs. Planning: The execution of these missions did not vary greatly from the original planning. Fourteen aircraft of the 313th Wing joined the 314th Wing mission against Kumagaya and 10 planes of the 73rd Wing joined the 314th Wing mission against Isesaki. The 8th Air Force aircraft that were to take part in these missions did not participate.

4. RESULTS OF MISSIONS: (See Annex D, Part III, for strike attack reports on Missions 325 and 326) There is no post-strike cover or damage assessment for these missions.

N. F. TWINING
Lieutenant General, U. S. A.,
Commanding

ANNEX

A

OPERATIONS

Part I - Navigation Chart and Report

Part II - Mean Points of Impact

Part III - Bombing

Part IV - Flight Engineering Chart and Report

Part V - Radar Report and Radar Scope Photos

Part VI - Gunnery Report

Part VII - Air-Sea Rescue Charts

Part VIII - Fighter Report

Missions No. 325 - 330

14/15 August 1945

PART I - NAVIGATION

1. No navigational deficiencies were reported on these missions. Individual aircraft accomplished long range navigation to the assembly points in the case of daylight strikes or to the target areas in the case of the night missions.

2. Radar was used as a navigational aid and for wind determination on the daylight missions and for navigation, wind determination and bombing on the night attacks.

3. Compression over the target for those aircraft bombing individually at night was deemed satisfactory.

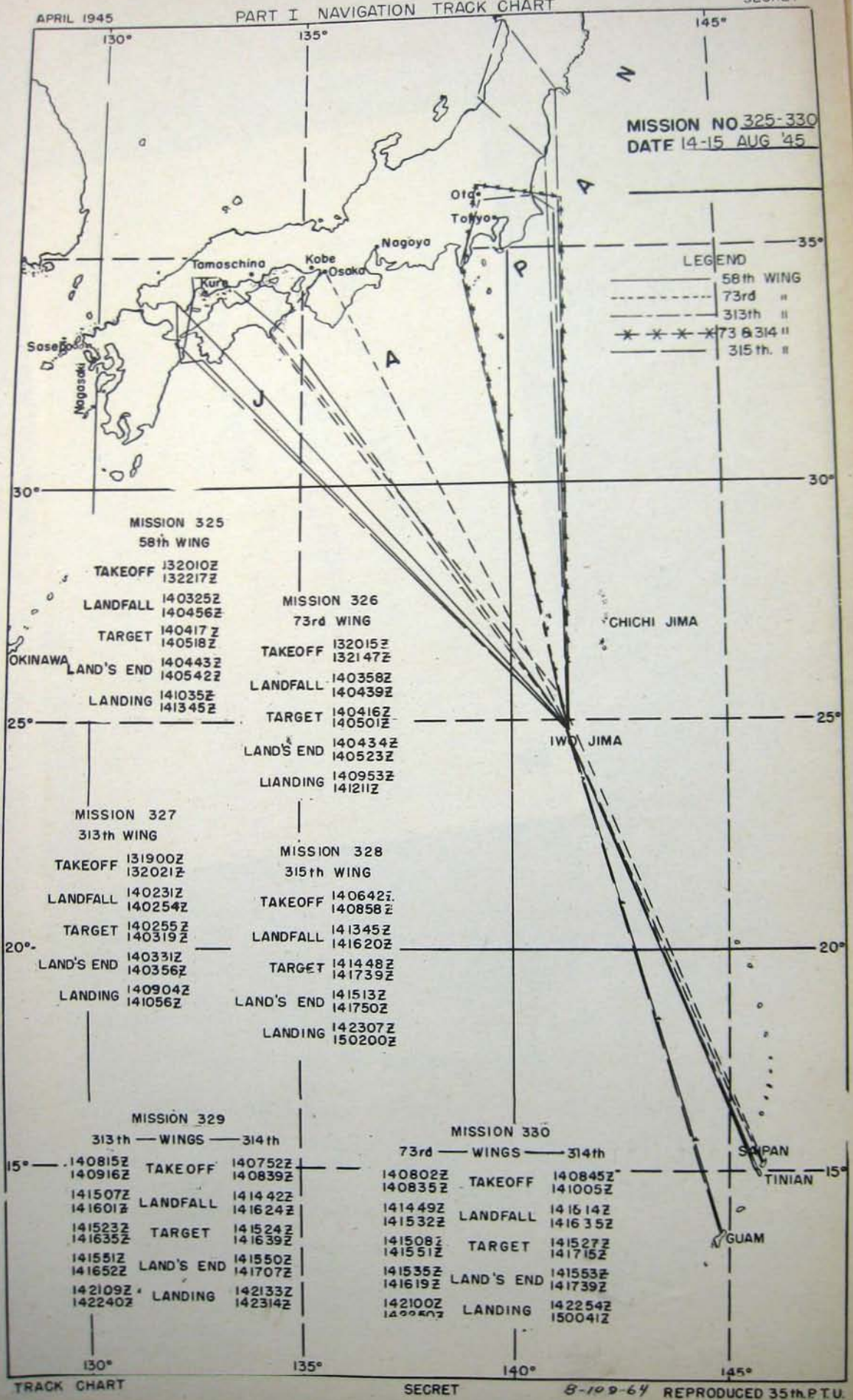
4. Return to base was flown as briefed with the exception of 88 aircraft landing at Iwo Jima and 1 aircraft landed at Okinawa.

5. Loran work was performed as follows: (Totals are Air Force totals).

Number Loran LOP's	13581
Number Loran Fixes	6642
Number Equipment Malfunctions	46
Average Maximum Range Sky Waves	
Fixed Antenna	1200 N.M.
Trailing Wire	1300 N.M.
Average Maximum Range Ground Waves	
Fixed Antenna	625 N.M.
Trailing Wire	675 N.M.

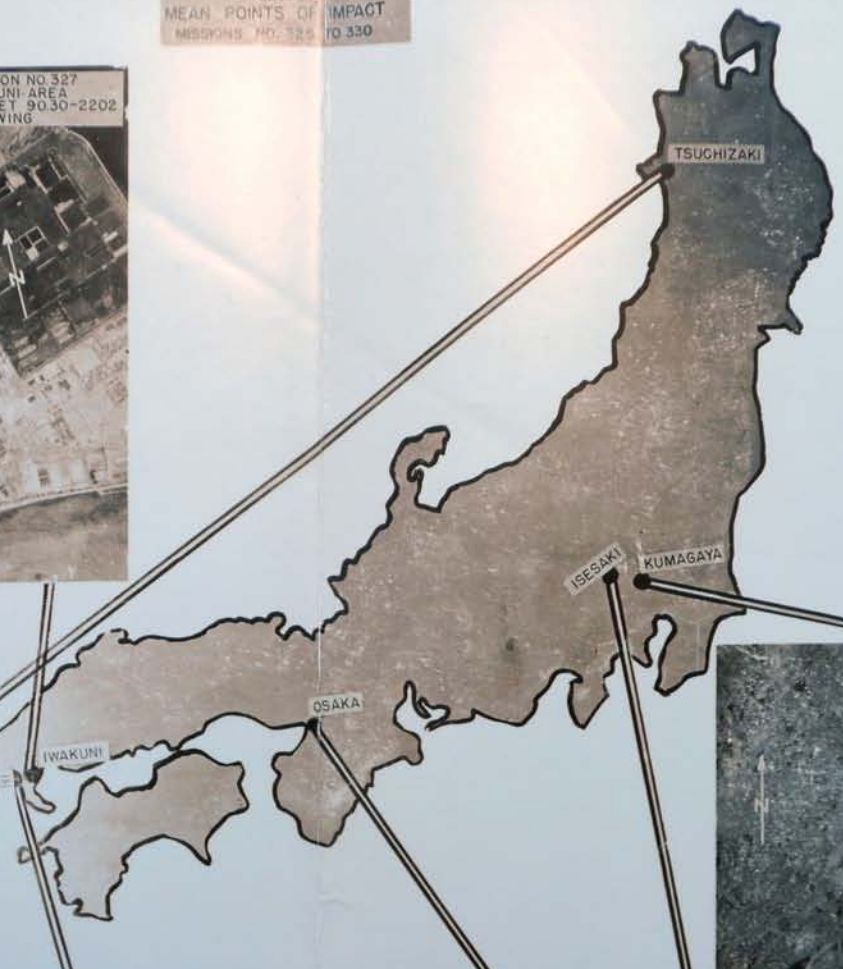
Weather interference was reported but there was no evidence of jamming.

PART I NAVIGATION TRACK CHART



SECRET

MEAN POINTS OF IMPACT
MISSIONS NO. 325 TO 330



PART III - BOMBING

1. Mission Number 325 - Hikari Naval Arsenal:

a. Bombing was accomplished visually by all formations. Heavy smoke covered the aiming point after the first 6 squadrons had bombed and the remainder of the formations used offset procedure. Compressibility for the Wing was 61 minutes.

2. Mission Number 326 - Osaka Arsenal:

a. Visibility at the target was perfect and very few aircraft had difficulty in bombing. Some of the last formations over the target, however, had difficulty in picking up the aiming point because of the intense smoke over the target. Offset bombing was performed with excellent results. Compressibility for the Wing was 45 minutes.

3. Mission Number 327 - Marifu Railroad Yards:

a. The visibility in the target area was CAVU and all formations did visual bombing. Smoke covered the aiming point and formations bombing late had to use reference point bombing procedure. Compressibility for the Wing was 24 minutes.

4. Mission Number 328 - Nippon Oil Company, Akita:

a. Altitudes of attack varied from 10,200 to 11,800 feet. Two aircraft were dispatched as wind run aircraft to obtain the wind direction and velocity and transmit it to the main striking force. The bomb load consisted of M30 (100 lb) demolition bombs quadruple-suspended and M57 (250 lb) demolition bombs double-suspended.

b. Bombing was accomplished with radar by 132 aircraft. Two aircraft bombed visually when the radar sets became inoperative. The mission was considered well planned and no unusual difficulties were encountered. The average drift reported was 3 degrees right. Compressibility for the wind was 171 minutes. Bombing accuracy is unknown.

5. Mission Number 329 - Kumagaya Urban Area:

a. Altitudes of attack varied from 14,000 to 19,000 feet. One aircraft was dispatched as wind run aircraft to obtain the wind direction and velocity and transmit it to the main force. The mission was accomplished at night by individual aircraft.

b. Bombing was accomplished primarily by radar, with 63 aircraft bombing with radar and nineteen aircraft making visual releases. The greatest difficulty encountered was smoke and clouds over the target. Several aircraft encountered thermals at the bomb release point. The aircraft which made visual runs were forced to do so chiefly because of malfunctions and poor target return on the radar scope.

c. Compressibility for the force was 76 minutes.

6. Mission Number 330 - Isezaki Urban and Industrial Area:

a. Altitudes of attack on this target varied from 15,450 to 18,200 feet. One aircraft was dispatched as wind run aircraft to obtain the wind direction and velocity. Twelve aircraft were dispatched ahead of the main force as pathfinders.

b. Bombing was accomplished primarily with radar, with 70 aircraft making radar approaches and releases. Seventeen aircraft made visual run and releases. The greatest difficulty encountered was undercast and smoke in the target area. Several aircraft reported difficulty in identifying the aiming point as the target produced weak returns on the radar scopes. Compressibility for the force was 127 minutes.

PART IV - FLIGHT ENGINEERING

1. Narrative of Mission as Flown:

a. Cruise to the Mainland: Individual climbs were made immediately after take off to altitudes between 6,000 to 10,000 feet where the initial cruise was flown. Assemblies for the precision target were made off the coast of Japan.

b. Bomb Run: Bombing was conducted by squadron formations at average altitudes of 17,000 feet for precision targets and 10,000 feet for urban areas.

c. Return to Base: Return to base was conducted by individual aircraft without difficulty. Minimum fuel was used by airplanes cruising at 14,000 to 16,000 feet and descending 200 feet per minute into the traffic pattern. Maximum range speeds as specified by this headquarters gave the best fuel consumption.

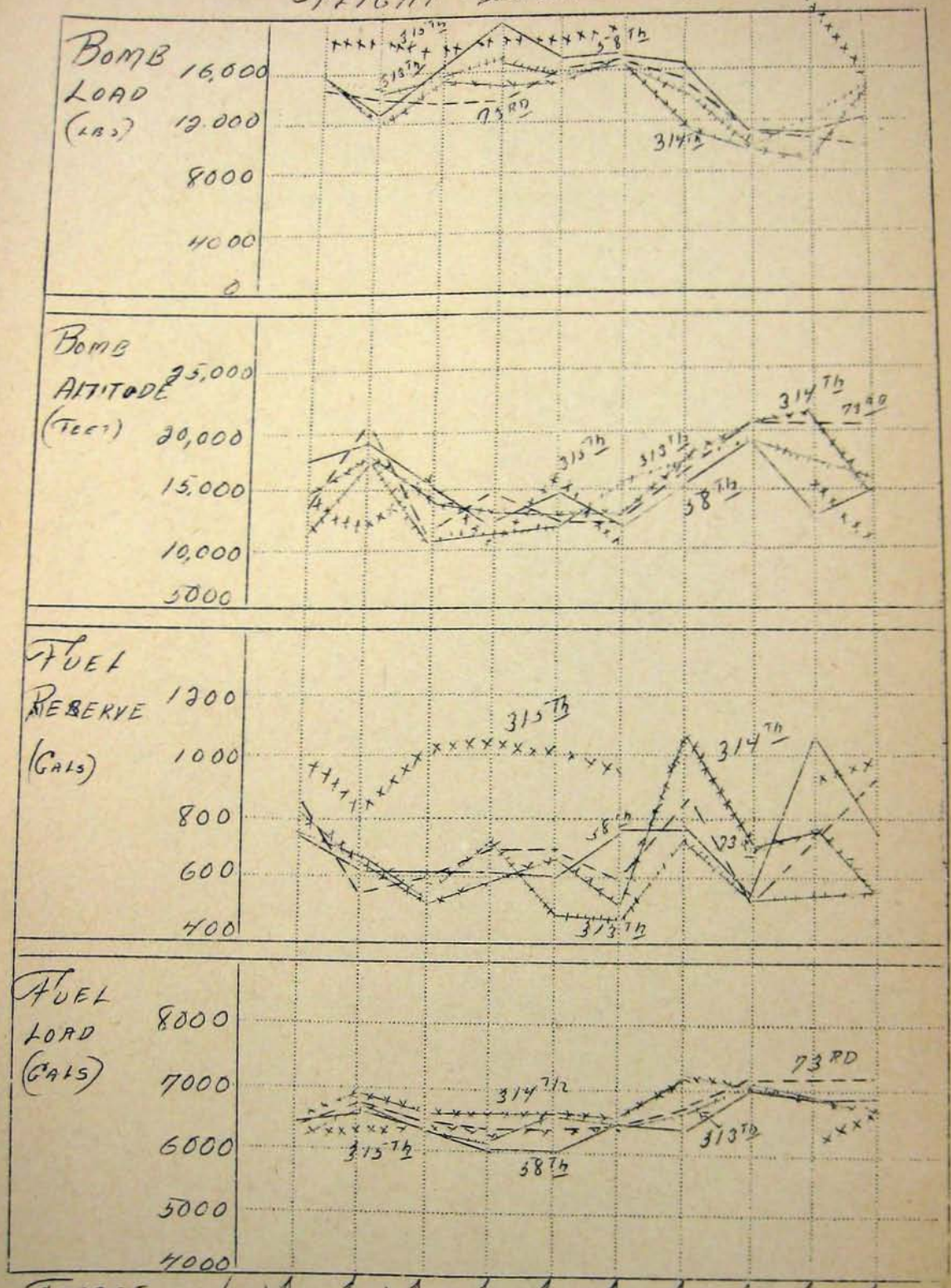
2. Comments: 11.4% of all airborne aircraft landed at Iwo Jima. Only the 73rd Wing loaded a bomb bay tank.

3. Exhibits:

a. For historical record see attached chart.

b. For further information see Consolidated Statistical Summary.

FLIGHT ENGINEERING



PART V - RADAR

1. Equipment Performance of AN/APQ-13:

a. Number of sets operative on take-off: 599

b. Number of sets operative over target: 561

c. Number of sets operative on landing: 561

d. Number of planes using azimuth stabilization: 354

e. Number of set failures in lead aircraft: 4

f. Average maximum range of targets:
71 NM at 5,000 - 10,000 feet.
71 NM at 10,000 - 15,000 feet.

g. Average maximum range of beacons:
127 NM at 5,000 - 10,000 feet.
134 NM at 10,000 - 15,000 feet.

h. No interference was encountered.

i. Average range of Japanese Coast: 60 NM

j. No recurring trouble was reported.

2. Radar Bombing AN/APQ-13:

a. Briefing material was reported as good with the exception of the 313th Bomb Wing which reported its briefing material as poor.

b. Radar aiming points were reported as good. The 313th Bomb Wing reported a visual aiming point.

c. Landfall identification was reported as excellent.

d. Of radar releases, those reported were direct synchronous; the remainder were visual releases.

3. Equipment Performance of AN/APQ-7:

a. Number of sets operative on take off: 135

b. Number of sets operative over target: 127

c. Number of sets operative on return: 128

d. Average maximum range of target: 70 NM

e. Average maximum range of beacon:
130 NM at 10,000 feet.

f. Interference reported: None

g. Coast of Japan was picked up at 70 NM

h. Equipment failures: 3

i. Recurring failures:
(1) AFC out.
(2) No beacon.

4. Radar Bombing AN/APQ-7:

a. Briefing was reported as satisfactory.

b. Aiming point was reported as excellent.

c. Landfall and Initial Point were easily identified.

d. 123 radar synchronous releases; 3 direct and 4 visual releases.

