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MISSION #23 MUKDEN "CHIDING 2"
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XX Bomber Command

Tactical Mission Report

No. 23

Date 21 DECEMBER 1944

GENERAL H.H. ARNOLD

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11 Jan 45 725
Date Initials

TWENTIETH AIR FORCE
Office of The Deputy Commandor, IB and C
APO 493

TACTICAL MISSION

REPORT

Field Orders No. 23 Mission No. 23

TARGET: MANCHURIA AIRPLANE MANUFACTURING COMPANY

Mukden, Manchuria

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Prepared by:

Intelligence Section
XX Bomber Command

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TWENTIETH AIR FORCE
Office of The Deputy Commander, IB and C
APO #493

11 January 1945

SUBJECT: Report of Operations, 21 December 1944.

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

1. UNITS PARTICIPATING:

The four Bombardment Groups of the XX Bomber Command were directed by Field Orders Number 23 to participate in a daylight attack on D-day against the Manchuria Airplane Manufacturing Company, Mukden, Manchuria. A total force of 52 aircraft was planned. Groups, their locations, and their Commanding Officers were as follows:

Group	Rear Base	Forward Base	Commanding Officer
40th	Chakulia	Hsinching	Col. W.H. Blanchard
444th	Dudhkundi	Kwanghan	Col. A.L. Harvey
462nd	Piardoba	Kiunglai	Col. A.F. Kalberer
468th	Kharagpur	Pengshan	Lt. Col. J.V. Edmundson

2. IDENTIFICATION OF MISSION:

a. Attack No. 23.

b. Targets Specified:

(1) Primary Target: Manchuria Airplane Manufacturing Company, Mukden, Manchuria (AAF Target No. 93.3 - 177).

(2) Secondary Target: Shipping at Dairen or the South Manchurian Railway Piers and Facilities, Dairen, Manchuria (AAF Target No. 93.5-13).

(3) Last Resort Target: Railroad yards, Chenghsien, China (14th Air Force Target Chart No. 93).

3. STRATEGY AND PLAN OF OPERATIONS:

a. Importance of Targets:

(1) Primary Target: The Manchuria Airplane Manufacturing Company is a medium-size aircraft assembly plant believed to be primarily or exclusively producing final-stage training aircraft resembling the obsolescent Nate. There are differences of opinion among photo interpreters as to whether aircraft engines are produced by this company. The majority conclusion is that they are obtained elsewhere, possibly from the Mukden Arsenal and its satellite factories. This company does contain a number of buildings housing machine tools, presses, and jigs. The damage or destruction of this machinery would delay or halt aircraft production for as long a period as 6 months.

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(2) Secondary Target: The South Manchurian Railway Piers and facilities comprise 4 large piers, 350 feet to 400 feet by 2000 feet each, with a lateral distance between the piers of 2000 feet, and approximately 80 warehouses with a total capacity of 340,000 tons and a yearly capacity of 10,000,000 tons. Dairen is the finest mainland port north of Shanghai, shipping an estimated 3,600,000 metric tons yearly to Japan. Destruction of the piers and loading facilities would increase the turn-around time, delay the flow of supplies and expose the vessels to potential air attack for longer periods.

(3) Last Resort Target: The railroad yards at Chenghsien have become increasingly important with the Japanese occupation and reconstruction of the Peking-Hankow Railroad. This line provides the enemy with an alternative supply route and lessens the necessary traffic in the Yangtze River. The Chenghsien yards form a possible bottleneck and air attack against them would temporarily impede the flow of Japanese military traffic along the line.

b. Details of Planning (See Annex N):

(1) Operational Planning:

(a) This mission, originally planned for 6 December, was finally flown on 21 December after numerous postponements and substitutions of other missions in the intervening period.

(b) Airplane commanders were instructed not to test fire machine guns over, or indiscriminately bomb, Chinese cities.

(c) Four islands near the China coast were designated as Group assembly points. In order to give stragglers a better chance to join a formation, a second assembly point common to all Groups was chosen.

(d) From the standpoint of both visual and radar bombing, the best axis of attack was determined to be 58 degrees magnetic. The initial point chosen was one for which aerial and radar scope photographs were available for all Groups.

(e) Take-off time was not specified, but the time the aircraft were to be over the target was designated in its place. This was done in order to bring the Groups together over the target at closer intervals, and to permit freedom for the Groups to determine how to execute the general plan established by this Headquarters.

(f) Bomb release in minimum train was specified to minimize the chance of bombs striking together and exploding shortly after release.

(g) Crews were briefed to bomb the secondary target if the primary was cloud covered. If both were covered, the primary target was to be bombed by radar with the aiming point established as the center of the industrial area on the west side of the city of Mukden. Because of weather forecasts of possible clouds at the assigned bombing altitudes of 22,000 to 23,000 feet, aircraft were permitted to bomb as low as 20,000 feet if necessary for visual bombing.

(h) Formation leaders were given permission to break up their formations at 108 degrees longitude in order that airplane commanders could practice the instrument let-down procedure for the Chengtu area.

(2) Determination of Bomb Load (See Annex O):

Information on determination of bomb load is presented in

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this section under paragraphs 3b (1), Operational Planning and 3b (3), Bombing Data. A more detailed study of this subject is presented in Annex O, Supplemental Information.

(3) Bombing Data:

(a) Bomb loading was to be accomplished with a combined minimum per aircraft of 15 500-pound (TNT or amatol filled) bombs, either AN-M43 or AN - M64, fused .1 second nose and .025 second tail delay, and M-76 incendiary bombs, fused instantaneous nose and non-delay tail. The ratio of demolition to incendiary bombs was to be 1 to 1 insofar as the available supply would permit, with the incendiaries loaded to release last.

(b) The method of bombing was to be by 12-plane formations from the following pressure altitudes: 40th Group, 22,000 feet; 444th Group, 23,000 feet; 462nd Group, 20,000 feet; 468th Group, 21,000 feet. The aiming point was to be the southeast corner of Building Number 20 as shown on M.F Illustration 93.3-177-P3.

4. EXECUTION OF THE MISSION (See Annexes A and K):

a. Take-off (See Annex A, Part I):

(1) Times of take-off on D-day minus 1 for each Group were not specified in the Field Order, this being left to the decision of the Groups, who were given a specified time to be over the target.

(2) Take-off was accomplished as follows:

Group	A/C Scheduled for Take-off	A/C Airborne	First A/C Off	Last A/C Off
40th	13	12	2030Z	2054Z
444th	12	12	2028Z	2059Z
462nd	15	12	2010Z	2032Z
468th	13	13	2023Z	2101Z
Total	53	49	2010Z	2101Z

(3) Overcast at the bases on take-off was at 6-9000 feet, with visibility from 2 to 2 1/2 miles. Winds ranged from calm to 2 miles per hour at the various bases.

b. Route Out (See Annex A, Parts II and III):

(1) The Route out was from base to Ankang Airfield to a separate first assembly point for each Group to a common second assembly point to the initial point at 40°50'N - 121°51'E to the target at Mukden.

(2) There were 9 aircraft which deviated from the planned route to the Primary Target. Of these aircraft, 1 bombed the secondary target, 2 bombed the last resort target, 5 bombed targets of opportunity, and 1 jettisoned its bombs. These deviations were divided among the Groups as follows: 40th - 2, 444th - 2, 462nd - 2, and 468th - 3.

c. Primary Target:

(1) Of the 49 aircraft airborne, 40 were over the Primary Target, of which 19 are credited with bombing it. Of first and third formations over the target, composed in the main of aircraft of the 462nd and 444th Groups respectively, only the formation leaders bombed the target. All other aircraft released their bombs from 4 to 9 miles before

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reaching the target. These early releases were occasioned by an inadvertent release within each formation. Difficulty was experienced in seeing the formation leaders due to heavy frosting of the windows. Between 0200Z and 0231Z the 19 aircraft which bombed from 4 formations dropped a total of 164 500-pound demolition and 179 500-pound incendiary bombs.

(2) Bombing altitudes varied from 20,200 feet to 23,000 feet indicated, and headings ranged from 51 degrees to 67 degrees magnetic.

(3) Weather over the target was clear, with visibility 20 miles in light haze.

d. Secondary Target: One aircraft (A/C 228 of the 444th Group) bombed the secondary target by radar from 19,000 feet on a heading of 141 degrees magnetic with an indicated air speed of 195 miles per hour. Eight demolition and 8 incendiary bombs were dropped at 0114Z.

e. Last Resort Target: Two aircraft bombed the last resort target as follows: A/C 704 (468th) at 0048Z visually from 19,300 feet on a true heading of 250 degrees and at an indicated air speed of 194 miles per hour; and A/C 487 (468th) at 0429Z from 19,800 feet on a true heading of 283 degrees and at an indicated air speed of 196 miles per hour. Bombs dropped were 11 demolition and 10 incendiary, and 11 demolition and 12 incendiary respectively.

f. Targets of Opportunity:

(1) Tiehlu (34°46'N - 113°32'E): A/C 718 (40th) bombed this target visually at 0232Z with 8 demolition and 8 incendiary bombs from 20,000 feet on a magnetic heading of 330 degrees at an indicated air speed of 195 miles per hour. Observed results were poor.

(2) Luchou (34°08'N - 112°53'E): A/C 538 (444th) bombed this target visually at 0003Z from 21,000 feet on a magnetic heading of 265 degrees at an indicated air speed of 190 miles per hour. Observed results were excellent, the bombs having been seen to strike the main concentration of industrial buildings. Eight demolition and 9 incendiary bombs were dropped.

(3) Railroad yards at Tsanghien (34°25'N - 116°25'E): Two aircraft bombed this target visually at 0220Z from 18,000 feet on a magnetic heading of 305 degrees and at an indicated air speed of 195 miles per hour. A/C 461 (462nd) released 10 demolition and 5 incendiary bombs and A/C 463 (468th) released 15 incendiary bombs. Observed results were good for A/C 461 and poor for A/C 463, due to a momentary hang-up.

(4) Railroad yards at Tangshan (34°25'N - 116°25'E): One aircraft (A/C 208, 468th Group) bombed this target visually from 18,000 feet at 0252Z on a true heading of 270 degrees at an indicated air speed of 190 miles per hour. Eleven demolition and 10 incendiary bombs were dropped.

g. Route Back:

(1) Four check points were used on the return flight as follows: 38°04'N - 118°10'E to 35°35'N - 110°35'E to Hsian Airfield to Hanchung Airfield.

(2) Three aircraft deviated from the return route. All landed at bases other than their own, 2 of them remaining at these bases and 1 returning to home base the same day.

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(3) Overcast at three of the bases was from 6 - 8000 feet. Kwanghan was clear. Visibility at all bases was from 2 to 3 miles in haze and winds were calm to North at 1 mile per hour.

5. ENEMY ANTIAIRCRAFT (See Annex B);

a. Meager to moderate and inaccurate to accurate black (and some white) heavy antiaircraft bursts were encountered at Mukden. Fire was reported from 0150Z to 0227Z at altitudes varying from 20,000 to 23,000 feet under CAVU and haze conditions. No automatic weapons fire was reported. It is thought possible that both barrage and continuously pointed types of fire were used. Several enemy aircraft were observed flying the same course and altitude.

b. Heavy antiaircraft fire was also encountered at the following locations: Anshan, Chenghsien, Tientsin (39°08'N - 117°13'E), Panshan (41°16'N - 121°58'E), Lwanghsien (39°43'N - 118°44'E), Poshan (36°30'N - 117°50'E). Automatic weapons fire was reported from the vicinity of Kaifeng and from the vicinity of Weihsien (37°00'N - 115°24'E).

c. An effective smokescreen at Mukden was quickly placed in operation, obscuring the aircraft factory, the arsenal, and the airfield, and increasing to partial concealment of the entire city. An increase was apparent in the effectiveness of the smokescreen over that used when Mukden was bombed on 7 December. Smokescreens were also reported at Anshan, covering all of the industrial area and other parts of the city, and at Fushun (41°53'N - 123°52'E) and Chingchow (41°07'N - 121°06'E). There is possibility that two smokescreens reported at 60 miles and at 40 miles south southwest of Mukden were intended as dummy or decoy smokescreens.

d. Barrage balloons, two in number, were observed at Mukden at an estimated 10,000 feet, and at Tientsin, where an undetermined number were seen to be raised and then lowered.

e. A possible high-altitude balloon was reported over Anshan by the crew of one aircraft. The balloon was estimated to be at an altitude of 22,000 feet.

f. It is estimated that the enemy had at least 30 minutes prior warning of the attack, although he did not know specifically the intended target.

6. ENEMY AIR OPPOSITION (See Annex C);

a. Air opposition was rated moderate to strong in the primary target area and nil to weak elsewhere. Thirty-six of the 49 B-29's airborne reported a total of approximately 317 individual encounters. Due to the rapidity of enemy attacks in the primary target area, it was impossible to accurately report them all in detail. Consequently, tables and percentages are based only on 192 encounters on which details were available.

b. Two B-29's were lost (1 by mid-air collision with an enemy aircraft, and the other shot down) and 16 sustained minor damage due to enemy air action. Preliminary claims against enemy aircraft were 23 destroyed, 6 probably destroyed, and 19 damaged.

c. It was estimated that a total of 302 encounters were made in the primary target area, and 15 additional along the routes to and from the target area. Of the 302 encounters in the primary target area, details were available on 177, and of these, 94 encounters (53%) were before bombs away.

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d. Enemy pilots displayed unusual aggressiveness and determination to press their attacks to extremely close quarters. Fifty-one per cent of the encounters were closed to 100 yards or less. The enemy fighter forces was estimated at 141 aircraft, mostly Nicks, Tojos, and Oscars.

e. Japanese pilots again favored the high frontal approach. Forty per cent of the encounters originated from the frontal quarter, 28 per cent came from the right quarter, 11 per cent from the rear quarter, and 21 per cent from the left quarter. Sixty-two per cent of the approaches were high, 17 per cent were level, and 21 per cent were low.

f. Twenty-five coordinated attacks accounted for 68 individual encounters or 35 per cent of the total of 192 encounters on which details were available.

g. Japanese pilots opened fire in 70 per cent of the encounters, B-29's in 84 per cent. Both B-29's and enemy aircraft showed a slight tendency to open fire at shorter ranges than usual.

h. Aerial bombs, principally of the phosphorous type, were employed in only 7 encounters. One, however, was responsible for the destruction of a B-29.

i. There were two instances of actual contact between B-29's and enemy aircraft. One was a head-on collision resulting in the destruction of a B-29 and an enemy aircraft; the other involved a split wing tip caused by the propellors of an enemy aircraft as the latter attempted to clear the wing of a B-29 in a last second change of mind from what the B-29 crew believed was an original intention to ram. There were 6 additional reports of near collisions, all of which required violent evasive action of the part of B-29's to avoid.

j. Dives, as usual, predominated among breakaway maneuvers. A greater than usual number of enemy pilots flew into and through formations.

7. WEATHER (See Annex D):

a. The weather encountered was suitable for formation flying and excellent for visual bombing except at the secondary target. This condition had been forecast, however.

b. There was a haze layer which extended to 10,000 feet over most of the route and in cases was reported to have reached as high as 21,000 feet. There is some doubt as to whether there were any clouds over the bases on return or whether the sky was obscured by haze. Pilots reported that visibility was poor except straight down and that they could not tell whether they were in clouds or not. This same condition may have prevailed over the first assembly point. The absence of icing and the ability to see straight down but not obliquely gives rise to the likelihood that the haze could have been mistaken for thin cloud.

c. The metro winds were generally rated as good.

8. COMMUNICATIONS (See Annex E):

a. Communications on this mission were in general satisfactory. All assigned frequencies in use during the mission period offered satisfactory contacts with a minimum of interference.

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b. One practice message was sent to the aircraft in flight.

c. Six requests for D/F aid were made with 3 bearings given reported as Class I, 2 as Class II, and 1 as Class III.

d. Fifteen malfunctions of equipment occurred of which 3 were repaired in flight.

e. The two-wire trunk lines between Hsinching and Kiunglai were cut by saboteurs at 201730Z. During the inoperative period of wire service, communication was maintained by CW and the FM link.

9. RADAR (See Annex F):

a. A total of 10 aircraft bombed by radar on this mission. One formation of 9 planes bombed the primary radar target with fair results. A single plane bombed the secondary target, Dairen, by radar. Location of points on the route was aided by the use of the radar equipment.

b. Radar scope photography was satisfactory with a greater number of cameras completing the mission. The number of negatives returned and usable also increased.

c. The percentage of operative radar systems over the target decreased slightly over the previous missions; however, equipment function was satisfactory.

10. RCM (See Annex G):

a. As on previous missions, RCM activities were limited to searching for enemy radar. Five RCM equipped aircraft, each with one RCM observer, searched for Early Warning Radar en route to and from the target and for possible gun-laying equipment in the target area.

b. It is evident that the number of radar sites in the Japanese Early Warning system in the Manchuria area has been increasing, and that the type of radar has been changing. The new equipment is a modification of the Mark 1 type. Several new Army "CHI" typ radar sites were also intercepted in the northeast area of China prior to reaching Liaotung Bay.

c. There were no radar intercepts with radar fire-control characteristics.

d. Some interference reported as possible jamming, especially in the 8 megacycle band, is believed to have been caused unintentionally by the Chinese setting their frequencies too close to ours.

11. CENTRAL STATION FIRE CONTROL AND GUNNERY (See Annex H):

a. The gunnery and central station fire control aspects of the mission are considered satisfactory. Based on reports from 45 aircraft, 6 CSFC malfunctions occurred among the 225 turrets in use. There were 57 machine gun malfunctions out of the 450 machine guns carried.

b. Expenditure of ammunition amounted to 47,368 rounds of which 4758 were expended in test firing and 42,610 in combat.

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12. CAMERAS AND PHOTOGRAPHS (See Annex I):

Forty-three cameras of the K-18, K-22, and K-20 type were carried in aircraft airborne. Of these, based on incomplete reports, 27 cameras obtained 129 usable photographs. One camera was reported failing to photograph for mechanical reasons and 12 for other reasons.

