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MISSION #7 YAWATA "ADMEASURE 2"
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XX BOMBER COMMAND
MISSION NO 7
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XX Bomber Command

28 Sept 44 J.E.D.
Date Initials

HEADQUARTERS
XX BOMBER COMMAND
APO #493

TACTICAL MISSION

REPORT

Field Order No. 7 Mission No. 7

20-21 August 1944

TARGET

The Imperial Iron and Steel Works, Yawata, Kyushu, Japan

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Prepared by:
Intelligence Section
XX Bomber Command

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HEADQUARTERS
XX BOMBER COMMAND
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:By Auth of the C.G.:
: XX Bomber Command :
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28 September 1944

SUBJECT: Report of Operations, 20-21 August 1944.

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

1. UNITS PARTICIPATING: Staging from bases in the Chengtu area in China, the 40th, 444th, 462nd and 468th Bombardment Groups of the XX Bomber Command furnished the aircraft for a maximum-effort daylight attack on 20-21 August 1944 against the Imperial Iron and Steel Works, Yawata, Kyushu, Japan.

2. IDENTIFICATION OF MISSION:

a. Attack No. 7.

b. Targets Planned:

(1) Primary Target: Imperial Iron and Steel Works, Yawata Kyushu, Japan (AAF Target No. 90.34-28).

(2) Secondary Target: Port and Shipping Facilities at Lao-yao, China (AAF Target No. 83.11-204).

(3) Last Resort Target: Railroad Yards at Kaifeng, China (Fourteenth Air Force Target Chart 83-10B).

3. STRATEGY AND PLAN OF OPERATION:

a. Importance of Targets:

(1) Primary Target:

(a) The Imperial Iron and Steel Works at Yawata, one of the two largest producers of steel in the Japanese Empire, is an extremely important strategic target. While no reliable figures are available, rough estimates indicate that this huge plant produces between 20 and 25 per cent of Japan's pig iron, 20 to 30 per cent of her steel ingot, and possibly 25 per cent of her rolled-steel products.

(b) Virtually the entire iron and steel production of the Works depends upon the output of the 2 coking plants. The older plant has been partially dismantled, but the remaining 6 batteries are in operation and are supplying the adjacent blast furnaces with coke. Five of the 6 batteries of the new plant on Kukino Oka have been completed and are in operation. No accurate assessment of Yawata's present coke output is available, but it is substantial and may approximate 20 per cent of Japan's total.

(c) Destruction of these coke plants would bring the Imperial Iron and Steel Works to a virtual standstill. It is believed that Japan possesses only a small excess of coke-oven capacity and that she would therefore be unable to keep Yawata in operation by importing

coke from other sources. To rebuild Yawata's ovens would require an absolute minimum of one year. In the meanwhile, Japan's entire war economy would suffer, especially in the vital shipbuilding, munitions, and railroad-equipment categories.

(2) Secondary Target:

(a) Laoyao is a new port which has been undergoing development by the Japanese and is the outlet for the coking coal of the Chunghsing Mines at Ihsien. It is estimated that 1,200,000 metric tons of this coal are sent annually to Japan from Laoyao. In addition, 100,000 metric tons of maganese and phosphates leave the harbor each year for Japan.

(b) The movement of this total of 1,300,000 metric tons of cargo requires the presence in the Harbor of at least 4 vessels of 4000 tons at any one time, and it is possible that the ship concentration there will number more than 4 vessels. Current intelligence suggests that 2000-ton ships are being used at Laoyao, and in this case there would probably be from 8 to 10 of these smaller vessels in port at any one time. The ships are the targets. Each ship that Japan loses forces her to reduce the amount of military supplies sent to battle zones or the amount of raw material obtained from occupied territory.

(c) Laoyao is a shallow port created, and probably kept open, by the use of dredges. For this reason any large dredge found in the harbor is an important target. Incidental destruction of piers and coal-loading machinery would decrease the efficiency of the port by increasing cargo-loading time and the number of days ships would have to remain in the harbor.

(3) Last Resort Target: Kaifeng is on the railroad line running from the seaport of Laoyao and the rail center of Suchow to Sinsiang. This line is one of the arteries that the enemy uses in providing military supplies and troops to the battle fronts in the Yellow River area. The Kaifeng Railroad Yards are known to be handling considerable and increasing traffic, the flow of which would be impeded as the result of aerial attack. The yards contain a repair shop for servicing engines or cars, and also 23 large buildings for the storage of supplies.

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

(1) Strategic Considerations and D-Day:

(a) On 22 July this Headquarters forwarded to Headquarters, Twentieth Air Force, a message containing our calculations for the XX Bomber Command August combat effort, based on logistical considerations, available aircraft, and target priority. It was stated that this Command could deliver "on or about 20 August, a saturation incendiary night attack on the Yawata-Tobata Urban Area with 55 combat aircraft dropping 110 tons of incendiaries on that target," a tonnage based on 2 tons for each aircraft arriving over the target. The estimate of the total number over the target (55) was calculated as follows: 124 aircraft available in the Rear Area, of which 90 (73%) would be airborne; 76 aircraft (85% of airborne) would arrive in the Forward Area; 68 (89% of aircraft in Forward Area) would be airborne on mission; and 55 (80% of airborne) would get over the target.

(b) On 28 July, Headquarters, Twentieth Air Force, replied as follows: "your proposed August effort.....is hereby approved with the following exceptions. It will be necessary to dispatch 80 aircraft from the Forward Area on the contemplated mission on 20 August .....According to the planned figures outlined, you would dispatch

68 aircraft from the Forward Area to the target. If you can sufficiently reduce your abortive rate from the Rear Area to the Forward Area, you could meet our desired figure."

(c) On 1 August, this Headquarters stated that the 20 August mission was "scheduled to be maximum effort and every effort will be made to dispatch the desired 80 aircraft from the Forward Area.. ..Our policy on maximum-effort missions is to place over the target the greatest possible number of our assigned aircraft."

(d) On 4 August, after the results of our 29 July mission against Anshan had been evaluated, a further message was sent to Headquarters, Twentieth Air Force, stating that although the 20 August mission had been set up as a saturation incendiary night attack on the Yawata-Tobata Urban Area, it was desired to change this to a daylight precision attack against the Imperial Iron and Steel Works for the following reasons:

(I) The effectiveness of the attack against the Showa Steel Works at Anshan indicated that with conditions of daylight and good weather this Command was capable of effectively accomplishing precision bombing from high altitudes.

(II) Experience gained in previous missions, particularly the mission against Anshan, led to the conclusion that a high-altitude four-plane formation flight could be accomplished at a range required to reach this target.

(III) The contemplated results in making a daylight precision bombing raid against this target carrying a bomb load of 2000 pounds per aircraft presented a better probability of inflicting serious damage than a similar raid carried out at night with each aircraft carrying 4000 pounds to be dropped using Radar-bombing methods. It was estimated that the circular error in the first instance would be less than a thousand feet, whereas in the second instance the circular error would be greater than two thousand feet. The probability of inflicting serious damage to the target was, therefore, in favor of a daylight precision mission.

(IV) In view of previous missions against Yawata and against a similar target at Anshan, it was believed that the Japanese must realize that our intentions are to inflict serious damage to the Imperial Iron and Steel Works. Thus, they must be making every effort to increase and improve their antiaircraft and fighter defenses. A daylight raid against this target, therefore, should be carried out as soon as possible.

(V) The effect upon the Japanese industrial and high military minds of inflicting serious damage against 2 such great steel centers as Showa and Imperial within the short span of 3 weeks, not to mention the actual curtailment of their steel-producing industry, would doubtless create alarm and confusion.

(VI) It was realized that this proposed mission would probably result in increased losses due to the fact that: (A) the aircraft would be over Japan proper during daylight and would therefore be exposed to a heavier concentration of antiaircraft and fighters, and (B) the flight back would, of necessity, require night navigation, finally terminating with the accomplishment of a night landing.

(VII) It was also realized that in the event weather conditions at the target should make radar bombing necessary,

the results attained would probably be less than could be expected from a night incendiary attack on the urban area. Nevertheless, in view of the reasons already outlined, it was believed that a daylight precision mission should be scheduled.

(e) On 5 August, Headquarters, Twentieth Air Force, replied: "We are delighted with the change of plan for the "Maine" mission ... It is approved....May your efforts for the "Maine" mission produce the same or better results than your last show against Anshan."

(f) Movement from the Rear to Forward Area was set to start on D-Day minus 3 and to continue up to and including D-Day minus 1. All available combat operational aircraft were to be moved to the Chengtu Area bases at that time.

(2) Determination of Bomb Load:

(a) Bomb loading was determined as follows: Instead of prescribing the number of bombs to be carried by each bomber (a figure normally determined by computing the bomb load that the least efficient airplane and crew can carry to the target), the field order merely prescribed the type of bomb to be loaded, and an understanding was reached with the Group Commanders that a minimum of 2000 pounds would be carried by each plane. In this way, those crews whose flight records had shown that their aircraft were operating economically could take advantage of their efficient fuel consumption, reduce their fuel load, and increase their payload to the extent that they conformed to the prescribed gross-load take-off weight. This procedure enabled each plane to carry a bomb load consistent with its load-carrying capacity.

(b) The AN-M-64 (Composition B) 500-pound General purpose bombs carried were fuzed one-tenth second nose and twenty-five thousandths seconds delay tail. Analysis of the structure of a coke-oven battery indicates that this fuzing will permit the desired penetration prior to detonation of a direct hit, while at the same time will maximize the likelihood that near misses will contribute to the destruction of a battery as a result of ground shock and crater diameter. Fuzes were to be carried in each aircraft leaving the Rear Area, but bombs were not to be fuzed until after the Forward Area was reached.

(c) The decision was made to concentrate each of the striking forces against a single aiming point with a bomb load and fuzing that would provide the greatest assurance of success against coke batteries. While the bomb load and fuzing were primarily determined by the consideration of the coke batteries, the combination used was also the most satisfactory for the by-products plants and other moderately strong structures in the target area.

(d) No incendiary bombs were considered necessary. Because of the construction of the coke ovens, incendiary bombs would have no appreciable effect in terms of inflicting primary damage. Furthermore, the presence of a great amount of smoke and fire was not desirable from a visual bombing standpoint. Even if fire were desirable, the by-products plants with their highly inflammable contents and latent sources of fire could be ignited as an indirect effect of the impact of the 500-pound bombs.

(3) Formation to Be Flown: The formation planned (as set forth in the Command's Tactical Doctrine) was the 4-plane diamond. (For details of how formation was to be flown, see Annex B, Part VIII.) It was prescribed that formations were to reach an altitude of 15,000 feet or 500 feet under the overcast (but in no case under 10,000 feet) before crossing over enemy-held territory. It was further prescribed that air-

craft failing to join a formation of at least 3 planes before penetrating enemy territory were to bomb the last resort target and return to base. Formations reduced to a strength of less than 3 after having penetrated enemy territory were to join a formation in the vicinity, if possible. Otherwise, they were to bomb the nearest designated target (other than the primary) from an altitude of not less than 20,000 feet. Finally, it was prescribed that individual aircraft were to remain above 20,000 feet when flying over enemy territory.

(4) Bombing Data: Bombing was to be by flights of 4 aircraft at assigned altitudes. In the case of the 40th and 444th Groups this altitude was 26,000 feet true, with an axis of attack of 129° magnetic; in the case of the 462nd and 468th, 25,000 feet true and 76° magnetic. In the event that weather conditions were to prevent bombing from the planned altitudes, visual bombing was to be accomplished at lower altitudes, but in no case below 18,000 feet. Intervalometer setting for bombing was placed at 100 feet. Finally, 2 aiming points were established. This point for the 40th and 444th Groups was such that the center of impact would be on the middle of the old coke-oven installations and that for the 462nd and 468th Groups on the middle of the new coke-oven installations. Aircraft in lead positions over the target were to be prepared for radar bombing if necessitated by weather conditions.

(5) Route to be Flown: Route out was the same for all Groups except for the Initial Point at Okino Island (34° 14'N - 130° 07'E) for the 40th and 444th Groups and Aino Island (33° 45'N - 130° 22'E) for the 462nd and 468th Groups. Route back was to be the same for all Groups.

(6) Photographic Coverage: In addition to the strike photos that were to be taken by as many aircraft as possible, a special photo reconnaissance aircraft was to be set up to obtain photos not only of Yawata but also of other photo targets on the Island of Kyushu. Take-off time was to be such that the aircraft would arrive over Kyushu in daylight.

(7) Aircraft Loading: In addition to the bomb load, each combat aircraft taking off from the Rear Area was to be completely serviced with POL and oxygen in order to minimize servicing requirements in the Forward Area. Furthermore, upon landing at the Chengtu Area bases upon completion of the mission, aircraft were to be reserviced to a total of 3200 gallons of fuel and oil and were to be prepared immediately for evacuation in the case of an emergency. Return to bases in India was to start on D-Day plus 1.

(8) Fighter Cover for VLR Bases: As in previous missions, the 312th Fighter Wing was to provide fighter cover for the VLR bases in the Chengtu Area.

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

a. Movement to the Forward Area started on D-Day minus 2 (instead of D-Day minus 3 as planned) from the Rear Area bases at Chakulia, Dudhkundi, Piardoba, and Kharagpur, and 77 aircraft arrived at the Forward Area on that day, followed by 18 on D-Day minus 1. This total (95) was augmented by 3 combat aircraft already in the Forward Area prior to the movement, making a total of 98 aircraft (including the photo plane) on hand for the mission.

b. Total aircraft airborne from the Rear Area amounted to 101. Of these, 3 returned to their Rear Area bases as a result of mechanical difficulties and 3 others (1 of which crashed) were forced to land en

route and did not complete the movement to the Forward Area.

c. Three aircraft that returned to bases with mechanical difficulty (1 returned twice) were subsequently airborne to and landed in the Forward Area without further difficulty. One other, forced to land at Jorhat en route, was also subsequently airborne and completed the trip to its Chengtu Area base.

5. EXECUTION OF THE MISSION (See Annexes B and J):

a. Take-off:

(1) Times for take-off were established for the Groups as follows: 40th - 200145Z; 444th - 200156Z; 462nd - 200139Z; and 468th - 200145Z. Take-off was accomplished without incident in 3 Groups; however, the 462nd Group ran into difficulty when the eighth plane to start its take-off run crashed and blocked the runway. As a result of this mishap, it was decided to have the remaining aircraft of the 462nd Group and any other available aircraft of the other Groups take off later in the day for a night mission against the originally planned target. This was accomplished in the 462nd Group by lightening the loads of the aircraft by approximately 3000 pounds in fuel and ammunition so that the aircraft were able to take off to the north over the crashed aircraft at the north end of the runway.

(2) Take-off for the day mission was as follows:

Group	A/C in Forward Area	A/C Airborne	First A/C Off	Last A/C Off	Elapsed time between First and Last A/C
40th	24*	22	200144Z	200219Z	35 minutes
444th	24	18	200156Z	200231Z	35 minutes
462nd	20	7	200150Z	200211Z	21 minutes
468th	29	28	200146Z	200242Z	56 minutes
Total	97	75	200144Z	200242Z	58 minutes

* Does not include photo plane.

(3) Take-off for the night mission was as follows:

Group	A/C Remaining*	A/C Airborne	First A/C Off	Last A/C Off
40th	2	3**	200903Z	201136Z
444th	6	2	200914Z	200917Z
462nd	13	8	200915Z	201019Z
468th	1	-	---	---
Total	22	13	200903Z	201136Z

* A/C in Forward Area less A/C airborne on daylight mission.
** Includes one aircraft airborne on daylight mission that made early return with bombs.

(4) Aircraft 465 of the 462nd Group crashed at the north end of the runway without injury to personnel at 200213Z. The runway was thereby blocked to the heavily loaded aircraft and a 15 mile an hour wind from the north made take-offs to the south impossible. Take-offs to the south impossible. Take-offs were then suspended until after the crashed aircraft had been moved and were resumed at 200915Z.

b. Route Out:

(1) Aircraft participating in both the day and night missions flew a route from the Chengtu Area bases as follows: bases to 32° 35'N - 111° 29'E to 32° 58'N - 126° 16'E to Initial Point (2 Groups Okino Island and 2 Groups Aino Island) to the target.

(2) Deviations from the planned route to and from the primary target were fairly numerous but minor and resulted mostly from mechanical difficulties. Twenty-nine aircraft flew a route other than that described for the following reasons: (a) 1 bombed secondary target; (b) 1 bombed last resort target; (c) 3 bombed targets of opportunity; (d) 4 returned with bombs; (e) 5 jettisoned their bombs; (f) 3 landed at XX Bomber Command bases other than their own; (g) 4 landed at bases other than Chengtu Area bases; and (h) 8 were operational losses. (5) 9 3 12 5 17 75 41

c. Primary Target:

(1) The first formation over the target in the day mission was at 0803Z and the last at 0851Z, an elapsed time over the target of 48 minutes. The night mission began 6 hours and 22 minutes later at 1522Z and the attack lasted until 1636Z or 1 hour and 14 minutes.

(2) During the 48 minutes of the daylight strike, a total of 61 aircraft dropped 384 500-pound GP bombs (96 short tons) on the target. This total was augmented by the 10 aircraft on the night mission during which 62 500-pound GP bombs (15-1/2 short tons) were dropped. In all, 71 aircraft dropped 446 bombs (111-1/2 short tons) in the area of the Imperial Iron and Steel Works.

(3) Of the total number of bombs dropped in the target area, (446), 199 were dropped by aircraft of the 40th and 444th Groups - briefed to aim at the center of the old coke-ovens - and 185 by aircraft of the 462nd and 468th Groups - briefed to aim at the center of the new coke ovens. In addition, 62 bombs were dropped on the old coke ovens by the aircraft of all Groups participating in the night mission.

(4) Total possible bomb load of the aircraft reaching the primary target was 462 bombs (115-1/2 short tons), but 4 aircraft experienced mechanical difficulties over the target and released only a portion or none of their bomb load.

(5) Briefed altitudes and air speeds were used by almost all aircraft and deviations were minor except for one instance in which air speed varied widely from the briefed I.A.S.

(6) The amount of antiaircraft fire encountered resulted in the greater use of evasive action than heretofore. In some cases the action taken was so violent as to reduce the effectiveness of the formation or to reduce the accuracy of the bombing.

(7) Visibility during the daylight operation was report-

ed as good and visual bombing predominated. At night, however, radar bombing predominated.