5. IFF SCR 695:

a. Location turned on and off as per SOP.

b. Average number of times checked: 38

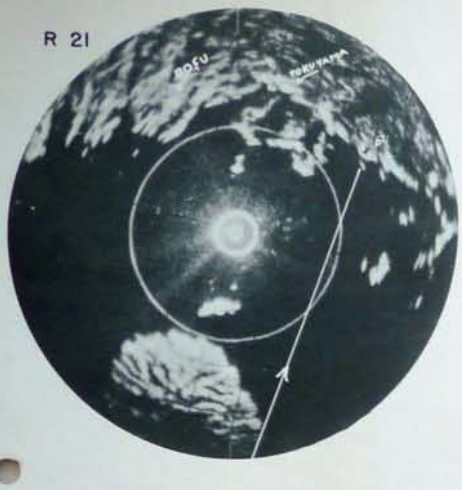
c. Number of malfunctions: 3

6. Radar Altimeter SCR - 718:

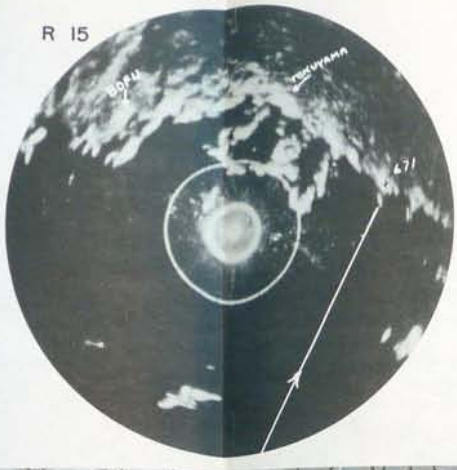
a. Number of sets operative: 315

b. Number of malfunctions: 2

R 21



R 15



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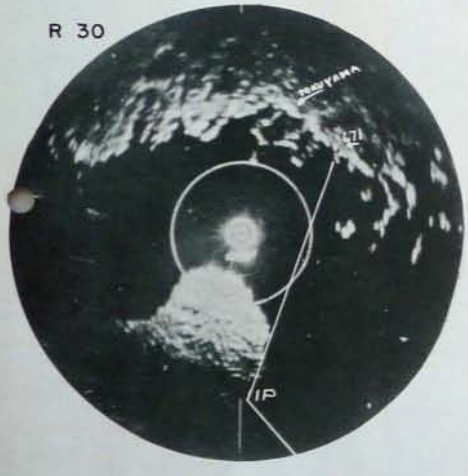
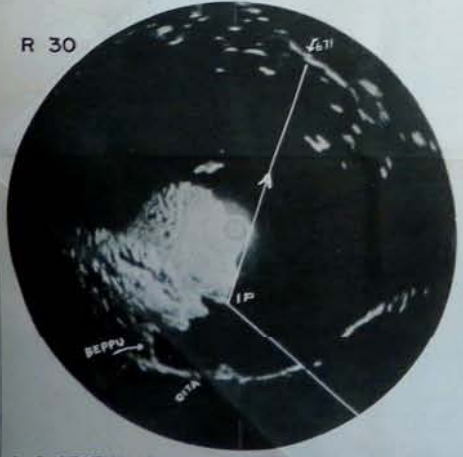
R 30



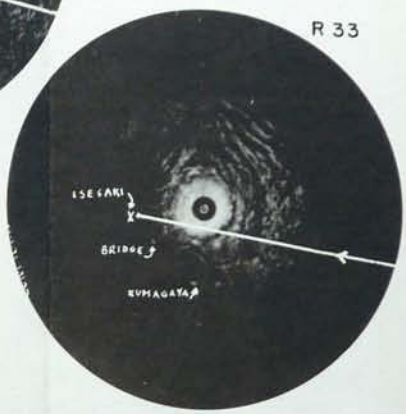
R 30

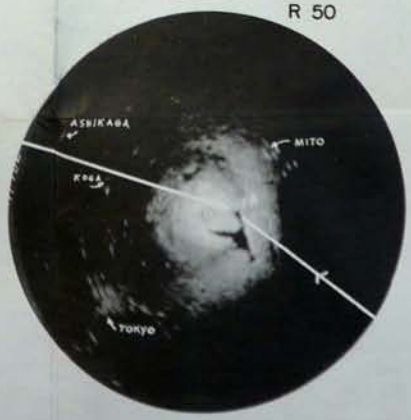


APPROACHES TO TARGET 671
ACTUAL SCOPE PHOTOS
ALTITUDE 10,000 FEET

APPROACHES TO TARGETS 382

ACTUAL SCOPE PHOTOS





APPROACHES TO ISESAKI
ACTUAL SCOPE PHOTOS
ALTITUDE 10,000 FEET

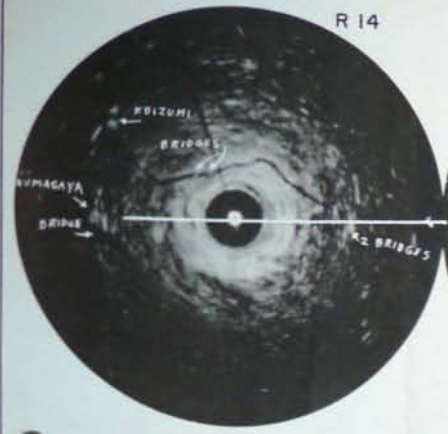
A-2 SECTION TWENTIETH AIR FORCE

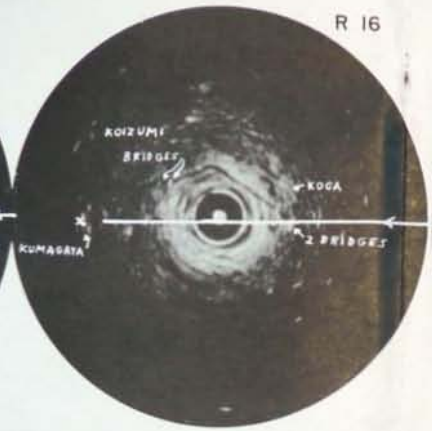
REPRODUCED BY 349TH ENGR AVN TOPO CO

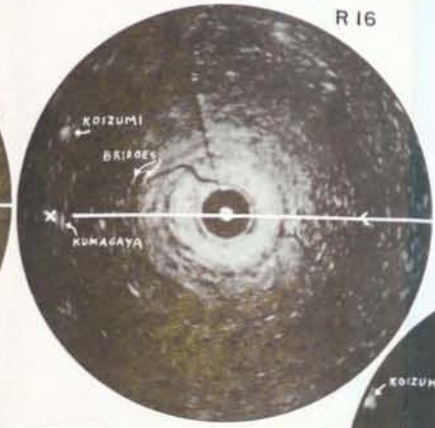
CONFIDENTIAL

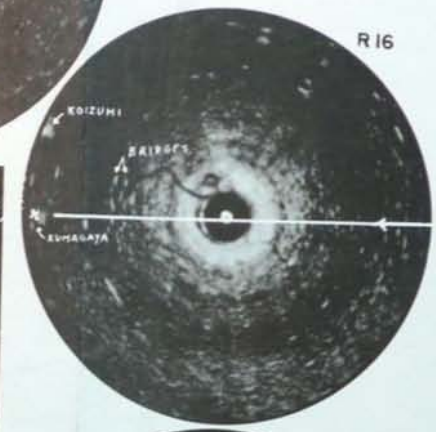
AUGUST 1945

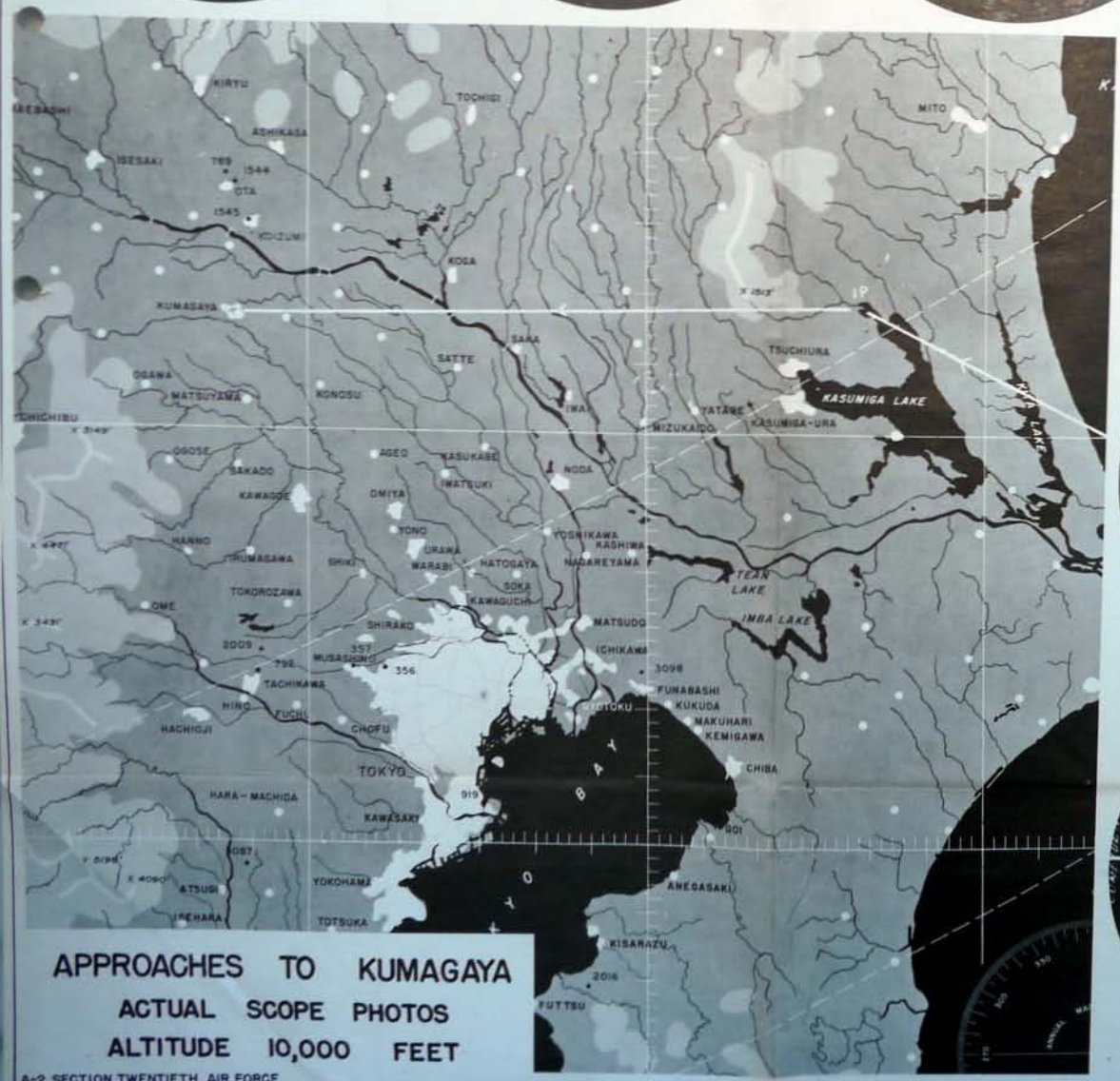
SHEET RM-115

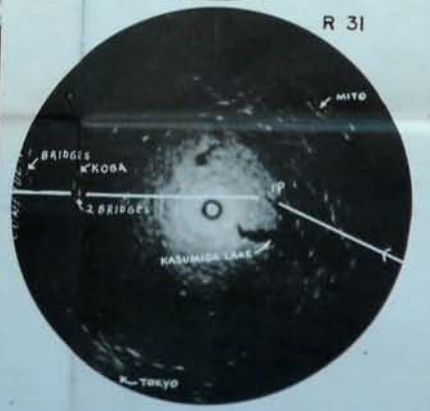












APPROACHES TO KUMAGAYA

ACTUAL SCOPE PHOTOS

ALTITUDE 10,000 FEET

A-2 SECTION TWENTIETH AIR FORCE

REPRODUCED BY 949TH ENGR AVN TOPO CO

R-R 4 20AF 401RD 4 8 Aug 45 15,500 25°T
10R 39/39N - 139/58 E TSUCHIZAKIMINA 707 CONF

RR 4 20AF 401RD 4 8 Aug 45 15,500 25°T
10R 39/39N - 139/58E TSUCHIZAKIMINA 707 CONF.

PART VI - GUNNERY

1. Average turret load:

UF	UA	T	LA	LF
0	400	400 315th Wing 600	400	0

2. Number of rounds fired in combat: None

3. Number of rounds used for test firing: 41,532

4. Guns loaded:

58th Wing	73rd Wing	313th Wing	314th Wing	315th Wing
Hot	Cold	Hot	Cold	Cold

5. Malfunctions:

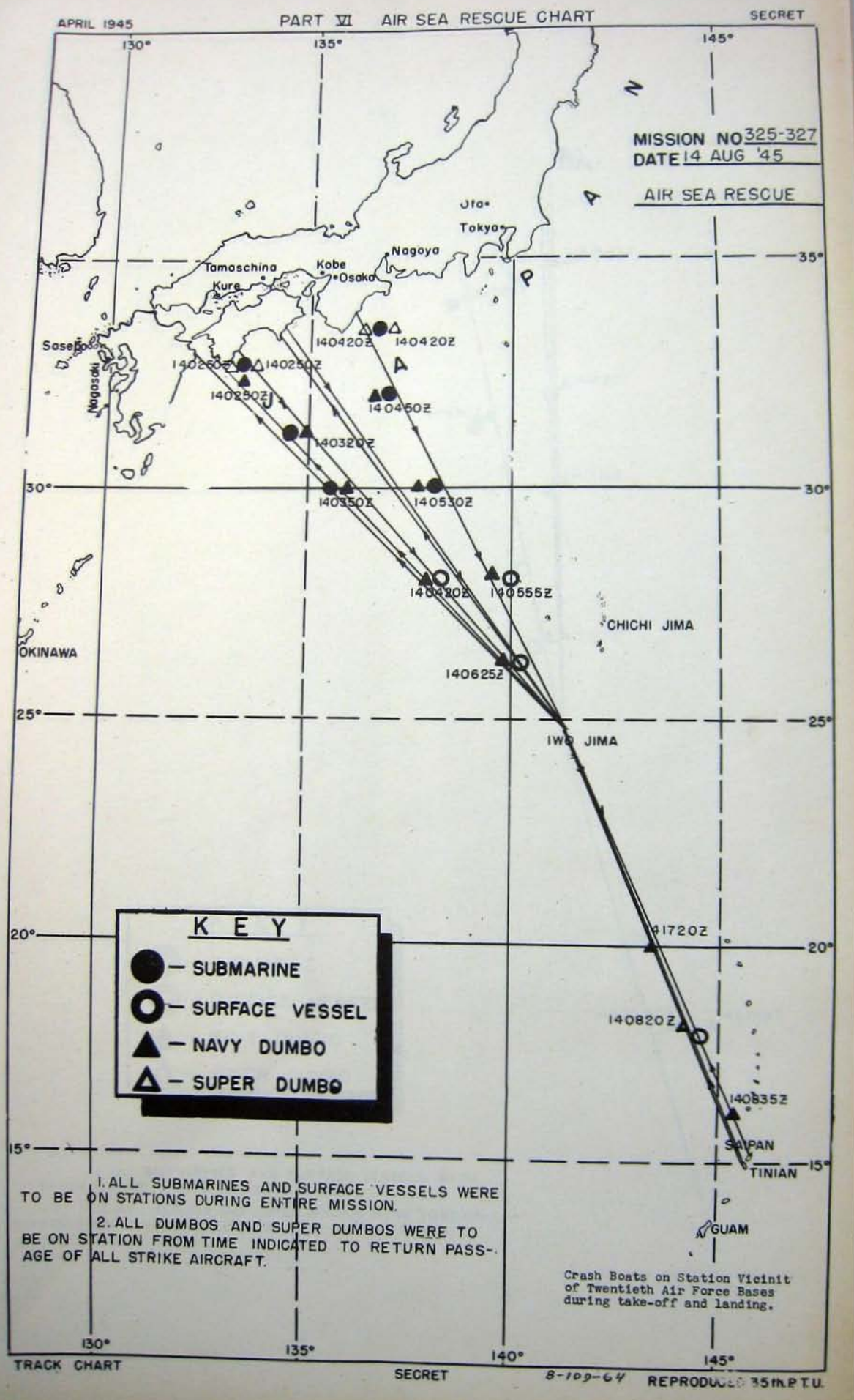
a. C.F.C: Gun charger; Firing circuit and Control box shorted.

b. Caliber .50 MG: Link jams-5; failure to feed 3; broken driving spring 1; chute jam 2; broken cocking lever cam and short rounds 2