13. LOSSES AND DAMAGE (See Annexes J and M):

a. Known Battle Losses and Battle Damage: Two aircraft were lost as a result of enemy fighter action, 1 as a result of a collision with an enemy fighter and 1 from aerial phosphorous bombs dropped by enemy aircraft. Sixteen B-29's were damaged by enemy aircraft and 7 by antiaircraft. Damage was minor to all but one aircraft, which sustained major damage from antiaircraft and minor damage from enemy aircraft. The latter did not land at its home base and the reports of its damage were not received in time to be included in the statistical summary contained in Annex M.

b. Known Operational Losses and Damage: No operational losses resulted from this mission. Two aircraft suffered minor damage from our own guns and 2 from other causes.

c. Missing Aircraft: There are no missing aircraft.

14. FUNCTIONING OF EQUIPMENT (See Annexes K and M):

a. Of the 49 aircraft airborne, 7 failed for mechanical reasons to bomb the primary target, 5 because of engineering malfunctions, 1 due to failure of the bomb release mechanism, and 1 because of inoperative guns and turrets.

b. There were 66 engineering malfunctions of equipment in flight (exclusive of the 5 engineering malfunctions that were related to failure to bomb the primary target) as follows: power plant and accessory section -- 9 (engine running rough or hot - 6); turbo supercharger or turbo control system -- 2; propellors and governors -- 4 (unsuccessful attempts to feather - 1, governor malfunction - 3); oil system -- 12 (oil leaks - 7, oil temperature regulator -- 3, oil pressure low - 2); fuel system -- 10 (fuel transfer system -- 2, fuel pressure high - 3); electrical system failure -- 2 (generators - 1, APU - 1); instruments -- 22 (tachometers - 4, flight indicators - 4); miscellaneous -- 7 (defroster system - 2).

c. Over-all averages in fuel consumption were: average - 5780 gallons; maximum - 7040 gallons; minimum - 5300 gallons (for an average of 12 hours 52 minutes of flight). Averages by Groups were: 40th - 5730 (maximum - 6000; minimum - 5300); 444th - 5905 (maximum - 6250; minimum - 5500); 462nd - 6265 (maximum - 7040; minimum - 5900); 468th - 5224 (maximum - 6200; minimum - 5650).

15. TARGET DAMAGE ASSESSMENT (See Annex L):

a. Primary Target:

(1) Of the 4 formations over the primary target, 2 (the first and third) dropped all bombs prematurely except those of the lead aircraft, 1 (the second) used an off-set bombing technique because of the smoke-screen defense, and 1 used the radar aiming point, which was the western edge of the city.

(2) No new damage was identified within the confines of the

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Aircraft Company.

(3) Incendiary bombs from 1 aircraft struck in the Mukden Arsenal approximately 2000 feet west of the target center, gutting completely 2 medium sized workshops. A smaller workshop and a small section of a light machine shop were also destroyed. Direct hits were made on 2 heavy forge shops and 1 light forge shop, but in these cases the buildings did not ignite and only slight damage is visible.

(4) Bombs from the second formation over the target fell on the airfield, cratering the runway in several places and seemingly hitting several of the smoke generators.

(5) The fourth formation's bombs, dropped by radar, fell in the Mukden Railway Yards and eastwards for several thousand feet into the city proper. Cloud and smoke and lack of post-strike photo coverage preclude a statement of damage.

For the Deputy Commander:

Leo I. Herman

LEO I. HERMAN,
Colonel, Air Corps,
Acting Adjutant General.

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ANNEX

A

EXECUTION OF THE MISSION

I - Information on Take-offs

II - Details of Routes

III - Track and Vertical Flight Path*

IV - Bombing Data**

V - Bomb Loading

VI - Disposition of Bombs

VII - Formations Flown

VIII - Navigation Report*

IX - Information on Landings

* Prepared by Staff Navigator.

** Page A-IV-1 and A-IV-2 prepared by Staff Bombardier.

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I - INFORMATION ON TAKE-OFFS

Mission No. 23

21 December 1944

Group	First A/C Off	Last A/C Off	Elapsed Time	No. of A/C Taking Off	Average Take-off Interval
40th	202030Z	202054Z	24 min	12	131 sec.
444th	202028Z	202059Z	31 min	12	169 sec.
462nd	202010Z	202032Z	22 min	12	120 sec.
468th	202033Z	202101Z	28 min	13	140 sec.
Over all	202010Z	202101Z	51 min	49	--

Note: Take-offs were on D-day minus 1, Z time.

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II - DETAILS OF ROUTES

Mission No. 23

21 December 1944

A. Planned Routes

Base	40th Hsinching	444th Kwanghan	462nd Kiunglai	468th Pengshan
First Check Point	Ankang Airfield (32°35'N - 109°14'E)			
Assembly Point No. 1	Takin Island (38°18'N - 120°50'E)	Ta-hei-shan Is (37°58'N - 120°38'E)	37°42'N - 120°14'E	Tainpingwan (37°22'N - 119°52'E)
Assembly Point No. 2	Chuhwa Island (40°31'N - 120°43'E)			
Initial Point	40°50'N - 121°51'E			
Target	Mukden, Manchuria (41°48'N - 123°30'E)			
1st Return Check Point	38°04'N - 118°10'E			
2nd Return Check Point	35°35'N - 110°35'E			
3rd Return Check Point	Hsian Airfield (34°11'N - 108°54'E)			
4th Return Check Point	Hanchung Airfield (33°05'N - 107°03'E)			
Base	Hsinching	Kwanghan	Kiunglai	Pengshan

B. Deviations from Planned Routes

1. 40th Group:

a. A/C 589 turned from the briefed route at 31°00'N - 105°59'E because of the loss of #4 engine. The bomb load was jettisoned and return was made directly to home base.

b. A/C 718 turned from the planned route at 37°04'N - 118°42'E because of a fuel transfer system malfunction. Course was set toward the last resort target, but the aircraft was unable to locate it and bombed a target of opportunity (the town of Tiehlu at 34°46'N - 113°32'E). A/C 718 then proceeded to Ankang and then to home base.

2. 444th Group:

a. A/C 228 because of a blown blister bombed the secondary target. Details of its route were not reported.

b. A/C 538 after taking off flew to 34°08'N - 112°53'E and then returned directly to home base after bombing the town of Luchou at the coordinates given. The reason for this action was that the tail gunner had lost his parachute during the take-off and the airplane commander elected to bomb a target of opportunity.

3. 462nd Group:

a. A/C 461 turned back at 39°05'N - 120°35'E due to mechanical difficulties occasioned by the extreme cold. A target of opportunity at 38°17'N -

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116°56'E was bombed, after which the briefed return course was resumed to home base.

b. A/C 463 was detailed by the formation commander to escort A/C 461, and followed the route given in paragraph a.

4. 468th Group:

a. A/C 704 followed the planned course to 35°45'N - 116°20'E. Because of an oil leak in #2 engine, the course was set for 35°40'N - 115°00'E, which was used as an I.P. for the last resort target. After bombing, return to home base was accomplished by way of Ankang.

b. A/C 487 flew the briefed course to 39°27'N - 120°40'E, where course was set for the last resort target. After bombing, return was made to home base by way of Hsian.

c. A/C 737 flew the briefed course to the primary target, which it bombed. On return, landing was made at Hsian because of gasoline shortage, 900 gallons having been lost as a result of damage to the fuel transfer system by enemy aircraft and flak. Return from Hsian to home base was accomplished on 24 December.

d. A/C 469 flew the briefed course to the primary target and return, landing at Kwanghan instead of Pengshan because of gasoline shortage.

e. A/C 208 flew as briefed to 34°30'N - 115°30'E, where the fuel transfer system failed. Course was set for the last resort target, but when this target could not be located, a target of opportunity (a railroad at Tangshan) was bombed. This aircraft then proceeded to Laohokow, landed, refueled, and returned to home base the same day.

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XX BOMBER COMMAND
TRACK & VERTICAL FLIGHT PATH
MISSION #23

100° 105° 110° 115° 120° 125° 130°

40° 35° 30°

MUKDEN (PRIMARY TARGET)
41°-48' N.
125°-30' E.

T.P.-ALL GROUPS
CHUHWA IS.
40°-31' N.
120°-49' E.

IP-ALL GROUPS
40°-50' N.
121°-51' E.

40TH A.P.
38°-18' N.
120°-50' E.

DARIEN

T.P.-ALL GROUPS
38°-04' N.
118°-10' E.

444TH A.P.
37°-58' N.
120°-38' E.

TARGETS BOMBED
PRIMARY - MUKDEN
SECONDARY - DARIEN
LAST RESORT - CHENGHSIEN

35°-35' N.
110°-35' E.

462ND A.P.
37°-42' N.
120°-14' E.

468TH A.P.
37°-22' N.
119°-52' E.

HSIAN

CHENGHSIEN

ANKANG
32°-35' N.
109°-14' E.

ROUTE OUT
ROUTE BACK

CHENGTU

THOUSAND FEET
24
20
16
12
8
4
0

23,000' - 444 GP.
22,000' - 40 GP.
21,000' - 468 GP.
20,000' - 462 GP.

CHENGTU LOCAL AREA

KWANGHAN
444 GP.

CHENGTU

KIUNGLAI
462 GP.

HSINCHING
40 GP.

PENGSHAN
468 GP.

31° 30° 104°

SECRET

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By auth: CG, XX BC
Date: 28 Dec 44
Initials [illegible]

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT OF
STAFF BOMBING OFFICER

Date Prepared: 27 December 1944

Date of Mission: 21 Dec 4
Mission: No. 23.

1. Weather during the time all formations were over the target was CAVU. The first formation, made up of airplanes from the 462dn Group, was the only one which found the target free from smoke. All other formations encountered an excellent smoke screen which completely covered the target area necessitating the use of offset aiming points.(the same type of smoke screen covered the target on the last Mukden Mission).

Fighters pressed home attacks in a very aggressive manner.

Frosting up of nose glass occurred in some airplanes, but those with the latest defrosting modification experienced no difficulty.

2. The 462nd deputy lead bombardier had an accidental release, and the rest of the formation (with the exception of the leader) salvoed on him two to three minutes before reaching the Bomb Release Line.

One bombardier in the 40th Group while firing at attacking fighter also released accidentally before reaching the Bomb Release Line.

This is not the first time accidents such as the above have occured, and it seems conclusive the explanation is twofold (1) windows frosting up making it impossible in many cases to watch for the lead airplanes release; and (2) bombardiers attempting to watch for the lead airplanes release while manning the front gun sighting station. The first difficulty will be rectified as the modified defrosting equipment is installed, but the second will continue to arise as long as bombardiers persist in believing that they can do both jobs at the same time in an efficient manner. A logical solution seems to be that the top gunner man the top forward turret on the latter part of the bombing run in order that the bombardier may devote <u>all</u> of his attention to watching for the lead airplanes release.

3. Malfunctions of bombing equipment were as follows:

a. 40th Bomb Group - None.

b. 444th Bomb Group.

(1) #580 - Stations 3 and 4 of right rear and forward racks in the aft bomb bay would not release either in train or salvo. Cause - Undetermined.

(2) #731 - Forward bomb bay stations would not release in either train or salvo. Cause - Undetermined.

(3) #584 - Stations 3 and 4 forward left hand rack in rear bomb bay failed to release in either train or salvo. Cause - Undetermined

(4) #422 - Two bombs hung up and wouldn't release in either train or salvo.

(5) #732 - No bombs would release in train or salvo until airplane descended to 15,000'. This malfunction, and possibly those mentioned above, was caused by low temperatures (-49°).

c. 462nd Bomb Group

(1) #728 - 15 out of 16 bombs were dropped accidentially. Cause - Bombardier error.

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(2) #463 - 15 bombs hung up. An obstruction, which was overlooked in ground check, interfered with salvo system and prevented normal salvo.

(3) #479 - 15 bombs hung up - Bomb doors would not fully open and bombs were salvoed later with emergency wheel. Cause - undetermined.

(4) #393 - 15 bombs hung up. Cause - not fully explained.

d. 468th Bomb Group.

(1) #464 - 5 bombs brought home - Cause - burned out relay.

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IV - BOMBING DATA (Continued)

A. Times of Bomb Release at Primary Target

Z Time	40th	444th	462nd	468th	Total
0200	-	-	1	-	1
0210 - 0219	8	1	-	-	9
0231	-	-	-	9	9
Total	8	1	1	9	19

B. Bombing Altitudes at Primary Target

Altitude (feet)	40th	444th	462nd	463th	Total
19,500 - 19,999	-	-	-	3	3
20,000 - 20,499	-	-	1	6	7
21,500 - 21,999	4	-	-	-	4
22,000 - 22,499	4	-	-	-	4
23,000 - 23,499	-	1	-	-	1
Total	8	1	1	9	19

Briefed alt.	22,000'I	23,000'I	20,000'I	21,000'I

C. Axes of Attack at Primary Target

Degrees (M)	40th	444th	462nd	468th	Total
45 - 49	1	-	-	-	1
50 - 54	4	-	-	1	5
55 - 59	2	-	-	1	3
60 - 64	1	1	-	6	8
65 - 69	-	-	1	1	2
Total	8	1	1	9	19

Briefed Axis of Attack: 58° Magnetic

D. Indicated Air Speeds at Primary Target

IAS (mph)	40th	444th	462nd	468th	Total
190 - 194	2	-	-	8	10
195 - 199	4	1	1	1	7
200 - 205	2	-	-	-	2
Total	8	1	1	9	19

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E. Aircraft Bombing Targets Other Than Primary Target

Group	A/C	Target	Bombs Dropped G.P.	Bombs Dropped Inc.	Type of Release	Altitude (feet)	Time of Release	Axis of Attack	I.A.S. (mph)
40th	718	Tiehlu (34°46'N-113°32'E)	8	8	Visual	20,000'	0232Z	330°	195
444th	538	Luchou (34°08'N-112°53'E)	8	9	Visual	21,000'	0003Z	265°M	190
444th	228	S. T.	8	8	Radar	19,000'	0114Z	141°M	195
462nd	461	R.R. yards at Tsanghsien (38°17'N-116°56'E)	10	5	Visual	18,000'	0220Z	305°M	195
462nd	463		-	8	Visual	18,000'	0220Z	305°M	195
468th	208	R.R. yards at Tangshan (34°25'N-116°25'E)	11	10	Visual	18,000'	0252Z	270°T	190
468th	704	L.R.T.	11	10	Visual	19,300'	0048Z	250°T	194
468th	487	L.R.T.	11	12	Visual	19,800'	0429Z	283°T	196

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V - BOMB LOADING

Mission No. 23
21 December 1944

No. Bombs		40th			444th			462nd			468th			Total			Lbs Per	No.	Average
GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	A/C	Tonnage
-	15							2	-	30				2	-	30	7245		
9	5							1	9	5				1	9	5	7310		
7	8							2	4	16				2	4	16	7671		
-	16							1	-	16				1	-	16	7728	12	3.8
8	7				1	8	7	1	8	7				2	16	14	7732		
9	6							1	9	6				1	9	6	7793		
10	5							3	30	15				3	30	15	7854		
8	8	11	88	88	2	16	16							13	104	104	8215		
9	7				1	9	7							1	9	7	8276		
12	4							1	12	4				1	12	4	8459	24	4.2
8	9	1	8	9	1	8	9							2	16	18	8698		
9	8				6	54	48							6	54	48	8759		
9	9				1	9	9							1	9	9	9242		
10	10										2	20	20	2	20	20	10269		
10	11										3	30	33	3	30	33	10752		
11	10										3	33	30	3	33	30	10813	9	5.3
12	9										1	12	9	1	12	9	10874		
10	12										1	10	12	1	10	12	11235		
12	10										1	12	10	1	12	10	11357	4	5.8
11	12										1	11	12	1	11	12	11779		
12	11										1	12	11	1	12	11	11840		
Total		12	96	97	12	104	96	12	82	99	13	140	137	49	422	429	8913	49	4.5

Weights of bomb load are calculated on the actual weight of bombs:
G.P. - 543.9 lbs
Inc. - 483.0 lbs

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VI - DISPOSITION OF BOMBS

Mission No. 23 — 21 December 1944

	40th			444th			462nd			468th			Total			Pounds Dropped		Tons Dropped	
	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	A/C	GP	Inc	GP	Inc	GP	Inc
A/C bombing all targets and bombs dropped	9	72	73	3	25	21	3	10	28	12	124	127	27	231	249	125641	120367	62.82	60.13
A/C over P.T. and bomb load carried	10	80	81	10	88	79	10	72	79	10	107	105	40	347	344	–	–	–	–
A/C bombing P.T. and bombs dropped	8	64	65	1	9	4	1	–	15	9	91	95	19	164	179	89200	86447	44.60	43.22
A/C bombing S.T. and bombs dropped	–	–	–	1	8	8	–	–	–	–	–	–	1	8	8	4351	3864	2.18	1.93
A/C bombing L.R.T. and bombs dropped	–	–	–	–	–	–	–	–	–	2	22	22	2	22	22	11966	10626	5.98	5.41
A/C bombing T.O. and bombs dropped	1	8	8	1	8	9	2	10	13	1	11	10	5	37	40	20124	19320	10.06	9.66
A/C jettisoning bombs	3-a	24	24	9-a	77	75	8-a	62	66	–	–	–	20	163	165	88656	79695	44.33	39.85
A/C returning bombs	–	–	–	–	2-b	–	–	–	–	–	6-b	–	–	8	–	4351	–	2.18	–
Unknown	–	–	–	–	–	–	1	10	5	1	10	10	2	20	15	10878	7245	5.44	3.62
Total	12	96	97	12	104	96	12	82	99	13	140	137	49	422	429	229526	207197	114.76	103.59

a. Most of the bombs carried by two formations were released from 4 to 9 miles short of the Primary Target, occasioned by an accidental release within each formation. In each case only the leader bombed the target, the other aircraft having dropped on the inadvertent releases because frost prevented them from seeing the formation leader. Of the aircraft which thus released their bombs early, 7 were of the 462nd, 9 of the 444th, and 1 of the 40th group. Figures for bombs jettisoned also include: 4 incendiary bombs jettisoned by A/C 580 (444th) which bombed the primary target, and 7 incendiary bombs jettisoned by A/C 463 (462nd) which bombed a target of opportunity.

b. A/C 731 and A/C 422 (444th) each returned 1 G.P. bomb.
A/C 464 (468th) returned 6 G.P. bombs.