(8) The average length of bomb run for the daylight mission was 111.3 seconds, while that of the aircraft sustaining antiaircraft damage was 70 seconds. Four aircraft in one formation, all damaged by A/A, released after a 40-second bomb run.

d. Secondary Target: One aircraft with its fuel-transfer pump out proceeded to the secondary target at Laoyao and dropped 6 bombs by radar from 19,000 feet at 0716Z. Results were unobserved as a result of a 10/10 undercast at the time of bombing.

e. Last Resort Target: One aircraft developed an oil leak in its number 2 engine and proceeded to Laoyao, where a radar approach was made. Approximately 18 miles before this target was reached, the radar scope became inoperative and remained so until the aircraft was 22 miles past the target. It was decided not to make another approach, and the plane then proceeded to Kaifeng, the last resort target, where bombing (6 bombs) was accomplished at 0825Z from 23,000 feet by radar.

f. Targets of Opportunity:

(1) One aircraft turning back from the primary target as a result of the loss of one engine was about to jettison its bombs when it sighted a convoy from 21,600 feet. A bombing run was made with a destroyer as an aiming point and 6 bombs were dropped by bomb sight at 0803Z. Observed results indicate a definite miss. Moderate antiaircraft was encountered from the vessels in the convoy.

(2) One aircraft experiencing mechanical difficulty with its number one engine on the night mission found a target of opportunity at Paoying (33° 15'N - 119° 17'E) and dropped its 6 bombs visually from 14,000 feet at 1320Z. Results were unobserved.

(3) One aircraft on the route to the primary target dropped 3 bombs on an unspecified target of opportunity on the southern tip of Ikishima Island by bombsight from 25,000 feet. (The 3 remaining bombs were later jettisoned.)

g. Route Back:

(1) Aircraft generally followed a route from the target to a check point at 33° 43'N - 118° 35'E and then proceeded to bases in the Chengtu Area.

(2) In addition to a number of deviations from the briefed route back resulting from mechanical difficulties (see Route Out, paragraph b of this section), 8 aircraft failed to return for operational reasons. Three others landed at XX Bomber Command bases other than their own and 4 landed at bases other than those in the Chengtu area. (For details of these losses and landings, see Annex B.)

h. Photo Reconnaissance Aircraft: The photo plane, equipped with K-17b and K-18 cameras, took off from Hsinching at 202246Z and proceeded on course to Fusan, Korea, thence to the Island of Kyushu, where it photographed enemy installations at Yawata, Tobata, Shigashima, and Nagasaki. Although it was reported by the RCM observer that the aircraft was picked up by enemy radar prior to leaving Fusan and was followed on its course over Kyushu, no antiaircraft fire or fighter interception resulted. During the route back, this plane developed engine trouble and was forced to jettison a rear and a forward bomb-bay tank. Landing

was made at Hsinching at 211202Z.

i. Operational Results of the Mission:

(1) Despite the fact that initially only 75 aircraft were airborne on the daylight mission, the sending of 13 additional aircraft against the target at night raised the total airborne to 88. Thus, the percentage of aircraft airborne (90) equalled the previous best record (Mission No. 4 against targets at Anshan and Taku), and the percentage of aircraft airborne bombing the primary target (82) was the best record to date for a maximum effort.

(2) The decision to correlate bomb load with known flying characteristics proved to be a wise move. As a result, the total bomb load carried by aircraft airborne was 558 bombs (139-1/2 tons), whereas, if the number had been fixed at 4 per aircraft regardless of known flying characteristics, the total would have been only 352 bombs or 88 tons. The wisdom of this decision in the ultimate analysis is shown by the great increase in number and tonnage of bombs dropped on the primary target - 446 bombs (111-1/2 tons) instead of 292 bombs (73 tons). Average bomb load of aircraft airborne, therefore, was 6.3 500-pound bombs instead of 4.

(3) Over-all, despite the loss of 4 aircraft to enemy action and 8 mission operational losses, the mission is to be considered a success. In addition to the damage inflicted on the coke ovens, valuable lessons were learned in all phases of operation, particularly in the case of the Central Station Fire Control System (which had its first real test in combat) and of the gunners who ended up with a record of 17 enemy aircraft claimed destroyed, 13 claimed probably destroyed, and 12 claimed damaged. The mission was also significant in that it indicated that a formation flight in daylight over Japan was possible without excessive losses due to enemy action.

6. ENEMY OPPOSITION (See Annex C):

a. Enemy Antiaircraft:

(1) Heavy antiaircraft fire in the Yawata area during the day mission was of the barrage type and intense and generally accurate. Fire of this type was encountered for a period of almost an hour (0803Z to 0856Z) at altitudes from 24,000 to 27,000 feet, although the first formation over the target encountered moderate to intense and fairly accurate continuously pointed fire. During the night mission, heavy antiaircraft fire was meager and inaccurate. Heavy antiaircraft fire was also encountered at Saishu Island, at Tzehsien, at a point north of Saishu Island off Korea (probably Kyobun Island), in the general vicinity of Kowantun, and from naval vessels along the route. Barrage balloons were also noted in the Yawata area.

(2) During the night mission, 15 to 30 searchlights were encountered at Yawata, but these never located the aircraft. Searchlights were also encountered at Shimona Island, on the China Coast at 33° 50'N - 120° 30'E, at Yingtsi, and on the China mainland, probably in the general vicinity of Kowantun.

(3) As on previous missions, there was a great deal of enemy radar activity, and our aircraft were tracked from 110° East to the target and back to that point continuously by early warning installations. Radar signals in the target area were particularly active. No blackout regulations were apparently being observed in the Occupied China area on the night mission, but blackout at the target was reported as excellent.

(4) Over-all antiaircraft defenses at Yawata have been increased since the interpretation of photo cover obtained on 18 June 1944. The area is now probably defended by 166 heavy antiaircraft guns, approximately 40 searchlights, and numerous light antiaircraft guns.

b. Enemy Aircraft:

(1) Daylight Mission:

(a) Enemy fighter opposition encountered during this mission is rated as moderate. Three of our aircraft were destroyed and 4 damaged as a result of enemy air action. One B-29 was destroyed by the combination of fighter and aerial bomb attack, another as a result of colliding head on with a NICK, and the third by the wreckage of the collision. The damage inflicted on the 4 B-29's was of a minor nature. Thus, it is indicated that normal fighter attacks and enemy gun-fire were not effective. Preliminary claims list 17 enemy fighters destroyed, 13 probably destroyed, and 12 damaged.

(b) Single and coordinated passes and attacks numbering 148 were made against 43 B-29's. Of these encounters, 131 were met in the immediate target area, 13 were over the Yellow Sea, and 4 were unreported as to location. Encounters experienced in the target area began at 0805Z and ended at 0857Z. It is estimated that a total of 50-60 enemy fighters intercepted our aircraft, identified chiefly as NICKS, TOJOS, OSCARS, and TONYS. A definite figure cannot be established, but it is believed that about 75 per cent of the encounters occurred after "bombs away."

(c) Against B-29's bombing at 25,000 feet, enemy pilots showed a preference for low frontal approaches between 11 and 1 o'clock. Against one flight of 3 aircraft bombing at 20,000 feet, the high frontal approach predominated. A preference was shown for low breaks with dives, rolls, and banks.

(d) Japanese pilots exhibited about the same degree of aggressiveness as reported in previous missions. Thirty-five per cent of the attacks were reported as having been pressed to 250 yards or less, 24 per cent were broken off between 500 and 250 yards, and the remainder, 41 per cent, were broken off between 1000 and 500 yards. The enemy pressed home attacks with unusual vigor against 3 aircraft isolated at 20,000 feet. It is indicated that the Japanese continue to experience difficulty in timing attacks against the B-29, since only 72 per cent of the passes resulted in enemy fire. Our aircraft fired in 86 per cent of the attacks, usually opening fire at ranges between 1000 and 500 yards. Ten coordinated attacks were reported, but none was new, unusual, or well executed.

(e) In connection with new enemy tactics, it is impossible to determine whether the collision between one of our aircraft and a NICK was a case of deliberate ramming. There is no indication that NICK was out of control. It is the opinion of the B-29 pilots who observed the collision that the NICK pilot rammed intentionally, but the collision could have been a result of misjudgment on his part. Several air-to-air bombing attacks were also reported.

(2) Night Mission: Only one B-29 encountered enemy aircraft on the night mission. Rocket projectiles believed to have been released from twin-engine aircraft were reported. Approximately 8 individual projectiles were observed in all. The B-29 was not damaged.

7. WEATHER (See Annex D):

a. Daylight Mission: Weather as forecast was essentially correct. The forecast low and medium clouds for the target area were observed to the north and east of that area. Visibility was unrestricted, and visual bombing was possible in most instances. The winds aloft forecast was also rated as good by the majority of the navigators. On the return route, however, frequent violent thunderstorms building up to 17,000 feet were encountered over land soon after the aircraft reached the China coast. These storms, which had been forecast, persisted and were most violent over the Hills Area. St. Elmo's fire and extreme turbulence were encountered. No known losses are attributable to weather, but the functioning of air-ground communications and navigational aids was adversely affected. Weather at bases on return caused no difficulties.

b. Night Mission: As a result of the smoke and haze or layers of low clouds over the target at Yawata during the night mission, radar bombing was resorted to in the majority of instances. An overcast at 8000 feet with visibility of 6 to 8 miles prevailed at the bases on return.

c. Photo Mission: Cloud cover at Yawata was 3/10 fair-weather cumulus with tops at 6000 feet and the pictures resulting had cloud cover to a degree that made them unusable for photo interpretation; otherwise the pictures were of good quality. Weather at Fusan, Omura, and Nagasaki was clear with visibility unlimited.

8. COMMUNICATIONS (See Annex E): All aircraft were controlled from the Command Post in the Forward Area, as outlined in Section VIII - Communications, current Tactical Doctrine. Some revisions as to use of IFF and the times of message transmission were made in the Doctrine by radio. These changes are discussed in the Communications Annex to this report. Comments as to various phases of communications are as follows:

a. Air-ground communication suffered because of excessive atmospherics. As a result, 8280 kilocycles was the only frequency on which communication could be carried out.

b. Navigational aids were employed more extensively than on previous missions. This lapse may be attributed to adverse weather conditions.

c. Radio discipline was not up to the standards set on previous missions. This lapse may also be attributed to unfavorable weather.

d. Signal Security was insured by the use of current series CSP 1270 for encoding all air-ground transmissions not covered by prearranged code messages. Garbling of individual code groups in the use of CSP 1270 was reported on approximately 50 per cent of the messages so encoded, a decided drop in encoding efficiency as compared to previous missions.

e. Enemy radio activity was apparently confined to routine traffic in circuits near the frequencies used by this Command. A more complete coverage of this subject may be found in the RCI annex to this report.

f. Malfunctions of equipment were comparatively few. Three

liaison transmitters and 2 radio compasses failed in such a manner that they could not be repaired in flight.

9. RADAR (See Annex F):

a. The most important use of radar on this mission was in locating the target at ranges greater than visibility and in starting the bombing run on track for the visual bombardier. Radar was also used for bombing by 7 aircraft on the night attack; good results were indicated from the reports. Location of the target and the IP by radar at ranges of 20 miles or greater was accomplished by 68 per cent of the radar operators. The failure of the remainder to do so was caused largely by interference from other radar sets in the same formation. Twenty-three aircraft reported this interference, but 18 were able to locate and track radar targets through it. The failure of the others can probably be accounted for by inexperience. In this connection, instructions have been issued for wing elements in future formation attacks to switch radar transmitters to "stand by" before the IP. The serviceability of the radar set was 86 per cent operative over the target compared to the average of 81 per cent for the previous 6 missions. Radar was also a great aid in navigating aircraft to base and the SCR-729 was likewise used to great advantage in homing on the YJ beacons located at the Chengtu airfields.

b. The results from radar-scope cameras were disappointing, 15 aircraft being so equipped, but only 5 returning usable photographs. Navigators improved on photographic technique but took an insufficient number of pictures. As a result, only one bombing run could be traced accurately. It passed directly over the target.

10. RCM (See Annex G):

a. RCM activities were confined to searching for enemy radar signals from take-off to target and return, and no offensive action was taken. The search was divided into frequency ranges as follows: 70-330 megacycles (3 observers), 70-210 megacycles - DF (4 observers), 300-1000 megacycles (4 observers), and 1000-3300 megacycles (2 observers). Interceptions were made in the first two ranges, but not in the higher frequencies.

b. From interceptions made, it was established that Japanese early-warning stations are placed at frequent intervals across Occupied China and that the approaches to the Japanese Mainland are well protected. Furthermore, 2 enemy ground radar stations were roughly located by DF bearings.

c. Although the evidence is inconclusive, the accurate anti-aircraft encountered may be attributed to optical predicators. The possibility of gun-laying radar, however, cannot be overlooked.

11. CENTRAL STATION FIRE CONTROL (See Annex H): All indications are that this System in its first real combat test functioned exceptionally well. The enemy used attacks from around the clock, and every gun position in some flights had a chance to fire. The activity in this respect is indicated by the number of rounds of ammunition fired in combat - 33,000 rounds of 50-cal. and 2975 rounds of 20-mm. ammunition. On the other hand, 10,700 and 850 rounds respectively were expended in test firing. Moreover, malfunctions were negligible with only 8 50-cal. malfunctions despite the firing of 43,700 rounds of ammunition. Cannon and turret malfunctions were 3 and 6 respectively. Finally, from a gunnery standpoint, the mission was successful with claims against enemy aircraft as follows: 17 aircraft destroyed, 13 aircraft probably

destroyed, and 12 damaged.

12. CAMERAS AND PHOTOGRAPHS (See Annex I):

a. Cameras installed in aircraft participating in the day or night strike numbered 132 as follows: K-17b, 21; K-18, 22; K-19, 7; K-20, 67; and C-3, 15. From these cameras 587 usable negatives were obtained.

b. The cameras in the photo reconnaissance aircraft, equipped with K-17b 6-inch lens and K-18 24-inch lens types, produced 47 and 80 usable negatives respectively, but the pictures, while of good quality, were not usable for photo interpretation as a result of cloud cover.

13. BATTLE LOSSES AND BATTLE DAMAGE (See Annex J):

a. One aircraft was lost to enemy antiaircraft (direct hit through the flight deck) and 3 were lost to enemy aircraft, one from a combination of hits by enemy aircraft and the effect of an aerial bomb, the second from a head-on collision with an enemy fighter, and the third from a collision with the wreckage of these 2 planes, which had collided immediately in front of it.

b. Damage from both enemy antiaircraft and enemy fighters was negligible. Only 8 aircraft were hit by enemy antiaircraft and only 4 by enemy aircraft fire.

14. FUNCTIONING OF EQUIPMENT (See Annex K):

a. Of the 101 aircraft involved in the movement, 41 experienced mechanical difficulty of a nature serious enough to affect the accomplishment of their assigned mission. Of the 41 aircraft, 7 experienced difficulties of short duration, but 34 had trouble of such a nature as to prevent their reaching or bombing the primary target. The latter difficulties occurred in the following broad classes: 3 aircraft returned to their Rear Area bases and did not take off again for the Forward Area; 3 landed en route and did not resume the journey to the Forward Area; 10 failed to take off on the mission; 4 were over the primary target and dropped only a portion or none of their bomb load; and 14 of the aircraft airborne failed to reach the primary target as a result of mechanical difficulties.

b. Engineering difficulties developing in flight were those ordinarily encountered. Inoperative tachometers (20), oil leaks (12), and cylinder head temperature guage malfunctions (10) were the most numerous with a total of 87 engineering malfunctions of all types reported.

c. Average fuel burned per aircraft was 6730 gallons for aircraft on the daylight mission - 6600 gallons for the leaders and 6780 for the wingmen. This compares with a pre-flight calculation of 6600 gallons. Average fuel consumption for the night mission (single plane flights) was 6420 gallons per aircraft. Minimum and maximum fuel consumptions for the daylight mission were 6100 and 7600 gallons respectively; for the night mission, 6080 and 6670 gallons respectively.

15. TARGET DAMAGE ASSESSMENT (See Annex L):

a. The target at Yawata twice previously had been attacked,

first on 15 June 1944 and subsequently on the night of 7-8 July 1944. A fourth attack by 10 B-29 aircraft, following at night the daylight attack of 20 August, produced no strike photographs. Therefore, this report concerns only the daylight attack and is based exclusively on interpretation of strike photographs. As such it should be regarded as a provisional statement of damage.

b. A direct hit on one of the coke installations (which includes 2 batteries of ovens) in the southeast part of the target set it afire. Pinpoints of flame (seen in the strike photos to be astride the ovens at the base of a large plume of dense black smoke ascending therefrom) indicate that coal, or partially coked coal, inside the ovens is burning vigorously. A large building immediately adjacent, probably related to by-products operations, is thought also to be burning. An unusual emission of what appears to be steam from one of two similar buildings serving the coke-oven batteries to the east may indicate some damage there, although no bursts are seen. Smoke from the fires mentioned completely obscures the remaining batteries to the south.

c. On Kukino Oka, site of the new coke-oven batteries, approximately 9 bursts are seen, at least one of which is thought to mark a hit or near miss on the most southwesterly of 6 batteries (one of them partly completed) in this coking group. This hit or near miss appears to be near the coaling tower serving the 2 south batteries. In addition, a small building of the by-products plant has been hit and set afire, as indicated by dense black smoke rising from the damaged building. It is also quite possible that a direct hit was effected on the unfinished battery to the northwest. No definite statement, however, can be made. It is also believed possible that such a hit could have resulted from the small-scale night attack of 7 July. A number of ill-defined bursts are seen at the northwest corner of Kukino Oka. It is thought likely that large fires are burning in or near residential areas south of the plant.

d. Without further reconnaissance, it is not possible to make any more detailed statement as to the over-all results of this attack.

For the Commanding General:

Leo I. Herman

LEO I. HERMAN
Colonel, Air Corps
Acting Adjutant General

ANNEX

A

MOVEMENT FROM REAR TO FORWARD AREA

MOVEMENT FROM REAR TO FORWARD AREA

Mission No. 7

20-21 August 1944

	40th	444th	462nd	468th	Total
A/C airborne	24-a	26	22-c	29-c	101
A/C returning to XX Bomber Command Bases	--	2	1-c	c	3
A/C forced to land en-route and movement not completed	1-b	1	1	d	3
Total A/C landing in Forward Area	23	23	20	29	95
A/C on hand prior to movement	2	1	--	--	3
Total A/C in Forward Area	25	24	20	29	98

a. Includes A/C 288 - photo plane.
b. A/C 425 crashed near Hsichang: no casualties
c. A/C 475 (462nd) and A/C 389 (which returned to rear base twice) and A/C 262 (both A/C 468th) subsequently landed in the Forward Area but are included in airborne total only once.
d. A/C 279 landed at Jorhat en route but was airborne subsequently and landed in the Forward Area.

