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MISSION #2 YAWATA "ADMEASURE 1"
15-16 June 44

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XX BOMBER COMMAND
 Mission No. 2
 15-16 June 1944

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HEADQUARTERS
XX BOMBER COMMAND
APO 493

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* By Auth of the C.G.*
* XX Bomber Command*
* 5 July 1944 J.D.C.*
* Date Initials *

TACTICAL MISSION

REPORT

Field Order No. 2 Mission No. 2

TARGET: THE IMPERIAL IRON AND STEEL WORKS,
YAWATA, KYUSHU, JAPAN

15 - 16 June 1944

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Prepared by
A - 2 Section
XX Bomber Command

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5 July 1944

SUBJECT: Report of Operations, 15-16 June 1944.

TO: Commanding General, Twentieth Air Force, Washington 25, D.C.

1. UNITS PARTICIPATING:

The 40th, 44th, 462nd, and 468th Bombardment Groups of the 58th Bombardment Wing furnished all available combat-operational aircraft for the attack. The aircraft were dispatched on the mission from bases in the Chengtu area in China as follows:

<u>GROUP</u>	<u>BASE</u>
40th	Hsinching
44th	Kwanghan
462nd	Kunglai
468th	Pengshan

2. IDENTIFICATION OF MISSION:

a. Raid Number 2.

b. Targets Planned:

(1) Primary Target: The Imperial Iron and Steel Works at YAWATA, Kyushu, Japan. (Objective Folder No. 90.34) at 33°51'56"N -- 130°48'40"E.

(2) Secondary and Last Resort : The port facilities at LAOYAO, (near HAICHOW) in Kiangsu Province in Occupied China (Objective Folder No. 83.11) at 34°46'00"N -- 119°27'30"E.

3. STRATEGY AND PLAN OF OPERATION:

a. Importance of Targets:

(1) Primary:

(a) The Imperial Iron and Steel Works at Yawata is the enemy's largest producer of steel and the most important single target in the Japanese Empire. It is estimated that this plant manufactures 2,250,000 metric tons of rolled steel products annually (24 per cent of the Japanese total) and that the output of these products is dependent upon the operation of the three coke plants known to exist at Yawata. The largest of these, the Minato-Machi Coke Plant, was designated as the Aiming Point. This installation yields 1,784,000 metric tons of coke annually, sufficient for the production of an equivalent amount of pig iron, which, in turn, permits the manufacture of 2,665,000 metric tons of steel ingots and 1,865,000 metric tons of rolled products.

(b) Photo reconnaissance subsequent to the mission reveals the fact that a large coke plant, iron and steel furnaces, and rolling mills have been constructed on Kukino Oka at Yawata. It is unlikely, although possible, that a proportionate expansion has occurred in other

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Japanese iron and steel centers. The relative importance of Yawata, therefore, has probably been substantially increased as a result of the new construction undertaken there.

(2) Secondary: Laoyao Harbor is the outlet for approximately 1,200,000 metric tons of coking coal and 100,000 metric tons of manganese and phosphates annually. The movement of this total of 1,300,000 metric tons of cargo requires the presence in Laoyao Harbor of at least four vessels of 4,000 tons at any one time, and it is possible that the ship concentration may number more than four on occasions. Current intelligence suggests that 2,000-ton ships are being used at Laoyao. In this case, there would probably be from eight to ten of these smaller vessels in port at any one time. Bombing of port facilities would not only hinder the handling of cargo but might also seriously damage or destroy any vessels in the port-facilities area at the time of the bombing.

b. Details of Planning (See Annex M, Field Orders):

(1) Strategic Considerations: From the beginning, the aim of the Very Long Range bomber program has been to provide a means of carrying the air war to the Japanese mainland long before the situation would permit the launching of a conclusive sea-air-land offensive against Japan proper. This aim called for a program of strategic bombardment aimed at the heart of Japanese military economy in order to sap the war-making potential of the Japanese in a broad way and thus turn the eventual issue to the Allies' favor. In attempting to secure the maximum dislocation of this war-making potential, basic war industries were naturally high on the priority list. The steel industry was finally decided upon as the objective of the first China-based B-29 mission for the following reasons. Expert study has shown this industry to be especially vulnerable with respect to coke manufacture. Furthermore, it was found to be particularly suitable for VLR bombardment from the bases in the Chengtu area in China as a result of its concentration in Western Japan and Manchuria.

(2) Selection of the Target: The selection of the exact target to be attacked was made largely on the basis of the large size of the Imperial Iron and Steel Works. Moreover, it is located in the midst of a large industrial, urban, and shipping center which could be expected to suffer the damage potential of the "overs" and "shorts." An additional element of importance was its location on the Japanese mainland where bombings are hoped to cause serious morale and political repercussions among Japanese people.

(3) Determination of D-Day: D-Day was originally scheduled to be the time when the critical logistical situation would be such as to provide the necessary POL to dispatch 100 aircraft from the rear area to the forward area and thence to the target with sufficient reserve to provide gasoline for the return ferry trip to India after landing at the forward bases at the conclusion of the mission. Other considerations intervened, however, in the shape of a vigorous threat to Allied forces from Japanese land action in Central China. This campaign developed in early June toward Changsha and threatened all the advanced installations of the Fourteenth Air Force. As a possible means of counteracting this campaign, it was felt that a blow should be struck against the Japanese mainland as quickly as possible. For this reason, considerations of the POL stock were disregarded and the Commanding General, Twentieth Air Force, upon advice that the XX Bomber Command could place 50 aircraft over the target on 15 June, directed a mission of maximum effort on that date.

(4) General Plan of the Mission: Previous experience with range capabilities of the B-29 pointed to the impossibility of a formation attack against Yawata. Uncertainty as to enemy capabilities on the route to and at the target made it inadvisable for an individual-aircraft mission except at night. Take-off time was accordingly established as 0930Z in

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order to place the attacking aircraft over enemy territory only during the hours of darkness. Planned flight time was approximately thirteen and one half hours. A direct course to the target and return was planned in order to insure a safe margin of gasoline. Altitude on course was kept as low as the terrain would permit for the same reason.

(5) Bombing Data: Bombing altitude was planned to be by individual aircraft levels in two brackets: 8,000 to 10,000 feet and 14,000 to 18,000 feet. It was planned that one-fifth of the aircraft in each group would bomb from the upper altitude bracket in addition to any other aircraft that had sufficient gasoline to climb to the higher altitudes and still safely return to the China bases. Axis of attack was indicated as 122 degrees True. Intervalometer setting for the bombing was to be 120 feet if the bomb sight were used and 180 feet if radar were used. Aircraft were to make a turn to the right after bombing the target.

(6) "Pathfinder" Aircraft: A novel addition to the plan of execution was the provision for two "pathfinder" aircraft from each group to take off approximately six minutes and four minutes respectively before the normal take-off time. The mission of these aircraft was to take maximum advantage of surprise, attempting to strike the enemy a damaging blow before he could organize his defenses and setting fires to light up the target for the bombers that were to follow. Of the two pathfinders in each group, one was to bomb in the lower altitude bracket and one in the upper altitude bracket.

(7) B-29 Photo Reconnaissance: A further departure was the provision for two B-29 aircraft to supplement photo reconnaissance activities of the Fourteenth Air Force by taking photographs of the target to be used in target damage assessment. It was planned that photographs would be taken during the early morning of D-Day plus one.

(8) Message from Target Area: Another unusual feature of the planning was the decision to have certain aircraft send from over the target a prearranged message in connection with the weather conditions encountered. If more than 5/10 cloud cover were present, "Mabel" was to be sent; if less than 5/10, "Betty." This was set up not only in order to recall the B-29 photo reconnaissance ships if the weather were not right but also to indicate to forward area Headquarters "bombs away" over Japan.

(9) Determination of Bomb Load:

(a) Bomb loading was as follows: Eight (8) 500-pound GP AN-M-64 (Composition B) bombs in each aircraft with one-tenth (.1) nose and twenty-five thousandths (.025) tail fuzes. It was estimated that this bomb would be adequate in size to penetrate and disrupt the coke ovens.

(b) Although it was realized that a larger bomb would be desirable against other structures in a steel plant, the force available was not adequate properly to neutralize the coke ovens unless the bombing accuracy was under a 1000-foot Cep. Therefore, it was decided to concentrate all efforts on the most vulnerable point of the target.

(c) Each battery of coke ovens covers an area approximately 40 feet by 185 feet. They are constructed of special brick joined with a light binder and therefore subject to penetration or ground shock. It was estimated that two direct hits per battery should result in complete destruction along with a possible explosion. Furthermore, the presence of adjoining by-products equipment would undoubtedly constitute an additional hazard as a result of their inflammable nature.

(10) Fighter Cover: Arrangements were made with the 312th Fighter Wing to provide fighter cover for the VLR bases in the Chengtu Area.

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(11) Diversionsary Missions: The Fourteenth Air Force, at the request of the XX Bomber Command, planned the execution of diversionary missions against enemy airfields in the Hankow salient on the morning of D-Day plus one in order to disrupt any attempted interception of B-29 aircraft returning from the mission.

4. MOVEMENT FROM REAR TO FORWARD AREA (See Annex A):

a. The movement to the forward area was begun on D-Day minus two (13 June) and was continued on D-Day minus one (14 June) and on D-Day. This was necessary not only to provide a suitable staging runway for aircraft of the 444th Group, whose runway at Charra was inadequate for gross load requirements on take-off, but also to make available in the forward area the maximum number of aircraft.

b. In all, 92 aircraft were airborne to the forward area. Seven of these returned to XX Bomber Command bases as a result of mechanical failures, five others made forced landings enroute and did not complete the movement to the forward area, and one is missing. The total number of aircraft landing at forward area bases during the movement was 79, of which 71 arrived prior to D-Day and 8 arrived on D-Day. Four aircraft were already at the forward area prior to the movement, making a total of 83 combat aircraft in the forward area on D-Day.

c. The missing aircraft departed from the 40th Group's field at Chakulia at 142339Z and cleared the control zone at Jorhat at 140204Z. No distress signals were received at any time and it has not been heard from or located since.

d. Aircraft departed from the rear area bases with the same oxygen, fuel, oil, ammunition, and bomb loading that they were later to use in departing from the Chengtu area on the mission.

e. The route to the forward area was as follows: rear area bases -- Jorhat -- Chabua -- Hsichang -- Chengtu. The movement was accomplished without incident except for the abortives and the missing aircraft already mentioned.

5. EXECUTION OF THE MISSION (See Annex B):

a. Take-Off:

(1) In compliance with XX Bomber Command Field Order Number 2, the 58th Bombardment Wing dispatched 75 B-29 aircraft as outlined in its Field Order Number 3. Of this number, 68 were airborne. Details by Groups are as follows:

<u>Group</u>	<u>No. A/C Dispatched</u>	<u>No. A/C Airborne</u>	<u>First A/C Off</u>	<u>Last A/C Off</u>	<u>Elapsed Time, Last A/C From 0930Z</u>
40th	18	16	150916Z	151024Z	54 minutes
444th	18	15	150924Z	150956Z	26 minutes
462nd	20	18	150925Z	151159Z	149 minutes
468th	19	19	150923Z	151128Z	118 minutes

As originally planned, the normal take-off (after the departure of the two pathfinders from each group which took off 5 to 14 minutes before the remainder of the aircraft) was to start at 150930Z with a two-minute interval between aircraft. This was approximately equalled in only two Groups, with the result that some aircraft were over enemy territory in daylight on the return route instead of over friendly territory as planned. This situation, however, did not prevent their safe return to their bases.

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(2) Of the 68 aircraft airborne, one crashed immediately after take-off as a result of a power failure, and four returned to their bases with their bombs, three as a result of engine trouble and one as a result of a fuel-transfer system failure. The entire crew of the aircraft that crashed on take-off escaped injury.

(3) The 312th Fighter Wing remained on the alert during take-off, but the absence of enemy air activity made fighter cover unnecessary.

b. Route Out: Individual aircraft proceeded to the target with out incident, generally following a track of 81° to a point (34°00'N -- 129°30'E) located between Tsu Island and Iki Island. At this point a turn to the left was made and an average heading of 62° was followed to the IP. Identification of the turning point between Tsu and Iki Islands was readily made as a result of the accuracy of the predicted appearance on the radar scope.

c. Initial Point: The Initial Point, Okino Island (34°13'N -- 130°05'E), was also readily identified by radar. At this point, a turn to the right was made and an average track of 114° was made to the target at 33°52'N -- 130°49'E.

d. The Primary Target:

(1) Perfect blackout conditions were found to be in effect in the entire Yawata area. RCM operators logged early warning signals at a distance of 1200 - 1300 miles from the target. Therefore, it cannot be determined for certain whether the blackout is a standard procedure or whether it resulted from early warnings by radar stations.

(2) First aircraft over the target was at 151538Z. A total of 47 aircraft dropped 370 500-pound GP high-explosive bombs on the target from altitudes varying from 8,000 to 21,000 feet. However, the combination of the effective blackout and the presence of ground haze or smoke over the target area made visual bombing difficult and precluded accurate observations of the results. Radar bombing was resorted to by 32 aircraft (68 percent of the total bombing the primary target). A number of crews reported seeing large fires and explosions in the target area, but specific installations were not identified. Last aircraft over the target was at 151827Z, 2 hours and 49 minutes after the first.

(3) The bombing run was accomplished as planned with some exceptions. Most of the aircraft bombing from the lower bracket (8,000 - 10,000 feet) remained as near the upper limit of the lower bracket as possible and a few exceeded this limit. Nine aircraft bombed on other than the briefed axis of attack of 122° True and several deviations from the briefed IAS on the bombing run were reported.

(4) In addition to the four early returns and the one aircraft that crashed on take-off, sixteen other aircraft failed to bomb the primary target as follows: two aircraft had mechanical difficulties over the target and later jettisoned their bombs in the sea; four aircraft failed to reach the target because of mechanical difficulties or navigational errors and jettisoned their bombs; one aircraft crashed 10 miles northeast of Kiangyu in friendly territory after being heard asking for a bearing two hours after take-off; two aircraft are missing with no confirmation as to whether or not they ever reached the Primary Target or whether bombs were jettisoned; two bombed the secondary target at Laoyao; and five bombed targets of opportunity.

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e. The Secondary Target: Two aircraft of the 462d Group did not reach the Primary Target--one because of a gas leak, the other because of a radar failure--and bombed the Secondary Target with sixteen (16) 500 pound GP bombs. The first aircraft reported two explosions at 1437Z and observed fire in the harbor area. The second aircraft, bombing 3 hours later, saw no fires, but they observed four explosions and a large fire in the target area after their bombing. The actual extent of the damage or the significance of the fires and explosions is not known.

f. Targets of Opportunity:

(1) One aircraft of the 40th Group drifted considerably to the north as a result of errors in navigation. Considerations of possible gasoline shortage led to the decision to bomb a target of opportunity and bombs were dropped on the town of Urusan on the south-east coast of Korea. No results were observed or stated.

(2) One aircraft of the 40th Group experienced engine trouble and turned back at approximately 32°50'N -- 115°45'E. On its way back to its base, a light was observed near Fengyang in Occupied China. Bombs were dropped on this light with unobserved results.

(3) One aircraft of the 444th Group bombed an unknown target short of the Primary target as a result of an intervalometer malfunction. Results are unknown.

(4) One aircraft of the 468th Group reported that it turned short of the IP and bombed the town of Yuku Hashi (14 miles southeast of the PT area) when it found itself off course. No observations of damage were reported.

(5) One aircraft of the 468th Group turned late at the IP and bombs were dropped on an unidentified target approximately 6 to 8 miles south - southeast of Yawata. Several dull red bursts were seen, followed by a large white burst. The crew reported seeing the fire still burning for 35 miles on the return route.

g. Route Back:

(1) Aircraft returned from the night operation individually to their bases in the Chengtu area on an average track of 262°. The first aircraft landed at 152248Z and the last at 160155Z. Sixty aircraft landed at their home bases and three landed at 58 Bombardment Wing bases other than their own.

(2) Because of engine trouble one aircraft of the 444th Group made an emergency landing at 152330Z on a fighter strip at Neisiang in Free China (33°08'N -- 111°59'E). Approximately 30 minutes later, this aircraft was bombed and strafed by enemy aircraft, destroying it and slightly injuring two crew members.

(3) No enemy air activity occurred other than that mentioned in the foregoing. As a result, the fighter cover to be provided by the 312th Fighter Wing in the event of enemy air activity was not needed.

h. Activity of the Fourteenth Air Force: As a result of unfavorable weather conditions, the Fourteenth Air Force was unable to carry out diversionary raids against enemy airfields in the Hankow salient. However, in view of the lack of enemy air opposition along the route and the failure of the enemy to attack the bases in the Chengtu area, the inability of the Fourteenth Air Force to carry out its planned diversionary raids had no perceptible effect upon the mission of the XX Bomber Command.

i. Photo Reconnaissance: The plan to use B-29 aircraft for

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photo reconnaissance proved abortive. The photo ship assigned from the 444th crashed shortly after take-off 10 miles north of Kwangan and was completely destroyed. The aircraft assigned from the 468th Group experienced difficulties in taking off because of the condition of the runway and was not able to become airborne. Photographic reconnaissance was provided by the Fourteenth Air Force on 18 June.

j. Operational Results of the Mission:

(1) In general, the mission is considered a success from the operational standpoint. Radar navigation continued to be successfully employed, and there was an improvement in radar bombing technique despite the failure to hit the Aiming Point. Furthermore, the mission had far-reaching political and propaganda effects as indicated by the reaction of both friendly and enemy press and radio. The fortuitous timing to co-incide with the operation against Saipan in the Marianas is also worthy of note.

(2) It is also noteworthy that this mission, executed with the maximum effort as directed by the Commanding General, Twentieth Air Force, was carried out with the full realization that there might be insufficient fuel available at the forward-area bases to return the aircraft to the rear area, particularly if the Chengtu area bases were attacked by enemy aircraft repeatedly and in strength. This situation, however, did not eventuate, and some of the gasoline earmarked for the 312th Fighter Wing was used to help return the B-29 aircraft to the rear area.

6. ENEMY OPPOSITION (See Annex C):

a. Enemy Anti-aircraft and Ground Defenses:

(1) Heavy Anti-aircraft: Heavy anti-aircraft fire, meager to moderate and generally inaccurate, was reported over the area of the Primary Target. The types of fire encountered were not identified, although indications are that a barrage type or a very poor Continuously Pointed was attempted. Yellow or red bursts were noted with fire seemingly concentrated on aircraft coned by searchlights. Single-engine aircraft with green running lights were also observed by several of our aircraft. These planes were flying at the same altitude and course and ostensibly reporting altitude. Heavy anti-aircraft was also encountered at Iki Island, Okino Island, and Koko in Korea.

(2) Automatic Weapons: Automatic weapons fire at the Primary Target was reported as being intense to moderate and inaccurate and encountered up to altitudes of 10,000 to 12,000 feet. Red tracers were also observed. In addition, A/W fire was encountered at Arige and Saishu Island, and in China at approximately 10 miles west of Hwanglo, at approximately 9 miles northeast of Loshan, and at Nanking.

(3) Evasive Action: At the primary target, evasive action generally consisted of a turn to the right after bombs away, together with a loss of 1000 feet in altitude.

(4) Searchlights Encountered: An average of from 25 to 35 searchlights was reported at the primary target, although in two instances crew members indicate an actual count of 54 beams. Partial coordination between searchlights and anti-aircraft fire was indicated. Some difficulty was experienced locating our aircraft, but, when found, they were quickly coned for periods of from two to five minutes. Both yellow and blue beams were observed. Searchlights were also observed at a number of other points as indicated in Annex C.

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(5) Smoke Screens and Barrage Balloons: No smoke screens or barrage balloons were reported, although there is a possibility that the haze or smoke observed by aircraft over the target in the later stages of the attack may have been caused by an actual smoke screen instead of by weather or by the results of bombing.

b. Enemy Aircraft:

(1) Attacks by enemy aircraft were weak and sporadic. A total of 16 encounters was reported by aircraft of two groups; aircraft of the remaining two groups met no fighter opposition. Of the 16 fighters approaching within gun range, only 3 actually fired. No damage was sustained as a result of enemy fighter action.

(2) Types of enemy aircraft were varied as follows: 5 enemy aircraft were identified as Tojos; 3 as single-engine radials; 1 as a float plane; 1 as a single-engine fighter; 3 as twin-engine aircraft; and the other 3 remained unidentified.

(3) The enemy showed a preference for frontal and stern approaches, 5 attacks originating from 11 and 12 o'clock, and 5 coming in from 6 o'clock. Others approached from various directions around the clock. High and level approaches predominated.

(4) The 3 bona fide attacks were carried to 75, 200, and 450 yards respectively, indicating both aggressiveness and poor marksmanship. Five of the passes where no firing developed were carried to less than 500 yards; it is difficult to explain why fire was withheld.

(5) Three enemy aircraft employed the familiar Japanese night-fighter tactics of switching landing lights on and off. One crew reported what they thought to be rocket fire, but further interrogation indicated that 20 mm. fire had probably been observed. No other new weapons or methods of attack were reported.

7. WEATHER (See Annex D).

a. From the bases in the Chengtu area east to 115° longitude, instrument flying was necessary.

b. As a result of heavy cirrus overcast above the flight level, celestial navigation fixes were impossible until the aircraft reached the coast of China. From that point to the target, it was possible to make celestial fixes through breaks in the cirrus deck.

c. Cloud cover over the target was of no consequence. The maximum reported by any aircraft was 3/10 cloud, while the majority of reports reported the sky over the target as clear. The visibility at the target was reported as four miles in haze and smoke.

d. Weather conditions on the return route had improved. As a result, instrument flying was necessary only in the base area or when aircraft were flying through one of the layers of stratus clouds.

e. Weather conditions in the base area at the time of return varied greatly at the different fields. Conditions encountered ranged from 8000-foot ceilings with 5-mile visibility to 500-foot ceilings with 1 1/2-mile visibility. Only one field, however, reported ceilings of less than 3000 feet and visibilities of less than 4 miles. These conditions had no effect upon the landing of the aircraft in that 60 aircraft landed safely at their home bases and three landed safely at 58th Wing bases other than their own.

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f. The cloud cover that was encountered aided somewhat in the carrying out of the mission. Cover from interception by enemy aircraft and from ground fire was present from the bases to within 50 miles of the target and from 50 miles away from the target to the bases on the return route.

g. A cross wind over the target may have caused aircraft to drift off course on the bombing run. Otherwise, none of the weather encountered had any effect upon the carrying out of the mission.

h. Over-all, weather encountered was as forecast with the exception of a smaller amount of cloud cover over the target area.

8. BATTLE LOSSES AND BATTLE DAMAGE:

a. Battle Losses:

(1) One aircraft (A/C 42-6293 of the 444th Group), after bombing the primary target, developed engine trouble and made a forced landing at Neisiang, not far from enemy-held territory in China (33°13'N - 111°58'E). Approximately 30 minutes after it landed, it was bombed and strafed by enemy aircraft and completely destroyed.

(2) It is believed that no other aircraft were lost as a result of enemy aircraft or enemy anti-aircraft action. However, two aircraft of the 468th Group are missing, and there is a possibility that one or both may have crashed as a result of damage inflicted over the target area. One of the aircraft requested and was given bearings from 152330Z to 152340Z, the time at which the earliest aircraft were returning from the mission. The other is reported to have asked the Base Tower at Hsinching for weather information at 160015Z, an unconfirmed report. Despite the fact that one aircraft was reported to have been seen spinning downward bracketed by anti-aircraft and searchlights, the times involved in the foregoing, plus the fact that the Japanese have produced only unsubstantiated and vague propaganda about B-29's shot down, make it appear unlikely that an aircraft was lost over the target. Nevertheless, in view of the unconfirmed nature of the report on one of these aircraft, it is possible that it may have later crashed in the sea or in China as a result of damage caused by enemy action.

b. Battle Damage: Six aircraft were damaged as a result of enemy anti-aircraft. All damage was minor and all damage can be repaired by the tactical or service group. No damage was caused by enemy air action.