6. Equipment operation (Total percentage operative).

a. C.F.C.: 98.8%

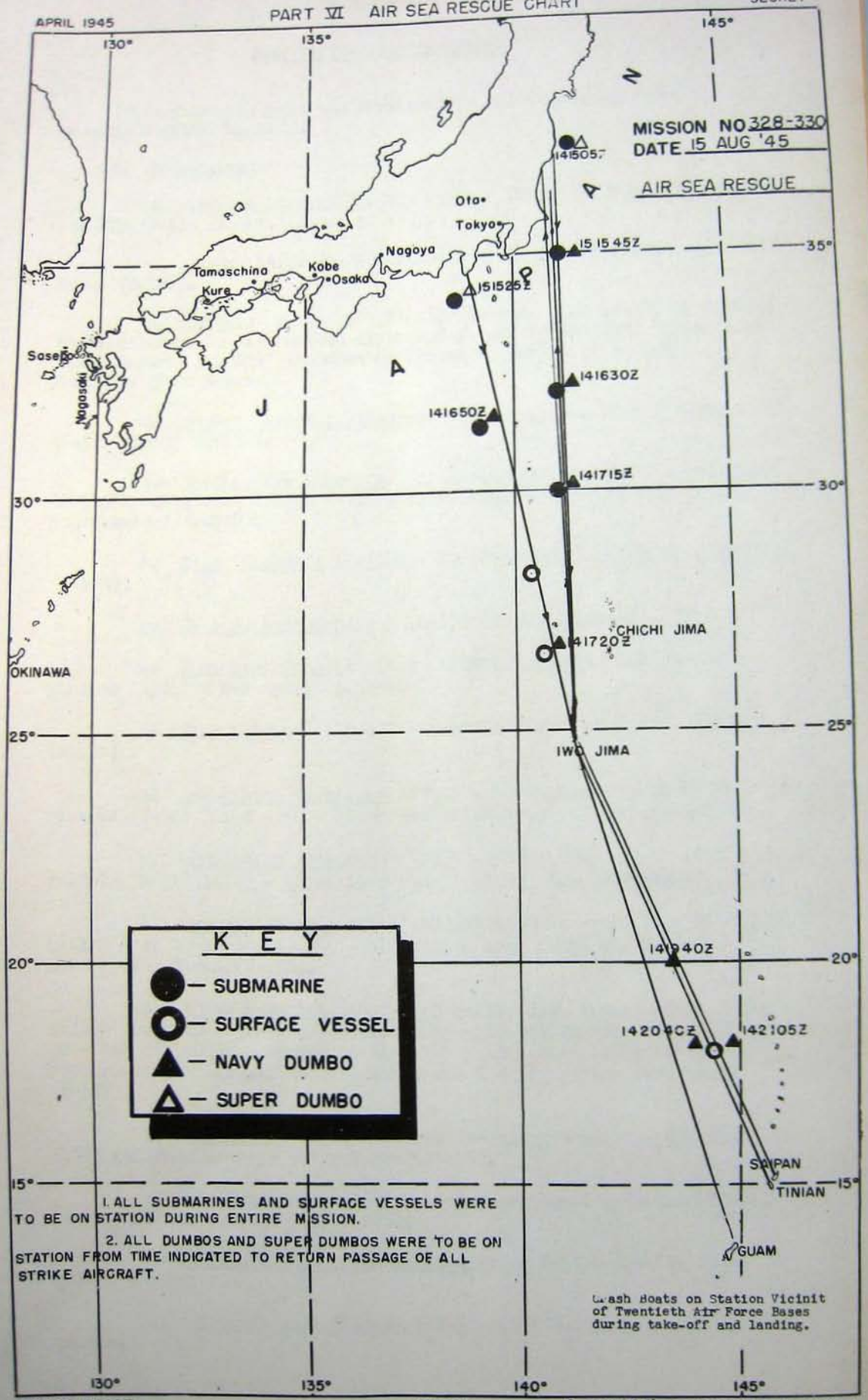
b. Caliber .50 MG: 97.6%


APRIL 1945
PART VI AIR SEA RESCUE CHART
SECRET
MISSION NO 325-327
DATE 14 AUG '45
AIR SEA RESCUE
Ota
Tokyo
Nagoya
Kobe
Osaka
Tamaschina
Kure
Sasebo
Nagasaki
JAPAN
1404202
1404202
1402502
1402502
1402502
1404502
1403202
1403502
1405302
1404202
1405552
CHICHI JIMA
OKINAWA
1406252
IWO JIMA
1417202
1408202
1408352
SAIPAN
TINIAN
GUAM
KEY
SUBMARINE
SURFACE VESSEL
NAVY DUMBO
SUPER DUMBO
1. ALL SUBMARINES AND SURFACE VESSELS WERE TO BE ON STATIONS DURING ENTIRE MISSION.
2. ALL DUMBOS AND SUPER DUMBOS WERE TO BE ON STATION FROM TIME INDICATED TO RETURN PASSAGE OF ALL STRIKE AIRCRAFT.
Crash Boats on Station Vicinit of Twentieth Air Force Bases during take-off and landing.
130°
135°
140°
145°
35°
30°
25°
20°
15°
TRACK CHART
SECRET
8-109-64
REPRODUCED 35th P.T.U.

APRIL 1945

PART VI AIR SEA RESCUE CHART

MISSION NO 328-330
DATE 15 AUG '45
AIR SEA RESCUE



KEY

- SUBMARINE
- SURFACE VESSEL
- NAVY DUMBO
- SUPER DUMBO

1. ALL SUBMARINES AND SURFACE VESSELS WERE TO BE ON STATION DURING ENTIRE MISSION.

2. ALL DUMBOS AND SUPER DUMBOS WERE TO BE ON STATION FROM TIME INDICATED TO RETURN PASSAGE OF ALL STRIKE AIRCRAFT.

Crash Boats on Station Vicinity of Twentieth Air Force Bases during take-off and landing.

TRACK CHART

8-109-64

PART VIII - FIGHTER REPORT

(This Telecon report was furnished by the Commanding General Seventh Fighter Command).

1. Operations:

a. Mission Number 261, VLR Fighter (P-51 and P-47) Strike and VLR (P-51) escort, 14 August 1945.

b. Unit: 15,21 and 506 Fighter Group (P-51) and 414 Fighter Group (P-47N).

c. Target: 21 and 506 Fighter Groups: VLR escort of bombers to Osaka Area, 15 GP: Kiyosu (Primary) Komaki (Secondary) Nagoya East (Last Resort) 414 GP: Akenogahara (Primary) Suzuka (Secondary) Kameyama (Last Resort)

d. Number Aircraft Airborne: 151 (includes 12 sub cover (P-51) and 35 (P-47N).

e. Ineffective Aircraft: 11 mechanical, 2 spare, 1 personnel (P-51) 1 additional escort P-51 returned early for mechanical abort; 3 mechanical (P-47N).

f. Time Take-off: 132356Z - 140120Z (P-51), 132345Z - 132400Z (P-47N).

g. Time of Rendezvous: 140400Z (Escort Mission).

h. Time over Target: (1st Aircraft) 140350Z for strike planes; 140410Z for escort planes.

i. Time Return: 140717Z - 140834Z (P-51) 140730Z - 140815Z (P-47N)

j. Ammunition Airborne: 279150 - 50 caliber and 96 HVAR 5 inch rockets (P-51) 70160 - 50 caliber and 46 HVAR 5 inch rockets (P-47N).

k. Ammunition Expended: 35985 - 50 caliber and 89 HVAR 5 inch rockets (P-51) 16783 - 50 caliber and 37 HVAR 5 inch rockets (P-47N).

l. Bombs Airborne: 176 - 110 gallon drop tanks and 126 - 165 gallon drop tanks (P-51), 35 - 110 gallon drop tanks and 70 - 165 gallon drop tanks (P-47N).

m. Bombs Expended: 164 - 110 gallon drop tanks and 70 - 165 gallon drop tanks (P-51); Jettisoned 6 - 110 gallon drop tanks (P-51); 32 - 110 gallon drop tanks and 64 - 165 gallon drop tanks (P-47N); jettisoned 3 - 110 gallon drop tanks and 6 - 165 gallon drop tanks (P-47N).

n. Gas Load: 81368 gallons; Average 539 gallons (P-51); 34860 gallons; Average 996 gallons (P-47N).

o. Gas Consumed; 61988 gallons; average 411 gallons (P-51); 26970 gallons; average 771 (P-47N).

p. Aircraft lost to Antiaircraft; 2 P-51's lost to flak, 4 P-51's damaged.

q. Aircraft lost Other: 1 P-51 and 1 P-47N lost to unknown causes.

r. Casualties: 1 pilot missing over target area; 3 pilots reported rescued by ASR craft.

s. Enemy Aircraft Opposition: no airborne opposition.

t. Enemy Antiaircraft: Flak reported by escort planes as meager to intense, heavy, inaccurate, box barrage over Osaka at 19,000 and 24,000 feet. Strike planes reported flak as light, meager and inaccurate along southeast shore of Tokushima and north of Owaski and moderate, inaccurate, heavy from vicinity Kiyosu and Komaki. Accurate machine gun fire received from Fox Tare Charlie which attacked.

u. Claims: (Air) None.

v. Claims: Ground; By P-51-damaged: 1 Frank and Sally on the ground, destroyed 20 locomotives, 3 powerhouses, 2 tank cars, 1 box car, 3 factories, 8 power towers, damaged 3 locomotives, 5 factories, and roundhouse. No shipping was claimed. By P-47N aircraft: No aircraft hit; two possible small factories and several warehouses and barracks damaged. Rail station and marshalling yard were strafed. One Sugar Dog, 1 Fox Tare Charlie and 5 small fishing boats were damaged.

2. Miscellaneous:

a. Observations of Interest to Bombers: Bombing results reported as excellent by escorting fighters with smoke rising to 3,000 feet.

b. Tactics: Escort was provided on both sides of bomber stream, 3,000 feet above and 2,000 feet out by fighters in line astern. Strike planes hit targets of opportunity with two squadrons maintaining high cover.

c. Navigation and Rendezvous Problems: 1 squadron of P-47Ns reported that navigator-bombers took fighters 20 miles southwest of DP and fighters consequently unable to find briefed targets. Several fighters unable to find RP came home by dead reckoning.

d. Encounters with Enemy Aircraft: None.

ANNEX

B

WEATHER

Part I - Weather Summaries
1. Missions 325, 326 and 327
2. Mission 328
3. Missions 329 and 330

Part II - Charts - Forecast Weather vs. Observed Weather
1. Missions 325, 326 and 327
2. Missions 329 and 330

Part III - Prognostic Maps
1. Missions 325, 326 and 327
2. Missions 329 and 330

Part IV - Synoptic Maps
1. Missions 325, 326 and 327
2. Missions 329 and 330

Missions No. 325 - 330

14/15 August 1945

PART I - WEATHER SUMMARY

1. MISSIONS NUMBER 325, 326 and 327:

a. Planning Forecast.

(1) Bases: Scattered to broken low cloud with scattered showers and scattered to broken middle and high cloud.

(2) Route: To 30°N: 4-5/10 low cloud with occasional shower cloud with tops to 20,000 ft; very widely scattered middle and high cloud. To 33°N: Squall line with 6/10 low cloud at 1200 ft. tops 15,000 ft; few tops to 20,000 ft; broken layers of middle and high cloud. To coast: Cloud rapidly diminishing to target amounts.

(3) Targets: Tokyo; 4-6/10 low cloud base 2000 ft. tops 5000 ft with scattered thin middle cloud and visibility 10 miles in haze. Nagoya and West: 2-4/10 low cloud base 2500 ft, tops 5000 ft with visibility 10 miles in haze.

b. Operational Forecast:

(1) Bases at Take-Off: Scattered low and middle clouds and broken high clouds.

(2) Route: There will be scattered low and middle clouds and broken high clouds to 19°N. From 19°N to 23°N there will be broken low and middle clouds and overcast high clouds with light to moderate showers. From 23°N to target there will be broken low and high clouds and scattered middle clouds.

(3) Targets: Osaka and Iwa Kuni: 4/10 stratocumulus, tops 6000 ft; 1/10 cirrus at 28,000 ft. Winds at 15,000 ft will be 20° at 20 knots and at 20,000 ft will be 40° at 20 knots.
Hikari: : 6/10 cumulus, base 1800 ft, top 7-15,000 ft; 3/10 altostratus at 15,000 ft; 1/10 cirrus at 28,000 ft. Winds at 15,000 ft. will be 20° at 20 knots.

(4) Bases on Return: Scattered low and middle clouds and broken high clouds.

c. Observed Weather:

(1) Base at Take-Off: Scattered to broken low and middle clouds and broken high clouds.

(2) Route: There were broken low middle and high clouds with occasional thunderstorms and light showers to 24°N. From 24°N to target there were scattered low clouds and patches of scattered middle and high clouds.

(3) Targets; Osaka: 0-5/10 cumulus, tops 6-15,000 ft. Winds at 22,000 ft were 53° at 40 knots.
Iwa Kuni: 3/10 cumulus, top 5000 ft; 1/10 cirrus at 27,000 ft. Winds at 15,000 ft were 55° at 16 knots.
Hikari: 2-3/10 cumulus, tops 5000 ft; 3/10 cirro-stratus at 22,000 ft. Winds at 16,000 ft were 100° at 12 knots.

(4) Base on Return: Scattered low and middle clouds.

2. Mission 328:(Weather charts for missions number 329 and 330 are also applicable to mission 328).

a. Bases at Take-Off: Scattered low clouds and broken middle clouds.

b. Route: There were scattered to broken low clouds, broken to overcast middle clouds with light showers to 23°N. From 23°N to 33°N there were scattered to broken low clouds and scattered middle clouds. From 33°N to target there were overcast low clouds with light rain.

c. Target; Akita: 8-10/10 stratocumulus, tops 5-9000 ft. Winds at 11,000 ft. were 330° at 17 knots.

d. Base on Return: Broken low clouds and scattered high clouds.

e. Remarks: Route forecast gave less cloudiness than was actually encountered, otherwise it was a good forecast. Target was forecast to be 5/10 low clouds and 8-10/10 low clouds were observed.

3. Missions Number 329 and 330:

a. Planning Forecast.

(1) Bases: 3-5/10 low cloud base 1800 ft, tops 6000 ft; 3/10 middle cloud and 7/10 high cloud. Scattered showers in evening.

(2) Route: To 21°N: Same as bases.
To 23°N: 6-8/10 low cloud base 1400 ft, top 7000 ft. with half of coverage in shower type cloud with tops to 25,000 ft. Broken thin layers of middle and high cloud.
To coast: 3-5/10 low cloud at 2000 ft, tops 6000 ft. with scattered isolated shower clouds, tops 18,000 ft.

(3) Targets; Tokyo and Nagoya: 2-4/10 low cloud base 2500 ft, tops 5000 ft. with scattered patches of middle cloud.
Western Honshu and Kyushu: 2-4/10 low cloud base 2500 ft, tops 5000 ft; 6/10 high cloud at 28,000 ft.

b. Operational Forecast.

(1) Bases at Take-Off: Scattered low and middle and broken high clouds.

(2) Route: There will be scattered low and high and broken middle clouds with light showers to 19°N to 24°N there will be broken, low, scattered middle and high clouds with light showers. To Kumagaya and Isezaki: From 24°N to 36°N there will be scattered low clouds.

(3) Targets: Kumagaya and Isezaki: 2/10 stratocumulus, base 3000 ft, top 5000 ft; 1/10 altostratus at 15,000 ft. Winds at 14,000 ft. will be 320° at 15 knots.

(4) Bases on Return: Scattered low, middle and high clouds.

c. Observed Weather.

(1) Base at Take-Off: Scattered low clouds and broken to overcast middle clouds.

(2) Route: There were scattered to broken low and broken to overcast middle clouds with light showers to 22°N. From 22°N to 33°N there were scattered low and middle clouds. From 33°N to landfall, there were broken low clouds with towering cumulus to 20,000 ft. From landfall to target there were broken low clouds.

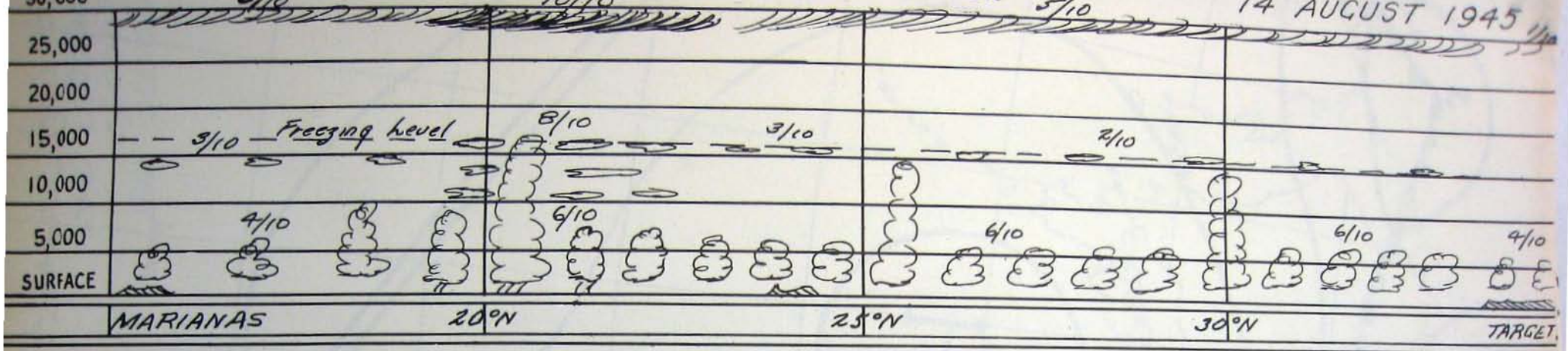
(3) Tarumi Kumagaya and Iwasaki: 7/10 stratocumulus, top 8000 ft. Winds at 15,000 ft. were reported as follows: Kumagaya 265° at 20 knots; Iwasaki 250° at 20 knots.

(4) Base on Saipan: Scattered low and high clouds.

