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MISSION #1 BANGKOK "CAPACIOUS 1"
5 June 44

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XX
Bomber Command
Mission No. 1
5 June 1944

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HEADQUARTERS
XX BOMBER COMMAND
APO #493

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:By Auth of the C.G.:
: XX Bomber Command :
:26 June 44 J. N. G. :
: Date Initials :
:.....:

TACTICAL MISSION
REPORT

Field Order No. 1

Mission No. 1

TARGET: MAKASAN RAILWAY WORKSHOPS
BANGKOK, THAILAND

5 June 1944

TABLE OF CONTENTS

Tactical Narrative Report
Annex A: Execution of the Mission
Annex B: Enemy Opposition
Annex C: Weather Information
Annex D: Communications Information
Annex E: Radar and RCM
Annex F: Central Station Fire Control
Annex G: Cameras and Photographs
Annex H: Malfunctioning of Equipment
Annex I: Target Damage Assessment
Annex J: Consolidated Mission Statistical Summary
Annex K: Field Orders

S E C R E T

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26 June 1944

SUBJECT: Report of Operations, 5 June 1944.

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

1. UNITS PARTICIPATING:

All groups of the 58TH BOMBARDMENT WING, commanded by Brigadier General Laverne G. Saunders, participated in the mission. These units are as follows:

| <u>Unit</u> | <u>Base</u> | <u>Commanding Officer</u> |
|-------------------------|-------------|-------------------------------|
| 40th Bombardment Group | Chakulia | Colonel Leonard F. Harman |
| 444th Bombardment Group | Charra | Colonel Alva L. Harvey |
| 462nd Bombardment Group | Piardoba | Colonel Richard H. Carmichael |
| 468th Bombardment Group | Kharagpur | Colonel Howard E. Engler |

2. IDENTIFICATION OF MISSION:

a. Raid Number 1

b. Targets Planned:

(1) Primary target: All Groups to Attack -
Makasan Railway Workshops in Bangkok,
Thailand (Objective Folder No. 98.2,
Target No. 37).

(2) Secondary and Last Resort : 40th and 444th Groups -
Malagon Rail Yards and Shops in Rangoon,
Burma (Objective Folder No. 82.2,
Target No. 23).

462nd and 468th Groups -
Central Railroad Station and Yards in
Rangoon, Burma (Objective Folder No. 82.2
unnumbered target).

3. STRATEGY AND PLAN OF OPERATION:

a. Importance of Targets:

(1) Primary: The Makasan Railway Workshops in Bangkok, Thailand, are the only heavy locomotive and car repair shops remaining in the Burma-Thailand railroad net. Furthermore, the shortage of shipping and the increasing hazards of the long water route via Singapore have made the rail line from Bangkok to Burma the chief carrier of troops and military supplies to the Burma front. Thus, with the virtual destruction of the ISEIN Locomotive Workshops north of Rangoon, the Makasan Workshops attained an even greater importance. Photographic coverage on 17 May 1944 disclosed 150 pieces of rolling stock and 14 locomotives in the yards.

- 1 -

S E C R E T

DECLASSIFIED

Authority AND 960063

By RA NARA Date 9/18/05

S E C R E T

All indications, therefore, pointed to the fact that a successful attack on this target would seriously disrupt the movement of troops and military supplies into the Burma Theater.

(2) Secondary:

(a) The Malagon Rail Yards and Shops are the principal railroad yards in the city of Rangoon. They contain a roundhouse and a series of repair shops capable of maintaining locomotives and cars in minimum rolling condition.

(b) The Central Railroad Station and Yards are the second most important targets in Rangoon. They contain a station 1,000 feet by 300 feet and frequently hold from 100 to 200 pieces of rolling stock.

b. Details of Planning:

(1) Operational factors heavily overweighed strategic considerations in the selection of Bangkok for the initial combat mission of the B-29. The development and modification of this airplane had been so rapid that commanders and crews alike were unfamiliar with its characteristics, capabilities, and limitations. The necessity of a shakedown period was clearly indicated.

(2) The shakedown has had three phases: (1) the flying to the Theater to provide data as to operations at ranges approaching maximum; (2) the flying of cargo missions "Over the Hump" to provide subsequent data as to flights at relatively high altitudes; and (3) the planning of a shakedown mission on Bangkok in order to give crews operational experience under combat conditions.

(3) The logistical expense of a China-based mission prohibits strikes from the forward area except against major targets. Conditions of range and enemy opposition were such as to preclude a shakedown mission against such a major objective. Therefore, a target within striking distance of the bases in the Calcutta area and with favorable conditions of range, enemy opposition, and weather was selected.

(4) Important although overshadowed strategic considerations were also involved in the attack. Virtually the entire Allied effort in the India-Burma Sector of the C.B.I. Theater during recent months has been aimed at driving the Japanese out of North Burma. Bangkok presents the most significant strategic objective in the sea-rail network by which the enemy is supplied. For this reason, the specific primary target, as indicated above, was selected. Secondary targets were also selected because of their logistical significance. This selection received the emphatic endorsement of the Theater's senior Air Commanders, whose principal operations are coordinated with the North Burma Campaign.

(5) The deception inherent in striking at an objective remote from the areas of primary interest was an additional strategic consideration. Aside from the possibility of causing a change in the deployment of the enemy's fighter aircraft, another important factor was involved. If by such an attack the enemy could be led to believe that the security of his homeland was not yet endangered by the B-29, the possibility of surprise in any strike against Japan proper would certainly be increased.

(6) The lack of aircraft during the training period in the United States and the immediate assignment of all available B-29's to cargo operations upon arrival in the Theater had precluded the possibility for thorough training in formation flying. This situation, in addition to a consideration of the extremely high temperatures encountered during

S E C R E T

flight at relatively low altitudes in daylight, resulted in the decision to fly a night mission by individual aircraft as early as possible in order to accomplish the shakedown before the advent of the monsoon. The mission, therefore, was scheduled for the night of 27 May. A change was made, however, in compliance with orders from Higher Headquarters, resulting in the necessity for an intensive formation flying program in order to obtain data on fuel consumption and other information necessary for planning a daylight formation mission. The mission was then scheduled for 5 June.

(7) Bomb loading consisted of 75 percent 500-pound GP bombs and 25 percent M18 incendiary clusters. The 500-pound GP bombs were selected for this mission as a result of the type of structure found at the Makasan Railway Workshops, one-story buildings of light construction with possibly some wood structures. The fuzeing of 0.10 nose and 0.025 tail was chosen in order to allow penetration of the roof and detonation at the floor of the buildings. Furthermore, in the event that the mission should develop into a visual bombing attack, it was realized that the target would be overloaded with HE. Therefore, it was decided that 25 percent of the total load should consist of M18 incendiary clusters for the following reasons: (1) the presence of wooden buildings, freight cars, and reported oil processing in the area; and (2) a desire to test the effectiveness of the new M18 clusters, so that additional bombs could be ordered, if found satisfactory. It was planned that three groups would release the 500-pound GP bombs first with one group carrying one 1-hour delayed-fuze bomb per aircraft. The incendiary clusters were to be released by the last group over the target.

(8) The plan called for an attack on the primary target with take-offs beginning at 0545, I.S.T., thus permitting all take-offs and landings during hours of daylight. Planned flight time was approximately 10 hours. The general route prescribed was from Base Area to 14 deg. 30 min. North -- 93 deg. 30 min. East to 12 deg. 30 min. North -- 100 deg. 45 min. East to objective to 15 deg. 30 min. North -- 93 deg. 30 min. East to Base Area with an axis of attack of 331 degrees. Method of attack was planned to be by formation in waves. The plan also called for the Strategic Air Force of the Eastern Air Command to attack the Don Maung airfield in Bangkok just prior to daylight using delayed-action bombs.

4. EXECUTION OF THE MISSION (See Annex A):

a. Strategic Air Force, EAC: As a result of unfavorable weather conditions, the Strategic Air Force of the Eastern Air Command was unable to fulfill its part of the mission. Therefore, the Don Maung airfield in Bangkok was not attacked as planned. In view of the negligible enemy air opposition during the B-29 mission, however, the inability of the Strategic Air Force to carry out its own mission had no perceptible effect upon the success of the mission assigned to this Command.

b. Take-Off:

(1) In compliance with Field Order Number 1, XX Bomber Command, the 58th Bombardment Wing dispatched 112 B-29 aircraft as outlined in its Field Order Number 2. Of this number, 98 aircraft were airborne from bases as follows:

| <u>Group</u> | <u>No. a/c Airborne</u> | <u>First a/c off</u> | <u>Last a/c off</u> |
|--------------|-----------------------------|--------------------------|-------------------------|
| 40th | 26 | 042332Z | 050003Z |
| 444th | 26 | 042314Z | 042336Z |
| 462nd | 20 | 042337Z | 050002Z |
| 468th | 26 | 042327Z | 050017Z |

- 3 -

S E C R E T

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The 44th Group staged its aircraft from the bases of the other three Groups. All 44th aircraft were instructed, however, to return to home base upon early return or completion of the mission. All aircraft were airborne within 63 minutes.

(2) Of the 98 aircraft airborne, 14 aircraft aborted, one crashing approximately two minutes after take-off, killing 10 crew members and inflicting serious injury upon the eleventh. During the course of D Day, 12 aircraft returned due to mechanical failures and one due to failure to join its assigned formation.

c. Assembly: As a result of low clouds and haze, difficulty was encountered in assembling into the specified four-ship diamond formation. Failure to rendezvous at pre-determined points resulted in some aircraft joining formations other than their own.

d. Route Out:

(1) Increasingly heavy weather developed as the mission progressed, making it hazardous and impractical to maintain formation. Therefore, many formations had to disperse and fly the flight plan as individual aircraft. However, the route flown was generally as briefed.

(2) An average track of 142 degrees was made to the first turning point at 14 deg. 30 min. North -- 93 deg. 30 min. East, a track of 105 degrees to the second turning point at 12 deg. 30 min. North -- 100 deg. 45 min. East, and a track of 6 degrees to the Initial Point at 13 deg. 18 min. North -- 100 deg. 49 min. East.

c. Initial Point: Conditions at the IP were favorable. No trouble was experienced in picking up the three islands assigned as IP, either visually or by radar.

f. Bombing Runs: As indicated, many aircraft had lost formation, resulting in many of the bombing runs being made by individual aircraft. The 7/10 - 10/10 undercast further indicated that a visual sighting could not be made in many cases. Therefore, radar bombing was accomplished by 48 aircraft of the 77 that dropped their bombs in or near the target area. Some radar operators experienced difficulty in locating and identifying the steel bridge that had been given as the Offset Aiming Point. As a result of these factors, the planned formation bombing was not accomplished. Extra runs were made on many varied headings in order to accomplish release. Moreover, the planned Indicated Air Speed (200 mph) was not met. Average IAS was 195 mph with speeds reported as low as 184 mph and as high as 210 mph. Altitude of attack also varied widely from the planned bombing altitude of 23,000 - 25,000 feet in that bombing altitudes reported ranged from 17,000 to 27,300 feet. Bomb runs also varied widely in terms of time, ranging from 12 seconds to 6 minutes. The first aircraft over the target was at 0422Z, the last at 0602Z, making total time elapsed one hour and forty minutes.

g. Route Back:

(1) Aircraft for the most part returned individually. From the target a track of 285 degrees was flown to 15 deg. 30 min. North -- 93 deg. 30 min. East. From this point an average track of 319 degrees was flown to 20 deg. 15 min. North -- 89 deg. 15 min. East. At this point the aircraft were forced to disperse as a result of unforeseen adverse weather, and many were finally forced to land at airfields of opportunity. In all, 12 aircraft landed at XX Bomber Command bases other than their own and 30 landed at bases other than XX Bomber Command bases.

(2) Two aircraft were forced to ditch in the Bay of Bengal on the return route. Another aircraft, after reporting itself low on

S E C R E T

gasoline over the target as a result of loss of compression on one engine during the climb to bombing altitude, headed for China and crashed approximately 50 miles southwest of Kunming. A fourth aircraft crashed on landing at Dum Dum airfield in Calcutta. Casualties from these four operational losses were 5 killed, 7 slightly injured, and 2 missing. All other aircraft returned safely to their own or other bases.

h. Operational Results of the Mission: Over-all, the mission is considered an operational success. It provided the combat crews with experience in all phases of operations under combat conditions. Many valuable lessons were learned by crew specialists. The mission also provided valuable data on the capabilities and limitations of the B-29. Operationally, therefore, the mission is considered to have accomplished its objective. (For results other than operational, see Paragraph 13 and Annex I.)

5. ENEMY OPPOSITION (See Annex B):

a. Anti-Aircraft:

(1) Heavy anti-aircraft, reported by all Groups over the target, was meager to moderate and generally inaccurate. The majority of the fire encountered was Predicted Concentration with some possible Continuously Pointed. There is a possibility that the fire may have been radar controlled, although single-engine aircraft were observed flying just beyond gun range at the same altitude and course, ostensibly reporting altitude.

(2) Heavy anti-aircraft, meager and inaccurate, was also reported by isolated aircraft near STRIMAHA RALA on the route to the target and over KANCHANABURI on the route back.

(3) No aircraft were lost to anti-aircraft fire. Sole damage was a small flak hole in the rudder of one aircraft.

(4) Evasive action at the target generally consisted of a turn and loss of altitude after bombs were dropped.

b. Enemy Aircraft:

(1) Opposition by enemy aircraft was negligible, consisting of nine enemy aircraft making a total of twelve passes over the target area at altitudes from 20,000 to 25,000 feet. Evidence exists that the Japanese air raid warning nets had been alerted; yet there was no attempt at interception before the general target area was reached. Despite the fact that the first B-29 reached the target at 0422Z, the first definite attack did not materialize until 0452Z. The last attack was made at 0532Z, 30 minutes before the last B-29 left the target.

(2) Attacks were made singly from around the clock with breakaways generally out of range of the B-29 fire. The majority of the attacks developed from above, although two level attacks and one from below were made.

(3) As a result of the extreme caution on the part of the enemy aircraft, there was little exchange of fire and evasive action was not necessary. Our claims consist of one aircraft probably destroyed and two aircraft damaged. However, these have not yet been officially awarded to the gunners making the claims. No damage whatsoever was suffered by our aircraft as a result of enemy fire.

(4) Many aircraft making no attempt to attack were observed in or near the vicinity of the target.

(5) No unusual methods of attack or new weapons were used by enemy aircraft.

- 5 -

S E C R E T

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6. WEATHER (See Annex C):

a. Weather conditions, for the greater part of the route out and back were as forecast. However, violent thunderstorms in the base areas considerably more intense and occurring much earlier than predicted, caused wide dispersal of aircraft to bases other than their home bases, resulting in unforeseen increases in time aloft and consumption of gas. These thunderstorms gave rise to fresh gusts, which greatly reduced visibility as a result of the dust storms produced, and strong cross winds, which made landings at the base areas hazardous or precluded landing altogether. Heavy rains associated with the thunderstorms resulted in instrument conditions for short periods not exceeding one hour.

b. These conditions are not uncommon during the period of the Southwest Monsoon from June to October, and they can rarely be predicted with any degree of accuracy.

c. Conditions were extremely poor for visual bombing. The cloud cover over the target varying from broken (7/10) to solid (10/10) necessitated radar bombing in numerous instances and precluded visual observation of results at the time of attack.

7. BATTLE LOSSES AND BATTLE DAMAGE:

a. Battle Losses: None of our aircraft were lost as a result of enemy air or anti-aircraft action.

b. Battle Damage: One aircraft received a small flak hole in the rudder. There was no other damage from anti-aircraft and none at all from enemy aircraft.

8. COMMUNICATIONS (See Annex D):

a. Radio Discipline: Strict radio silence was observed by all radio operators until aircraft were within 300 - 350 miles from home stations. There is inconclusive evidence, however, that some operators were tuning up their transmitters on the air-ground frequency while the aircraft were still close to enemy territory.

b. Air-Ground Communications: Air-ground communications were fair. Excessive static caused by adverse atmospheric conditions caused considerable difficulty which was intensified by poor communications discipline on the part of ground station operators. As a result, some of the numerous requests for bearings and fixes during the return leg of the flight were not received. The average time taken to obtain a QDM was ten minutes. Those given were generally excellent. A great deal of confusion also resulted from the wide use of unauthorized frequencies.

c. Air-to-Air Communications: Air-to-air communications were carried on by use of the Aldis lamp with excellent results, although operators have indicated that further training in the use of the lamp is highly desirable.

9. RADAR AND RCM (See Annex E):

a. Radar:

(1) Navigation: Radar equipment was used extensively throughout the mission for navigation. Radar fixes on check points were effective, and the entire Wing was aided in its navigation to the Target by radar directly or radar-led elements. Although radar navigation was successful, it was not expert. The need of further training and development of teamwork is indicated.

S E C R E T

(2) Bombing: Of the number of aircraft dropping their bombs by radar, only a small percentage dropped their bombs in the target area. Inability to locate the Offset Aiming Point and errors in the calculation of drift contributed to the low percentage of hits, indicating that a major cause of the poor radar bombing was the inexperience of the operators. Weather difficulties preventing proper formation flying and the fact that a large percentage of aircraft did not bomb on the briefed ground track seriously impaired the planned radar bombing effort.