9. COMMUNICATIONS (See Annex E):

a. Communications facilities were generally adequate with excellent results obtained on both the air-ground channels and point-to-point channels. Comments on various phases are as follows:

(1) Air-Ground Communications: All air-ground communications were controlled at a central point (Hsinching). Arrangements were made to send out signals at regular predetermined intervals on all channels assigned so that radio operators could select the proper channel by signal strength comparison. Results in general were excellent except for considerable jamming on one frequency when returning aircraft, 200 miles out from Hsinching, were making position reports in order that Fighter Operations could identify aircraft reported by the Chinese Observer Corps.

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(2) Navigational Aids: Many requests were made for bearings, of which more than 80 percent were given with one degree accuracy. Homing was accomplished with good effect from 150 and 300 miles out by use of the Chengtu Homing Station and Chengtu Broadcasting Station respectively.

(3) Point-to-Point Communications: These communications between Rear and Advanced Headquarters were excellent.

(4) Radio Discipline: No efforts were made to maintain strict radio silence. Certain aircraft were instructed to send a signal from over the target, and all aircraft were required to send a position report 200 miles from Hsinching on the return trip.

(5) Signal Security: CSP 1270 or prearranged messages were used for all transmissions. No clear text transmissions were known to have been made, except in the case of the aircraft making a forced landing at Neisiang in China on the return trip.

(6) Air-to-Air Communications: Since there were no formations, air-to-air communications facilities were not required.

(7) Enemy Radio Activity: Considerable radio interference, possibly not intentional, was encountered in at least two of the frequencies used. It was also noted that some enemy broadcasting stations continued to operate for the duration of the raid.

(8) Special Message from the Target Area: Of the eight pathfinders, the four assigned to bombing in the higher bracket (approximately 16,000 feet) were instructed to send a prearranged message, within 10 minutes of the target area, giving general weather conditions at the target. The word "Mabel" was to be sent if cloud cover were more than 5/10, the word "Betty" if less than 5/10. Cloud cover at the target proved to be less than 5/10, and "Betty" was used as the code word, the first "Betty" being received at 151555Z. However, as a result of the abortive flight of the B-29 photo reconnaissance aircraft, the messages were not needed to get in touch with the photo reconnaissance planes; nevertheless, their receipt gave the go-ahead signal in announcing to the world the presence of B-29 aircraft over the Japanese mainland.

10. RADAR AND RCM (See Annex F)

a. Radar:

(1) Navigation: Radar equipment was used by all aircraft as an aid in navigation to and from the target. Radar fixes were obtained accurately and consistently on numerous check points in China and among the islands in the China Sea. The simulated radar-scope pictures supplied in the Radar Briefing Folder were extremely accurate for Navigational purposes as demonstrated by photographs taken during the flight.

(2) Bombing: Post-flight interrogation reports show that 32 aircraft or 68 percent of the attacking force bombing the Primary Target bombed on radar. Radar was also used by the two aircraft that bombed the secondary target and by two of the five that bombed targets of opportunity. Of these 36 aircraft, 29 scored theoretical radar hits, 81 percent of the total bombing by radar. Although results are considered generally good from a radar standpoint, there was still some difficulty caused by failures in target recognition. On the other hand, some improvement was shown in the use of azimuth stabilization and radar ground speed and drift.

(3) Auxiliary Radar Equipment: The SCR 695 had a perfect record of serviceability and better IFF discipline was reported than on the previous mission. The other auxiliary sets, SCR 729 and SCR 718, were

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also used extensively with good serviceability although SCR 718 had a greater number of breakdowns than on the Bangkok mission. SCR 729 was used by several aircraft as a navigational aid in homing to YJ beacons at advanced bases.

b. RCM:

(1) Participation of RCM observers was confined to searching for Japanese radar enroute to and at the target; no offensive action was taken.

(2) Frequencies intercepted, largely in the 72-80 MC and the 93-102 MC bands, lead to the conclusion that the Japanese have a continuous chain of early warning radar stations along the route flown and starting as much as 1200 - 1300 miles from the target area.

(3) No conclusive evidence that the Japanese are using searchlight or gun laying radar was gained in that gun-laying was inaccurate and searchlights searched for several minutes before locating aircraft. On the other hand, once the aircraft were found they were quickly coned for periods of two to five minutes. It was also reported that outer lights would pick up aircraft, carry them for a time, and then pass them on to the lights located nearer to the target. In view of the fact that some signals at 150 MC and many at 175-208 MC were intercepted, principally at the target and near other potential targets, it is possible that if the Japanese do have searchlight and gun laying radar equipment, it operates at these frequencies.

(4) Lack of fighter interception is an indication that possibly there was no GCI in operation in the area of the Primary Target.

11. CENTRAL STATION FIRE CONTROL (See Annex G):

a. The Central Station Fire Control System functioned satisfactorily during the limited use made of it on this mission. Only three malfunctions were reported out of 260 turret positions, and one of these was cleared in the air. It should be noted, however, that the performance rating is based upon functional testing of equipment prior to engagement with the enemy. No valid comment can be made about the functioning or effectiveness of the system under combat conditions. The limited contact that was made with enemy aircraft occurred at night, and results of fire were not observed.

b. Night operations seriously reduce the effectiveness of computed fire. The difficulty of spanning a target in the dark makes it practically impossible to feed required ballistic information to the computer. As a result, accuracy is considerably reduced. Gunners have reported that the combination of lights in the plane and the illumination of the sight reticle has caused some difficulty in directing their fire. One group has requested for night firing additional instruction in "position firing" without the computer in the system. In any event, a suitable diet and additional training are necessary if individual efficiency of night firing is to be improved.

12. CAMERAS AND PHOTOGRAPHS (See Annex H):

a. Cameras installed in the aircraft were not night cameras. Therefore, no pictures were expected. The Groups were directed, however, to expose the film in the hope of picking up bomb flashes, searchlights, or any other information to aid in the interpretation of the results of the mission. No pictures of importance were obtained.

b. In all, 51 cameras were installed of which 14 were in aircraft that aborted. Of the 37 cameras in airborne aircraft, 21 took

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pictures, none of which were significant. Insufficient light over the target contributed to the failure to obtain the results expected.

c. The two B-29 photo reconnaissance planes did not accomplish their mission of securing target damage photographs in the early morning of D-Day plus one. One crashed shortly after take-off and the other was unable to take off because of adverse runway conditions. Target damage assessment photos, however, were secured by the Fourteenth Air Force on 18 June.

13. FUNCTIONING OF EQUIPMENT (See Annex I):

a. Movement from the Rear to the Forward Area: On 12 June 1944 there were in the rear area 105 combat-equipped aircraft, 10 of which were undergoing major repairs at the time the mission was scheduled. Of the 92 aircraft airborne to the forward area, seven aircraft returned to their bases as a result of mechanical troubles, mostly blown exhaust collector rings and inability to transfer fuel; one of these had a cracked cylinder head and one an excessive oil leak. Six aircraft failed to reach the forward bases, five landing at other than home bases as a result of engine trouble and one crashing somewhere en-route.

b. Malfunctions during the Mission:

(1) As of D-Day, 79 aircraft had arrived in the forward area. This total was augmented by 4 combat-equipped aircraft already at the forward area before the movement, making a total of 83 aircraft, approximately 75 percent of those available in the Theater, available for the mission. Two of those were designated as photo reconnaissance ships, making 81 combat-equipped aircraft available. 4
1

(2) After arrival, six aircraft had to undergo maintenance and repairs, leaving 75 scheduled to participate in the mission. Seven of these aborted, primarily as a result of oil leakages and distributor and cylinder head temperature gage troubles. One had a runaway propeller while taxiing, causing it to veer to the right and sink in the shoulder of the runway. Another sank through the hard standing during engine warm up.

(3) Of the 63 aircraft airborne, 11 failed to bomb the primary target because of mechanical failure as follows:

(a) One crashed on take-off after a power failure.

(b) Four returned early with their bombs because of engine or fuel-transfer system trouble.

(c) Two more experienced mechanical difficulties over the target and subsequently jettisoned their bombs.

(d) One aircraft not reaching the primary target was also forced to jettison its bombs.

(e) Three others not reaching the Primary Target because of mechanical failure dropped their bombs on other targets, two dropping on the secondary target and one on a target of opportunity.

(4) One aircraft that bombed the Primary Target made an emergency landing at Heisiang, China, as a result of engine trouble and was shortly thereafter destroyed as a result of enemy action. One aircraft crashed in friendly territory and two others are missing, all for unknown reasons.

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14. TARGET DAMAGE ASSESSMENT (See Annex J)

a. Summary of Damage.

(1) Imperial Iron and Steel Works, Yawata Plant

(a) The roof of a power house located approximately 3700 feet WNW of the AP (Coke Ovens) appears to be damaged. Smoke is seen to be coming from only one of the eight stacks indicating that the plant is at least partly in operation

(b) No other damage is noted in the Works and all major units appear to be in operation.

(2) Other Damage

(a) Kokura Arsenal: One 265' x 265' shopbuilding 1/3 destroyed by HE and several nearby buildings damaged; one 220' x 120' shopbuilding almost completely destroyed and an adjoining building severely damaged; two 190' x 60' warehouse type buildings appear to be completely destroyed.

(b) Other Industrial Damage: Several direct hits destroyed most of a 180' x 150' building of the Kyushu Chemical Works and several nearby small buildings appear to be destroyed or damaged; two of three major buildings of a light industrial plant approximately one mile north of the Kokura Arsenal are mostly destroyed.

(c) Non-Industrial Damage: Widely scattered areas of damage to business/residential areas are noted in the cities of Yawata, Tobata and Kokura. Approximately 250 acres are affected in which over 1000 business/residential buildings appear to be destroyed or damaged. Five or six small areas of possible bomb damage to business/residential areas totalling about 10 acres are visible in the city of Shimonoseki. Approximately 40 houses are destroyed or damaged by a string of bombs which fell in the city of Dairi near Moji just south of the Shimonoseki Railway Ferry.

b. Estimate of Time for Reconstruction: Damage to the Imperial Iron and Steel Works, Yawata Plant was negligible and, as such, could be repaired almost immediately. Damage to the Kokura Arsenal, however, was somewhat greater, but even this does not appear to be sufficient to materially affect production and it is estimated that repairs could be made in a matter of days should the enemy so choose.

c. Estimate of Strategic Effects of the Mission: While the material damage caused by this mission did not seriously affect the operations of the Imperial Iron and Steel Works, there is evidence that other industrial plants were disrupted and workers' homes destroyed in the area. In addition, there is the factor of psychological disturbance in the minds of the Japanese people who found their inner zone penetrated at the same time that landings were being made on the island of Saipan.

For the Commanding General:

Leo I. Herman
LEO I. HERMAN,
Colonel, AC,
Acting Adjutant General

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By *RL* NARA Date *9/18/05*

S E C R E T

ANNEX

A

MOVEMENT FROM REAR TO FORWARD AREA

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MOVEMENT FROM REAR TO FORWARD AREA

Mission No. 2

15-16 June 1944

	40th	444th	462nd	468th	Total
Aircraft airborne	20	23	21	28	92
Aircraft returning to XX Bomber Command bases	0	1	2	4	7
Aircraft forced to land en route or movement not completed	1*	3	0	2	6
Total aircraft landing in forward area	19	19	19	22	79

Aircraft landing prior to D-Day	17	17	16	21	71
Aircraft landing on D-Day	2	2	3	1	8
Total	19	19	19	22	79

Combat-equipped aircraft on hand in forward area prior to movement	2.	0	2	0	4
Total available for mission	21	19**	21	22**	83**

* A/C 42-6261, missing on trip between rear and forward area and not yet located.

** Includes two B-29 aircraft assigned to photo reconnaissance duties (One from the 444th and one from the 468th).

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ANNEX

B.

EXECUTION OF THE MISSION

- I - Details of Routes
- II - Horizontal Track
- III - Vertical Track
- IV - Bombing Data - Primary Target
 - Table 1 - Bombing Altitudes at PT
 - Table 2 - Time of Bomb Release
 - Table 3 - Heading on Bomb Run
 - Table 4 - Indicated Air Speed on Bomb Run
- V - Failures to Bomb Primary Target

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I - DETAILS OF ROUTES

Mission No. 2

15-16 June 1944

	Location	Average Track (deg.)	Time (Z time) at Point	Altitude (feet)	I.A.S. (mph)
Bases To:	Chengtun area	-	0916 1159	-	-
First Turning Point To:	34° 00' N 129° 30' E	81	1518 & later	Varied	Varied
Initial Point To:	34° 13' N 130° 05' E	62	1528 & later	Varied	Varied
Target To:	33° 52' N 130° 49' E	114	1540 & later	8000 - 21000	186 - 210
Bases	Chengtun area	262	2248 - 0155	Varied	Varied

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C H I N A

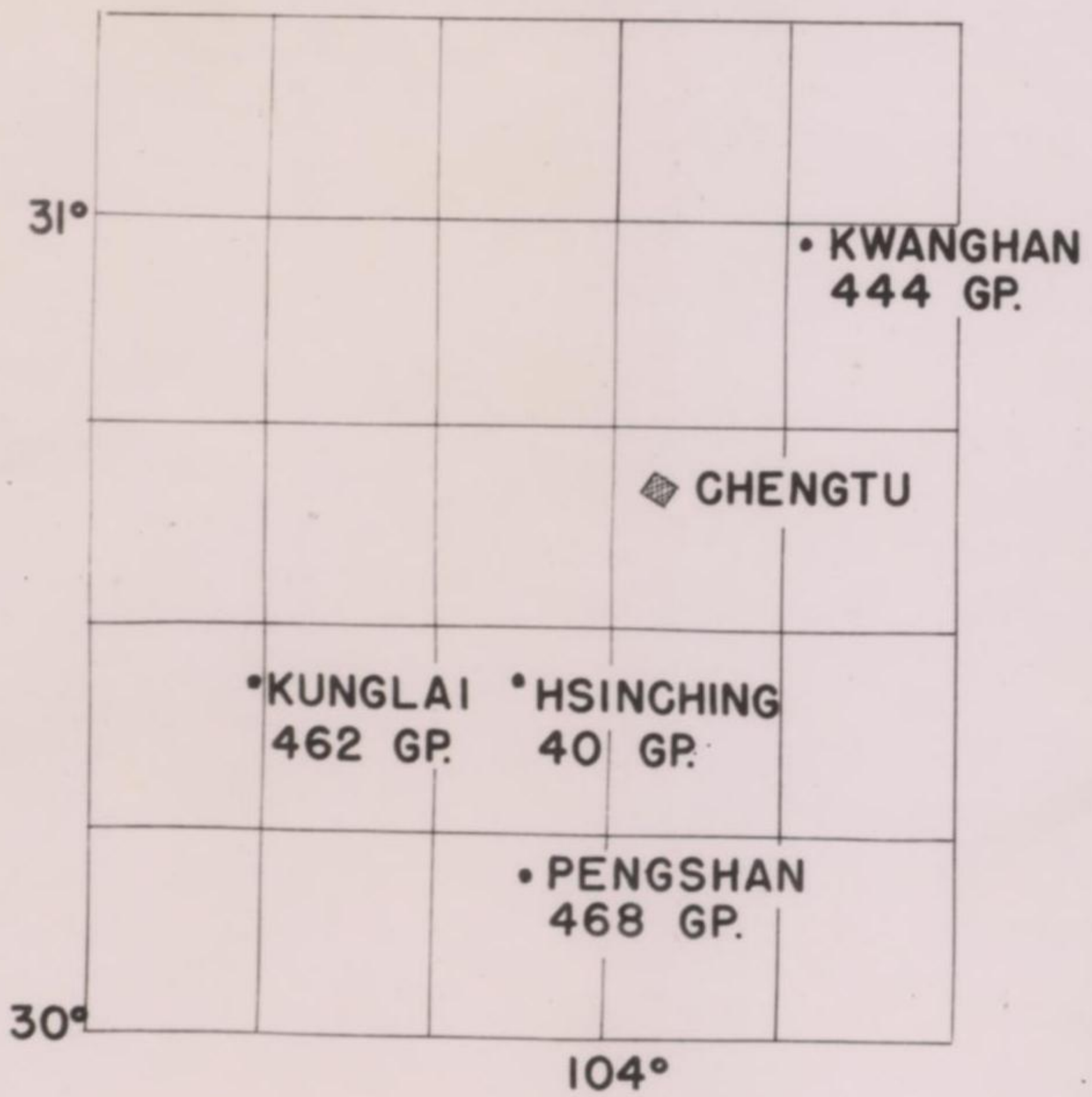
NEISIANG

ARR 2248 TO 0155

CHENGTU

DEP. 0916 TO 1159

CHENGTU LOCAL AREA



TOTAL DISTANCE 2775 NM
ALL TIMES G.C.T.





INA

NEISIANG

LAOYOA

35°

115°

120°

125°

81° - 1310 NM

262° - 1380 NM

30°

DISTANCE 2775 NM
TIMES G.C.T.

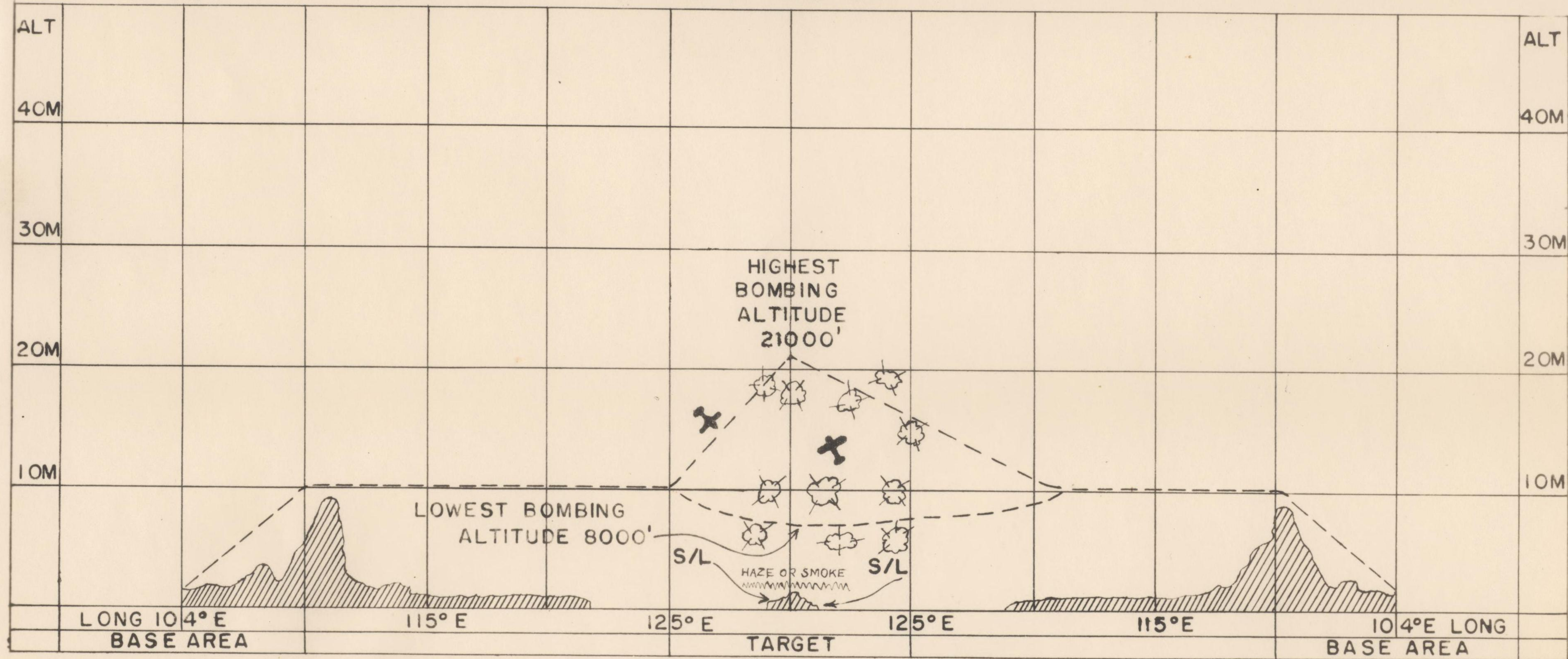
XX BOMBER TRACK
MISSION CHART
2

SECRET.



SECRET.

SECRET
 XX BOMBER COMMAND
 MISSION NO.2
 15-16 JUNE 1944



☼ HEAVY ANTI-AIRCRAFT=MEAGER TO MODERATE, GENERALLY INACCURATE
 AUTOMATIC WEAPONS=INTENSE TO MODERATE, INACCURATE

✕ ENEMY A/C INTERCEPTION=WEAK TO NIL

VERTICAL TRACK CHART

SECRET

S E C R E T

IV - BOMBING DATA - PRIMARY TARGET

Mission No. 2

15-16 June 1944

Table 1 - Bombing Altitudes at PT

Altitude (M feet)	Briefed Altitude	Number of Aircraft ⁺											
		1	2	3	4	5	6	7	8	9	10	11	Total
21		1											1
20													-
19													-
18		1	1	1	1								4
17		1	1										2
16		1	1	1									3
15		1	1	1	1	1							5
14		1	1	1	1								4
13		1											1
12		1											1
11		1	1	1									3
10		1	1	1	1	1	1						7
9		1	1	1	1	1	1	1	1	1	1		11
8		1	1	1	1	1							5

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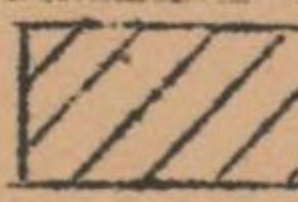
IV - BOMBING DATA - PRIMARY TARGET

Mission No. 2

15-16 June 1944

Table 2 - Time of Bomb Release (All times Z)

Number of A/C	1530	1540	1550	1600	1610	1620	1630	1640	1650	1700	1710	1720	1730	1740	1750	1800	1810	1820
11							█											
10							█											
9							█											
8							█	█		█								
7							█	█		█								
6							█	█		█								
5							█	█	█	█								
4							█	█	█	█		█						
3							█	█	█	█		█						
2			█				█	█	█	█		█						
1	█	█	█		█	█	█	█	█	█		█		█	█		█	█
Total	1	1	2		1	3	11	7	5	8		4		1	1		1	1

Each block  represents one aircraft releasing during the ten-minute period indicated.