VII - FORMATIONS FLOWN

Mission No. 23

21 December 1944

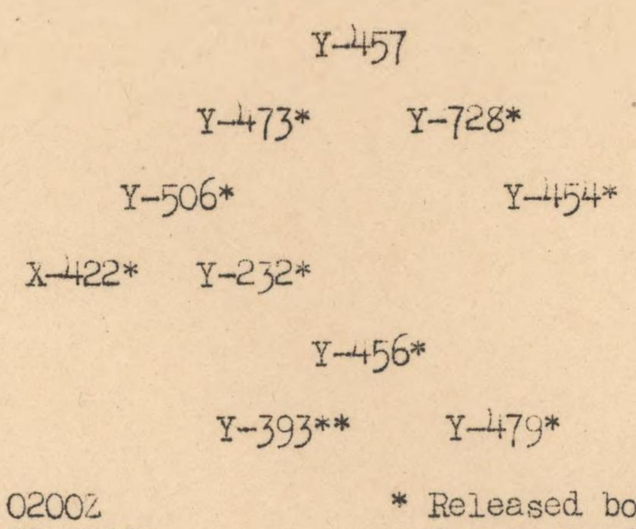
A. Formations Planned

Aircraft were to be flown individually to the respective group assembly points, where 12-plane formations were to be assembled. For the location of assembly points, see Part II, Section A, of this annex.

B. Formations over the Primary Target

Formations are shown as they were at the time of bomb release over the primary target. Times, altitudes, and headings shown are those of the lead aircraft. These diagrams are intended to show relative position only. "W" represents an aircraft of the 40th group, "X" the 444th, "Y" the 462nd and "Z" the 468th.

1.

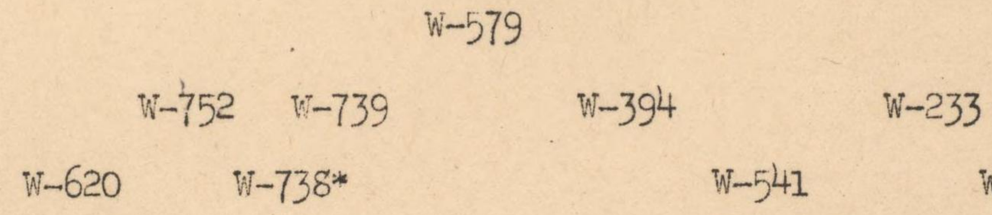


Time : 0200Z
Altitude : 22,500'I
Heading : 67°M
No. bombs dropped - GP : 0
Inc : 15

* Released bombs 9 miles from P.T. due to inadvertent release within the formation. See note, Section VI, Annex A.

** Jettisoned bombs after leaving PT.

2.



Time : 0213Z
Altitude : 21,800'T
Heading : 52°M
No. bombs dropped - GP : 64
Inc : 65

* Accidental release 3 to 4 miles from P.T.

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3.

X-580

X-732* X-226* X-485*

X-724* X-584*

X-731* X-730*

X-557*

W-404*

Time : 0217Z
Altitude : 23,000'I
Heading : 60°M
No. bombs
dropped -- GP : 9
Inc : 4

* Released bombs 4 1/2 miles from P.T. due to inadvertent release within the formation. See Section VI, Annex A.

4.

Z-546

Z-417 Z-691

Z-460 Z-737 Z-715*

Z-469 Z-703 Z-464 Z-486

Time : 0231Z
Altitude : 20,200'I
Heading : 51°T
No. bombs
dropped GP : 91
Inc : 95

* A/C 715 was shot down over the target. Its bombing activity is unknown.

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Auth: CG XXBC
Initials: [illegible]
Date: 27 Dec 44

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT OF
STAFF NAVIGATOR

Date Prepared: 27 December 1944

Date of Mission: 21 Dec 44
Field Order Number 23

1. This mission was accomplished relatively well notwithstanding high winds turbulence and cabin frost. The IP was reported to be too far away from the target and the approach was not selected with the prevailing winds in mind. The large amount of right drift could have been eliminated by considering the fact that the forecast and computed winds at the target area this time of year are always from the W or WNW. Celestial navigation was at a minimum because of turbulence. Ice blocks noted along coastline of Liaotung Gulf.

a. Average navigation times out and back:

	NAV TIME OUT	NAV TIME BACK
40th	5h 29m	7h 05m
444th	5h 13m	6h 36m
462nd	5h 25m	6h 38m*
468th	5h 39m	7h 08m

*Very fast trip back.

b. Winds forecast on the route out was considered good but it was generally noted that wind velocities were lower than forecast in the target area and on the route back. Computed winds and altitudes follow:

	OUT HALF OUT	TARGET AREA	ONE HALF BACK
40th	13500' 278°43k	20000' 280°46k	14000' 288°43k
444th	16000' 285°58k	23000' 275°50k	14000' 285°40k
462nd	14700' 274°46k	20000' 285°69k	16900' 281°53k
468th	15000' 270°45k	22000' 290°70k	15000' 290°50k

c. The following statistical information is presented as an indication of the extent to which aids are being used by the various groups:

	CEL LOP'S	CEL FIXES	RADIO FIXES	RADIO [illegible]	ODM'S
40th*	39	14	5	0	0
444th	19	6	9	2	0
462nd *	29	6	12	0	7
468th	12	6	0	8	0

*Notwithstanding difficulties these two groups made much more use of celestial than did the 444th and 468th Groups. There were however airplanes in all groups which did not report a single celestial observation.

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2. Comments by Groups:

a. 40th Group. Fighter strip noted under construction at 36°10'N, 114°20'E.

b. 444th Group. Repeated request for navigator radar scopes in all airplanes of the Group.

c. 462nd Group. A/C #456 lost an engine and had a very slow trip back. It was escorted by A/C #232.

d. 468th Group. Suggested that a possible way to remedy erroneous readings on the CFC handset and to prevent the knobs being moved unintentionally is to mount the handset on other than a right angle to the vertical axis of the airplane. This will be reported to XX Bomber Command A-4.

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IX - INFORMATION ON LANDINGS

Mission No. 23

21 December 1944

A. Landed at XX Bomber Command Bases:

1. A/C bombing primary target:

	40th	444th	462nd	468th	Overall
a. First down	0906Z	0910Z	0855Z	0933Z	0855Z
b. Last down	0915Z	0910Z	0855Z	1000Z	1000Z

2. A/C failing to bomb primary target:

a. 40th Group:

(1) A/C 859 - 202314Z - jettisoned bombs.
(2) A/C 718 - 210505Z - bombed target of opportunity.
(3) A/C 738 - 210916Z - jettisoned bombs.
(4) A/C 404 - 210925Z - jettisoned bombs.

b. 444th Group:

(1) Nine aircraft were over the primary target but dropped their bombs early on an inadvertent release within the formation. All of these aircraft landed at their home base, the first at 210841Z, the last at 210919Z.
(2) A/C 538 - 210659Z - bombed target of opportunity.
(3) A/C 228 - 210724Z - bombed secondary target.

c. 462nd Group:

(1) Seven aircraft were over the primary target but dropped their bombs early on an inadvertent release within the formation. All of these aircraft returned to their home base, the first landing at 210845Z, the last at 211110Z.
(2) A/C 461 - 210710Z - bombed target of opportunity.
(3) A/C 463 - 210713Z - bombed target of opportunity.
(4) A/C 393 - 210858Z - jettisoned bombs.

d. 468th Group:

(1) A/C 487 - 210800Z bombed last resort target.
(2) A/C 704 - 210408Z - bombed last resort target.

B. Landed Elsewhere:

1. 468th Group:

a. A/C 208 bombed the last resort target and landed at Laohokow at 210544Z because of an inoperative fuel transfer system. This aircraft returned to home base the same day, landing at 210915Z.

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b. A/C 469 after bombing the primary target, landed at Kwanghan at 211048Z because of gasoline shortage. Return was made to home base the same day.

c. A/C 737 after bombing the primary target, landed at Hsian because of gasoline shortage caused by damage from enemy aircraft to the fuel transfer system. Return to home base was accomplished on 24 December.

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ANNEX

B

ENEMY ANTIAIRCRAFT

Prepared by:

Flak Officer

XX Bomber Command

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By SC NARA Date 11/8/05

S E C R E T

* * * * * * * * * * * * * * *
* S E C R E T *
* By Auth of the C.G. *
* XX Bomber Command *
* 7 Jan 1945 *
* Date Initials *
* * * * * * * * * * * * * * *

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
APO 493

7 January 1945

PRELIMINARY REPORT

ANTIAIRCRAFT OPPOSITION

MISSION NUMBER 23, (DAYLIGHT), 21 DECEMBER 1944

Primary Target - MUKDEN, Secondary Target - DAIREN
Target of Last Resort - CHENGHSIEN

A. ANTIAIRCRAFT FIRE ENCOUNTERED

1. MUKDEN (41°49'N - 123°26'E)

Meager to moderate and inaccurate to accurate black and some white heavy antiaircraft bursts were reported by 95 percent (37 out of 39) of the aircraft over the area. Fire was reported from 0150Z to 0227Z at altitudes varying from 20,000 to 23,000 feet under CAVU and haze conditions. A smokescreen was also in operation at the target, increasing from concealment of the target to the masking of the entire city, which appears to have reduced the efficiency of the antiaircraft opposition.

As contrasted with Mission #19, 7 December 1944, no automatic weapons fire was reported.

The following table shows aircraft over the area in relation to time and HAA fire encountered:

Formation	Number of A/C	Bomb Release Time	Time Encountered	Fire Encountered	Altitude in feet	Undercast*	Heading
1	10	0158Z	0150-0210Z	Meager-Moderate Inaccurate-accurate	22-22,500	CAVU*	67°M
2	9	0213Z	0210-0216Z	Meager-Moderate Inaccurate	20-22,600	CAVU* Haze	52°M
3	10	0217Z	0213-0218Z	Meager-Inaccurate	23,000	CAVU* Haze	60°M
4	10	0231Z	0227-0232Z	Meager Inaccurate-accurate	20-23,000	CAVU*	51°M

* At 0158Z the smokescreen covered approximately 2 square miles including the target area. This area had increased to partial concealment of the entire city by 0217Z as a result of a 5 to 15 mph easterly wind. See Part "B", Smokescreens.

Following are reports of accuracy, intensity, and deviations. The numbers indicate aircraft reporting in the affirmative while percentages are determined from the total number of reports in one direction as above, level, or below:

S E C R E T

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Reports of Accuracy		Reports of Intensity	
Struck	1 (3 percent)	Intense	0 (0 percent)
Rocked	3 (8 percent)	Moderate	5 (13 percent)
Missed	33 (89 percent)	Meager	32 (87 percent)

Reports of Deviations

Above	9 (17 percent)	Ahead	11 (31 percent)	Left	20 (56 percent)
Level	17 (31 percent)	Abreast	9 (26 percent)	In Line	5 (14 percent)
Below	28 (52 percent)	Behind	15 (43 percent)	Right	11 (30 percent)

From reports of fire encountered it appears the enemy was possibly using both Barrage and Continuously Pointed types. The Antiaircraft Officer of the 40th Group states, "Heavy black bursts, in greatest quantity, were seen to be continually below our formation. (Formation #2). The air volume covered by the bursts and the number caused two crews to think barrage fire was being used. It is possible the enemy may have realized his altitude limitations with one model of weapon and used that weapon in barrage fire. The observations of small numbers of bursts occurring at our altitude and following our course indicates at least part of the enemy's gun defenses were used in Continuous Pointed type of fire."

The number of bursts seen while in the area varied from ten to approximately eighty. Possible phosphorous antiaircraft bursts were also reported, one crew observing a "large white burst of antiaircraft, level with the aircraft, that appeared solid and very persistent", at 0213Z. The crew of aircraft 473 of the 462nd Group also reported "3 white bursts over MUKDEN, one about 1,000 feet above the aircraft. The crew believed these bursts to be phosphorous bombs, but did not see the bombs dropped. The bursts consisted of small white particles of uniform size which spread outward in all directions."

Several enemy aircraft flying parallel course and the same altitude were also observed and may have been transmitting position data to anti-aircraft installations.

2. DAIREN (38°55'N - 121°37'E)

One aircraft bombed the secondary target at 0114Z from 19,000 feet under CAVU with haze conditions, but no antiaircraft opposition was encountered.

3. ANSHAN (41°08'N - 122°58'E)

One aircraft of a formation of nine observed approximately 50 black bursts about 15 miles to the left of course (over ANSHAN) at 0213Z from an altitude of 21,500 feet under CAVU conditions.

4. CHENGHSIEN (34°43'N - 113°39'E)

Three aircraft encountered meager and inaccurate to accurate black and some white heavy antiaircraft fire from 2315Z to 0426Z at altitudes varying from 15,000 to 19,800 feet under CAVU and haze conditions.

The number of bursts observed in the area was from eight to twenty, but the type of fire could not be determined. Deviations were generally level, abreast and to the left with one aircraft struck and one rocked by HAA fire.

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No enemy aircraft were reported on the same course and altitude.

5. TIENTSIN (39°08'N - 117°13'E)

Three aircraft of a formation of ten encountered meager and inaccurate black heavy antiaircraft fire at 0330Z at 17,000 feet altitude under CAVU conditions. Deviations were reported as generally below, behind and to the left. No enemy aircraft were observed on the same course and altitude and fire is believed to have been Barrage.

6. PANSHAN (41°16'N - 121°58'E)

One aircraft of a formation of ten reported meager and inaccurate black heavy antiaircraft fire at 0150Z at 21,000 feet altitude under CAVU conditions. Deviations were level and below, and behind. No enemy aircraft were reported on the same course and altitude and fire is believed to have been Barrage.

7. LWANHSIEN (39°43'N - 118°44'E)

One aircraft of a formation of ten reported meager and inaccurate black heavy antiaircraft fire at 0326Z at 20,000 feet altitude under CAVU conditions. Deviations were level, abreast and to the right. No enemy aircraft were reported on the same course and altitude and fire is believed to have been Predicted Concentration.

8. POSHAN (36°30'N - 117°50'E)

One aircraft of a formation of ten reported meager and inaccurate black heavy antiaircraft fire at 0025Z at 15,000 feet altitude under CAVU conditions. The total number of bursts observed while in the area was seven with deviations reported as below and behind. No enemy aircraft were reported on the same course and altitude, and fire is believed to have been Barrage.

9. Northwest of KAIFENG at 34°50'N - 114°10'E

Twelve flashes were observed on the ground by one aircraft at the above coordinates, at 0010Z from 15,000 feet under CAVU conditions, but no bursts were seen. Fire is believed to have originated from automatic weapons.

10. Near WEIHSIEN at 37°00'N - 115°24'E

Six flashes were observed on the ground by one aircraft at the above coordinates at 0525Z from 15,000 feet altitude under CAVU conditions, but no bursts were seen. Fire is believed to have originated from automatic weapons.

B. SMOKESCREENS

1. MUKDEN (41°49'N - 123°26'E)

A black smokescreen, placed in operation before the first "bombs away" time, was observed by combat crew members and identified on strike photos. Damage Assessment Report Number 31 (Provisional), this Headquarters, states:

"The smokescreen employed by the Jap was even more effective than that of the first attack due to an earlier warning and the construction of a number of new generating sites. Although a

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large part of the arsenal and all of the Aircraft Company were screened on the first effort, at no time was the Airfield and runway entirely obscured. This time, however, the entire arsenal and Aircraft Factory as well as the Airfield were effectively screened by the time the second wave of aircraft appeared. New construction of generating sites involved a number of new sites along the southern edge of the field as well as several north-south strings across the two plants."

Reports by crew members indicate that at 0158Z the screen covered approximately two square miles including the target. This area had increased to partial concealment of the entire city by 0217Z as a result of a 5 to 15 mile per hour easterly wind. This smokescreen hampered Bombardiers necessitating off-set bombing methods and prevented visual observation of bomb strikes.

It also appears to have reduced the efficiency of the antiaircraft opposition, as indicated by the table showing aircraft over the area in relation to the time and HAA fire encountered.

2. ANSHAN (40°08'N - 122°58'E)

A black or grey smokescreen was also observed at ANSHAN while enroute to and from MUKDEN at 0210Z, 0215Z and 0230Z by Formations 2, 3, and 4. The screen is reported to have covered (10/10) all of the industrial area and parts of the city.

3. FUSHUN (41°53'N - 123°52'E)

A smokescreen was observed from a distance after leaving MUKDEN at 0230-2% by one aircraft in Formation #4. The extent of coverage was not determined.

4. CHINCHOW (41°07'N - 121°06'E)

One aircraft of formation #3 observed smokescreen providing 4 to 5/10 concealment of approximately one-half of the railroad yards and industries at 0230Z.

5. DECOYS

Aircraft of Formation #3 also observed two "decoy" smokescreens while on the bomb run at MUKDEN. These screens were reported as "black smoke 60 miles SSW of MUKDEN" and "whitish smoke 40 miles SSW of MUKDEN" which would place them in the vicinity of PENSIHU (41°20'N - 123°48'E).

It is possible that the Japs are now employing dummy smokescreens, but no definite statement can be made until further information is obtained.

6. SUMMARY

In his use of smoke at MUKDEN, the enemy has exhibited efficiency and resourcefulness in the operation of the screen in contrast to the weak and inefficient attempts noted at NANKING. Although there is possible evidence of a reduction in the accuracy and intensity of Japanese heavy AA fire probably caused by their use of smoke, extended and enlarged screens no doubt will continue to be used to protect vital targets from accurate pin-point bombing.

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C. HIGH-ALTITUDE BALLOONS

Aircraft 404 of the 40th Group observed one possible high-altitude balloon over ANSHAN at 0214Z flying at an altitude of 22,000 feet. The balloon was described as round in shape, appearing as a silver dot in the sky, as the observation was made from a distance of approximately 5 miles. No other information is available.

D. BARRAGE BALLOONS

1. TIENTSIN (39°08'N - 117°13'E)

An undetermined number of balloons were reported at TIENTSIN at 0330Z by crews of the 444th Group. "The balloons were raised just before the formation approached, but were lowered again as soon as it was seen that the planes were not on a bomb run", or possibly at too high an altitude.

2. MUKDEN (41°49'N - 123°26'E)

Two barrage balloons were observed approximately 2,000 yards SW of the target at 0158Z from an altitude of 22,500 feet by crew members of the 462nd Group. The balloons were reported at an altitude of approximately 10,000 feet.

E. GROUND-TO-AIR ROCKETS

None reported.

F. BLACKOUT

None - daylight mission.

G. DAMAGE FROM HEAVY ANTIAIRCRAFT FIRE

Seven aircraft were damaged, the first six listed below sustaining minor damage and the last aircraft, Number 737, major damage, under the following conditions.