	40th	444th	462nd	468th	Total
A/C landing on D-Day minus 2	19	19	16	23	77
A/C landing on D-Day minus 1	4	4	4	6	18
A/C on hand prior to movement	2	1	--	--	3
Total A/C in Forward Area	25	24	20	29	98

ANNEX B

EXECUTION OF THE MISSION

I - Details of Routes

II - Track and Vertical Flight Path

III - Bombing Data

IV - Bomb Loading

V - Disposition of Bombs - Total

VI - Disposition of Bombs - Daylight Mission

VII - Disposition of Bombs - Night Mission

VIII - Formation Flown

IX - Navigation Report

X - Mission Operational Losses

XI - Information on Landings

I - DETAILS OF ROUTES

Mission No. 7

20 August 1944

A. Route of Combat Aircraft

All Groups - Day*	Location	Time At Point (Z time)	Altitude (feet)	I.A.S. (mph)
Base to:	Chengtu area	0144 - 0242	--	--
First Check Point to:	32° 35'N - 111°29'E	0355 - 0431	10,000 - 17,000	185 - 205
Second Check Point to:	32° 58'N - 126° 16'E	0712 - 0800	11,000 - 26,000	187 - 210
Initial Point to:	Okino Island-a Aino Island-b	0754 - 0841	23,000 - 26,000	182 - 200
Target to:	Yawata	0803 - 0851	23,000 - 26,000	180 - 210
First Return Check Point to:	33° 43'N - 118° 35'E	1119 - 1212	20,000 - 12,800	176 - 200
Base	Chengtu area	1455 - 1709	--	--

* Aircraft on night mission flew same route as A/C on daylight mission.

a. 40th and 444th Groups. b. 462nd and 468th Groups.

Note: Deviations, by Groups, were as follows (does not include combat losses):

40th Group:
A/C 268 - bombed LRT (Kaifeng).
A/C 281 and 348 - jettisoned bombs (latter in sea).
A/C 276 - early return with bombs.
A/C 298 and 290 - landed at Kwanghan (444th's base).
A/C 829 - last heard of at 31° 34'N - 104° 30'E (missing).
A/C 308 - crashed south of Laohokow at 31°50'N - 111° 45'E (some personnel still missing).
A/C 301 - location unknown.
A/C 342 - early return with bombs (night mission).

444th Group:
A/C 267 - bombed target of opportunity (convoy with destroyer as aiming point).
A/C 212 and 315 jettisoned bombs.
A/C 225 and 262 landed at Liangshan and proceeded to Kwanghan on D-Day plus one.
A/C 330 - crashed approximately 12 miles southeast of Kwanghan after 2 unsuccessful landing attempts.

A/C 286 - location unknown.

462nd Group: A/C 278 - bombed secondary target.
A/C 346 - bombed target of opportunity at Paoying (33°15'N - 119°17'E - (night mission).
A/C 332 - crashed near 30°31'N - 106°17'E (night mission).
A/C 456 - landed at Hsinching (40th's base).

468th Group: A/C 284 - bombed target of opportunity at south tip of Ikishima Island (en route to target - personnel error).
A/C 494 - jettisoned bombs at 31°45'N - 110°18'E in mountains.
A/C 356 and 390 made early returns with bombs.
A/C 272 and 429 landed at Liangshan.
A/C 264 - location unkown after last having been observed halfway back across China Sea (bombed PT).

B. Route of Photo Reconnaissance Aircraft

(A/C 288 - 40th Group)

Location	Time (Z)	Altitude (feet)	Photo Heading (deg)
Hsinching	202246	---	---
Fusan, Korea	210431	28,000	90T
Yawata and Tobata, Kyushu	210457	28,300	170T
Airstrip near Shiga-shima, Kyushu	---	---	216T
Omura, Kyushu	210513	28,300	170T
Nagasaki, Kyushu	210517	28,300	250T
Hsinching	211202	---	---

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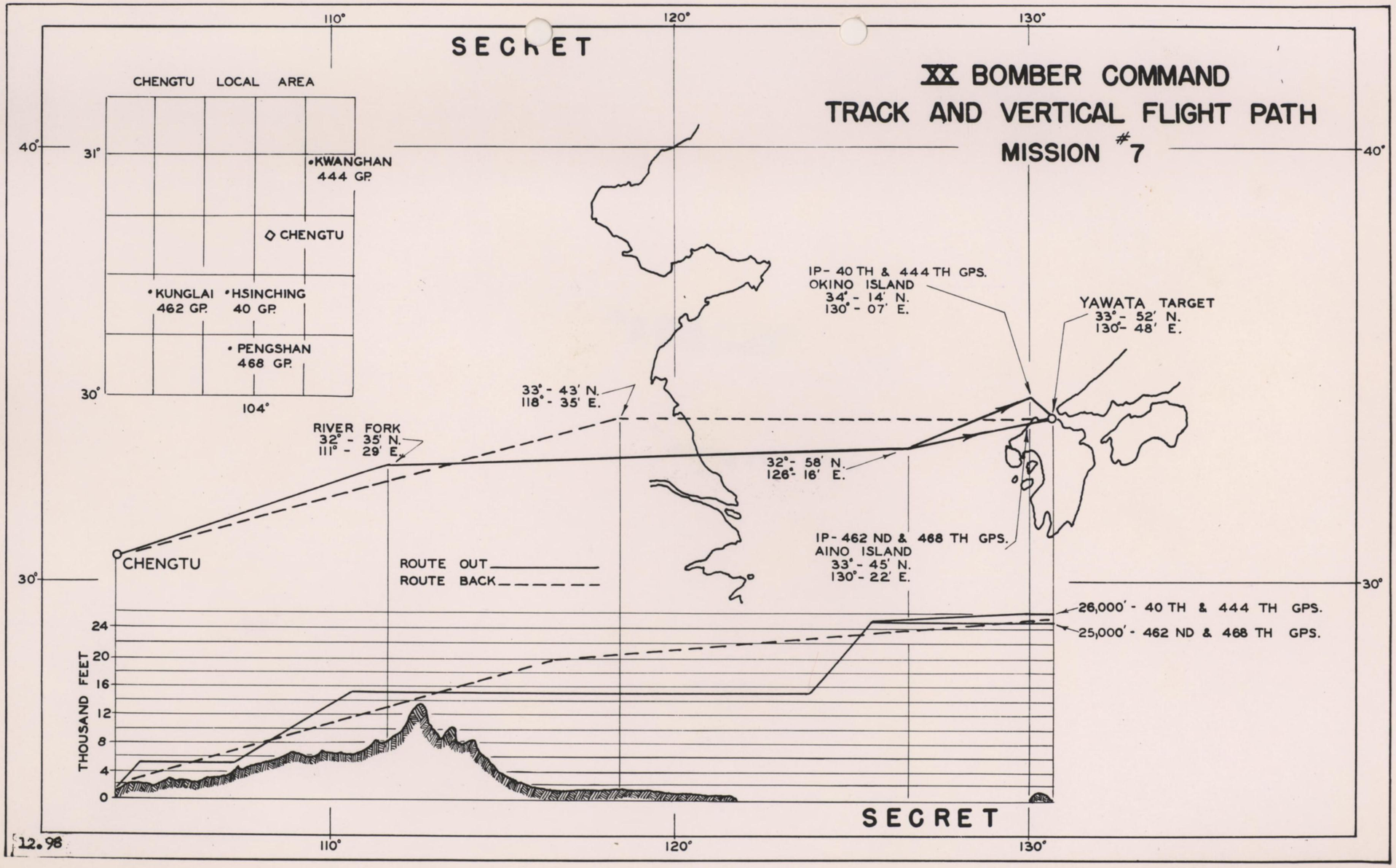
XX BOMBER COMMAND
TRACK AND VERTICAL FLIGHT PATH
MISSION #7



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III - BOMBING DATA

Mission No. 7

20-21 August 1944

A. General Comments

1. Bombing was accomplished with little deviation from briefed altitude and air speed. Only 7 deviations from the briefed air speed were reported, and only 1 varied widely. Aircraft #307 of the 444th Group reported a variation of 20 miles per hour from the briefed air speed of 200 during the bombing run. As a result, the bombardier of that aircraft commented that pilots should be instructed in the value of maintaining air speed and altitude on the bombing run.

2. Since a great deal of antiaircraft opposition was encountered, some evasive action was reported. In several cases it was reported that this evasive action was too violent to permit good formation flying and accurate bombing.

3. One case was reported in which the lead bombardier of the formation did not open bomb bay doors in sufficient time to allow other planes in the formation to complete this operation prior to sighting and release. This caused the wingmen considerable distraction, inasmuch as they were unable to anticipate the leader's intention as to whether or not a bombing run was being made. This necessitated salvo release by the leader and one wingman, which resulted in damaged bomb-bay doors to both aircraft.

4. Visibility at the target during the daylight operation was reported good. Ninety-seven per cent of the bombing was accomplished visually on the daylight operation. On the night operation, 36 per cent of the bombing was accomplished visually. Aircraft number 456 of the 462nd Group, flying on the night mission, released bombs on thr primary target at 1336Z and observed fires in both aiming-point areas at that time. This may indicate that fire fighters may have been unable to control fires started during the daylight attack.

5. The average length of bombing run reported by aircraft sustaining antiaircraft damage was 70 seconds. The average length of bombing run for the entire daylight operation was 111.3 seconds. It is interesting to note that 4 of the aircraft damaged by antiaircraft fire were in the same formation. Reports indicate that this formation released after a 40-second bombing run.

B. MALFUNCTIONS OF BOMBING EQUIPMENT

1. 40th Group:

a. A/C 303: C-1 auto-pilot failure.
b. A/C 295: Six bombs hung in racks after 2 were released electrically. These were salvoed.
c. A/C 281: Electrical release failure. One bomb hung in racks after mechanical salvo and was returned to base.
d. A/C 466: After release, rear doors could not be closed with normal system. Emergency system worked satisfactorily.

(Notes continued on B-4)

2. 444th Group:

a. A/C 234: Six bombs hung in rack over target; subsequently jettisoned.
b. A/C 341: Same as 234.
c. A/C 462: Three bombs released on target, remaining 3 hung in racks and were later jettisoned.

3. 462nd Group:

a. A/C 484: Five bombs on PT; 1 subsequently jettisoned.
b. A/C 444: Electrical release failure.
c. A/C 248: Aileron out on C-1 auto-pilot.

4. 468th Group:

a. A/C 442: Intervalometer failed to register release.

C. Deviations from Briefed Axis of Attack

1. 40th Group:

No. A/C deviating by more than 10° 1
Greatest deviation reported..... 108° day and 156° night

2. 444th Group:

No. A/C deviating by more than 10° 1
Greatest deviation reported..... 32°

3. 462nd Group:

No. A/C deviating by more than 10°..... 0
Greatest deviation reported..... 1°

4. 468th Group:

No. A/C deviating by more than 10°..... 4
Greatest deviation reported..... 102° *

*This was the result of a shift from the briefed aiming point "B" to aiming point "A" after leaving the IP.

D. Time over Target

1. The attack started at 0803Z and continued until 0851Z, an elapsed time over the target of 48 minutes. Six hours and twenty-two minutes later, the night attack began with the first aircraft over at 1522Z and the last over at 1636Z, an elapsed time of 1 hour and 14 minutes.

2. The weight of the attack in terms of ten-minute intervals was as follows for the daylight mission:

a. 0800 - 0809 - 11
b. 0810 - 0819 - 12
c. 0820 - 0829 - 10
d. 0830 - 0839 - 15
e. 0840 - 0849 - 8
f. 0850 - 0859 - 2
g. Unknown - 5

IV - BOMB LOADING*

Mission No. 7

20-21 August 1944

("GP" refers to 500-pound General Purpose bombs)

	Number Fwd			# Airborne Day			Number Bombs			# Airborne Night			Number Bombs			Total Airborne			Total Bombs			Total Bombs	
	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	4 GP	6 GP	8 GP	Day	Night
40th	1	16	7	-	15	7	-	90	56	1	1	1	4	6	8	1	16	8	4	96	64	146	18
444th	-	19	5	-	14	4	-	90	24	-	2	-	-	12	-	-	16	4	-	102	24	114	12
462nd	1	18	1	1	6	-	4	36	-	-	7	1	-	42	8	1	13	1	4	78	8	40	50
468th	-	24	5	-	23	5	-	138	40	-	-	-	-	-	-	-	23	5	-	138	40	178	-
Total	2	77	18	1	58	16	4	354	120	1	10	2	4	60	16	2	68	18	8	414	136	478	80
	97**			75			478			13***			80			88***			558				

* Bomb loading per aircraft was left to discretion of Group Commanders with minimum of 4 per aircraft . A/C loaded 4, 6, and 8 bombs as shown.

** Does not include A/C 276 (40th Gp) equipped only for photo reconnaissance.

*** Includes A/C 276 (40th) that was early return and brought back 8 bombs on day mission. Excluding this A/C, "not airborne" becomes 87 and "total bombs" becomes 550.

SECRET

V - DISPOSITION OF BOMBS - TOTAL

Mission No. 7

20-21 August 1944

("GP" refers to 500-pound General Purpose bombs)

	40th		444th		462nd		468th		Total	
	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP
A/C airborne	25*	164	20	126	15	90	28	178	88*	558*
A/C over PT and total possible bomb load	20	130	17	108	12	72	24	152	73*	462
Actual bombs dropped on PT	(20)	130	(15)	93	(12)	71	(24)	152	(71)	446
Bombed S. T.	-	-	-	-	1	6	-	-	1	6
Bombed L.R.T.	1	6	-	-	-	-	-	-	1	6
Bombed T. of Opp.	-	-	1	6	1	6	1	3	3	15
Jettisoned bombs	2	13	2	27	-	1	1	11	5	52
Brought bombs back	2	15	-	-	-	-	2	12	4*	27*
Disposition unknown	-	-	-	-	1	6	-	-	1	6
Total	25	164	20	126	15	90	28	178	88*	558*

* Includes A/C 276 (40th) that was early return on day mission (8 bombs brought back) and subsequently successfully airborne on night mission. PT was bombed on night mission. Does not include A/C 288 (40th), equipped only for photo reconnaissance, that also got over PT.

VI - DISPOSITION OF BOMBS - DAYLIGHT MISSION

Mission No. 7

20-21 August 1944

("GP" refers to 500-pound General Purpose bombs)

Day	40th		444th		462nd		468th		Total	
	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP
A/C airborne	22	146	18	114	7	40	28	178	75	478
A/C over PT and total possible bomb load	18	118	15	96	6	34	24	152	63	400
Actual bombs dropped on PT	(18)	118	(13)	81-a	(6)	33-b	(24)	152	(61)	384
Bombed S.T.	-	-	-	-	1	6	-	-	1	6
Bombed L.R.T.	1	6	-	-	-	-	-	-	1	6
Bombed T. of O.	-	-	1	6	-	-	1	3-c	2	9
Jettisoned bombs	2	13-c	2	27-d	-	1-b	1	11-c	5	52
Brought bombs back	1	9-c	-	-	-	-	2	12	3	21
Total	22	146	18	114	7	40	28	178	75	478

a. A/C 462 - 3 on PT, 3 jettisoned
A/C 234 - bomb-bay door malfunction over PT, later jettisoned 6.
A/C 341 - bombing equipment malfunction over PT, later jettisoned 6.

b. A/C 484 - 5 on PT, 1 jettisoned.

c. A/C 281 - 5 jettisoned, 1 brought back.

d. A/C 462, 234, 341, see note a.

e. A/C 284,- 3 on opportunity target en route to PT, 3 jettisoned (personnel error).

VII - DISPOSITION OF BOMBS ON NIGHT MISSION

Mission No. 7

20-21 August 1944

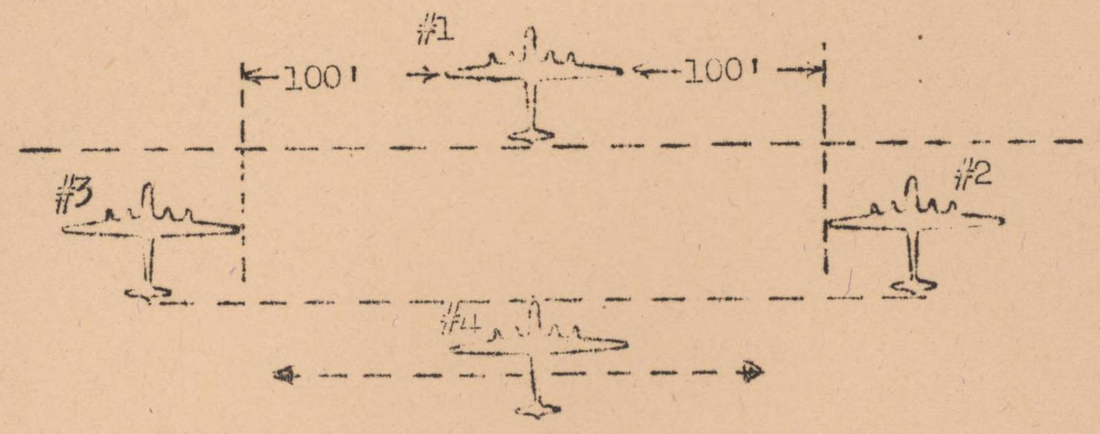
("GP" refers to 500-pound General Purpose bombs)

Night	40th		444th		462nd		468th		Total	
	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP	#A/C	#GP
A/C airborne	3	18	2	12	8	50	-	-	13	80
A/C over PT and bombs dropped	2	12	2	12	6	38	-	-	10	62
Bombed T. of Opp.	-	-	-	-	1	6	-	-	1	6
Brought bombs back	1	6	-	-	-	-	-	-	1	6
Disposition unknown	-	-	-	-	1	6	-	-	1	6
Total	3	18	2	12	8	50	-	-	13	80

VIII - FORMATION FLOWN

Mission No. 7

20 August 1944



1. The formation flown was the 4-plane diamond with wingmen flying level, approximately nose to tail and at a 100-foot interval from wing tip to wing tip with the leader. Number 4 flew well forward, approximately nose to tail with #2 and #3 and laterally in either the right or left interval between the lead and wing planes to avoid prop wash and empty shell cases.