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IV - BOMBING DATA - PRIMARY TARGET

Mission No. 2

15-16 June 1944

Table 3 - Heading On Bomb Run

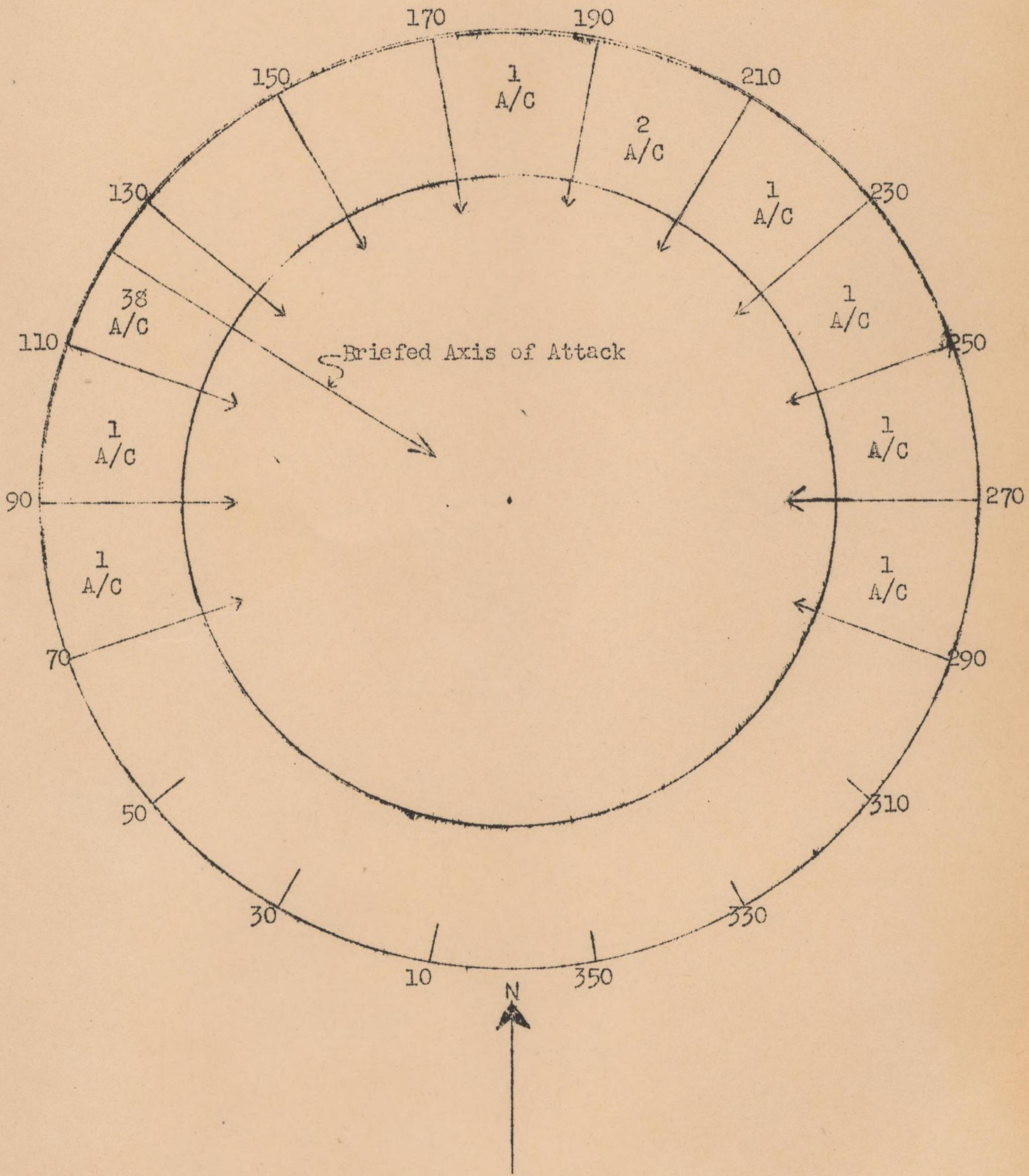


Table 4 - Indicated Air Speed on Bomb Run

I.A.S.	186	189	190	192	193	195	196	197	198	200*	202	204	205	210
No. A/C	1	1	2	1	1	1	1	1	1	32	1	1	2	1

* Briefed I.A.S.

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V - FAILURES TO BOMB PRIMARY TARGET

Mission No. 2

15-16 June 1944

TOTALS	40th	444th	462nd	468th	Total
Aircraft airborne	16	15	18	19	68
Aircraft bombing PT	11	11	13	12	47
A/C failing to bomb PT	5	4	5	7	21

MECHANICAL FAILURES	40th	444th	462nd	468th	Total
Crash on take-off	0	0	0	1	1
Returned early with bombs	2	0	1	1	4
Malfunction over target - later jettisoned bombs	0	2	0	0	2
Jettisoned bombs - engine failure	1	0	0	0	1
Bombed Secondary target	0	0	2	0	2
Bombed Target of opportunity	1	0	0	0	1
Totals	4	2	3	2	11

PERSONNEL FAILURES	40th	444th	462nd	468th	Total
Jettisoned bombs	0	1	2	0	3
Bombed Target of opportunity	1	1	0	2	4
Totals	1	2	2	2	7

UNKNOWN	40th	444th	462nd	468th	Total
Crashed Aircraft	0	0	0	1	1
Missing Aircraft	0	0	0	2	2
Totals	0	0	0	3	3

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ANNEX

C

ENEMY OPPOSITION

- I - Enemy Antiaircraft and Ground Defense
- II - Enemy Fighter Tactics
- III - Tabular Analysis of Encounters
- IV - Clock Summary of Attacks

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I - ENEMY ANTI-AIRCRAFT AND GROUND DEFENSES

Mission No. 2

15-16 June 1944

A. Heavy Antiaircraft Fire

1. Yawata Area (33° 50'N -- 130° 50'E): Heavy antiaircraft fire was reported as being meager to moderate and generally inaccurate. No estimate of the types of fire encountered can be made, but it is possible that a barrage type or inefficient continuously pointed type was attempted. Bursts observed were yellow or red in color. Antiaircraft fire seemed to be concentrated on those aircraft coned by searchlights. A few aircraft reported seeing single-engine aircraft flying at the same altitude and course with green running lights, ostensibly reporting altitude.

From photo coverage after the attack, it has been determined that the Yawata area was defended by approximately 41 heavy antiaircraft guns and approximately 5 unidentified installations similar to the 5 or 6 reported in the Rangoon area. Although these may be gun-laying radar installations, no definite conclusions can be drawn as to whether or not antiaircraft fire at Yawata was radar controlled.

2. Iki Island (33° 47'N -- 129° 43'E): Heavy antiaircraft fire was reported at 14,000 feet. It was meager and inaccurate and possibly a barrage type of fire.

3. Okino Island (34° 15'N -- 130° 09'E): Heavy antiaircraft fire was reported as being inaccurate and meager. It was at the same altitude, but bursts were at a considerable distance from the aircraft.

4. Koko, Korea (34° 52'N -- 127° 17'E): Heavy antiaircraft fire was reported from a possible three or four gun battery at an altitude of 8000 feet.

B. Automatic Weapons Fire

1. Yawata area: A/W fire was reported as being intense to moderate and inaccurate. It was encountered up to altitudes of 10,000 to 12,000 feet. Red tracers were observed.

2. Arigo (33° 55'N -- 130° 41'E): Moderate and inaccurate.

3. Nanking, China (32° 02'N -- 118° 46'E): A/W fire was reported from this location. The city was not blacked out.

4. Saishu Island (33° 20'N -- 126° 30'E): Meager and moderate.

5. A/W fire was also encountered approximately 10 miles west of Hwanglo, China (32° 50'N -- 114° 42'E) and approximately 9 miles northeast of Loshan, China (32° 15'N -- 114° 42'E).

C. Searchlights

1. Yawata area: Reports indicate an average of between 25 and 35 searchlights, although in two instances crew members claim to have counted 54 beams. The lights usually came on approximately one minute before bombs away and remained on until approximately two minutes after bombs away.

Partial coordination between searchlights and antiaircraft was indicated in that antiaircraft fire seemed to concentrate on individual

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aircraft when coned.

Reports indicate that searchlights searched several minutes before locating aircraft, but after the aircraft were found, they were quickly coned for periods of from two to five minutes. One aircraft that sustained considerable minor damage was coned by searchlights at an altitude of 13,000 feet. It is also reported that the outer lights would pick up the aircraft, carry them for a while, and then pass them to the lights located nearer the target.

Both yellow and blue beams were reported. Searchlights not only tended to prevent the bombardiers from seeing clearly but they also prevented ground observation.

2. Iki Island: Approximately 35 searchlights were reported at the south end of the island.

3. Saishu Island: Approximately 3 searchlights were reported.

4. Tsushima (34° 25'N -- 129° 20'E): An undetermined number of searchlights was reported.

5. Okino Island: An undetermined number of searchlights was reported.

6. Tomino Point (33° 55'N -- 130° 02'E): Twenty-four searchlights were reported on the shore near Tomino Point, eight miles west of the target. These lights picked up the aircraft after searching several minutes, carried the aircraft for a distance, and then passed it on to searchlights nearer the target area.

7. Hoku Island (33° 55'N -- 130° 56'E): Four to ten searchlights were reported on the west coast of this island at the mouth of Shimonseki Strait.

8. Kamino Island (34° 32'N -- 129° 23'E): Beams were reported at the north end of the island, 50 statute miles southeast of Korea.

9. Lungshengchen (approximately 13 miles ESE at 31° 51'N -- 114° 45'E): One searchlight was reported by one aircraft. Two searchlights that came on and then went off immediately were reported by another aircraft.

10. Sasebo Naval Station (33° 12'N -- 129° 42'E): Heavy searchlight concentration was reported.

11. Great Island (west of Yawata at 33° 55'N -- 130° 25'E): An undetermined number of searchlights was reported.

12. Kukeno Oka (33° 52'N -- 130° 48'E, a small peninsula just west of the Imperial Iron and Steel Works at Yawata): Twelve to fifteen searchlights were reported.

13. Near Fukuoka (33° 35'N -- 130° 20'E): Three searchlights were reported.

14. Southwest of the target in the direction of Nagasaki 20 beams were counted.

D. Blackouts

1. The blackout was reported as excellent at the target, although the blackout at Tobata (east of Yawata) did not go into effect until the first bombs were dropped. Naval navigational aids in the area also remained on during the entire time of the attack.

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2. Occupied China, including the coastal towns, Korea, and the small islands in the Yellow Sea, did not appear to be under blackout restrictions. Lights were reported in all these areas.

3. One aircraft reported that Saishu Island did not blackout at all during the entire attack.

E. Evasive Action

Evasive action at the Primary Target generally consisted of a turn to the right after bombs away, together with a loss of 1000 feet in altitude.

F. Smoke Screens and Barrage Balloons

No smoke screens or barrage balloons were reported. There is a possibility, however, that the haze or smoke observed by the aircraft over the target during the later stages of the raid may have been caused by a smoke screen and not by the weather or the fires resulting from the bombing.

G. Warning Net

There is evidence that the enemy expected the attack. RCM personnel picked up radar signals as far as 1200 - 1300 miles from the target. Other indications of the presence of a warning net were as follows: the enemy radio went off the air; the blackout of the target was complete; and all defenses were apparently on the alert.

H. Unusual Observations

1. Approximately 20 large flares were observed by aircraft over the target. These were projected to about 500 feet above the aircraft. After the explosion of the flares, searchlights quickly picked up our planes. This may be a visual aid to help the searchlights pick up the aircraft. If so, it may be that the enemy does not rely on radar, at least not exclusively, to guide the searchlights to their objective.

2. One aircraft observed green flares that appeared to drop from above.

3. One aircraft reported seeing red star flares in front and at the same altitude just after crossing the Kyushu coast on the return route.

4. On the coast of China, four to five flares were observed arching above the aircraft at 20,000 feet and exploding in several green lights.

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II - ENEMY TACTICS

Mission No. 2

15-16 June 1944

1. Opposition by enemy fighters was both weak and ineffectual. Of the four groups participating in the mission, only two encountered enemy fighters, and no damage to our aircraft was sustained as a result of their action. Sixteen encounters were recorded in all, with only three of these developing into actual fighter attacks. In the other passes, the enemy aircraft approached within gun range but did not open fire, even though some of the passes were pressed to less than 500 yards. During Mission Number One the enemy was not aggressive, many aircraft flying just out of gun range and being content to observe the B-29. In the case of Mission Number Two, however, the enemy action was aggressive since about 75 per cent of the passes were pressed to less than 500 yards; yet only 19 per cent resulted in actual gun fire on the part of the enemy.

2. Six of the sixteen aircraft making attacks or passes were definitely identified, five as TOJOS and one as RUFÉ; three were described as twin-engine and may have been NICKS, DINAHS or IRVINGS; three as single-engine radials; one as a single-engine; and three were undescribed.

3. Tactics conformed closely to current Japanese night-fighter patterns. Thirty-one percent or five of the passes originated from 6 o'clock, while a similar number originated from 11 and 12 o'clock. The other six came from 2, 3, 4:30, 5, 8, and 9 o'clock. The enemy showed a preference for the high approach, 9 of the 16 coming from this angle.

4. Summary of Directions of Attacks and Passes:

Direction of Attack or Pass	Left Side			Front			Right Side				Rear			Total
	8	9	10	11	12	1	2	3	4	5	6	7		
High	1			1	1				1	1	4		9	
Level		1		3				1			1		6	
Low							1						1	
Total	Left Side 2			Front 5			Right Side 3				Rear 6			16

5. Breakaways were both high and low. The enemy aircraft showed a decided preference to go out on the left side of the bomber between 6 and 11 o'clock.

6. The familiar Japanese tactics of switching landing lights on and off were employed by three night fighters as they made their approaches; lights were turned off during breakaway. Often the Japanese resort to this trick in order to distract attention from an attack developing on the other side of the bomber. No cases of coordination or teamwork of this type were reported, however, and it appears that lights were used for the purpose of locating the bombers.

7. Light machine gun fire was experienced, plus some 20mm fire. One crew originally reported what they thought to be rockets, but further interrogation indicated that the crew had probably observed 20mm fire. The enemy used some tracer ammunition.

8. No new tactical developments were reported. Many tactical details were unobserved by the crews, which is typical of night encounters.

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III - TABULAR ANALYSIS OF ENCOUNTERS

Mission No. 2

15-16 June 1944

Type of Fighter	Direction	Level of Attack	Distance Pressed (Yards)	Breakaway
Unidentified*	11 o'clock	Level	450	8 o'clock low
Twin-engine*	4:30 o'clock	High	200	6:30 o'clock high
Twin-engine*	8 o'clock	High	75	11 o'clock low
SE radial	6 o'clock	High	800	unknown
SE radial	6 o'clock	High	800	unknown
SE radial	6 o'clock	High	800	unknown
Unidentified	11 o'clock	Level	450	8 o'clock low
Unidentified	9 o'clock	Level	50	6 o'clock low
TOJO	2 o'clock	Low	—	7 o'clock
TOJO	3 o'clock	Level	—	9 o'clock
TOJO	5 o'clock	High	—	7 o'clock
TOJO	6 o'clock	High	—	8 o'clock
TOJO	11 o'clock	Level	—	8 o'clock
RUFE	11 o'clock	High	50	7 o'clock high
Single-engine	12 o'clock	High	100	9 o'clock high
Twin-engine	6 o'clock	Level	300	unknown

* Only these three encounters were actual enemy attacks. No enemy gunfire was sustained in the other 13.

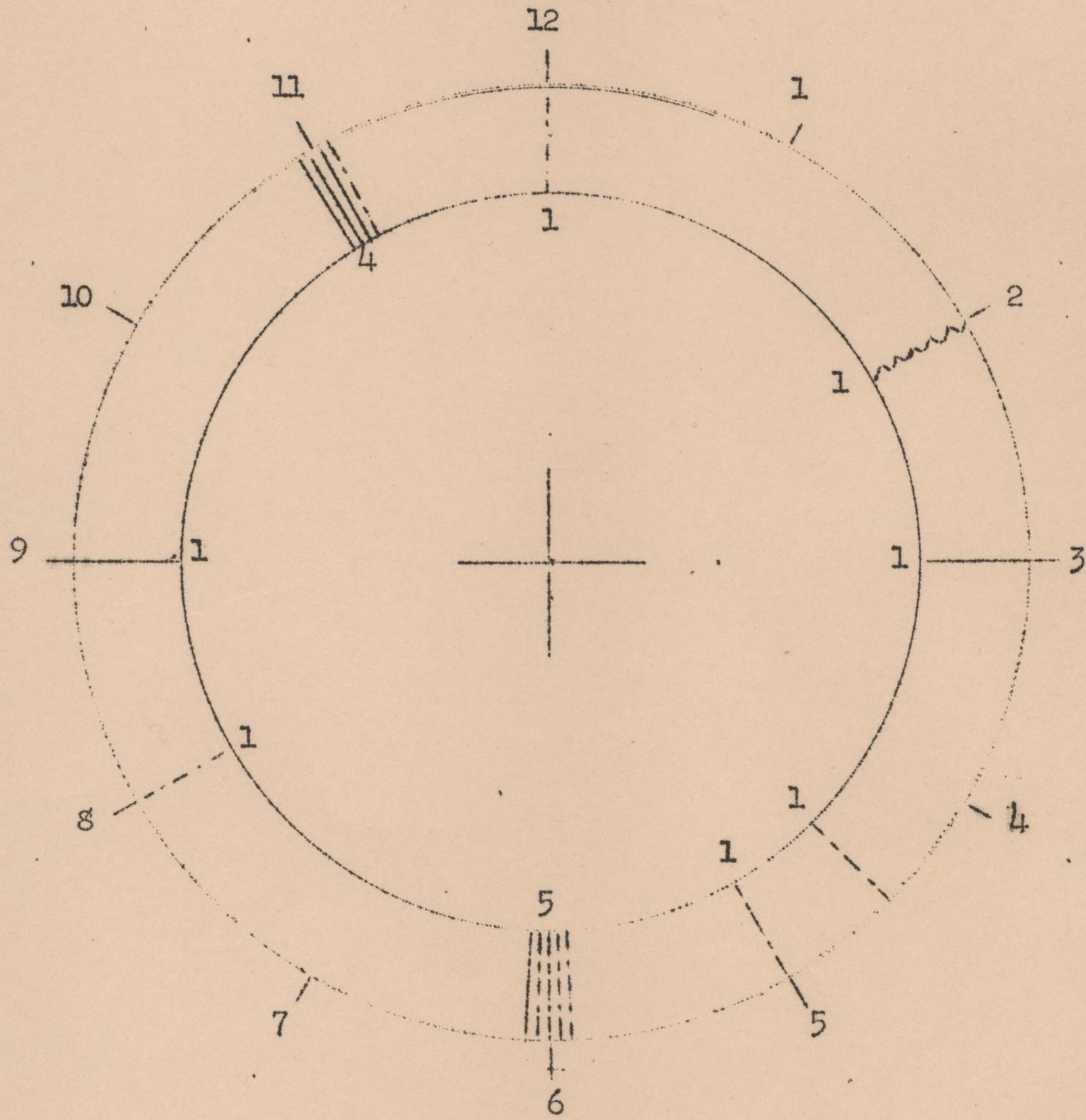
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IV - CLOCK SUMMARY OF ATTACKS

Mission No. 2

15-16 June 1944



Direction of Attacks

Above ----- 9
Level ----- 6
Below ~~~~~ 1
16

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S E C R E T

ANNEX

D

WEATHER INFORMATION

- I - Weather Information: As Forecast and as Encountered
- II - Chart - Weather as Briefed
- III - Chart - Weather as Reported by Returning Crews
- IV - Synoptic Map as of 1200Z, 15 June 1944

S E C R E T

Mission No. 2

I - WEATHER INFORMATION

15-16 June 1944

	As Forecast (151000Z to 152400Z)	As Encountered
Bases at Take-off	Overcast at 6500' at take-off with 6-8 m vsby.	<u>HSINCHING</u> : Scattered stratocumulus at 3000' above surface. Breaks in stratus overcast at 6500' above surface. Vsby unlimited; <u>KWANGHAN</u> : Overcast at 5000' above surface. Vsby 7 m; <u>KUNGLAI</u> : Ceiling 6500' above surface. Vsby unlimited; <u>PENGSHAN</u> : 5/10 cumulus 3500' above surface. Overcast at 5500' above surface. Vsby unlimited.
Base Area to Hills	Clouds in several layers to 16,000' to hills with top of first layer at 8500', merging with other layers near hills. Layers will be 8/10 - 10/10.	Scattered and broken stratiform layers of clouds from 5000' to 16,000'. Vsby 8-12 m.
Hill Area	Merging cloud layers will close passes and will extend to 16,000'. There will be a broken cirrus layer above 20,000'.	Cloud layers merged at about 108° E with cumuliform clouds. Light to moderate turbulence, rain and drizzle were encountered and continued to 112° E. Light clear icing was reported by one aircraft at 12,000' while another reported 12° C at 10,000'.
Hills to Coast	Overcast with occasional breaks at 3000' with top at 5-6000'. There will be a broken altocumulus deck based between 10,000' and 15,000' about 1000' thick. There will be a broken cirrus layer above 20,000'.	Clouds were stratiform and as follows: Scattered cirrus above 20,000'; 5/10 stratus base 15,000; 10/10 stratus base 11,000'; tops 13,000'; 5/10 stratus tops 8500', base unknown; scattered cumulus tops 6500', base estimated 3500' within 200 miles of the coast. The layer at 15,000' and the layer at 8500' disappeared while the stratus layer at 11,000' lifted to 13,000' and became scattered.
China Coast to Target	Low overcast will become 4/10, but high broken cirrus will persist.	Widely scattered cumulonimbus up to 12,000' along the China coast. The scattered layer of stratus at 13,000' dissipated 100 miles from the target and the low stratus deck decreased to very widely scattered patches close to the target. Thin cirrus allowed star fixes over the sea.

All altitudes given as Mean Sea Level
unless otherwise indicated.

(continued on next page)

S E C R E T

Mission No. 2

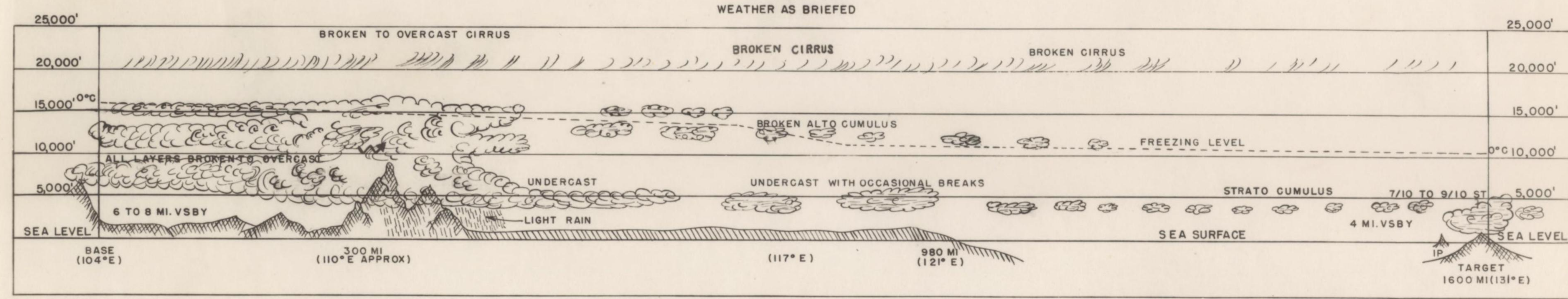
I - WEATHER INFORMATION (CONTINUED)

15-16 June 1944

At Target	7 - 9/10 stratocumulus at 1500' with top at 4000'. There will be a broken to scattered cirrus layer above 20,000' Vsby 4 m. Altimeter setting 29.78 in.; surface temperature: -20°C ; 10,000' temperature: 0°C ; 18,000' temperature: -20°C .	Clear with very widely scattered stratocumulus, occasionally crossing the target with maximum of 3/10 coverage and tops at 4000'. Vsby 4 m in haze. Winds: 270° and 15 knots at 10,000'; 260° and 20 knots at 20,000'.
Return Route	Similar to route out.	Conditions similar to route out except for cessation of cumulus activity over mountains with more definite stratification and peaks visible between layers. There was more cloudiness over the Red Basin with intermittent rain.
Bases on Return	Overcast with base 8000'. Clouds above will be in broken layers 1000' thick with top at 15,000'. Vsby 4 m.	<u>HSINCHING</u> : Ceiling 8000'. Vsby 5 m. <u>KWANGHAN</u> : Broken stratus base 500' above surface, top 3000' above surface with lower scattered scud. Light rain. Vsby 1 1/2 m. <u>KUNGLAI</u> : Light rain, Ceiling 3500' above surface. Vsby unlimited. <u>PENGSHAN</u> : Ceiling 5000' above surface. Vsby 4 m.
Freezing Level	15,000' at bases lowering gradually to 10,000' over the target. Light rime ice in clouds above the freezing level.	The Zero Degree Isotherm was at approximately 16,000' throughout.