Group	Aircraft	BRT	Altitude	Heading	Location	Extent
462nd	65232	0158Z	22,500'	67°M	Mukden	Hole in left horizontal stabilizer
468th	63464*	0231Z	20100'	68°T	Mukden	Damage to #3 prop, underside of left wing, #2 cowling, leading edge of both wings, right front bomb bay door.
468th	63417*	0231Z	20,200'	51°T	Mukden	Damage to right outboard wing section, right horizontal stabilizer.
468th	24691*	0231Z	19,700'	60°T	Mukden	Damage to #2 oil cooler flap, #2 flight hood, #3 and #4 perforated.
468th	24546*	0231Z	20,200'	60°T	Mukden	Damage to two props and holes throughout the a/c.
468th	24487	0429Z	19,800'	283°T	Chenghsien	Damage to nose glass
468th	737*	0231Z	20,000'	51°T	Mukden	HA shell in center wing section, 20mm in left outer wing panel, 5 bullet holes leading edge of wing, one hole through prop tip, and damage to fuselage and radio compass.

*These aircraft were damaged both by flak and as a result of enemy fighter attacks.

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Flak damage sustained by aircraft of the 468th Group above, Formation number 4, occurred just prior to the bomb release time, 0231Z, probably as a result of accurate Continuously Pointed fire directed at the formation. Major damage sustained by A/C #737 is still under investigation to determine whether the H/A shell did or did not burst concomitant with penetration of the #2 center section fuel cell. A further report will be published when the #2 fuel cell is removed.

H. WARNING NETS

Upon consideration of the development of the smokescreen at MUKDEN and areas adjacent to MUKDEN and the numerous enemy fighter attacks prior to the first bombs away time, 0158Z, in conjunction with R.C.M. Intercepts of Japanese early warning radar which indicate tracking of our aircraft from 111°E to the target, the enemy had at least thirty minutes prior warning of the attack in that area.

It is still evident, however, that he could not determine the intended target although he did know the course of our aircraft. Smokescreens were in operation at ANSHAN, MUKDEN, FUSHUN, probably PENSIHU, and CHINCHOW, and enemy fighters initiated the first attack at 0140Z in the vicinity of ANSHAN. Fighter attacks after this time were fairly continuous for an hour and ten minutes.

FRANK L. SCOTT, JR.,
Lt. Col., Air Corps,
Chief, Intelligence Section

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ANNEX

C

ENEMY AIR OPPOSITION

Prepared by:

Operational Intelligence Unit

XX Bomber Command

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I. JAPANESE FIGHTER TACTICS - MISSION NO. 23

TARGET: Mukden, Manchuria.

TIME: Day Mission. DATE: 21 December.

1. General

a. Enemy opposition was rated moderate to strong in the primary target area; nil to weak elsewhere. Of the 49 B-29's airborne, 36 reported interception estimated at 317 individual encounters, the greatest number yet encountered by B-29's on any mission. Two B-29's were lost (1 by mid-air collision, and the other shot down), and 16 sustained minor damage due to enemy air action. Preliminary claims against enemy aircraft were 23 destroyed, 6 probably destroyed and 19 damaged. The enemy fighter force was estimated at 45 NICKS, 25 TOJOS, 20 OSCARS, 8 TONYS, 8 NATES, 4 ZEKES, 10 VALS, 3 CLAUDES, 1 DINAH, 6 Unidentified single engine enemy fighters, and 1 unidentified enemy aircraft.

b. Due to the rapidity of enemy attacks in the primary target area it was impossible for crews to report a large number of the encounters in detail. The attacks came in quick succession while B-29's were enroute from the initial point, in the bomb run, and enroute out of the target area, for a period of approximately 50 minutes, from 0150Z to 0240Z, and were described as very aggressive and well executed. Included in the total of 317 encounters are approximately 125 encounters which fell into that category and upon which details were lacking. On the remaining 192 encounters, 177 of which occurred in the target area and 15, which occurred on the routes to and from the target area, details were available, and the data reported in these encounters was used as a basis for all tables presented in later sections of this report. A summary of crew comments concerning the encounters which were not reported in detail is presented separately in Section 5.

c. The duration of all air opposition in the primary target area was 1 hour and 10 minutes, from 0140Z to 0250Z, at altitudes from 19,500 to 23,000 feet. Of the 177 encounters in this area on which data was available, 94 (53%) were before bombs away, 5 (3%) during bombs away, and 78 (44%) were after bombs away. There was no air opposition reported at the ST (Dairen), nor at the LRT (Loyang). Detailed information concerning the 15 encounters reported on the routes to and from the primary target area is included in Table No. 1, Details of Encounters; this table also shows the total individual encounters by each type enemy aircraft.

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Table No. 1 - Details of Encounters

Location	No. of Encounters	Type of E/A	Time	Altitude
Primary Target (Mukden)	177	63 by NICK 33 by TOJO 18 by TONY 15 by OSCAR 13 by NATE 9 by ZEKE 7 by ZEKE 32 3 by CLAUDE 3 by VAL 1 by IRVING 1 by HINAH 10 by S/E 1 by unidentified E/A	0140Z to 0250Z	19,500 to 23,000
En route to target				
35°30'N-115°30'E (Approx. 15 mi NE of Tsaochow)	1	1 by ZEKE	0010Z	13,000
West of Anshan	6	2 by TOJO 2 by NICK 2 by OSCAR	0130Z to 0140Z	23,000
Route Back				
37°00'N-114°00'E (Approx 35 mi W of Hsingtai)	2	2 by OSCAR	0524Z	14,800
60 miles N of Anyang	2	2 by TOJO	0538Z	15,000
36°56'N-114°38'E (Approx. 60 mi NE of Anyang)	2	2 by TOJO	0540Z	16,000
36°23'N-114°23'E (Approx. 20 mi N of Anyang)	2	2 by OSCAR	0546Z	15,000

2. Directions and Levels of Approach

a. Seventy-five (40%) of 188 individual encounters, on which direction and level of approach information was available, originated from the frontal quarter, thus returning this quarter to its usual leading position

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which it had lost on the previous mission No. 22. The frontal quarter has been high for 13 of the past 15 missions. The two exceptions are Missions No. 22 and No. 18 where, on each, the number of encounters from the right side exceeded those from the front. Of the remainder on Mission No. 23, 28 per cent came from the right quarter, 11 per cent from the rear quarter, and 21 per cent from the left quarter.

b. Sixty-two per cent of all approaches were high, 17 per cent were level, and 21 per cent were low. The high approach was favored in all except the rear quarter where of a total of 20 individual encounters, 13 were made with low approaches.

c. A summary of directions and levels of approach for all encounters is shown in Tables No. 2 and No. 3, and in Exhibit A.

Table No. 2 - Direction and Level of Approach

Direction of Attack or Pass	Front			Right Side			Rear			Left Side			Total
	11	12	1	2	3	4	5	6	7	8	9	10	
High	18	15	16	21	14	0	1	2	2	3	8	16	116(62%)
Level	2	3	13	1	4	3	1	1	0	0	2	3	33(17%)
Low	3	1	4	3	6	1	4	3	6	2	3	3	39(21%)
Total	23	19	33	25	24	4	6	6	8	5	13	22	
	75(40%)			53(28%)			20(11%)			40(21%)			*188(100%)

* 4 additional encounters with incomplete data.

Table No. 3 -- Level of Approach

Level of Approach	Front	Right Side	Rear	Left Side
High	49 (65%)	35 (66%)	5 (25%)	27 (67%)
Level	18 (24%)	8 (15%)	2 (10%)	5 (13%)
Low	8 (11%)	10 (19%)	13 (65%)	8 (20%)
Total	75 (100%)	53 (100%)	20 (100%)	40 (100%)

3. Exchange of Fire

a. Japanese pilots opened fire in 135 (70%) of the 192 individual encounters, about average for the past 10 missions. B-29's fired in 162 encounters, 84 per cent of the total; a lower percentage than on Missions No. 22 (95%), No. 21 (88%), No. 19 (90%), and No. 18 (88%), but comparable

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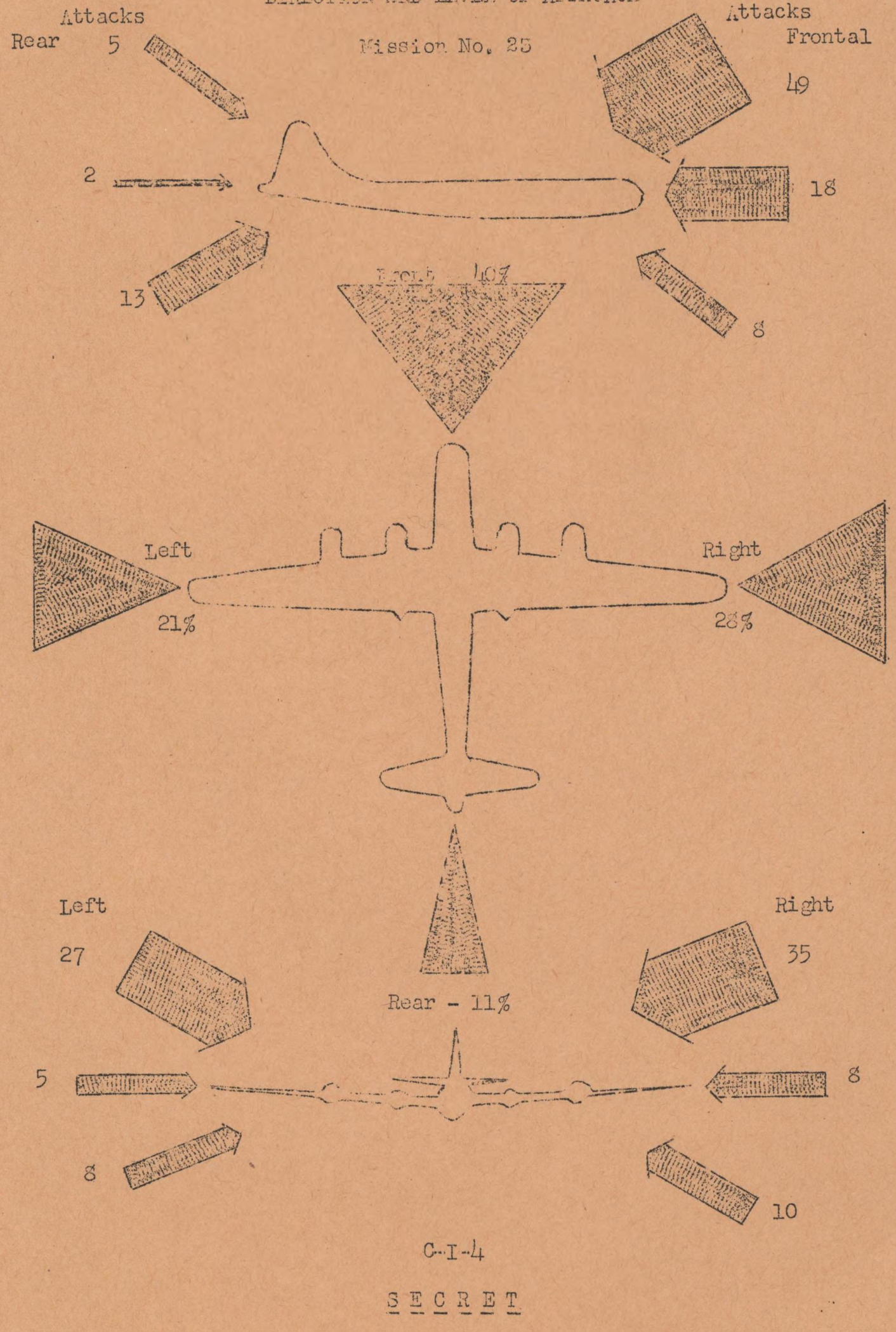
S E C R E T

Exhibit A

DIRECTION AND LEVEL OF APPROACH

Mission No. 25



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S E C R E T

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to Missions No. 17 (84%), and No. 16 (83%). Both B-29's and enemy aircraft indicated a slight tendency to open fire at shorter ranges than usual, possibly resulting from the rapidity of attacks in the primary target area.

b. Table No. 4 shows comparative percentages of fire at various ranges.

Table No. 4 - Distances Opened Fire

	Enemy Fire		B-29 Fire	
Distance (yards)	No. of Attacks	Percent	No. of Attacks	Percent
0 to 499	24	18	36	23
500 to 799	40	30	38	24
800 to 999	28	21	44	27
1000 & over	42	31	42	26
Total	134*	100	160**	100

* One additional encounter with enemy fire at unknown distance.

** Two additional encounters with B-29 fire at unknown distances.

4. Aggressiveness of Enemy Attacks

a. Japanese pilots displayed more aggressiveness and determination to press their attacks to close quarters than B-29's have encountered on any mission to date. One hundred and twelve encounters (59% of the total) were pressed to less than 250 yards, and of these, 91 (51%), were pressed to 100 yards or less. The majority of crew reports stated that enemy pilots exhibited a willingness to follow through with their attacks to such close quarters that the danger of collision was great; and in most cases, the attacks were well executed. One report did indicate that, in several instances, Japanese pilots were content to stay out of range while others made half-hearted attempts to close, but it concluded, however, with the statement that the attacks that were pressed home were well executed and above average.

b. The distances of closure for the 96 attacks reported to have closed to 100 yards or less were as follows:

Distance (yards)	No. of Encounters	Distance (yards)	No. of Encounters
0 (E/A prop hit B-29 wing tip)	1	20	2
1	2	25	14
5	2	30	4
Thru formation(Exact distance unknown)	3	33(Rptd as 100 ft)	14
17 (Rptd as 50 feet)	4	50	22
		75	7
		100	32

NOTE: The collision in which a B-29 was destroyed in not included in the above list.

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c. Table No. 5 showing distances of closure for all encounters follows.

Table No. 5 - Distances To Which Attacks Were Pressed

Distance(yards)	No. of Encounters	Percent
1000 & over	7	4
800 to 999	14	7
500 to 799	40	21
250 to 499	17	9
0 to 249	112	59
Total	190*	100

* Two encounters excluded due to incomplete data.

5. Summary Of Crew Comments Concerning Encounters Which Were Not Reported In Detail. Returning crews from two Groups reported that for a period of about 50 minutes - before, during, and after bombs away - enemy fighter attacks were so numerous that it was impossible to do more than estimate the total number. NICKS, OSCARS, VALS and TOJOS were the more frequently observed types engaged, with NICKS predominating numerically. The majority of attacks were from the frontal quarter, high to level, and were viciously pressed to very close quarters with many of the Japanese pilots flying into and through the formation. One crew stated that VALS were particularly persistent in flying into and through the formation and seemed to have been assigned the job of scattering the formation while the other aircraft did the actual attacking. Most of the passes were made by single aircraft, with only one or two possible coordinated attacks observed. While the majority of the attacks came from the front, some enemy aircraft took advantage of the position of the sun to make beam attacks, first from the right, then, after the turn, from the left. Enemy pilots opened fire generally from about 700 to 800 yards, and B-29's from 1000 yards on down. Only one observation was reported of the use of an aerial bomb. The type bomb was not reported nor was it stated that any explosion was seen. It was dropped about 1000 feet above and 500 feet in front of the formation but did not hit any B-29.

6. Aerial Bombs

a. Aerial bombs, principally of the phosphorous type, were reported to have been employed in only 7 encounters. Of the 7, 4 missed B-29's entirely, 2 struck B-29's squarely but inflicted no damage, and 1 hit a B-29 resulting in its destruction. (The details of the latter action are presented in Section 9 of this report.)

b. Details were available in only one of the two instances where

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aerial bombs hit B-29's without inflicting damage. The B-29 which was destroyed by an aerial bomb received two separate hits, one of which struck the right wing and bounded off. The other B-29 merely reported that it had been hit by a phosphorous bomb, but had not been damaged. It did not report further details.

c. One crew reported that a NICK dropped a black object through the formation which was about two feet long and shaped like a piece of pipe. It fell end over end through the formation but no explosion was observed. Another crew saw "sticks" of some kind, thought to have been phosphorous bombs, dropped from a TONY. No explosion was seen.

7. Rockets. One possible rocket attack was reported. The crew stated that a puff of blue smoke was noticed in the vicinity of an attacking NICK'S wing root, and directly after, the B-29 received hits in the nose section damaging it slightly.

8. Coordinated Attacks

a. Twenty-five coordinated attacks, employing 58 enemy aircraft were made and accounted for 68 individual encounters, 35 per cent of the total of 192 on which we have detailed information. This compares very closely to Mission No. 19, also over Mukden, on which coordinated attacks accounted for 33 per cent of total encounters.

b. Twenty of the coordinated attacks were executed by teams of 2 enemy aircraft, 3 were by teams of 3 aircraft, and 1 each by 4 and 5 enemy aircraft. Aerial bombs were employed in several of the attacks. All crews agreed that, for the most part, the coordinated attacks were well executed and unusually aggressive.

c. No new tactics were used in connection with coordinated attacks. The "Chow Line" was much in evidence, usually executed out of the sun, and comments from one crew were that Japanese pilots seemed to be imitating the German tactics of following one after another through the formation.

d. Two NICKS made simultaneous passes at a B-29, coming in low, 1 from 11 o'clock and the other from 1 o'clock. They opened fire at 1500 yards - which was returned by the B-29 at 1400 yards - closed to between 800 and 900 yards where fire from the B-29 evidently broke up the attack. One NICK was claimed as a "probable", falling off on its left wing and smoking badly, and the other turned off sharply and dove away, apparently undamaged. No damage was reported by the B-29. A similar coordinated attack was executed by 2 TONYS on the previous mission, No. 22. This was described and illustrated in Section 7 of the Japanese Fighter Tactics Report for Mission No. 22, dated 19 December 1944.