(3) Auxiliary Radar Equipment: The IFF equipment showed excellent serviceability but in several cases was left on erroneously over the target area. The SCR 729 and SCR 718 were used to a varying degree with the SCR 729 being used for air-to-air homing and also for radar countermeasures over the target.

b. RCM:

(1) Radar Intercept: Confirmation was obtained of enemy ground radar at 97 megacycles, 1000 PRF, in the vicinity of The Andaman Islands. No indication was obtained of gun-laying radar.

(2) Radio Intercept: Enemy radio broadcasting stations in the vicinity of the target remained on the air for some time after the start of air-raid warnings.

10. CENTRAL STATION FIRE CONTROL AND ORDNANCE (See Annex F):

a. Central Station Fire Control System: As a result of the reluctance of enemy aircraft encountered over the target to press attacks to close quarters, the question of the functioning and effectiveness of the Central Station Fire Control System was answered only in part. Use of primary control except in cases of emergency was ordered for all Groups, and no experience, therefore, was gained upon which to base an assessment of the efficiency of the equipment or the crews' use of it during the exchange to secondary control. It is reported, however, that the system worked satisfactorily in primary control.

b. Defensive Gunnery: The effectiveness of defensive gunnery remains also relatively untested because of the quantity and quality of enemy air opposition. General indications, based on the small amount of firing that was done, are that additional firing and tracking practice is needed by all crews.

c. Ammunition: No information was gained in connection with the effectiveness of the types and loading of ammunition.

11. CAMERAS AND PHOTOGRAPHS (See Annex G):

a. The broken to solid undercast precluded adequate photographic coverage of the target area. Photographs used in bomb damage assessment were obtained by a photographic reconnaissance flight several days after the mission.

b. Eighty-three cameras in all were installed in the aircraft scheduled to participate in the mission. Of these, 20 were in aircraft that failed to become airborne. Nineteen cameras of the 63 in aircraft airborne took photographs with poor results, particularly in regard to bomb impact data.

12. MALFUNCTIONING OF EQUIPMENT (See Annex H):

a. Of 122 combat operational aircraft available on 5 June 1944, 10 were undergoing major repairs at the time the mission was scheduled,

S E C R E T

leaving 112 aircraft available for participation in the mission. Of these, 14 failed to become airborne, primarily as a result of ignition and supercharger regulator equipment.

b. Thirteen aircraft returned early as a result of mechanical troubles, mostly excessive oil leaks.

c. Five aircraft were operational losses, of which four were lost as a result of difficulties in the fuel transfer system. The cause of the destruction of the fifth which crashed shortly after take-off is unknown but will probably be charged to pilot technique.

d. Malfunctions of the aircraft completing the mission were the usual type encountered in all operations and were a repetition of basic deficiencies that have already been brought to the attention of the manufacturer of the aircraft. (Details of malfunctions by type of equipment are presented in Annex H.)

13. TARGET DAMAGE ASSESSMENT (See Annex I):

a. Summary of Damage:

(1) In all, 16-18 GP bombs appear to have fallen in the target area. Of these, 13-14 are seen to have caused material damage as follows:

(a) Virtual destruction by 3-4 direct hits of the SW corner of the AP, a large (465' x 270') centrally located building housing the Erecting and Boiler Shops; severe damage to the AP by a direct hit on the W Central edge; further severe damage to the AP by a near miss off the E Central side.

(b) Severe damage by 2 or 3 near misses to a 260' x 130' unidentified building (probably a Storage and Workshop) located just N of the AP.

(c) Damage to tracks and rolling stock by 3 or 4 bomb hits 50' to 150' off the SE corner of the AP, with a probable break in the Simaharacha RR Line.

(d) Possible damage to the Simaharacha RR Line by a bomb which appears to have fallen between the railway and the New Wagon Shop.

(e) Possible damage to the NW Corner of the New Storage Building as a result of blast action.

(2) No incendiary bomb damage was noted in the target area.

(3) Other damage caused by the attack includes:

(a) Severe damage to the west wing and part of the central structure of the Paruskawan Palace by 1 or 2 direct hits.

(b) Just south of (a) 3 or 4 business or residential type buildings severely damaged.

(c) Completely gutted large buildings SW of the Royal Turf Club, thought to be a school. Two or three small buildings damaged in the vicinity.

(d) Just south of (c) two or three business or residential buildings damaged.

- 8 -

S E C R E T

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S E C R E T

(e) Severe damage to a warehouse type building and several houses by HE just NE of the junction of Nakorn Lawin and Lan Luang Roads in central Bangkok.

(f) Two direct hits on two corner sites NW of the Memorial Bridge causing severe damage.

(g) Severe damage to 8-10 business or residential buildings by a number of HE hits in an area approximately 1500' N of the Memorial Bridge.

(h) Severe damage to 7 or 8 business or residential buildings by HE approximately 3000 feet N of the New Government Port Area.

(i) Probable incendiary damage to several barracks and storage sheds in the NW part of the New Government Port Area.

(j) Probable incendiary damage to several barracks type buildings in a Japanese Army Camp about 5000 feet S of the Target.

(k) Two or three small buildings damaged within the grounds of the Regents Palace.

b. Estimate of Time for Reconstruction: Serious damage has been inflicted upon the Erecting and Boiler Shops, with the result that operations carried out in the southern portion of the building have probably been interrupted. Although several instances of damage to various installations within the target are apparent, it is believed that, with the exception of boiler erection and repair, the progress of work at the Makasan Railway has not been materially affected as a result of this attack. The damage sustained by the Erecting and Boiler Shops may require two to three months to repair, but it appears that the damage done to other installations could be repaired rapidly should the enemy choose to effect reconstruction.

c. Estimate of the Strategic Effect of Mission: The major material result of the Bangkok mission will be the increase in the backlog of repairs to be performed by the railway shops. This applies particularly to the conditioning of locomotives, a critical item in the operation of the Burma-Thailand railroads. However, there should be no noticeable decrease in the flow of troops and military supplies into Burma.

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

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ANEX

A

Execution of the Mission

- I Statement of Routes
- II Horizontal Track
- III Vertical Track
- IV Formation Planned

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I - STATEMENT OF ROUTES

Mission No. 1

5 June 1944

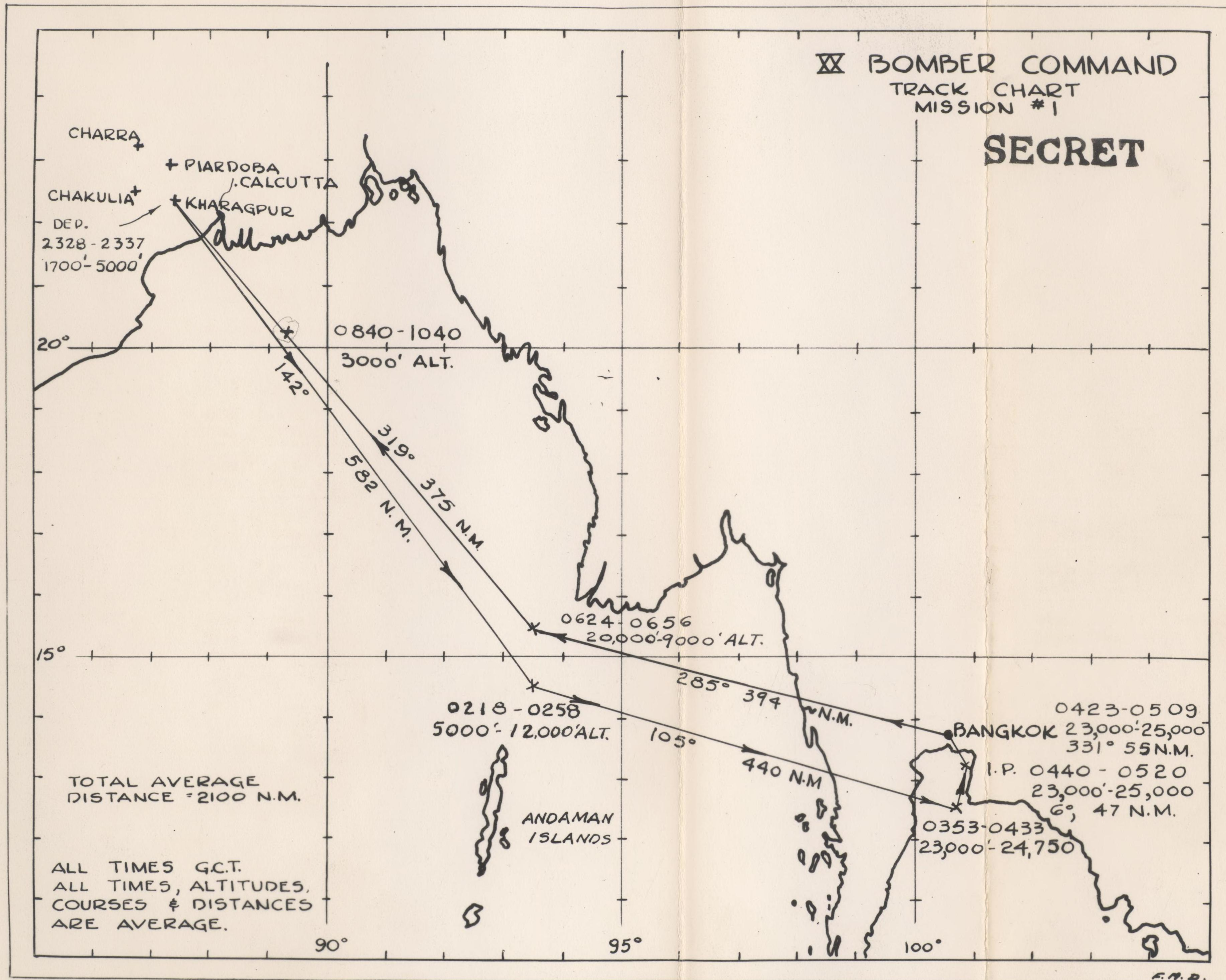
| From Bases to: | Location | Average Track (deg.) | Average Time | Average Alt. (feet) | Average I.A.S. (mph) |
|--|---|----------------------|----------------|---------------------|----------------------|
| 1st Turning Pt. to: | 14 deg. 30 min. N 93 deg. 30 min. E | 142 | 0218- 0258Z | 5,000- 12,000 | 190- 205 |
| 2nd Turning Pt. to: | 12 deg. 30 min. N 100 deg. 45 min. E | 105 | 0353- 0433Z | 23,000- 24,750 | 190- 205 |
| IP to: | 13 deg. 18 min. N 100 deg. 49 min. E | 6 | 0440- 0520Z | 23,000- 25,000 | 200 |
| Target to: | 13 deg. 45 min. N 100 deg. 33 min. E | 295- 85 | 0423- 0509Z | 23,000- 25,000 | 195 |
| 3rd Turning Pt. to: | 15 deg. 30 min. N 93 deg. 30 min. E | 285 | 0624- 0656Z | 20,000- 19,000 | 200- 210 |
| Approximate initial pt. of dispersal to bases and airfields of opportunity | 20 deg. 15 min. N 89 deg. 15 min. E | 319 | 0840- 1040Z | 3,000 | 200- 210 |

NOTE: Aircraft took off between 042314Z and 050017Z and landed between 050932Z and 051207Z.

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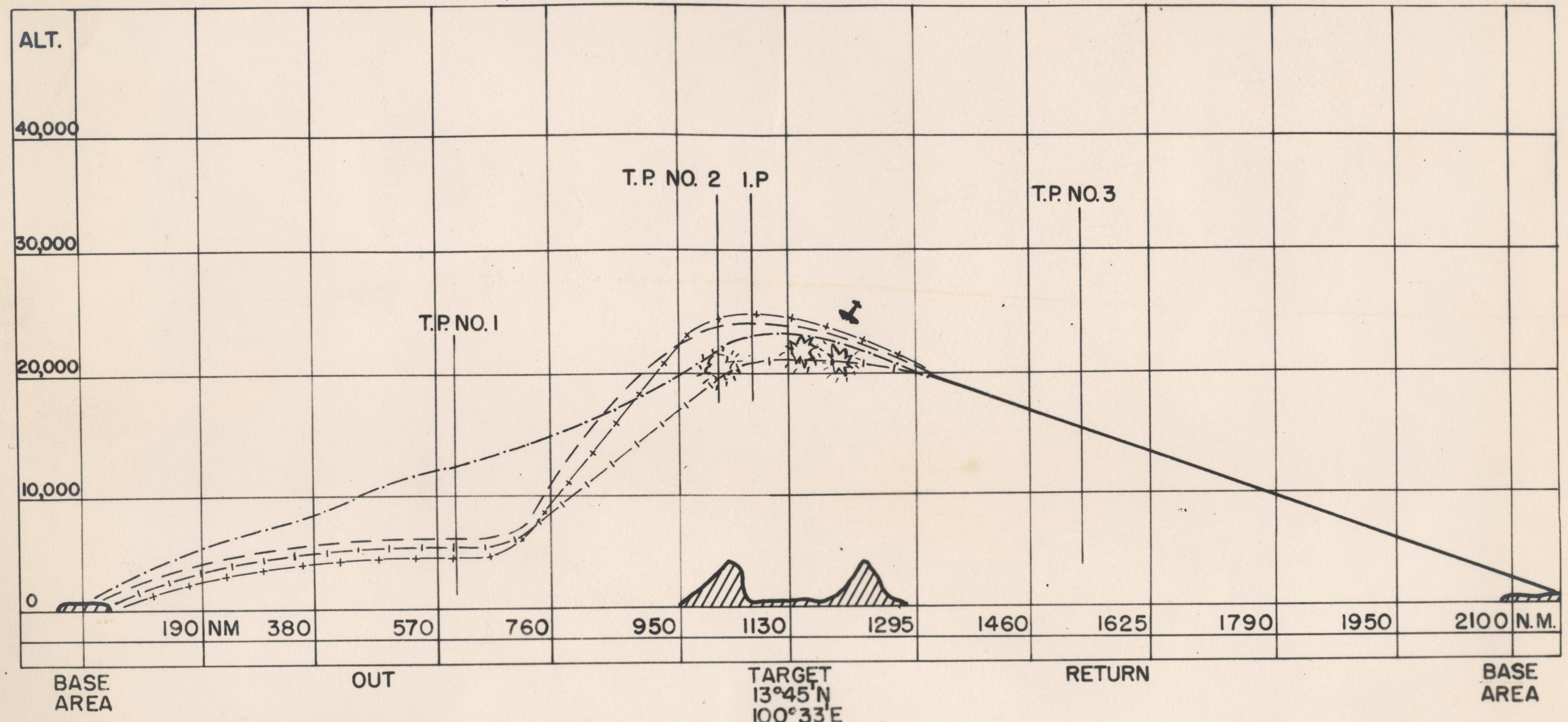
XX BOMBER COMMAND
TRACK CHART
MISSION #1

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F.A.D.

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XX BOMBER COMMAND
MISSION NO. 1
5 JUNE 1944



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| | | | |
|-------|----------|--|---------|
| — — — | 40 B.G. | | ACK-ACK |
| · · · | 444 B.G. | | PURSUIT |
| — + — | 462 B.G. | | |
| — - — | 468 B.G. | | |

VERTICAL TRACK CHART

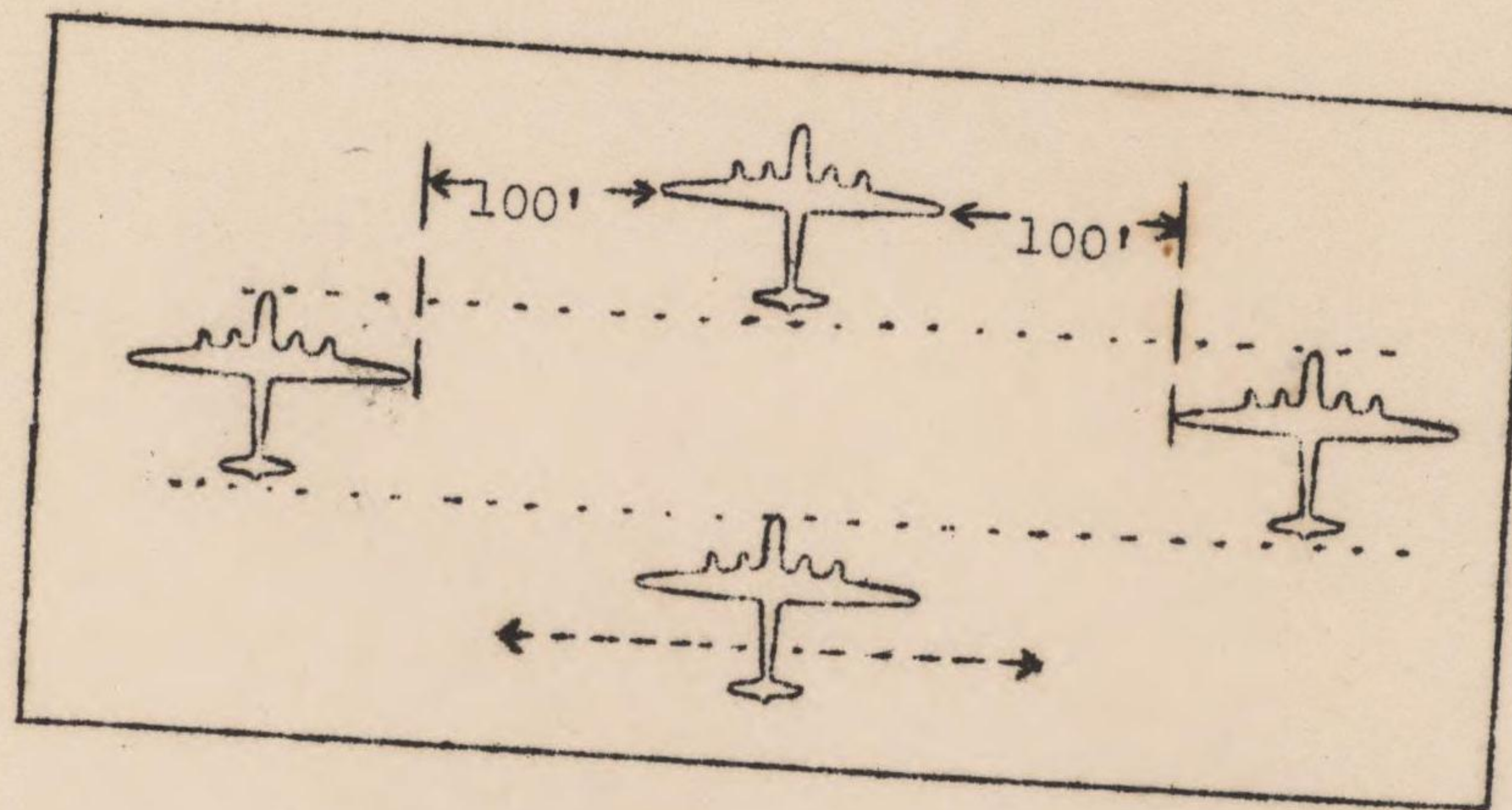
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IV - FORMATION PLANNED

Mission No. 1

5 June 1944



The formation planned was the four-ship diamond, wing men level and 100 feet out nose to tail with the leader. The #4 ship was to fly slightly above and keep itself in the position that would most effectively provide defensive fire power for the formation. Minimum number of ships in one formation was specified as three.