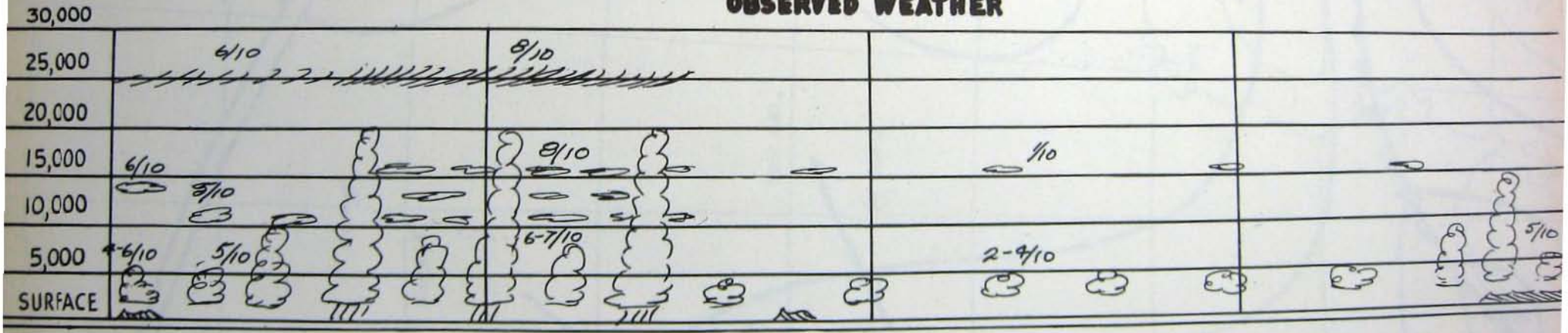
MISSIONS 325, 326 & 327

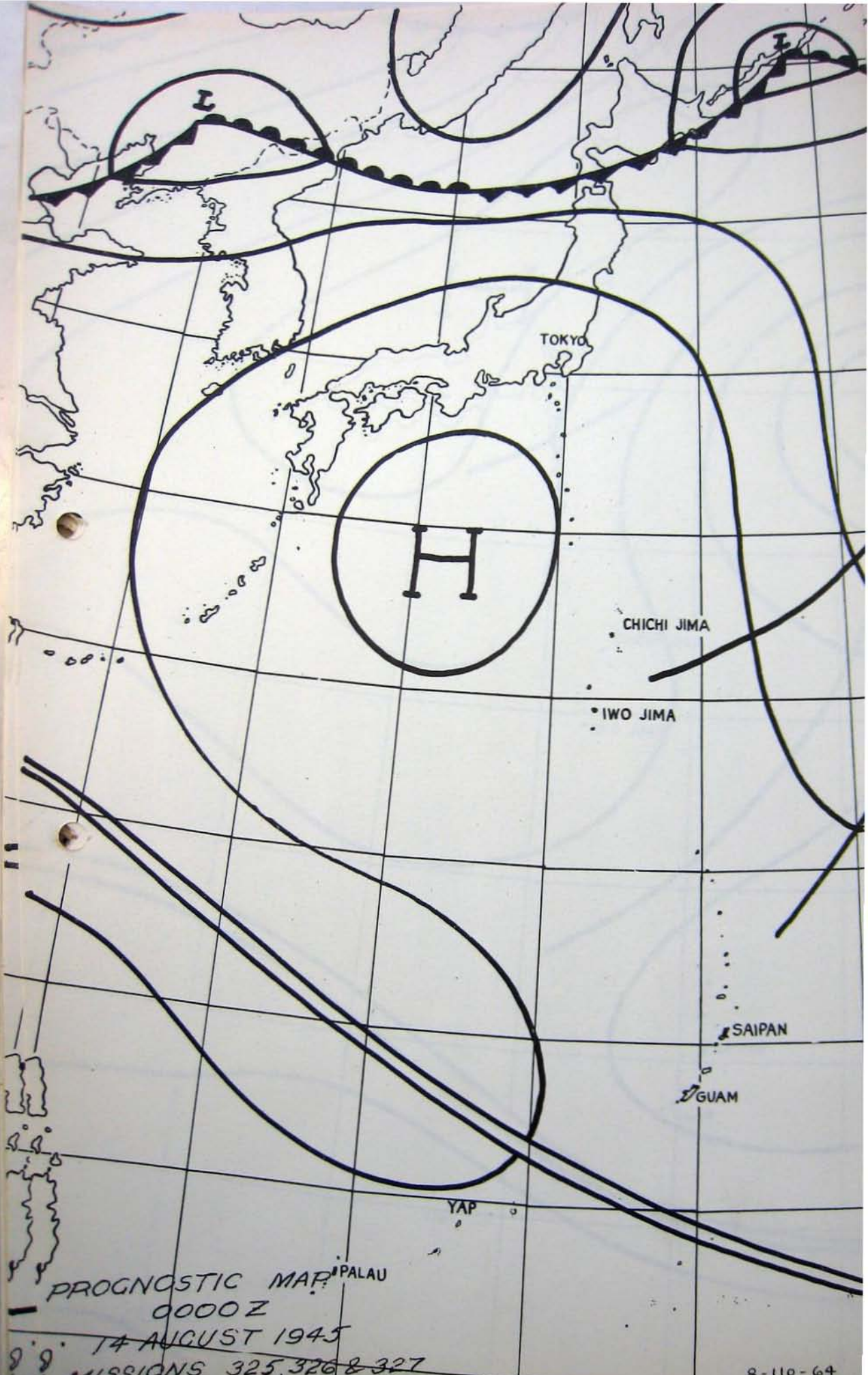
FORECAST WEATHER

14 AUGUST 1945



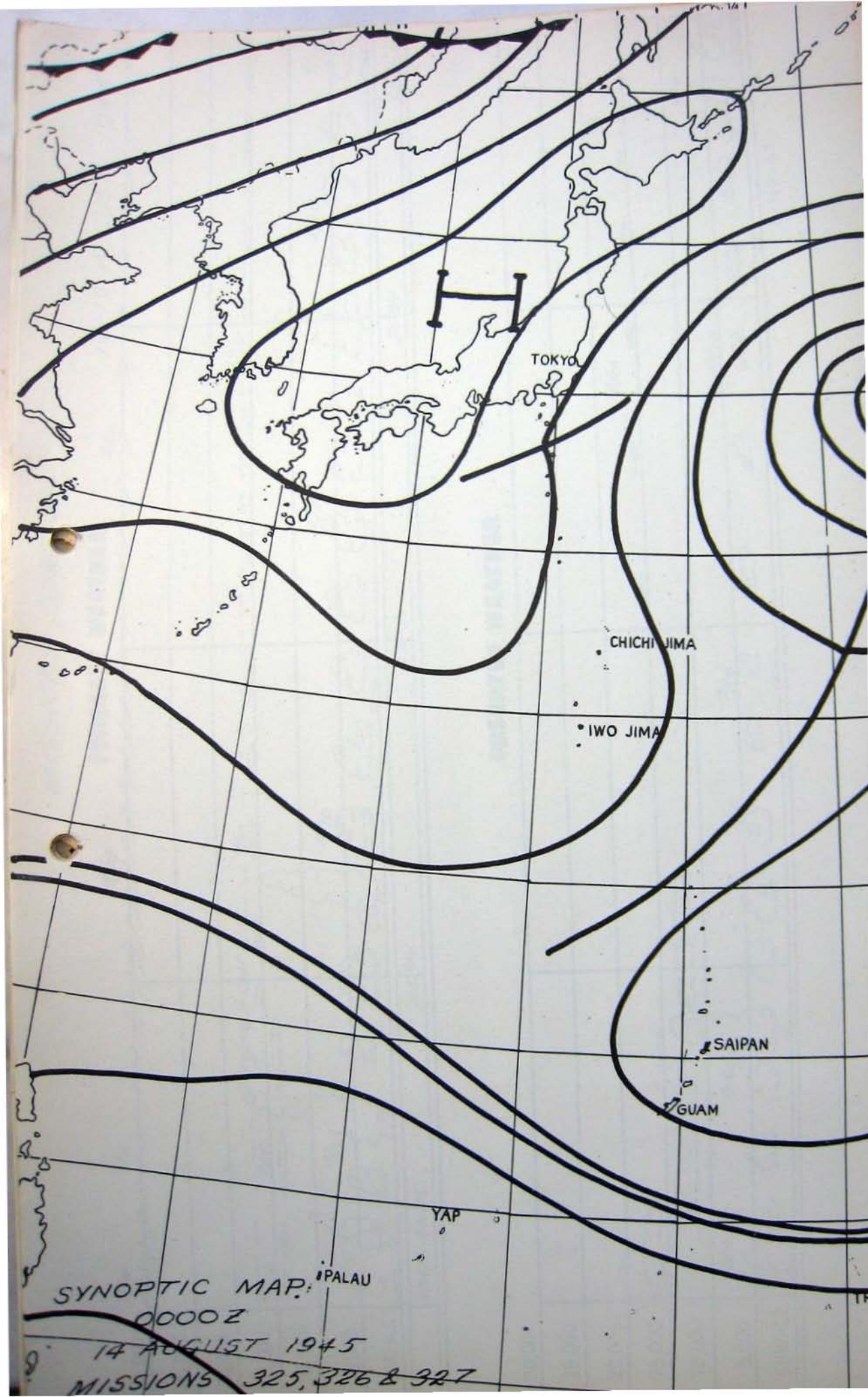
OBSERVED WEATHER





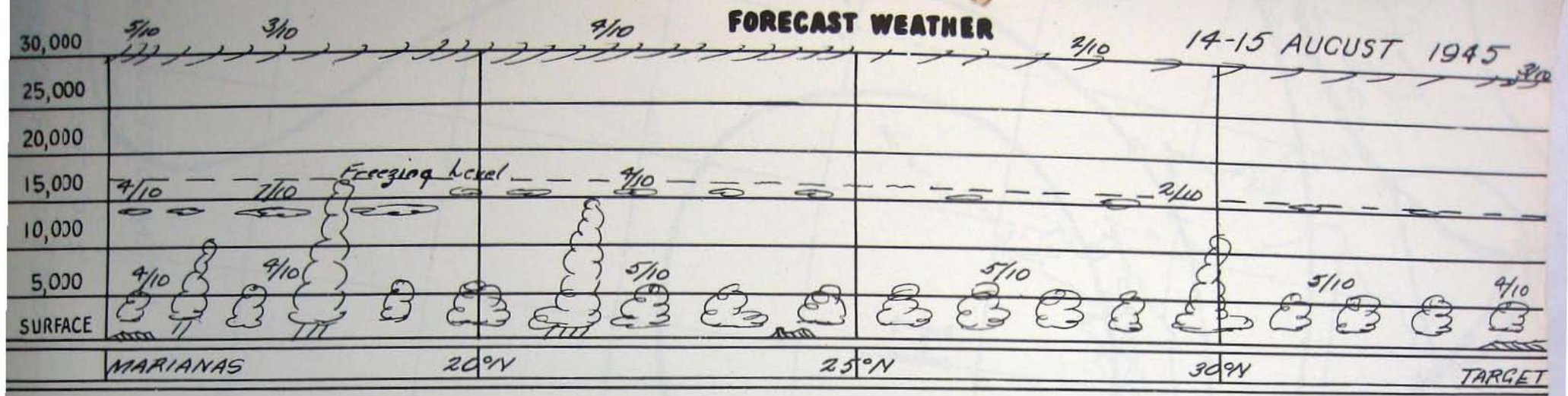
PROGNOSTIC MAP
0000Z
14 AUGUST 1945
MISSIONS 325, 326 & 327

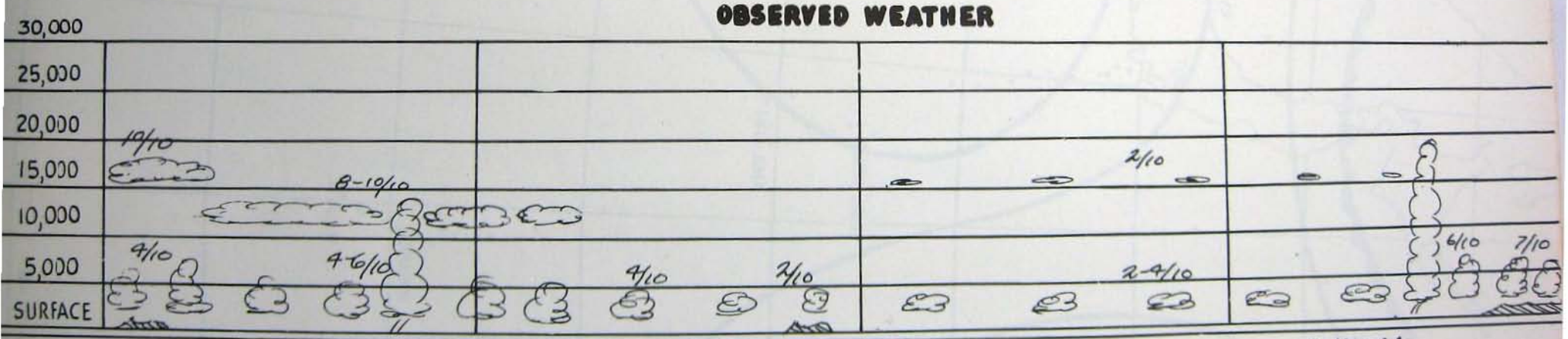
8-110-64



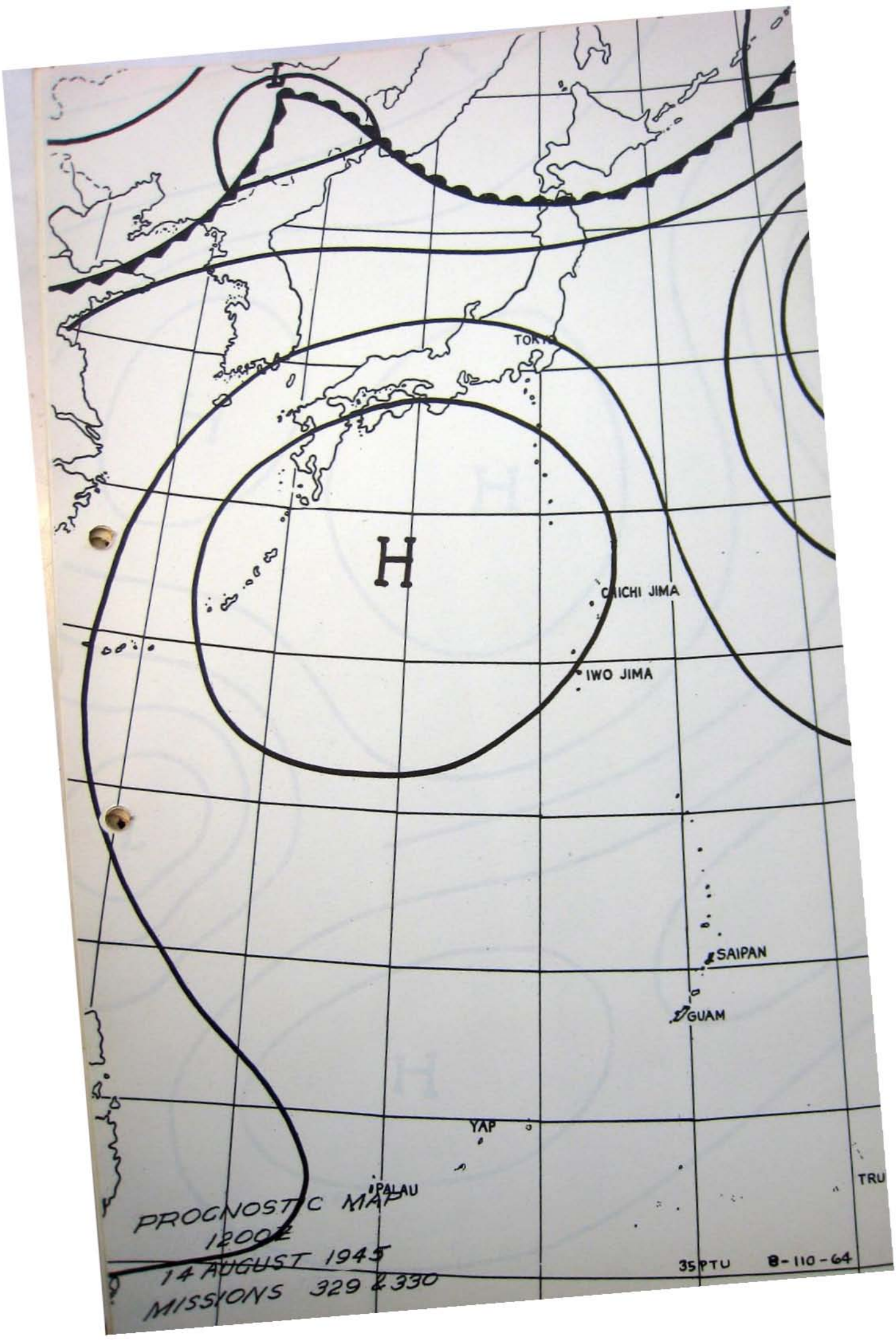
SYNOPTIC MAP:
0000Z
14 AUGUST 1945
MISSIONS 325, 326 & 327