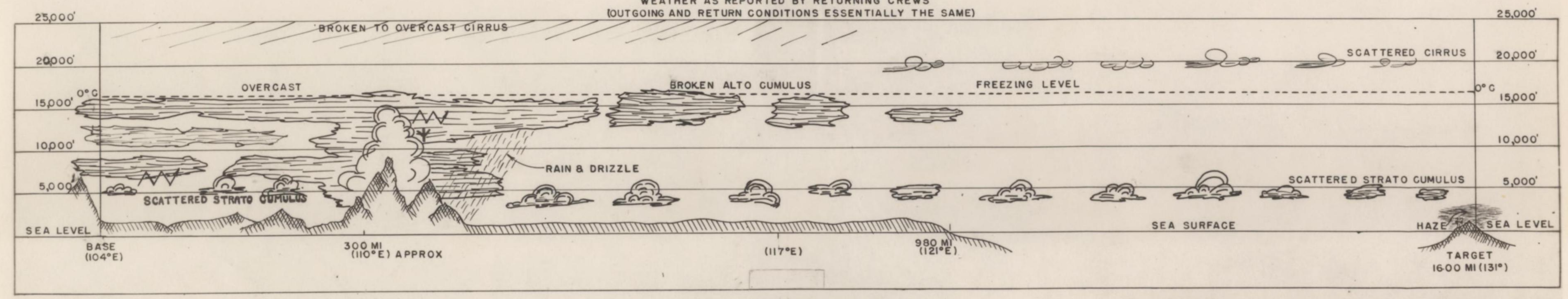
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XX BOMBER COMMAND
MISSION NO. 2
15-16 JUNE 1944
WEATHER AS BRIEFED



SECRET

SECRET
XX BOMBER COMMAND
MISSION NO. 2
15-16 JUNE 1944
WEATHER AS REPORTED BY RETURNING CREWS
(OUTGOING AND RETURN CONDITIONS ESSENTIALLY THE SAME)



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WESTERN NORTH PACIFIC OCEAN—METEOROLOGICAL PLOTTING CHART—U.S. NAVY

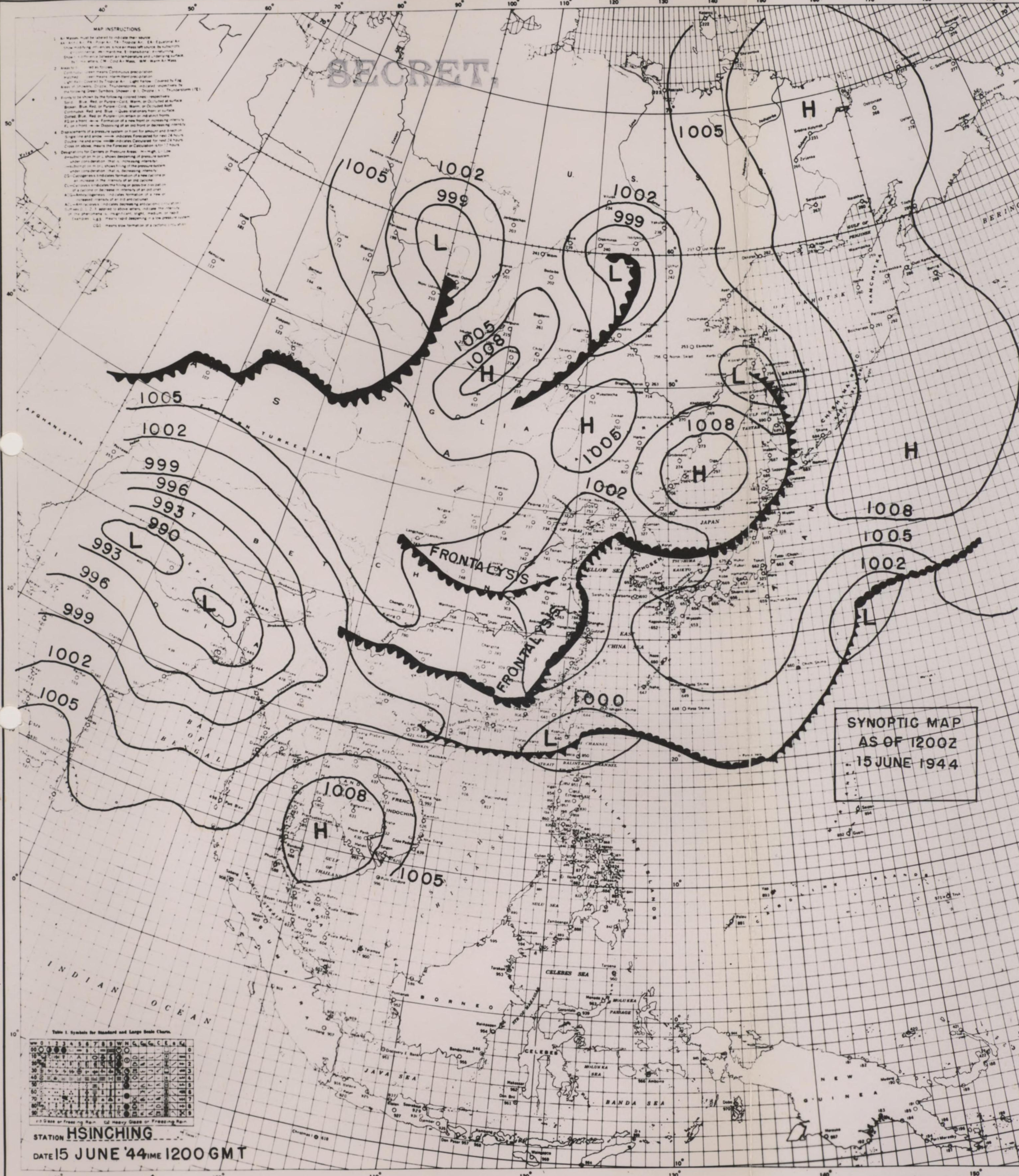
No. 5555



MAP INSTRUCTIONS

1. Weather must be plotted to indicate the source of the plotting and to show the effect of the plotting on the weather.
2. The plotting must be done in accordance with the instructions on the plotting chart.
3. The plotting must be done in accordance with the instructions on the plotting chart.
4. The plotting must be done in accordance with the instructions on the plotting chart.
5. The plotting must be done in accordance with the instructions on the plotting chart.

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SYNOPTIC MAP
AS OF 1200Z
15 JUNE 1944

Table 1. Symbols for Standard and Large Scale Charts.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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STATION HSINCHING
DATE 15 JUNE '44 TIME 1200 GMT

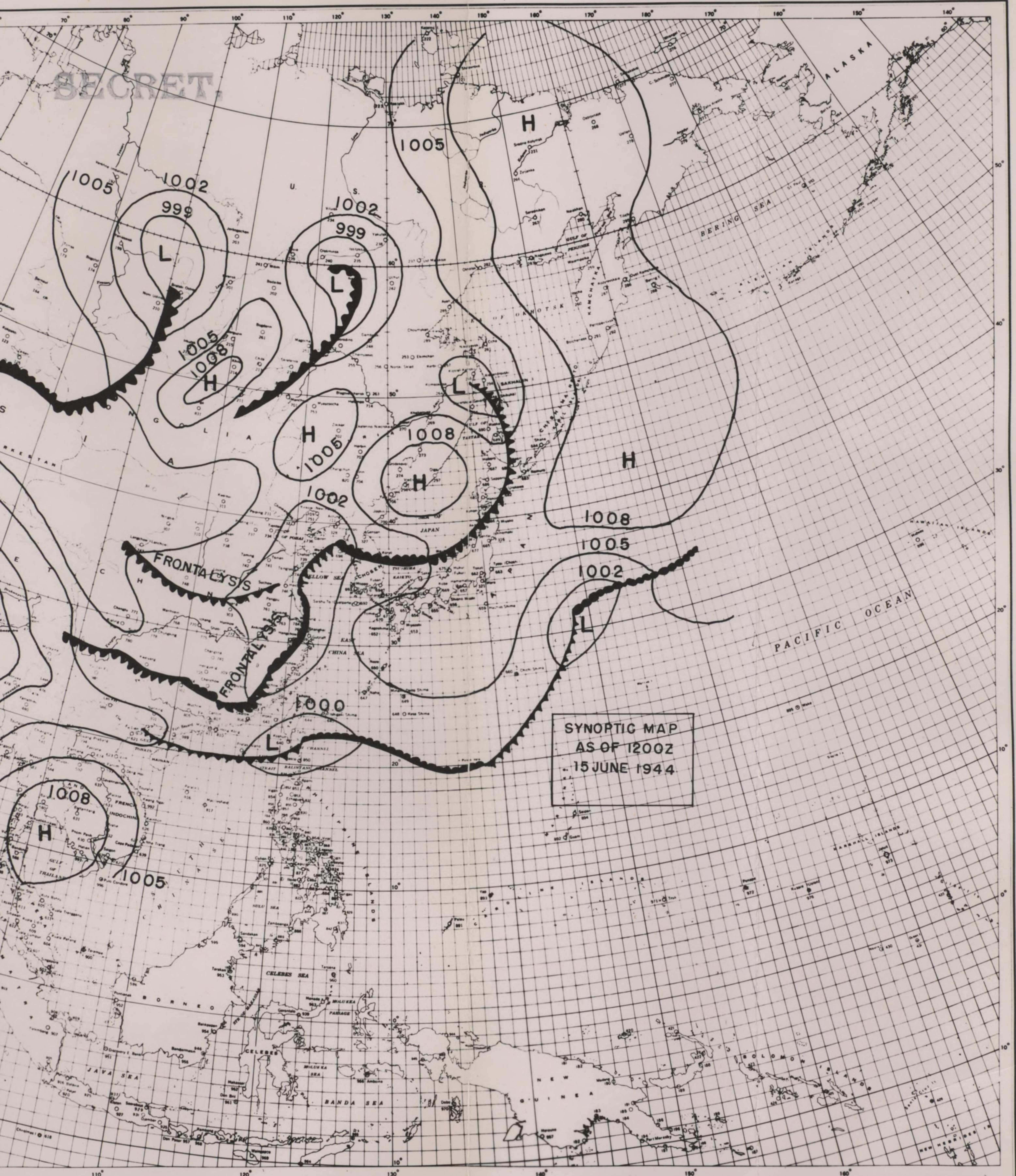
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Published at the Hydrographic Office, Washington, D.C., May 1939
under the authority of the SECRETARY OF THE NAVY

Rev. Publication: 4th Ed., Sept. 1938

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By *NA* NARA Date *9/29/05*

WESTERN NORTH PACIFIC OCEAN—METEOROLOGICAL PLOTTING CHART—U.S. NAVY



SYNOPTIC MAP
AS OF 1200Z
15 JUNE 1944

SECRET

Published at the Hydrographic Office, Washington, D.C., May 1939
under the authority of the SECRETARY OF THE NAVY

New Publication 4th Ed., Sept. 1938

4th EDITION, Sept. 1938

No. 5555

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ANNEX

E

COMMUNICATIONS INFORMATION

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E.O. 11652, Sec. 3(e) and 5(d) or (f)
NND 740120
By CGJ/bj NARA Date Oct. 1995

~~SECRET~~

DECLASSIFIED
Authority NND 760063
By NARA Date 9/18/05

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COMMUNICATIONS INFORMATION

Mission No. 2

15-16 June 1944

A. Air-Ground Communications

All air-ground communications were centrally controlled at Hsinching, China. Simultaneous "F" type transmissions were made on four CW channels -- 2865, 5520, 8280, and 14,680 kcs. V's were sent out on all channels for the first minute out of every five in order that airborne radio operators could determine the proper channel to use by signal strength comparison. The 8280 kc channel proved to be an excellent frequency with R5/S5 signals being received from over the target at Hsinching. R1/S2 signals were heard from the target in the rear area at Kharagpur. The majority of the aircraft used 8280 kcs throughout the course of the mission, and no trouble was experienced until 200 miles out from Hsinching on the return trip. At that time, in order that Fighter Operations could identify aircraft picked up by the Chinese Observer Corps, all aircraft were required to make a position report. This resulted in considerable jamming at the time when the aircraft were returning in large numbers.

B. Navigational Aids

A large number of requests were made for bearings (QDM), of which more than 80% were given with one degree accuracy. The Homing Station at Chengtu was used to good advantage from 150 miles out and the Chengtu Radio Broadcasting Station was used for homing from 300 miles out. In view of these excellent ground-homing facilities, it is evident that a large number of unnecessary transmissions were made for QDM's that could have been obtained accurately by using the A/C radio compass.

C. Point-to-Point Communications

Point-to-Point communications between Headquarters of the Rear and Forward Echelons were excellent with no break-down of the circuit experienced. Some evidence exists that the radio teletype circuit between the Rear Echelon Headquarters and War was jammed at about the time our aircraft were over the target, but this evidence is not conclusive.

D. Enemy Radio Activity

A great deal of interference from enemy stations using 5520 and 8280 kcs was noticed. There is no evidence, however, that any of the interference noted was intentional. The interfering stations were JJU, JCS, JOR, UTM, FZT, 7Q, and MAYY. Other broadcasting stations in enemy held territory were also observed to continue broadcasting during the raid. These stations were: Chefoo, 640kc; Keno, 240 kc; Tsingtao, 810 and 7150 kc; and Shanghai, 570 and 600 kc.

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E.O. 11652, Sec. 3(E) and 5(D) or (E)
ANN.D. 740.120
By *CSA/BJ* NARS, Date *0820/05*

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Authority *AND 960063*
By *RL* NARA Date *9/18/05*

S E C R E T

ANNEX

F

RADAR AND RCM

I Radar Information

Table 1 - Radar Reports on Bombing

Table 2 - Radar Bombing Evaluation

Table 3 - Radar Operator Procedure & Methods

Table 4 - Radar Serviceability

II RCM Activity

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By RA NARA Date 9/18/05

S E C R E T

I - RADAR INFORMATION

Mission No. 2

15-16 June 1944

A. Radar Summary of the Mission

On the second mission of the XX Bomber Command, 32 aircraft bombed by radar in the area of Yawata. Aircraft bombing this area visually were directed to the IP, started the bombing run, and located the target area on radar. Radar navigation and radar fixes were used with great success throughout the mission. In addition, radar procedure, operator efficiency, and equipment serviceability were all greatly improved over the first mission. Some radar operators, however, experienced considerable difficulty in identifying the target.

B. Bombing Results

1. Twenty-nine radar bombardiers scored hits on radar targets within the 100 mil accuracy of present radar procedure. (This figure is theoretical and is estimated from the post-flight interrogation of radar operators.) This large number of radar hits is 81 percent of the total radar drops, a striking improvement over the 27 percent scoring theoretical radar hits on Mission No. 1. It should be noted that statistics are not based on a specific radar target but include Yawata, Laoyao, and various other strong radar targets in the vicinity of Yawata. This is necessary as a result of the difficulty experienced by radar operators in target recognition under combat conditions.

2. As a result of this difficulty, bombing was poor at Yawata despite improved bombing procedure and radar-operator proficiency. The primary cause of poor target recognition was the inexperience of radar operators in actual selection of targets in the complicated radar pattern of large industrial regions. A second cause was the marked similarity of outline between Hon Harbor and Maeda Anchorage, the briefed Aiming Point. As a result, many planes came in left of course and bombed the Tobata area, which lies in the same relation to Hon Harbor as Yawata does to Maeda Anchorage. It is believed that this tendency to come in on course but to the left of the track was caused by failure to use set IP procedure turns, thereby causing the aircraft to overshoot the IP. A third cause for this confusion in target identification was the receiving of strong radar signals from industrial installations constructed since the last available reports, especially in the tongue of land between Maeda Anchorage and Hon Harbor. However, despite these difficulties in scope interpretation, a set of radar pictures taken near the target shows strong signals from the Yawata area. These pictures, supplemented by a map (included in this Annex) definitely establish a basis for confirming the selection of Maeda Anchorage as the Aiming Point.

3. According to a consensus of the radar operators, the check points and the IP were also well selected. The reports and the scope pictures show remarkable agreement with the predicted scope appearances as presented in the Radar Briefing Folder. However, as previously indicated, the presence of new construction offset the otherwise accurate predicted appearance. It appears, therefore, that only advance radar reconnaissance photographs of the planned target area can solve this difficulty.

4. The attainment of a high degree of bombing accuracy must also involve intensive training of radar operators in dry runs against complicated city and industrial radar signals. At the same time, training must also be intensified on: (1) simple radar navigation; (2) neutralizing drift; and (3) use of the AN/APQ-13 controls, particularly the gain control which has been set much too high for radar targets as indicated in

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all photographs taken to date. Nevertheless, the need for radar reconnaissance and radar photographs of the actual target cannot be too strongly emphasized.

C. Radar Navigation

As in the previous mission, all aircraft used radar for navigation with good results. Of the total aircraft bombing targets, 81 percent identified the IP and 69 percent approached the target on the briefed track. Table 3 shows by groups the numbers of operators performing the various functions of navigation and bombing. It is interesting to note that two groups, the 462nd and 468th, show great improvement in the use of radar for computing GS and drift and also have the greatest number of aircraft using the proper drift. These groups also show the best records in the use of azimuth stabilization and other aids to the operations of the AN/APQ-13.

D. Radar Serviceability

The record of serviceability of the AN/APQ-13 showed marked improvement in spite of the longer mission. Ninety-eight percent of the aircraft had radar in operation soon after take-off, and no cancellations or early returns were caused by radar failures. This excellent record was maintained over the target with 89 percent operating satisfactorily and one additional APQ-13 operating perfectly but with interference from other radars. It is believed this improved serviceability can be ascribed for the most part to the lower altitudes flown, which, together with the de-icer pressurization modification, eliminated pressure breakdown in the radio frequency unit. The maintenance lessons learned in the first mission also played an important part.

E. Auxiliary Equipment

The SCR 695, 729, and 718 were used extensively with good records of serviceability. There were no failures of the SCR 695 (IFF) and only two failures of the SCR 729. The SCR 718 altimeter showed a decided increase in failures on this mission, thirteen being reported. Greatly improved discipline in the use of the IFF set was evident despite last-minute changes in IFF procedure. The SCR 729 was used by four aircraft who were uncertain of their position to home on the YJ radar beacons installed at the advanced bases. In at least one instance the SCR 729 showed the aircraft to be on the northern leg of the radio range instead of the eastern as the radio operator believed.

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RADAR INFORMATION

Mission No. 2

15-16 June 1944

Table I - Radar Reports on Bombing

	40th	444th	462nd	468th	Total	Per cent of total
A/C Bombing PT	11	11	13	12	47	
Radar Bombing PT	10	6	4	12	32	68
A/C Bombing ST	0	0	2	0	2	
Radar Bombing ST	0	0	2	0	2	100
A/C Bombing TO	2	1	0	2	5	
Radar Bombing TO	2	0	0	0	2	40
Total A/C Bombing	13	12	15	14	54	
Total Radar Bombing	12	6	6	12	36	67

Table 2 - Radar Bombing Evaluation

	40th	444th	462nd	468th	Total	Per cent of total
Total Radar Bombing	12	6	6	12	36	
A/C Scoring Theoretical Radar Hits	9	5	6	9	29	81
A/C Scoring Theoretical Radar Misses	3	1	0	3	7	19
Percent of Hits to Total	75	83	100	75	81	

S E C R E T

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RADAR INFORMATION

Mission No. 2

15-16 June 1944

Table 3 - Radar Operator Procedure and Methods

	GROUP								Total	
	40th		44th		462nd		468th		No.	%
	No.	Total*	No.	Total*	No.	Total*	No.	Total*		
Total A/C Bombing Targets	13		12		15		14		54	
Bombed by AN/APQ-13	12	92	6	50	6	40	12	86	36	67
Identified IP	9	59	11	92	12	80	12	86	44	81
Identified Target At Effective Range	9	59	12	100	12	80	9	64	42	78
Approached Target on Briefed Track	7	44	11	92	10	67	9	64	37	69
Had Effective Length of Bomb Run	9	59	8	67	4	27	11	79	32	59
Radar Drops Using Probable Correct Value of Drift**	4	33**	2	33**	3	50**	8	67**	17	47**
Computed Drift and Ground Speed by Radar	4	21	7	58	15	100	12	86	38	70
Used Sector Scan on Bomb Run	2	15	7	58	6	40	9	64	24	44
Used Azimuth Stabilization on Bomb Run	1	8	1	8	9	60	11	79	22	41
Average Length of APQ-13 Operation (Hours)	7		9		8		13		9.5	

* Represents percent to total aircraft bombing all targets, except as indicated.

** Percent to total obtained by comparison with total aircraft bombing by AN/APQ-13, not with total aircraft bombing all targets.