The effectiveness of this formation cannot be analyzed since practically all formations were broken up by adverse weather before the target was reached and enemy opposition encountered. Moreover, fighter opposition was so meager and attacks broken off at such great distances that no information was gained as to the effectiveness of defensive firepower of the formations that were flown over the target or as to that of aircraft flying alone.

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ANNEX

B

Enemy Opposition

- I Enemy Anti-Aircraft
- II Enemy Fighter Tactics
- III Tabular Analysis of Encounters
- IV Enemy Aircraft Markings
- V Clock Summary of Attacks and Claims

S E C R E T

S E C R E T

I - ENEMY ANTI-AIRCRAFT

Mission No. 1

5 June 1944

a. All Groups reported heavy anti-aircraft fire over Bangkok between 0422Z and 0602Z, at altitudes varying from 17,000 to 27,000 feet, with the majority of the aircraft making their bombing runs between 23,000 and 26,000 feet. The average axis of attack was from 325 to 360 degrees with an average Out heading of 275 degrees.

b. Anti-Aircraft fire was reported as meager to moderate and generally inaccurate. No aircraft were lost although one did sustain a small flak hole in the rudder.

c. The majority of the fire encountered was Predicted Concentration (patterns of 20 to 30 bursts, occurring within 2 to 3 seconds, generally accurate for altitude, but approximately 500 yards to the right), with some possible Continuously Pointed (smaller, more compact groups of burst, with groups being several hundred yards apart). In view of the 7/10 to 10/10 undercast, there is a possibility that the fire may have been radar controlled, although several aircraft reported lone single-engined aircraft flying at the same altitude and course just beyond gun range, ostensibly reporting altitude.

d. One aircraft at approximately 24,000 feet reported 6 to 8 bursts in the vicinity of STRIMAHA RALA ($13^{\circ} 12' N - 100^{\circ} 55' E$), accurate for altitude, but several hundred yards to the right. A lone single-engined aircraft was observed at the same altitude and course just beyond gun range.

e. Heavy anti-aircraft was also encountered by two aircraft over KANCHANABURI ($14^{\circ} 02' N - 99^{\circ} 32' E$), reported as meager and inaccurate. Altitude in one case was accurate (23,000 feet) and approximately 500 yards to the right; in the other case, low, to the right and behind.

f. Evasive action at the target generally consisted of a turn and loss of altitude after "bombs away". Bomb runs varied from 30 seconds to 6 minutes with one aircraft making six runs over the target area.

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By RA NARA Date 9/18/05

S E C R E T

II - FIGHTER TACTICS

Mission No. 1

5 June 1944

A. General

Fighter tactics used by Japanese fighter aircraft against the B-29 were varied and apparently executed with no preconceived plan of attack. The majority of the attacks were characterized by extreme caution, and in almost all cases the passes were terminated at such great distances that no firing was done either by the enemy aircraft or the B-29's.

Furthermore, at or near the target area there were many enemy aircraft that took no offensive action whatsoever. One Group reported a total of 6 OSCARS, 9 - 11 unidentified single-engine aircraft, 1 unidentified single-engine bi-plane, 1 probable TONY, and 1 unidentified twin-engine aircraft airborne at or near the target area. None of these made any attempt to attack. Only 2 aircraft actually attacked B-29's of this Group, one an OSCAR that pressed an attack to 600 yards with no firing and the other a TONY that fired a short burst at 1,000 yards before breaking away in a dive. Other Groups also reported airborne enemy aircraft - HAMES, OSCARS, and two possible HELENS - that showed no inclination to engage in combat.

Actual attempts at interception were made by 9 fighters, consisting of 4 OSCARS, 2 TOJOS, 1 TONY, 1 NICK and 1 unidentified aircraft, an extremely limited fighter reaction. All attacks, 12 in number, were made in or near the vicinity of the target. There are some indications that enemy tactics were intended to overcome the high IAS of the B-29. The general pattern seemed to be to wait for the individual B-29 or a formation to come along, make one pass, and then break off to wait for the next B-29 or formation.

As a result of the enemy order of battle in the Bangkok area, a strong fighter reaction was not expected. The reluctance of the enemy to press home attacks, however, is not easily interpreted. It is quite possible that weather conditions may have effected their efficiency or that unfamiliarity with the speed of the B-29 may have caused them to break away at greater than effective distances. It is also quite possible that the enemy was content to have most of his airborne fighters observe the B-29 and to have a few passes made in an attempt to gain information for future attacks against the B-29.

B. Some Individual Attacks

1. Time: 0516Z Altitude: 24,000 feet E/A: OSCAR

The attack developed from a Split-S with OSCAR coming in high from 10 o'clock, apparently misjudging an attempt at a direct frontal attack. The bombardier in the upper forward turret and the senior gunner in the upper aft turret both opened fire at 800 to 1000 yards. As OSCAR broke away toward 5 o'clock at 400-500 yards, the tail gunner fired a short burst.

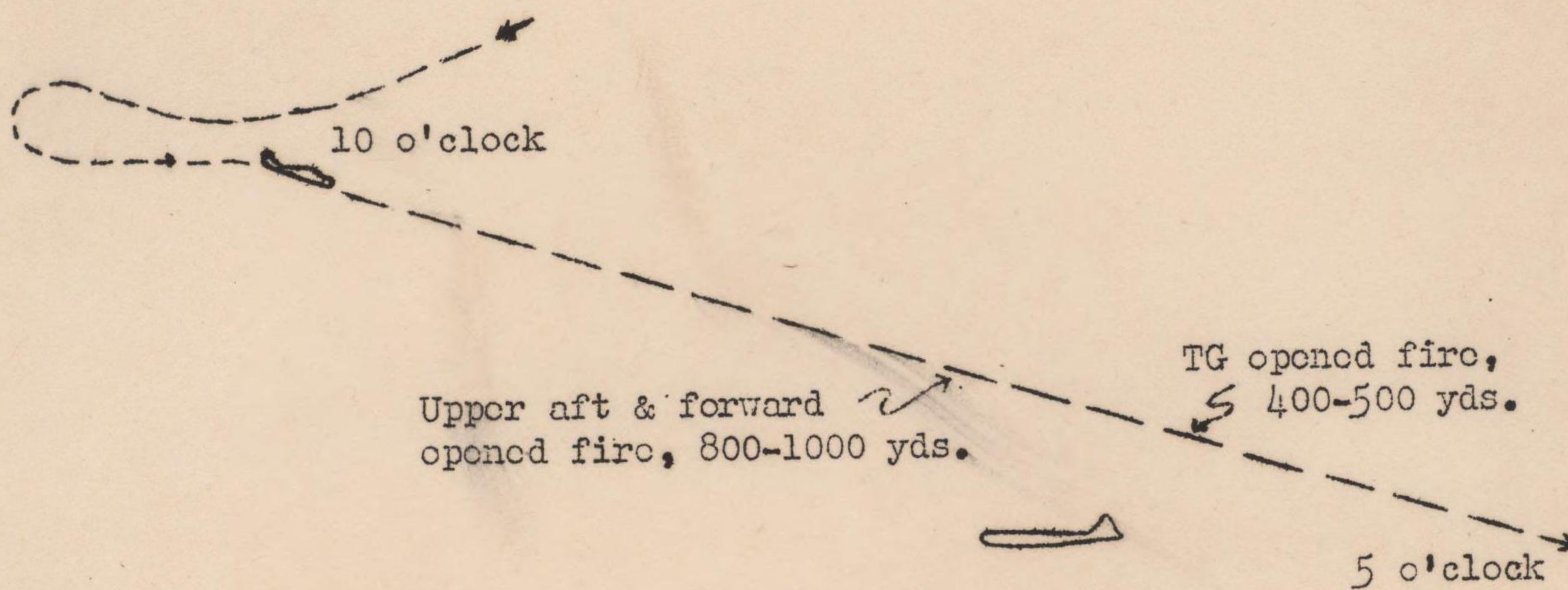
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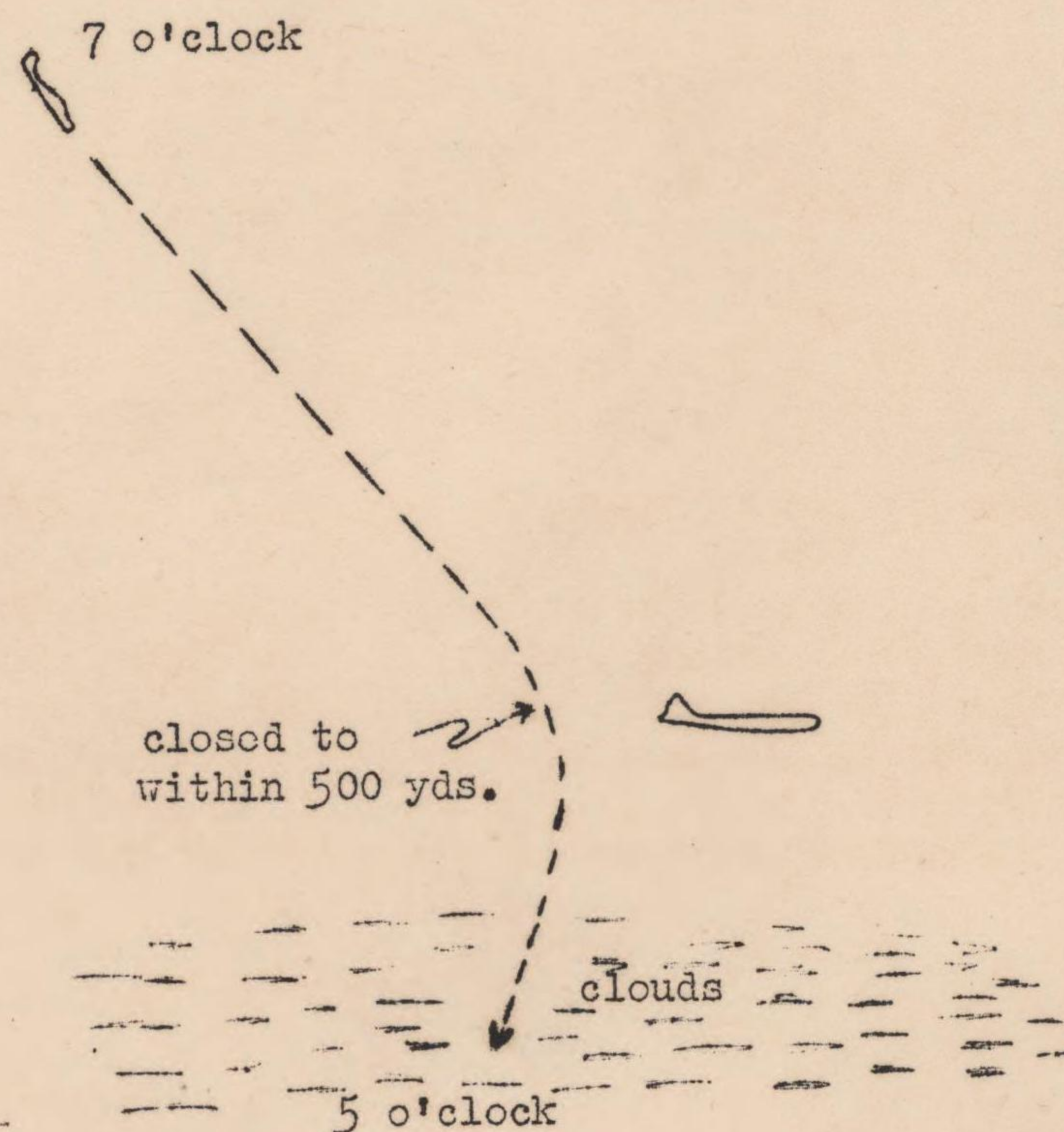
S E C R E T



Tracers were observed hitting OSCAR'S tail and belly, but any damage inflicted did not immediately affect his flight. No enemy fire was noted.

2. Time: 0532Z Altitude: 25,000 Feet E/A: NICK

NICK started an attack from 7 o'clock at 3000 to 5000 feet above the B-29 coming in a dive to within 500 yards, then breaking away toward 5 o'clock disappearing in the clouds below.



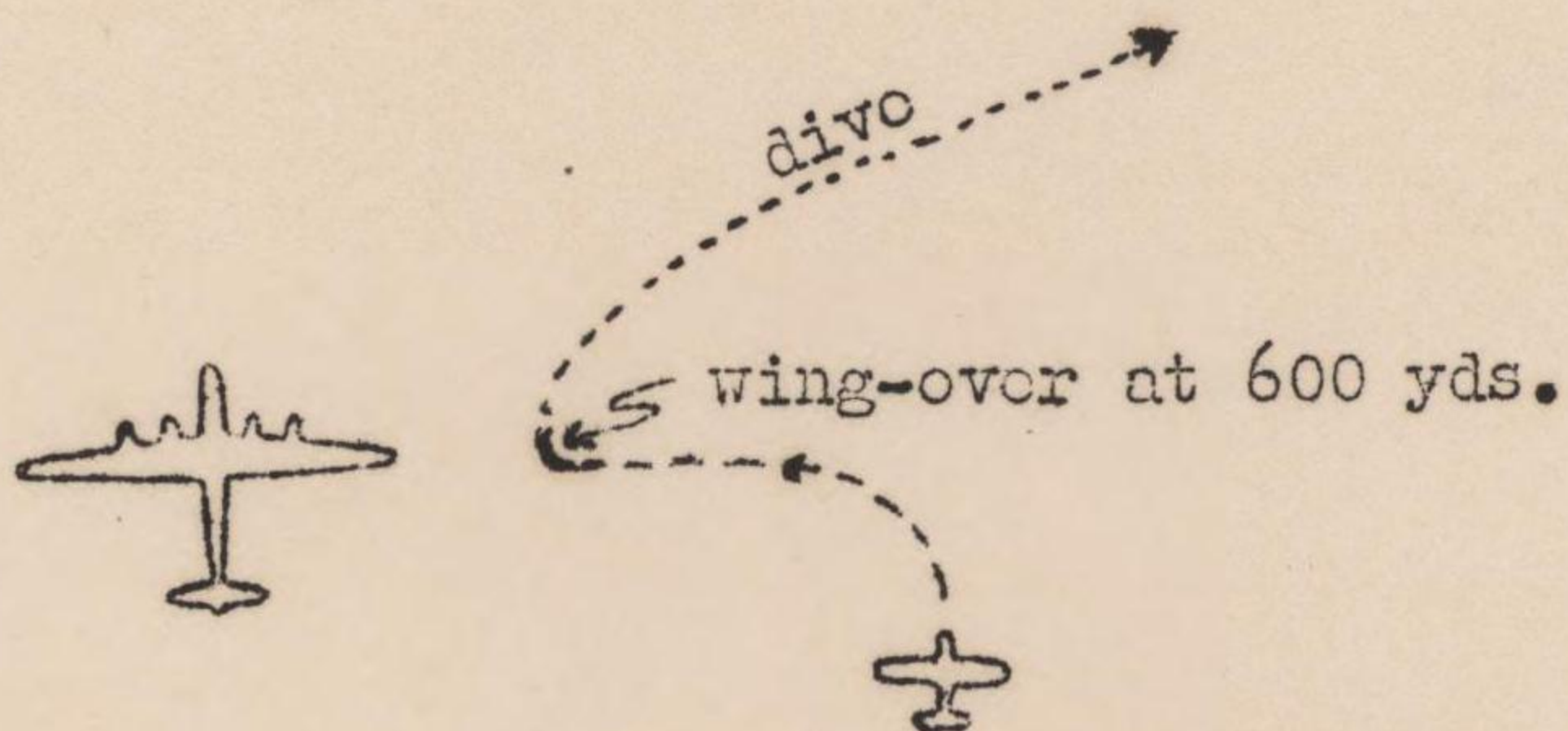
The tail gunner got in two short bursts, but no hits were observed. There was no fire from NICK.