2. In order to gain fire support from the rest of the formation, #4 was briefed to drop low on high tail attacks and to rise above formation level on low tail attacks. Conversely, in order to support the formation with its own fire, #4 was to rise on high nose attacks and drop on low nose attacks.

3. The concensus is that this formation, when properly flown, provided an adequate defensive formation in that, in the words of one Group Commander, "it permitted the maximum exploitation of maneuverability, speed, altitude, and range." In many cases the maintenance of this formation appeared to be a definite deterrent to the enemy in keeping his fighters from pressing home attacks too closely. The formation also was considered satisfactory in regard to evasive action against fighters. Since fighter attacks were generally made while the aircraft was not on the bombing runs, turns into attacks as well as away from them were possible. Turning into the attack at a high IAS upset the pursuit curve of the fighters by making it practically impossible to lead sufficiently, whereas turning away placed them in a rear quarter position from which they were reluctant to press home attacks.

IX - NAVIGATION REPORT

Mission No. 7

20-21 August 1944

1. Navigation in general was good. It was based on dead reconing, celestial (which was used generally on a larger scale than before,) and pilotage. There were several below-average navigation performances, but these can be obviated in the future by continued coaching by the Staff Navigator and experienced crew navigators. Turbulent conditions made celestial navigation difficult in some cases, and electrical disturbances intermittently affected the performance of the homing facilities in the base areas.

2. Navigator's Sortie Reports continue to fail to reveal in all cases the difficulty some aircraft experience in homing. As in previous missions, the Aircraft Control Center had to guide some airplanes to their fields after their arrival in the general area. It is felt that all the difficulty experienced by airplanes within voice range of base areas is not the fault of the navigator. It is the opinion of one Group Commander that a great deal of the difficulty in homing is caused by the pilot's failure to cooperate to the fullest extent with the navigator in his efforts to interpret his DR position, radio aids indication, and celestial observations.

3. QDM's were reported to be accurate and useful, but in some cases they are still being misused. QDM's are available to be used whenever needed, but it should be SOP that they be requested only when actually needed by the navigator. Delay in giving QDM's resulted from the heavy traffic and repeated requests by many aircraft for bearings.

4. As has occurred in the past, all procedures tend to become more difficult of accomplishment during the last stages of the route back. It has been suggested, therefore, that Group Navigators consider the posibility of using precomputed curves based on home field data to help aircraft in homing.

5. Average navigation times out and back compare favorably for all Groups:

	Navigation time out	Navigation time back
40th	6 hrs. 18 min.	7 hrs. 26 min.
444th	6 hrs. 02 min.	7 hrs. 17 min.
462nd	6 hrs. 22 min.	7 hrs. 27 min.
468th	6 hrs. 05 min.	7 hrs. 15 min.

6. There were varied comments concerning the winds forecast with a majority reporting the forecast as generally satisfactory. Computed winds varied considerably. Unfavorable weather in some places and night operation can be considered to have caused many of the variations. Average computed winds and altitudes follow:

	Half-way out	Target Area	Half-way back
40th	Varied	24,000' 243° 23mph	Varied
444th	15,000' 238° 17mph	26,000' 252° 21 mph	15,500' 236° 22mph
462nd	15,000' 208° 18mph	23,000' 244° 23mph	14,000' 245° 21mph
468th	16,000' 246° 17mph	24,500' 264° 23 mph	17,000' 264° 23 mph

X - MISSION OPERATIONAL LOSSES

Mission No. 7

20-21 August 1944

A. 40th Group (3):

1. A/C 301. A "bombs away" message was sent at 1315Z and the aircraft has not been heard from since that time. It is presumed to be in friendly territory.*

2. A/C 308: This B-29 crashed south of Laohokow at 31°50'N - 111° 45'E. Three of the crew members were subsequently picked up by a transport plane and returned to base. Five other crew members are reported safe at a Chinese village near Laohokow, two others were dead in the plane at the time of abandonment, and one is unaccounted for.

3. A/C 829: After sending a "bombsaway" message, this aircraft reported itself as low on gas and the crew as bailing out. The key was clamped down at 31°34'N - 104°30'E.

B. 444th Group (3):

1. A/C 286: A "bombs away" message was sent at 1210Z. The plane is presumed to be in friendly territory.

2. A/C 330: This aircraft crashed at 1605Z after 2 unsuccessful landing attempts at a point approximately 12 miles from the Kwanghan base. Only one seriously injured crew member survived.

3. A/C 320: This plane lost 2 engines approximately 75 miles from Kwanghan. The crew bailed out successfully, and the aircraft has been found destroyed.

C. 462nd Group (1)

1. A/C 332: This aircraft crashed at 0730Z in the vicinity 30°31'N - 106°17'E after losing 2 engines. All crew members bailed out except the pilot, co-pilot, and engineer who stayed with the plane. Only minor injuries were sustained by those remaining with the plane.

D. 468th Group (1)

1. A/C 264: Indications are that this B-29 crashed and burned near the coast of Occupied China. Five crew members are reported to be in the hands of the Chinese Communists, one is reported to have been captured by the Japanese, three have been reported killed, and two others are completely unreported.

* Information received just before publication of this Report indicates that A/C 301 crashed into a mountain approximately 25 miles southeast of Kunlein between 1400Z and 1500Z on 20 August. Kunlein (28°12'N - 104°20'E) is approximately 45 miles south of Ipin. It was stated that eleven bodies had been buried in separate graves near the plane. No personnel survived.

XI - INFORMATION ON LANDINGS

Mission No. 7

20-21 August 1944

A. Daylight Mission

1. 40th Group:

   a. First aircraft down at 201455Z, last at 201709Z.
   b. A/C 298 landed at Kwanghan (444th Group base at 201630Z - gas shortage
   c. A/C 290 landed at Kwanghan (444th Group base) at 201507Z - gas shortage.

2. 444th Group:

   a. First aircraft down at 201523Z, last at 201656Z.
   b. A/C 225 landed at Liangshan at 201608Z - gas shortage.
   c. A/C 262 landed at Liangshan at 201615Z - gas shortage.

3. 462nd Group:

   a. First aircraft down at 201536Z, last at 201706Z.

4. 468th Group:

   a. Time first aircraft down not reported, last down at 201626Z.
   b. A/C 272 landed at Liangshan at 201455Z - gas shortage.
   c. A/C 429 landed at Liangshan at 201454Z - gas shortage.

B. Night Mission

1. 40th Group:

   a. First aircraft down at 202303Z, last at 210025Z.

2. 444th Group:

   a. First aircraft down at 202228Z, last at 202240Z.

3. 462nd Group:

   a. First aircraft down at 202306Z, last at 210023Z.
   b. A/C 456 landed at Hsinching (40th Group base) at 210008Z - gas shortage.

ANNEX

C

ENEMY OPPOSITION

I Enemy Antiaircraft

II Enemy Aerial Tactics

III Clock Summary of Attacks

I - ENEMY ANTIAIRCRAFT

Mission No. 7

20-21 August 1944

A. Antiaircraft Fire and Searchlights Encountered

1. YAWATA area (33°50' N - 130°49' E):

a. Heavy Antiaircraft Fire Encountered:

(1) Intense and generally accurate barrage-type fire was encountered in the area of the bomb-release line from 0803Z to 0856Z at altitudes varying from 23,500 to 26,600 feet with one exception. The first formation of 3 aircraft over the target at 0803Z encountered moderate to intense and fairly accurate (level, behind, and to the left) continuously pointed heavy antiaircraft fire.

(2) Succeeding elements reported distinct barrage-type fire at the area of the bomb-release line ranging from 24,000 to 27,000 feet in altitude and approximately 2000 to 3000 feet laterally. Weather conditions at the target were reported CAVU.

(3) During the night mission, meager and inaccurate heavy antiaircraft fire was encountered between 1522Z and 1626Z at 14,000 to 22,000 feet by 8 out of 10 aircraft over the area.

(4) The photo reconnaissance aircraft, which was over the area during daylight at 210457Z at approximately 30,000 feet, encountered no antiaircraft fire.

b. Searchlights Encountered: During the night mission, 15 to 30 searchlights that never located the aircraft were encountered from 1522Z to 1626Z at altitudes varying from 14,000 to 22,000 feet. Weather was reported as varying from CAVU with ground haze and smoke to 9/10 undercast. Beams were reported as white, remaining on approximately 14 minutes at alternate intervals.

c. Possible Ground-to-Air Rocket Fire: One possible ground-to-air rocket was reported at 1620Z at the target area by 1 aircraft at 16,000 feet. It left a yellow trail of light behind it and reached beyond 18,000 feet. No burst was observed. Undercast was reported as 9/10 with tops at 9000 feet.

d. Stalking Aircraft: Several enemy aircraft in the target area were reported by B-29 aircraft at the same altitude and flying parallel courses and may have been transmitting data to antiaircraft installations on the ground.

e. Overall Antiaircraft Defenses at YAWATA: Provisional interpretation by the Target Intelligence Section, XX Bomber Command, of strike photos taken on 20 August 1944 has revealed an increase in the size of the antiaircraft defenses in the Yawata area since interpretation of photo cover obtained on 18 June 1944. This area is now probably defended by 166 heavy antiaircraft guns, approximately 40 searchlights, and numerous light antiaircraft guns. The majority of the new heavy antiaircraft sites have been constructed south of Yawata, indicating that the Japanese initially established adequate defenses in areas of probable approach (cover of 18 June). After completing this job, the enemy has now started to build up his weak areas or overland approaches. A definite statement cannot be made, however, until complete photo coverage is obtained.

2. SAISHU ISLAND (33°40' N - 126°30' E): Meager and inaccurate (level, behind, and left) heavy antiaircraft fire was encountered at 0742Z at 17,000 feet through a 10/10 undercast, indicating the possibility of gun-laying radar. Information could not be obtained as to the definite location of the gun, and it is possible that this fire might have come from shipping. Ten heavy antiaircraft bursts were also encountered by another aircraft from the south coast of Saishu Island.

3. TZEHSIEN (33°36' N - 117°56' E): Ten red bursts were reported in this vicinity by 1 aircraft on the return from Yawata. Bursts were at a low altitude in a box pattern.

4. Small Island north of SAISHU ISLAND off KOREA: Meager and inaccurate (level and behind) heavy antiaircraft fire was encountered at 0915Z at 19,400 feet, probably from KYOBUN ISLAND (34°03' N - 127°18' E).

5. SHINONO ISLAND (34°15' N - 129°15' E): One searchlight that never located the plane was reported.

6. CHINA COAST (33°50' N- 120°30' E): Two searchlights that never located the aircraft were reported.

7. CHINA MAINLAND: Moderate and inaccurate automatic weapons fire was encountered at 1140Z at 12,000 feet, probably in the general vicinity of HOWANTUN (33°43' N - 119°57' E).

8. YINCHSI (33°50' N - 117°30' E): Two searchlights that never located the aircraft were reported at 1320Z by 1 aircraft.

B. Antiaircraft Fire Encountered From Shipping

Meager to moderate and inaccurate heavy antiaircraft fire was encountered by approximately 6 aircraft from 0730Z to 0803Z at from 15,000 to 25,000 feet. Fire was reported from a 12 to 15 ship convoy probably containing several destroyers and possibly one or two cruisers. Although reports of location varied from 32°58' N - 126°16' E to 33°10' N - 126°45' E, it is doubtful that more than one convoy was in the area. Similarities in descriptions and approximate locations and the fact that all aircraft making sightings only reported a single convoy would tend to substantiate this conclusion.

C. Evasive Action

Evasive action generally consisted of turns up to 180 degrees to the right away from the target after bombs away with a corresponding loss of from 1000 to 3000 feet of altitude. A few aircraft reported taking evasive action prior to the IP and the bombing run.

D. Barrage Ballons

Several aircraft reported barrage ballons in the Yawata Area, and a study of strike photos shows approximatley 10 ballons flying at an approximate altitude of 2500 feet. No definite pattern was indicated. (See I, this Section, for details of high-altitude balloons.)

E. Damage From Antiaircraft Fire

Eight aircraft sustained minor damage and 1 aircraft was lost as a result of heavy antiaircraft fire over the Primary Target. Times of damage ranged from 0817Z to 0851Z.

F. Smoke Screens

"It is quite possible that the Japanese attempted to harass our bombardiers with a small but ineffective smoke screen. A number of minor harbor craft, debouching faint traceries of white smoke, are seen to be cruising without obvious plan on the waters of Yawata Harbor." (Provisional Damage Assessment Report Number 7, 23 August 1944, XX Bomber Command.) Crew members, however, did not report the presence of smoke screens over the target, and it is possible that the Japanese have not utilized this weapon as yet. Nevertheless, on the basis of the Provisional Damage Assessment Report, it is also possible that they did make a weak but ineffective attempt.

G. Warning Nets

1. Day Mission:

a. RCM Observers on this mission reported a great deal of enemy radar activity. (Refer to RCM Annex for more detailed information.) Our aircraft were tracked from 110° E to the target and back to that point continuously by early warning installations. Radar signals in the target area were particularly active.

b. The first element of 3 aircraft over the target were subjected to moderate continuously pointed fire, possibly indicating that the enemy expected a major attack to be made. Past indications have been that the enemy will not oppose attacks made in small force and hesitates to engage the first 3 or 4 aircraft over a target. Opposition generally has been provided only when a major effort has developed.

c. The first fighter attack came at 0805Z, 2 minutes after the first bomb release. Aircraft over the target at 0810Z reported 12 or more enemy fighters taking off from the airdrome southwest of the target. This possibly indicates that the enemy relied on his visual net and not on radar for early or late warning information.

2. Night Mission: From the quality and quantity of opposition, it may be that the enemy did not have prior warning of our approach, that this is a continuation of the policy not to engage small forces of attacking planes, or that he is still definitely hampered whenever there are conditions of poor visibility.

H. Blackout

No blackout regulations were reported as being observed in Occupied China. Cities were not being blacked out until our aircraft had approached. The southern tip of Korea was reported as not being blacked out during the time our aircraft were in the area from 1536Z to 1622Z and numerous naval navigational aids were also reported as functioning. Blackout at the target, however, was reported as excellent with no fires visible.

I. High-Altitude Balloons

1. One aircraft, while attempting to photograph airfields in the vicinity of Yawata, obtained several photographs of large spherical balloons flying at considerable altitudes. Although these balloons are evident on the photographs (K-20 cameras), no crew member of either the aircraft

from which the pictures were taken or of any other aircraft on the mission reported having seen them. However, several reports were received of "barrage balloons" being sighted at altitudes of 15,000 feet, and it may be that those balloons are actually similar to the ones in the photographs.

2. The photographs numbered 1 and 2 on the attached were taken in the vicinity of FUKUOK.., and it is believed that balloons lettered "A" and "C" are the same. "B" is encircled as a possible balloon. In some instances the photographs were not sufficiently clear to distinguish between imperfection spots on the print and balloons. Therefore, those which are doubtful are indicated by a dotted line.

3. In the Y.M.TA-MOJI Area 5 photographs were taken of what is believed to be 5 different balloons, although 8 definite and 1 possible balloons are identified on the photographs. It is believed that balloons marked "E", "G", and "J" are the same and that possibly "K" and "L" are the same as "M" and "N".

4. Since accurate times were not indicated on the photographs, only wind direction and location were considered in attempting to determine whether a balloon appeared in more than one photograph.

5. The aircraft from which the photographs were taken was flying at an altitude of 26,000 feet and it is estimated that the balloons were at altitudes from 22,000 to 24,000 feet and that they measured from 40 to 100 feet in diameter. Photographs were taken from approximately 0800Z to 0815Z on 20 August 1944.

6. It is possible that these balloons are a new type of antiaircraft weapon. If so, they are probably equipped with either a cable to foul propellers, wings, and control surfaces or an explosive element that would detonate on contact, or possibly both. It is remotely possible that they support radar jamming devices.

7. Based on the limited information now available it is believed that these balloons fit into one of the following categories, discussed in inverse order of probability.

a. Ground Anchored: This is doubtful because of the difficulty in supplying cable strong and yet light enough for the balloon to support at altitudes of 24,000 feet. Furthermore, from a study of photographs numbered 3, 4, and 5, it appears that these balloons are drifting with the wind.

b. Ground Released: The factor making this type unlikely is the necessity for prior warning and for knowledge of the pin-point location of the attack in order that the balloons may be released at such a time and from such a place that they would arrive at the proper location, altitude, and time to be effective.