9. Collisions and Rammings

a. There were two instances of actual contact between B-29's and enemy aircraft, 1 of which resulted in the destruction of a B-29 together

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with the enemy fighter.

b. Aircraft No. 715, the B-29 destroyed as a result of the collision, was flying #1 position in "B" element of a 10 plane formation, about 1 minute before bombs away, when it collided, head-on, with an enemy aircraft. Crew opinion is divided in regard to the type enemy aircraft, some indicating that it was a NICK, others that it was a VAL or a TOJO. At the time of the collision it is agreed th re were about 5 enemy aircraft, consisting of NICKS and single engine fighters, attacking from the side of the formation where aircraft No. 715 was flying; and enemy fighters were following one another into and through the formation, some executing slow rolls as they passed. One of them cut across the nose of aircraft No. 715 and collided with the B-29's left wing somewhere between #2 engine and the wing tip, shattering the wing and causing a large portion of it to fall off together with #1 engine and, possibly, #2 engine. (Witnesses' accounts were not sure on the latter point.) It was also reported that the B-29's right horizontal stabilizer was either knocked off or fell off, as it was observed to be missing by crew members who watched the progress of the aircraft after the collision. The enemy aircraft was reported to have completely disintegrated at the first impact. Immediately after the collision, aircraft No. 715 was observed to circle once, evidently out of control, then turn on its back and spin toward the ground. Witnesses reported up to 2 'chutes were seen to open. The B-29 exploded either just before or as it hit the ground. It was not believed that the enemy aircraft was damaged or out of control before the collision, although several B-29's reported heavy concentrations of gun fire on all 5 attacking enemy aircraft. It is not possible to conclude from the meagre amount of information available whether this was an accidental collision or a deliberate intention to ram. The issue remains in doubt. There is no question, however, that Japanese pilots are willing to press their attacks closely enough so that the chances of collision are great - and it appears certain, from the comments of crew members who witnessed the occurrence, that enemy pilots disregard the danger of collision entirely.

c. The second instance of contact between a B-29 and an enemy fighter occurred at the conslusion of a coordinated attack by 2 TOJOS, coming in from 11 and 1 o'clock. The entire action took place in a matter of seconds when the B-29 opened fire at the TOJOS at almost the same instant they were sighted at 400 yards. The TOJO from 1 o'clock was undamaged and broke away in a peel-off. The other was damaged by the B-29's fire and bored in with, what the crew members believe, the intention to ram. At the last instant the TOJO pilot evidently changed his mind, and attempted either a half-roll or a sharp bank to clear the B-29's wing tip. He succeeded with all but his propellor, which hit the B-29's wing tip and caused it to split. The pilot of the B-29 retained control of the airplane throughout the collision and flew it home without difficulty; and, crew members reported that the TOJO apparently suffered no ill effects, also remaining under control.

d. Narrow escapes from either collisions or rammings were reported by all Groups. Violent evasive action was taken in 6 reported instances where actual contact appeared imminent.

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A report from 1 Group stated that the ramming tendency was definitely established.

10. Account of B-29 Bombed and Shot Down: Following is the account of the bombing and shooting down of aircraft No. 4505 as reported by crew members who witnessed the encounter from adjacent aircraft.

Aircraft No. 4505 was flying in #2 position in the lead element, en route from the initial point, at 0150Z, about 8 minutes before bombs away. Two TOJOS, in a coordinated attack, came in from 11 o'clock, high, in line astern - each dropping a phosphorous bomb on the B-29. One bomb hit the right wing and bounced off, but the other was thought to have hit the nose section, and evidently inflicted damage. The B-29 slid out of the formation and went into a slight dive, trailing smoke from #3 and #4 engines. It leveled off about 1500 feet below the formation and 5 'chutes appeared. A few moments later the nose wheel came down and five more 'chutes came out. The aircraft then went into a slow spiral, losing altitude and apparently under control. All 4 propellors were turning but smoke and fire were observed coming from the right wing section. Just as the B-29 leveled off again to lower its landing gear, 3 enemy aircraft were seen to make several head-on attacks. Aircraft No. 4505 was finally seen to hit the ground and explode at 0156Z.

11. Breakaways: Dives continued to predominate among the breakaway maneuvers. Very often they were accompanied by slow rolls, or, preceded by sharp banks and turns. Peel-offs, chandelles, split S's and wing-overs were also observed. Crews reported that some Japanese pilots performed snap-rolls and slow-rolls while diving through the formation.

12. New or Unusual Enemy Tactics

a. One group reported that a ZEKE or a ZEKE 32 brazenly joined a formation of B-29's, then started to fire at fairly short range. He was destroyed in flames.

13. Evasive Action

a. Most evasive action was taken against possible collision or ramming, and consisted principally of pulling up or nosing down sharply for about 100 feet. One aircraft reported that it had pulled "straight up" to avoid a ramming.

b. Other evasive action included a change of heading, and, on another occasion, an increase in speed.

14. Preliminary Claims Against Enemy Aircraft

a. An interesting sidelight occurred in connection with the destruction of the single engine fighter marked "bombed" in columns 5 and 6 of Table No. 6. -Details of Encounters. At precisely the moment of bombs away, 2 single engine fighters attacked this B-29 from below, in line astern, from 6 o'clock. The radio operator of the B-29, watching the progress of the bombs through the open bomb bay doors, saw one of his bombs hit an enemy fighter, causing a big explosion and immediate disintegration.

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b. Following are details of encounters on preliminary claims of 22 destroyed, 6 probably destroyed and 19 damaged. The enemy aircraft destroyed in the collision with a B-29 is not included in the following table as the required details are lacking.

Table No. 6 - Details of Combat - Preliminary Claims

Enemy Aircraft	Claim	No. of B-29's in Formation	Direction and Level of Approach	B-29's Opened Fire (yards)	Distance E/A Breakaway or Disintegrated (yards)
ZEKE 32	Destroyed	9	7 low	75	75
TONY	Destroyed	9	1 high	1200	800
VAL	Destroyed	9	1 level	1000	500
CLAUDE	Destroyed	9	9 high	300	150
OSCAR	Destroyed	9	1 high	1000	25
CLAUDE	Destroyed	9	5 low	1000	100
OSCAR	Destroyed	9	8 low	200	75
VAL	Destroyed	9	7 low	500	500
TOJO	Destroyed	10	8 high	600	30
OSCAR	Destroyed	10	9 high	800	800
OSCAR	Destroyed	10	10 low	700	300
OSCAR	Destroyed	10	1 high	1200	100
TONY	Destroyed	10	1 low	800	25
S/E	Destroyed	10	12 high	50	17
TOJO	Destroyed	10	3 level	100	17
OSCAR	Destroyed	10	3 level	1000	800
TOJO	Destroyed	10	1 high	200	thru form.
ZEKE	Destroyed	10	12 high	200	33
S/E	Destroyed	10	6 low	"bombed"	
NATE	Destroyed	10	1 level	---	50
NICK	Destroyed	10	3 level	1000	600
TONY	Destroyed	10	11 high	700	25
OSCAR	Prob Dest	10	2 low	1000	75
NICK	Prob Dest	10	1 high	1300	400
NICK	Prob Dest	10	2 high	800	30
OSCAR	Prob Dest	10	2 low	1100	100
NICK	Prob Dest	10	11 low	1400	900
NATE	Prob Dest	10	1 high	800	500
NICK	Damaged	9	10 high	400	400
NICK	Damaged	9	12 high	1200	50
OSCAR	Damaged	9	1 high	1500	500
OSCAR	Damaged	9	9 low	1000	600
TOJO	Damaged	9	12 level	100	thru form.
NICK	Damaged	9	10 level	600	50
NICK	Damaged	9	9 low	500	20
TOJO	Damaged	9	11 level	400	collision

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Table No. 6 - Details of Combat - Preliminary Claims (continued)

Enemy Aircraft	Claim	No. of B-29's In Formation	Direction and Level of Approach	B-29's Opened Fire (yards)	Distance E/A Breakaway or Disintegrated (yards)
NICK	Damaged	9	12 high	500	500
NICK	Damaged	10	2 high	800	200
NICK	Damaged	10	2 high	1200	200
NICK	Damaged	10	2 high	600	100
NICK	Damaged	10	11 high	600	100
NICK	Damaged	10	12 high	200	100
NICK	Damaged	10	1 low	250	200
NICK	Damaged	10	---	50	50
NICK	Damaged	10	9 high	800	100
NICK	Damaged	10	9 level	800	800
NICK	Damaged	10	12 low	2000	30

15. New Aircraft and Armament

a. No new aircraft were observed although one report was made of a possible P-40.

b. A TONY was reported to have 8 guns in its wings.

c. Two instances were reported where single engine aircraft, either TOJOS or JACK II's flew a parallel course to the formation at 4 o'clock high and fired with off-set guns from about 1500 yards. In one instance the enemy aircraft fired for several minutes then pulled ahead and made a normal 11 o'clock frontal attack. Off-set guns were observed flashing and seemed to be set in wings about 30 degrees to the axis of the enemy aircraft.

16. Summary

a. Air opposition was rated moderate to strong in the primary target area; nil to weak elsewhere. Thirty-six of the 49 B-29's airborne reported approximately 317 individual encounters. Due to the rapidity of attacks in the primary target area it was impossible to accurately report them all in detail. Consequently, tables and percentages were based only on 192 encounters on which details were available.

b. Two B-29's were lost (1 by mid-air collision, and the other shot down) and 16 sustained minor damage due to enemy air action. Preliminary claims against enemy aircraft were 23 destroyed, 6 probably destroyed, and 19 damaged.

c. Of the 192 encounters on which details were available, 177 occurred in the primary target area, and 94 encounters, (53%) were before

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bombs away. Twenty-five coordinated attacks accounted for 68 individual encounters, 35 per cent of the total.

d. The enemy fighter force was estimated at 141 aircraft, mostly NICKS, TOJOS and OSCARS.

e. Forty per cent of the encounters originated from the frontal quarter, 28 per cent from the right quarter, 11 per cent from the rear quarter and 21 per cent from the left quarter. Sixty-two per cent of the approaches were high, 17 per cent were level, and 21 per cent were low.

f. Japanese pilots opened fire in 70 per cent of the encounters, and B-29's in 84 per cent of the encounters. Both B-29's and enemy aircraft showed a slight tendency to open fire at shorter ranges than usual.

g. Enemy pilots displayed unusual aggressiveness and determination to press their attacks to very close quarters. Fifty-one per cent of the encounters were closed to 100 yards or less.

h. Aerial bombs, principally of the phosphorous type, were employed in only 7 encounters. One, however, was responsible for the destruction of a B-29.

i. There were two instances of actual contact between B-29's and enemy aircraft. One resulted in the destruction of a B-29; the other involved a split wing tip fromwthe propellor of an enemy aircraft.

j. Dives, as usual, predominated among breakaway maneuvers. A greater than usual number of enemy pilots flew into and through formations.

k. Off-set guns were observed in the wings of enemy aircraft in two instances.

17. Enemy Aircraft Markings

Color	Enemy Aircraft	Wing and Fuselage Markings	Tail Markings
Silver	ZEKES	No markings observed.	
"	VAL	No markings observed.	
"	S/E	No markings observed.	
"	NICK	Red balls on wings.	Yellow square and black letter "T" on vertical stabilizer.
"	NICKS	Circle with yellow, brown, green and red stripes through it.	
"	TOJO	Red cowling.	
"	TOJOS	No markings observed.	

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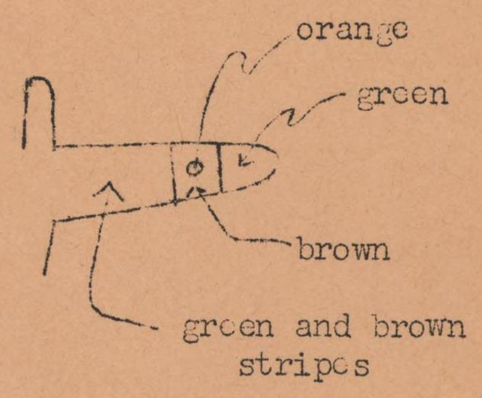
17. Enemy Aircraft Markings (continued)

Color	Enemy Aircraft	Wing and Fuselage Markings	Tail Markings
Camouflaged	TOJO	No markings observed.	
"	OSCARS	No markings observed.	
"	NATE	Yellow stripes on wing tips.	
" (OD)	NATES	Red balls on wings and fuselage.	
"	S/E	Bright yellow bellies.	
"(OD)	NICKS	Orange sun on wings, red cowling.	
Unreported color	TONYS	Red rising sun on wing, red rings around fuselage.	
"	E/A	Red cowlings.	
Yellow	VALS	No markings observed.	
Green & brown	ZEKE	Red dots.	
Green	S/E (resembled P-40)	Orange sun on brown stripe and the upper surface of the wing between the spot and fuselage was striped with green and brown. Diagram:	



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ANNEX

D

WEATHER INFORMATION

I - Weather Information

II - Chart - Weather as Forecast and as Encountered

III - Synoptic Map

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* Prepared by:
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* Weather Section
*
* XX Bomber Command
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I – WEATHER INFORMATION

Mission No. 23

21 December 1944

	As Forecast	As Encountered
Base (Take-off)	8/10 altocumulus at 8000', top 13,000' msl. 3/10 stratocumulus at 4500', top 6500' msl. Visibility 2 miles in haze. Light rime in clouds.	HSINCHING: 7000' broken. Visibility 2 miles in haze. Wind calm. KWANGHAN: 9000' overcast. Visibility 2 miles in haze. Wind calm. PENGSHAN: 9000' overcast with tops at 11,000'. Visibility 2 miles in haze. Wind calm. KIUNGLAI: 6000' overcast. Visibility 2 1/2 miles in light fog, wind N. 2 mph.
Route Out	BASE TO MOUNTAINS: Overcast altocumulus at 8000', top 12,000'. Lower broken stratocumulus in valleys. Surface visibility 1/2 to 1 mile in haze and fog. Light turbulence over mountains. MOUNTAINS TO COAST: Overcast becoming scattered over northern China. 4/10 cirrostratus at 22,000'. Visibility 15 miles in haze. OVER GULF: Low scattered, occasionally broken stratus and stratocumulus.	BASE TO MOUNTAINS: Thin altostratus with base at 9000' and tops at 11-12,000'. Visibility 2-3 miles in haze. Very light icing in clouds. MOUNTAINS TO COAST: Clear almost to coast except for a few scattered stratus at 7-8000'. A system of overcast layers of altostratus and cirrostratus began shortly before the coast was reached. The base of this system is unknown but estimated at 15,000' with the tops at 20-22,000'. Light to moderate turbulence was experienced, but no icing. The haze layer extended to 10,000' and limited visibility to 15 miles. OVER GULF: The existing cloud cover obscured the first assembly point but dissipated over the gulf and the second assembly point was clear. Light vapor trails were observed.
Target Area	PRIMARY TARGET: 6/10 cirrostratus at 22-24,000' vapor trails above 15,000'. Visibility 10 miles in haze. Pressure at target: 30.21 in. (sea level). Mean temperature to 22,000' -24°C. SECONDARY TARGET: Broken to overcast morning stratus along coast becoming 4/10 fair weather cumulus by 0900 China time.	PRIMARY TARGET: Clear. Visibility 20 miles in light haze. SECONDARY TARGET: 9/10 layer of thick altostratus from 14,000' to 23,000'. Visibility 5 miles in haze. These conditions improved to 6/10 cover and 15 mile visibility. TERTIARY TARGET: Clear. Visibility 4 miles in haze.
Return Route	No change except 3/10 cumulus in hills, base 5000', top 7000'. Visibility 6-8 miles in haze below 8000'.	As the return route lay north of the outgoing route the cloud cover over the China Coast was not encountered. Conditions were clear with visibilities limited to 10 miles in haze until Hsian was reached. On the west side of the mountains patches of

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scattered altostratus with tops at 7-8000' appeared and haze limited visibility to 8 miles. Clouds increased to 6/10 with tops at 7-8,000' becoming 11,000' in local area.

	As Forecast	As Encountered
Base on return	Broken altocumulus, base 8000', top 12,000' MSL. 3/10 cumulus at 5500', top 7500' MSL. Visibility 6 miles in haze. Altimeter setting at 1630 China time: 30.31 in.	HSINCHING: Overcast at 6000'. Visibility 2 miles in haze. Wind north 1 MPH. KWANGHAN: Clear. Visibility 2 miles in haze. Wind calm. PENGSHAN: Overcast altostratus at 6000'. Visibility 2 miles in haze. Wind calm. KIUNGLAI: Overcast at 8000' with lower broken at 5000'. Visibility 3 miles in haze and dust. Wind calm.

A. WINDS ALOFT - FORECAST

Altitude	Base	Midway	Target
5,000'	220 Deg - 15K		
10,000'	250 Deg - 25K	270 Deg - 35K	280 Deg - 40K
15,000'	260 Deg - 45K	280 Deg - 55K	290 Deg - 60K
20,000'	270 Deg - 65K	280 Deg - 75K	290 Deg - 85K
25,000'	270 Deg - 80K	280 Deg - 100K	280 Deg - 110K
30,000'	270 Deg - 105K	270 Deg - 120K	280 Deg - 125K

B. WINDS ALOFT - ENCOUNTERED

Altitude	First Half	Last Half	Target
15,000'	285 Deg - 55K		
16,000'		280 Deg - 50K	
20,000'			290 Deg - 77K
23,000'			270 Deg - 90K

C. TARGET TEMPERATURES
AS FORECAST

Altitude	Temperature
5,000'	-17 Deg C.
10,000'	-20 Deg C.
15,000'	-29 Deg C.
20,000'	-35 Deg C.
25,000'	-44 Deg C.

AS ENCOUNTERED

Altitude	Temperature
20,000'	-40 Deg C.
21,000'	-44 Deg C.
23,000'	-43 Deg C.