3. Time: 0520Z Altitude: 23-24,000 feet E/A: OSCAR

After a high frontal dive toward the formation leader, OSCAR pulled up and flew along side and out of range of the number 4 ship. He then turned in toward number 4 for a level beam attack from 3 o'clock. The upper and lower aft turrets opened at 600 yards, and OSCAR broke away with a wing-over and steep dive without returning fire.

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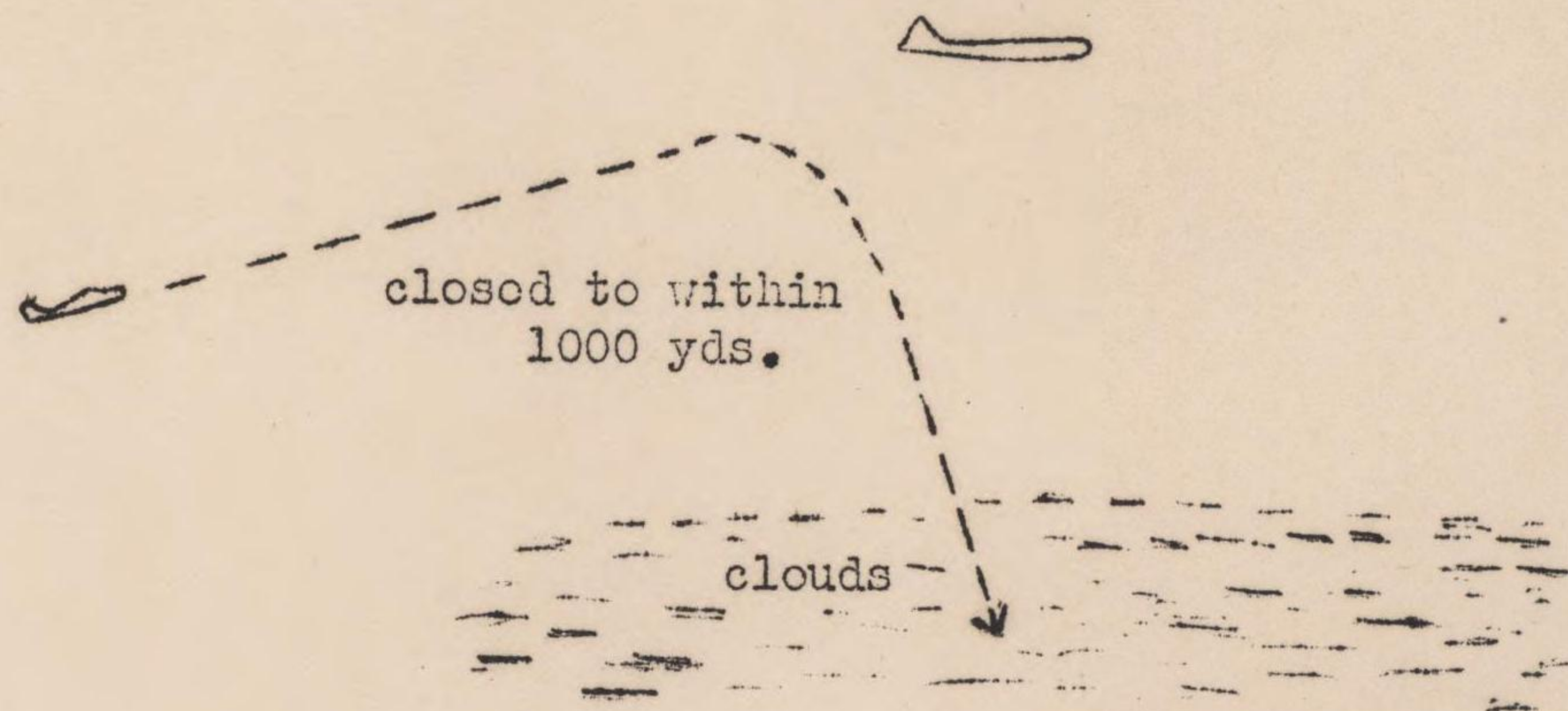
S E C R E T



Tracers appeared to go into OSCAR as he made his breakaway, but no damage was observed.

4. Time: 0528Z Altitude: 23-24,000 feet E/A: TONY

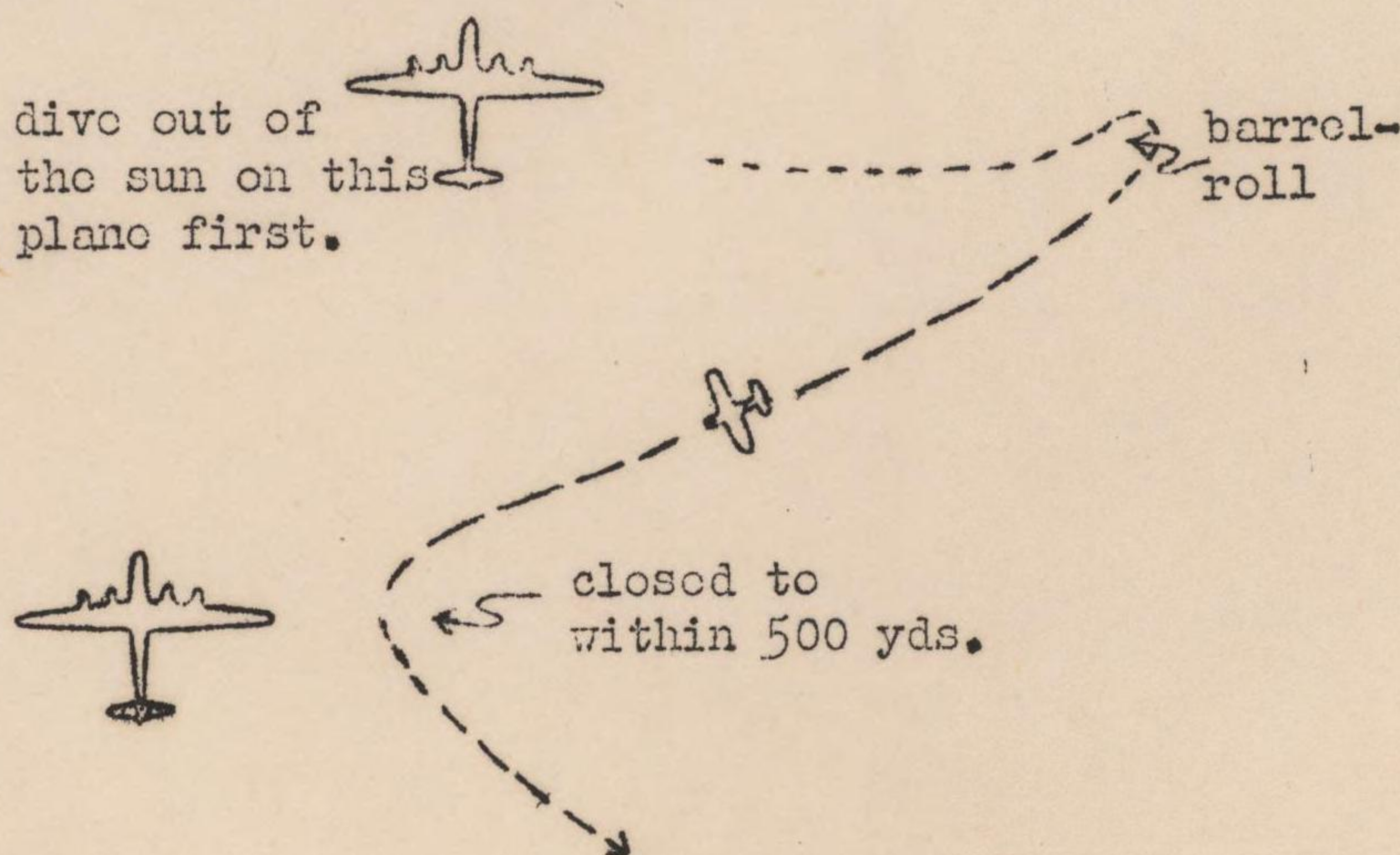
TONY came in from 6 o'clock low, closing to within 1000 yards. After firing a short burst of tracers, he nosed over into a steep dive and disappeared into the clouds.



There was no return of fire from the B-29.

5. Time: 0517Z Altitude: 24-25,000 feet E/A: OSCAR

This attack developed from out of the sun at 12 o'clock. OSCAR made a dive on the last ship of a formation, peeled off toward 3 o'clock, and passed out of range. He then executed a barrel roll and made a pass from 2 o'clock on the lead ship of the next formation, coming to within 500 yards as if to attack but then turning out from 4 o'clock without firing. The lead B-29 opened fire at 600 yards but observed no hits.



S E C R E T

III - TABULAR ANALYSIS OF ENCOUNTERS *

Mission No. 1

5 June 1944

| Time | Enemy Aircraft | Position of Attack | | Altitude of Attack (feet) | Enemy Opened Fire (yards) | Breakaway | | Bomber Opened Fire (yards) |
|---------|--------------------------|--------------------|----------------|---------------------------|---------------------------|------------------|---------------------------|------------------------------|
| | | Clock | Vertical | | | Distance (yards) | Maneuver and Direction | |
| Unknown | Probably TOJO | 6 o'clock | above | 23,000 | No | 1000 | unknown | 1000 |
| 0452Z | Unidentified T/E fighter | 10 o'clock | above | 23,000 | No | 1000 | 7 o'clock | No |
| 0458Z | OSCAR | 5 o'clock | above | 20-25,000 | No | unknown | unknown | unknown |
| 0504Z | 2 OSCARS | 2 o'clock | above to level | 20-25,000 | 300 | less than 300 | unknown | unknown |
| 0505Z | TOJO | 1 o'clock | above | 20-25,000 | 100 | less than 100 | unknown | unknown |
| 0516Z | OSCAR | 10 o'clock | above | 24-25,000 | No | 400 | dive toward 4 o'clock | 800 |
| 0517Z | OSCAR | 2 o'clock | level | 24-25,000 | No | 500 | toward 4 o'clock | 600 |
| 0519Z | OSCAR MK. II | 2 o'clock | above | 20-25,000 | 700 | about 700 | unknown | unknown |
| 0520Z | OSCAR | 1 o'clock | above | 20-25,000 | No | 600 | unknown | unknown |
| 0520Z | OSCAR | 3 o'clock | level | 23-24,000 | No | 600 | wing-over and dive | 600 |
| 0528Z | TONY | 6 o'clock | below | 23-24,000 | 1000 | 1000 | nose-over into steep dive | No |
| 0532Z | NICK | 7 o'clock | very high | 25,000 | No | 500 | dive toward 5 o'clock | T.G. Fired, Distance unknown |

* Based on interrogation. Statistical summary includes one high 12 o'clock attack not included in table.

S E C R E T

IV - ENEMY AIRCRAFT MARKINGS

Mission No. 1

5 June 1944

| AIRCRAFT | COLOR | DISTINGUISHING MARKINGS |
|---|--|--|
| OSCAR | Bright green, shiny | Rising sun with Jap flag underneath |
| NICK | Black | |
| TOJO | Bright green | |
| OSCAR | Light brown or grey on top; very light grey on bottom | One bright red sun on underside of each wing |
| OSCAR | Dark green and bright blue | Dark green with several bright blue stripes running lengthwise on fuselage from wing roots to tail. Red ball on side of fuse- lage near tail. |
| 2 OSCARS | Green and brown | Green with brown snake-like design on top from nose to tail. Both planes looked new or newly painted. Both had red ball in- signia on top side of right wing and no markings on top of left wing |
| Unidentified; 6-8 SE enemy aircraft | Silver | |

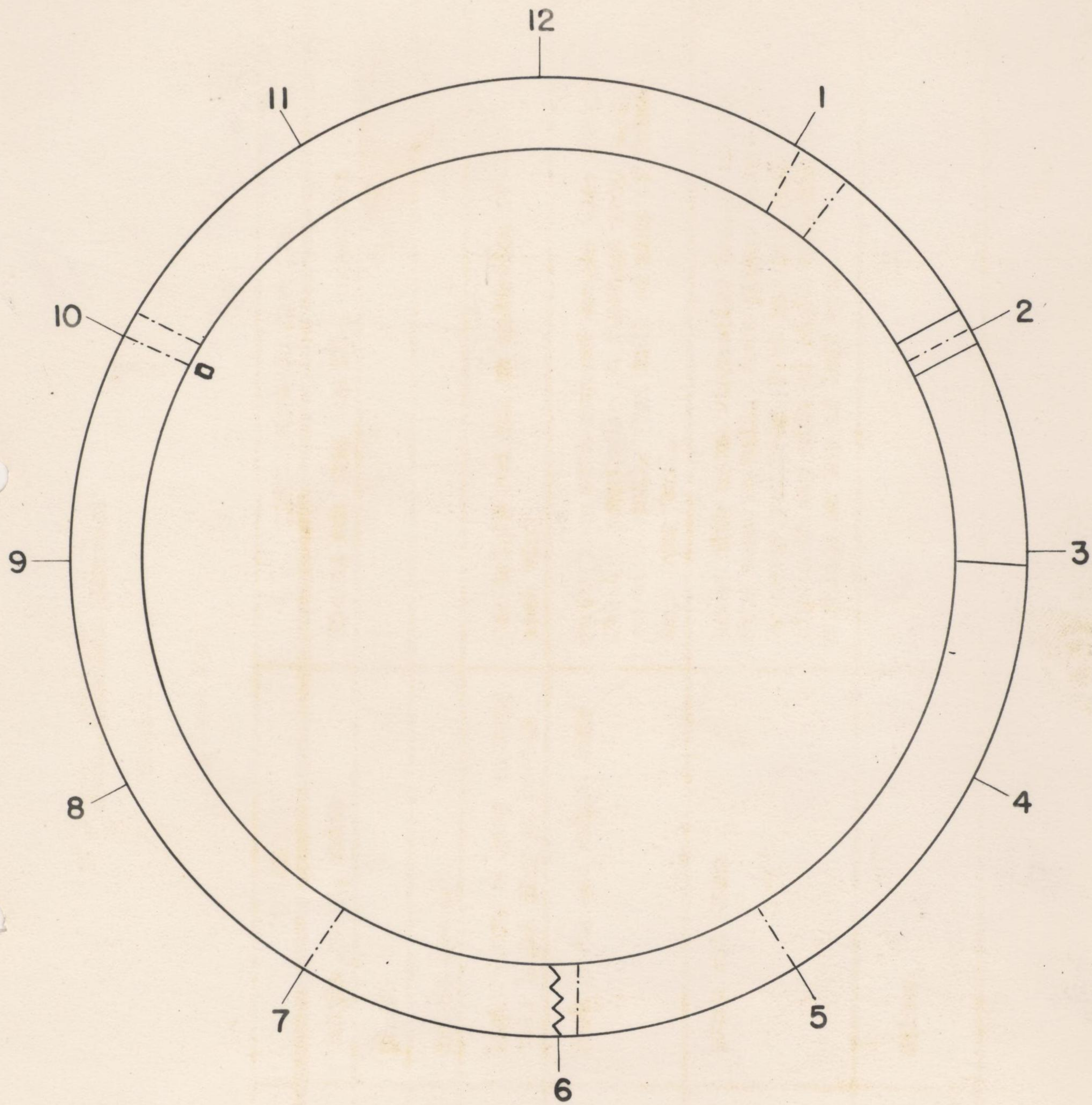
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V CLOCK SUMMARY OF ATTACKS AND CLAIMS

MISSION NO.1

5 JUNE 1944



ATTACK FROM:
ABOVE - - - - -
LEVEL - - - - -
BELOW ~~~~~

DESTROYED: X
PROBABLE : Δ
DAMAGED... : □
NO CLAIM... : ○

NOTE: BASED ON CREW INTERRO-
GATION. STATISTICAL
SUMMARY REPORTS ONE
HIGH 12 O'CLOCK ATTACK
NOT INCLUDED HEREIN.