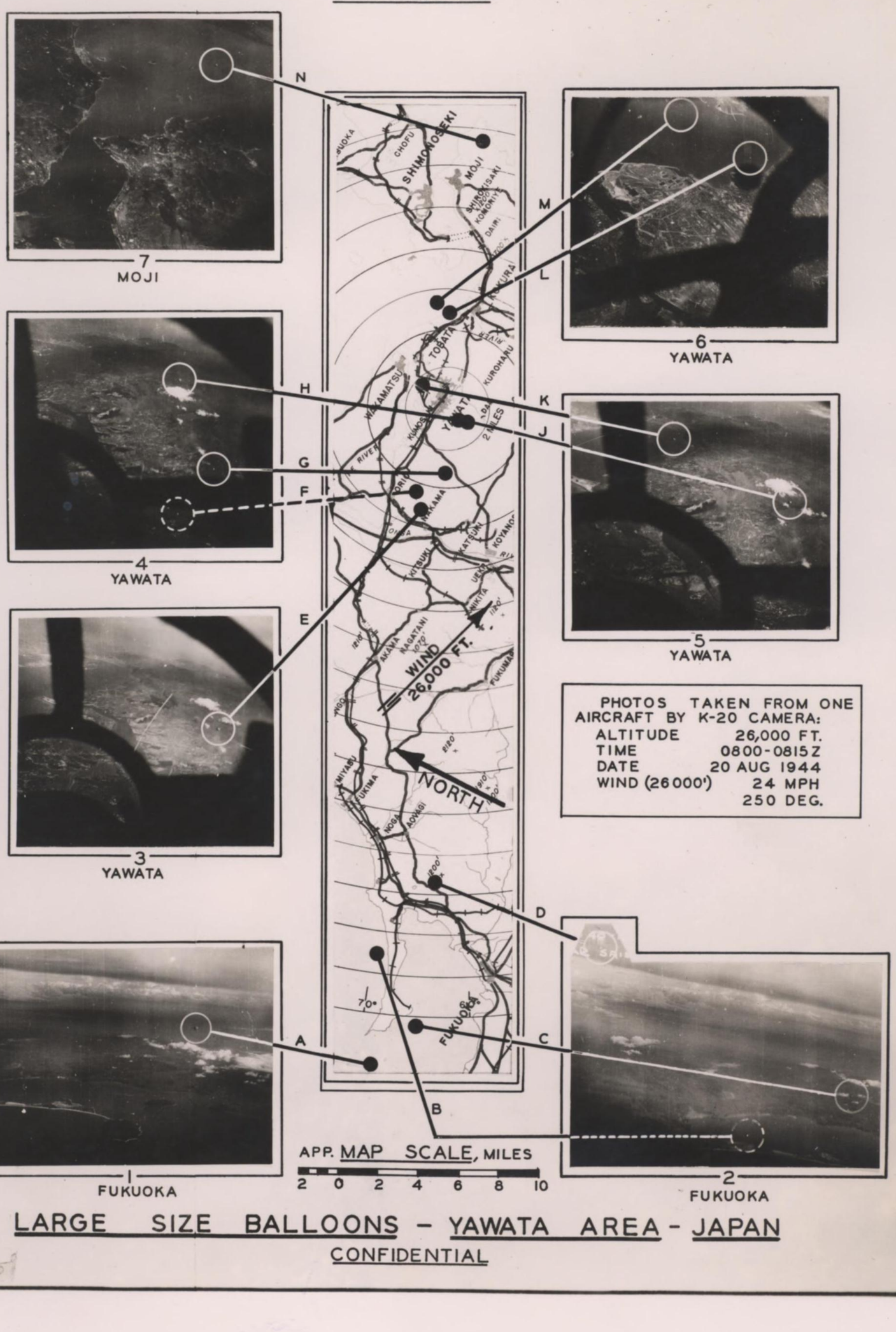
c. Meteorological: This is doubtful because of the large size of the balloons and also of the unusual quantity appearing in a relatively short space of time.

d. Released from Antiaircraft Projectiles: This is believed to be improbable when the volume of space available

in even a large caliber antiaircraft shell is compared with that necessary for a collapsed balloon, a gas-bottle for inflation, and a lethal device such as a cable or an explosive element or both. It may be, however, that the enemy has designed a special launching device for these balloons utilizing the rocket principle, but here again the size necessary would make the use of rockets improbable.

c. Released by Enemy Aircraft: This seems to be the most probable and practical method for the enemy to adopt. These balloons, if they are to be used as a weapon, could be fitted with an automatic inflating device that would become operative after release from the aircraft. This method of release has the advantage of enabling the enemy to place balloons in the path of attacking formations with the least amount of prior warning and effort and with the greatest possibility of their being effective.

CONFIDENTIAL



PHOTOS TAKEN FROM ONE AIRCRAFT BY K-20 CAMERA:

ALTITUDE	26,000 FT.
TIME	0800-0815Z
DATE	20 AUG 1944
WIND (26000')	24 MPH 250 DEG.

LARGE SIZE BALLOONS - YAWATA AREA - JAPAN

CONFIDENTIAL

11.00

II - ENEMY AERIAL TACTICS

Mission No. 7

20-21 August 1944

A. Details of Encounters-Daylight Mission

1. During this mission, B-29 aircraft met major air opposition for the first time with a total of 148 single and coordinated fighter attacks being directed against 43 aircraft. Three of our aircraft were destroyed and 4 damaged as a result of enemy air action. On the other hand, preliminary claims made by our gunners list 17 enemy fighters destroyed, 13 probably destroyed, and 12 damaged. One B-29 was destroyed as a result of a fighter and aerial bomb attack, another burst into flames and disintegrated after colliding head on with a NICK, and the third was destroyed by the wreakage of this collision. The damage inflicted on the 4 B-29s was of a minor nature in each case. Thus, it is indicated that gun fire from enemy aircraft and normal fighter attacks were not effective, and, in general, air opposition is rated as having been moderate.

2. One hundred and thirty-one of the 148 attacks were encountered in the immediate area of the primary target. Thirteen other attacks occurred over the Yellow Sea and 4 were at undetermined locations. The first attack reported in the target area occurred at 0805Z and the last at 0857Z. The four Groups participating in the mission reported single and coordinated attacks by a total of 163 enemy fighters, identified as 47 NICKS, 27 TOJOS, 21 OSCARS, 18 TONYS, 4 ZEKES, 2 HAMPS, 1 RUFE, 1 twin-boom plane, and 17 described as single-engine, 2 as twin-engine and 23 unidentified. Allowing for the duplication factor of the same enemy fighters attacking 2 or more B-29s, it is estimated that 50-60 enemy aircraft were airborne and intercepted our aircraft. Available information shows 6 attacks before "bombs away", 79 after, and 63 unreported. It would be erroneous to assume that the same "before" and "after" proportion holds in the unreported cases, but it is believed that approximately 75 per cent of the attacks occurred after "bombs away".

3. Individual passes numbering 163 were made against our aircraft. Enemy pilots showed a preference for attacks aimed at the frontal quarter, 81 passes (50 per cent) originating from either 11, 12, or 1 o'clock; the number coming in at 11 and 12 o'clock was particularly heavy. Twenty per cent of the passes originated from the right side, 17 per cent from the rear, and 13 per cent from the left side.

4. All aircraft except one flight of 3 planes were intercepted over the target at an average of about 25,000 feet. Seventy-one per cent of these passes developed from a low approach, 18 per cent from a level approach, 7 per cent from a high approach, and 4 per cent were unreported. It is possible, therefore, that the Japanese have chosen the low frontal attack as being most productive against B-29 aircraft, although evidence is not sufficiently complete at the present time to designate this as a definite Japanese tactical trend. Direction and level of these attacks are reflected in the following table:

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	4	1	1		1					8
Level		4	2	2	2	2	2	3	1	1	2		21
Low	2	2	6	19	19	8	10	8		4	5	5	88
Total*		17		58				25			17		117

* 6 additional attacks with incomplete data.

One flight of 3 aircraft bombed from 20,000 feet as a result of the inability of the leader to reach proper altitude; these 3 aircraft were subjected to an estimated 40 attacks during a 25-minute period immediately before and after "bombs away" between 20,000 and 15,000 feet. Ninety per cent of the attacks originated high and 10 per cent level. This sharply defined difference in approach level is believed to have been caused by the fact that enemy fighters were concentrated at 25,000 feet, and then dived on the 3 isolated B-29s with a resultant predominance of high-angle approaches. Direction and level of attacks against these 3 B-29s are shown in the following table:

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	2	7	13	3	4			2	3	1	36
Level		1	2					1					4
Low													
Total	6			23			5			6			40

5. It appears that enemy pilots continue to experience difficulty in timing attacks against the B-29, since only 72 per cent of the passes resulted in enemy gunfire. In the other cases, enemy pilots either misjudged the speed of the B-29 and failed to attain proper firing positions, or they were thrown off their pursuit curves by evasive tactics of turning into or away from attacks. Several crews reported that these tactics were effective, particularly turning away from attacks in such a manner that the tail guns were brought to bear; it was evident in many cases that the enemy disliked an approach from dead astern when the rate of closure was slow and B-29 fire heavy.

6. Japanese pilots exhibited about the same degree of aggressiveness as reported in previous missions. Thirty- five per cent of the attacks were reported as having been pressed to 250 yards or less; 24 per cent were broken off between 500 and 250 yards; the remainder, 41 per cent, were broken off between 1000 and 500 yards. Some closely pressed attacks from 25 to 50 yards were reported, particularly in the case of the 3 isolated B-29s at 20,000 feet. The fact remains, however, that nearly half of the attacks were pressed no closer than 500 yards, indicating the possibility that Japanese pilots are not unmindful of concentrated machine-gun fire from the B-29s.

7. Our aircraft fired in 86 per cent of the attacks. In several cases, B-29s opened fire at ranges greater than 1000 yards, but these were few. In the majority of attacks, B-29s

opened fire at ranges between 1000 and 500 yards. As stated elsewhere, our crews claim on a preliminary basis 17 enemy aircraft destroyed, 13 probably destroyed, and 12 damaged.

8. A decided preference was shown for low breakaways with dives, rolls, and banks being the most common maneuvers, although 2 "split-S's" were observed. Only 2 climbing or zooming breakaways were reported, despite the fact that the majority of approaches originated from below.

9. There were 138 single attacks and 10 coordinated attacks. None of the coordinated attacks was new, unusual, or particularly well executed. It is possible that some of the attacks were reported as coordinated due to the concentration of fighters over the target area, and were not actually the result of team work or planned coordination on the part of enemy pilots.

B. New Enemy Tactics and Weapons -- Daylight Mission

1. One new tactical development against aircraft of this Command was the collision between A/C 334 and a NICK. This B-29 was the lead plane in a formation of 4 aircraft. The wing planes report that a NICK suddenly appeared about 50 to 100 yards in front of A/C 334, approaching directly at 12 o'clock level. NICK banked to the right so that his wings were vertical to the ground. His right wing then hit the left wing of the B-29 between the tip and the No. 1 engine. It is believed that NICK's right propeller ripped open the wing tanks of the B-29, since the tanks immediately burst into flames; the right wing of the fighter remained lodged in the wing of the bomber. Both aircraft appeared to disintegrate from the impact of the collision. B-29 No. 368, flying the No. 4 position behind A/C 334, pulled up sharply to avoid the wreckage, but its horizontal stabilizer was broken off by flying debris, and the plane was seen falling to the ground in a spin. There was no observed exchange of fire between A/C 334 and NICK, nor was there any indication that NICK was damaged and out of control. Although there is no way to determine the facts of the case, it appeared to observers in the wing B-29s that NICK was possibly executing a planned maneuver and that the ramming may have been intentional. The action occurred shortly after "bombs away" in the target area.

2. The third B-29 (A/C 474) destroyed by enemy air action was one of the 3 aircraft that bombed at 20,000 feet. It was attacked by a fighter and is believed to have been hit in the center wing section at almost the same time by an aerial bomb. The aircraft burst into flames and the bomb-bay doors were opened, shortly after which 7 parachutes were seen. The B-29 went into a steep glide, evidently still under control. At about 2000 feet the aircraft leveled off for 30 seconds and an eighth chute was seen to open, after which the plane nosed up sharply in an apparent power-on stall. A wing was broken off in the stall, and the B-29 crashed to the ground on the southern tip of Iki Island and burned.

3. Another report was made of aerial bombing by a twin-engine enemy aircraft that released 2 bombs from a great height above a B-29; the bombs then exploded and expelled 20 to 30 smaller bombs. No bursts were observed. Release was inaccurate. This was the only observation of a cluster-type aerial bomb.

4. Two additional aerial bombing attacks were reported. One instance occurred near Shimono Island en route to the target; the releasing aircraft was not sighted but phosphorous bursts

were observed 1000 feet below the B-29. Another attack occurred in the target area. A NICK, 2000 feet below and slightly behind the B-29, moved ahead, climbed, turned, and approached at 12 o'clock, 200 feet above. Our aircraft opened fire as NICK turned in to attack. The enemy plane did not return fire, but, when about 100 yards from the B-29, dropped what appeared to be 2 bombs about the size of walk-around oxygen bottles. Aiming was poor; no explosive bursts were observed.

5. Two crews reported seeing a Japanese fighter destroyed by A/A over the target, thus indicating the willingness of some enemy pilots to fly through their own antiaircraft fire to make attacks.

C. Markings of Enemy Aircraft -- Day Mission

PLANE	COLOR	MARKINGS
2 NICKS	Silver	--------
2 OSCARS	Silver	One with red dots.
1 OSCAR	Silver	Silver fuselage, camouflaged wings.
4 TOJOS	Silver	Two with red sun surrounded by squared red line; one with red balls on wings.
1 TONY	Silver	Red wing tips.
1 S/E	Silver	--------
4 NICKS	Camouflaged	--------
2 TOJOS	Camouflaged	One with silver belly.
2 S/E	Camouflaged	One mostly brown.
1 TONY	Black	--------
? OSCARS	Black	--------
? NICKS	Black	--------
1 NICK	Black top	Red balls under wings.
1 TOJO	------	Red disks on wings.
NICKS	------	Red dots on top of each wing.
T/E fighter	------	Red nose.
S/E fighter	Brown & green	Red dots.
1 NICK	------	Red dot with yellow circle.
1 NICK	Camouflaged	Zebra stripes.
1 TONY	Grey	--------
1 NICK	Dark	White around nacelles.
1 TONY	------	Red circles on wing.
1 NICK	------	Red circles on wing.
1 T/E	Grey fuselage	--------
1 T/E	Yellow spots	--------
1 S/E	Yellow wings	--------
2 OSCARS	Red wing tips	--------
1 TONY	Brownish-red	--------
? TONYS	Tan	Red sun insignia on wing.
NICKS	Rust	--------
NICKS	Yellow and grey	Zebra striped.
NICKS	Blue-grey	--------
NICKS	Black and silver	Red ball insignia on wing.
UNIDENTIFIED	Grey and silver	--------

D. Details of Encounters -- Night Mission

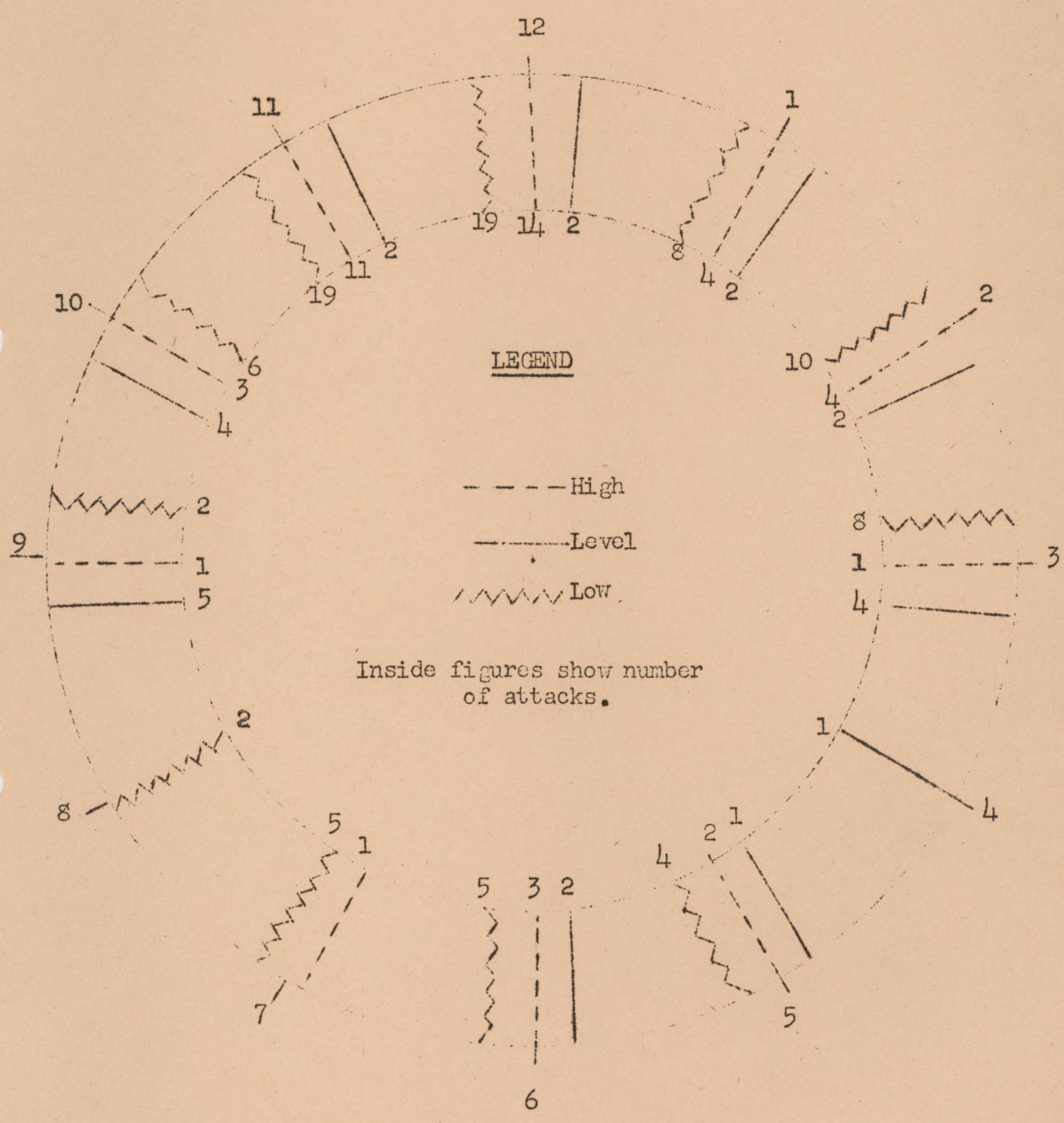
Only one B-29 encountered enemy aircraft on the night mission. After leaving the target area, the B-29 experienced rocket fire from what was believed to have been twin-engine fighters. Rockets originated from 1, 5, 7, and 11 o'clock, and usually were released in pairs. The trajectory was relatively flat and the projectiles had a white fire trail, similar in

appearance to a shooting star. In most instances, the rockets arched over the plane and exploded with a white burst. About 8 separate projectiles were observed in all. The night was dark and observations were difficult, but the enemy aircraft appeared to release the projectiles from a range of about 1000 to 1200 yards. Most of the action occurred over the Yellow Sea after leaving the target area. Inasmuch as aiming was inaccurate and the attacks were spasmodic, the B-29 did not open fire.

III - CLOCK SUMMARY OF ATTACKS*

Mission No. 7

20-21 August 1944



* 6 additional attacks not included because of incomplete data.