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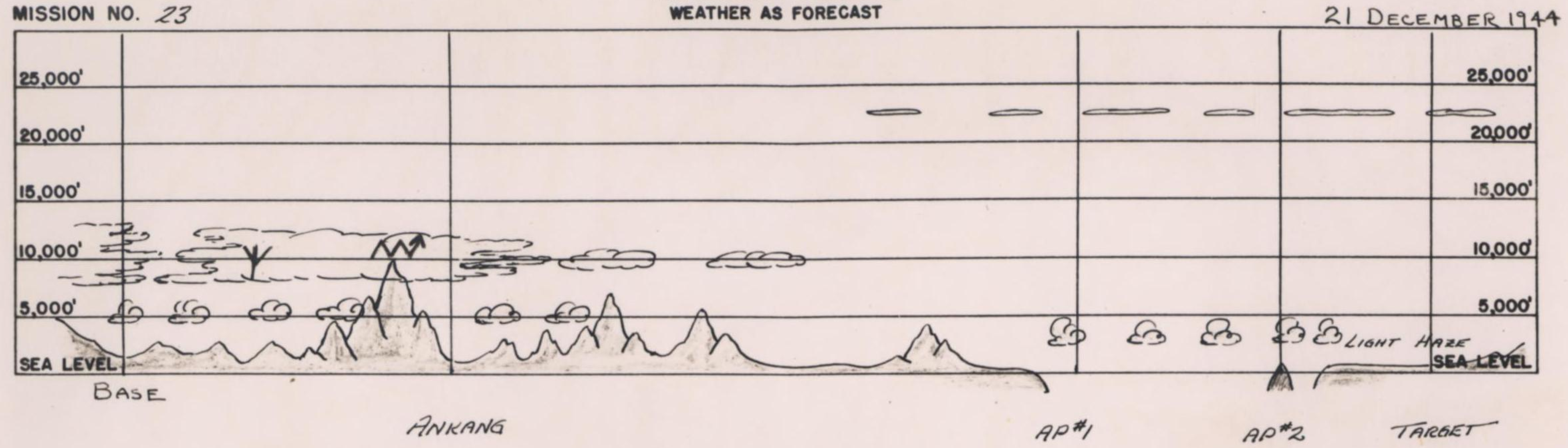
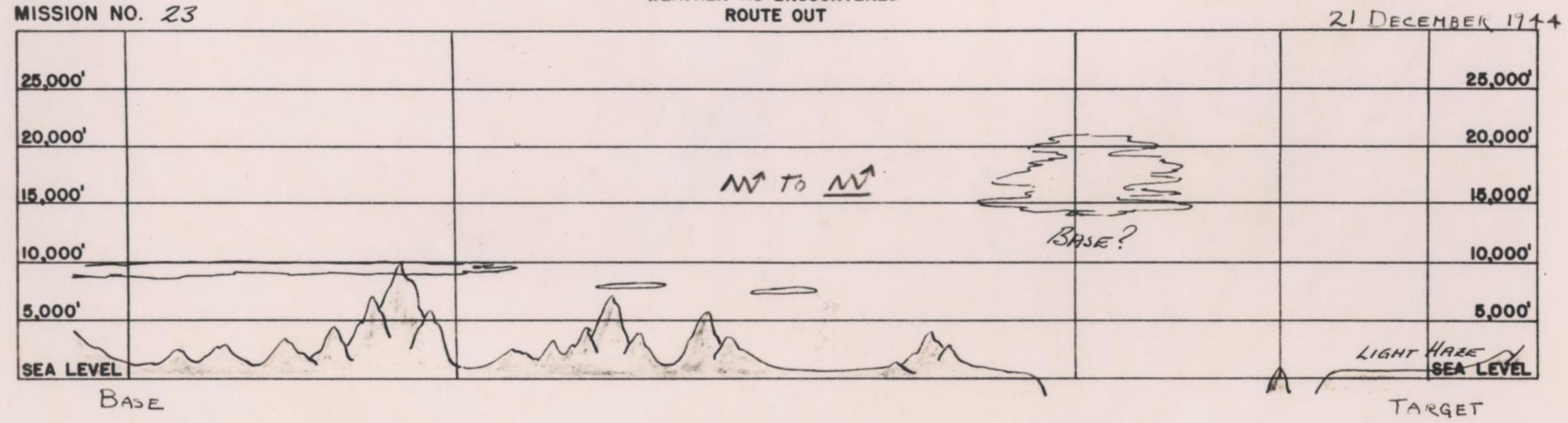
XX BOMBER COMMAND

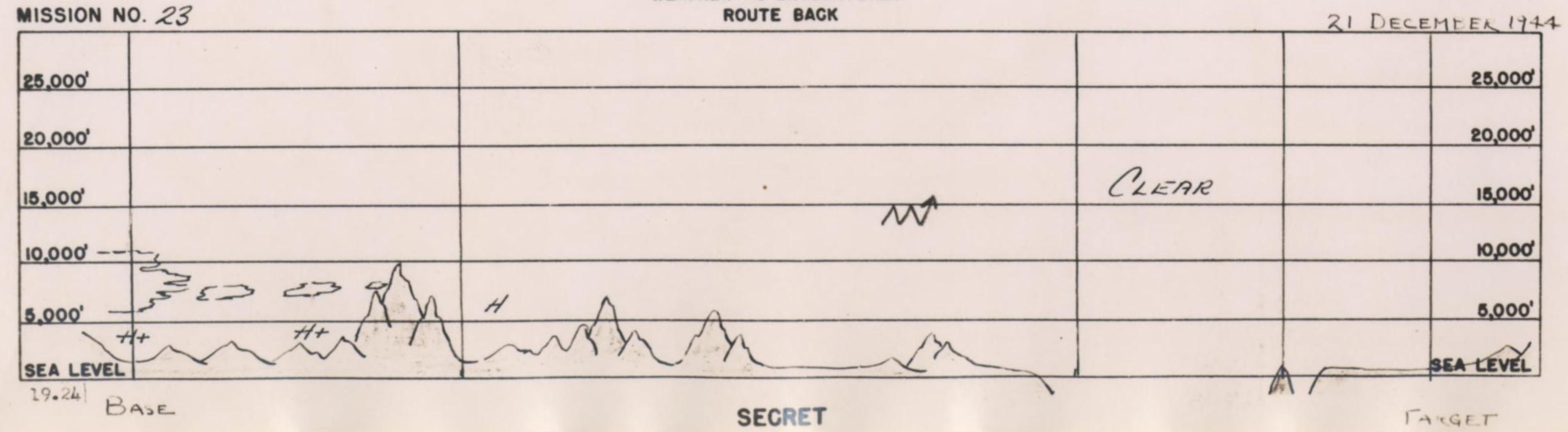
MISSION NO. 23 — WEATHER AS FORECAST — 21 DECEMBER 1944



MISSION NO. 23 — WEATHER AS ENCOUNTERED ROUTE OUT — 21 DECEMBER 1944



MISSION NO. 23 — WEATHER AS ENCOUNTERED ROUTE BACK — 21 DECEMBER 1944



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By SS-NARA Date 11/8/07

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By SC NARA Date 11/8/07

ANNEX

E

COMMUNICATIONS INFORMATION

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* Prepared by:
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* Communications Section
*
* XX Bomber Command
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NND 740120
By CD/mi NARS, Date OCT 21 1975

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By SG NARA Date 11/8/05

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Auth: CG
Date: 28 DEC 44
Initials:

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIAL MISSION
REPORT OF

XX BOMBER COMMAND COMMUNICATIONS (RADIO) OFFICER

Date prepared: 27 December 1944 Field Orders No 23

Date of Mission: 21 December 1944.

1. Communications for mission number twenty-three (23) were satisfactory. All assigned frequencies in use during the mission period offered satisfactory contacts with a minimum of interference. A considerable increase in traffic in relation to the small number of aircraft participating on this mission was noted on the inbound leg of the mission which, in this case, is attributed to the wide dispersal of aircraft.

2. As on previous missions, a practice message was transmitted from the Command Post to further acquaint communications personnel with the procedures involved in handling a Target Change Message. A time study of the handling of this messages is contained as Annex One (1) to this report.

3. The required traffic was handled satisfactorily and compliance with the provisions of Tactical Doctrine was good with the following exceptions:

a. A/C 859, 40th Group, failed to comply with the provisions set forth regarding transmission of YYY messages when returning to forward region after aborting.

b. The formation leader of the 462nd Group failed to comply with the provisions set forth regarding transmission of "Bombs Away" messages. In this instance, A/C 422, 444th Group, was not included in the 462nd "Bombs Away" message, when flying as a part of the 462nd Group formation. The pilot of A/C 422, after ascertaining from the formation leader of the 462nd Group that his A/C had been omitted from the "Bombs Away" message, transmitted an individual message to the 444th Group ground station.

4. A compilation of the number of messages handled is as follows:

	40th Group	444th	462nd	468th
a. Aborts	1	0	0	0
b. Bombs Away	3	4	2	5
c. Attack	5	1	0	3
d. YYY position	5	6	2	7

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5. A comparative study of the readability, signal strength and noise level of the frequencies in use, divided into two (2) hour periods is as follows; time indicated is GMT:

AIRCRAFT TO GROUND STATION

Frequency	2030-2230	2230-0030	0030-0230	0230-0430	0430-0630
2055 kcs	S2 R2 W3	S3 R3 W3	S1 R1 W3		
2807,5 kcs	S4 R4 W2	S3 R3 W4	Off air	———	———
2900 kcs	---	S5 R5 W0	Off air		
2955 kcs	S2 R3 W0	S2 R3 W0	Off air		
4785 kcs	S5 R5 W2	S3 R3 W3	S2 R2 W3		
4995 kcs	Off air		S5 R5 W0	———	———
8260 kcs	S4 R5 W2	S4 R4 W1	S3 R3 W2	S3 R4 W2	S4 R5 W1
8310 kcs	———	S4 R4 W0	S3 R4 W0	S3 R3 W0	S4 R4 W0
8495 kcs		S4 R4 W2	S4 R4 W2	S4 R4 W2	S4 R4 W2
8545 kcs	S3 R3 W3	S4 R4 W1	S4 R4 W1	S4 R4 W1	S5 R5 W0
12285 kcs	Off air			S3 R3 W1	S2 R2 W1
12335 kcs	———	———	S3 R3 W0	———	———

Frequency	0630-0930
2055 kcs	———
2807,5 kcs	———
2900 kcs	———
2955 kcs	———
4785 kcs	———
4995 kcs	———
8260 kcs	S5 R5 W2
8310 kcs	S5 R5 W0
8495 kcs	
8545 kcs	S5 R5 W0
12285 kcs	———
12335 kcs	———

GROUND STATION TO AIRCRAFT

Frequency	2030-2230	2230-0050	0030-0230	0230-0430	0430-0630
2055 kcs	S4 R4 W2	S4 R4 W3	S2 R2 W2		
2807,5 kcs	S5 R5 W1	S3 R3 W3	S4 R3 W2	———	———
2900 kcs	S5 R5 W0	S5 R5 W1	Off air	———	———
2955 kcs	S4 R4 W1	S4 R4 W1	Off air		
4785 kcs	S5 R5 W1	S4 R4 W3	S2 R2 W2		
4825 kcs	———	S2 R2 W1		———	———
4995 kcs			S5 R5 W0	———	———
8260 kcs	S4 R5 W2	S3 R3 W2	S4 R4 W2	S4 R4 W2	S4 R5 W2
8310 kcs	S4 R4 W1	S4 R4 W2	S3 R3 W3	S3 R3 W2	S4 R4 W2
8495 kcs	S4 R4 W2	S4 R4 W2	S3 R3 W2	S4 R4 W2	S4 R4 W2
8545 kcs		S2 R2 W3	S4 R4 W2	S4 R4 W2	S4 R4 W1
12285 kcs	Off air	S4 R4 W2	S3 R3 W2	S4 R4 W2	S4 R4 W2
12335 kcs	———	———	S3 R4 W3		
12415 kcs	———	———	———	S0 R0 W1	S0 R0 W1

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GROUND STATION TO AIRCRAFT (CONT'D)

Frequency	0630-0930
2055 kcs	
2807.5 kcs	
2900 kcs	
2955 kcs	
4785 kcs	
4825 kcs	
4995 kcs	
8260 kcs	S5 R5 W2
8310 kcs	S5 R5 W1
8495 kcs	S4 R4 W2
8545 kcs	S5 R5 W0
12285 kcs	
12335 kcs	
12415 kcs	

a. No reports of attempted jamming were logged; however, heavy atmospherics were reported when aircraft were flying in bad weather conditions. A small amount of man-made interference, mainly Chinese broadcasts, was encountered.

6. The following statistical data was compiled regarding the use of aids to air-navigation; all distances are in statute miles:

a. Radio Homing Beacons:

Location	No of A/C Reporting	Average Initial Contact	Extreme Initial Contact	Average Track
Ankang (PR)	23	150	360	240
Hsinching (CU)	19	157	350	---
Liangshan (LM)	5	150	350	300
Suining (SI)	1	50	50	---
Enshih (SH)	2	75	75	---
Hsian (OF)	21	152	300	240
Kanchow (MC)	1	50	50	---
Kwanghan (IK)	7	125	200	235
Kiunglai (OD)	3	100	150	228
Hanchung (CH)	4	70	110	8
Pengshan (MV)	2	30	50	0
Loashan (IF)	1	750	750	180

b. Radio Ranges:

Kwanghan (IK)	1	175	175	233
Hsinching (CU)	1	100	100	---

c. Requests for D/F aid by station and frequency are as follows:

Station	Frequency	No of Requests	Type Bearing Given I	II	III
462nd- 7D3	Not listed	1		1	
468th- 5D5	8260	3	2		1
Hsinching- 5X5	8130	2	1	1	

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d. Air-to-air homing was attempted by all groups with the following results:

40th Group - A/C 579 transmitted homing signals over the assembly point for approximately ten (10) minutes. Two (2) aircraft made successful rendezvous using this means. The remaining A/C homed visually.

444th Group: A/C 580 transmitted his ETA and altitude at assembly point prior to arrival thereat, and transmitted homing signals on 1280 kcs at the assembly point for approximately one (1) hour. Six A/C picked up these transmissions and four of these homed by this means. The remaining aircraft homed visually.

462nd Group: A/C 728 transmitted homing signals on 1320 kcs prior to and while at rendezvous point. Eight (8) aircraft homed successfully by this means at an average distance of forty (40) miles with an extreme distance of fifty (50) miles. The remaining aircraft homed visually.

468th Group: A/C 703 transmitted homing si gnals for approximately sixty-five minutes while at the assembly point. Ten (10) aircraft, representing the entire formation, homed successfully from distances up to seventy-five (75) miles.

7. There were no violations of cryptographic security logged.

8. Malfunctions of equipment:

a. 40th Group:

(1) A/C 729 - liaison antenna and compass lead-in shot off. Pilot's microphone shorted out.

(2) A/C 738 - loop antenna vibrated constantly because of broken screws in base mounting.

(3) A/C 541 - sense antenna shot off.

(4) A/C 579 - liaison and compass sense antennae shot off.

b. 444th Group

(1) A/C 580 - burned out tube in low frequency unit while sending homing signals. Replaced in flight.

(2) A/C 584 - interphone dynamotor fuse blown out. Replaced in flight.

(3) A/C 724 - compass sense antenna broke in flight.

(4) A/C 857 - command receiver malfunctioned; cause undetermined.

(5) A/C 422 - compass receiver fuse blown out. Replaced in flight.

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c. 462nd Group:

(1) A/C 506 - radio compass sense antenna lead-in broke.

(2) A/C 232 - radio compass antenna broke.

(3) A/C 454 - radio compass shorted out after firing upper forward turrent.

(4) A/C 373 - radio compass antenna broke.

d. 468th Group:

(1) A/C 5203 - radio compass out; not repaired in flight and cause undetermined.

(2) A/C 464 - broke lead-in on radio compass phasing antenna. Excessive vibration noted as cause.

9. Wire Facilities:

a. The two wire trunks between Hsinching and Kiunglai were cut again at 201730Z, eliminating all wire contact with Kiungla Service was restored at 211030Z.

b. Wire crews were dispatched from the Command Post at 210001Z, when the first ferry started to operate. The break was located approximately sixteen (16) miles west of Hsinching, and was again considered a direct act of sabotage as five spans of wire (approximately 750 feet long) had been torn down and removed. The ends had been twisted together and stuck in the ground.

c. During the inoperative period of wire service, communication was carried on via CW and the newly installed FM link.

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HEADQUARTERS
XX BOMBER COMMAND
APO 493

ANNEX NO. 1

TO

CONSOLIDATED
SPECIALIST MISSION
REPORT OF

XX BOMBER COMMAND COMMUNICATIONS (RADIO) OFFICER

Date prepared: 27 December 1944 Field Order No 23

Date of Mission: 21 December 1944.

1. The following is a time study involving message handling time of the practice message sent on mission number twenty-three (23).

2. The message was filed for transmission at 210325Z and was transmitted via tele type and/or radio, being receipted for by the various groups as follows:

40th Gp	444th Gp	462nd Gp	468th Gp
0328Z	0328Z	0327Z	0327Z

a. The message was encoded at the Command Post and transmitted to the groups ready for transmittal to aircraft. The Command Station at Hsinching also transmitted this message simultaneously on each command channel at 0330Z, 0345Z, 0400Z and 0415Z. A time study showing time of receipt, means by which message was received and number of aircraft receiving message is as follows:

(1) 40th Group

A/C Call Sign	How Received	Time of Receipt	Remarks
233	Direct	0339Z	
718	Direct	0340Z	
620	Direct	0340Z	
738	Direct	0347Z	
3394	Direct	0350Z	
752	Direct	0351Z	
739	Direct	0358Z	
404	Direct	0403Z	
479	Not received		(liaison antonna
729	Not received		(shot off

Time of first transmission: 0338Z
Time of receipt by 1st aircraft: 0339Z
Time of receipt by last aircraft: 0403Z

Elapsed time 25 min.
Average time 10.5 min.

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(2) 444th Group

A/C Call Sign	How Received	Time of Receipt	Remarks
580	Direct	0345Z	
422	Direct	0355Z	
228	Direct	0400Z	
226	Direct	0345Z	
584	Direct	0345Z	
724	Direct	0350Z	
731	Direct	0350Z	
732	Direct	0350Z	
485	Direct	0353Z	
857	Relay	0512Z	
730	Re[illegible]	0430Z	Off watch wh on first transmitted Using command set

Time of first transmission: 0344Z
Time of receipt by first Aircraft: 0345Z
Time of receipt by last aircraft: 0512Z
Elapsed time: 1 hour, 28 minutes.
Average time: 18.2 minutes.

(3) 462nd Group:

A/C Call Sign	How Received	Time of Receipt	Remarks
457	Direct	0358Z	
461		0347Z	
46[illegible]		0347Z	
454	Relay	0360Z	
393		0358Z	
456		0347Z	
232		0347Z	
728	Not Received	----	No reason given
473	Not Received	----	No reason given
479	Not Received	----	No reason given
506	Not Received	----	No reason given

Time of first transmission: 0347Z
Time of receipt by first aircraft: 0347Z
Time of receipt by last aircraft: 0360Z
Elapsed time: 13 minutes.
Average time 6 minutes.