SECRET

S E C R E T

ANNEX

C

Weather Information

- I Weather Information: As Forecast and as Encountered
- II Chart - Weather as Briefed
- III Chart - Weather as Reported by Returning Crews: Route Out
- IV Chart - Weather as Reported by Returning Crews: Route Back
- V Synoptic Map of Weather as Encountered on Mission

S E C R E T

Mission No. 1

I - WEATHER INFORMATION

5 June 1944

| | As Forecast (0400 to 2000 I.S.T.) | As Encountered |
|---------------------------------|---|---|
| Base Area to 100 m. off coast | Scattered stratocumulus at 5,000 feet with 4 m. vsby at take-off and to coast, becoming high scattered at 15,000 ft. and low scattered at 2,000 ft. Vsby. 4 m. Patches of stratus at 1,000 ft. over land. | (At take-off: 0630 - 0730 I.S.T.) Broken clouds at 6,000 ft. Vsby. 4 m. Large patches of broken stratus were encountered at 600 to 1,000 feet. |
| 100 m. off coast to Turning Pt. | Between 100 and 160 m. off coast, a weak frontal zone will be encountered. There will be several layers of cloud, none more than 1000 ft. thick. All layers will be broken to scattered. Base of lowest layer at 1000 ft. Top of highest level at 16,000 ft. There will be isolated cumulonimbus to 22,000 ft. Beyond frontal area to Turning Pt, there will be layers of scattered to broken cloud, none more than 1,000 ft. thick. Base of lower layer at 3,500 ft. Top of highest layer at 16,000 ft. Vsby. 6 - 8 m. | (To Target) Several layers of scattered to broken stratocumulus clouds, tops at 6,000 ft. with scattered altostratus at 10,000 ft. and broken altostratus at 15,000 ft. Slight cumulus development near India coast. After nearing Andaman Islands, cloudiness increased and cumulus activity with tops to 14,000 ft. in scattered to broken amounts. Cloud layers increased in coverage, and light showers were encountered. The weather remained the same into target area. |
| Turning Point to Target | Scattered to broken heavy cumulus, base at 3,000 ft, tops at 15,000 ft. to 18,000 ft. with lower scud at 1,000 ft. Occasional isolated cumulonimbus to 20,000 ft. Vsby, 6 - 8 m. | |
| Target Area | Scattered to broken layers of clouds, base at 4,000 ft, tops at 16,000 ft, with isolated cumulonimbus and thunderheads to 20,000 ft. Broken cirrus at 26,000 ft. Vsby, 6 - 8 m. Surface pressure: 29.76. Surface temperature: 32 deg. C plus. Mean temperature: 13 deg. C plus (from 25,000 ft). Freezing level: 21,000 feet. | Broken layers of stratiform clouds with upper layer estimated at 14,000 ft. A broken layer of cirrus was encountered at flight level of 25,000 ft. Towering cumulonimbus, top estimated at 18,000 ft. were visible in area but none were over target. The AP was visible from an angle and some crews reported seeing it from bomb release point. The lower layers of clouds were drifting rapidly. Freezing level: 20,000 feet. |
| Return Route | Similar to Route Out with increased cumulus and cumulonimbus activity. | Same as Route Out, except increased cumulonimbus activity. |
| Bases on Return | Scattered cumulus at 3,000 ft. Vsby. 6 m. Scattered thunderstorm activity after 1800 I.S.T. in Base regions. | Violent thunderstorms considerably more violent and occurring much earlier than predicted. Vsby good except instrument conditions in heavy rains for short periods. Cross winds of considerable strength. Fresh gusts resulting in dust storms and impairing vsby. |

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By NARA Date 7/28/05

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Ia - FORECAST WINDS ALOFT

Mission No. 1

5 June 1944

| From | To | Altitude | Direction/Velocity |
|------------------------------|-----------------|---------------------|--------------------|
| Base Area | 14-30 93-30 | 5,000 ft. | 250/15 |
| 14-30 93-30 | 12-56 98-11 | 15,000 - 25,000 ft. | 300/25 |
| 12-56 98-11 | 12-30 100-45 | 25,000 ft. | 100/5 to 10 |
| 12-30 100-45 | 13-18 100-49 | 25,000 ft. | 100/5 to 10 |
| 13-18 100-49 | 13-45 100-35 | 25,000 ft. | 100/5 to 10 |
| 13-45 100-35 | 15-30 93-30 | 25,000 - 15,000 ft. | 300/25 |
| 15-30 93-30 | Base Area | 5,000 ft. | 250/15 |
| Surface to 3,000 ft - 200/15 | | | |

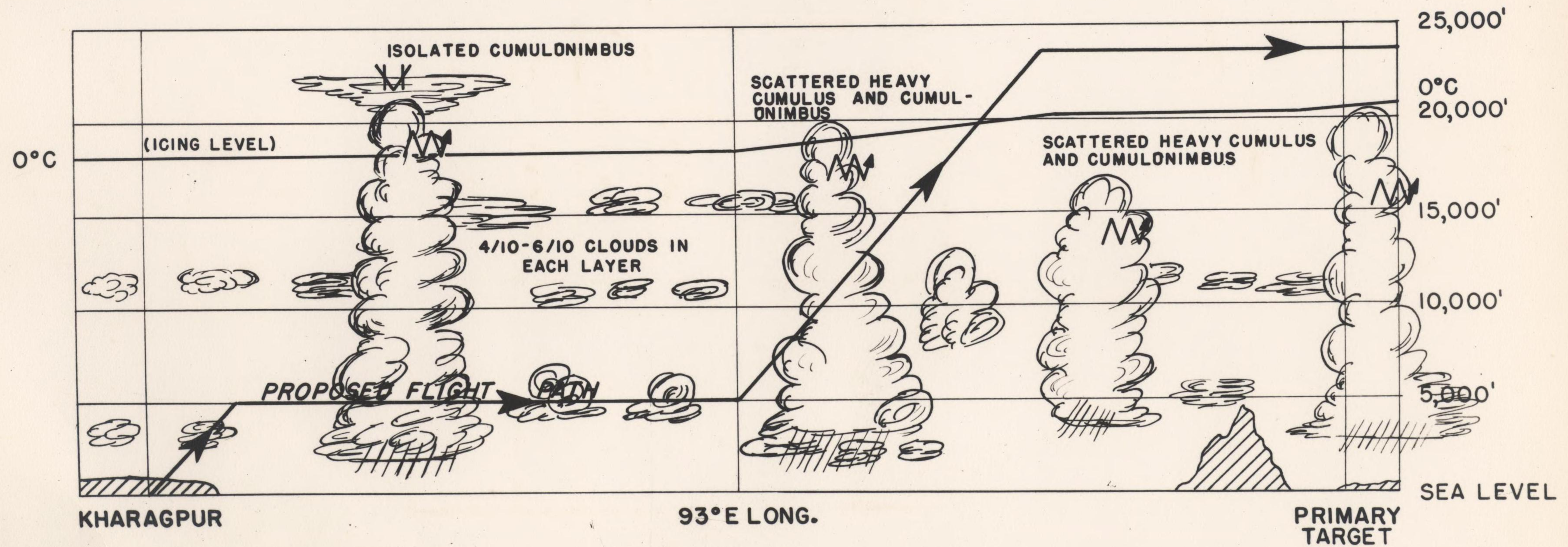
S E C R E T

OUTGOING ROUTE
(SIMILAR CONDITIONS ON RETURN FLIGHT)

SECRET

5 JUNE 1944

WEATHER AS BRIEFED



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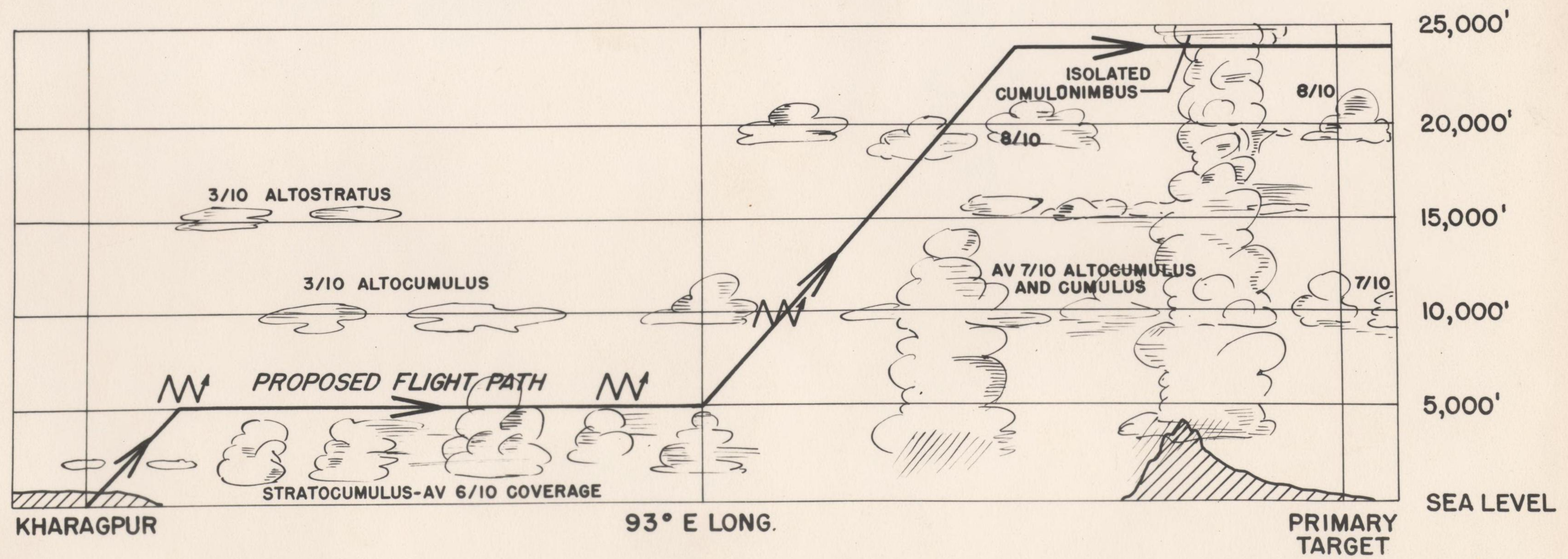
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Authority NND 760063
By M. NARA Date 7/28/05

ROUTE OUT

SECRET

5 JUNE 1944

WEATHER AS REPORTED BY RETURNING CREWS



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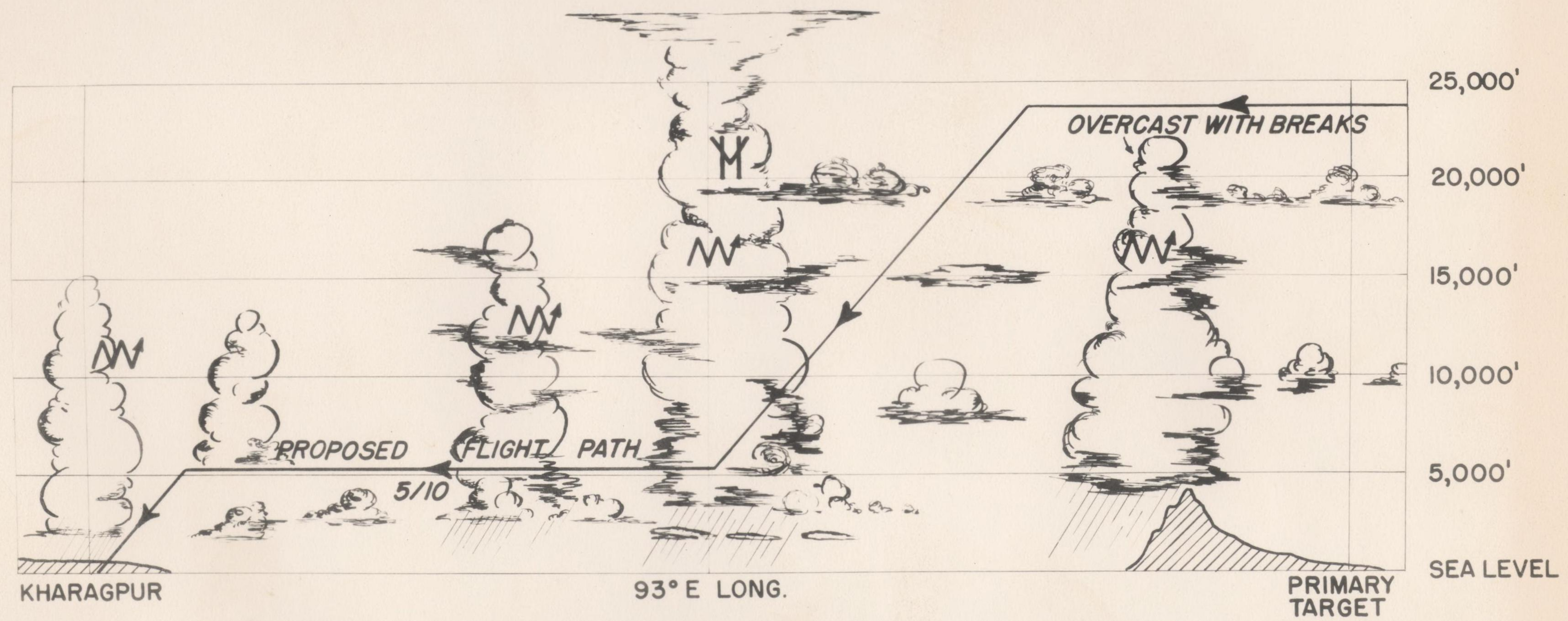
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Authority NND 760062
By M. NARA Date 7/28/05

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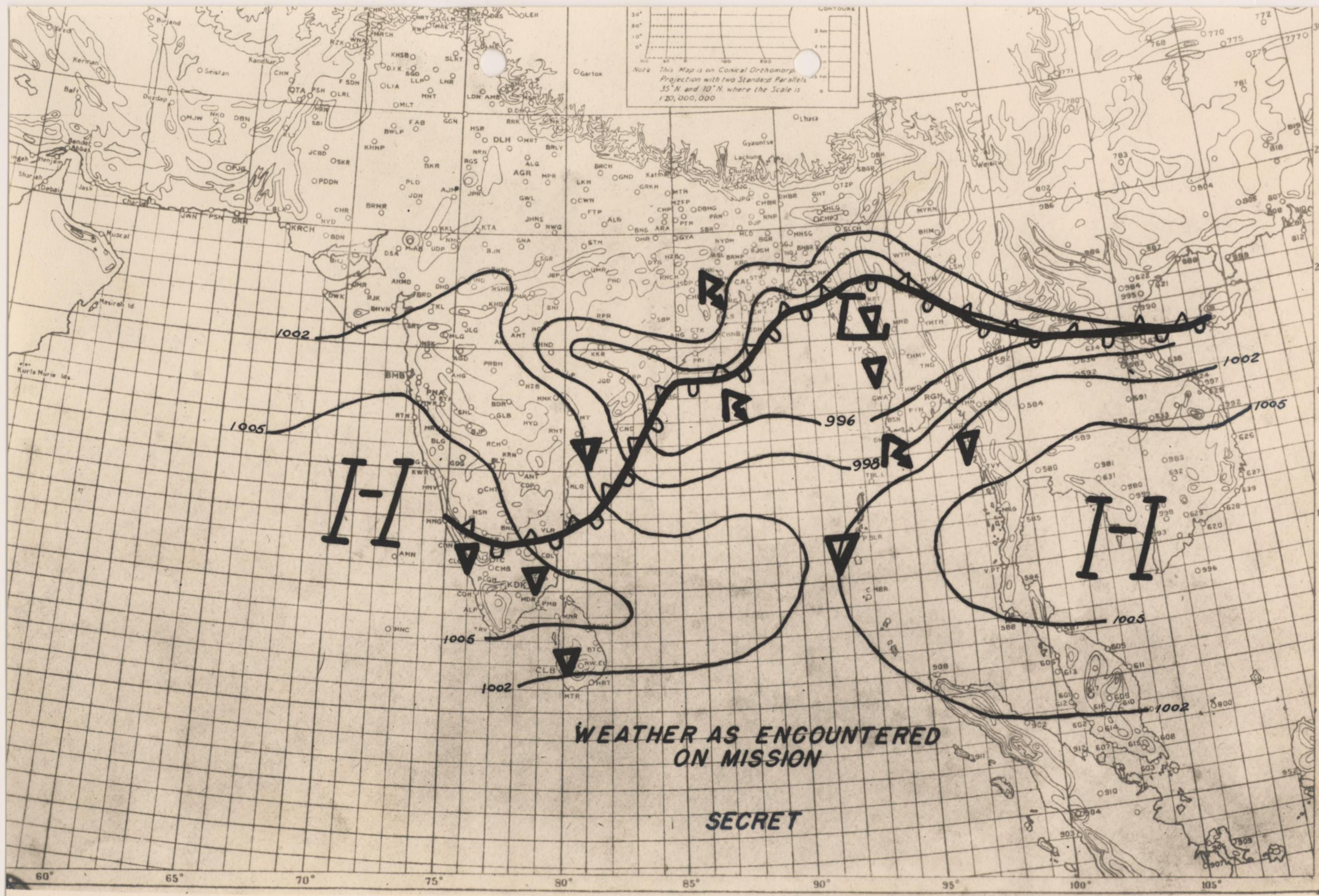
ROUTE BACK

5 JUNE 1944

WEATHER AS REPORTED BY RETURNING CREWS



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ANNEX

D

Communications Information

DECLASSIFIED
E.O. 11652, Sec. 3(E) and 5(D) or (E)
WNO 740120
By CGP/BJ NARS, Date Oct 20, 1970

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Authority AND 960063
By RA NARA Date 9/18/05

~~SECRET~~

COMMUNICATIONS INFORMATION

Mission No. 1

5 June 1944

1. Air-to-air homing of aircraft to the rendezvous point was not necessary as a result of the four-ship diamond formation. As a matter of interest, however, in one isolated instance an aircraft successfully made rendezvous from 50 miles by using SCR 729.