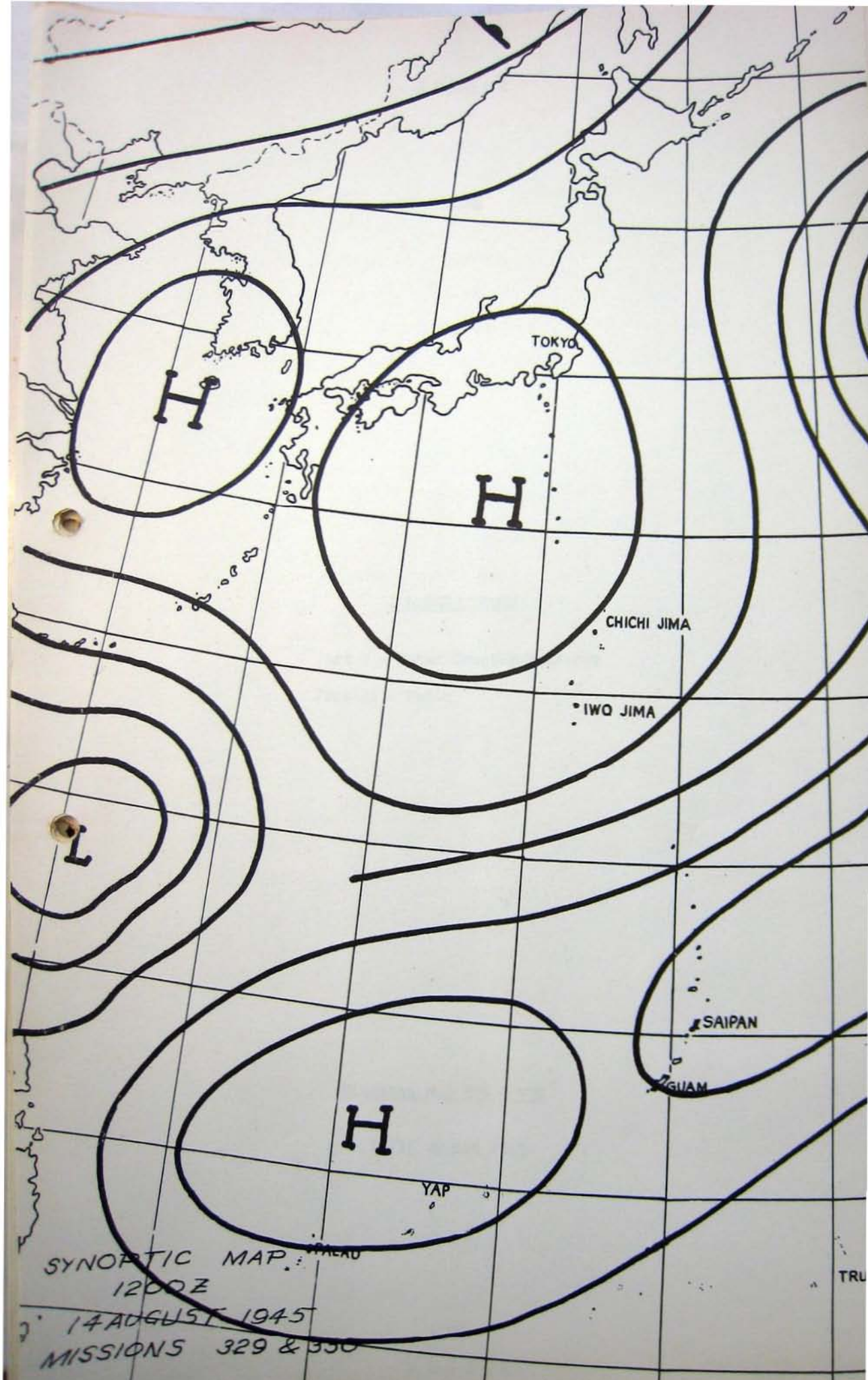
MISSIONS 329 & 330





8-110-64


H
CHICHI JIMA
IWO JIMA
SAIPAN
GUAM
YAP
PALAU
TRU
PROGNOSTIC MAP
1200Z
14 AUGUST 1945
MISSIONS 329 & 330
35 PTU
B-110-64



SYNOPTIC MAP
1200Z
14 AUGUST 1945
MISSIONS 329 & 330

ANNEX

C

COMMUNICATIONS

Part I - Radar Counter Measures

Part II - Radio

Missions No. 325 - 330

14/15 August 1945

PART I - RCM

1. Purpose:

a. To D/F enemy radars.

b. To conduct a general search in the 20-3000 mc. region.

c. To barrage jam enemy gun-laying and searchlight radars in the 72-84 mc. and 190-210 mc. regions and to spot jam any gun-laying or searchlight radars appearing outside the barrage.

d. To confuse enemy radar defenses by the use of rope.

e. To search for and record Japanese voice communications.

2. Method:

a. Forty RCM observers participated and used the following equipment to accomplish the search and jammings: 404 - APT-1, 200 -APQ-2 21 - ARQ-8, 21 APT-3 (MOD), 40 APR-4, 2 APR-5, 1 - ARR-7, 10 APA-6, 12 -APA-11 and 1 - ANQ-1.

b. Two special jamming airplanes were employed by the 314th Wing, target, Isezaki, to circle the target area during the attack. These special airplanes were equipped to barrage and spot jam the enemy radar defenses and to infest the area with rope.

c. All strike aircraft, with the exception of the 315th Wing, were equipped with one or more electronic jammers.

3. Results:

a. Forty-seven intercepts were recorded and are listed at the end of this section.

b. Enemy voice communications on a frequency of 4.578 mc. were intercepted and recorded.

c. The barrage produced was reported as adequate and is believed to have been effective against the enemy radar.

4. Remarks:

a. The following unusual signals were recorded: 115/2480/37, 299/495/95.

LIST OF INTERCEPTS

00068	0485	40	3437N	14300E	081545	0226	21	121	S	EW	CHI
00070	0493	36	3617N	13936E	081545	0303	21	121	S	EW	CHI
00076	1071	08	3507N	14055E	081545	0225	21	121	S	GL	OTA03
00076	0455	34	3507N	14100E	081545	0234	21	121	S	EW	CHI
00078	1900	04	3540N	13900E	081545	0258	21	121	S	GL	OTA03
00078	2000	40	3513N	14103E	081545	0100	21	121	S	EW	CHI
00080	0490	40	3615N	13907E	081545	0251	21	121	S	EW	CHI
00080	2000	60	3532N	14100E	081545	0105	21	121	S	EW	CHI
00080	0480	44	3557N	14042E	081545	0252	21	121	S	GL	OTA03
00081	1850	08	3544N	14055E	081545	0109	21	121	S	GL	OTA03
00084	0499	40	3325N	13535E	081445	1315	21	122	P	EW	CHI
00089	0990	03	3532N	14045E	081545	0212	21	121	S	GL	OTA03
00091	0816	03	3500N	14042E	081545	0209	21	121	S	GL	OTA03
00092	0686	15	3056N	13942E	081545	0358	21	121	S	EW	001010202
00092	0686	20	3407N	13853E	081545	0328	21	121	S	EW	001010202
00092	0830	16	3582N	14100E	081545	0328	21	121	S	EW	001010002
00093	1450	15	3550N	14045E	081545	0112	21	121	S	EW	001010002
00094	0700	10	3452N	14040E	081545	0206	21	121	S	EW	CHI
00095	0485	10	3153N	13330E	081445	1300	21	122	P	EW	001010202
00097	0483	05	3245N	13250E	081445	1341	21	122	P	EW	001010202
00097	0487	22	2705N	14211E	081445	1740	21	122	P	EW	001010202
00097	0498	42	2705N	14211E	081445	0141	21	122	P	EW	001010202
00097	0495	20	2705N	14211E	081445	1128	21	122	P	EW	001010202
00098	0861	06	3215N	13405E	081545	1340	21	122	P	EW	001010202
00098	0359	28	3600N	13903E	081545	0252	21	121	S	EW	001010202
00105	0359	08	3329N	13222E	081445	1415	21	122	P	EW	001010202
00109	0370	22	3410N	13330E	081445	1514	21	122	P	EW	001010202
00109	0370	36	3405N	13430E	081445	1308	21	122	P	EW	001010202
00111	0359	34	3420N	13412E	081445	1325	21	122	P	EW	001010202
00111	0359	34	3331N	13350E	081445	1325	21	122	P	EW	001010202
00115	0339	30	3320N	13906E	081545	0339	21	121	S	EW	001010202
00115	2480	37	3600N	14122E	081545	0120	21	121	S		
00142	0495	05	3255N	13220E	081345	1218	21	121	S	EW	001030003
00150	0920	20	3610N	13950E	081545	0126	21	121	S	EW	00604
00150	0500	07	3200N	13330E	081345	1134	21	121	S	EW	001030003
00155	0495	11	2705N	14211E	081445	1030	21	122	P	EW	001030003
00155	0500	07	3240N	13250E	081345	1149	21	121	S	EW	001030003
00156	0490	07	3300N	13200E	081345	1230	21	121	S	EW	001030003
00156	0490	04	3350N	13246E	081445	1444	21	122	P	EW	001030003
00159	0485	05	3250N	13230E	081345	1202	21	121	S	EW	001030003
00159	0495	04	3225N	13300E	081345	1147	21	121	S	EW	001030003
00161	0495	08	3440N	13300E	081345	1310	21	121	S	EW	001030003
00163	0495	07	3230N	13300E	081345	1142	21	121	S	EW	001030003
00195	1168	07	3505N	13838E	081545	0313	21	121	S	EW	00401
00196	1798	04	3530N	13847E	081545	0322	21	121	S	GL	00401
00200	0000	03	3400N	13300E	081345	1320	21	121	S	GL	
00299	0495	05	3310N	13200E	081345	1242	21	121	S		

PART II - RADIO

1. Strike Reports: A total of 72 Strike Reports was transmitted during this series of missions. The 58th Wing reported aircraft of the wing transmitted 5 Contact Reports (Ship Sightings).

2. Fox Transmissions: Ninety per cent of all aircraft operators successfully received "F" messages transmitted during these missions. Regularly scheduled broadcasts included transmission of weather and time signals every hour and half hour.

3. Frequencies: Interference was slight on all strike frequencies and there were very few instances of intentional jamming.

Following is a percentage breakdown of traffic per frequency: 8 per cent on 3 megacycles; 53 per cent on 7 megacycles and 39 per cent on 11 megacycles.

4. Navigational Aids: There were 17 requests for HF/DF bearings. Fifteen of these bearings were obtained. Reasons given for not-receiving 2 bearings were faulty equipment and aircraft failing to send call sign and dashes. One request for a VHF/DF bearing was received. It was obtained. One emergency fix was obtained. Radio ranges, homers and broadcast stations were used with very good results reported.

5. Net Discipline and Security: There were no discrepancies in net transmissions and interference were reported during these missions:

6. Enemy Transimissions: The following incidents of jamming, enemy transmissions and interference were reported during these missions:

a. 3020 kcs: Negligible.

b. 6615 kcs: CW at different intervals was ineffective.

c. 10305 kcs: CW at 2045Z, 0300Z and 0515Z was effective.

d. 3160 kcs: Negligible.

e. 6055 kcs:

(1) CW at 0203Z was effective.

(2) Tone at 0706Z was effective.

f. 10880 kcs:

(1) Voice station operating at 1000Z, was effective.

(2) Spark-gap jamming between 0515Z and 0815Z, was ineffective.

(3) Station WGA transmitting between 0800Z and 0900Z, was partially effective.

g. 3410 kcs, 7310 kcs and 10125 kcs: Negligible.

h. 3990 kcs, 7415 kcs and 10820 kcs: Negligible.

i. 3810 kcs, 6640 kcs 10965 kcs: Negligible.

7. Distress: An aircraft of the 314th Wing transmitted a message to the wing ground station to the effect that 2 men were sighted in a boat 25 miles from southern tip of Rota with a bearing of 320 degrees. Appropriate action was taken. The 58th Wing ground station recorded several transmissions with 2 aircraft of its command. Both aircraft gave positions and reported engines out.

8. Equipment Malfunctions: AN/ART-13: 1 relay stuck; 1 power amplifier tube out; 1 switching relay out; 1 "B" dial stuck. BC-348: 2 inoperative; 1 dynamotor burned out; 1 BFO inoperative. AN/ARN-7: 1 needle hunting; 2 sense antennas broken; 1 indicator needle inoperative; 1 inoperative on high frequency band; 1 inoperative on antenna position; 1 loop antenna inoperative; 2 loop antenna housings loose. SCR-522: 10 sets inoperative; 1 would not channel properly, ARC-3: 2 inoperative, Interphone: 2 inoperative amplifiers; 7 jackboxes inoperative; 1 microphone switch inoperative, RL-42: 7 inoperative; 1 weight lost; 3 stuck.

ANNEX

D

INTELLIGENCE

Part I - Enemy Air Opposition

Part II - Enemy Antiaircraft

Part III - Damage Assessment
Section A - Hikari Naval Arsenal
Section B - Osaka Army Arsenal

Missions No. 325 - 330

14/15 August 1945.

PART I - ENEMY AIR OPPOSITION *

1. Only 13 Jap fighters made their appearance on this last series of combat strikes of the war. The interceptors made no attacks and the B-29 crewmen made no claims.

2. Nine of the 13 fighters were seen in the NW Tokyo area and the remaining interceptors were sighted north of the Tokyo area. All fighters were too far away to be identified as to name, although 2 were reported as twin-engine aircraft.

*****

PART II - ENEMY ANTIAIRCRAFT *

1. Mission Number 325 - Hikari Naval Arsenal:

a. The primary target was bombed by 157 aircraft of the 58th Wing between 0417Z-0518Z from 15,800-17,000 feet. Axis of attack varied from 180°-350°. Weather was reported as CAVU-3/10.

b. En route to the target flak was encountered as tabulated below:

Location	Coordinates	Remarks
Saeki	- - -	Meager and inaccurate, heavy.
- - -	33 10 N - 132 17 E	Moderate and inaccurate, heavy.
Usuki	- - -	Meager and inaccurate, heavy.

c. In general heavy flak over the target was described as moderate and inaccurate to accurate. The following table shows the time over target--flak activity relationship (heavy flak only):

Time	No. of Aircraft in Formation	Altitude	Axis	Remarks
0416Z	11	15,000	30°	Meager--inaccurate
0417Z	11	15,500	28°	Meager to moderate--inaccurate.
0424Z	12	16,000	27°	Moderate--inaccurate.
0435Z	9	16,500	27°	Meager to moderate--inaccurate to accurate
0445Z	10	15,900	27°	Meager to intense--inaccurate to accurate
0446Z	11	16,700	28°	Moderate--accurate
0449½Z	6	16,860	19°	Meager to moderate--inaccurate

* Based on Wing Flak Officers Reports

0405Z	9	17,450	19°	Moderate--inaccurate.
0500Z	13	15,000	20°	Meager to moderate--inaccurate to accurate.
0501Z	9	15,500	23°	
0502Z	14	16,000	18°	
0504Z	11	15,000	19°	Meager to moderate--inaccurate.
0504-0510Z	11	15,500	29°	
0504-0530Z	11	16,000	26°	

d. On withdrawal flak was encountered as tabulated below:

Location	Remarks
Sukomo	Meager and accurate, heavy.
Yawatahama	Meager and inaccurate, heavy.
Uwajima	Meager and inaccurate, heavy.

e. No aircraft were lost to flak on this mission, and of 157 aircraft bombing 11, or 7.0%, sustained flak damage.

2. Mission Number 326 - Osaka Army Arsenal:

a. The primary target was bombed by 145 aircraft of the 73d Wing between 0416Z-0501Z from 22,100-25,100 feet. Axis of attack varied from 41°-50°. Weather was reported as clear over the target with a 5/10 cloud undercast en route and on withdrawal.

b. En route to this target flak was nil.

c. Over the target flak was generally meager to moderate, inaccurate to accurate, and heavy. Time over target-flak activity relationship is presented in the following table (heavy flak only):

Group	Squadron	No. A/C	Time	A/C Damaged	A/C Rocked	Remarks
498	1	10	0415Z	1	2	Meager--accurate.
	2	9	0416Z	5	2	Moderate--accurate.
	3	10	0416½Z	0	1	Meager--inaccurate.
	4	9	0418½Z	2	3	Meager--accurate.
499	1	11	0421Z	1	0	Moderate--accurate.
	2	11	0423Z	4	0	Moderate--accurate.
	3	9	0424Z	2	3	Moderate--accurate.
	4	7	0424Z	0	2	Meager--accurate.
500	1	9	0450Z	7	0	Moderate--accurate.
	2	7	0451Z	2	2	Moderate--accurate.
	3	10	0452Z	1	0	Meager--inaccurate.
	4	8	0452½Z	2	0	Moderate--accurate.
497	1	11	0459Z	0	0	Moderate--inaccurate.
	2	8	0459Z	0	0	Moderate--inaccurate.
	3	8	0500Z	1	1	Moderate--inaccurate.
	4	7	0501Z	0	0	Moderate--inaccurate.

An examination of the above data reveals the following:

(1) There is some indication of saturation of the defenses; i.e., the third squadron of the 498th Group was only one-half minute behind the second squadron. Damage is second squadron--5 aircraft; damage in third squadron--0 aircraft. The third and fourth squadrons of the 499th Group were over simultaneously, but only one squadron received damage from moderate, accurate flak. The other squadron received only meager, accurate flak.

(2) The 497th Group (last group in) was 6½ minutes behind the 500th Group--a sufficient interval to permit the defenses to get set. However, flak was moderate and in general inaccurate (1 aircraft hit). Possible reasons for this were the factors of crew fatigue, tube overheating, or guns getting out of level due to prolonged firing.

d. On withdrawal, following a right breakaway, several aircraft encountered meager, inaccurate, heavy flak from Nara (East of Osaka).

e. No aircraft were lost to flak on this mission, and of 145 aircraft bombing, 28 or 19.3%, sustained flak damage. This figure is significantly lower than the 61.0% damage inflicted by these same defenses on Mission Number 284 (cloud cover--0-3/10). An explanation of this fact is somewhat obscured since the conditions of attack were the same in each case--weather conditions were actually more favorable to flak operations for Mission Number 326.

3. Mission Number 327 - Marifu Railroad Yards - Iwakuni:

a. The primary target was bombed by 108 aircraft of the 313th Wing between 0255Z-0318Z from 15,000-17,900 feet. Axis of attack varied from 9° - 17°. Weather was reported as CAVU-3/10 undercast.

b. The only flak encountered during the entire mission was two inaccurate, heavy bursts over the target.

c. No aircraft were lost or damaged as a result of flak on this mission.

4. Mission Number 328 - Nippon Oil Refinery, Akita:

a. The primary target was bombed by 134 aircraft of the 315th Wing between 141343Z-141721Z from 10,000-15,200 feet. Axis of attack was 27° T. Secondary target, Sendai, was attacked by one aircraft. Weather over the target was reported as 7/10-10/10 clouds with winds of 17 knots from 330°.

b. Flak en route to the target was reported as follows:

Location	Coordinates	Remarks
Hitachi	36 36 N - 140 41 E	Gun flashes.
Sukagawa	37 18 N - 140 22 E	Meager and inaccurate, heavy.
Niigata	37 57 N - 139 05 E	Meager and inaccurate, heavy (seen at a distance).

c. Flak in the target area was nil to meager and inaccurate, heavy. Two ineffective searchlights were reported at the target area.

d. On withdrawal from target there was no flak reported.

e. No aircraft were lost or damaged due to flak.

f. Searchlights were ineffective as follows:

Location	Coordinates	Number
Hitachi	36 35 N - 140 40 E	14
Koriyama	37 28 N - 140 21 E	1
Takada	37 28 N - 139 50 E	10-12
Nugata	37 57 N - 139 05 E	11-15
Gatsugi	38 30 N - 139 30 E	6

g. Blackout of target was effective.