SECRET

ANNEX

D

WEATHER INFORMATION

I - Weather Information - Day Mission

II - Chart: Weather as Briefed (Day)

III - Chart: Weather as Reported by Returning Crews - Outgoing (Day)

IV - Chart: Weather as Reported by Returning Crews - Return (Day)

V - Weather Information - Night Mission

VI - Chart: Weather as Briefed (Night)

VII - Chart: Weather as Reported by Returning Crews (Night)

VIII - Weather Information - Photo Mission

IX - Synoptic Map as of 1200Z, 20 August 1944

	As Forecast	As Encountered
Base at take-off	Broken altocumulus at 8000' MSL. Vsby 5 mi.	7/10 - 9/10 altocumulus at 8-9000'. 3/10 - 4/10 stratocumulus at 2-4000'. Vsby variable from 3-5 mi. in haze.
Base to coast	Broken layers, base 10,000', tops 15,000. Scattered cumulus beginning to build up over mountain area, tops 8000'. Cumulus increasing in size toward coast.	Scattered cumulus with tops at 5000'. Isolated patches of thin altostratus at 8-10,000'. Scattered cumulus over hills building up to 18,000'. Thin cirrus beginning half way to coast, becoming high thin overcast at 30,000.
Over water	Scattered stratocumulus at 3000'. Vsby 5 mi. in haze	Scattered patches of low cumulus. Thin cirrus overcast at 30,000.
Target Area	4/10 low cumulus, tops 6000'. 6/10 altocumulus at 12,000', tops 14,000. Vsby 5 mi in haze and smoke.	Thin cirrus overcast at 30,000. The forecast low and medium clouds were observed to the north and east of the target area. Vsby unrestricted.
Return route	Similar conditions except that scattered cumulus over land area will be built up to 15-17,000' with occasional thunderheads up to 22,000'. Showers and moderate to severe turbulence in cumulus.	Over water, conditions were the same as route out. Over land, frequent thunderstorms were encountered soon after reaching the coast. Thunderstorms were extremely violent and were built up to 17,000'. They were most violent over the Hills area. St. Elmo's fire and extreme turbulence were encountered. Broken layers of clouds were observed west of the mountains with ceilings ranging from 4-6000'. Vsby variable from 4-7 mi. in the rain.
Base at landing	7/10 altocumulus at 12,000', tops 14,000' with scattered thunder showers in vicinity. Ceilings in thunderstorms 4000'. Vsby 10 mi. decreasing to 3 mi. in shower areas.	
Icing	Light to moderate clear ice in cumulus, tops above 16,000'.	Some light icing was reported in cumulus clouds above 16,000'.

(Continued on D-2)

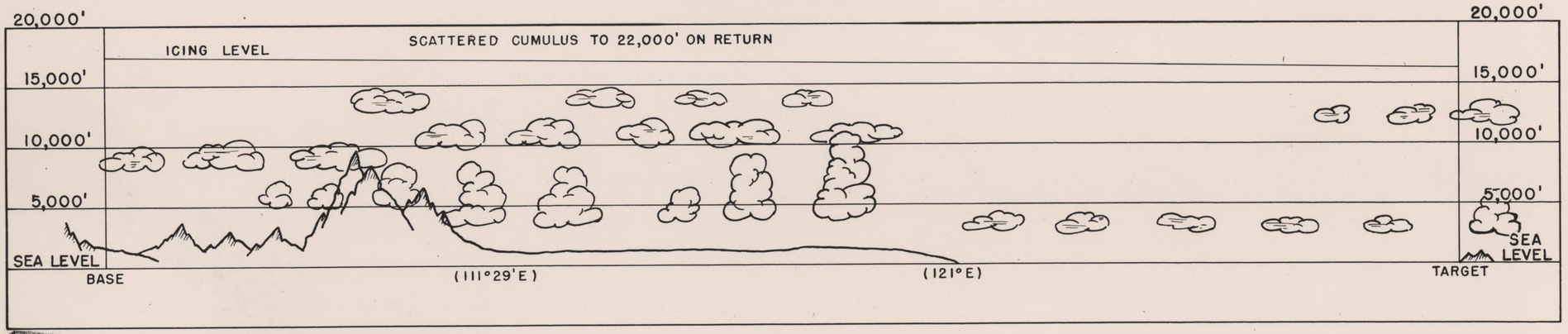
I - WEATHER INFORMATION - DAY MISSION (Continued)

		As Forecast			As Encountered
Winds aloft		Terminal	Halfway	Target	117° E at 14,000': 290° 25 knots.
	5,000'	180° 5 kn	180° 10 kn	210° 13 kn	121° E at 14,000': 280° 16 knots.
	10,000'	180° 10 kn	200° 14 kn	230° 16 kn	Target at 25,000': 250°-275 20-25 knots.
	15,000'	210° 10 kn	220° 16 kn	240° 18 kn	
	20,000'	250° 12 kn	250° 18 kn	250° 20 kn	Navigators rated the Winds Aloft forecast
	25,000'	-	270° 21 kn	260° 23 kn	as good
Temperatures at target		Surface: 27°	17,000' : 0°		
		5000' : 18°	20,000' : -4°		-10° C at 25,000'
		10,000' : 10°	22,000' : -7°		
		15,000' : 3°	25,000' : -10°		

Sea level target pressure: 29.65 inches. Altimeter setting for base on return: 29.74 inches.

SECRET

XX BOMBER COMMAND
MISSION NO. 7A (DAY)
20 AUGUST 1944
WEATHER AS BRIEFED



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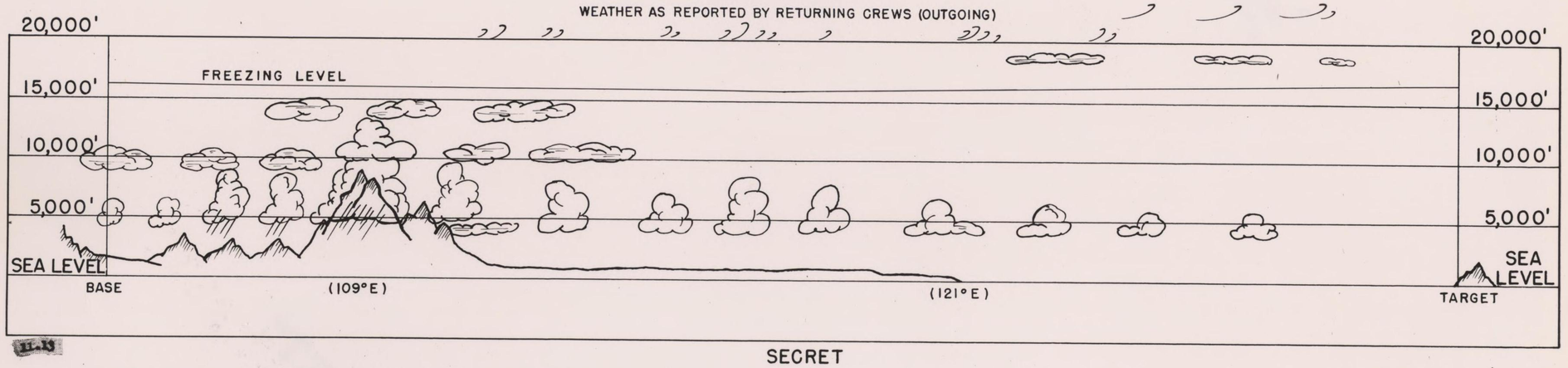
XX BOMBER COMMAND
MISSION NO. 7A (DAY)
20 AUGUST 1944

WEATHER AS REPORTED BY RETURNING CREWS (OUTGOING)



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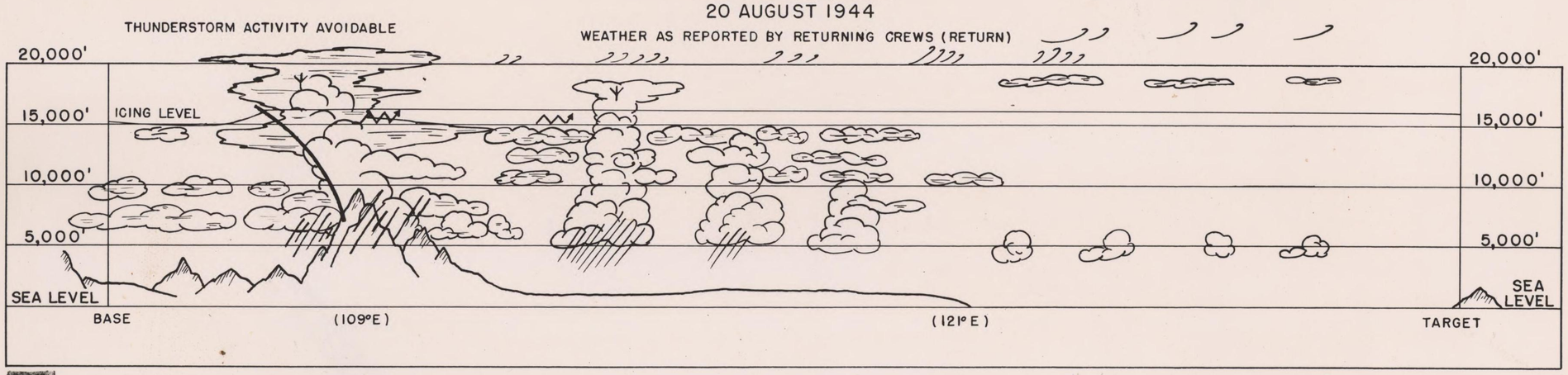
XX BOMBER COMMAND
MISSION NO. 7A (DAY)
20 AUGUST 1944



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	As Forecast	As Encountered
Base at take-off	Stratocumulus overcast, base 4000'. Upper clouds in 2 layers with top of uppermost layer at 10,000'. Vsby 6 mi.	Overcast at 2500'. Vsby 6-8 mi. lowering to 3-5 mi. in rain. Layers of upper clouds with base at 8-10,000'. Tops at 15,000'.
Hills	Thick broken to overcast layers to 16,000' with towering cumulus and cumulonimbus to 20,000'. Moderate to severe turbulence in cumulus with rain and lightning.	Scattered medium clouds above 10,000'. 8-10/10 cumulus building up to 10,000' with a few thunderheads building to 16-18,000'.
Hills to coast	Broken, occasionally overcast, towering cumulus and cumulonimbus, tops generally 15,000', occasionally towering to 20-22,000'. Turbulence, rain, and lightning in cumulonimbus. Base of clouds 3000' with lower scattered scud. Broken altocumulus at 14,000'.	Scattered medium clouds above 10,000'. 8-10/10 cumulus building up to 8-10,000'.
Over sea	Broken cumulus and towering cumulus, base 2000', tops 10-12,000', occasionally 16,000'. Will decrease in amount becoming scattered cumulus or towering cumulus near IP. Scattered altocumulus at 12,000'.	Scattered low clouds, tops near 3,000'.
Target	No low clouds. Scattered altocumulus at 12,000'. Vsby 3-4 mi. in smoke and haze.	Estimates varied considerably. Some reports indicate low thin broken to overcast clouds with considerable smoke. Others indicate scattered low clouds with heavy layers of smoke and haze, limiting vsby to 2 mi.
Return - over sea	Conditions unchanged.	Clear to China Coast
Return - over land	Scattered towering cumulus, base 4000', tops 12,000'. Broken altocumulus at 12,000'.	Dissipating swelling cumulus scattered to broken. Tops below 10,000'. Thin high broken to overcast cirrus. Few cumulus buildups 13,000' to 15,000' in region of 115° E.
Hills	Broken to overcast layers of altocumulus and altostratus to 15,000' with scattered towering cumulus to 17-18,000' and occasional rain. Moderate turbulence and occasional lightning.	Several layers of broken clouds with bases at 8000' and tops at 15,000'. Few scattered cumulus building to 20,000'.
Bases on return	Overcast 2000'. Intermittent drizzle. Vsby 2 mi.	Overcast at 8000'. Vsby 6-8 mi. in light rain.

(Continued on D-4)

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V - WEATHER INFORMATION - NIGHT MISSION (Continued)

As Forecast								As Encountered
Winds aloft		Terminal		Halfway		Target		
	5000'	180°	5 kn	200°	10 kn	220°	13 kn	More southeasterly than forecast from base to China coast; otherwise Navigators' reports good.
	10,000'	180°	10 kn	220°	14 kn	240°	16 kn	
	15,000'	210°	10 kn	240°	16 kn	250°	18 kn	
	20,000'	250°	12 kn	260°	18 kn	260°	20 kn	
	25,000'			270°	21 kn	260°	23 kn	
Temperatures at target	Surface: 24°			17,000': 0°				
	5000' : 18°			20,000': -4°				As forecast
	10,000' : 10°			22,000': -7°				
	15,000' : 3°			25,000': -10°				

Sea level target pressure: 29.85 inches. Altimeter setting over target: 29.85; for base on return: 29.73.

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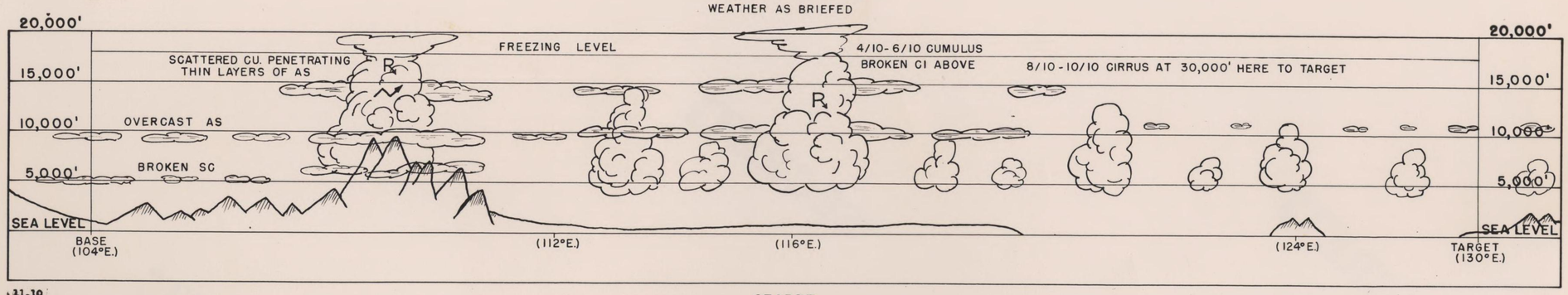
XX BOMBER COMMAND
MISSION NO. 7B (NIGHT)
20-21 AUGUST 1944
WEATHER AS BRIEFED



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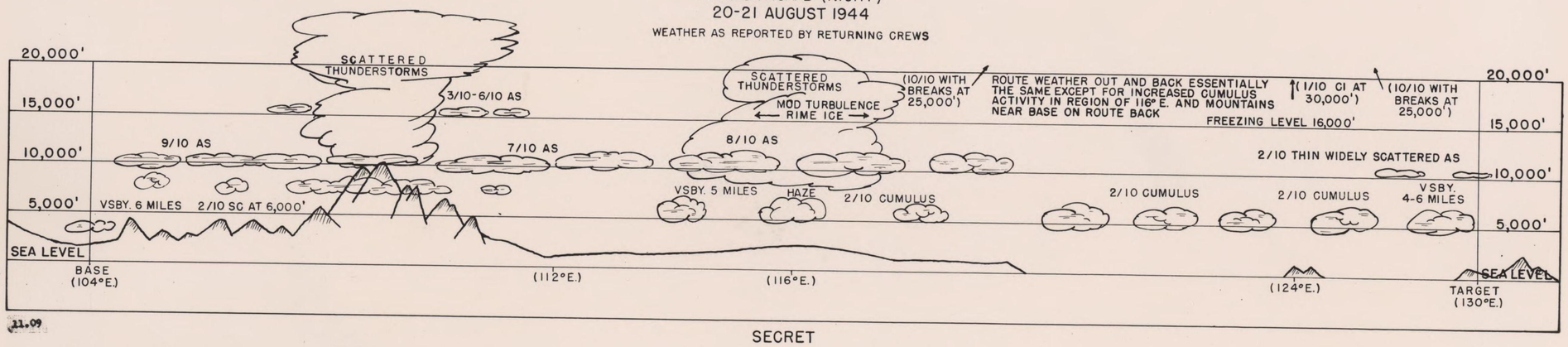
XX BOMBER COMMAND
MISSION NO. 78 (NIGHT)
20-21 AUGUST 1944

WEATHER AS REPORTED BY RETURNING CREWS



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VIII - WEATHER INFORMATION - PHOTO MISSION

Mission No. 7 — 20-21 August 1944

	As Forecast	As Encountered
Base at take-off	Broken stratocumulus 6000', tops 7000', overcast 12,000'. Vsby 2-3 mi. in haze	Estimated 10,000' altostratus overcast. Scattered stratocumulus at 6000'. Vsby unlimited. Wind SW at 5 mph. Altimeter setting 29.86.
Enroute to Hills	Altostratus overcast 12,000' (500' thick). Broken stratocumulus at 6000' tops at 7000', becoming cumulus near hills with top of cumulus at 12,000'.	Cumulus formed and increased as the A/C neared the hills where the cumulus amounted to 8/10, tops generally 12,000' sometimes 15,000'. In hills, there were also 2 thin stratiform layers, one at 13,000' amounting to 7/10 and other at 15,000', varying between 3/10 and 6/10.
Hills	Scattered cumulus towering to 15,000' and penetrating thin layers of altostratus below 15,000'. Moderate turbulence in cumulus.	
Hills to coast	Layer cloud decreasing to nil. Variable cumulus 4-6/10 with broken cirrus layer occurring about 116°E. Cumulus generally small. Vsby 10 mi.	Generally 8/10 cumulus with tops at 8-10,000'. Upper stratiform layers became 1 thin altostratus layer at 15-17,000', amounting to 7/10.
Over sea	Generally less than 6/10 stratocumulus with base at 3000', top 4000'. Cirrus 8-10/10 at 30,000'. Vsby over 10 mi.	3-4/10 cumulus, tops 5000'. Widely scattered patches of altocumulus at 17,000' and 24,000'. Scattered cirrostratus at 25,000' became 1/10 cirrus at 30,000' over target.
Targets	Scattered cumulus. 8-10/10 cirrostratus at 30,000'. Vsby more than 10 mi.	FUSAN: Harbor clear. Scattered fair-weather cumulus inland. No other clouds. Vsby unlimited. YAWATA: 3/10 fair-weather cumulus, tops 6000'. A few widely scattered patches of altocumulus at 17,000' and 24,000' and 1/10 cirrus at 30,000'. Vsby unlimited. NAGASAKI and OMURA: Clear with unlimited vsby.

(Continued on:D-6)

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Mission No. 7C (Cont.) VIII - WEATHER INFORMATION - PHOTO MISSION (Continued)

	As Forecast	As Encountered
Return route	No change until reaching 117° E where cumulus will become broken and tower to 15,000'. Enroute to hills and over hills, broken cumulus towering to 15-17,000' with scattered thunderstorms becoming more frequent over hills where they will be intermingled with layer cloud. Thunderstorms will extend to 25,000'. Turbulence in thunderstorms will be severe. Heavy rain will occur with frequent lightning. St. Elmo's fire may be expected from 112° E to 107° E.	Over sea, no change. Over land, cumulus increased to 9/10 and towered to 14,000' in places over plains. Over the hills, thunderstorms were scattered and cumulus occasionally towered to 17,000'. There were also 2 layers of high clouds in the hills area.
Base on return	Upon leaving hills area, cloud amounts will decrease rapidly and base will have a broken altocumulus cloud layer at 10,000' with vsby 5 mi.	High scattered clouds. Vsby 8 mi. Wind SE at 1 mph. Altimeter setting - 29.75 inches.