2. As a result of adverse weather conditions which caused aircraft to become dispersed over a wide area on the return leg of the flight, numerous requests were made for bearings and fixes. There are indications that in some cases requests for QDM's were not received. The average time required to obtain a QDM was ten minutes. Some, however, were given in three minutes. The QDM's given, using SCR 291 equipment, were generally excellent. One bearing, for example, was given at 450 miles with one degree accuracy. Some of the confusion present in the attempts to get bearings resulted from confusion in the briefing whereby a number of aircraft used 6666 kc, a non-standard navigational aid frequency. Furthermore, many requests for bearings and fixes could have been eliminated if radio operators had been briefed properly on using the homing beacon stations with the radio compass. The Chakulia beacon (1200W), for example, was picked up by several operators as much as 400 miles away.

3. It is felt that, in general, the briefing of radio operators did not properly stress the value of using the radio compass or the use of the navigational aid frequencies provided. Aircraft were heard to request QDM's on airways frequencies and air-ground control frequencies that were heavily loaded with traffic.

4. In general, air-ground communications, hampered by adverse weather conditions and poor radio discipline on the part of ground station operators, were but fair. There was continual chattering, and interference with the traffic of other stations was noted. This condition may be attributed in part to inexperienced personnel and to the fact that one station was placed in operation four hours before the mission with only fragmentary orders being issued to the operators.

5. Some cases were noted in which aircraft serial numbers were used instead of tactical call signs.

6. When adverse weather conditions forced wide dispersal of aircraft returning home, many were forced to land at fields on which they had no information as a result of the lack of proper radio facilities charts.

7. The need for further training in communications discipline and more accurate briefing is clearly demonstrated by the misuse and failure of communications procedures in the first mission.

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

NND 740.120

By CGP/BJ NARS, Date Oct 20, 1977

~~SECRET~~

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Authority NND 760063

By NARA Date 9/18/05

S E C R E T

ANNEX

E

Radar and RCM

I Radar Information

II RCM Activity

S E C R E T .

S E C R E T

I - RADAR INFORMATION

Mission No. 1

5 June 1944

A. General Radar Results

One of the outstanding accomplishments of the mission was the successful use of radar for navigation purposes. This extremely successful use of radar, however, was in sharp contrast to the unsuccessful employment of radar for bombing the pin-point target assigned. Interrogation of radar operators revealed that only 8 aircraft dropped their bombs at the proper radar impact-predicted points (as estimated from interrogation) to hit the target area within the 100-mil accuracy level of present radar bombing. These results have been summarized in Tables I - IV.

B. Radar Navigation

Radar equipment was used extensively throughout the mission for navigation. Every aircraft with radar operating was navigated to the vicinity of the target by means of radar fixes on various check points and other aircraft were led by aircraft so equipped. There was no difficulty in identifying these points when seen on the radar scope. However, only ten per cent of the radar operators used their equipment to determine ground speed and drift with resulting poor results in determining drift angle over the target. Furthermore, there were many operators who did not use azimuth stabilization and other electrical navigational aids. The reason for those omissions may be assigned partly to lack of training and partly to the direction of radar operator procedure by the crew navigators. Despite excellent over-all results, the need for further training and development of teamwork between radar operators and navigators is clearly indicated.

C. Radar Bombing

The specialized interrogation of radar operators shows that 31 per cent of the total number of aircraft dropped by radar, individually or as formation leaders. Other elements of formations dropping by radar raise this percentage to 63. Of these, only 8 aircraft, 33 per cent of total radar-primary drops, had a 100-mil hit in the target area as estimated from interrogations. Inability to locate the planned and briefed offset aiming point was the direct cause of this low percentage. A total of 80 per cent of the operators scoring estimated probable hits identified this aiming point, whereas only 30 per cent of operators scoring radar misses identified it. Poor bombing results were also caused by errors in calculation of drift. The drift calculation is of the greatest importance since deflection errors increase directly in proportion to the offset distance. The offset method of radar bombing demands that the briefed ground track be flown exactly or large deflection errors will result. These errors are directly proportional to the distance between the offset aiming point and the target, in this case 4.34 statute miles, and the number of degrees off the briefed ground track. As a large percentage of aircraft did not bomb on the briefed ground track, large deflection errors were caused. In other cases the operators were required to bomb on the general return from the city or to select another aiming point with large resultant errors in these methods. The inexperience of radar operators shows itself plainly in the poor radar bombing. The introduction of the offset method made for confusion on the part of untrained operators. Yet it is felt that the success of skilled radar operators in locating the offset aiming point demonstrates the basic soundness of radar planning. It is evident, however, that excessive demands were made upon the average operator and that, as a result, simpler bombing runs and larger target areas should be assigned, if possible.

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D. Radar Serviceability

Radar set AN/APQ 13 showed an acceptable record of operation. Service records show that 96 per cent of the radar sets were operational at take-off and approximately three-quarters of the total sets operational over the target.

E. Auxiliary Radar Equipment

The auxiliary radar sets, SCR 695 (IFF), SCR 718 (Altimeter) and the SCR 729, were all used to a varying degree on this mission. Although the IFF showed excellent serviceability, discipline in its use was poor. It was not turned off at the proper times. Over the target, for example, IFF "distress" signals were noted despite the fact that they were not called for and that all IFF was supposed to be off below the 19th parallel. Furthermore, a great deal of confusion existed as to which channels to use. Here again the briefing process was at fault, since in the general briefing the navigators were told to use one set of IFF code positions, while in the specialized briefing the radio operators were told to use another. The radar operators were the ones that should have been briefed. The SCR 718 had a record of approximately 30 per cent air malfunctions, both it and the AN/APQ 13 being used for altitude measurements. The SCR 729 was used intermittently in the vicinity of the target to confuse enemy monitors and to hide the fact that some frequency other than "P" band was being used. In two cases the SCR 729 was used to home aircraft to base through the use of the YJ racon and in one case an aircraft successfully made rendezvous with another aircraft from 50 miles.

Table I

Use & Serviceability of Radar

| | No. | % of 76 Radar Reports Rec'd | % of 56 Radars Operative over Target | % of 48 Radar Bombing |
|------------------------------|-----|-----------------------------|--------------------------------------|-----------------------|
| Radar Operative at Take-off | 79 | | | |
| Radar Reports Received | 76 | 100 | | |
| Radar Operative over Target | 56 | 74 | 100 | |
| Bombed on Radar | 48 | 63 | 85 | 100 |
| Estimated Radar Misses | 35 | 46 | 74 | 73 |
| Estimated 100 Mil Radar Hits | 13 | 17 | 23 | 27 |

Table II

Type of Radar Drops

| Type of Radar Drop | No. | Percent |
|---------------------|-----|---------|
| Individual A/C | 16 | 67 |
| As Formation Leader | 8 | 33 |
| Total | 24 | 100 |

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S E C R E T

Table III

Analysis of Formation Drops

| Formation Type by No. of A/C | No. of Formations | No. of A/C | No. of A/C Actually Dropping | % of 48 Total Drops (Ind. & Formation)* | % of 32 Formation Drops** |
|------------------------------|-------------------|------------|------------------------------|---|---------------------------|
| 10 | 1 | 10 | 8 | 17 | 25 |
| 5 | 1 | 5 | 5 | 10 | 16 |
| 4 | 3 | 12 | 11 | 23 | 34 |
| 3 | 2 | 6 | 6 | 13 | 19 |
| 2 | 1 | 2 | 2 | 4 | 6 |
| Totals | 8 | 35 | 32 | | |

* Includes 16 individual A/C, 8 formation leaders, and 24 non-leading formation A/C

** Includes the formation leader plus those dropping on the formation leader.

Table IV

Radar Navigation

| | No. | On Briefed Track | | Used Correct Drift $\pm 2^\circ$ | | Identified I.P. on Scope | |
|----------------------------------|-----|------------------|---------|----------------------------------|---------|--------------------------|---------|
| | | No. | Percent | No. | Percent | No. | Percent |
| Probable Radar Hits | 8 | 6 | 75 | 6 | 75 | 5 | 63 |
| Radar Misses | 16 | 9 | 55 | 6 | 37 | 11 | 69 |
| Individual and Formation Leaders | 24 | 15 | 62 | 12 | 50 | 16 | 67 |

Table V

Radar Bombing

| | No. | Recog. AP at 15 mi. | | Using Off-set Bombing | | Using Other Aiming Pts. | | Using or prepared Az Stab | | Using or prepared Sector Scan on Run | |
|---------------------------|-----|---------------------|----|-----------------------|----|-------------------------|----|---------------------------|----|--------------------------------------|----|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| Individual & Form. Leader | 24 | 10 | 41 | 11 | 45 | 15 | 65 | 13 | 54 | 11 | 45 |
| Prob 100 Mil Radar Hits | 8 | 7 | 78 | 6 | 75 | 2 | 23 | 6 | 75 | 5 | 63 |
| Prob Radar Misses | 16 | 3 | 18 | 5 | 31 | 14 | 81 | 7 | 43 | 6 | 37 |

S E C R E T

S E C R E T

II - RCM ACTIVITY

Mission No. 1

5 June 1944

1. Radar Intercept:

Confirmation of previous search by British ferrets was obtained of enemy radar in the Andaman Islands - 97 megacycles at 1000 P.R.F. En-route to, and over the target, there was no indication of controlled AA fire which was ~~inaccurate~~ and inaccurate. No Wurzburg frequencies were picked up.

A number of unfamiliar frequencies, P.R.F.'s, and pulse lengths were intercepted. They are being studied to eliminate the chance that they are spurious signals or harmonics of known signals. A full report will be submitted to the office of the Air Communications Officer at a later date.

2. Radio Intercept:

At 0255Z enemy ground radar was sweeping the aircraft. At 0303Z, the radar held the aircraft and started tracking. At 0305Z, the enemy early warning radio reporting net on 6760 KCS, which was being watched by the radio intercept unit of this command and which had been silent, started functioning. The transmission was in Kata Kana and appeared to be coded. Copies of the intercept are being analyzed by two independent units: (1) a British radio intercept unit, and (2) a unit at USAF Headquarters. A report of the analysis will be forwarded to the Office of the Air Communications Officer upon receipt here.

Several radio operators were briefed to check known "commercial" broadcast stations in Rangoon and Bangkok. Reports state that both stations were on the air during the raid. Bangkok did not go off the air until after "bombs-away."

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By RA NARA Date 9/18/05

S E C R E T

ANNEX

F

Central Station Fire Control

S E C R E T

S E C R E T

CENTRAL STATION FIRE CONTROL

Mission No. 1

5 June 1944

A. Functioning and Effectiveness of System

The question of the functioning and effectiveness of the CSFC System was only partially answered during the shakedown mission. Groups were directed to operate on primary control to all stations except in cases of emergency. As a result, no opportunity to test exchange to secondary control was presented. Five turret malfunctions, one of which was cleared in the air, were reported out of approximately 400 positions. Personnel concerned are of the opinion that the CSFC System worked satisfactorily in primary control.

Relatively few attacks were made by enemy aircraft and these were broken off at extreme ranges in almost every case. A few claims have been made by gunners, but cloud cover in the vicinity of the attack has made difficult the determination of the actual damage done. No real answer to the effectiveness of the System can be obtained until enemy aircraft press home attacks in large numbers, thereby giving all gun positions varied deflection shots that will test the System's computing accuracy under difficult conditions. The fact that none of our aircraft suffered any battle damage would seem to indicate that few reliable targets were available for our gunners.

B. Defensive Gunnery

Defensive gunnery as set up by directive was as follows:

1. All stations on primary control, blisters on outside of formation controlling lower aft turret.
2. Nose gunners search 120 deg. to front.
3. Ring gunner of #1 ship search in the sun.
4. Ring gunners of ships 2, 3 and 4 search 120 degrees in elevation from nose to rear, azimuth as dictated by battle conditions.
5. Blister gunners search below aircraft on respective sides.
6. Tail gunners search tail.

As in the case of the CSFC System, little real test was given of the effectiveness of defensive gunnery. The enemy tactics, apparently calculated to overcome the handicap of speed, seemed to be to wait for each formation or individual aircraft, make one pass, and break off to wait for the next. At no time was formation fire of sufficient density to warrant decision as to its effectiveness.

Reports indicate that gunners were excited but active. All Group Gunnery Officers have suggested that additional firing and tracking practice is needed by all crews.

Loading of guns was left to the discretion of the Group Commanders. One Group loaded its guns "hot" and had four malfunctions from twenty-nine gun positions fired, three of them being cleared in the air. Another Group which charged the guns in the air had twelve malfunctions as a result of feeding difficulties. The evidence thus far gained, therefore, makes it appear that "hot loading" for combat missions is desirable.

Test firing of all guns was not accomplished prior to engaging enemy aircraft. Airplane commanders, in some cases, ordered their crews not to test fire to prevent endangering other aircraft. All

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Group Gunnery Officers have recommended test firing of all guns as soon as practicable after take-off. Future missions will require fully operative equipment for successful defensive fire, and it is felt that an established policy of test firing is desirable.

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ANNEX

G

Cameras and Photographs

SECRET

S E C R E T

CAMERAS AND PHOTOGRAPHS

Mission No. 1

5 June 1944

| | K - 22 | K - 20 | K - 18 | K - 17B | Total |
|--|--------|--------|--------|---------|-------|
| Cameras installed | 1 | 52 | 17 | 13 | 83 |
| Cameras in aborting aircraft | 1 | 11 | 4 | 4 | 20 |
| Camera malfunctions | - | 0 | 2* | 0 | 2 |
| Cameras in lost aircraft | - | 2 | 0 | 1 | 3 |
| Cameras taking photos | - | 14 | 3 | 2 | 19 |
| Cameras in operating condition not taking photos | - | 25 | 8 | 6 | 39 |

* One caused by a burned out solenoid and one by faulty aircraft wiring.

S E C R E T

S E C R E T

ANNEX

H

Malfunctioning of Equipment

I Abortives and Losses

II Malfunctioning of Equipment by Type

S E C R E T

S E C R E T

I - ABORTIVES AND LOSSES

Mission No. 1

5 June 1944

1. Aircraft not available for mission 10
(Undergoing major repairs)
2. Aircraft failing to take-off 14
(Primarily ignition and supercharger regulator trouble. The ignition trouble developed during the early hours of the morning as a result of the excessive humidity present in the atmosphere. Large quantities of water droplets were found in the distributor housings and magnetos. This probably caused flashover on coils or condensers of magnetos with resultant rough engine operation. Supercharger regulator troubles are a repetition of oil leakage previously covered by U.R. reports.)
3. Aircraft returning early 13
(Oil leaks were predominant. Other troubles: failures in oil cooler operation, failure of propellers to govern or feather, and distributor seal leakage. These malfunctions have been encountered previously and reported in detail to the manufacturer. Corrective action is being taken insofar as field conditions permit but sound engineering solution should come from a review of U.R.'s previously submitted through regular channels.)
4. Operational losses 5
(Two aircraft crashed and two ditched as a result of difficulties with the fuel transfer system. Several others came dangerously close to dry tanks for the same reason. This condition is being investigated fully. The cause of the loss of one fully loaded aircraft shortly after take-off is unknown but will probably be charged to pilot technique.