Table 4 - Radar Serviceability

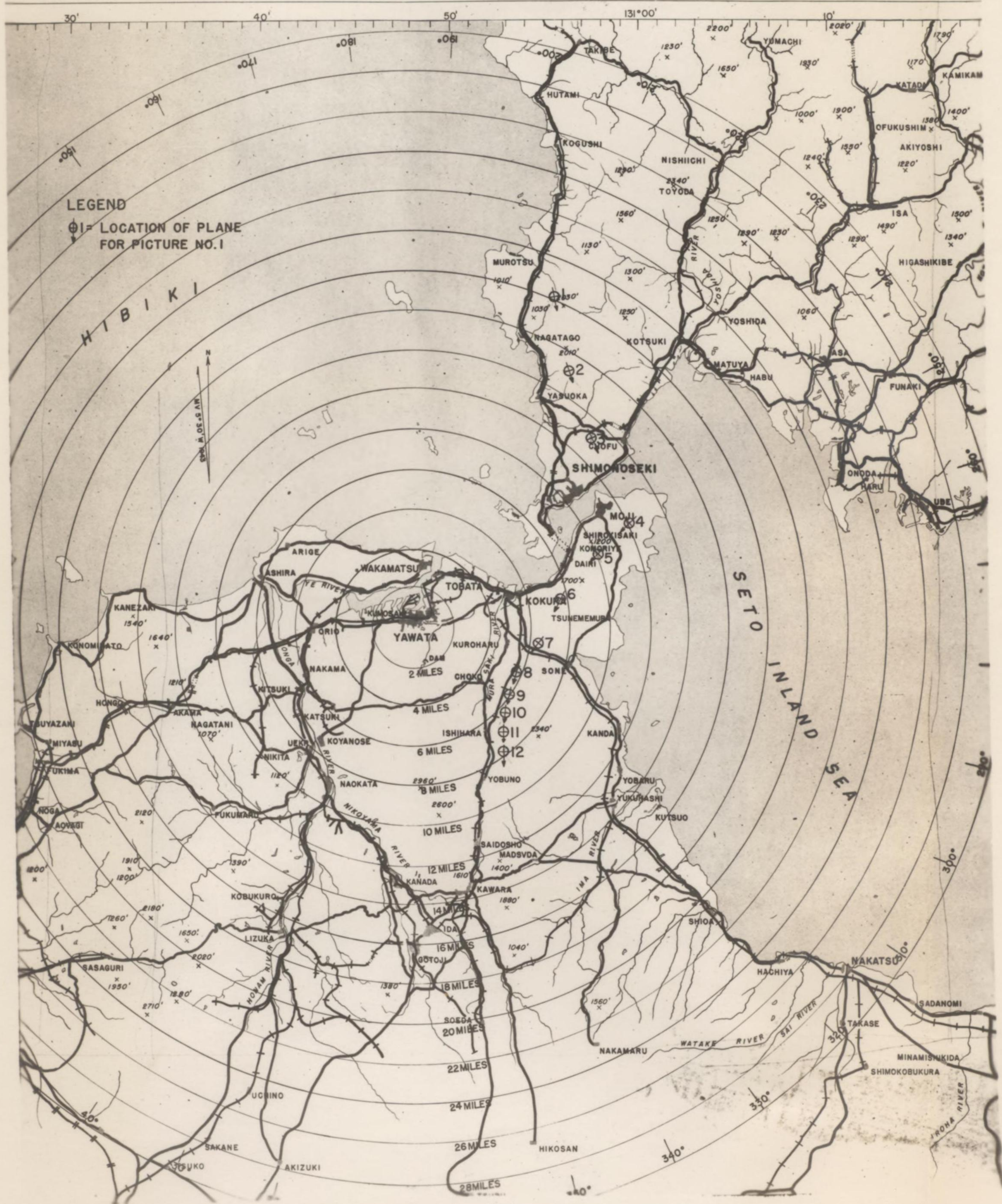
	Mission #2	Mission #1
% APQ-13 Operating at Take-off	98	96
% APQ-13 Effectively Operating over Targets	89	74
% APQ-13 Failures in Flight Repaired by Operators	4	7
% APQ-13 Having Interference from Other APQ-13's But Permitting Tracking Targets	7	13
Average Length of APQ-13 Operation (Hours)	9.5	5

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YAWATA AREA

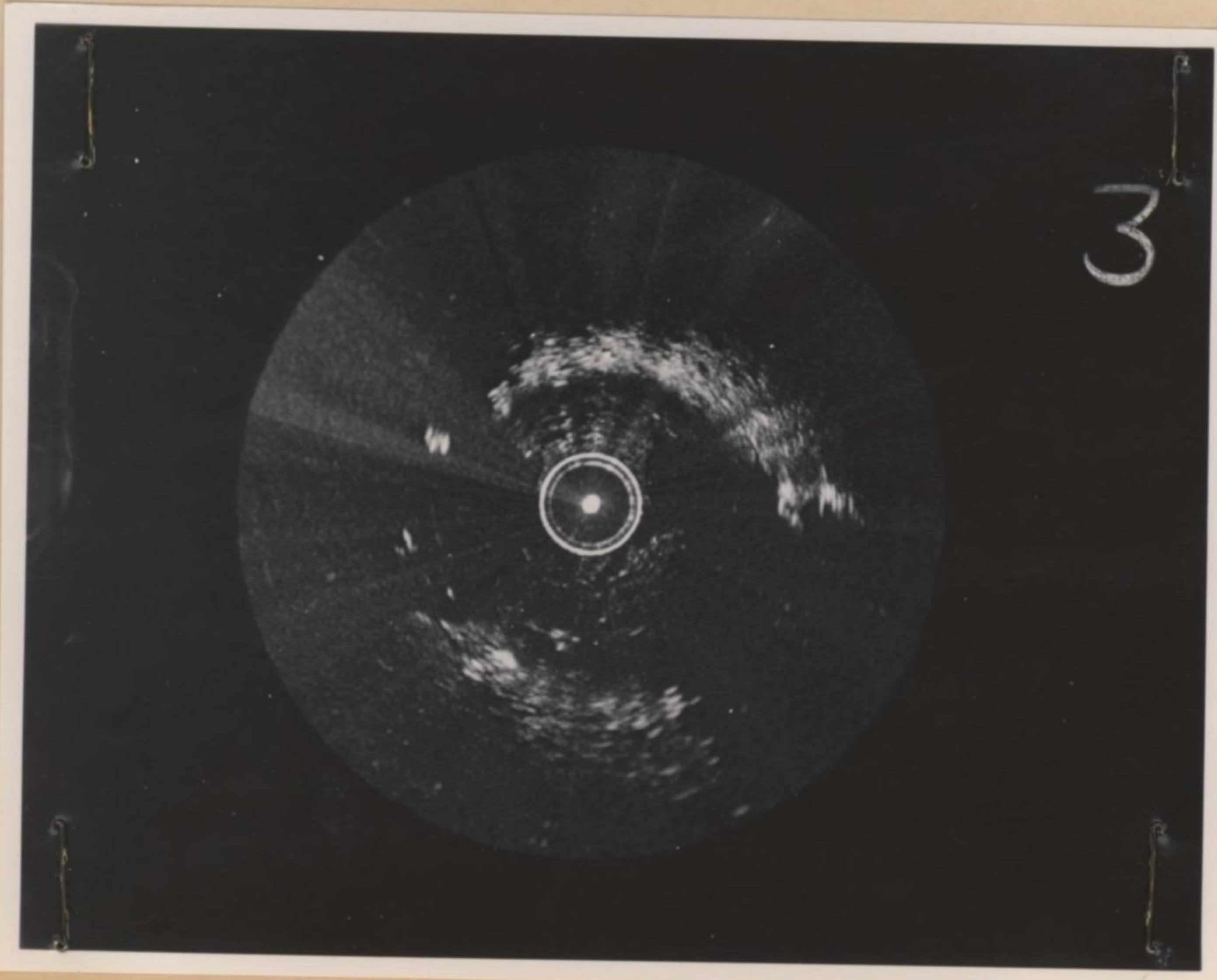
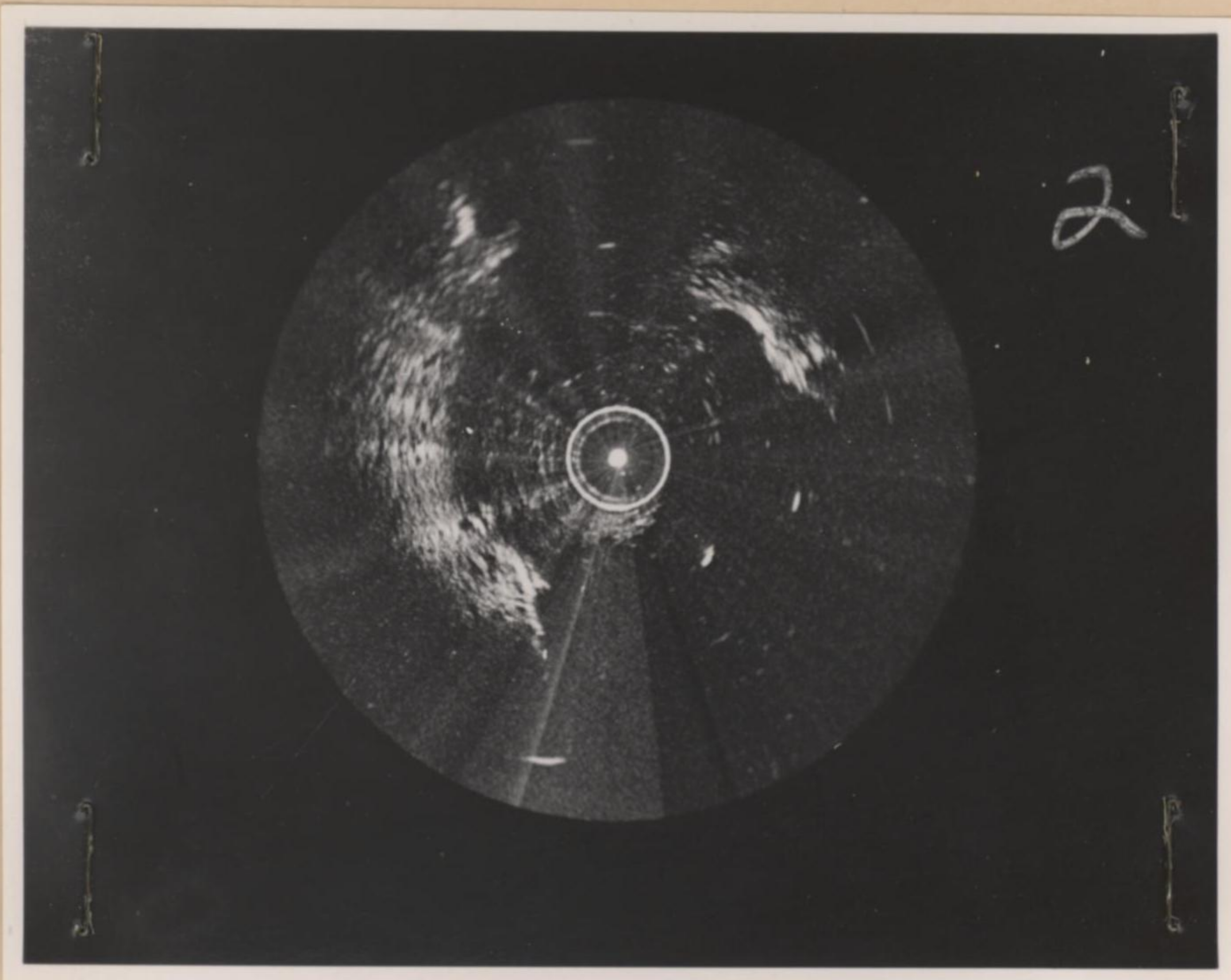
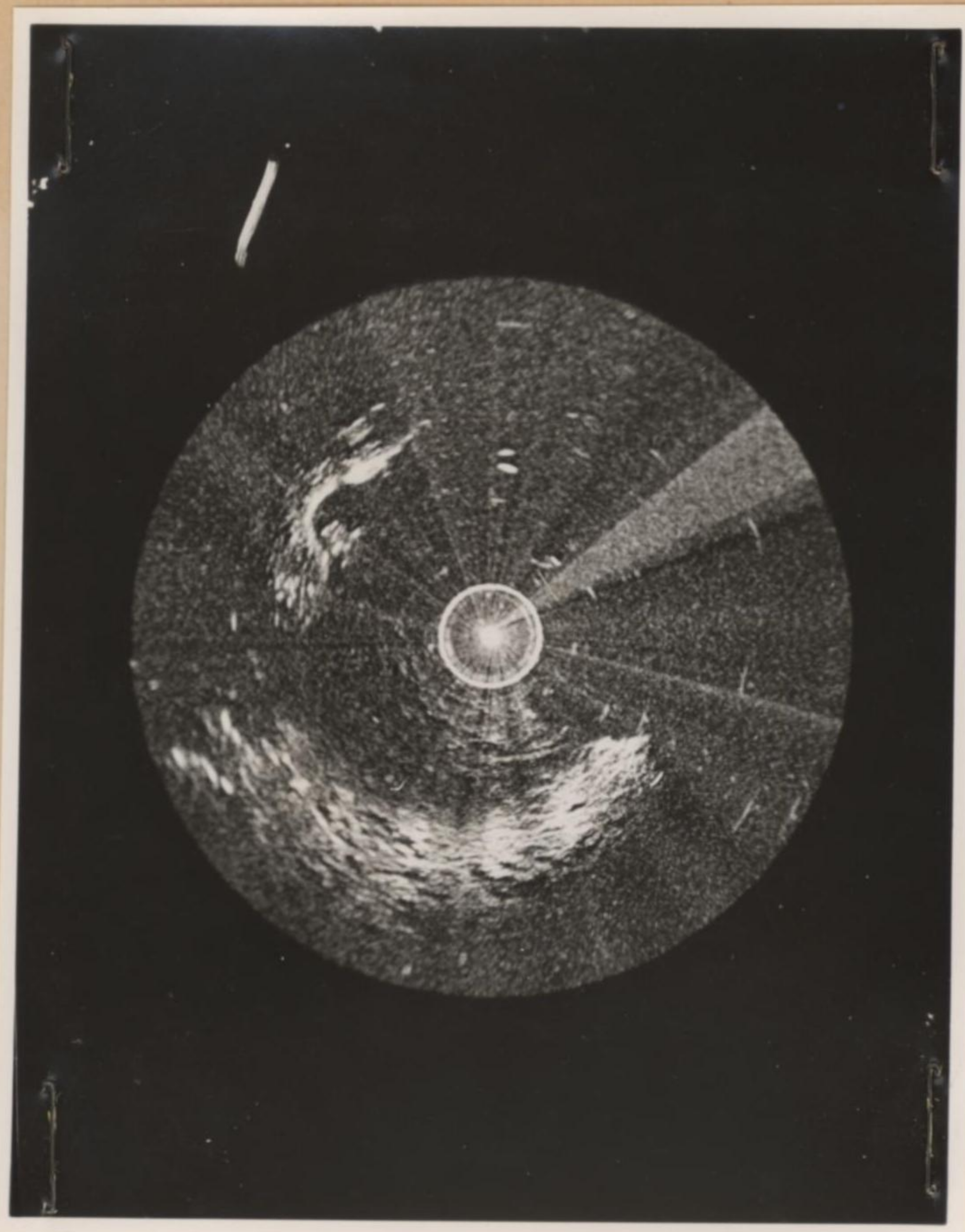
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TARGET CHART
RESTR



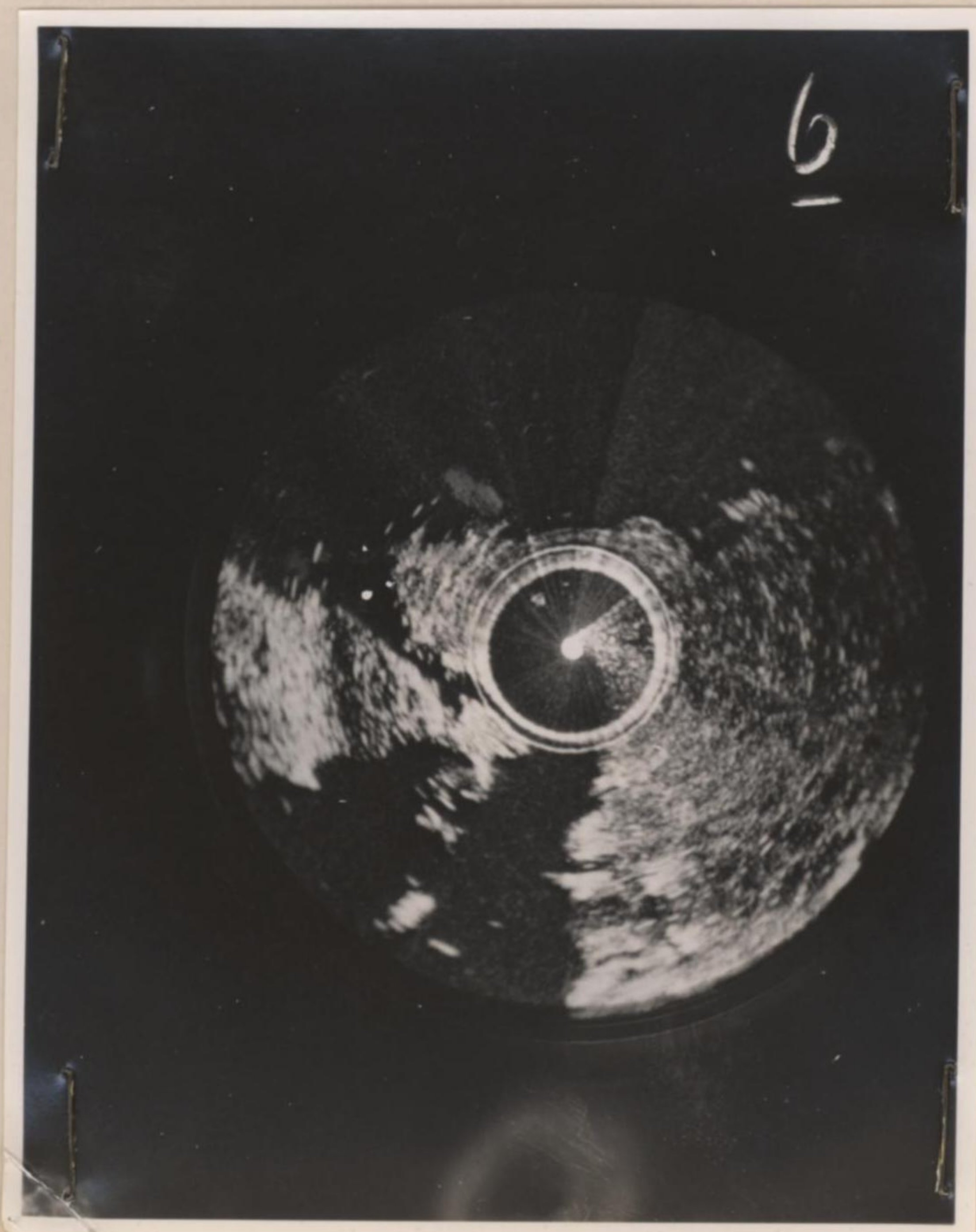
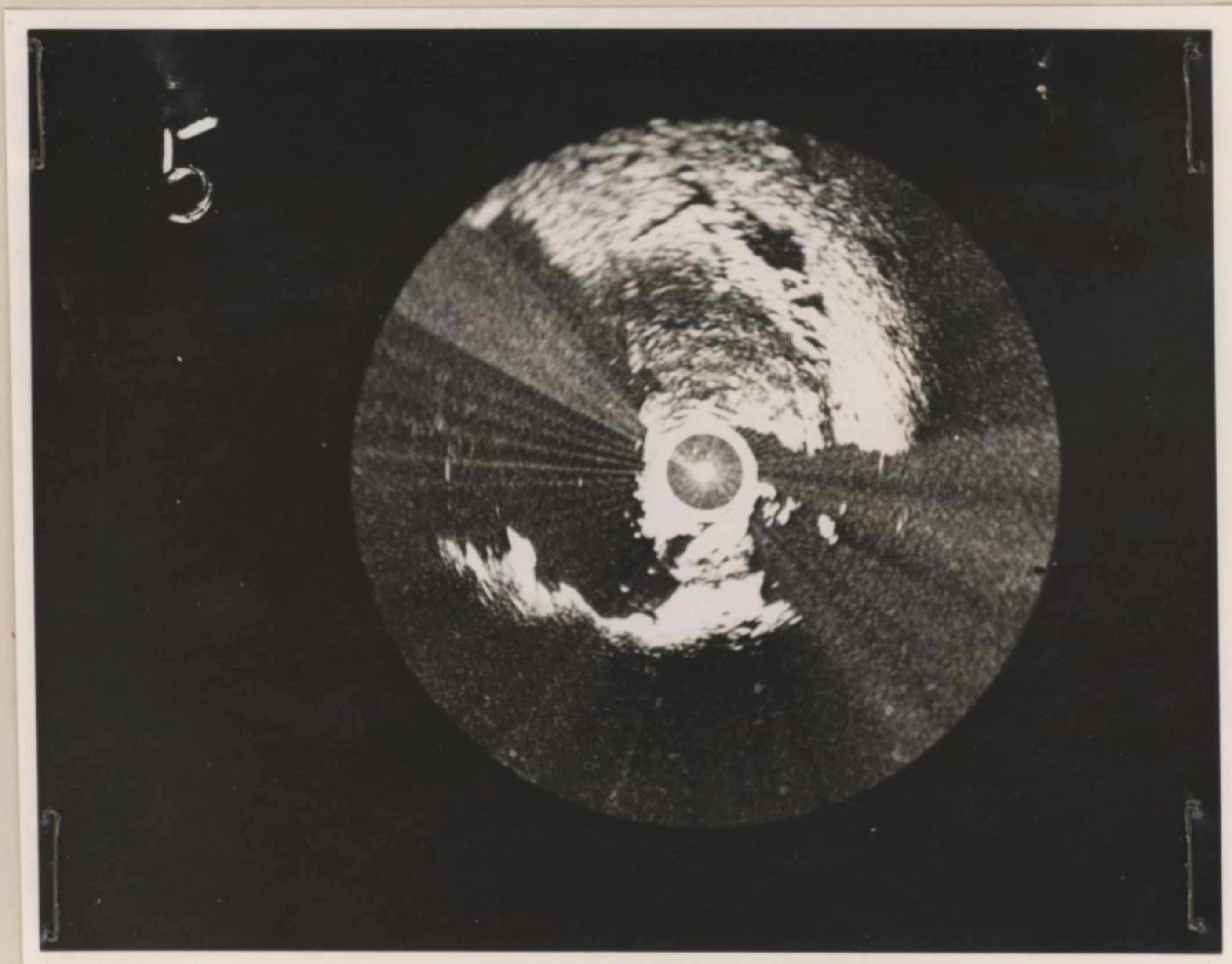
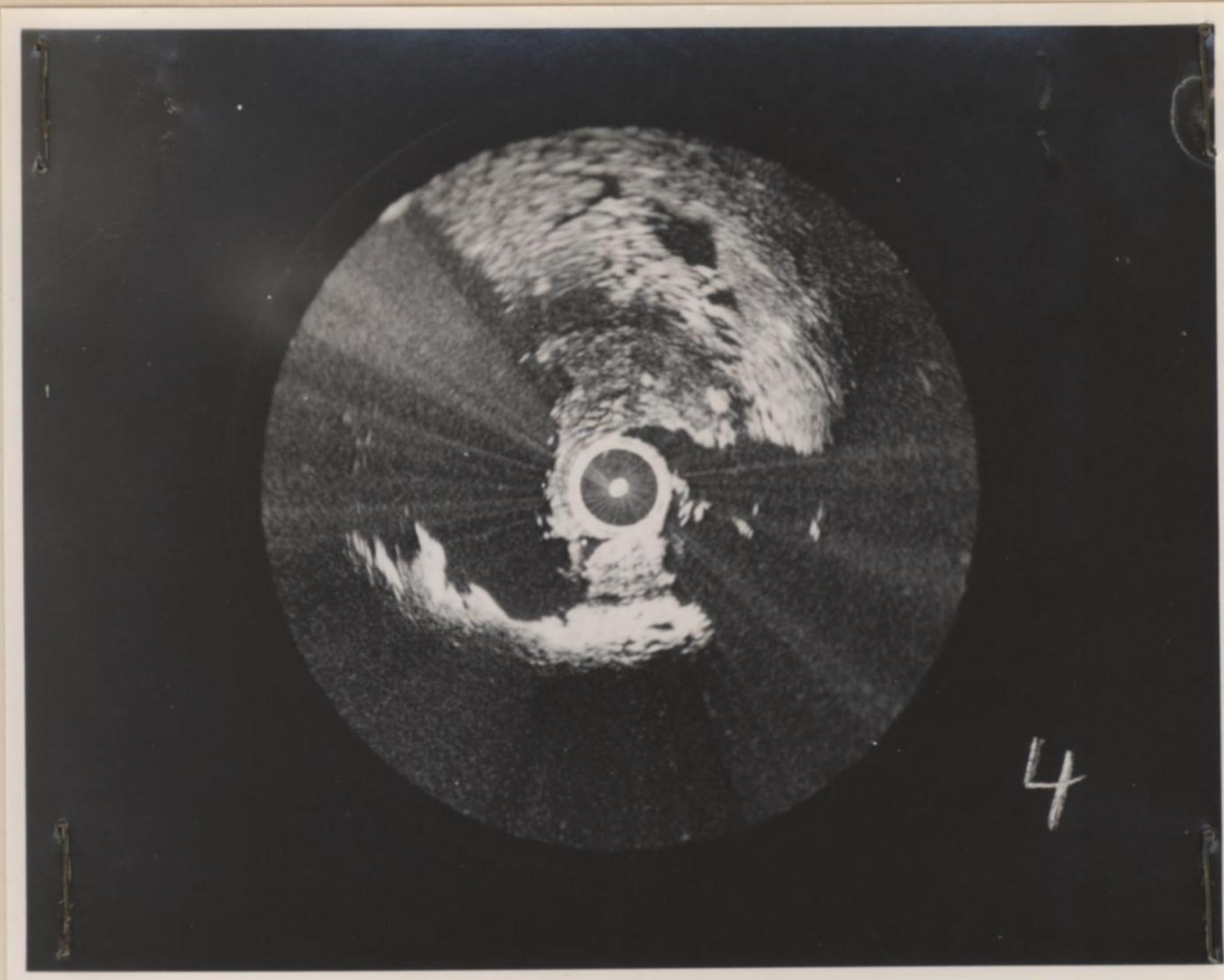
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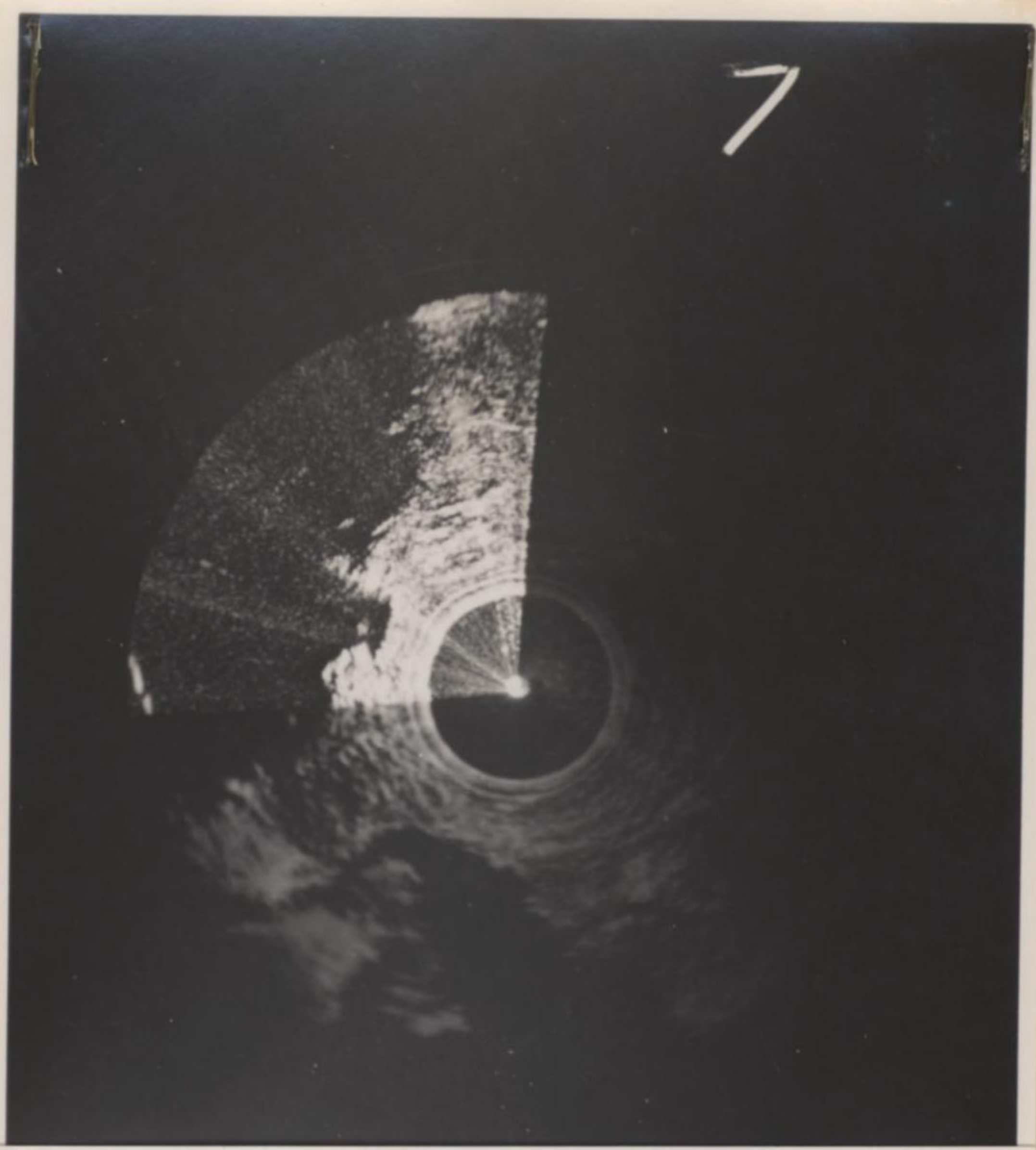