5. Mission Number 329 - Kumagawa Urban Area:

a. The primary target was bombed by eleven aircraft of the 313th Wing and 70 aircraft of the 314th Wing between 1521Z-1639Z from 14,000-19,000 feet. Axis of attack varied from 270°-292°. Weather was reported as 1/10-10/10 undercast.

b. En route to the target flak was nil.

c. Over the target flak was nil to meager, inaccurate, heavy and medium. Two to 4 ineffective searchlights were seen in the target area.

d. On withdrawal flak was nil.

e. No aircraft were lost or damaged as a result of flak on this mission.

6. Mission Number 330 - Isesaki Urban Area:

a. The primary target was bombed by eight aircraft of the 73d Wing and 79 aircraft of the 314th Wing between 1508Z-1715Z from 15,000-16,000 feet. Axis of attack varied from 283°-302°. Weather was reported as 7/10-10/10 undercast.

b. En route to the target meager, inaccurate, heavy and medium flak was encountered at Ota. Two to 4 searchlights were observed in this area.

c. Over the target flak was nil.

d. On withdrawal flak was nil.

e. No aircraft were lost or damaged as a result of flak on this mission.

f. Ineffective searchlights were seen at: Tachikawa, Hachioji, Atsugi and Hiratsuka.

PART II - DAMAGE ASSESSMENT *

SECTION A - HIKARI NAVAL ARSENAL

Date of Strike: 14 August 1945 — Bomb Load: 3470 M-64

Heading Over Target: 18-22 True — Fusing: .01 nose, non-delay tail

Time of Attack: 141416K-141518K — Bombs on Target Area: 3402 M-64

1. A/C Over Target P.T.: 155 — Bombing Accuracy: Excellent

Greatest concentration of bursts were observed in those areas containing foundries, forges, rolling mills and machine shops, resulting in the damage or destruction of nearly all major units. The productive capacity of the arsenal has probably been reduced to nil.

2. Table of Bombing Statistics:

Total number bombs dropped over target	3,470
Total number visible bursts plotted	2,054
Total number calculated and probable bursts plotted	1,348

Bursts within 0-1000' of MPI -	2,273 -	66.8%
Bursts within 1-2000' of MPI -	980 -	28.8%
Bursts within 2-3000' of MPI -	127 -	3.7%
Bursts beyond 3000' of MPI -	22 -	0.7%

3. The Following Formations Were Plotted:

25 Sq - 40 BG - A/C 651
45 Sq - 40 BG - A/C 151 - 512 bombs
(Above formations bombed simultaneously)
44 Sq - 40 BG - A/C 548 222 bombs
45 Sq - 40 BG - A/C 529 215 bombs
794 Sq - 468 BG - A/C 146 268 bombs
792 Sq - 468 BG - A/C 668 244 bombs
793 Sq - 468 BG - A/C 521 214 bombs
794 Sq - 468 BG - A/C 566 188 bombs
769 Sq - 462 BG - A/C 661 264 bombs
768 Sq - 462 BG - A/C 560 189 bombs
768 Sq - 462 BG - A/C 643 231 bombs
676 Sq - 444 BG - A/C 670 276 bombs
677 Sq - 444 BG - A/C 988 267 bombs
677 Sq - 444 BG - A/C 137 161 bombs
678 Sq - 444 BG - A/C 102 (partial) 151 bombs

4. Bombs Airborne Over Target, Not Plotted:

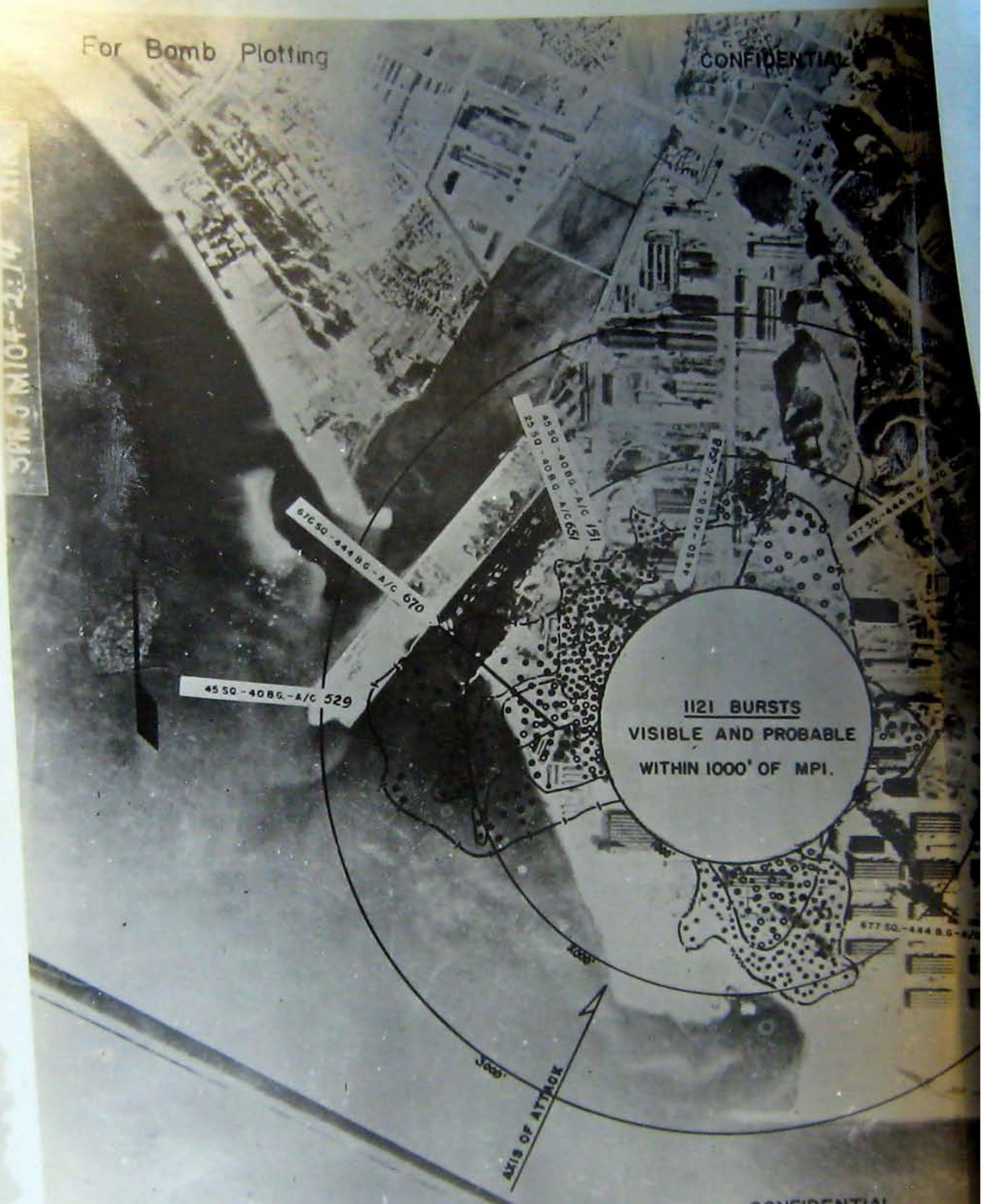
678 Sq - 444 BG - A/C 102 (partial) 68 bombs.
(Lack of complete photo cover over smoke obscured target)

5. Photos Received: At least one complete set of photos from bombs away to last bomb bursts, of every formation over target area.

6. Remarks: Bomb load is indicated as load carried over target area, rather than bombs loaded at base. This figure was used because of incomplete data regarding targets of opportunity and bombs jettisoned. Incomplete data was the result of A/C at Iwo when bomb plot was accomplished.

Inclosures: Three bomb plots follows this page

*Based on C.I.U. Strike Attack Report No. 140


For Bomb Plotting
CONFIDENTIAL
67C SQ - 444 BG - A/C 670
45 SQ - 40 BG - A/C 529
45 SQ - 40 BG - A/C 151
22 SQ - 40 BG - A/C 651
1121 BURSTS
VISIBLE AND PROBABLE
WITHIN 1000' OF MPI.
1000'
3000'
AXIS OF ATTACK
CONFIDENTIAL
• VISIBLE BURST
○ PROBABLE BURST
CALCULATED BURST
STRIKE ATTACK REPORT 140
C.I.U.-20 AF
BOMB PLOT MISSION 325
A-2 58TH BOMB WING
14 AUGUST 1945
MPI OF 40TH BG & 444TH BG ONLY
35 PTU 18 AUG 45


For Bomb Plotting
CONFIDENTIAL
N
STRIKE ATTACK REPORT 140
C.I.U.-20 AF
2000'
1000'
• VISIBLE BURST
○ PROBABLE BURST
CONFIDENTIAL
Target 90.32-671
Hikari Naval Arsenal
0
1000'
2000'
BOMB PLOT MISSION 325
A-2 58TH BOMB WING
14 AUGUST 1945
MPI OF 468TH BOMB GROUP ONLY
REPRODUCED BY 58TH BOMB WING PHOTO LAB
2878 C 35PTU 18AUG 45
AXIS OF ATTACK

● VISIBLE BURST
○ PROBABLE BURST

Target 90.32-671
Hikari Naval Arsenal

1000' 2000'

BOMB PLOT MISSION 325
A-2 58TH BOMB WING
14 AUGUST 1945

MPI OF 462ND BOMB GROUP ONLY

STRIKE ATTACK REPORT 140
CIU-20AF

PART III - DAMAGE ASSESSMENT

SECTION B - OSAKA ARMY ARSENAL

Target: 90.25-382 Osaka Army Arsenal — Bomb Load: 644xM66 321xM65

Time of Attack: 140416Z — Fusing: .025 nose and tail

Heading Over Target: 41° to 53° True — Number Hits on Target: 650

A/C Over Target: 147

1. Bombing Accuracy: Fair

Strike photos from 36 A/C show excellent results with numerous hits causing severe damage to target. Greatest concentrations of bursts visible in southern and central section of plant. Almost all the small machine shops and laboratories in central section of arsenal were destroyed. The large assembly type buildings and storage buildings in central and southern sections of plant were severely damaged or destroyed. Many direct hits visible on heavy machine shops at northern edge of arsenal but resulting damage believed to be somewhat less than in other sections of plant. Several hits visible on Osaka castle and military barracks immediately west of arsenal.

2. Bombing Accuracy Table of Statistics:

Bombs dropped on primary target: 586 x M66, 288 x M65
Calculated probable bursts plotted: 288
Visible bursts plotted: 544

Bursts within 0-1000' of AP: 216 - 26%
Bursts within 1-2000' of AP: 405 - 48.7%
Bursts within 2-3000' of AP: 165 - 19.8%
Bursts beyond 3000' of AP: 46 - 5.5%

1st Squadron - 10 A/C, 40 x M66 - 20 x M65
2nd Squadron - 9 A/C, 36 x M66 - 18 x M65
3rd Squadron - 10 A/C, 40 x M66 - 19 x M65
4th Squadron - 9 A/C, 36 x M66 - 18 x M65
5th Squadron - 11 A/C, 44 x M66 - 22 x M65
6th Squadron - 11 A/C, 44 x M66 - 22 x M65
7th Squadron - 9 A/C, 36 x M66 - 17 x M65
8th Squadron - 7 A/C, 28 x M66 - 14 x M65
9th Squadron - 9 A/C, 36 x M66 - 18 x M65
10th Squadron - 7 A/C, 28 x M66 - 14 x M65
11th Squadron - 10 A/C, 40 x M66 - 20 x M65
12th Squadron - 8 A/C, 32 x M66 - 12 x M65
13th Squadron - 11 A/C, 44 x M66 - 22 x M65
14th Squadron - 8 A/C, 32 x M66 - 16 x M65
15th Squadron - 8 A/C, 31 x M66 - 16 x M65
16th Squadron - 7 A/C, 28 x M66 - 14 x M65

NOTE: Two A/C bombed individually dropping 7 x M66 and 4 x M65

Target of opportunity: Hiwasa (33/43N - 134/33E) 1 A/C - 4 x M66, 2xM65

Jettisoned bombs: 13 A/C: 54 x M66 and 31 x M65

*Based on C.I.U. Strike Attack Report No. 142

3. Photos Received:

1V:1-10
2V:1-25
1V:1-8
2V:1-4
3V:2-9
4V:2-8
4V:2,3,5,6,8,10,12,14,16,
6V:2-9
7V:2-11
8V:2-9
9V:2-10
10V:1-13
11V:2-11
12V:7-12
13V:2-10
14V:2,4,6,8,10,12,14
15V:8-14
16V:6-9
17V:1-5
18V:2-15
19V:2-9
20V:1-8
21V:2-6
22V:1,2,3,4,6,8,10,12,14,16,
23V:1-7
24V:1-8
25V:2-9
26V:2-11
27V:2-15
28V:2-15
29V:5-16
30V:1-14
31V:2-13
32V:2-12
33V:4-7
34V:1-8
35V:2-18
36V:1-7

Inclosure: One bomb plot follows this page

Report 142
20 AF
3000'
2000'
1000'
1000
V18
T48
V28
T4
M8
Z28
A11
Z58
T26
T36
Z39
V42
A52
BOMB PLOT-MISSION 326
OSAKA ARMY ARSENAL
90.25-382
A-2 73 BW
14 AUGUST 1945
N
-VISIBLE HITS
O-CALCULATED HITS
2875 C 35 PTU 18 AUG 45
CONFIDENTIAL

ANNEX

E

CONSOLIDATED STATISTICAL SUMMARY

Missions No. 325 through 330

14/15 August 1945

-SECRET-

TWENTIETH AIR FORCE

CONSOLIDATED STATISTICAL SUMMARY OF COMBAT OPERATIONS

FORM 3425 - 330

MISSION NO. 15 August 1945

Field Order No. 20

Mission #325 - 58th Wing - Maximum Effort - Hikari Naval Arsenal (#671)
Mission #326 - 73rd Wing - Maximum Effort - Osaka Army Arsenal (#382)
Mission #327 - 313th Wing - Maximum Effort(3 Groups) - Marifu Railroad Yards (#2202)
Mission #328 - 315th Wing - Maximum Effort - Nippon Oil Refinery, Tsuchizaki (#1066)
Mission #329 - 313th & 314th Wings - Maximum Effort (2 Groups) - Kumagaya Urban Area
Mission #330 - 73rd & 314th Wings - Maximum Effort (2 Groups) - Isezaki Urban Area

EFFECTIVENESS OF MISSIONS

Aircraft Airborne 779
Percent Of Aircraft On Hand 90.9%

Aircraft Bombing Primary Targets. . . 709
Percent Of Bombing Aircraft Airborne. . . . 92.6%

Bombs Dropped On Primary Targets. . . . . 4463 Tons

Bombs Dropped On Other Targets. . . . . 65 Tons

Bombing Results - No post strike reconnaissance made, data unavailable.

COST OF MISSIONS

Aircraft Lost . . . . . None

Aircraft Damaged. 33
Percent Of Aircraft Airborne. 4.2%

Crew Member Casualties. . . . . None

Aircraft Landing at Iwo Jima & Okinawa . . . 89

22 August 1945
DATE OF ISSUE

-SECRET-

33RD STATISTICAL CONTROL UNIT

35PTU 7-11-55

MISSION 325 - 330

DATE 14 August 1945

AIRCRAFT PARTICIPATING

UNIT	NUMBER OF AIRCRAFT				TIME OF TAKE OFF			TIME OF RETURN			NUMBER OF AIRCRAFT						
	ON HAND	SCHEDULED	FAILING TO TAKEOFF	AIRBORNE	DATE	FIRST	LAST	DATE	FIRST	LAST	BOMBING PRIMARY TARGET	BOMBING SECONDARY TARGET	BOMBING OTHER TARGETS	COMPLETING AUXILIARY MISSIONS	EFFECTIVE	NON-EFFECTIVE	LANDING AT IWO JIMA
									Mission #325								
58WG	181	170	3	167	13 Aug.	2010Z	2217 Z	14 Aug.	1035 Z	1345 Z	157	-	4	-	161	6	20
		1a	-	1							-	-	-	1	1	-	-
									Mission #326								
73WG	191	165	4	161	13 Aug.	2015Z	2147 Z	14 Aug.	0953 Z	1211 Z	145	-	2	-	147	14	4
		4b	-	4							-	-	-	4	4	-	-
									Mission #327								
313WG	136	120	5	115	13 Aug.	1900Z	2021 Z	14 Aug.	0904 Z	1056 Z	108	-	2	-	110	5	41 c
		1a	-	1							-	-	-	1	1	-	-
									Mission #328								
315WG	166	143	2	141	14 Aug	0642Z	0858 Z	14 - 15 August	2307 Z	0200 Z	132	-	-	-	132	9	13
		2d	-	2							-	-	-	2	2	-	-
									Mission #329								
313WG	*	16	2	14	14 Aug.	0815Z	0916 Z	14 Aug.	2109 Z	2240 Z	11	-	-	-	11	3	2
314WG	90	65	2	63	14 Aug.	0752Z	0839 Z	14 Aug.	2133 Z	2314 Z	59	-	-	-	59	4	3
		12e	-	12							11	-	-	-	11	1	-
		2f	-	2							-	-	-	2	2	-	-
TOTAL		81	4	77	14 Aug.	0752Z	0916 Z	14 Aug.	2109 Z	2314 Z	70	-	-	-	70	7	5
#329		12e	-	12							11	-	-	-	11	1	-
		2	-	2							-	-	-	2	2	-	-
									Mission #330								
73WG	**	13	3	10	14 Aug.	0802Z	0835 Z	14 Aug.	2100 Z	2250 Z	8	-	1	-	9	1	-
314WG	93	71	-	71	14 Aug.	0845Z	1005 Z	14-15 August	2254 Z	0041 Z	66	-	1	-	67	4	6
		12 e	-	12							12	-	-	-	12	-	-
		3 f	-	3							-	-	-	3	3	PTW - 7-23-54	

(CONTINUED ON THE FOLLOWING PAGE)

MISSION ~~325 - 330~~

AIRCRAFT PARTICIPATING

DATE ~~14 August 1945~~

UNIT	NUMBER OF AIRCRAFT				TIME OF TAKE OFF			TIME OF RETURN			NUMBER OF AIRCRAFT						
	ON HAND	SCHED-ULED	FAILING TO TAKEOFF	AIR-BORNE	DATE	FIRST	LAST	DATE	FIRST	LAST	BOMBING PRIMARY TARGET	BOMBING SECONDARY TARGET	BOMBING OTHER TARGETS	COMPLETING AUXILIARY MISSIONS	EFFECTIVE	NON-EFFECTIVE	LANDING AT IWO JIMA
TOTAL		84	3	81	14 Aug	0802 Z	1005 Z	14-15 August	2100 Z	0041 Z	74	-	2	-	76	5	6
#330		12 e	-	12							12	-	-	-	12	-	-
		3	-	3							-	-	-	3	3	-	-
TOTAL	857	763	21	742							686	-	10	-	696	46	89 c
		24 e	-	24							23	-	-	-	23	1	-
		13	-	13							-	-	-	13	13	-	-

a Super dumbo aircraft.
b 2 super dumbo aircraft, 1 wind run aircraft, and 1 photo aircraft.
c Includes 1 aircraft which landed at Okinawa.
d Wind run aircraft.
e Pathfinder aircraft.
f 1 wind run aircraft and 1 super dumbo aircraft.
g 2 RCM aircraft and 1 wind run aircraft.