S E C R E T

S E C R E T

II -- MALFUNCTIONING OF EQUIPMENT BY TYPE

Mission No. 1

5 June 1944

1. Engineering failures

| | |
|---|--------------------------|
| 9 Engine failures (feathered) | 4 Generator failures |
| 9 Oil pressure failures | 4 Ignition malfunctions |
| 7 Exhaust collector rings out | 3 Fuel pressure failures |
| 7 Cylinder head temperature gage failures | 3 Tachometer failures |
| 5 Propeller governor failures | 1 Oil cooler ran hot |
| 5 Turbo-supercharger regulator malfunctions | 1 Invertor out |
| 5 Fuel transfer system failures | |

2. Armament failures

| | |
|------------------------------|--------------------------|
| 6 Bomb release malfunctions | 1 Intervalometer failure |
| 4 Turrets inoperative | 1 Turret cover blew off |
| 2 Bomb bay door malfunctions | |

3. Miscellaneous failures

| | |
|---------------------------------|-------------------------------------|
| 12 Radars not functioning | 1 Heating system out |
| 5 AFCE inoperative | 1 Flux gate compass malfunction |
| 4 Cabin pressurization failures | 1 Life raft blew out, damaging tail |
| 2 Oxygen system failures | 1 Nose windows iced over |
| 2 Lost top blisters | 1 Blister blown out |
| 1 Liaison radio out | |

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By RA NARA Date 9/18/05

ANNEX

I

Target Damage Assessment

- I Bomb Plot
- II Damage Assessment Report Number 1
- III Stereopairs of Target, Before and After

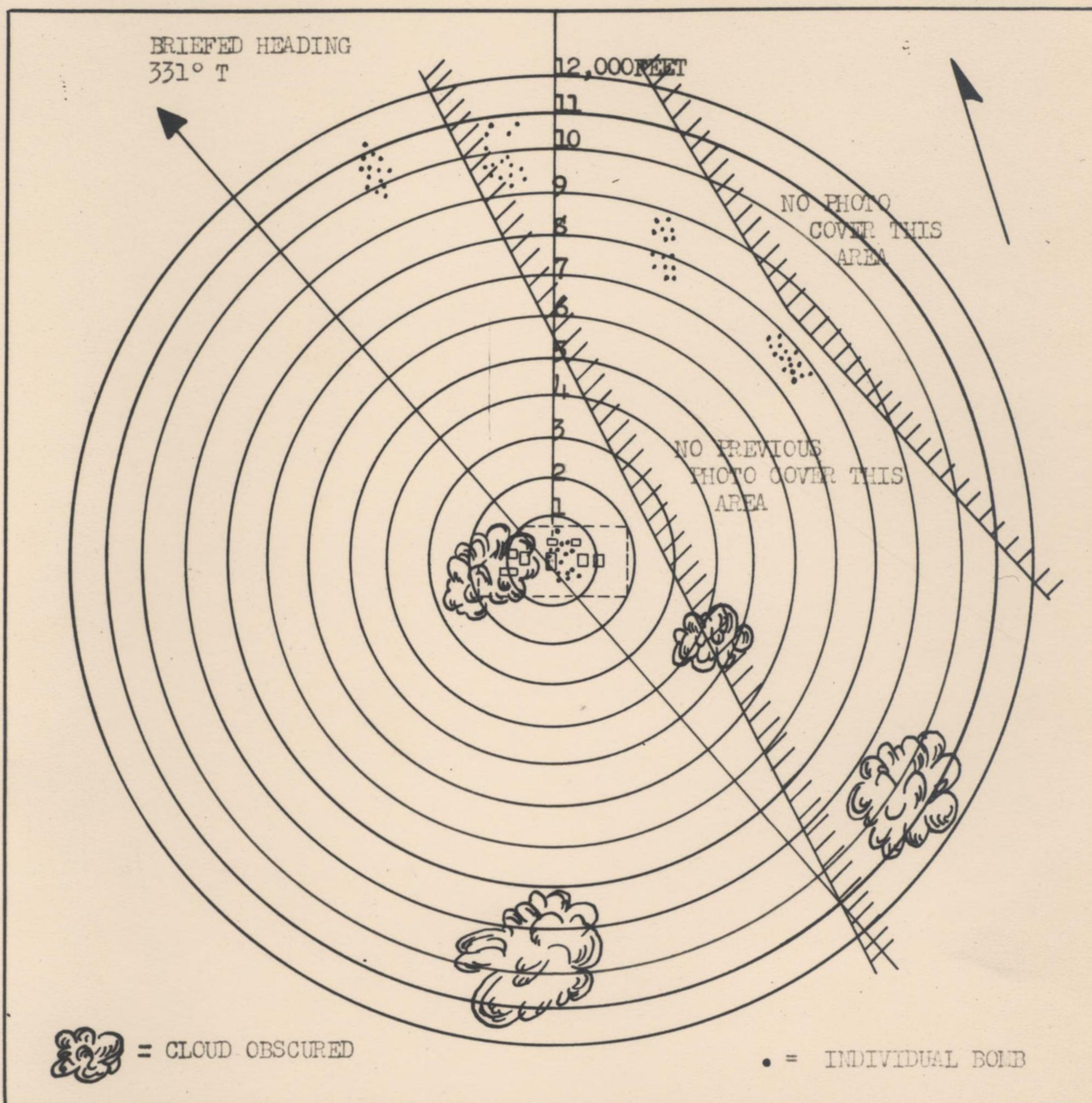
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By RA NARA Date 9/18/05

BOMB PLOT:

MAKASAN RAILWAY WORKSHOPS, BANGKOK, THAILAND



AIMING POINT: Center of 465' x 270' Erecting and Boiler Shop approximately in the center of the target area.

REMARKS: Five groups of bomb craters or bomb damaged areas are found within 12,000 feet of the A. P. Of these, three groups are found in areas where no previous (comparative) photo cover is available and the possibility exists, therefore, that these are a result of previous attacks.

S E C R E T

II - DAMAGE ASSESSMENT REPORT NO. 1

LOCALITY: Makasan Railway Workshops, Bangkok, Thailand.

RECONNAISSANCE PHOTOGRAPHY: Photo Nos. 3114, 3115, 3116 - 684 Sqdn., Sortie No. BN 390, 8 June 1944 - Scale approximately 1:10,000.

COMPARATIVE PHOTOGRAPHY: (a) Photo Nos. 3119, 3120, 3121, - 684 Sqdn., Sortie No. BN 220, 16 March 1944 - Scale approximately 1:9,500.
(b) Photo Nos. 4174, 4175, 4176 - 684 Sqdn., Sortie No. BN 372, 17 May 1944 - Scale approximately 1:10,000.

REFERENCES: (a) 17th AAF Photographic Intelligence Detachment, Special Report No. 23.
(b) Mosaic of Bangkok, Thailand, Intelligence Section Hq-AAF-IBS-CBI.

APPENDIX: Annotated Photo of MAKASAN RAILWAY WORKSHOPS, Bangkok, Thailand

BOMBS CARRIED: (a) AN-M43 500 # G.P. fuzed 0.1 nose, 0.025 tail.
(b) M-18 500 # Aimable Clusters fuzed to open from 20,000' at 4000' and from 25,000' at 5,000'.

REMARKS: Good quality photographs of 8 June 1944 cover the Workshops with the exception of several buildings, tracks, and rolling stock on the W end of the area which are cloud obscured.

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

I SUMMARY

In all some 16-18 of the GP bombs appear to have fallen in the target area. Of these, 13-14 are seen to have caused material damage which includes the virtual destruction by 3-4 direct hits of the SW corner of the AP, a large, 465' x 270', centrally located building housing the Erecting and Boiler Shops (11); severe damage to the AP by a direct hit on the W central edge; further severe damage to the AP by a near miss on the E central side of the building; severe damage by 2 or 3 near misses on a 260' x 130' Storage and Work Shop (10) just N of the AP; damage to tracks and rolling stock (13) by 3 or 4 bomb hits 50' to 150' off the SE corner of the AP, with a probable break in the Simaharacha RR line; possible damage to the Simaharacha RR line by a GP bomb which appears to have fallen between the railway and the New Storage Building (2). Possible damage to the NW corner of the New Storage Building as a result of blast action.

II STATUS OF WORKSHOPS PRIOR TO ATTACK OF 5 JUNE 1944.

A. Source of Information: 17th AAF PID Report No. 23 based on photography of 17 May 1944.

B. Since the attack by the RAF on the night of 10-11 February 1944 there had been considerable activity in the reconstruction of damaged buildings. The Workshops on 17 May 1944 appeared to be in active operation.

Details of reconstruction of damaged buildings follow:

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By RA NARA Date 9/18/05

S E C R E T

- (1) Carriage Wagon Building Shop, Paint Shop, and Woodwork Machine Shop: Debris removed and additional portions of roof removed in preparation for reconstruction; appeared serviceable.
- (2) New Wagon Shop: Additional portions of the roof removed in preparation for reconstruction; appeared partially serviceable.
- (3) Electric Battery Shop: Completely reconstructed; probably serviceable.
- (4) Timber Store: Debris removed but no reconstruction; appeared unserviceable.
- (5) Old Storage Building: Being torn down; three adjacent small buildings torn down.
- (6) New Storage Building: Repaired; appeared serviceable.
- (7) Bench Shop and Tool Repair Shop: Roof repair in progress; probably serviceable.
- (8) Carriage Repair Shop: Roof completely repaired; appeared serviceable.
- (9) Locomotive Shed: Roof repaired; appeared serviceable.
- (12) Office Building: Appeared serviceable.
- (15) Small Work Shop: Removed.

III DETAILS OF DAMAGE BY XX BOMBER COMMAND 5 JUNE 1944

- A. The power house (14), the New Wagon Shop (2) and all other buildings not listed in paragraph B appear to have remained as described in Section II above. Clouds, however, obscure the Carriage Repair Shop (8), part of the Timber Store (4), the Electric Battery Shop (3), a portion of the Carriage Wagon Building (1), the Locomotive Shed (9), and a part of the tracks and rolling stock at the W end of the area.
- B. Details of damage as a result of the attack of 5 June 1944 follow:
 - (6) New Storage Building, 240' x 125': A small portion of the roof on the NW corner is seen to be missing, however, the appearance is not entirely characteristic of HE damage. It may be due to the blast action of a near miss or to repair work on the part of the enemy.
 - (10) Probable Storage and Work Shop, 260' x 130': Two or three near misses off the E end of this building has caused severe damage. Part of the end wall is seen to have been blown in and portions of the roof blasted off.
 - (11) Erecting and Boiler Shop, 465' x 270': The SW corner of this large centrally located building (The Aiming Point) has been virtually destroyed by 3 - 4 direct hits of HE, and several rolling stock within the building are seen to be severely damaged. Five or six rolling stock immediately S appear to have been damaged by the blast. A direct hit was scored on the W central edge of the Shop causing very severe damage. A near miss off the E central edge also has caused further severe damage.

S E C R E T

S E C R E T

- (13) Tracks and Rolling Stock: Three or four bomb craters mark bombs which fell approximately 50' to 150' off the SE corner of the AP destroying portions of 4 or 5 rail sidings and damaging 3 or 4 rolling stock. The area affected appears to include the main Simaharacha Railway Line and traffic on this line may be held up until repairs are made.

Another HE bomb appears to have fallen between the New Wagon Shop (2) and the Simaharacha Railroad Line possibly damaging the latter.

S E C R E T

MAKASAN RAILWAY WORKSHOPS
BANGKOK, THAILAND
APPENDIX TO
DAMAGE ASSESSMENT REPORT NO. 1

- | | |
|--|----------------------------------|
| 1. Carriage Wagon Building Shop and Paint Shop, Woodwork Machine Shop. | 8. Carriage Repair Shop. |
| 2. New Wagon Shop. | 9. Locomotive Shed. |
| 3. Electric Battery Shop. | 10. Storage and Work Shop. |
| 4. Timber Store. | 11. Erecting and Boiler Shop. |
| 5. Old Storage Building. | 12. Building Under Construction. |
| 6. New Storage Building | 13. Tracks and Rolling Stock. |
| 7. Bench Shop and Tool Repair Shop | 14. Power House. |
| | 15. Small Work Shop. |



PHOTO: 684 Sqdn.—BN 390 #3115
8 June 1944

PREPARED: Target Section, A-2
XX Bomber Command

DECLASSIFIED

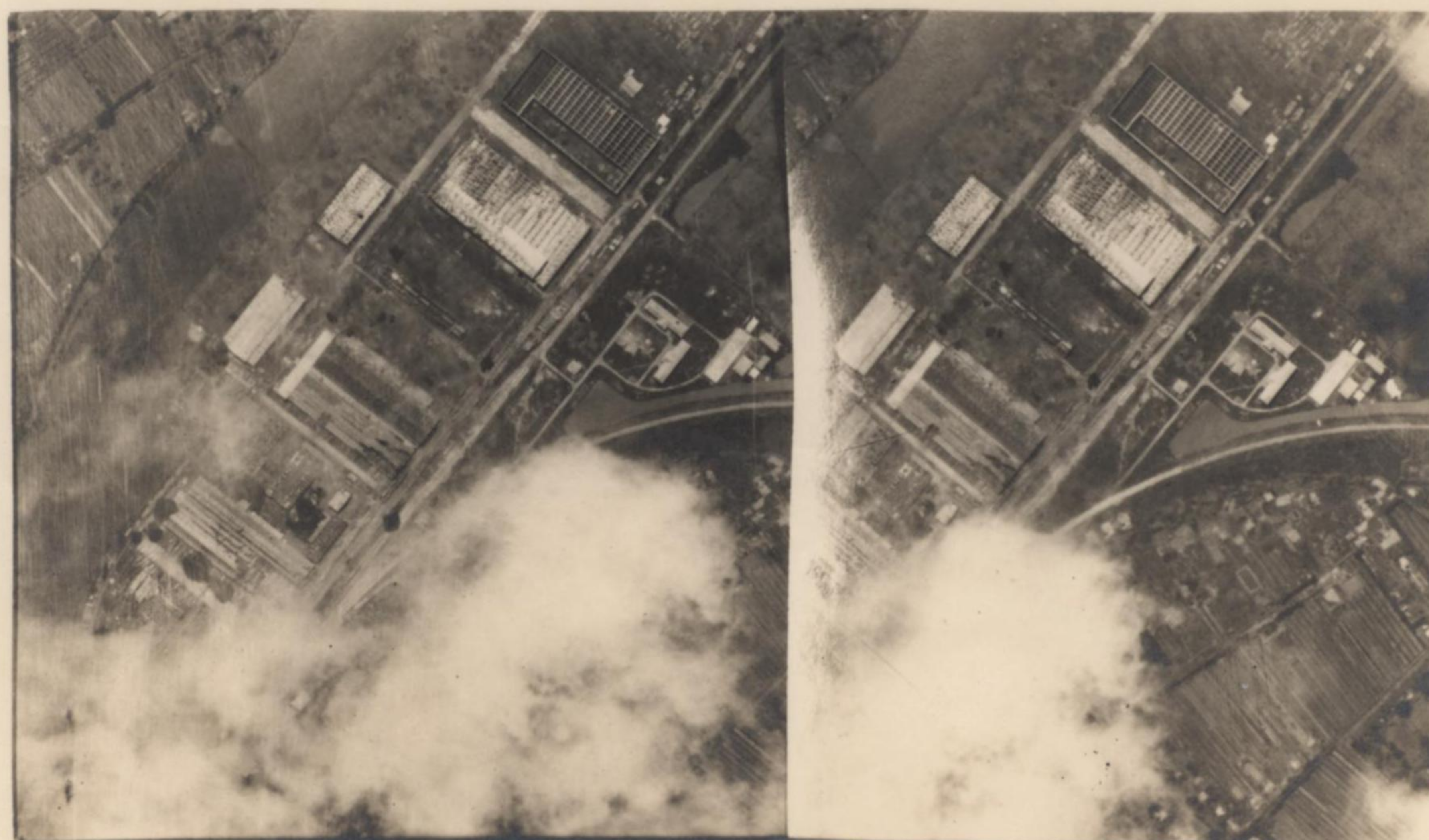
Authority *And960063*

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

STEREOPAIRS



BEFORE: Makasan Railway Workshops, Bangkok, Thailand
17 May 1944



AFTER: Makasan Railway Workshops, Bangkok, Thailand
8 June 1944
Target Section, A-2
XX Bomber Command

S E C R E T

ANNEX

J

Consolidated Mission Statistical Summary

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

S E C R E T

TABLE I - AIRCRAFT PARTICIPATING

Mission No. 1

5 June 1944

| Group | F.O. No. | Mission No. | Primary Target | A/C Sched. to take off | A/C Failing to take off | Airborne A/C which failed to Bomb Target because | | | | | | % of Airborne A/C that Abort | A/C Bombing |
|-------|----------|-------------|---------------------------------|------------------------|-------------------------|--|-------------|---------|---------|------|-------|------------------------------|-------------|
| | | | | | | Mech. Fail. | Pers. Fail. | Surplus | Weather | E.A. | Misc. | | |
| 40th | 1 | 1 | Makasan Railroad Shops, Bangkok | 30 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 15.4 | 22 |
| 444th | 1 | 1 | Makasan Railroad Shops, Bangkok | 28 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 11.5 | 23** |
| 462nd | 1 | 1 | Makasan Railroad Shops, Bangkok | 23 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 45.0 | 11 |
| 468th | 1 | 1 | Makasan Railroad Shops, Bangkok | 31 | 5 | 4 | 0 | 0 | 0 | 0 | 1 | 19.2 | 21 |
| Total | 1 | 1 | Makasan Railroad Shops, Bangkok | 112 | 14 | 20 | 0 | 0 | 0 | 0 | 1 | 21.5 | 77 |

** Includes both 6361 and 6215 on which complete information is not available. It is believed that both dropped their bombs on the target.

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TABLE II - BOMBING RUNS

Mission No. 1

5 June 1944

| Group | No. of A/C Bombing | Target Bombed | Time of Releases | | Altitude of Release | | A/C Sighting For | | A/C Dropping By Radar | A/C Dropping on | |
|-------|--------------------|---------------------------------|------------------|-----------|---------------------|------------|------------------|-------|-----------------------|-----------------|--------|
| | | | * Earliest | ** Latest | ***Highest | ****Lowest | R. & D. | Range | | AFCE | Manual |
| 40th | 22 | Makasan Railroad Shops, Bangkok | 0502 | 0525 | 25,500 | 24,602 | 7° | 2° | 11° | 9° | 11° |
| 444th | 23 | Makasan Railroad Shops, Bangkok | 0417 | 0505 | 23,000 | 23,000 | 5# | 2# | 15# | 6# | 16# |
| 462nd | 11 | Makasan Railroad Shops, Bangkok | 0512 | 0559 | 26,000 | 23,000 | 0 | 0 | 11 | 10 | 1 |
| 468th | 21 | Makasan Railroad Shops, Bangkok | 0500 | 0516 | 24,600 | 22,300 | 3 | 7 | 11 | Un. | Un. |
| TOTAL | 77 | Makasan Railroad Shops, Bangkok | 0417 | 0559 | 26,000 | 22,300 | 15 | 11 | 48 | 25 | 28 |

* Average release time of earliest squadron per group.
 ** Average release time of latest squadron per group.
 *** Average altitude of highest bombing squadron per group.
 **** Average altitude of lowest bombing squadron per group.
 ° Unknown for 2 planes that ditched.
 # Unknown for 6361 which crashed in China.