Winds aloft	Terminal	Halfway	Target	
5 000'	330° 10 kn	180° 5 kn	220° 13 kn	
10,000'	50° 10 kn	210° 10 kn	240° 15 kn	
15,000'	170° 5 kn	250° 15 kn	250° 18 kn	32.8°N - 112.4°E 13,400' 350° 6 kn
20,000'	40° 10 kn	260° 18 kn	260° 20 kn	34.2°N - 120.0°E 18,000' 260° 6 kn
25,000'		270° 22 kn	260° 22 kn	33.3°N - 130.4°E 28,000' 260° 6 kn
30,000'			270° 25 kn	

Temperatures at Target				
Surface: 27°	17,000': 0°		None reported	
5 000': 18°	20,000': -4°			
10,000': 10°	25,000': -10°			
15,000': 3°	30,000': -16°			

Altimeter setting over target - 29.79 inches. Icing level - 16,000' - clear ice in cumulus, tops above 16,000'.
Altimeter setting for base on return - 29.75 inches.

SECRET

No. 5555

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

SECRET

PACIFIC OCEAN

INDIAN OCEAN

SYNOPTIC MAP
AS OF 1200Z
20 AUGUST 1944

STATION HNLJ
DATE 20 AUG 1944 TIME 1200Z
MAJ. W.H. MILLER

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No. 5555

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ANNEX

E

COMMUNICATIONS INFORMATION

COMMUNICATIONS INFORMATION

Mission No. 7

20-21 August 1944

1. This mission was the second on which the Communications Tactical Doctrine was used. Several major changes to the Doctrine, however, were made by radiogram. They included:

a. The withholding of the "bombs-away" message until a line 650 miles from the China bases had been crossed, at which point the "bombs-away" message was sent in conjunction with the code group "YYYYY", the latter group used to indicate the fact that the aircraft were at the 650-mile line.

b. IFF was switched on when aircraft were 650 miles from the China bases on the return route instead of 250 miles as had previously been the case.

2. Because of adverse weather conditions encountered on the return trip, requests for navigational aids were numerous. This resulted in what amounted to an almost complete congestion of the one workable frequency, that of 6280 kilocycles. Notwithstanding these difficulties, all requests for D/F aid were filled, but not as expeditiously as is desirable. One Group, the 462nd, made use of its own air-ground facilities for D/F aid and was highly successful. In view of this fact, efforts are being made to provide all Groups with A-G facilites in the Forward Area.

3. Atmospheric conditions were such that radio transmission was seriously hampered. Static levels were high and contributed to the letdown in radio discipline and security. It is believed that many of the garbled code groups received were due to static interfering with the proper copying of aircraft transmissions. The same reason may also have caused many aircraft operators to break in on transmissions already in progress. The high static level probably prevented many operators from hearing transmissions in progress when they listened in prior to transmitting themselves.

4. This was the first mission flown by the Command during which severe weather conditions were encountered. Thus, the drop in communications efficiency which resulted was to be expected. However, a new air-ground policy (i.e., each Group provided with its own A-G facilities) is being carried out, and it is expected that no such difficulties will be encountered in future in the event that returning aircraft are confronted by adverse weather conditions.

ANNEX

F

RADAR INFORMATION

I - Radar Information

II - Radar Tables

I - RADAR INFORMATION

Mission No. 7

20-21 August 1944

A. Radar Summary of the Mission

The use of radar on this mission was largely confined to navigation on the main daylight attack. On the night attack, it was also used for bombing by 7 aircraft. Furthermore, the bombardiers in lead aircraft also reported great assistance from radar in the early stages of the bombing run. This assistance may have been slightly impaired by interference from other B-29's, a condition reported by 23 aircraft. This interference, although bothersome, could easily be read through by 18 of the operators. The remainder probably experienced trouble due to inexperience. The level of radar operator efficiency was substantially unchanged. The serviceability of the radar sets over the target was 86 per cent.

B. Radar Navigation

Radar was used by all aircraft as an aid in navigating to the target. Approximately 70 per cent of the force effectively located both the IP and the target at distances of 20 miles and greater. This is a smaller fraction of operators identifying these points by radar than usual and it was largely due to the interference between radar sets in the planes of the formation. This interference was reported by 23 radar operators and 5 reported the radar set completely unusable for this reason. However, it is shown by all the photographs taken on the mission that interference, although present in varying degrees, could always be distinguished from radar targets. In view of this difficulty when flying in formation, it has been recommended that radar operators other than those on lead crews and deputies switch radar transmitters to "stand by" before reaching the IP.

C. Radar for Bombing

The major use of radar for bombing was in locating the target beyond visible ranges and starting the bombing run. In this connection, approximately 70 per cent of the radar operators located the target at ranges of 20 miles or greater and many bombardiers reported great assistance on the visual run from the early line-up of the target by radar. A total of 9 aircraft bombed by radar, 7 of them on the night mission. The reports of these radar operators show fair target identification and good bombing procedure. Some improvement in radar bombing can be ascribed to the experience gained from previous missions and some to radar photographs of the target area. The radar bombing results, therefore, are considered good to fair.

D. Radar-Operator Efficiency

The level of radar-operator efficiency was only slightly improved as shown in table C. The radar operators reported increased use of sector scan but no increase of azimuth stabilization. The percentage of operators using the radar set to determine ground speed and drift (53%) was low. The lack of radar operating experience is also shown by the number of operators reporting with interference from other aircraft, a few even ascribing this dificulty to enemy jamming.

E. Radar-Scope Photography

In spite of the continued increase in the number of radar-scope cameras available, the yield of usable radar-scope pictures was disappointing. Fifteen aircraft had scope cameras installed but only 5

returned usable sets of photographs. It should be pointed out in this connection that some planes with scope cameras were lost or made crash landings. The photographic results of the pictures returned were definitely improved but pictures taken on several bombing runs were insufficient to evaluate properly the radar run. As a result, only 1 radar run could definitely be established and this showed the course directly over the target.

F. Radar Serviceability

The percentage of radar sets serviceable over the target (86%) showed a slight increase over the general average for the previous 6 missions (81%). As on previous missions, several operators performed minor repairs during flight, 5 replacing inverters and fuses and repairing wiring. As already pointed out, one of the main difficulties was inexperience in reading through interference from other AN/APQ-13 sets. Another was pressurization difficulty at the high altitude.

G. Auxiliary Equipment

The auxiliary radar sets, SCR-695, SCR-718 and SCR-729, showed the usual excellent serviceability with only 2 failures reported on the SCR-718 and none for the other two. The SCR-729 in many aircraft was used to great advantage in returning to base, but ranges of pickup for the YJ beacons varied from 10 to 80 miles. This indicates a lack of training in the operation of the SCR-729 sets, although there was some difficulty caused by the YJ beacon at Kwanghan being off the air.

II - RADAR TABLES

Mission No. 7

20-21 August 1944

A. Bombing Methods

	40th	444th	462nd	468th	Total
A/C bombing targets - daylight mission	19	14	7	25	65
A/C bombing by radar - daylight mission	1	-	1	-	2
A/C bombing targets - night mission	2	2	7	-	11
A/C bombing by radar - night mission	2	1	4	-	7
Total A/C bombing targets	21	16	14	25	76
Total A/C bombing by radar	3	1	5	-	9

B. Radar Camera Results

	40th	444th	462nd	468th	Total	
					#	%
Radar-scope cameras installed	3	4	4	4	15	100
Cameras in A/C airborne	3	3	3	4	13	87
A/C returning radar pictures	2	2	2	3	9	60
Usable sets of radar pictures	1	1	1	2	5	33

C. OPERATOR EFFICIENCY

	40th		441th		462nd		468th		Total	
	#	%	#	%	#	%	#	%	#	%
Aircraft reporting	19	100	17	100	13	100	24	100	73	100
Operators ready to take over bomb run	6	32	11	65	-	-	-	-	17	23
Computed radar ground speed and drift	7	37	8	47	5	38	19	79	39	53
Located IP at satisfactory range*	8	44	12	92	9	69	15	71	44	68
Identified target at satisfactory range*	12	67	10	83	6	46	15	71	43	66
Used azimuth stabilization	5	26	13	76	11	85	20	83	49	67
Used sector scan	8	42	11	65	6	46	20	83	45	62
Interference encountered	4	21	6	35	4	31	9	37	23	32
Radar not usable due to extraneous signals	1	5	1	6	1	8	2	8	5	7

A/C reporting that reached PT	18	13	13	21	65

* Percentages based on "A/C reporting that reached PT."

D. SERVICEABILITY

Total A/C reporting	21	100	17	100	13	100	24	100	75	100
Radar equipment operative at take-off	21	100	17	100	13	100	23	96	74	99

A/C reporting that reached PT	18	100	13	100	13	100	21	100	65	100
Radar equipment operative over target	14	78	13	100	11	85	18	86	56	86
Unrepairable radar failures	4	22	-	-	2	15	3	14	9	14
Radar failures repaired in flight	-	-	2	15	1	8	2	10	5	8

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RGM INFORMATION

G

ANNEX

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S E C R E T

RCM INFORMATION

Mission No. 7

20-21 August 1944

A. General

1. As in the past, RCM activities were confined to searching for enemy radar signals from take-off to target and return.

2. Search was divided among frequency ranges as follows:

70-330 mc.	3 observers
70-210 mc.D/F	4 observers
300-1000 mc.	4 observers
1000-3300 mc.	2 observers

3. Sixteen search aircraft were assigned to make the mission. Three of the 16 failed to take off because of mechanical difficulties. Of those airborne, 3 search aircraft failed to return to their bases. Of the observers, one is safe and has returned to his base, one is missing in action, and one was killed in action.

B. Results

1. Japanese early warning stations are placed at frequent intervals across occupied Chinese territory, and the approaches to the Japanese mainland are well protected.

2. Two enemy ground radar stations were roughly located by D/F bearings.

3. The accurate antiaircraft encountered may be attributed to optical predicators, but the possibility of gun-laying radar cannot be overlooked. The evidence, however, is still inconclusive.

C. Interceptions

1. 70-330 MC. BAND: The first signals encountered in this band were the early warning signals of the 75-mc. and 100-mc. types. The first intercept was at 110° E. From that point to the target, aircraft warning stations were continuously received by the search aircraft. Near the target a few of the 150-mc. stations were intercepted. From Saishu Island (33°30' N - 126°30' E) to the Japanese mainland, the aircraft warning 200-mc. type was intercepted along with the 75-mc. and the 100-mc. type.

2. 70-210 MC. BAND D/F:

(a) D/F bearings, intersecting at approximately 31° 20' N - 112°45' E, 10 miles northwest of Anlu, were made on an enemy radar transmission of 68.8 mc., 495 PPS, horizontal polarization.

(b) Two enemy radar transmissions were intercepted in the Tsushima Straits. The first one originated at approximately 34°50' N - 131°00' E and was 196 mc., 1000 PPS, 10-12 USEC, horizontally polarized. A naval vessel was noticed in the vicinity at the time. The second transmission originated

S E C R E T

possibly from a carrier or several destroyers at approximately 34°45' N - 130°00' E and was 195 mc., 1000 PPS, 12 USEC, horizontally polarized.

(c) A transmission was also intercepted in the vicinity of the north coast of Saishu Island at 76-77 mc., 500 PPS, 30-40 USEC, horizontally polarized.

3. 300-1000 MC. BAND: No intercepts were made.

4. 1000-3300 MC. BAND: No intercepts were made.

D. Equipment

1. Malfunction:

(a) TU-59: The oscillator fails to operate properly on the upper end of the band due to overheating after several hours of operation. The tuning unit must be allowed to cool off at regular intervals.

(b) AN/APA-6: Two failures were reported during the mission. No trace. Cause is unknown at this time.

(c) O-10/APA-6: Did not oscillate. Cause is unknown.

(d) AN/APA-24: All 4 AN/APA-24 antennas were sluggish in operation. Two encountered trouble when the antenna ran to the end of the sector gear and jammed.

2. Loss: As a result of the loss of aircraft, the following equipment was lost on the mission:

3 - AN/APR-4
4 - AN/APT-6
5 - O10/APA-6X
4 - TU-57-B
1 - TU-58-B
1 - Jackson Oscillator 652
4 - Complete sets of search antennas
3 - Complete maintenance kits

E. Enemy Countermeasures

1. Against Radar (AN/APQ-13, SCR-695, SCR-729, SCR-715): None.

2. Against Communications: A number of reports were made by radio operators of extraneous transmissions which coincided with or were near communications channels used by the B-29s. An investigation of the reports indicates that the resultant interferences were coincidental transmissions instead of deliberate attempts at jamming.

F. Details of Interceptions

Freq.	PRF	USEC	Freq.	PRF	USEC
69	495	-	97.3	750	16
70.8	505	-	98	760	37
71.6	500	-	98	800	22.4
74	520	50	100	720	37
74	510	35	101.5	740	24
74.6	497	-	102	720	25
75.4	500	-	102	760	25
75.8	520	26	145	498	11
75.8	520	28.8	146	505	7
75.8	520	25	148	530	11.2
75.8	520	11.2	150	505	37
76	1600	45.3	151	500	4
76	520	25.6	152	500	4
76	525	42.8	153	500	2-6
76	500	32.1	154	493	10
76	170	32.1	188	1900	3.8
76	500	-	189.5	1025	15
76	500	40	190	1050	14.4
76.5	510	34	191	900	6.6
77	500	42.8	192.5	1100	8.5
77	520	42.8	193	800	6
77	507	-	194	High	-
77	525	-	195	1100	7.7
77.5	500	45	195	1000	12
77.5	420	42.8	195	1000	9.6
78	500	42.8	196	1050	10
78.5	1900	7	197	1200	4.4
79	500	40	197	1000	10-12
82	1950	6	197	1400	6.6
89	567	-	197.5	900	-
93	770	12	198	1250	8.8
94	685	18	198	900	3
94	800	12.8	198	1200	5.5
94	780	12.8	199	940	8
95	700	12	199	1200	7.7
95	720	17.6	200	-	7.7
95.8	890	22	200	1700	5.5
96	775	22	200	950	7.7
96.5	890	22	201	910	-
97	860	17.6	201	800	4.4
97	870	12	207	740	4.4
97	780	15			

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CENTRAL STATION FIRE CONTROL

H

ANNEX

SECRET

CENTRAL STATION FIRE CONTROL

Mission No. 7

20-21 August 1944

1. This mission marked the first time that the majority of B-29 gunners had enemy aircraft continually as a target while the bombing was being accomplished. All indications point to the fact that the System functioned exceptionally well in combat. The enemy used attacks of various types all around the clock in his attempts to find a weakness in firepower, and, as a result, every gun position in some flights had a chance to fire. Some gunners fired until all ammunition was expended. Others fired at extreme range (up to 2000 yards) in their eagerness to fire at the enemy, indicating that some gunners must be trained further in tracking at extreme range but withholding fire until the enemy aircraft closes to 1000 yards.

2. An analysis of reports indicated that B-29 aircraft flying the 4-plane diamond formation are capable of defending themselves against enemy aircraft. Furthermore the speed of the B-29 continues to present a difficult problem to enemy fighters flying a pursuit curve. Some attacks, for example, aimed at from 10 to 2 o'clock ended up at from 7 to 5 o'clock.

3. All guns were either test fired or an attempt was made to do so. Total number of rounds of 50-cal. ammunition expended in test firing was 10,700 and of 20-mm ammunition, 850. On the other hand, 33,000 rounds of 50-cal. ammunition and 2,975 rounds of 20-mm ammunition were fired in combat.

4. Malfunctions were negligible, numbering only 8 50-cal. gun malfunctions despite the firing of 43,700 rounds of ammunition. In addition, there were only 3 20-mm cannon malfunctions and 6 turret malfunctions.

5. From a gunnery standpoint, the mission results were also satisfactory in that gunners claimed 17 enemy aircraft destroyed, 13 probably destroyed, and 12 damaged.

ANNEX

I

CAMERAS AND PHOTOGRAPHS

I Cameras and Photographs

II Photo Aircraft

I CAMERAS AND PHOTOGRAPHS

Mission No. 7

20-21 August 1944

A. 40th Group

	K-17b	K-18	K-19	K-20	C-3	Total
Cameras installed	9-a	7-a	1	27	3	47
Usable negatives	7	20	0	b	92-c	119

a - One each camera failed to take pictures.
b - Negative report.
c - Total number of negatives.

B. 44th Group

Cameras installed	4-a	4-a	-	8	4	20
Usable negatives	24	11	-	0	15	50

a - One each camera lost as result of crash of aircraft.

C. 462nd Group

Cameras installed	3-a	5-b	5-c	14-d	4-f	31
Usable negatives	-	18	33	6-e	13	70

a - All K-17b cameras offloaded from aircraft to lighten load for night take-off.
b - One K-18 offloaded for reasons given in note a.
c - Four K-19's offloaded for reasons given in note a.
d - Eight K-20's offloaded for reasons given in note a.
e - Three K-20's failed to take pictures.
f - One C-3 offloaded for reasons given in note a. Two others did not function, one due to radar-equipment malfunction and the other due to an error in exposure by the operator.

D. 468th Group

Cameras installed	5-a	6-b	1	18	4	34
Usable negatives	28	49	30	210	31	348

a - Four K-17b's failed to take pictures.
b - Two K-18's failed to take pictures and 1 had intervalometer trouble.

E. Totals

Cameras installed	21	22	7	67	15	132
Usable negatives	59	98	63	216	151	587

II PHOTO AIRCRAFT

Mission No. 7

20-21 August 1944

1. Aircraft #288 (40th Group), equipped as a special photographic plane, was assigned the mission of photographing enemy installations at FUSAN in KOREA, and YAWATA, OMURA, and NAGASIKI on KYUSHU ISLAND, JAPAN. It was equipped with Tri-met K-17b 6-inch lens and K-18 24-inch lens cameras.

2. This aircraft took off from Hsinching at 202246Z and proceeded on course to FUSAN, KOREA, arriving at 210431Z at an altitude of 28,000 feet indicated. A large amount of shipping, estimated at between 40 and 50 boats, was observed in the harbor. The aircraft then proceeded to photograph on heading of 90° T. An air strip, 5000 to 6000 feet long and 150 to 200 feet wide, was observed about three-quarters of a mile from the harbor. No antiaircraft fire or fighter interception was encountered, although a single-engine fighter was observed at 10,000 feet.