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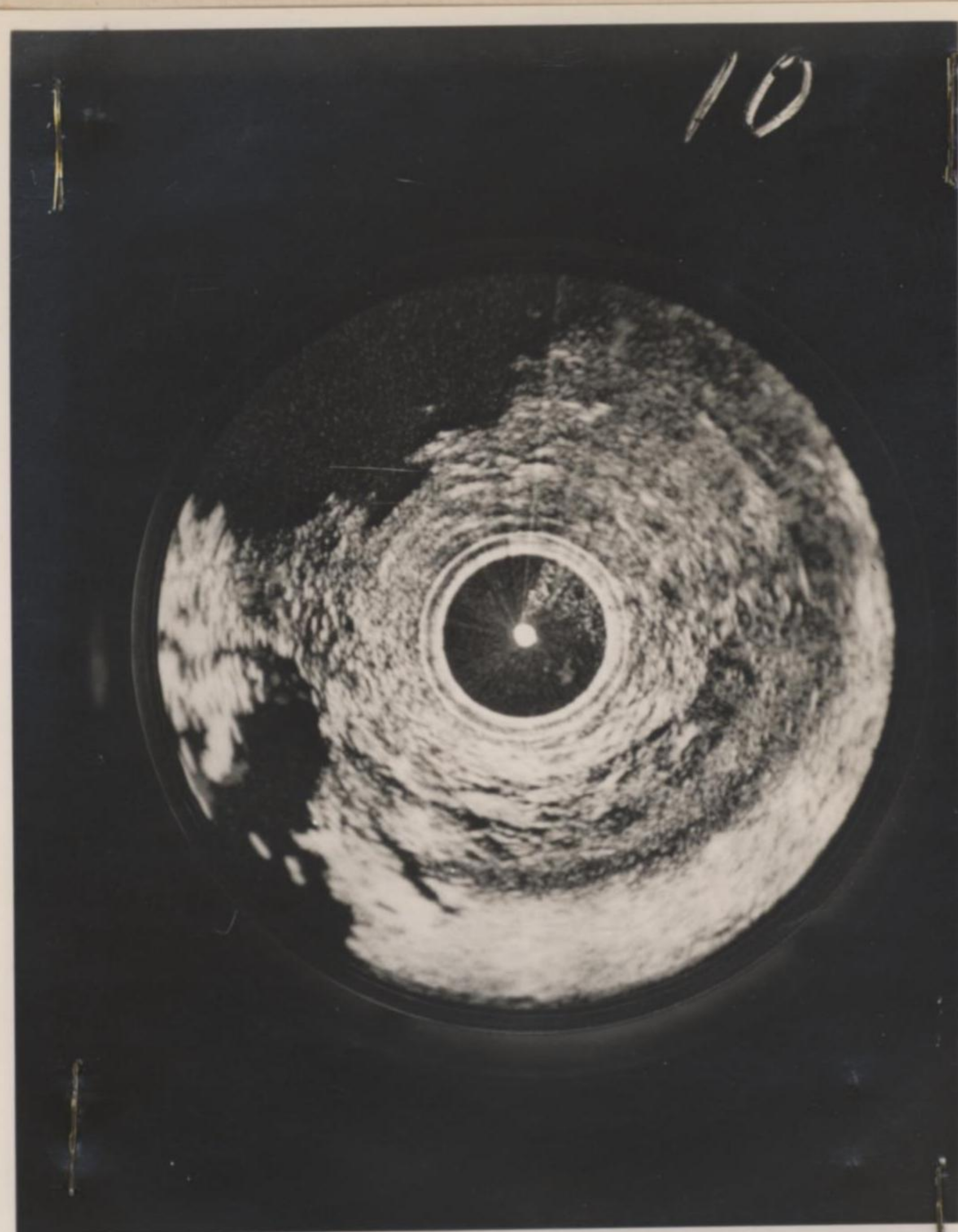
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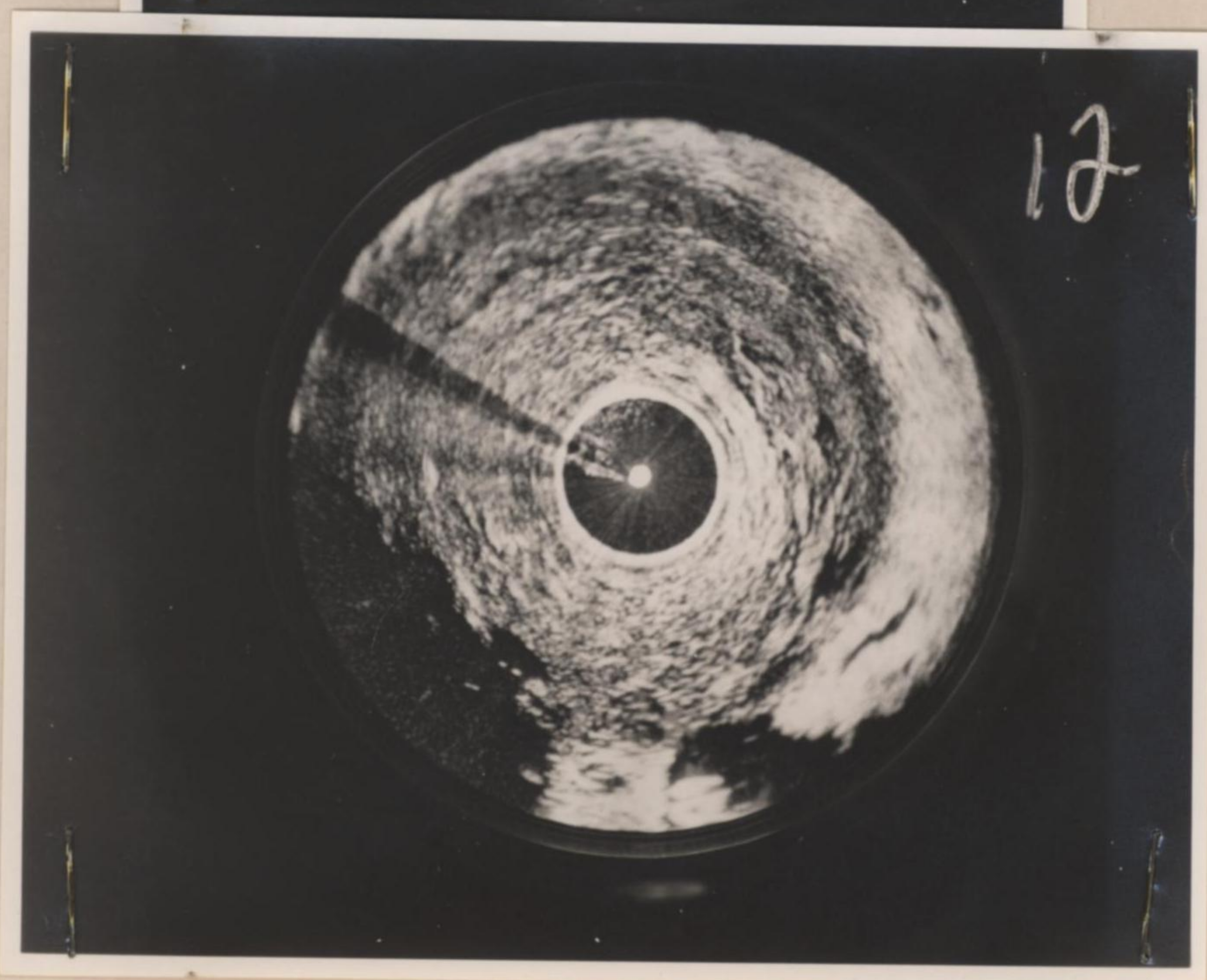
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S E C R E T

II - RCM ACTIVITY

Mission No. 2

15-16 June 1944

A. General

1. RCM participation was confined to searching for Japanese radar en-route to and at the target. No offensive action was taken.
2. The search was centered in the 75-300 megacycle range in order to discover the extent of the Japanese early warning radar system across China and to determine, within the frequency range, the possible concentration of searchlight and gun laying radar at the target and other important installations enroute.
3. Direction-finding antennas have not yet been installed on aircraft of this Command. Therefore, no pin-pointing of enemy radar stations was possible.

B. Frequencies Intercepted

1. 72-80 Megacycle Band:

a. Early warning signals in this band were in predominance and were logged solidly from the interior of China (31°50'N -- 109°30'E) to the target, a distance of 1200-1300 miles. (See map included as part of this annex.) The signals were principally at 75, 76, and 78 megacycles at 500 Pulse Recurrence Frequency with a pulse length of 30 microseconds.

b. The stations appeared to be tracking the aircraft continuously, but with the exception of one observation, no sweeping was evident. Indications are that the stations might be of the "flood-light" type.

2. 93-102 Megacycle Band. Mark 1: Early warning Mark 1 signals were also intercepted from the interior of China (33°N -- 118°E) to the target, a distance of 600-700 miles. (See Map.) The frequencies were in quantities at 95, 97, and 100 megacycles, 700-1000 PRF, and pulse lengths varying from 1.8 to 30 microseconds.

3. 150 Megacycles: A few signals at 150 megacycles, 250-525 PRF, 3 and 25 microsecond pulse lengths, were intercepted. Several interceptions were made 100 miles from the target and a few at Saishu Island. However, the signals might not be fundamental frequencies.

4. 175-208 Megacycles: Frequencies in this band at 350-2600 PRF, 3-12 microsecond pulse lengths, were intercepted principally at the target, at points south and southeast of Korea, and in the vicinity of Nanking. (See Map.)

5. 300-1000 Megacycles: Frequencies between 300 and 1000 megacycles were monitored intermittently by seven observers and continuously by one. Insufficient collaboration, however, does not permit a definite statement of results.

C. Conclusions

1. The Japanese have a continual chain of early warning radar stations along the route flown, operating in the 72-80 and 93-102 megacycle bands.

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2. In view of the fact that signals at 150 and 175-208 megacycles were intercepted principally at the target and near other potential targets, it is reasonable to deduce that if the Japanese do possess searchlight and gun laying radar, they would be operating at these frequencies. In this connection, it was reported that gun laying was inaccurate and that, although searchlights searched several minutes before locating aircraft, when they were found they were quickly coned for periods of two to five minutes. It was also reported that the outer lights would pick up an aircraft, carry it for a while, and then pass it on to searchlights located nearer the target.

3. Lack of fighter interception is an indication that possibly there is no GCI in operation at the target area.

D. RCM Activity Map

Each dot on the map on the following page represents one signal interception from one enemy radar station. These dots are placed at the point of interception by the RCM Observers.

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ANNEX

G

CENTRAL STATION FIRE CONTROL

S E C R E T

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CENTRAL STATION FIRE CONTROL

Mission No. 2

15-16 June 1944

CSFC	40th	444th	462nd	468th	TOTAL
Turrets on mission	55	70	65	70	260
Turrets tested	*	60	65	70	*
Turrets inoperative	*	1	0	2	*
Guns on mission	121	154	143	154	572
Guns inoperative	*	7	3	4	*
Rounds fired	*	500	1400	1140	*

* Not Available

COMMENTS ON SYSTEM:

1. To date the CSFC System has not been completely tested in combat on either Mission No. 1 or 2. However, the personnel directly concerned with gunnery are of the opinion that the guns and the turret are satisfactory.

2. Enemy aircraft have not pressed home their attacks to close enough quarters to evaluate correctly the capabilities of the remote control turrets or the efficiency of our gunners. The high speed of the B-29 may possibly have presented new problems for enemy fighters. However, it is anticipated that organized attacks will be made on a pursuit curve by enemy aircraft in the future.

3. The efficiency of ground maintenance personnel will play a large part in the quality of operation of the guns and turrets. It is expected that increased knowledge of the maintenance problems will improve the operation of the turrets and result in negligible jamming of guns in the future.

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S E C R E T

ANNEX

H

CAMERAS AND PHOTOGRAPHS

S E C R E T

S E C R E T

CAMERAS AND PHOTOGRAPHS

Mission No. 2

15-16 June 1944

CAMERAS	K-20	K-18	K-17B	C-3	TOTAL
Installed	27	11	10	3	51
In aborting aircraft	7	5	2	0	14
Malfunctions	0	0	0	0	0
Taking photographs	8	5	5	3	21
In operating condition not taking photographs	12	1	3	0	16

S E C R E T

S E C R E T

ANNEX

I

FUNCTIONING OF EQUIPMENT

- I Details of Abortives and Losses
- II Summary of Abortives and Losses
- III Malfunctioning of Equipment -- by Type
- IV Fuel Consumption Data

S E C R E T

S E C R E T

I - DETAILS OF ABORTIVES AND LOSSES

Mission No. 2

15-16 June 1944

1. A/C airborne to forward area (includes A/C returning early that became airborne on second attempt). 92
2. Less A/C returning to bases. 7
 - a. A/C 6280 (444th) - Feathered No. 3 engine (14 June)
 - b. A/C 6346 (462nd) - Engine trouble
 - c. A/C 6270 (462nd) - Life raft broke loose and damaged horizontal stabilizer
 - d. A/C 3355 (468th) - Engine No. 2 and 4 feathered
 - e. A/C 6362 (468th) - Engine No. 4 feathered
 - f. A/C 6389 (468th) - Engine No. 4 feathered
 - g. A/C 6265 (468th) - Engine No. 2 and 3 feathered
3. Less A/C whose movement to forward area was not completed. . . . 6
 - a. A/C 6261 (40th) - Crashed on route, not yet located
 - b. A/C 6280 (444th) - Lalminir Hat, engine trouble (15 June)
 - c. A/C 6352 (444th) - Forced landing at Mohanbari
 - d. A/C 6234 (444th) - Forced landing at Chabua
 - e. A/C 6390 (468th) - Forced landing at Kurmitola
 - f. A/C 6356 (468th) - Forced landing at Chabua
4. A/C landing at forward bases. 79
5. Plus combat-equipped A/C at Forward bases prior to movement . . . 4
6. A/C available in forward area 83
7. Less A/C assigned as photo-reconnaissance planes. 2
8. A/C available for mission. 81
9. Less A/C needing maintenance and repairs after trip to forward area. 6
10. A/C scheduled to participate in the mission 75
11. Less A/C failing to take off - oil leakages and distributor and cylinder head temperature gage troubles; runaway propeller; sinking into runway during engine warm-up 7
12. A/C Airborne. 68
13. Less A/C failing to bomb the primary target for mechanical reasons 11
 - a. Crash on take-off - A/C 6229 (468th); power failure
 - b. Returning early with bombs -
 - (1) A/C 6275 (40th) - Fuel transfer system failure
 - (2) A/C 6298 (40th) - Engine failure
 - (3) A/C 6270 (462nd) - Trouble with No. 1 and 2 propellers
 - (4) A/C 6243 (468th) - Engine trouble
 - c. Mechanical difficulty over target;
 - (1) A/C 6212 (444th) - Subsequently jettisoned bombs
 - (2) A/C 6353 (444th) - Bomb bay door malfunction; subsequently jettisoned bombs

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- d. Jettisoning before reaching PT - A/C 6289; engine failure
 - e. Bombing Secondary Target:
 - (1) A/C 6328 (462nd) - Gas leak, could not reach PT
 - (2) A/C 6332 (462nd) - Radar inoperative, did not reach PT
 - f. Bombing Target of Opportunity - A/C 6331; engine failure
14. Less A/C failing to bomb the primary target for personnel reasons. 7
- a. Jettisoning bombs:
 - (1) A/C 6228 (444th)
 - (2) A/C 6273 (462nd)
 - (3) A/C 6299 (462nd)
 - b. Bombing Targets of Opportunity:
 - (1) A/C 6301 (40th)
 - (2) A/C 6315 (444th)
 - (3) A/C 6334 (468th)
 - (4) A/C 6370 (468th)
15. Less A/C failing to bomb the target for unknown causes. 3
- a. Crashing after take-off - A/C 6231 (468th)
 - b. Missing and not yet located -
 - (1) A/C 6230 (468th)
 - (2) A/C 3826 (468th)

16. A/C bombing primary target. 47*

* Of the aircraft bombing the target, one aircraft (A/C 6293, 444th Group) made an emergency landing at Neisiang, China, as a result of the failure of the number 2 engine. Approximately 30 minutes after landing, it was bombed and strafed by enemy aircraft and completely destroyed.

NOTE: A/C 6220, 444th Group, designated as a photo reconnaissance aircraft and not included in the mission aircraft, crashed approximately 10 miles after take-off and was completely destroyed.

S E C R E T

II SUMMARY OF ABORTIVES AND LOSSES

Mission No. 2

15-16 June 1944

Returns to bases for mechanical reasons - both phases	11
Not available for mission - undergoing major repairs	10
Failing to take off on mission	7
Repairs and maintenance needed after reaching Forward Area	6
Forced landings en-route to Forward Area	5
Operational losses	3
Aircraft missing - cause unknown	3
Mechanical difficulties over PT	2
Mechanical difficulties but bombing Secondary Target	2
Jettisoning bombs before reaching PT	1
Mechanical difficulties but bombing target of opportunity	1
Destroyed by enemy action	1

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III - MALFUNCTIONING OF EQUIPMENT - BY TYPE

Mission No. 2

15-16 June 1944

A. Engineering Failures

Engine failure (feathered)	13	Carburetor air temp gages out	2
Oil leaks	11	Voltage regulators out	2
Cylinder head temperature gage malfunctions	9	Turbo-supercharger regulator malfunctions	2
Tachometers inoperative	7	Cylinder blown	1
Oil coolers stuck	6	Distributor seal leak	1
Generator failures	6	Cracked distributor block	1
Fuel system malfunctions	5	Thermo-couple broken	1
Exhaust collectors blown	4	Autosyn amplifier out	1
Low oil pressures	2	Carburetor malfunction	1
Ignition malfunctions	2	Siphoning gas from BB tanks	1
Propeller governor failures	2	Propeller governor oil leak	1

B. Armament Failures

Turrets inoperative	3	Bomb release malfunction	1
---------------------	---	--------------------------	---

C. Miscellaneous Failures

Pitot static systems out	3	Radar inoperative	1
Landing gear malfunctions	2	Landing flap motor out	1
Life raft door lost in flight	1		

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IV FUEL CONSUMPTION DATA

Mission No. 2

15-16 June 1944

	40th	44th	462nd	468th
Average total gallons consumed	6316	6169	5967	6053
Average air miles flown	3290	3364	3445	3309
Gallons per air mile average	1.920	1.834	1.732	1.830
Maximum gallons per air mile	2.295	2.000	1.950	2.010
Minimum gallons per air mile	1.592	1.680	1.590	1.710

3290
3364
3445
3309

4 | 13408
3352

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ANNEX

J

TARGET DAMAGE ASSESSMENT

I - Bomb Plot

II - Damage Assessment Report No. 2.