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(4) 468th Group

A/C Call Sign	How Received	Time of Receipt	Remarks
703	Direct	0430Z	Flight leader acknowledged for ten a/c in formation.
691	Relay	0430Z	
417	"	0430Z	
546	"	0430Z	
737	"	0430Z	
469	"	0430Z	
460	"	0430Z	
715	"	0430Z	
486	"	0430Z	
464	"	0430Z	
5208	Not Received		See Note
704	Direct	0340Z	
4487	Not Received		Depressurized at time. Operator unable to monitor

Time of first transmission: 0328Z
Time of receipt by first aircraft: 0340Z
Time of receipt by last aircraft : 0430Z
Elapsed time: 62 minutes
Average time: ---

NOTE: Urgent traffic was being handled at time ground station operators were trying to send out the dummy message. A/C 5208 was requesting QDM's at time of this transmission and also working alternate fields on voice in an effort to make a let-down for an emergency landing.

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ANNEX

F

RADAR

I - Radar Information

Section A - Navigation and Bombing
Section B - Scope Photography
Section C - Serviceability

I I - Radar Tables

Table A - Bombing Data
Table B - Photographic Results
Table C - Navigational Ranges
Table D - Serviceability
Table E - Malfunctions

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* Prepared by: *
* *
* Radar Section *
* *
* XX Bomber Command *
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By SG NARA Date 11/8/05

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auth: CG XX BC
Initials
Date 26 Dec 44

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION
REPORT OF

XX BOMBER COMMAND RADAR OFFICER

Date Prepared 26 December 1944 Field Orders Number 23
Date of Mission 21 December 1944

I - Radar Information

A - Navigation and Bombing

1. A total of ten (10) aircraft or thirty-seven per cent (37%) bombed all targets by radar on this mission. One formation of nine (9) planes began a visual run on the primary target, but on approaching the target area saw the target obscured by smoke. The radar operator took over the bombing run and dropped on the Industrial Section of Mukden, the primary radar target. Preliminary estimate of bombing results of this formation indicate the range and deflection errors to be relatively small. The bombs did strike in the center of the city and slightly east of the target area.

2. The secondary target of Dairen was bombed by radar by a single aircraft. The results are unknown.

3. Radar equipment was considered a great aid in the location of the assembly and initial points and in navigation on the mission. Range of identification of most check points and targets were relatively the same as for previous Mukden missions.

B - Scope Photography

1. The number of radar scope cameras installed and airborne increased on this mission, due primarily to the scheduling of aircraft with cameras installed. A total of fourteen (14) cameras were installed and completed the mission. Six (6) sets of negatives were returned and were useable. The bombing run could be traced on four (4) of these useable sets.

2. The city of Mukden appeared very well on the radar pictures, and as a whole the radar scope photographs obtained on this mission were satisfactory.

C - Serviceability

1. Eighty-three per cent (83%) of the radar systems were operative over the target. This percentage was slightly less than on the previous two missions.

2. One (1) auxiliary radar system, SCR-695, malfunction was reported.

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By SG NARA Date 11/8/05

II - RADAR TABLES

A - BOMBING DATA

TOTAL A/C BOMBING TARGETS	- 27
TOTAL A/C BOMBING MUKDEN (VISUALLY)	- 9
TOTAL A/C BOMBING MUKDEN (BY RADAR)	- 9
TOTAL A/C BOMBING MUKDEN (BLIND)	- 1
TOTAL A/C BOMBING DAIREN (VISUALLY)	- 0
TOTAL A/C BOMBING DAIREN (BY RADAR)	- 1
TOTAL A/C BOMBING L.R.T. (VISUALLY)	- 2
TOTAL A/C BOMBING L.R.T. (BY RADAR)	- 0
TOTAL A/C BOMBING T. OF O. (VISUALLY)	- 5
TOTAL A/C RADAR BOMBING	- 10
PERCENTAGE OF RADAR BOMBING	- 37

B - PHOTOGRAPHIC RESULTS

DATA	40TH GP		444TH GP		462ND GP		468TH GP		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
NO. CAMERAS INSTALLED	3	--	3	--	2	--	6	--	14	--
K-35 CAMERAS	2	--	0	--	1	--	3	--	6	--
K-24 CAMERAS	1	--	3	--	1	--	3	--	8	--
NO. CAMERAS IN ABORT, EARLY RETURN & MISSING AIRCRAFT *	0	0	0	0	0	0	0	0	0	0
NO. CAMERAS COMPLETING MISSION *	3	100	3	100	2	100	6	100	14	100
NO. CAMERAS IN RADAR & CAMERA MALFUNCTION AIRCRAFT #	0	0	2	67	0	0	1	17	3	21
#										
SETS OF PICS RETURNED	1	33	1	33	1	50	3	50	6	43
NO. NEGATIVES RET.	19	--	56	--	11	--	76	--	162	--
**										
SETS OF PICS USEABLE	1	100	1	100	1	100	3	100	6	100
SETS OF PICS TRACING BOMBING RUN **	1	100	0	0	0	0	3	100	4	67

* PERCENTAGE BASED ON CAMERAS INSTALLED.
\# PERCENTAGE BASED ON CAMERAS COMPLETING MISSION.
** PERCENTAGE BASED ON SETS OF PICTURES RETURNED.

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C - NAVIGATIONAL RANGES

CHECK POINT	40TH GP		444TH GP		462ND GP		468TH GP		TOTAL	
	Number Reporting	Average Range	Number Reporting	Average Range	Number Reporting	Average Range	Number Reporting	Average Range	Total No. Reporting	Weighted Average Range
MAPPING	8	36	11	37	5	40	10	37	34	37
MUKDEN (P.T.)	6	21	7	31	4	27	7	31	24	28
DAIREN & PENINSULA (S.T.)	3	26	1	45	0	0	1	30	5	31
CHENGSIEN (L.R.T.)	1	20	4	23	2	28	1	20	8	24
40°50'N,121°51'E (IP)	7	17	6	24	1	20	4	18	18	20
TAKIN ISLAND (A.P.)	3	25	0	0	0	0	0	0	3	25
TAHEISHAN IS. (A.P.)	0	0	6	29	0	0	1	20	7	28
40°42'N,120°14'E (AP)	0	0	0	0	4	24	0	0	4	24
CHUHWA IS. (A.P. #2)	2	25	4	21	2	30	6	18	14	22
ANKANG	1	12	4	17	2	18	1	20	8	17
CHINA COAST	5	24	5	23	0	0	6	27	16	25
CHENGTU	0	0	0	0	4	21	1	40	5	25
CHINCHOW	0	0	2	25	0	0	0	0	2	25
IWANG RIVER	0	0	9	28	3	27	4	28	16	28
KAIFENG	0	0	2	25	2	22	4	27	8	25
SANG ISLAND	0	0	2	24	0	0	0	0	2	24
YELLOW RIVER BRIDGE	1	15	1	40	0	0	0	0	2	28

D - RADAR SERVICEABILITY

DATA	40TH GP		444TH GP		462ND GP		468TH GP		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
A/C AIRBORNE	12	--	12	--	12	--	13	--	49	--
A/C REPORTING	12	--	11	--	9	--	11	--	43	--
PQ-13 OPERATIVE AT TAKE-OFF *	12	100	10	91	9	100	11	100	42	98
A/C BOMBING	10	--	12	--	10	--	12	--	44	--
A/C REPORTING BOMBING	10	83	11	100	9	100	11	100	41	95
PQ-13 OPERATIVE OVER TARGET #	10	100	10	91	6	67	8	73	34	83
PQ-13 UNREPAIRABLE FAILURES #										
COMPLETELY INOP.	2	20	2	18	4	44	3	27	11	27
PARTIALLY INOP.	2	20	4	36	0	0	1	9	7	17
TOTAL	4	40	6	54	4	44	4	36	18	44
PQ-13 REPAIRED IN FLIGHT *	0	0	1	9	0	0	0	0	1	2
CR-718	0	0	0	0	1	11	2	18	3	7
CR-695	0	0	0	0	1	11	0	0	1	2
CR-729	0	0	0	0	0	0	0	0	0	0

PERCENTAGE BASED ON A/C REPORTING.
PERCENTAGE BASED ON A/C REPORTING BOMBING.

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E - MALFUNCTIONS

DATA	40TH GP	444TH GP	462ND GP	468TH GP	TOTAL
AT TAKE-OFF					
INVERTER	0	1	0	0	1
TOTAL	0	1	0	0	1
BETWEEN TAKE-OFF & TARGET					
COMPLETE:					
SPOKING	1	0	0	0	1
NO TRACE	1	0	0	0	1
LOSS OF TARGETS	0	0	3	2	5
ENEMY ACTION	0	0	0	1	1
TOTAL COMPLETE	2	0	3	3	8
PARTIAL:					
AFC	1	0	0	0	1
PRESSURIZATION	0	2	0	0	2
4, 10, 20 MILE RANGES OUT	0	1	0	0	1
AZIMUTH STAB.	0	1	0	1	2
SECTOR SCAN	0	1	0	0	1
TOTAL PARTIAL	1	5	0	1	7
TOTAL COMPLETE & PARTIAL	3	5	3	4	15
BETWEEN TARGET & LANDING					
COMPLETE:					
INVERTER	0	1	0	0	1
NO SWEEP	0	0	1	0	1
TOTAL COMPLETE	0	1	1	0	2
PARTIAL:					
ANT. ROTATION	1	0	0	0	1
TOTAL PARTIAL	1	0	0	0	1
TOTAL COMPLETE & PARTIAL	1	1	1	0	3
REPAIRED IN FLIGHT					
ADJUSTED +300V	1	0	0	0	1
CHANGED INVERTERS	0	1	0	0	1
TOTAL	1	1	0	0	2
AUXILIARY EQUIPMENT					
SCR-718	0	0	1	2	3
SCR-695	0	0	1	0	1
SCR-729	0	0	0	0	0
TOTAL	0	0	2	2	4

NOTE: DIFFERENT FAILURES IN SAME SET ARE ALL LISTED.

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ANNEX

G

RCM INFORMATION

* * * * * * * * * * * * * * * * * *
*   *
* Prepared by: *
*   *
*   RCM Section   *
*   *
*   XX Bomber Command   *
*   *
* * * * * * * * * * * * * * * * * *

DECLASSIFIED
Authority 760063
By SG NARA Date 11/8/05

S E C R E T
Auth: CG, XX BC
Initials: mop
Date: 4 Jan. 44

HEADQUARTERS
XX BOMBER COMMAND
APO 493

4 January 45

SUBJECT: RCM Report - Combat Mission No. 23, Mukden, Manchuria, 21 December 44 - Daylight.

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

A. General

RCM activities, as in the past, were limited to searching for enemy radar. Five RCM equipped aircraft, each with one RCM Observer, participated in the mission. The RCM Observers searched for Early Warning Radar en-route to and from the target and for possible gun laying equipment in the target area.

B. Results

This is the fourth search mission into the Manchuria area and the Japanese Early Warning system guarding that area is still not clear. The number of radar sites has been definitely increasing and the type of radar has also been changing.

The new radar equipment, which has been appearing in this theatre lately, is evidently a modification of the Mk 1. The first intercept of this type was in the Changsha area, soon after Japanese occupation. The next intercept was made on Mission No. 9 to Anshan and was D/F'ed to a possible barge anchored at a position of 39°47'N, 120°55'E in the Liaotung Bay. Mission No. 19 to Mukden found the barge in approximately the same position. Also, another new site was D/F'ed to the coast at approximately 120°15'N, 39°20'E. On this mission, another new site was intercepted and the maximum signal intercept places the location of the site somewhere near Kaifeng. This type of radar site is easily identified by the following characteristics: Freq. - from 100 to 110 Mc.; Pulse width - wide, 40-60 Microsec.; PRF - (this is the best means of identifying this type of radar) low; between 370 and 390 pulses per second.

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By SG NARA Date 11/8/05

Several new Army "CHI" type radar sites were intercepted in the Northeast area of China just prior to reaching Liaotung Bay.

The remainder of the intercepts were similar to previous missions into this area.

There were no radar intercepts with radar fire control characteristics.

C. Resume of Intercepts

Attached.

D. Equipment Malfunctions

Upon landing, one antenna (non-directional) was found to be broken out of the pressure can and the coaxial cable connection severed.

E. Enemy Countermeasures

Atmospheric interference was occasionally reported, due to the bad weather conditions.

There were several reports of stations zero beating against our ground stations. It is believed that the Chinese use our stations as frequency standards and occasionally their frequencies are set too close to ours. When this occurs, interference is reported as possible jamming, though not intentional. This occurs most frequently in the 8 Mc. band.

For the Commanding General:

Leo I. Herman

LEO I. HERMAN
Colonel, Air Corps
Actg. Adjutant General

1 Incl:
Resume of Intercepts.

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Authority 760063
By SC NARA Date 11/8/05

Resume of Intercepts

104/380/63	This is a new radar site. Similar radar sites are located in the Changsha area and also in Liaotung Bay area. Searching at 111°07'E 33°24'N and tracking at 113°59'E 34°33'N.
71/500/34	Kaifong Radar. From 113°40'E 34°30'N to 116°50'E 36°20'N.
74/520/37 71/540/30	From 115°50'E 35°45'N to 118°E 36°45'N. 116°10'E 35°50'N to 118°05'E 36°45'N. These two radar sites appeared to be coordinated, as the 71 Mc. site came on a very short time after the 74 Mc. site, and both went off at the same time. The search aircraft flew between the two radar sites, the 74 Mc. site was strongest to the left and the 71 Mc. site was strongest to the right.
110/375/54	D/F'ed on a previous mission to the China coast at approximately 118°30'E 39°10'N. Tracked the aircraft to the assembly point from 118°30'E 36°55'N.
74/515/60 75/520/35	Both of these stations picked up the aircraft shortly before they reached the assembly point. the 74 Mc. site went off after the aircraft left the assembly point and the 75 Mc. site tracked to the "IP". These radar sites were not on enroute home. Possibly Dairen or Miaotao Island Group sites.
106/375/39	On very strong at 116°57'E 38°43'N.
67/517/35 66/522/35	Searching the assembly point area. The 67 Mc. site was to the left of course and the 66 Mc. site to the right of course.
72/511/20	Tracking at the "IP".
71/510/60 72/540/20	From 118°E 38°N to 115°50'E 37°20'N. Maximum signal from the north.
78.5/1020/21 /510/42	While monitoring this station, the PRF and PW suddenly changed. From 111°E 35°N to 108°E 33°30'N. Weak.

Incl: 1.

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By SC NARA Date 11/8/05

ANNEX

H

CENTRAL STATION FIRE CONTROL AND GUNNERY

* * * * * * * * * * * * * * * * * * *
* Prepared by: *
* Staff Gunnery Officer *
* XX Bomber Command *
* * * * * * * * * * * * * * * * * * *

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Authority 760063
By SG NARA Date 11/8/05

SECRET

SECRET
Auth: CG, XXBC
Initials: [illegible]
Date: [illegible] 49

HEADQUARTERS
XX BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT OF
STAFF GUNNERY OFFICER

Date Prepared: 28 December 1944

Field Order: #23
Date of Mission: 21 Dec.

1. On [illegible] mission directed by Field Order No. 23, fighter opposition is considered as moderate to strong. There were a number of coordinated "chow-line" attacks in which Jap pilots executed pursuit curves. One of these enemy fighters extended his curve directly into a B-29 over the primary target which indicates that the target at Mukden is being savagely protected. There were no new tactics reported, the enemy pilots still favor the high frontal approach and make good use of the sun.

2. The mission in regards to gunnery and central fire control equipment is considered as satisfactory.

3. The following statistical data is submitted:

	40th	444th	462nd	468th
Ammunition used in test firing	1520	1070	1668	500
Ammunition used in combat	11965	7065	11190	12390
Malfunctions of CFC system	0	0	1	5
Total turrets on Mission	60	60	55	50
Malfunction of Cal. .50 M.G.	21	7	18	11
Total Cal. .50 MG on Mission	120	120	110	100
Total airplanes (included in reprt)	12	12	11	10

Total percent malfunctions all Groups C.F.C. Cal. .50 MG. 12.6%

	Destroyed	Probably Destroyed	Damaged
Claims by our gunners.	21	6	19
Our losses from guns of enemy fighters.	1	0	11

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By SG NARA Date 11/8/05

ANNEX

I

CAMERAS AND PHOTOGRAPHS

DECLASSIFIED
Authority 760063
By SG NARA Date 11/8/05

DECLASSIFIED
Authority 760063
By SC-NARA Date 11/8/07

I - CAMERAS AND PHOTOGRAPHS

Mission No. 23

21 December 1944

	40th			445th			462nd			468th			Total		
	K-18	K-20	K-22	K-18	K-20	K-22	K-18	K-20	K-22	K-18	K-20	K-22	K-18	K-20	K-22
Cameras airborne	1	6	3	3	3	3	3	5	6	3	1	6	10	15	18
In missing and non-reporting A/C	0	0	0	0	0	0	0	1	1	0	0	1	0	1	2
Completing mission	1	6	3	3	3	3	3	4	5	3	1	5	10	14	16
Photographing targets	1	1	2	3	3	3	3	1	3	2	1	4	9	6	12
Failure to photograph-mechanical	0	0	0-a	0	0	0	0	0	0	1	0	0	1	0	0
Failure to photograph-other reasons	0	5	1	0	0	0	0	3	2	0	0	1	0	8	4
Usable negatives	44	4	32	14	b	11-c	12	0	12	b	0	b	70-c	4-c	55-c

a. Two aircraft which photographed primary target reported shutter malfunctions.
b. Not reported.
c. Incomplete.

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Authority 760063
By SF NARA Date 11/8/05

ANNEX

AIRCRAFT LOSSES AND DAMAGE

S E C R E T

AIRCRAFT LOSSES AND DAMAGE

Mission No. 23

21 December 1944

A. Aircraft Losses

1. Known Battle Losses (2):

a. A/C 505 (462nd) was flying in number 2 position in the lead element on the bomb run. At about 0152Z, 8 minutes short of the primary target, 2 Tojos made a head-on coordinated attack on this aircraft. Both enemy aircraft dropped aerial phosphorous bombs and fired on A/C 505. One bomb hit the right wing and the other is thought to have hit the nose section. A/C 505 slid out of formation and went into a slight dive, trailing smoke from both right engines. Five parachutes opened as A/C 505 resumed level flight 1500 feet below the formation. After the aircraft had become level, the nose wheel came down and 5 more parachutes were seen. The aircraft then went into a slow spiral, losing altitude and apparently under control. All four propellors were turning. There was some smoke and fire from the right wing section. As A/C 505 resumed level flight again, 3 enemy aircraft made several head-on attacks. A/C 505 was seen to hit the ground and explode at about 0158Z at 41°30'N - 123°00'E. In all, a total of 10 parachutes were seen. The 12 men who were on board the aircraft are carried as missing.

b. A/C 715 (468th) was destroyed over the primary target as a result of a head-on collision with an enemy aircraft, variously reported by crew members of other aircraft as Val, Nick, Oscar, or Tojo. All reports agree that the enemy aircraft struck A/C 715 from between number 1 and 2 engines. One wing and the right horizontal stabilizer were seen to have been sheared off. A/C 715 was seen to circle under the formation and go into a spin. One crew member reported that the aircraft exploded before it struck the ground. Crews of 4 aircraft reported that one parachute was seen to open, while one crew reports observing 2 parachutes.