* Represented in on hand figure for mission #327.
** Represented in on hand figure for mission #326.

35 PIU 7-23-54

MISSION 325 - 330
DATE 14 August 1945

BREAKDOWN OF ALL AIRCRAFT FAILING TO BOMB PRIMARY TARGET

UNIT	MECHANICAL FAILURE			PERSONNEL ERROR			FLIGHT CONDITIONS			ENEMY ACTION			OTHER		
	NON-EFFECT-IVE	BOMBED SECONDARY	BOMBED OTHER	NON-EFFECT-IVE	BOMBED SECONDARY	BOMBED OTHER	NON-EFFECT-IVE	BOMBED SECONDARY	BOMBED OTHER	NON-EFFECT-IVE	BOMBED SECONDARY	BOMBED OTHER	NON-EFFECT-IVE	BOMBED SECONDARY	BOMBED OTHER
							Mission #325								
58WG	4	-	3	2 a	-	1 b	-	-	-			-	-	-	-
							Mission #326								
73WG	12	-	2	2 c	-	-	-	-	-			-	-	-	-
							Mission #327								
313WG	3	-	1	2 c	-	1 b	-	-	-	-	-	-	-	-	-
							Mission #328								
315WG	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
							Mission #329								
313WG	2	-	-	1 a	-	-	-	-	-	-	-	-	-	-	-
314WG	3	-	-	2 c	-	-	-	-	-	-	-	-	-	-	-
TOTAL #329	5	-	-	3	-	-	-	-	-	-	-	-	-	-	-
							Mission #330								
73WG	1	-	-	-	-	1 b	-	-	-			-	-	-	-
314WG	3	-	1	1 b	-	-	-	-	-	-	-	-	-	-	-
TOTAL #330	4	-	1	1	-	1	-	-	-	-	-	-	-	-	-
TOTAL	37	-	7	10	-	3	-	-	-	-	-	-	-	-	-

a Maintenance error.
b Air crew error.
c 1 maintenance error and 1 air crew error.

MISSION 325 - 330

DATE 14 August 1945

BOMBING RUN

UNIT	TARGET BOMBED		AIRCRAFT DROPPING BOMBS	TIME OF RELEASE		ALT. OF RELEASE		VISUAL SIGHTING				RADAR SIGHTING		
	NAME OF TARGET	TYPE		EARLIEST	LATEST	LOWEST	HIGHEST	STANDARD	ON REFERENCE OR OFFSET PT.	RADAR RUN WITH VIS. CORRECT'NS	DROPPING ON LEADER	DIRECT	OFFSET	DROPPING ON LEADER
						Mission #325								
58WG	Hikari Naval Arsenal	P	157	0417 Z	0518 Z	15800	17700	17	-	-	140	-	-	-
	Saeki	TO	1	0435 Z	-	14700	-	1	-	-	-	-	-	-
	Nakamura	TO	1	0528 Z	-	17000	-	1	-	-	-	-	-	-
	Shimizu	TO	1	0450 Z	-	12500	-	1	-	-	-	-	-	-
	Nobeoka	TO	1	0354 Z	-	15100	-	1	-	-	-	-	-	-
	Nagahama	TO	2 a	0516 Z	0518 Z	16000	16000	2	-	-	-	-	-	-
	Matsumaru	TO	1 a	Unknown		Unknown		1	-	-	-	-	-	-
						Mission #326								
73WG	Osaka Army Arsenal	P	145	0416 Z	0501 Z	22100	25100	16	1	-	128	-	-	-
	Wakayama	TO	1	0305 Z	-	16000	-	1	-	-	-	-	-	-
	Kiwasa	TO	1	0340 Z	-	22800	-	1	-	-	-	-	-	-
						Mission #327								
313WG	Marifu RR Yards	P	108	0255 Z	0319 Z	15900	18500	11	-	-	97	-	-	-
	Saganoseki	TO	2	0241 Z	0255 Z	15800	18000	2	-	-	-	-	-	-
						Mission #328								
315WG	Nippon Oil Refinery	P	134 b	1448 Z	1739 Z	10200	11800	2	-	-	-	132	-	-
	Sendai	TO	1 a	1537 Z	-	10000	-	-	-	-	-	1	-	-
						Mission #329								
313WG	Kumagaya Urban Area	P	11	1523 Z	1635 Z	15200	19000	1	-	-	-	10	-	-
314WG	Kumagaya Urban Area	P	60 c	1531 Z	1639 Z	14000	17000	9	-	7	-	44	-	-
	Kumagaya Urban Area	P	11 d	1524 Z	1558 Z	14200	16100	1	-	1	-	9	-	-
TOTAL	Primary Target		71 c	1523 Z	1639 Z	14000	19000	10	-	7	-	54	-	-
#329	Primary Target		11 d	1524 Z	1558 Z	14200	16100	1	-	1	-	9	-	-
						Mission #330								
73WG	Isezaki Urban Area	P	8	1508 Z	1551 Z	15800	16500	-	-	-	-	8	-	-
	Koizumi	TO	1	1524 Z	-	15800	-	-	-	-	-	1	-	-
314WG	Isezaki Urban Area	P	67 c	1616 Z	1715 Z	15450	18200	12	-	2	-	53	-	-
	Isezaki Urban Area	P	12 d	1527 Z	1658 Z	15600	17200	2	-	1	-	9	-	-

(CONTINUED ON THE FOLLOWING PAGE)

MISSION 325 - 330

DATE 14 August 1945

BOMBING RUN

UNIT	TARGET BOMBED		AIRCRAFT DROPPING BOMBS	TIME OF RELEASE		ALT. OF RELEASE		VISUAL SIGHTING				RADAR SIGHTING		
	NAME OF TARGET	TYPE		EARLIEST	LATEST	LOWEST	HIGHEST	STANDARD	ON REFERENCE OR OFFSET PT.	RADAR RUN WITH VIS. CORRECT'NS	DROPPING ON LEADER	DIRECT	OFFSET	DROPPING ON LEADER
						Mission #330 (Cont'd)								
	Choshi	TO	1	1615 Z	-	16200	-	1	-	-	-	-	-	-
TOTAL	Primary Target		75 c	1508 Z	1715 Z	15450	18200	12	-	2	-	61	-	-
#330	Primary Target		12 d	1527 Z	1658 Z	15600	17200	2	-	1	-	9	-	-
TOTAL	Primary Targets	P	690					68	1	9	365	247	-	-
	Primary Targets	P	23 d					3	-	2	-	13	-	-

a Also bombed primary target.
b Includes 2 wind run aircraft.
c Includes 1 wind run aircraft.
d Pathfinder aircraft.

MISSION 325 - 330

DATE 14 August 1945

DISPOSITION OF BOMBS

UNIT	TYPE OF BOMB	FUZE SETTING		LOADED ON AIR-BORNE AIRCRAFT		RELEASED ON TARGETS						JETTISONED		RETURNED		OTHER	
						PRIMARY TARGETS				TARGETS OF OPP.							
		Nose	Tail	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
							Mission #325										
58WG	AN-M64 500# G.P.	.01	N.D.	3797	949.3	3540	885.0			114	28.5	142	35.5	1	.3	-	-
	AN-M47A2-100# Smoke	-	-	11	-	-	-			-	-	-	-	-	-	11 a	-
							Mission #326										
73WG	AN-M66 2000# G.P.	.025	.025	644	644.0	570	570.0			8	8.0	66b	66.0	-	-	-	-
	AN-M65 1000# G.P.	.025	.025	321	160.5	273	136.5			4	2.0	44c	22.0	-	-	-	-
							Mission #327										
313WG	AN-M64 500# G.P.	.1	.01	3064	766.0	2839	709.8			51	12.7	170d	42.5	4	1.0	-	-
	AN-M47A2-100# Smoke	-	-	6	-	-	-			-	-	-	-	-	-	6 a	-
							Mission #328										
315WG	AN-M30 100# G.P.	-	N.D.	8528	426.4	7360	368.0			-	-	1168	58.4	-	-	-	-
	AN-M57 250# G.P.	-	N.D.	4828	603.5	4687	585.9			26	3.2	115e	14.4	-	-	-	-
							Mission #329										
313WG	AN-M17A1-500# I.C.	Open 5000'		471	117.8	356	89.0			-	-	115	28.8	-	-	-	-
314WG	M-19 500# I.C.	Open 5000'		1480	296.0	1372	274.4			-	-	108	21.6	-	-	-	-
	AN-M47A2-100# I.B.	Inst.	-	6791	234.1	6321	218.0			-	-	459	15.8	11	.3	-	-
	AN-M56 4000# L.C.	Prox.	N.D.	6	12.0	6	12.0			-	-	-	-	-	-	-	-
	M-46 Photoflash	-	-	28	-	27	-			-	-	1	-	-	-	-	-
TOTAL #329				8776	659.9	8082	593.4					683	66.2	11	.3	-	-
							Mission #330										
73WG	M-19 500# I.C.	Open 5000'		196	39.2	156	31.2			20	4.0	20	4.0	-	-	-	-
	AN-M47A2-100# I.B.	Inst.	-	903	31.1	702	24.2			87	3.0	95	3.3	19	.6	-	-
	M-46 Photoflash	-	-	3	-	2	-			1	-	-	-	-	-	-	-
314WG	M-19 500# I.C.	Open 5000'		1660	332.0	1560	312.0			20	4.0	80	16.0	-	-	-	-
	AN-M47A2-100# I.B.	Inst.	-	7636	263.3	7156	246.7					388f	13.4	92	3.2	-	-
	M-46 Photoflash	-	-	28	-	25	-					2	-	1	-	-	-

(CONTINUED ON THE FOLLOWING PAGE)

MISSION 325 - 330

DISPOSITION OF BOMBS

DATE 14 August 1945

UNIT	TYPE OF BOMB	FUZE SETTING		LOADED ON AIR-BORNE AIRCRAFT		RELEASED ON TARGETS						JETTISONED		RETURNED		OTHER	
						PRIMARY TARGETS				TARGETS OF OPP.							
		Nose	Tail	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
TOTAL #330	M-19 500# I.C.			1856	371.2	1716	343.2			40	8.0	100	20.0	-	-	-	-
	AN-M47A2-100# I.B.			8539	294.4	7858	270.9			87	3.0	483	16.7	111	3.8	-	-
	M-46 Photoflash			31	-	27	-			1	-	2	-	1	-	-	-
	TOTAL			10426	665.6	9601	614.1			128	11.0	585	36.7	112	3.8	-	-
TOTAL	AN-M64 500# G.P.			6861	1715.3	6379	1594.8			165	41.2	312	78.0	5	1.3	-	-
	AN-M66 2000# G.P.			644	644.0	570	570.0			8	8.0	66	66.0	-	-	-	-
	AN-M65 1000# G.P.			321	160.5	273	136.5			4	2.0	44	22.0	-	-	-	-
	AN-M30 100# G.P.			8528	426.4	7360	368.0			-	-	1168	58.4	-	-	-	-
	AN-M57 250# G.P.			4828	603.5	4687	585.9			26	6.2	115	14.4	-	-	-	-
	M-19 500# I.C.			3336	667.2	3088	617.6			40	8.0	208	41.6	-	-	-	-
	AN-M47A2-100# I.B.			15330	528.5	14179	488.9			87	3.0	942	32.5	122	4.1	-	-
	AN-M56 4000# L.C.			6	12.0	6	12.0			-	-	-	-	-	-	-	-
	AN-M17A1-500# I.C.			471	117.8	356	89.0			-	-	115	28.8	-	-	-	-
	AN-M47A2-100# Smoke			17	-	-	-			-	-	-	-	-	-	17	-
	M-46 Photoflash			59	-	54	-			2	-	3	-	1	-	-	-
	TOTAL			40401	4875.2	36952	4482.7			331	85.4	2973	341.7	128	5.4	17	-

a Dropped on assembly point.
b Includes 9 bombs dropped safe with complete arming wires.
c Includes 8 bombs dropped safe with complete arming wires.
d Includes 31 bombs dropped safe with complete arming wires.
e Includes 3 bombs dropped safe with complete arming wires.
f Includes 12 bombs dropped safe with complete arming wires.

MISSION 325 - 330

DATE 14 August 1945

ACCURACY OF BOMBING ON PRIMARY TARGET

UNIT	H.E. BOMBS RELEASED ON TARGET	BOMB HITS SCORED AND DISTANCE FROM AIMING POINT					% HITS SCORED WITHIN 1000'		% HITS SCORED WITHIN 2000'	
		0 - 1000'	1000'-2000'	2000'-3000'	OVER 3000'	TOTAL	TO TOTAL H.E. BOMBS RELEASED	TO TOTAL H.E. BOMBS SCORED	TO TOTAL H.E. BOMBS RELEASED	TO TOTAL H.E. BOMBS SCORED
				#325 - Hikari Naval Arsenal (#671)						
58WG	3540	2273	980	127	22	3402	64.2%	66.8%	91.9%	95.6%
				#326 - Osaka Army Arsenal (#382)						
73WG	843	216	405	165	46	832 *	25.6%	26.0%	73.7%	74.6%
				#327 - Marifu Railroad Yards (#2202)						
313WG		Bombing Accuracy Unknown								
				#328 - Nippon Oil Refinery, Tsuchizaki (#1066)						
315WG		Radar Bombing- No Accuracy Available.								

* Includes visible and calculated bursts.