S E C R E T

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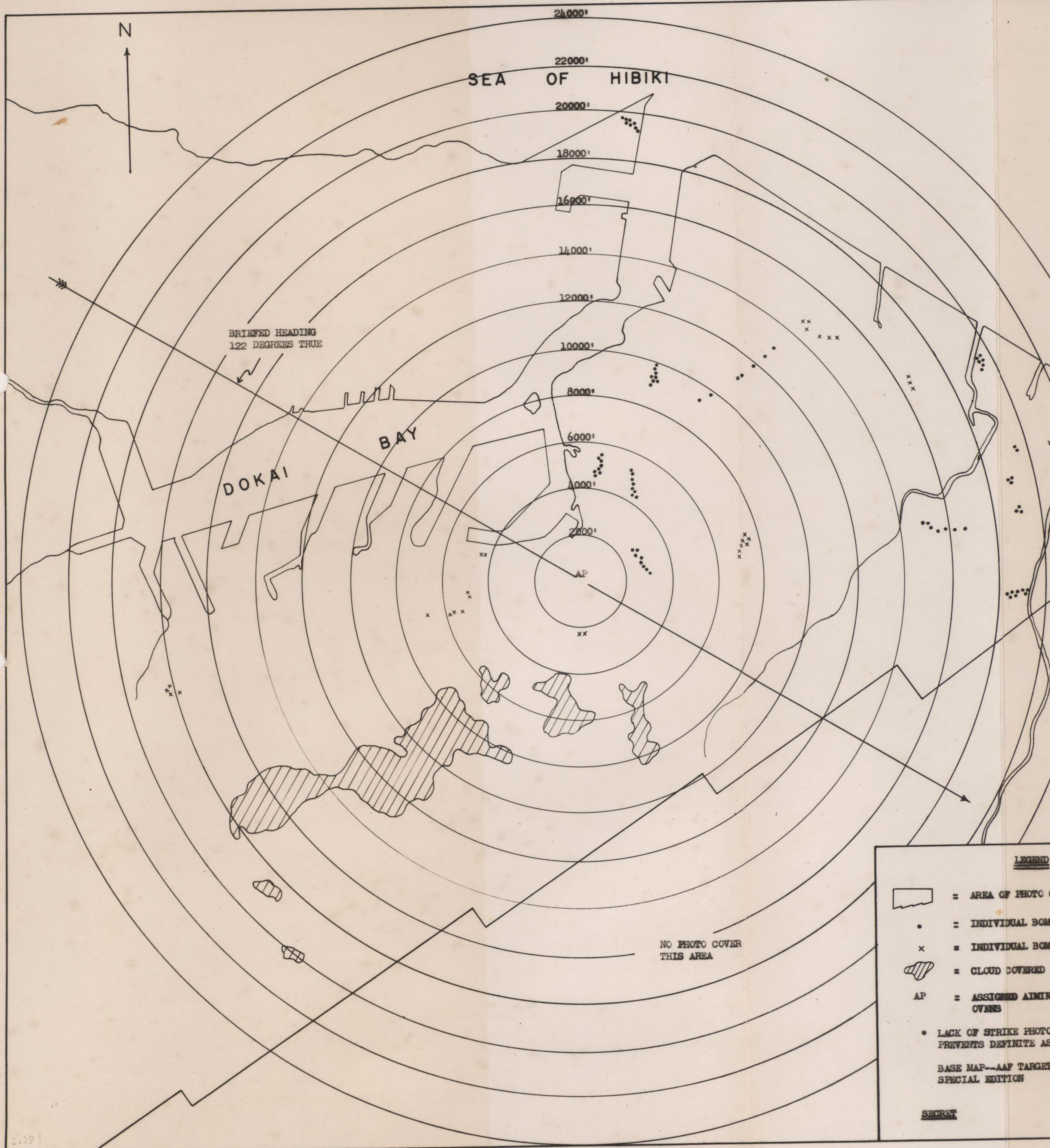
Authority And 960063

By ML NARA Date 9/18/05

BOMB PLOT

XX BOMBER COMMAND ATTACK 15-16 JUNE 1944

YAWATA, KYUSHU, JAPAN



LEGEND

- [Symbol: Dotted area] = AREA OF PHOTO COVER
- [Symbol: Solid dot] = INDIVIDUAL BOMB
- [Symbol: 'x'] = INDIVIDUAL BOMB
- [Symbol: Hatched area] = CLOUD COVERED
- [Symbol: AP] = ASSIGNED AIMING POINTS

* LACK OF STRIKE PHOTO PREVENTS DEFINITE ASSIGNMENT

BASE MAP--AAF TARGETING SPECIAL EDITION

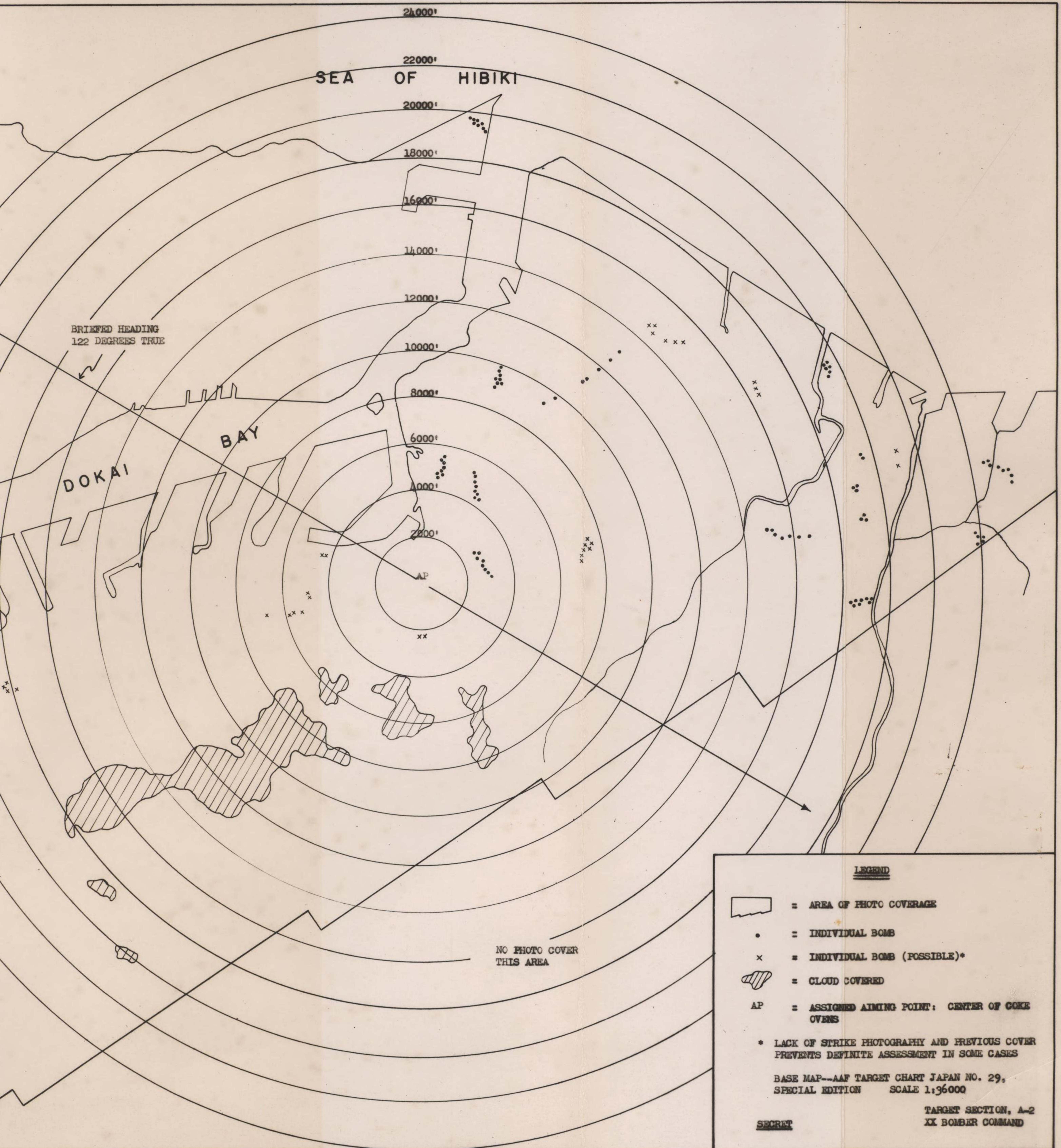
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BOMB PLOT

XX BOMBER COMMAND ATTACK 15-16 JUNE 1944

YAWATA, KYUSHU, JAPAN



HEADQUARTERS
XX BOMBER COMMAND
Office of the Assistant Chief of Staff, A-2
APC 493

SECRET
Auth CG XX BC
9 Jul 44
Date Initials

9 July 1944

DAMAGE ASSESSMENT REPORT NO. 2 (PRELIMINARY)

This report deals with damage sustained by the Imperial Iron and Steel Works, Yawata plant and environs as a result of XX Bomber Command attack of June 1944.

LOCALITY: Imperial Iron and Steel Works, Yawata Plant, Kyushu Island
Japan - 33° 52'N; 103° 49'E.
130°

RECONNAISSANCE PHOTOGRAPHY: 21st Photo Recon Squadron - Mission 4MC39, 18 June 1944 -
Scale 6" F.L. Approx. 1:60,000; 24" F.L. Approx. 1:15,000.

COMPARATIVE PHOTOGRAPHY: None.

REFERENCES: Air Objective Folder No. 90.34 Shimonoseki Area.

WEIGHT OF ATTACK: 387 An-M64 500# GP (Composition B) Bombs dropped, fused
0.1 nose and 0.025 tail.

AIMING POINT: Center of Coke Ovens.

APPENDICES: (1) Annotated photo - Imperial Iron and Steel Works,
Yawata Plant.
(2) Annotated photo - Wakamatsu Harbor Entrance.
(3) Annotated photo - Shimonoseki City.
(4) Stereo Pairs - Kokura Arsenal and New Coke Plant.
(5) Stereo Pairs - Imperial Iron and Steel Works, Yawata.

REMARKS: Good quality photos of 6" and 24" F.L. cover Yawata and
vicinity. However, lack of previous photo cover and the
absence of strike photography precludes definite assess-
ment in several cases and for this reason this report
should be considered preliminary.

All numbers in parenthesis refer to corresponding numbers
on the attached annotated photos.

SUMMARY:

a. Approximately 105 bombs, or 28% of the total bombs reported dropped
in the area have been accounted for in this preliminary study. Damage
caused by these bombs follows:

I. Imperial Iron and Steel Works, Yawata Plant:

1. The roof of a power house located approximately 3700 feet
WNW of the AP (Coke Ovens) appears to be damaged. Smoke is
seen to be coming from only one of the eight stacks indica-
ting that the plant is at least partly in operation.
2. No other damage is noted in the works and all major units
appear to be in operation.

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II. Other Damage:

1. Kokura Arsenal:

- (a) One 265' x 265' shopbuilding 1/3 destroyed by HE and several nearby buildings damaged.
- (b) One 220' x 120' shopbuilding almost completely destroyed and an adjoining building severely damaged.
- (c) Two 190' x 60' warehouse type buildings appear to be completely destroyed.

2. Other Industrial Damage:

- (a) Several direct hits destroyed most of a 180' x 150' building of the Kyushu Chemical Works. Several nearby small buildings appear to be destroyed or damaged.
- (b) Two of the three major buildings of a light industrial plant 1 mile N of Kokura Arsenal are mostly destroyed.

3. Non-industrial Damage:

- (a) Widely scattered areas of damage to business/residential areas are noted in the cities of Yawata, Tobata and Kokura. Approximately 250 acres are affected in which over 1000 business/residential buildings appear to be destroyed or damaged.
- (b) Five or six small areas of possible bomb damage to business/residential areas totalling about 10 acres are visible in the city of Shimonoseki.
- (c) Approximately 40 houses are destroyed or damaged by a string of bombs which fell in the city of Dairi near Moji just S of the Shimonoseki Railway Ferry.

DETAILS OF DAMAGE:

I. Imperial Iron and Steel Works, Yawata Plant:

- (1) The roof on the N side of a large 400' x 265' power plant located approximately 3700' WNW of the AP appears to be damaged. Smoke is seen to be issuing from only one of the eight stacks indicating that at least a part of the plant is still in operation.
- (2) A portion of the roof on the N end of a large, approximately 625' x 225', unidentified building, probably a foundry, is missing. However, the evenness of pattern, lack of debris and absence of bomb craters suggests that this is new construction or repair rather than bomb damage.

No other damage is noted in the Imperial Iron and Steel Works and all major units appear to be in operation.

II. Other Damage:

A. Kokura Arsenal:

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- (3) At least one direct hit on a 265' x 265' shop building in the Kokura Arsenal has destroyed about 1/3 of the building. Two other adjoining buildings are seen to have been damaged by the blast.
- (4) Another shop building in the Arsenal approximately 220' x 120' appears to have been almost completely destroyed and an adjacent building severely damaged.
- (5) Two small warehouse type buildings of about 190' x 60' appear to have been largely destroyed.
- (6) There are several other areas of possible bomb damage in the Arsenal but lack of previous cover precludes a definite statement.

B. Other Industrial Damage:

- (7) Two 160' x 45' buildings of the three major buildings of a light industrial plant located about 1 mile N of the Kokura Arsenal are seen to have been about half destroyed and several small buildings nearby have been damaged.
- (8) Several direct hits on the central 180' x 150' building of the Kyushu Chemical Works were scored destroying most of the building. Five or six small buildings in the immediate vicinity are seen to have been damaged or destroyed.
- (9) Just N of item (8) a small building of the Asahi Glass Company may have been damaged.

C. Non-Industrial Damage:

- (10) A string of bombs is seen to have fallen in a residential district of Kokura, W of the Arsenal, destroying 30 - 35 houses and damaging 20 - 25 more.
- (11) South-east of item (10) 8 craters mark bombs which fell in open ground damaging a road and a single track railroad.
- (12) East of item (11) another string of 8 bombs fell partly in open ground probably damaging several houses and a main road and scoring a direct hit on a 190' x 60' building of an unidentified group of buildings. Only part of the area shows on 24" cover and the 6" cover is too small to gather further details of damage. (Just off annotated print, Appendix 1).
- (13) A large area of approximately 50 acres immediately surrounding the Kokura Arsenal on the N and W sides appears to be almost completely devastated. However, the evenness of pattern, general shape and "tie-in" with a river to the SE and a large road to the N suggest that this is an enemy-constructed firebreak. Lack of previous cover precludes a definite statement.
- (14) A string of bombs is seen to have straddled a canal near a main highway about 2000 feet E of the Kokura Arsenal damaging or destroying 15 - 20 houses and damaging the E bank of the canal.
- (15) Just S of the W end of the Yawata Plant a string of bombs appears to have fallen in a Yawata residential district destroying 10 - 15 houses and damaging an equal number, as well as a main road.

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- (16) About 2400 feet E of the AP in a Yawata residential district approximately 20 houses have been destroyed and as many more damaged.
- (17) Just N of item (16) another string of bombs is seen to have almost destroyed one wing of a large 5 winged building and destroyed or damaged 15 - 20 houses.
- (18) An area of approximately 15 acres just S and E of the Tobata Foundry Company appears to have been almost completely devastated with an estimated 200 houses affected. What appears to be several bomb craters may be seen at the S end but lack of previous cover precludes a definite statement as to the cause of this area of devastation. The foundry appears undamaged.
- (19) In the center of the town of Tobata 4 or 5 areas of bomb damage are noted, with destruction of approximately 20 houses and damage to an equal number, and to a main road.
- (20) Approximately half of a large, 1500' x 1300', workers settlement about 1.2 miles E of the Yawata Iron and Steel Works, appears to be devastated with some 200 houses affected. Lack of previous cover, however, precludes a definite statement as to whether this area is bomb damage or construction.
- (21) Several scattered areas of possible damage are seen in the residential areas of Yawata and Tobata.
- (22) Eight craters mark bombs which fall in open ground at the mouth of Wakamatsu Harbor possibly damaging a searchlight position. (See Appendix 2).
- (23) Approximately 20 houses are seen to be destroyed and as many more damaged in the city of Dairi near Moji just S of the Railroad Ferry route across to Shimonoseki. (Not shown on Appendix).
- (24) About 5 or 6 small areas of possible damage are visible in the center of Shimonoseki. (See Appendix 3).
- (25) A small area of workers homes SW of Yawata near the town of Orio appear to be damaged. (Not shown on Appendix).

James D. Garcia
JAMES D. GARCIA,
Colonel, G.S.C.,
A. C. of S., A 2

S E C R E T



TOBATA FOUNDRY
ASAHI GLASS CO.

KYUSHU CHEMICAL
WORKS

IMPERIAL IRON AND
STEEL, YAWATA

APPENDIX 1
DAMAGE ASSESSMENT REPORT NO. 2
IMPERIAL IRON AND STEEL WORKS, YAWATA PLANT
SECRET.

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TOBATA FOUNDRY
ASAHI GLASS CO.

KYUSHU CHEMICAL
WORKS

APPENDIX 1
REPORT NO. 2
STEEL WORKS, YAWATA PLANT
SECRET.

99/12/63/RV66

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By *ML* NARA Date *9/18/05*



SECRET

APPENDIX 2
ANNOTATED PHOTO
WAKAMATSU HARBOR ENTRANCE



SECRET

S E C R E T

APPENDIX 3
ANNOTATED PHOTO
SHIMONOSEKI CITY



S E C R E T

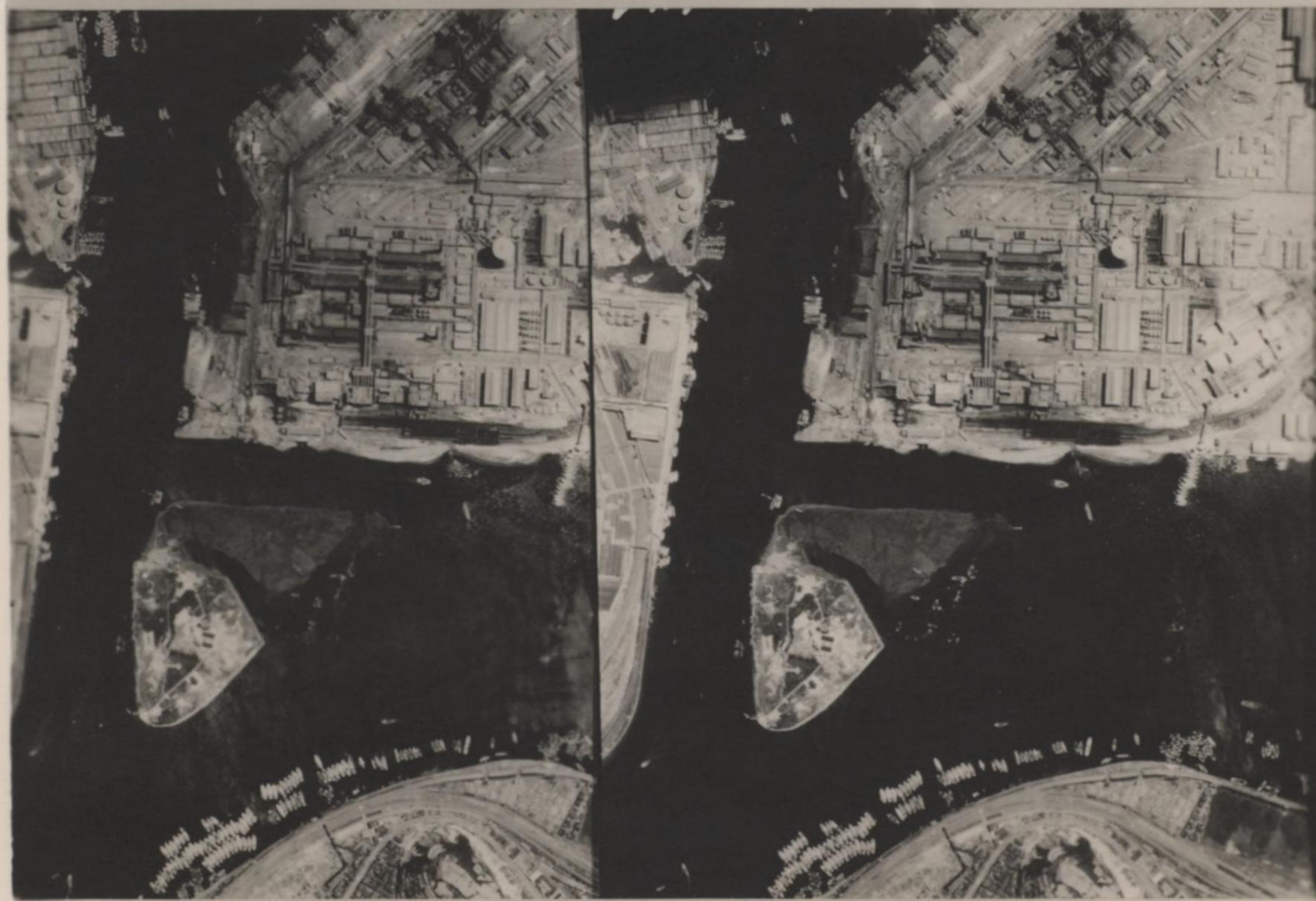
S E C R E T

APPENDIX 4
DAMAGE ASSESSMENT REPORT NO. 2
IMPERIAL IRON AND STEEL WORKS, YAWATA



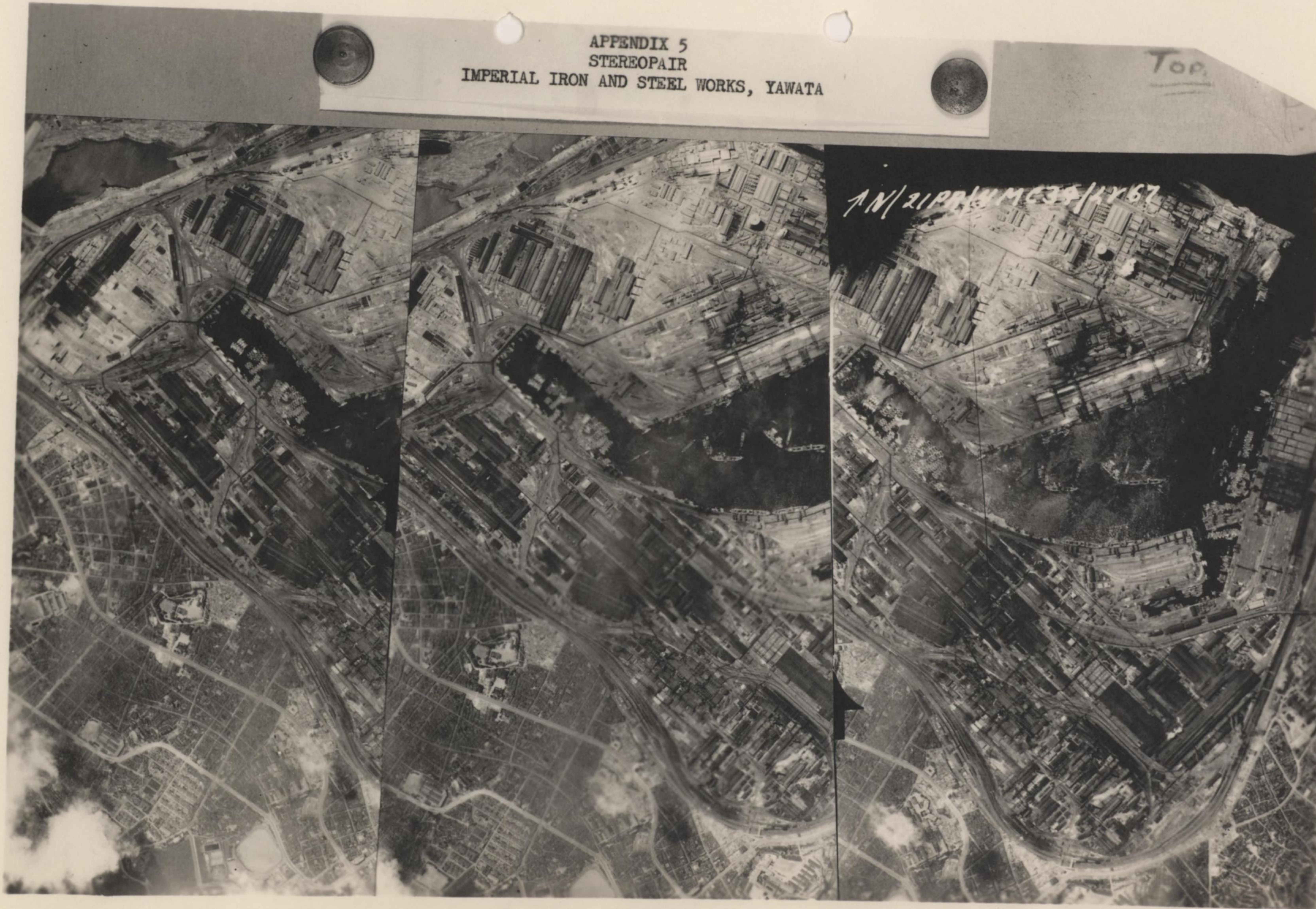
ABOVE-----KOKURA ARSENAL

BELOW-----NEW COKE PLANT AND BLAST FURNACES AT YAWATA



S E C R E T

SECRET.



APPENDIX 5
STEREOPAIR
IMPERIAL IRON AND STEEL WORKS, YAWATA

Top.

AN/21PR/10634/1767

SECRET.