3. The photo plane arrived over YAWATA at 210457Z and photographed installations on heading 170° T from 28,000 feet indicated. En route an aircraft carrier was observed on the south side of FUTAO ISLAND, together with a cruiser and 3 destroyers.

4. In TOBATA Harbor what were thought to be a cruiser and 3 destroyers were observed. An airstrip was also observed running to the edge of the water. It appeared to be about 5000 feet long with a taxi strip at the edge of the water.

5. The new coke ovens on KUKINO OKA were clearly visible, but the old ovens to the south were obscured by cloud cover. No fires or smoke were visible. Barges and 8 ships were noted in MAEDA ANCHORAGE. No antiaircraft fire or fighter interception was encountered.

6. Between YAWATA and OMURA, on a heading of 216° T, this aircraft observed and photographed an "X"-shaped airstrip about 5000 feet long near SHIGASHIMA. An airfield was observed at TACHIARAI with 8 or 10 large warehouses to the northwest adjoining the field, but no pictures were taken. A small grass airstrip was located at 33°17' N - 130°25' E. A small aircraft carrier was seen in the harbor at SHIGASHIMA, and 15 naval vessels, including a battleship, a heavy cruiser, and destroyers, were seen in SASEBO HARBOR. The aircraft arrived over OMURA at 210513Z at 28,000 feet indicated on a heading of 170° T. An industrial plant was observed southeast of the airfield and large warehouses were seen on the west side. Twenty-four single engine aircraft were observed on the field and pictures were taken of the entire installation. No antiaircraft fire or enemy interception was encountered.

7. The plane was over NAGASAKI at 210517Z at 28,300 feet indicated on heading of 250° T. Two tankers were noted at the north end of the harbor; one large tanker on the east side of the harbor and another tanker in drydock on the west side. No antiaircraft fire or fighter interception was encountered. Photographs were obtained and the aircraft proceeded on course to base, landing at Hsinching at 211202Z.

8. Prior to landing the pilot was forced to feather the #2 engine, and, as a result of a shortage of gas, salvoed one rear and one forward bombbay tank prior to crossing the mountains east of Usinching.

9. The ability of this aircraft to obtain photo coverage of vital Japanese installations on the Japanese mainland without interference by antiaircraft fire or enemy aircraft is difficult to explain. The RCM operator states that the aircraft was picked up by enemy radar prior to leaving FUSAN and was followed throughout.

10. The K-17b Tri-met cameras produced 47 usable negatives and the K-18 80.

ANNEX

J

BATTLE LOSSES AND BATTLE DAMAGE

SECRET

BATTLE LOSSES AND BATTLE DAMAGE

Mission No. 7

20-21 August 1944

A. Observed Battle Losses

(See also Annex C, Part II)

1. Resulting from Enemy Antiaircraft (1):

a. A/C 408 (468th Group): At 0835Z over Yawata at 25,000 feet flying number 2 position in formation--an antiaircraft burst made a direct hit through the flight deck and the pilot and co-pilot were seen to slump over the controls. The aircraft made a turn to the left and almost collided with A/C 353 in the number 3 position. No parachutes were seen.

2. Resulting from Enemy Aircraft (3):

a. A/C 474 (462nd Group): At approximately 0820-30Z over Iki Island at 20,000 feet flying as leader in the first flight--this aircraft apparently developed engine trouble, after which it was attacked by an enemy aircraft. It is believed to have been hit in the center wing section at almost the same time by an aerial bomb. The aircraft then burst into flames and crashed shortly afterward on the southern tip os Iki Island. Eight parachutes were observed.

b. A/C 334 (468th Group): At 0830Z over Yawata at 25,000 feet flying as leader--an enemy aircraft (Nick) in making a pass approached level at 12 o'clock and made a sudden bank to the right so that his wings were vertical to the ground. The right wing then hit A/C 334 which immediately burst into flames. Both aircraft appeared to disintegrate as a result of the collision. No parachutes were seen.

c. A/C 368 (468th Group): At 0830Z over Yawata at 25,000 feet flying number 4 position behind A/C 334--this aircraft pulled up sharply to avoid the wreckage of A/C 334, but its horizontal stabilizer was broken off by flying debris. The aircraft was seen to fall to the ground in a spin.

B. Battle Damage

1. Resulting from Enemy Antiaircraft (8):

a. A/C 331 (40th) at 25,000 feet over PT: Small hole in left horizontal stabilizer.

b. A/C 237 (40th) at 26,000 feet over PT: Small hole in ring cowl and collector ring on #4 engine.

c. A/C 363 (40th) at 25,000 feet over PT: Small hole in outborad wing-tip panel.

d. A/C 253 (468th) at 25,000 feet over PT: Nose-wheel doors believed damaged by A/A. The extent of damage is uncertain since this aircraft made a belly landing on its return to base.

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B. Battle Damage (continued)

c. A/C 353 (468th) at 25,000 feet over PT: Elevator slightly damaged.

f. A/C 264 (468th) at 25,000 feet over PT: Tail slightly damaged.

g. A/C 409 (468th) at 25,000 feet over PT: Damage to nose by shell cases from lead aircraft or from antiaircraft plus 2 A/A holes in horizontal stabilizer.

h. A/C 429 (468th) at 25,000 feet over PT: 1 hole in horizontal stabilizer, 1 in #4 propeller, and 1 in #4 ring cowling.

2. Resulting from Enemy Aircraft (4):

a. A/C 322 (40th) at 23,000 feet over PT: 3 holes in lower aft turret, 6 in tail skid, 1 in fuselage opposite put-put, and bullet tear in right wing tip. (This aircraft was also damaged over PT at 25,000 feet by A/A with small holes in wing tip and a small hole in the vertical fin.

b. A/C 503 (40th) at 22,000 feet over PT: Small hole in radar dome.

c. A/C 273 (462nd) at 24,500 feet over PT: 1 hole in dorsal fin.

d. A/C 217 (468th) at 25,000 feet over PT: Wreckage from A/C 334 dented left wing on leading edge in 2 places and cracked the nose glass.

ANNEX

K

FUNCTIONING OF EQUIPMENT

I Summary of Mechanical Failures

II Functioning of Equipment

III Malfunctions of Equipment - Engineering

IV Fuel Consumption Data

I. SUMMARY OF MECHANICAL FAILURES

Mission No. 7

20-21 August 1944

Aircraft Involved in Movement	101
Returned to Rear Base and did not take off again for Forward Area	3
Landed en route and did not resume journey to Forward Area	3-a
Failed to take off on the mission	10
Over PT and dropping only a portion of Bomb Load or none at all	4
A/C failing to reach PT for mechanical reasons	14
Total A/C experiencing major mechanical difficulty	34-b

a. Includes 1 crashed aircraft.

b. Does not include the following mechanical difficulties: (1) 2 A/C that returned to rear base once and 1 A/C that returned twice - these A/C were subsequently airborne to and landed at Forward Area; (2) 1 A/C landed at Jorhat en route but was airborne subsequently and landed in Forward Area; and (3) 2 aircraft that failed to take off on the day mission but that were subsequently airborne on the night mission. Including these, the total number of aircraft experiencing major mechanical difficulty becomes 41.

II. FUNCTIONING OF EQUIPMENT

Mission No. 7

20-21 August 1944

1. A/C airborne - Rear Area (including photo plane)..... 101

2. Less A/C returning to Rear Area bases as result of mechanical difficulties 3
   a. 444th - 2 (A/C 202 and 423)
   b. 462nd - 1 (A/C 311)
   NOTE: (A/C 475, 462nd Group, and A/C 389 and 362, 468th Group, returned to rear base (389 twice) but subsequently landed at the Forward Area but are included in airborne total only once.)

3. Less A/C forced to land en route and movement to Forward Area not completed 3
   a. A/C 425 (40th): Crashed near Hsichang; #4 engine failure.
   b. A/C 353 (444th): Landed at Comilla - engine failure.
   c. A/C 285 (462nd): Landed at Lalmanir Hat - engine failure.
   NOTE: (A/C 279, 468th, landed at Jorhat en route but took off again and landed at Forward Area base.)

4. A/C landing in Forward Area 95

5. Combat A/C in Forward Area prior to movement 3

6. Total A/C in Forward Area for mission 98

7. Less A/C failing to take-off for day mission 7
   *a. A/C 342 (40th): Leak in right wing tank.
   *b. A/C 303 (40th): Generator trouble.
   c. A/C 251 (444th): Engine trouble.
   d. A/C 472 (444th): Engine trouble.
   e. A/C 352 (444th): Mechanical failure.
   f. A/C 215 (444th): Engine trouble.
   g. A/C 305 (462nd): Crashed on runway.
   h. A/C 475 (462nd): Cylinder change, #1 engine.
   i. A/C 828 (468th): Blown exhaust stacks (Collector ring failure.)

   (* These A/C were subsequently airborne on night mission - not included in totals)

8. Less A/C failing to take off for night mission 3
   a. A/C 223 (462nd): Excessive loss of RPM, #2 engine.
   b. A/C 360 (462nd): Loss of power, #1 engine.
   c. A/C 299 (462nd): Engine change.

9. A/C airborne on mission - includes A/C 276 (40th) airborne on both day and night mission and does not include A/C 288 (40th) photo plane 88

FUNCTIONING OF EQUIPMENT (continued)

10. (Less A/C over the Primary Target on day mission and dropping only portion of load or none at all - mechanical reasons; not included in deduction figure--4)
   a. A/C 462 (444th): 3 on PT, 3 jettisoned.
   b. A/C 234 (444th): Over PT, later jettisoned 6 bombs.
   c. A/C 341 (444th): Over PT, later jettisoned 6 bombs.
   d. A/C 484 (462nd): 5 on PT, 1 jettisoned.

11. Less A/C failing to bomb the Primary Target(mechanical reasons) 14
   a. Bombed Secondary Target (1): A/C 278 (462nd), fuel-transfer failure - 6 bombs.
   b. Bombed Last Resort Target (1): A/C 268 (40th), oil leak #2 engine - 6 bombs.
   c. Bombed Targets of Opportunity (2):
      (1) A/C 267 (444th): Engine trouble - 6 bombs.
      (2) A/C 346 (462nd): Lost #4 engine - 6 bombs.
   d. Jettisoned bombs (5):
      (1) A/C 281 (40th): Jettisoned 5, brought 1 back. (excessive oil leak #1 engine).
      (2) A/C 348 (40th): Lost #4 engine.
      (3) A/C 315 (444th): Engine trouble.
      (4) A/C 212 (444th): Engine trouble.
      (5) A/C 494 (468th): Oil leak, #2 engine.
   e. Brought bombs back (4):
      *(1) A/C 276 (40th): Inability to change prop pitch on day mission.
      (2) A/C 342 (40th): #1 engine out.
      (3) A/C 356 (468th): Broken collector ring, #3 engine.
      (4) A/C 390 (468th): Oil leak, #4 engine.
      *Subsequently airborne on night mission.
   f. Disposition unknown (1):
      (1) A/C 332 (462nd).

12. Less A/C failing to bomb the Primary Target (personnel reasons): A/C 284 (468th) - 3 on Target of Opportunity, 3 jettisoned 1

13. A/C over Primary Target 73

III. MALFUNCTIONS OF EQUIPMENT - ENGINEERING*

Mission No. 7

20-21 August 1944

a.	Tachometer inoperative	20
b.	Oil leaks	12
c.	Cylinder head temperature gauge out	10
d.	Generator inoperative	7
e.	C. A. T. gauge out	7
f.	Oil cooler inoperative	7
g.	Direct reading instrument malfunction	6
h.	Propeller governor sticking	5
i.	Inverter inoperative	3
j.	Turbo inoperative	3
k.	Oil pressure gauge out	2
l.	Collector ring trouble	2
m.	Radio compass inoperative	2
n.	Cowl flap indicator out	1

* For malfunctions of other equipment, see the following: bombing equipment -- Annex B, Bombing Data; radar -- Annex F; RCM -- Annex G; armament -- Annex H; and cameras -- Annex I.

IV. FUEL CONSUMPTION DATA

Mission No. 7

20-21 August 1944

1. Seven aircraft landed short of their bases as a result of low fuel supply; 5 of these airplanes started with 3 full auxiliary tanks, and 2 with 4 auxiliaries, 3 of which were full and 1 with 340 gallons. In most cases there was enough fuel for these airplanes to have returned to their bases, but because of the inaccuracy of the fuel quantity gauges an attempt to continue could not have been done with safety.

2. Many other airplanes that carried only 3 full auxiliaries barely had enough fuel to return and would have been in serious difficulty under slightly more adverse conditions. It is apparent that 3 auxiliary tanks were sufficient for the better-than-average airplanes and that the below-average airplanes should have carried an additional tank with 340 gallons of fuel. Unless airplanes known to burn excessive fuel, replacement aircraft, and aircraft manned by crews of unknown capabilities are permitted to carry additional fuel, operational losses can be anticipated to be high when unexpected bad weather is encountered.

3. A summary of aircraft performance is presented as Table 1 and 2. It must be remembered that in order to draw correct conclusions when comparing fuel reserve figures of the different Groups, the variation in ground distance traveled should be taken in consideration. It should also be noted that averages were of necessity figured on the reported fuel consumptions, which, for the aircraft that landed short, were figured from their bases to the target and thence to the emergency landing field and not to the home bases.

Table I — DETAILS BY GROUPS

GROUP	40TH			444TH			462ND			468TH		
Formation Position	ALL	LEAD	WING	ALL	LEAD	WING	ALL	LEAD	WING	ALL	LEAD	WING
Number of Aircraft*	14	4	10	12	4	8	4	1	3	21	5	16
Total Flight Time	13:51	14:04	13:46	13:55	13:59	13:54	14:13	14:20	14:11	13:29	13:27	13:29
Time to target	6:22			6:15			6:21			6:09		
Fuel Burned	6665	6740	6640	6560	6380	6650	7035	6850	7100	6815	6625	6870
Gals/Air Mile	2.01	2.05	1.99	1.92	1.89	1.93	2.03	1.96	2.06	2.07	2.01	2.08
Air Miles	3320	3292	3331	3420	3380	3440	3463	3500	3450	3300	3305	3300
Ground Miles	3195	3195	3195	3145	3125	3160	3300	3300	3300	3200	3207	3200
Reported Gross Wt.	131300	131200	131315	130200	130200	130200	135600	135020	135700	132880	132500	132900
Average No. of 500-lb. Bombs	6.3	6.5	6.2	6.3	6.5	6.2	5.5	6.0	5.3	6.4	6.0	6.5
Reserve Fuel Gals.	600	525	625	700	885	615	870	1055	805	785	975	730
Auxiliary Fuel	3 full bomb bays			3 full bomb bays			4 full bomb bays			3 full and 1 with 340 gals.		

* Calculations based only on aircraft for which Cruise Control Data Sheets were available.

SECRET

Table 2 -- ALL AIRCRAFT

	NIGHT	DAY			PRE-FLIGHT CALCULATIONS, DAY FORMATION
Formation Position	Individual	All	Lead	Wing	
Number of Aircraft*	8	51	14	37	
Total Flight Time	13:55	13:45	13:50	13:43	13:39
Time to Target	6:17	6:15			6:48
Fuel Burned	6420**	6730***	6600	6780	6600
Gals/Air Mile	1.90	2.01	1.98	2.02	
Air Miles	3375	3347	3335	3355	
Ground Miles	3210	3195	3185	3197	3210
Reported Gross Wt.	131300	131900	131600	132000	132000
Average No. of 500-lb. Bombs	6.25	6.28	6.28	6.28	4

* Calculations based only on aircraft for which Cruise Control Data Sheets were available.
** Minimum consumed was 6080 gallons, maximum 6670 gallons.
*** Minimum consumed was 6100 gallons, maximum 7600 gallons.

ANNEX

L

TARGET DAMAGE ASSESSMENT

Prepared by:

TARGET INTELLIGENCE SECTION
XX Bomber Command

S E C R E T

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
APO 493

SECRET
Auth: CG XX BC
Initials: [illegible]
Date: 23 Aug 44

23 August 1944

PROVISIONAL DAMAGE ASSESSMENT REPORT NO. 7

TARGET: Imperial Iron and Steel Works, Yawata (Kyushu), Japan,
33° 52' N; 130° 49' E.

GENERAL STATEMENT:

This report relates to damage resulting from an attack by 61 aircraft of XX Bomber Command on 20 August 1944. This target had twice previously been attacked, first on 15 June 1944 and subsequently on the night of 7-8 July 1944. A fourth attack by 10 B-29 aircraft, following at night the daylight attack of 20 August, produced no strike photographs. This report concerns only the daylight attack, therefore, and is based exclusively on interpretation of strike photographs. As such it should be regarded a provisional statement of damage.

A direct hit on one of the coke installations in the southeast part of the target, which includes two batteries of ovens, has set it afire. Pinpoints of flame seen in the strike photos to be astride the ovens at the base of a large plume of dense black smoke ascending therefrom indicate that coal, or partially coked coal, inside the ovens is burning vigorously. A large building immediately adjacent, probably related to by-products operations, is thought also to be burning. An unusual emission of what appears to be steam from one of two similar buildings serving the coke oven batteries to the east, may indicate some damage here although no bursts are seen. Smoke from the above fires completely obscures the remaining batteries to the south.

On Kukino Oka, site of the new coke oven batteries, approximately nine bursts are seen, at least one of which is thought to mark a hit or near miss on the most southwesterly of six batteries (one of them partly completed) in this coking group. This hit or near miss appears to be near the coaling tower which serves the two south batteries. In addition a small building of the by-products plant has been hit and set afire, as indicated in dense black smoke rising from the damaged building. It is also quite possible that a direct hit was effected on the unfinished battery to the northwest. No definite statement, however, can be made. It is also believed possible that such a hit could have resulted from the small scale night attack of 7 July. A number of ill-defined bursts are seen at the northwest corner of Kukino Oka. It is thought likely that large fires are burning in or near residential areas south of the plant.

CONCLUSION:

Without reconnaissance it will not be possible to make any statement as to the overall effect of this attack. Further it will be recognized that damage seen in subsequent reconnaissance will in some cases be an accumulated effect of three attacks--the night attack of 7-8 July; the daylight attack of 20 August, and the night attack of 20 August. Up to now there has been no reconnaissance of Yawata since 18 June except insofar as strike photographs may be used for this purpose. It should, however, be possible when reconnaissance photos

S E C R E T