MISSION 325 - 330

DATE 14 August 1945

ENEMY OPPOSITION AND AMMUNITION EXPENDITURE

UNIT	ENEMY A/C SIGHTED	ATTACKS BY E/A	ENEMY A/C DESTROYED & DAMAGED			50 CALIBER AMMUNITION EXPENDITURE				
			DESTROYED	PROBABLY DESTROYED	DAMAGED	FIRED IN COMBAT	TEST FIRED	JETTISONED	ON LOST A/C	TOTAL
					Mission #325					
58WG	-	-	-	-	-	-	15631	-	-	15631
					Mission #326					
73WG	-	-	-	-	-	-	9756	-	-	9756
					Mission #327					
313WG	-	-	-	-	-	-	11145	-	-	11145
					Mission #328					
315WG	4	-	-	-	-	-	5000	-	-	5000
					Mission #329					
313WG	-	-	-	-	-	-	-	-	-	-
314WG	5	-	-	-	-	-	-	-	-	-
TOTAL #329	5	-	-	-	-	-	-	-	-	-
					Mission #330					
73WG	-	-	-	-	-	-	-	-	-	-
314WG	4	-	-	-	-	-	-	-	-	-
TOTAL #330	4	-	-	-	-	-	-	-	-	-
TOTAL	13	-	-	-	-	-	41532	-	-	41532

SECRET

MISSION 325 - 330
DATE 14 August 1945

AIRCRAFT LOST AND DAMAGED - PERSONNEL CASUALTIES

UNIT	AIRCRAFT LOST							AIRCRAFT DAMAGED									PERSONNEL CASUALTIES				
	ENEMY A/C	ENEMY A/A	ENEMY A/C & A/A	ACC. & MECH	OTHER	UN-KNOWN	TOTAL	ENEMY A/C	ENEMY A/A	ENEMY A/C & A/A	ACC. & MECH	OWN GUNS	OTHER	UN-KNOWN	TOTAL MAJOR	TOTAL MINOR	TOTAL PARTICI-PATING	KILLED	MISS-ING	WOUNDED & INJURED	TOTAL CASUALTIES
											Mission #325										
58WG							None	-	7	-	-	-	-	-	-	7	1933				None
											Mission #326										
73WG							None	-	26	-	-	-	-	-	-	26	1862				None
											Mission #327										
313WG							None									None	1292				None
											Mission #328										
315WG							None		4	-	1	1	4	-	-	10	1473				None
											Mission #329										
313WG							None									None	155				None
314WG							None									None	887				None
TOTAL #329							None									None	1042				None
											Mission #330										
73WG							None									None	112				None
314WG							None									None	972				None
TOTAL #330							None									None	1084				None
TOTAL							None	-	37	-	1	1	4	-	-	43	8886				None

SECRET

MISSION 325 - 330

DATE 14 August 1945

FLIGHT DATA & FUEL CONSUMPTION

MISSION NUMBER	#325	#326	#327	#328	#329
UNIT	58TH WG	73RD WG	313TH WG	315TH WG	313TH WG
AIRCRAFT CONSIDERED	139	145	67	123	9
AVERAGE FLYING TIME	15:01	14:08	14:41	16:50	13:39
FUEL CONSUMED:					
Average	6171	6302	6163	5827	6035
Maximum	6600	6995	6481	6268	6350
Minimum	5700	5826	5711	5440	5796
FUEL REMAINING:					
Average	736	954	596	958	740
Maximum	1200	1482	1074	1345	990
Minimum	300	274	254	517	450
AVG. GALS. USED PER HOUR	410.9	446.0	419.8	346.2	442.1
TOTAL USED ON AIRBORNE A/C	1004458	974182	726497	801710	69951

WEIGHT DATA

NO. AIRCRAFT AIRBORNE	167	161	115	143	14
AVG. BASIC WT. OF AIRCRAFT	74979	75241	75008	71209	74823
AVERAGE USEFUL LOAD	61096	60887	61257	60629	62035
AVG. NO. OF BOMBS LOADED	22.7-	Mixed	25.6-	Mixed	33.6-
	M64	Load	M64	Load	M17
AVG. WT. OF BOMBS LOADED	12513	10294	14370	15338	15644
AVERAGE FUEL LOADED	6907	7256	6750	6785	6768
AVG. WT. OF FUEL LOADED	41442	43536	40500	40710	40608
AVERAGE MISC. WEIGHT	7141	7057	6393	4581	5783
AVG. GROSS WT. AT TAKE OFF	136075	136128	136271	131838	136858

SECRET

MISSION 325 - 330

DATE 14 August 1945

FLIGHT DATA & FUEL CONSUMPTION

MISSION NUMBER	#329	TOTAL #329	#330	#330	TOTAL #330
UNIT	314TH WG		73RD WG	314TH WG	
AIRCRAFT CONSIDERED	65	74	9	70	79
AVERAGE FLYING TIME	14:09	14:05	13:48	14:29	14:24
FUEL CONSUMED:					
Average	6033	6033	5874	6020	6003
Maximum	6385	6385	6255	6342	6332
Minimum	5630	5796	5645	5272	5314
FUEL REMAINING:					
Average	598	615	629	650	648
Maximum	970	990	1055	940	953
Minimum	215	215	472	400	408
AVG. GALS. USED PER HOUR	426.4	428.5	425.7	414.8	414.5
TOTAL USED ON AIRBORNE A/C	447439	517,390	53262	520109	573371

WEIGHT DATA

NO. AIRCRAFT AIRBORNE	75	89	10	83	93
AVG. BASIC WT. OF AIRCRAFT	75650	75520	75000	75451	75403
AVERAGE USEFUL LOAD	59768	60125	58890	59965	59849
AVG. NO. OF BOMBS LOADED	Mixed Load	Mixed Load	Mixed Load	Mixed Load	Mixed Load
AVG. WT. OF BOMBS LOADED	14977	15082	14717	14949	14924
AVERAGE FUEL LOADED	6629	6651	6478	6668	6648
AVG. WT. OF FUEL LOADED	39774	39906	38868	40008	39888
AVERAGE MISC. WEIGHT	5017	5137	5305	5008	5037
AVG. GROSS WT. AT TAKE OFF	135418	135645	133890	135416	135252

Bomb Weights:

M-66 (TNT) - 2055 lbs.
M-64 (Comp B) - 535 lbs.
M-64 (TNT) - 550 lbs.
M-65 (TNT) - 1040 lbs.
M-30 - 110 lbs.
M-57 - 260 lbs.
M-19 - 425 lbs.
M-47 - 70 lbs.
M-56 - 4355 lbs.
M-17 - 465 lbs.
M-47 Smoke - 125 lbs.
M-46 - 52 lbs.

SECRET

ANNEX

F

TWENTIETH AIR FORCE FIELD ORDER

Missions No. 325 through 330

14/15 August 1945

SECRET
AUTH: CG, Twentieth Air Force
Initials: _____
Date: 13 August 1945

FIELD ORDERS)
:
NUMBER 20)

TWENTIETH AIR FORCE
GUAM
13 August 1945 - 1200K

Map: JAPAN Aviation Chart,1:218,880.

1. Omitted.

2. Twentieth Air Force attacks KUMAGAYA URBAN AREA: ISIZAKI URBAN AREA: 90.32-671; 90.25-382; 90.30-2202; and 90.6-1066 with a maximum effort on 14/15 August 1945

3. a. VII Fighter Command:

(1) 2 groups of fighters will escort the 73rd Wing.

(2) 2 groups of fighters will make a sweep on the NAGOYA AREA.

b. 58th Wing:

(1) Primary Visual and Radar; 90.32-671 HIKARI NAVAL ARSENAL

MPI	FORCE REQUIRED
083051	1 Group - Maximum
093034	2 Groups - Maximum
111033	1 Group - Maximum

MPI Reference: XXI Bomber Command Litho-Mosaic HIKARI NAVAL ARSENAL 90.32-671.

(2) Route:

Base
Assembly Area No. 1
3243N - 13233E (Reassembly)
3256N - 1320530E (D. P.)
3324N - 1314230E (I.P.)
Target
Right Turn
IWO JIMA
Base.

(3) Altitudes:

(a) Enroute: 5,000 - 5,800 feet and/or 7,000 - 7,800 feet.

(b) Attack: Base 15,000 feet.

(4) Bomb Load: 500 lb GP's fused 1/100 nose and non-delay tail.

(5) Take-off: 140500K.

c. 73rd Wing:

(1) Primary Visual: 90.25-382 OSAKA ARMY ARSENAL

MPI	FORCE REQUIRED
119107	3 Groups - Maximum
118112	1 Group - Maximum

MPI Reference: XXI Bomber Command Litho-Mosaic OSAKA AREA 90.25 URBAN.

(2) Secondary Visual: 90.24-2140/1141 FUJI TEXTILE MILL.

MPI	FORCE REQUIRED
105074	2 Groups - Maximum
083082	2 Groups - Maximum

MPI Reference: XXI Bomber Command Litho-Mosaic NAGOYA NORTH 90.20-2140.

(3) Primary Radar: 90.20-1635 NAKAJIMA A/C CO.

MPI: Center of return.

(4) Route:

	Secondary Visual
Base	From Target No. 382
Assembly No. 1	To 3500N - 13532E
3320N - 13435E (Reassembly)	351230N - 13607E (I.P.)
3350N - 13445E (D.P.)	Target No. 2140/1141
3416N - 13504E (I.P.)	3525N - 13715E
Target	3438N - 13805E
3441N - 13545E	IWO JIMA
3353N - 13608E	Base.
IWO JIMA	
Base.	

(5) Altitudes:

(a) Enroute to target: 6,000 - 6,800 feet; 8,000 - 8,800 ft.

(b) Attack: Base 20,000 feet.

(6) Bomb Load: 2,000 lb GP's fused 1/40 nose - 1/40 tail.

(7) D-Hour: 141400K

d. (1) 313th Wing:

(a) Primary Visual Target: 90.30-2202 MARIFU RAILROAD YARDS

MPI	FORCE REQUIRED
089123	3 Groups - Maximum

MPI Reference: Twentieth Air Force Litho-Mosaic IWAKUNI AREA 90.30-XXI 6130.

(b) Secondary Visual and Primary Radar Target: 90.30 OTAKE ARMY DEPOT

MPI	FORCE REQUIRED
103117	3 Groups - Maximum

MPI Reference: XXI Bomber Command Litho-Mosaic OTAKE OIL REFINERY 90.30-2121.

(c) Route:

Base
Assembly Zone I
3243N - 13233E (Reassembly Area)
3306N - 13201E (D.P.)
3343N - 13209E (I.P.)
Target
3432N - 13212E
3432N - 13250E
3309N - 13313E
IWO JIMA
Base

(d) Altitudes:

1. Enroute to target: 5,000 - 5,800 feet; 7,000 - 7,800 feet.

2. Attack: 15,000 feet.

(e) Bomb Load: 500 lb GP's fused 1/10 nose, 1/100 tail. Intervalometer setting - 25 feet.

(f) D-Hour: 141230K.

(2) Omitted.

f. 314th Wing:

(1) Primary Visual and Rader Targets:

Force (1) ISEZAKI URBAN AREA.
Force (2) KUMAGAYA URBAN AREA.

	MPI	FORCE REQUIRED
Force (1)	100091	2 Groups - Maximum
Force (2)	095065	2 Groups - Maximum

MPI Reference:

Force (1) Twentieth Air Force Litho-Mosaic ISEZAKI AREA 90.13 URBAN.

Force (2) Twentieth Air Force Litho-Mosaic, KUMAGAYA AREA 90.13 URBAN.

(2) Routes:

Force (1)	Force (2)
Base	Base
IWO JIMA	IWO JIMA
3545N - 14105E	3545N - 14105E
3609N - 14019E (I.P.)	3609N - 14019E (I.P.)
Target (3618N - 13910E)	Target (3608N - 13923E)
Left Turn	Left Turn
3438N - 13854E	3438N - 13854E
IWO JIMA	IWO JIMA
Base	Base

(3) Altitudes:

(a) Enroute to target: 6,000 - 6,800 feet; 8,000 - 8,800 feet.

(b) Attack: Force (1) 15,000 feet to 15,800 feet
Force (2) 14,000 feet to 14,800 feet.

(4) Bomb Load: M-47IB's; M-17 IC's; and M-46 IC's.
All clusters fused to open 5,000 feet above target.

(5) Each force will send out 12 pathfinders to strike target first.

(6) Force (1) will dispatch two special jamming airplanes to orbit the point 3615N - 13923E with a ten mile radius at altitudes of 18,000 feet and 18,500 feet. These airplanes will be equipped to barrage the 72-84 Mc and 190-210 Mc regions and to spot jam any gunlaying or searchlight radars appearing outside the barrage. Additional quantities of rope will be carried by these airplanes.

(7) Bombing Airspeed: 215 MPH CIAS

(8) Take-off: 141730K.

6. 315th Wing:

(1) Primary Visual and Radar Target: 1066-NIPPON OIL CO. REFINERY

MPI	FORCE REQUIRED
074126	4 Groups - Maximum

MPI Reference: Twentieth Air Force Litho-Mosaic TSUCHIZAKI AREA, 90.6 URBAN.

(2) Route:

Base
IWO JIMA
3658N - 14054E
3827N - 139143OE (I.P.)
Target (3945N - 14004E)
3816N - 14131E
IWO JIMA
Base

(3) Altitudes:

(a) Enroute to target: 5,000 - 5,800 feet; 7,000 - 7,800 feet.

(b) Attack: 10,000 feet to 11,000 feet.

(4) Bomb Load:

(a) 100 lb GP's using T-19 adapters to extent available, remainder 250 lb GP's.

(b) Fusing: No nose fuse and non-delay tail.

(c) Intervalometer Setting: 35 feet.

(5) Take-off: 141630K.

x. Omitted.

4. Tactical Mission Numbers:

90.32-671	-	No. 325
90.25-382	-	No. 326
90.30-2202	-	No. 327
90.6 -1066	-	No. 328
KUMAGAYA	-	No. 329
ISEZAKI	-	No. 330

5. a. (1) Twentieth Air Force SOI and SOP for strike reports, contact reports, and IFF procedures.

(2) Each flight squadron will be equipped to barrage jam the region 190-210 Mc.

(3) Observations of the extent and reliability of the barrage will be made while over the target.

b. Command Post: Headquarters Twentieth Air Force, GUAM.

BY COMMAND OF LIEUTENANT GENERAL T. HINING:

R K TAYLOR
Colonel, Air Corps
Chief of Staff

OFFICIAL:

J B MONTGOMERY
Colonel, G.S.C.
D C/S, Operations

DISTRIBUTION:

2 - CG, 58th Bomb Wing
2 - CG, 73rd Bomb Wing
2 - CG, 313th Bomb Wing
2 - CG, 314th Bomb Wing
2 - CG, 315th Bomb Wing
1 - CG, VII Fighter Command
1 - CO, 3rd Photo Recon Squadron
6 - A-3 Tactics, Twentieth Air Force
2 - 33rd SCU, Twentieth Air Force
1 - RCL Office, Twentieth Air Force
1 - Communications, Twentieth Air Force
1 - OAS, Twentieth Air Force
2 - CIU, Twentieth Air Force
1 - A-2 Reporting, Twentieth Air Force
4 - A-2, Twentieth Air Force

ANNEX

C

DISTRIBUTION

Missions No. 325 through 330

14/15 August 1945

DISTRIBUTION

TACTICAL MISSION REPORT

Copy No.	
1	Commanding General, Army Air Forces
2	Commanding General, U.S. Army Strategic Air Forces (Rear)
3	Commanding General, U.S. Army Strategic Air Forces (Guam)
4 - 5	Chief of Staff, U.S. Army Strategic Air Forces (Guam)
6	Commanding General, Twentieth Air Force
7	Commanding General, Eighth Air Force (Okinawa)
8	Commander in Chief, U.S. Army forces, Pacific
9	Chief of Naval Operations, OP-16-V
10	Commander in Chief, Pacific Fleet (Adv Hq)
11	Commander in Chief, Pacific Fleet (Rear Hq)
12	Commander Air Force, Pacific Fleet
13	Commander, Third Fleet
14	Commander, Fifth Fleet
15	Commander, First Carrier Task Force
16	Commander, Marianas
17	Commanding General, U.S. Army Forces, Middle Pacific
18	Commanding General, Allied Air Forces, SWPA
19	Commanding General, Far East Air Forces
20	Commanding General, U.S. Strategic Air Forces in Europe
21	Commanding General, Mediterranean Allied Air Forces
22	Commanding General, Fifteenth Air Force
23 - 24	Commanding General, Seventh Air Force
25	Commanding General, VII Bomber Command
26 - 27	Commanding General, VII Fighter Command
28	Commanding General, Eleventh Air Force
29 - 33	Commanding General, 301st Fighter Wing
34	Command Hq, Allied Air Forces, SWPA ATTN: Senior Intelligence Officer, R.A.A.F.
35	Commander in Chief, U.S. Army Forces, Pacific ATTN: G-2 (For Section 22, RCM)
36	Officer in Charge, Joint Intelligence Center Pacific Ocean Areas
37	Commanding General, Army Air Forces ATTN: AC/AS Intelligence
38 - 67	Commanding General, Army Air Forces ATTN: AC/AS, Intelligence, Collection Division
68 - 69	Commanding General, U.S. Army Strategic Air Forces (Guam) ATTN: Intelligence
70	Commanding General, U.S. Army Strategic Air Forces (Guam) ATTN: Communications FOR: Counter Measures Air Analysis Center
71	Commanding Officer, Twentieth Air Force Lead Crew School
72	Brigadier General, H.S. Hansell, Jr.
73	Chief of Staff, Twentieth Air Force
74	Deputy C/S, Opns, Twentieth Air Force
75	AC of S, A-2, Twentieth Air Force
76	Chemical Warfare Officer, Twentieth Air Force
77	Ordnance Officer, Twentieth Air Force
78	Director of Tactics, A-3, Twentieth Air Force
79 - 80	Historical Officer, Twentieth Air Force

81	Commanding General, 58th Bombardment Wing
82	Commanding General, 73rd Bombardment Wing
83	Commanding General, 313th Bombardment Wing
84	Commanding General, 314th Bombardment Wing
85	Commanding General, 315th Bombardment Wing
86	Commanding Officer, 3rd Photo Reconnaissance Sq
87	Commanding Officer, 41st Photo Reconnaissance Sq
88	Commanding Officer, 55th Reconnaissance Sq, Long Range Weather
89	Commanding Officer, Twentieth Air Force Combat Staging Center (Provisional)
90	Commanding Officer, 33rd Statistical Control Unit
91	Commanding Officer, 6th Bomb Group (VH)
92	Commanding Officer, 9th Bomb Group (VH)
93	Commanding Officer, 16th Bomb Group (VH)
94	Commanding Officer, 19th Bomb Group (VH)
95	Commanding Officer, 29th Bomb Group (VH)
96	Commanding Officer, 39th Bomb Group (VH)
97	Commanding Officer, 40th Bomb Group (VH)
98	Commanding Officer, 330th Bomb Group (VH)
99	Commanding Officer, 331st Bomb Group (VH)
100	Commanding Officer, 444th Bomb Group (VH)
101	Commanding Officer, 462nd Bomb Group (VH)
102	Commanding Officer, 468th Bomb Group (VH)
103	Commanding Officer, 497th Bomb Group (VH)
104	Commanding Officer, 498th Bomb Group (VH)
105	Commanding Officer, 499th Bomb Group (VH)
106	Commanding Officer, 500th Bomb Group (VH)
107	Commanding Officer, 501st Bomb Group (VH)
108	Commanding Officer, 502nd Bomb Group (VH)
109	Commanding Officer, 504th Bomb Group (VH)
110	Commanding Officer, 505th Bomb Group (VH)
111	Commanding Officer, 509th Composite Group
112	Commanding Officer, 15th Fighter Group (VLR)
113	Commanding Officer, 21st Fighter Group (VLR)
114	Commanding Officer, 414th Fighter Group (VLR)
115	Commanding Officer, 506th Fighter Group (VLR)
116	Reporting Unit, A-2, Twentieth Air Force (File Copy)
117 - 130	Reporting Unit, A-2, Twentieth Air Force