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ANNEX

K

CONSOLIDATED MISSION STATISTICAL SUMMARY -

* * * * *
* Prepared By: *
* STATISTICAL SECTION *
* XX BOMBER COMMAND *
* * * * *

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XX BOMBER COMMAND
Consolidated Mission Statistical Summary

Mission #2 Against Yawata, Kuyushu, Japan

Table I - Aircraft Participating

Group	F.O. No.	Mission No.	Primary Target	A/C Airborne in Rear Area	% Airborne A/C Aborting between Rear & Fwd Area	A/C Scheduled to Take off Fwd Area	A/C Taking off from Fwd. Area	Airborne A/C Failing to Bomb Primary Target because of				% of Airborne A/C Failing to Bomb Primary Target	Target Bombed		
								Mech Fail	Pers Fail	Weather	Unknown		Prim.	Secon.	Other
40th	3	2	Imperial Iron and Steel Works, Yawata Kuyushu, Japan	20	5.0	18	16	4	1			31.3	11	0	2
444th	3	2	Imperial Iron and Steel Works, Yawata Kuyushu, Japan	23	21.7	18	15	2	2			26.7	11	0	1
462nd	3	2	Imperial Iron and Steel Works, Yawata Kuyushu, Japan	21	9.5	20	18	3	2			22.2	13	2	0
468th	3	2	Imperial Iron and Steel Works, Yawata Kuyushu, Japan	28	21.4	19	19	2	2		1	29.3	12 *	0	2
TOTAL				92	15.2	75	68	11	7		1	28.8	47	2	5

* Two missing aircraft in this group may have bombed but are not included in these totals.

S E C R E T

XX BOMBER COMMAND
Consolidated Mission Statistical Summary
Mission #2 Against Yawata, Kuyushu, Japan

Table II - Bombing Runs

Group	No. of A/C Bomb- ing	Target Bombed	Time of Release		Altitude of Release		Visual Bombing		Radar Bombing		A/C Dropping On	
			Earliest *	Latest **	Highest ***	Lowest ****	A/C Sighting for		A/C Sighting for		AFCE	Manual
							R & D	Range	R & D	Range		
40th	13	2 Other Targets 11 Primary	1630 Z	1652 Z	15,750	14,500	1		12			13
444th	12	1 Other Targets 11 Primary	1636 Z	1642 Z	13,000	9,000	6		6		8	4
462nd	15	13 Primary 2 Secondary	1646 Z	1845 Z	12,000	10,000	9		6		12	3
468th	14	12 Primary 2 Other Targets	1640 Z	1725 Z	14,600	9,900	2		12		14	
TOTAL	54		1630 Z	1845 Z	15,750	9,000	18		36		34	20

- * Average release time of earliest squadron per group over primary target.
- ** Average release time of latest squadron per group over primary target.
- *** Average altitude of highest bombing squadron per group over the primary target.
- **** Average altitude of lowest bombing squadron per group over primary target.

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY

Mission #2 Against Yawata, Kuyushu, Japan

TABLE III - BOMB LOADING AND DISPOSAL

Group	Bomb Loading						Disposal of Bombs						Bombing Accuracy				
	High Explosives			Incendiaries			On Target		Jettisoned		Returned		Unknown		Distance of H.E. from A.P.		
	No. & Wgt of Bombs	Nose	Tail	No. & Wgt of Bombs	Nose	Tail	H. E.	Incen.	H.E.	Incen	H.E.	Incen	H.E.	Incen	0-1000 Ft	1000-2000 Ft	Over 2000 Ft
40th	128 500# G.P.	.1	.025				104		8		16						Unknown
444th	120 500# G.P.	.1	.025				96		24								Unknown
462nd	144 500# G.P.	.1	.025	3 385#	21.7		120	3	16		8						Unknown
468th	152 500# G.P.	.1	.025				106		14		8		24				Unknown
TOTAL	544 500# G.P.			3 385#			426*	3	62		32		24				

* 370 Bombs dropped on primary target, 16 on secondary target and 40 on targets of opportunity.

370*

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XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY
 Mission #2 Against Yawata, Kuyushu, Japan

TABLE IV - AIRCRAFT LOSSES AND CLAIMS

Group	Aircraft Lost					Aircraft Damaged								Claims Against Enemy			
	Total Lost	Cause of Loss				Total	Primary Cause of Damage				To be repaired by			Not Repairable	Destroyed	Probably Destroyed	Damaged
		Flak	E.A/C	Accident	Unknown		E/A	Flak	Own Guns	Accident	Tact Gp	SV Gp	Dep Gp				
40th	0	0	0	0 ***	0	1	0	1	0	0	0	1	0	0	0	0	0
444th	1	0	1 *	0 **	0	1	0	1	0	0	1	0	0	0	0	0	0
462nd	0	0	0	0	0	3	0	3	0	0	0	3	0	0	0	0	0
468th	4	0	0	1	3	1	0	1	0	0	1	0	0	0	0	0	0
TOTAL	5	0	1	1	3	6	0	6	0	0	2	4	0	0	0	0	0

* 42-6293 destroyed by enemy aircraft on ground after forced landing.
 ** 42-6220 crashed on photo reconnaissance but is not included here as a combat loss.
 *** Does not include 42-6261, missing on trip between rear and forward area 15 June.

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- CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission #2: Against Yawata, Fuyushu, Japan

Table V Encounters with Enemy Aircraft

DIRECTION	ALTITUDE															
	HIGH				LOW				LEVEL				TOTAL			
	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th
1200				1												1
0130						1								1		
0300										1				1		
0430		1		1										1		1
0600		4										1		4		1
0730				1												1
0900										1				1		
1030				1						3				3		1
Total		5		4		1				5		1		11		5

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* Includes only those participating from Fwd. Area to target on bombing mission.
 ** Crew of 42-6231. Four unidentified bodies found in wreckage and other 7 members are missing.

XX BOMBER COMMAND
 CONSOLIDATED MISSION STATISTICAL SUMMARY
 Mission #2 Against Yawata, Kuyushu, Japan

*** Eleven men were killed in photo reconnaissance A/C accident but were not included here as combat losses.
 **** Crew of 42-6261 is missing on trip between rear and Fwd Area on 15 June, but is not included here.

TABLE VI - PERSONNEL LOSSES

Crew Position	Killed				Missing				Seriously Injured				Slightly Injured				Total Casualties				Total Participating *				
	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	
Pilot								2						1		1			1		4	16	16	18	19
Co-Pilot								2													3	16	16	18	19
Navigator								2													3	16	16	18	19
Bombardier								2								1					4	16	16	18	19
Flight Engineer								2								1					4	16	16	18	19
Radar								2								1					4	16	16	18	19
Radio								2													3	16	16	18	19
C.F.C. Spec								2								1					4	16	16	18	19
Right Gunner								2								1					4	16	16	18	19
Left Gunner								2						1		1			1		4	16	16	18	19
Tail Gunner								2								1					4	16	16	18	19
Posit Unknown				4 **								7 **													
Others								1													1	9	14	9	8
TOTAL		***		4		****		30						2		8			2		42	185	190	207	217

S E C R E T

S E C R E T

XX BOMBER COMMAND
 Consolidated Mission Statistical Summary
 Mission #2 Against Yawata, Kuyushu, Japan

Table VII - Expenditures of Gasoline and Ammunition *

Group	Gasoline Expended Per Plane					Ammunition Expended per Plane					
	Minimum	Maximum	Median	Average Consumption	Aver Burnable Gas Left in Tanks Upon Return	Upper Front	Lower Front	Upper Rear	Lower Rear	.50 Cal Tail	20 MM Tail
40th	5700	7000	6300	6316 **	948	Only Test firing accomplished.					
444th	5630	6546	6200	6169	1095	Test firing and a negligible amount of Combat firing accomplished.					
462nd	5690	6700	5982	5967	1297	Only Test firing accomplished.					
468th	5840	6500	5990	6053 ***	1211	Combat firing accomplished. Test firing and a negligible amount of					
TOTAL	5630	7000	5170	6143	1121						

* Includes only expenditures between forward area and target and return to forward area.
 ** Average flying time of 40th Group aircraft bombing the primary target was 14:45 hours.
 *** Average flying time of 468th Group aircraft bombing the primary target was 14:30 hours.

S E C R E T

ANNEX

L

MISCELLANEOUS ITEMS OF INTEREST

S E C R E T

~~SECRET~~

MISCELLANEOUS ITEMS OF INTEREST

Mission No. 2

15-16 June 1944

A. Destruction of A/C 42-6293 by Enemy Aircraft

1. This aircraft, piloted by Captain Robert C. Root of the 676th Squadron of the 444th Bombardment Group, developed engine trouble during a climb near Nanyang in China on the return route, and it was decided to make an emergency landing at Neisiang. During this period, the radio operator tried to make contact, and, just before landing, he gave his position in the clear, asking for fighter protection.

2. The landing at Neisiang was made on a slippery runway but without trouble. A message was sent at once to Laohokow, a fighter base to the south. The message was not received by the Commanding Officer of the fighter base, however, and fighters were not dispatched to Neisiang.

3. Approximately 30 minutes after the landing, while the crew was trying to determine the trouble, two Japanese fighters, a black Tojo and a silver Oscar, came in and strafed the plane from tail to nose. This attack was followed by six more from around the clock, setting the aircraft on fire and slightly injuring two crew members. Machine gun and cannon fire was reported. Seven minutes later, 6 Bettys and 9 Oscars came over at from 4000 to 5000 feet. The Bettys were flying a V-formation with 3 fighters on the left, 3 on the right, and 3 behind, all slightly above. The Oscars to the rear were weaving, the others flying straight and level. The Bettys then made a dive down to 500 feet and made one bombing run. At least 25 100-pound demolition bombs were dropped, none hitting the B-29, although one was close enough to damage an aileron. Four or five of the fighters then dropped down and made strafing passes.

4. The aircraft was completely destroyed by the fire started by the enemy's first attack.

B. Japanese Broadcast Concerning "B-29 Shot Down."

1. The following was broadcast from Radio Tokyo on 19 June:

"Clearcut evidence that one of the enemy planes that was shot down by defense units over Northern Kyushu on 16 June was a B-29 Superfortress has been revealed in two vivid photographs appearing in this morning's Asahi Shimbun, radioed from Moji. The first photograph shows a member of the Army-Navy Technical Staff inspecting the tank of the ill-fated B-29 while the other photo shows the inscription on the tank, proving beyond any doubt that it was a B-29. The inscription, as far as it is legible, reads as follows: 'Boeing B-29 fuel tank, self-sealing, bullet-proof assembly -D- WWW - GE - 9 - 5448, Serial No. 190.' The tank empty weighs 52 (520?) pounds. Tank capacity, 640 U.S. gallons, 534 Imperial gallons."

2. The tank described is the B-29 9-5448 Tank Assembly - Auxiliary fuel, horizontal bomb bay tank. The capacities given by the Japanese are approximately correct. This tank can be salvaged, and investigation disclosed that at least one aircraft dropped this tank over the target along with its bombs.

~~SECRET~~

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
AND 740120
By C.E.D./lg NARS, Date Oct 20, 1975

DECLASSIFIED

Authority AND 760083

By NARA Date 9/18/05

~~SECRET~~

C. Japanese Broadcast Concerning "Still Another B-29 Shot Down."

1. The following Japanese broadcast from Station JUP was intercepted by XX Bomber Command Signal Intelligence on 22 June:

"Evidence that still another B-29 bomber that participated in the abortive raid on Kyushu on 16 June was downed as a result of hits scored by our forces was found in the waters off the coast of Fukuoka on the morning of 19 June by a Japanese fisherman, Asahi reported this morning. The fisherman found a cushion in his nets and, greatly puzzled with the object, handed it over to local police authorities. A nearby observation post had reported an airplane going down in flames over Kamiminato during the raid. Asahi added a report from another observation post which said that an enemy aircraft trailing smoke was seen rapidly losing altitude off the southeast coast near Kamiminato. Taking into consideration the sea currents in that area, authorities believe that the cushion belonging to this plane could have floated from the waters between the coast and Chinoshima. It was added that local units and civilian volunteers are conducting a search for more evidence of fallen raiders."

DECLASSIFIED

E.O. 11652, Sec. 3(E) and 5(D) or (E)

By NND 740120 NARS, Date Oct 20 1983

~~SECRET~~

DECLASSIFIED

Authority NND 760083

By ML NARA Date 9/18/05

S E C R E T

ANNEX

M

FIELD ORDERS

XX Bomber Command Field Order Number 2
58th Bombardment Wing Field Order Number 3

S E C R E T

Reclassified "SECRET"
Auth: CG, XX BC
Initials JDG
Date: 6 July 1944

S E C R E T

TOP SECRET
Auth: CG, XX BC
Initials ECT
Date: 10 July 1944
"CANCELLED"

NOT TO BE TAKEN INTO THE AIR

XX Bomber Command
APO 493
10 June 1944 - 2000

FIELD ORDER)
NUMBER 2)

MAPS: AAF Aeronautical Charts 1:1,000,000 #384, 385, 386, 387, 388,
436, 491, 492, 493, 494, 495, 496, 497,
498, 499, 500, 553, 554, 555, 556, 557,
558

(or) International Map of the World. 1:1,000,000 Osaka, Nagasaki,
Kagosima, Nan-Tung, Shanghai, Taihoku,
Nanking, Hankow, Foochow, Changsha,
Kweilin, Chungking, Kunming, Calcutta,
Assam, Tali, Bihar, Mandalay, Arakan

AAF Aeronautical Charts 1:500,000 388A, 388D, 491B

AAF Long Range Air Navigation Charts, 1:3,000,000 #17 (Yellow
Sea), #26 (India).

Naval Aviation Charts V-30 Series, 1:2,138,800 #16, 17, 41.

1. a. (1) Hostile Ground Situation: See Intelligence Annex No. 1
(2) Hostile Air Situation: See Intelligence Annex No. 1.
b. (1) Omitted.
(2) Arrangements have been made for Fourteenth Air Force
to render all possible support by attacking enemy air-
fields within range of CHENGTU Area. Fourteenth Air
Force will provide photographic reconnaissance coverage
to the limit of its capabilities for damage assessment
of the target attacked by this Command. See Intelligence
Annex No. 1 for location of friendly airfields. The
312th Fighter Wing will provide fighter cover for VLR
bases in the CHENGTU Area.

2. This Command attacks installations of strategic importance at
YAWATA on D Day, staging from VLR bases in the CHENGTU Area.

Take-off: At such time as will insure that leading elements
enter enemy controlled area after dark.

Route Out: CHENGTU Base Area -- 34° 00'N., 129° 30'E. --
34° 13'N., 130° 05'E. (Okino Is.) -- Target.

Route Back: Target -- CHENGTU Area.

Axis of Attack: 122° True.

Method of Attack: By individual aircraft.

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3. a. (1) The 58th Bombardment Wing will furnish all available combat-operational aircraft and attack the IMPERIAL IRON AND STEEL WORKS AT YAWATA. (See Objective Folder No. 90.34 and Radar Folder No. 2, Annex No. 3).

Secondary target will be the dock area in LAOYAO (See Objective Folder No. 83.11, Annex No. 3).

On D minus one (D-1) Day all combat operational aircraft will be moved to the CHENGTU area prepared for the combat mission. All aircraft, upon departure from the Rear Base Area, will be fully serviced with POL and oxygen to minimize servicing requirements in the Forward Area, and each will carry eight (8) GP 500 lb. AN-M 64 (Composition B) bombs, to be fused one-tenth (.1) second nose and twenty-five (.025) thousandths seconds tail. Fuses will be carried in each aircraft but bombs will not be fused until after reaching CHENGTU bases. A full load of .50 cal. and 20 mm. ammunition will be loaded in tail turrets and all other guns will be loaded with 200 rounds .50 cal. ammunition each, prior to departure from Rear Base Area. No more than one (1) Staff Observer will be carried in each aircraft on the bombing mission.

- (2) The 58th Bombardment Wing will be responsible for securing photographic reconnaissance coverage for damage assessment of the target as required to supplement the coverage furnished by the Fourteenth Air Force.

4. Administrative and Supply Details: See Administrative Order No. 2
5. a. Signal Communications: See Signal Orders, Annex No. 4.
- b. Command Post: Advance Headquarters, XX Bomber Command, APO 210.

K. B. WOLFE
Brigadier General, U. S. A.
Commanding.

OFFICIAL:

JOHN E. UPSTON
Brigadier General, U. S. A.
A/C of S, A-3

ANNEXES:

- # 1 - Intelligence
2 - RCM
3 - Objective Folders No. 90.34 and 83.11 and Radar Folder No. 2
4 - Signal Orders

S E C R E T

Reclassified "SECRET"
Auth: CG XX BC
Initials J.D.G.
Date: 6 July 1944

S E C R E T

TOP SECRET
Auth: CG, 58 BW
Initials WKS
Date 11 June 1944
"CANCELLED"

NOT TO BE TAKEN INTO THE AIR

FIELD ORDER)
NUMBER 3)

58TH BOMB WING
APO 493
11 June 1944

MAPS: AAF Aeronautical Charts 1:500,000, #384, 385, 386, 387, 388, 436, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 553, 554, 556, 557, 558.

or International Map of the World 1:1,000,000, Osaka, Nagasaki, Kagosima, Nan-Tung, Shanghai, Taihoku, Nanking, Hankow, Foochow, Changsha, Kweilin, Chungking, Kunning, Calcutta, Assam, Tali, Bihar, Mandalay, Arakan.

AAF Aeronautical Charts 1:5,000,000 388A, 388D, 491B.

AAF Long Range Air Navigation charts, 1:3,000,000, #17 (Yellow Sea), #26 (India)

Naval Aviation Charts V-30 Series 1:2,188,800, #16, 17, 41.

1. a. (1) Hostile ground situation: See Intelligence Annex No. 1, to XX Bomber Command Field Order No. 2.
 - (2) Hostile aircraft locations and airfields: See Intelligence annex No. 1 to XX Bomber Command Field Order No. 2.
 - b. (1) Arrangements have been made for Fourteenth Air Force to render all possible support by attacking enemy airfields within range of CHENGTU area. The 312th Fighter Wing will provide fighter cover for VLR bases in the CHENGTU area. See Intelligence Annex No. 1 to XX Bomber Command Field Order No. 2 for location of friendly airfields.
2. On D-Day the 58th Bombardment Wing attacks the Imperial Iron and Steel Works at YAWATA (See Objective Folder No. 90,34 and Radar Folder No. 2, Annex No. 3 XX Bomber Command Field Order No. 2.)

Route Out: CHENGTU base area -- 34° 00'N; 129° 30'E -- 34° 13'N; 130° 05'E, -- TARGET.

Route Back: TARGET -- CHENGTU base area.

IP: OKINO ISLAND (34° 13'N; 130° 05'E)

Axis of Attack: 122° True

Method of Bombing: By individual aircraft at thousand foot levels in the following brackets: 8,000 ft - 10,000 ft; 14,000 ft - 18,000 ft. One fifth of the airplanes in each group will bomb from the upper altitude bracket plus other airplanes that have sufficient gasoline to climb to such altitudes and safely return to their CHINA bases. Intervalometer setting for bombing will be 120 ft if bombsight is used. Intervalometer setting for bombing will be 180 ft if radar is used. (Airplanes will make a turn to the right after bombing target)

Secondary Target will be port facilities at LAOYAO. (See Objective Folder No. 83.11, Annex No. 3 to XX Bomber Command Field Order No. 2.)

3. a. (1) 468th Bombardment Group will dispatch up to 50% of its available aircraft from the rear area to the forward area between 0000Z and 0200Z on D-Day minus two (2).

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- (2) 468th Bombardment Group will dispatch its remaining available aircraft from the rear area to the forward area between 0000Z and 0200Z on D-Day minus one (1).
 - (3) 468th Bombardment Group will provide a photo reconnaissance plane to take target damage photographs. Photographs will be taken during the early morning of D-Day plus one (1).
- b.
- (1) 444th Bombardment Group will dispatch not over fifteen (15) aircraft to Kharagpur on D-Day minus three (3). These aircraft will proceed to the forward area between 0000Z and 0200Z on D-Day minus two (2).
 - (2) 444th Bombardment Group will dispatch not more than fifteen (15) aircraft to Kharagpur on D-Day minus two (2). These aircraft will proceed to the forward area between 0000Z and 0200Z on D-Day minus one (1).
 - (3) Any available 444th Bombardment Group aircraft not provided for in paragraph (2) will be dispatched to Piardoba on D-Day minus two (2). These aircraft will proceed to the forward area between 0000Z and 0200Z on D-Day minus one (1).
 - (4) Commanding Officer, 444th Bombardment Group will coordinate with Commanding Officer, 468th and 462nd Bombardment Groups reference staging operations.
 - (5) 444th Bombardment Group will provide a photo reconnaissance plane to take target damage photographs. Photographs will be taken during the early morning of D-Day plus one (1).
- c.
- 40th Bombardment Group will dispatch all available aircraft from the rear area to the forward area between 0000Z and 0200Z on D-Day minus one (1).
- d.
- 462nd Bombardment Group will dispatch all available aircraft from the rear area to the forward area between 0000Z and 0200Z on D-Day minus one (1).
- e.
- (1) Any aircraft put in commission after 0200Z on D-Day minus one (1) will be dispatched to the forward area between 0000Z and 0200Z on D-Day.
 - (2) Route to the forward area will be CALCUTTA base area -- JORHAT -- CHABUA -- HSI CHANG -- CHENGTU base area (IPIN will be included if instruments).
 - (3) On landing in the forward area all combat operational airplanes will be fully serviced with gasoline and oil.
 - (4) Each group will dispatch a pathfinder airplane on the mission from its forward base at 0924Z on D-Day followed at a two minute interval by another pathfinder airplane. Each Group will dispatch the remainder of its aircraft at two-minute (2) intervals beginning 0930Z on D-Day.
 - (5) After landing at CHENGTU area bases on completing the mission, airplanes will be re-serviced immediately to a total of 3200 gallons of burnable gasoline and necessary engine oil, and will be kept on the alert during the remainder of the day. In case of enemy attack they will take off and return to the INDIA bases. In the event there is no attack they will take off prior to 0200Z on D-Day plus two (2) and return to the INDIA bases.

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- (6) Each group will load eight (8) 500# GP AN-M64 (Composition B) bombs per airplane fused one tenth (.1) nose; twenty-five thousandths (.025) tail.
 - (7) Bombs will be loaded in rear bomb bay in rear area but will not be fused until on the ground in the forward area. Fuses will be carried to the forward area by each combat aircraft.
 - (8) Bombing altitudes will be true altitudes. (Not indicated)
 - (9) One pathfinder airplane in each group will bomb in the low altitude bracket and the other in the high altitude bracket.
 - (10) Two hundred (200) rounds of 50 cal. ammunition will be carried per gun except the tail guns. Full ammunition will be carried for each tail gun including the 20mm cannon.
 - (11) Three (3) fully serviced bomb bay tanks will be carried per airplane. In addition 100 gallons of gasoline will be carried in the oil storage tank.
 - (12) All bomb bay fuel will be transferred prior to the time the target is reached.
 - (13) Aircraft will depart from INDIA bases with the same oxygen, fuel, oil, ammunition, and bomb loading with which they will depart from CHENGTU area bases on the mission.
 - (14) Radar will be operative in all aircraft.
4. Administrative and Supply: See Administrative Order No. 2 to XX Bomber Command Field Order No. 2.
 5. a. Signal Communications: See Signal Orders, Annex No. 4 to XX Bomber Command Field Order No. 2.
b. Command Post: Advance Headquarters, 58th Bombardment Wing, APO 210.
By command of Brigadier General SAUNDERS:

WILLIAM H. BLANCHARD
Lt. Colonel, Air Corps
Executive

OFFICIAL:

WILLIAM R. SKAER
Lt. Colonel, Air Corps
Asst. Chief of Staff, A-3

INCLOSURES:

- #1 - Administrative Order No. 2 to XX Bomber Command Field Order No. 2
- #2 - Annex No. 1 (Intelligence) to XX Bomber Command Field Order No. 2.
- #3 - Annex No. 2 (RCM) to XX Bomber Command Field Order No. 2.
- #4 - Annex No. 3 (Objective Folders No. 90.34 and 83.11 and Radar Folder No. 2) to XX Bomber Command Field Order No. 2.
- #5 - Annex No. 4 (Signal Orders) to XX Bomber Command Field Order No. 2.

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SEP 24 1942



HEADQUARTERS
TWENTIETH AIR FORCE
ADJUTANT GENERAL

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