Three planes in the formation were all firing at the enemy aircraft as it came into the formation, but without apparent effect. The enemy aircraft disintegrated as it struck the B-29. Two crews reported that the enemy aircraft was the third of 5 enemy planes which flew through the formation. One crew reported that each of the 5 Japanese aircraft executed a slow roll as it went through.

2. Operational Losses - None.

3. Missing Aircraft - None.

B. Aircraft Damage

For details of battle and operational damage, see Consolidated Mission Statistical Summary, Annex M, Table V.

J-I-4

S E C R E T

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Authority 760063
By SG NARA Date 11/8/05

ANNEX

K

FUNCTIONING OF EQUIPMENT

I - Functioning of Equipment

II - Performance Data*

* Prepared by Staff Flight Engineer.

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Authority 760063
By SC NARA Date 11/8/05

S E C R E T

I - FUNCTIONING OF EQUIPMENT

Mission No. 23

21 December 1944

A. Summary

		40th	444th	462nd	468th	Total
1.	A/C required by Field Order	13	13	13	13	52
2.	A/C scheduled for take-off	13	12	15	13	53
	Less: A/C failing to take-off	1	0	3	0	4
3.	A/C Airborne	12	12	12	13	49
	Less: A/C failing to bomb PT - mechanical reasons	2	1	1	3	7
	Less: A/C failing to bomb PT - other reasons	2	10	9	0	21
	Less: A/C unknown as to bombing	0	0	1	1	2
4.	Aircraft bombing PT	8	1	1	9	19

B. Details by Aircraft

1. A/C scheduled for take-off 53

2. Less: A/C failing to take-Off 4

   a. A/C 582 (40th): excessive magneto drop, 2 engines.
   b. A/C 590 (462nd): No. 2 engine cutting out.
   c. A/C 581 (462nd): Gasoline leak, No. 4 nacelle.
   d. A/C 711 (462nd): Loss of power, #1 engine.

3. A/C airborne 49

4. Less: A/C failing to bomb PT - mechanical reasons 7

   a. Bombed Secondary Target (1):

      (1) A/C 228 (444th): blown blister.

   b. Bombed Last Resort Target (2):

      (1) A/C 487 (468th): guns would not function (also weather).
      (2) A/C 704 (468th): oil leak No. 2 engine.

   c. Bombed Targets of Opportunity (2):

      (1) A/C 718 (40th): fuel transfer system out.
      (2) A/C 208 (468th): Fuel transfer system out.

   d. Jettisoned bombs (2):

      (1) A/C 859 (40th): No. 4 engine out.
      (2) A/C 393 (462nd): Bomb release malfunction.

S E C R E T

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By SC NARA Date 11/8/05

5. Less: A/C failing to bomb PT - other reasons 21

a. Bombed Targets of Opportunity (3):

(1) A/C 538 (444th): Tail gunner lost parachute on take-off.
(2) A/C 461 (462nd): weather.
(3) A/C 463 (462nd): weather.

b. Jettisoned bombs (18):

(1) A/C 404 (40th): Accidental release.
(2) A/C 733 (40th): Accidental release.
(3) 9 A/C of the 444th dropped their bombs short of the PT when one aircraft in the formation had an accidental release. Because of frost, ability to see the formation leader was impaired. The aircraft which released early were: A/C 732, 226, 857, 724, 730, 731, 485, 584, and 422.
(4) 7 A/C of the 462nd released their bombs short of the PT when one member of the formation released accidentally. This formation was also troubled by frost which impaired the ability of the members to see the formation leader. The aircraft which released early were: A/C 728, 473, 454, 479, 456, 506, and 232.

6. Less: A/C unknown as to bombing 2

a. A/C 505 (462nd): lost to enemy air opposition.
b. A/C 715 (468th): lost to enemy air opposition.

7. Aircraft bombing PT 19

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SECRET
Auth: CG, XXI B
Initials
Date: 28 Dec 4

HEADQUARTERS
XXI BOMBER COMMAND
APO 493

CONSOLIDATED
SPECIALIST MISSION REPORT OF
STAFF FLIGHT ENGINEER

Date Prepared: 28 December 1944

Field Order: No. 37
Date of Mission: 31 Dec 4

1. A summary of the performance of the aircraft that bombed the primary target and returned to their own base is contained in the attached table.

2. The exceedingly low temperatures encountered on the mission resulted in fuel reserves being above the anticipated amount.

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By SG NARA Date 11/8/05

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Authority 760063
By SS-NARA Date 11/8/07

SECRET

SUMMARY OF PERFORMANCE

F. O. #23

Group		Overall	40th	444th	462nd	468th
Target		Primary	Primary	Primary	Primary	Primary
*No. of A/C		38	10	10	9	9
Time to Target		5:58	6:07	5:44	6:05	5:58
Total Time		12:52	12:33	12:34	13:27	12:58
Aux. Fuel Carried	Ave	1600	1615	1730	1725	1335
	Max	1900	1800	1900	1900	1500
	Min	1300	1500	1700	1700	1300
Fuel Burned	Ave	5780	5730	5905	6265	5224
	Max	7040	6000	6250	7040****	6200
	Min	5300	5300	5500	5900	5650
Burnable Reserve	Ave	1030	1295	1225	865	675
	Max	1200	1700	1600	1200	1250
	Min	160	850	850	160****	500
**Bombing Altitude		21,950	21,500	23,200	22,000	20,900
***Air Miles		3000	3050	2995	3040	3110
Ground Miles		2865	2840	2880	2855	2800
***Gal/Air Mile		1.89	1.88	1.98	2.07	2.09
Take-Off Gross wt.	Ave	133,610	132,975	134,200	133,540	133,010
	Max	135,085	134,320	135,085	134,423	133,437
	Min	132,043	132,043	133,300	132,262	132,345
Weight of Bombs	Ave	8570	7965	8307	7380	10,600
	Max	11,430	8370	8910	8230	11,430
	Min	6760	7920	7470	6760	9900
No. of Bombs	M-64	8.7	8	8.8	6.9	10.8
	M-76	8.6	8.1	7.9	8.2	10.5

* For aircraft returning to home base for which logs were available.
** Pressure Altitude.
*** Accuracy is doubtful due to methods of determination.

SECRET

ANNEX

L

TARGET DAMAGE ASSESSMENT

Prepared by:

Target Intelligence Unit

XX Bomber Command

SECRET

DECLASSIFIED
Authority 760063
By SG NARA Date 11/8/05

C O N F I D E N T I A L

HEADQUARTERS
XX BOMBER COMMAND
Intelligence Section
APO 493

6 January 1945

DAMAGE ASSESSMENT REPORT NO. 31 (PROVISIONAL)

TARGET: Manchuria Airplane Manufacturing Company, Mukden, Manchuria. (41° 08'N - 123° 30'E).

GENERAL STATEMENT:

This report relates to damage resulting from a daylight attack by XX Bomber Command on 21 December 1944. The target had been attacked once previously on 7 December 1944 (See D.A. Report No. 28). A total of 36 aircraft attacked the Mukden Area dropping 301 500# GP and 290 500# IB. Assessment of damage was derived from strike photos and incomplete post-strike photo coverage obtained by the 40th Bomb Group on 26 December 1944, and should be considered provisional.

No new damage was identified within the confines of the Aircraft Company. Several of the smaller workshops hit on the first attack are being dismantled but no repair activity was observed on the large final assembly shop, the propeller hangar or the flight hangar.

First to attack the target was a 10 plane formation of the 462nd Bomb Group. But due to an early release all planes of the formation except the leader dropped approximately 9 miles southwest of the target. A few scattered hits in a native settlement were observed; all the remaining bombs fell in open ground. The leader's bombs, 15 500# M-76 IB, fell in the Arsenal approximately 2000' west of the target center. Two medium-sized workshops were completely gutted and a smaller workshop and a small section of a light machine shop were destroyed. Two heavy forge shops and a light forge shop each received 1 direct hit but ignition of the structure apparently was not accomplished and the only visible damage consists of several small holes in the roof.

As was expected the enemy again employed a very effective smoke-screen. Approximately half the generators were operating at the time the first aircraft attacked but the Arsenal and Aircraft Factory were still visible. However when the second formation, 40th Bomb Group, attacked 15 minutes later all generators were operating and both the Factory and Arsenal were effectively screened. This formation employed "off-set" bombing technique, the bombs falling short of the target on the airfield obtaining several hits on the runway and on at least two of the smoke generating units.

The third formation over, 444th Bomb Group, suffered the same fate as the first wherein an early release on the bomb run caused all planes to drop short of the target except the leader. The majority of the bombs fell in the vicinity of a highway bridge approximately 4 1/2 miles southwest of the target with other bombs scattered along the flight path up to the edge of the airfield. All bombs fell in open ground. The leaders bombs fell on the eastern edge of the airfield with no damage resulting.

Because smoke and cloud rendered positive identification of the target impossible, the 468th Bomb Group, last formation over, elected to drop by radar. In a new departure from previous tactics employed a radar "Aiming Point" was specified which in this case was the west-edge of the city. Formerly, radar runs were made on the assigned target. The bombs from this formation fell in the Mukden Railway Yards and eastwards for several thousand feet into the city proper. Cloud and smoke and lack of post-strike cover preclude a statement of damage.

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The smoke-screen employed by the Japanese was even more effective than that of the first attack due to an earlier warning and the construction of a number of new generating sites. Although a large part of the Arsenal and all of the Aircraft Company were screened on the first effort, at no time was the airfield and runway entirely obscured. This time, however, the entire Arsenal and Aircraft Plant as well as the airfield were effectively screened by the time the second wave of aircraft appeared. New construction of generating sites involved a number of new sites along the southern edge of the field as well as several north-south strings across the two plants.

REFERENCES: (1) Eighteenth P.I.D. Third Phase Reports Nos. 33 and 113.
(2) AC/AS and P.I.C. Photo Intelligence Reports Nos. J-5 and J-11.
(3) XX Bomber Command D.A. Report No. 28.

WEIGHT OF ATTACK: (1) Aircraft Factory - 10 a/c, 73 500# GP, 84 500# IB.
(2) Mukden RR Yard - 10 a/c, 91 500# GP, 95 500# IB.
(3) Jettosining - 16 a/c, 137 500# GP, 111 500# IB.

PHOTOGRAPHY: (1) Strike Photos Mission No. 4MB23, 21 December 1944, quality and scale varied.
(2) XX Bomber Command Mission No. 4MR52, 26 December 1944, quality excellent, scale approximately 1:14000.

PREVIOUS PHOTO COVER: (1) XX Bomber Command Mission No. 4MR31, 13 December 1944, quality good, scale approximately 1:15000.

ANNEXES: (1) Annotated Photo.

REMARKS:

Numbers preceding statements below refer to corresponding numbers on the attached annotated print.

DETAILS OF DAMAGE:

A. Aircraft Factory:

No new damage was identified within the confines of the factory. Several of the shops hit on the first attack are being dismantled but little repair work is evident to the large final assembly building, the propeller mounting hangar or the long narrow flight hangar.

B. Arsenal:

Apparently only 1 aircraft obtained hits in the Arsenal area, that being ship 457 of the 462nd Bomb Group whose strike photos show bursts where damage was found on the post-strike photos. Damage resulting follows: (All bombs dropped by this aircraft were 500# IB M-76)

(1) 110' x 80' workshop completely gutted.

(2) 100' x 85' workshop completely gutted.

(3) A 55' x 70' workshop and a 60' x 60' section of a light machine shop destroyed.

(4) Two heavy forge shops and a light forge shop each received at least 1 direct hit but ignition of the structure apparently was not accomplished and no damage other than a small hole in the roof was identified.

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C. Other Damage:

(5) Bombs of the 40th Bomb Group cratered the runway in several places and appear to have hit several of the smoke generators.

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Lt. Col., Air Crops
Chief, Intelligence Section

PREPARED BY: TARGET UNIT
INTELLIGENCE SECTION

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ANNEX

M

CONSOLIDATED MISSION STATISTICAL SUMMARY

Prepared by:

Statistical Control Section

XX Bomber Command

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty Three
21 December 1944

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Commanding General:
1-6-45 SK
Date Initials

Table I and II - Aircraft Participating *

Group	** A/C in Fwd. Area Scheduled For Mission	** A/C Taking Off	Airborne A/C Failing to Bomb Designated Primary Target								Time Of First Take-off	Time Of Latest Return	Average Time of Flight ***	
			Total No.	Percent	Reason								A/C Bombing Primary	Airborne A/C Not Bombing Primary
					Mech.	Pers.	Wea.	Not in Form	Misc.	Enemy Action				
40th	13	12	4	33%	2	2					2030Z	0925Z	12:30	9:11
444th	14	12	11	93%	1	10					2028Z	0919Z	12:42	11:48
462nd	15	12	11	93%	1	7	1		1	1	2010Z	1103Z	12:43	12:38
468th	15	13	4	31%	3					1	2033Z	1000Z	12:55	9:22
TOTAL	57	49	30	61%	7	19	1		1	2	2010Z	1103Z	12:42	11:32

* Mission was run from Forward Area Bases. A/C participating remained there after Missions 21 and 22.
** Field Order #23 required each group to furnish a maximum number of fully modified A/C and a sufficient number of unmodified A/C to bring total airborne to 13. (See Table X)
*** Excludes A/C which landed at other fields.

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty Three
21 December 1944

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Table III - Bombing Runs

Group	No. of A/C Bombing	Target Bombed	Time of Release		Altitude of Release		Visual Bombing		Radar Bombing		On the Leader	Aircraft Dropping On	
							A/C Sighting for		A/C Sighting For				
			Earliest	Latest	Highest	Lowest	R & D	Range	R & D	Range		AFCE	Manual
	8	Mukden	0213Z	0213Z	22,000	21700	1				7	1	7
40th	1	Opportunity	0232Z	0232Z	20,000	20,000	1					1	
	1	Mukden	0218Z	0218Z	23,000	23,000	1					1	
	1	Darien	0114Z	0114Z	19,000	19,000			1			1	
444th	1	Opportunity	0003Z	0003Z	21,000	21,000	1					1	
	1	Mukden	0200Z	0200Z	22,500	22,500	1					1	
462nd	2	Opportunity	0220Z	0220Z	18,000	18,000	2					2	
	9	Mukden	0231Z	0231Z	20,200	19,500	1	8				1	8
	2	Chenghsien	0048Z	0429Z	19,800	19,300	2					2	
468th	1	Opportunity	0252Z	0252Z	18,000	18,000	1					1	
	19	Mukden	0200Z	0231Z	23,000	19,500	4	8			7	4	15
	1	Darien	0114Z	0114Z	19,000	19,000			1			1	
	2	Chenghsien	0048Z	0429Z	20,000	19,300	2					2	
TOTAL	5	Opportunity	0003Z	0252Z	21,000	18,000	5					5	

Primary Target - Mukden
Secondary Target - Darien
Last Resort Target - Chengsien

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S E C R E T

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty Three
21 December 1944

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By Authority of the
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Table IV - Bomb Loading & Disposal

Group	* Type of Bombs	Bomb Loading on A/C Airborne in R. A. Fusing Nose	Fusing Tail	Average No. Loaded	Total Loaded	On Targets Mukden	Darien	Chenghsien	Of Opportunity	Bomb Disposal Jettisoned	Returned	Unknown
40th	500# G.P.	.1	.025	8.0	96	64			8	24		
	500# Inc.	Inst	N.D.	8.1	97	65			8	24		
444th	500# G.P.	.1	.025	8.7	104	9	8		8	77	2	
	500# Inc.	Inst	N.D.	8.0	96	4	8		9	75		
462nd	500# G.P.	.1	.025	6.8	82				10	62		10
	500# Inc.	Inst	N.D.	8.3	99	15			13	66		5
468th	500# G.P.	.1	.025	10.8	140	91		22	11		6	10
	500# Inc.	Inst	N.D.	10.5	137	95		22	10			10
TOTAL	500# G.P.	.1	.025	8.6	422	164	8	22	37	163	8	20
	500# Inc.	Inst	N.D.	8.8	429	179	8	22	40	165		15

* 500# G.P. - AN-M 64 - Actual weight 543.9 pounds.
500# Bomb Incendiary - PT-1 M-76 - Actual weight 483 pounds.

NOTE: Bomb weight information supplied by Ordnance Section, XX Bomber Command.

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty Three
21 December 1944

Table V - - Aircraft Lost and Damaged

Aircraft Lost

Group	Serial Number	Combat E/A	Combat A/A	Explanation
462nd	24505	X		Smoke and fire of Right Wing section caused by enemy A/C hit over target. Ten parachutes seen to open.
468th	24715	X		Rammed over target by enemy A/C. One to two chutes reported to have been seen.
TOTAL		2		

Aircraft Damaged

Major Damage

None.

Minor Damage

Group	Serial Number	E/A	A/A	Own Guns	Other	Explanation
40th	24738	X				Tail Gnrs Compartment.
	65233	X				3 Holes in front pressurized compartment. Hole thru nose gear support flange and Bombardier's Glass.
	63404	X				Holes in fuselage, & left blister.
	24620	X				Left wing tip and dorsel fin.
	24579				X	Radio antenna.
	24752	X				Hole inboard side of #2 Horizontal Nacelle.
		5			1	
444th	24485			X		Right Fwd Bomb Bay Door.
	24730	X				Leading edge, left Horizontal Stabilizer, leading edge left wing.
	24584	X				Hole in Stabilizer.
	24580			X		12 holes in forward bomb bay.
		2		2		
462nd	24506	X				Hole in right wing.
	24456	X				Holes in fuselage and wing.
	63393	X				Hole in vertical stabilizer.
	65232		X			Hole in left horizontal stabilizer.
	24479	X				Front bomb bay door and radar dome hit by bullets.
		4	1			
468th	63464	X	X			#3 prop, underside left wing, #2 Cowling leading edge of both. Wings, right front bomb bay door.

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