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TABLE III - BOMB LOADING AND DISPOSAL

Mission No. 1

5 June 1944

| Group | F.O. No. | Target | Bomb Loading | | | | | | Disposal of Bombs | | | | | | | | Bombing Accuracy | | |
|-------|----------|---------------------------------|--------------------|------|------|--------------------|------|------|-------------------|--------|------------|-------|----------|-------|---------|-------|----------------------------|--------------|---------------------------------|
| | | | High Explosives | | | Incidariatics | | | On Target | | Jettisoned | | Returned | | Unknown | | Distance of H.E. from A.P. | | |
| | | | No. & Wgt of Bombs | Nose | Tail | No. & Wgt of Bombs | Nose | Tail | H. E. | Incen. | H.E. | Incen | H.E. | Incen | H.E. | Incen | 0-1000 Ft | 1000-2000 Ft | Over 2000 Ft |
| 40th | 1 | Makasan Railroad Shops, Bangkok | 512-500# | .1 | .025 | | | | | 413* | | 79 | | 20 | | | | | Not possible to observe results |
| 444th | 1 | Makasan Railroad Shops, Bangkok | *** 504-500# | .1 | .025 | | | | | 439** | | 65 | | | | | | | Not possible to observe results |
| 462nd | 1 | Makasan Railroad Shops, Bangkok | | | | 400-500# | .1 | .025 | | 205 | | 195 | | | | | | | Not possible to observe results |
| 468th | 1 | Makasan Railroad Shops, Bangkok | 520-500# | .1 | .025 | | | | | 415 | | 82 | | 23 | | | | | Not possible to observe results |
| TOTAL | | | 1536-500# | | | 400-500# | | | | 1267 | 205 | 226 | 195 | 43 | | | | | Not possible to observe results |

* Includes bombs of 6282 and 6304 which ditched and exact disposal of bombs unknown, but believed to have been dropped on target.

** Includes bombs of 6361 which crashed in China and 6215 which landed at a base other than Charra. Both are believed to have dropped their bombs on the target.

*** Each aircraft of the 444th Group carried one 500 # G.P. bomb fused for a one-hour delay. (M-12Y fuse).

S E C R E T

TABLE IV - AIRCRAFT LOSSES AND CLAIMS

Mission No. 1

5 June 1944

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

* One crashed on take-off and two were ditched.
 ** Crashed in China after leaving target "low on gas".
 *** Crashed in landing.
 **** This claim has not been confirmed.

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TABLE V - ENCOUNTERS WITH ENEMY AIRCRAFT

Mission No. 1

5 June 1944

| DIRECTION | ALTITUDE | | | | | | | | | | | | TOTAL | | | | | |
|-----------|----------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|
| | HIGH | | | | LOW | | | | LEVEL | | | | 40th | 444th | 462nd | 468th | | |
| | 40th | 444th | 462nd | 468th | 40th | 444th | 462nd | 468th | 40th | 444th | 462nd | 468th | | | | | | |
| 1200 | | | | 1 | | | | | | | | | | | | | | 1 |
| 0130 | 1 | | | 4 | | | | | | | | | | 1 | | | | 4 |
| 0300 | | | | | | | | | | | 1 | | | | | | 1 | |
| 0430 | | | | 1 | | | | | | | | | | | | | | 1 |
| 0600 | | 2 | | | | | 1 | | | | | | | | 2 | | 1 | |
| 0730 | 1 | | | | | | | | | | | | | 1 | | | | |
| 0900 | | | | | | | | | | | | | | | | | | |
| 1030 | 1 | | | | | | | | | | | | | 1 | | | | |
| TOTAL | 3 | 2 | | 6 | | | 1 | | | | 1 | | | 3 | 2 | 2 | | 6 |

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TABLE VI - PERSONNEL LOSSES

Mission No. 1

5 June 1944

| Crow Position | Killed | | | | Missing | | | | Scr. Injured | | | | Sli. Injured | | | | Total Casualty | | | | Tot. Participating | | | |
|------------------|--------|-----|-----|-----|---------|-----|-----|-----|--------------|-----|-----|-----|--------------|-----|-----|-----|----------------|-----|-----|-----|--------------------|-----|-----|-----|
| | 40 | 444 | 462 | 468 | 40 | 444 | 462 | 468 | 40 | 444 | 462 | 468 | 40 | 444 | 462 | 468 | 40 | 444 | 462 | 468 | 40 | 444 | 462 | 468 |
| Pilot | 1 | | | | | | | | | | | | | | | | 1 | | | | 26 | 26 | 20 | 26 |
| Co-Pilot | | | | | | | | | 1 | | | | | | | | 1 | | | | 26 | 26 | 20 | 26 |
| Navigator | 1 | | | | | | | | | | | | | | 1 | | 1 | | 1 | | 26 | 26 | 20 | 26 |
| Bombardier | 1 | | | | | | | | | | | | | | 1 | | 1 | | 1 | | 26 | 26 | 20 | 26 |
| Flt. Engr. | 1 | | | | | | | | | | | | | | 1 | | 1 | | 1 | | 26 | 26 | 20 | 26 |
| Radar | 1 | | | | | | | | | | | | | | | | 1 | | | | 26 | 26 | 20 | 26 |
| Radio | 1 | | | | | | | | | | | | | | | | 1 | | | | 26 | 26 | 20 | 26 |
| C.F.C. | 2 | | | | | | | | | | | | | | | | 2 | | | | 26 | 26 | 20 | 26 |
| Right Gnr. | 2 | | | | | | | | | | | | | | 1 | | 2 | | 1 | | 26 | 26 | 20 | 26 |
| Left Gnr. | 2 | | | | | | | | | | | | | | | | 2 | | | | 26 | 26 | 20 | 26 |
| Tail Gnr. | 2 | | | | | | | | | | | | | | | | 2 | | | | 26 | 26 | 20 | 26 |
| Posit. Unkn. | | 1 | | | | | | | | | | | | | | | 2 | 3 | 1 | | | | | |
| Others | | | | | | | | | | | | | | | | | | | | | 12 | 3 | 3 | 3 |
| Total | 14 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 17 | 3 | 5 | 0 | 298 | 289 | 223 | 289 |

SECRET

TABLE VII - EXPENDITURES OF GASOLINE AND AMMUNITION

Mission No. 1

5 June 1944

| Group | Gasoline Expended per Plane * | | | | Ammunition Expended per Plane *** | | | | | |
|-------|-------------------------------|---------|---------|--------|-----------------------------------|-------------|------------|------------|---------------|------------|
| | Minimum | Maximum | Average | Median | Upper Front | Lower Front | Upper Rear | Lower Rear | .50 Cal. Tail | 20 MM Tail |
| 40th | 5250 | 6930 | 6160 | 6000 | 149 | 175 | 206 | 76 | 273 | 28 |
| 444th | 5400 | 6948 | 6181 | 6100 | 173 | 58 | 154 | 205 | 215 | 1 |
| 462nd | 5360 | 6739 | 6229 | 6505 | 122 | 125 | 105 | 133 | 63 | Unknown |
| 468th | 5100 | 6360 | 5756 ** | 5800 | 93 | 97 | 124 | 109 | 117 | 8 |
| TOTAL | 5100 | 6948 | 6066 | 6080 | 153 | 112 | 154 | 132 | 183 | 11 |

* Includes only aircraft which completed the mission.
 ** Average flying time of 468th Group ships was 10 hours and 49 minutes.
 *** Includes rounds fired "testing" as well as in combat.

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ANNEX

K

FIELD ORDERS

I XX BOMBER COMMAND

II 58TH BOMBARDMENT WING

SECRET

DECLASSIFIED

Authority AND 960083

By RA NARA Date 9/18/05

Reclassified "SECRET"
Auth: CG XX BC
Initials JDG
Date: 24.6.44

TOP SECRET
Auth: CG XX BC
Initials:
Date: 1 June 1944
(CANCELLED)

SECRET

NOT TO BE TAKEN INTO THE AIR

XX Bomb Comd
APO 493
1 June 1944 - 1630

FIELD ORDER)
NUMBER 1)

MAPS: AAF Aeronautical Charts 1:1,000,000 #557, 558, 675, 676, 677, 678,
679, 680, 798, 799.
AAF Long Range Air Navigation Charts 1:3,000,000 #26, 38.
Naval Aviation Charts V-30 Series 1:2,188,800 #41, 55.
AAF Special Charts 1:5,000,000 Western Australia to India.

1. a. (1) Hostile Ground Situation: See Intelligence Annex No. 1.
(2) Hostile Aircraft locations and airfields: See Intelligence Annex No. 1.

- b. (1) Omitted.
(2) Strategic Air Force, E.A.C., will attack enemy airfields in BANGKOK area on D-day, just prior to daylight, employing delayed-action bombs. Eastern Air Command will provide photographic reconnaissance coverage for damage assessment of the target attacked by this command.

2. This Command attacks military installations at BANGKOK on D-day.

Take-Off: Beginning at 0545 I.S.T.

Route Out: General Line, BASE AREA -- 14°30'N., 93°30'E --
12°30'N, 100°45'E. -- OBJECTIVE.

Route Back: General Line: OBJECTIVE -- 15°30'N, 93°30'E --
BASE AREA

Axis of Attack: 331° True.

Method of Attack: By formation in waves.

3. a. The 58th Bombardment Wing will furnish all available aircraft and attack the MAKASAN RAILWAY SHOPS in BANGKOK. (See Objective Folder No. 98.2 and Radar Folder No. 1, Annex No. 3.)

Secondary and last resort targets will be the following at RANGOON:

MALAGON RAIL YARDS AND SHOPS
CENTRAL STATION AND YARDS
PEGU R.R. JUNCTION AND YARDS*

(See Objective Folder No. 82.2, Annex No. 3).

Three-fourths of the available aircraft will be loaded with 500 lb. GP bombs with one-tenth (0.1) second delay nose fuze and twenty-five thousandths (0.025) tail fuze. One (1) bomb per aircraft of the lead group will be fuze for one (1) hour delay (M-124 fuze). One fourth of the available aircraft will be loaded with M-18 aimable clusters, Incendiary. In general,

* Deleted by subsequent letter, Hq 58th Bombardment Wing.

SECRET

those aircraft employing 500 lb GP bombs will be scheduled to precede those aircraft employing M-18 aimable clusters, Incendiary. Available aerial cameras will be carried. Every effort will be made to obtain strike photos.

4. Administrative and supply details: See Administrative Order No. 1 to accompany Field Order No. 1.
5. a. Signal Communications: See Signal Orders, Annex No. 4.
b. Command Post: Headquarters, XX Bomber Command at APO 493.

/s/ K. B. Wolfe
K. B. WOLFE,
Brigadier General, U. S. A.,
Commanding.

OFFICIAL:

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

ANNEXES:

- #1 - Intelligence
- 2 - RCM
- 3 - Objective Folders No. 98.2 and 82.2 and Radar Folder No. 1.
- 4 - Signal Orders.

Reclassified as "SECRET"
Auth: CG, XX BC
Initials: JDG
Date: 24/6/44

TOP SECRET
Auth: CG, 58BW
Initials: _____
Date: 2 June 1944
(CANCELLED)

SECRET

NOT TO BE TAKEN INTO THE AIR

58 Bomb Wg
APO 493
2 June 1944

FIELD ORDER)
:
NUMBER 2)

MAPS: AAF Aeronautical Charts 1:1,000,000 #557, 558, 675, 676, 677, 678,
679, 680, 798, 799.

Naval Aviation Charts V-30 Series 1:2,188,800 #41, 55.

1. a. (1) Hostile ground situation; See Intelligence Annex No. 1 to XX Bomber Command Field Order No. 1.
(2) Hostile Aircraft Locations and Airfields; See Intelligence Annex No. 1 to XX Bomber Command Field Order No. 1.
- b. (1) Omitted.
(2) Strategic Air Force, Eastern Air Command, will attack enemy air fields in BANGKOK area on D-day, just prior to daylight, employing delayed action bombs.
2. On D-day the 58th Bombardment Wing attacks the MAKASAN RAILWAY SHOPS at BANGKOK. (See Objective Folder No. 98.2 and Radar Folder No. 1, Annex No. 3 to XX Bomber Command Field Order No. 1).

Route Out: BASE AREA: - - 14°30' N, 93°30' E - - 12°56' N, 98°11' E
12°30' N, 100°45' E - - 13°18' N, 100°49' E - OBJECTIVE.

(Airplanes will proceed from Base area on course at 5,000 feet or 500 feet on top of the overcast, but in no case above 10,000 feet. Airplanes will reach bombing altitude by the time they have reached 97°30' E.)

Route Back: OBJECTIVE - - 15°30' N, 93°30' E.
BASE AREA.

IP: - - 13°18' N, 100°49' E.

Axis of Attack: 331° true.

Method of Bombing: From formations of 4 planes unless instrument conditions over target prevent maintaining formation, in which case individual airplanes will bomb by radar at altitudes designated for frontal penetration. Intervalometer setting for bombing will be fifty (50) feet.

SECONDARY TARGETS and LAST RESORT TARGETS will be the following at RANGOON:

MALAGON R.R. YARDS AND SHOPS)
CENTRAL STATION AND YARDS) See note A, page 3
PLEGU R.R. JUNCTION AND YARDS)
or TARGETS of OPPORTUNITY.

(See Objective Folder No. 82.2, Annex No. 3 to XX Bomber Command Field Order No. 1)

3. a. (1) 468th Bombardment Group will furnish all available aircraft and bomb from 24,000 feet.

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- (2) Each 468th Bombardment Group airplane will load twenty (20) 500# GP AN - M-43 bombs fused one tenth (.1) second nose and twenty-five thousandths (.025) second tail.
 - (3) 468th Bomb Group airplanes will take off at one (1) minute intervals starting one (1) minute after the last 444th Bomb Group airplane has cleared the airdrome.
- b.
- (1) 444th Bombardment Group will furnish all available aircraft and bomb from 23,000 feet.
 - (2) Available 444th Bombardment Group airplanes will be divided into three parts: one third will stage at PIRDOBA; one third will stage at KHALFAGPUR; and one third will stage at CHAKULIA.
 - (3) Each 444th Bombardment Group airplane will load twenty (20) 500# GP AN - M-43 bombs. Nineteen (19) bombs fused one tenth (.1) second nose and twenty-five thousandths (.025) second tail. One (1) bomb fused with AN - M - 124 tail delay.
 - (4) 444th Bombardment Group airplanes will take off at each of the staging bases at one minute intervals starting at 0545 IST.
- c.
- (1) 40th Bombardment Group will furnish all available aircraft and bomb from 25,000 feet.
 - (2) 40th Bombardment Group airplanes will carry twenty (20) 500# GP AN - M-43 bombs per airplane fused one tenth (.1) second nose, twenty five thousandths (.025) seconds tail.
 - (3) 40th Bomb Group airplanes will take off at one (1) minute intervals starting one minute after the last 444th Bomb Group airplane has cleared the airdrome.
- d.
- (1) 462nd Bombardment Group will furnish all available aircraft and bomb from 24,000 feet.
 - (2) 462nd Bombardment Group airplanes will carry twenty (20) 500# Incendiary M-18 clusters per airplane fused for altitude of separation at 5000 feet.
 - (3) 462nd Bombardment Group airplanes will take off at one (1) minute intervals starting one (1) minute after the last 444th Bombardment Group airplane has cleared the airdrome.
- x.
- (1) Pilot's and Bombardiers' altimeter settings for bombing will be 29.92.
 - (2) Airplanes will not be in lead positions over target unless their radar sets are operative.
 - (3) A minimum of two bombay tanks full of gasoline will be carried in each airplane.
 - (4) one (1) bombay tank will be transferred into Wing tanks prior to the time bombs are dropped.
 - (5) Available aerial cameras will be carried. Every effort will be made to obtain strike photos.
4. Administrative and Supply: See Administrative Order No. 1 to XX Bomber Command Field Order No. 1.

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Authority AND 960063

By RL NARA Date 9/18/05

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5. a. Signal Communications: See Signal Orders, Annex No. 4 to XX Bomber Command Field Order No. 1.

b. Command Post: Headquarters, XX Bomber Command at APO 493.

By command of Brigadier General SAUNDERS

/s/ William H. Blanchard
WILLIAM H. BLANCHARD
Lt. Colonel, AC
Executive

OFFICIAL:

/s/ William K. Skaer
WILLIAM K. SKAER
Lt. Colonel, AC
Asst C/S, A-3

Enclosures:

- #1 - Administrative Order No. 1 to XX Bomber Command Field Order No. 1.
- #2 - Annex No. 1 (Intelligence) to XX Bomber Command Field Order No. 1.
- #3 - Annex No. 2 (RCM) to XX Bomber Command Field Order No. 1.
- #4 - Annex No. 3 (Objective Folders No. 98.2 and 82.2 and Radar Folder No. 1) to XX Bomber Command Field Order No. 1.
- #5 - Annex No. 4 (Signal Orders) to XX Bomber Command Field Order No. 1.

NOTE A: By subsequent letter, HQ 58th Bombardment Wing, the PEGU R.R. JUNCTION AND YARDS were deleted from the Secondary Targets and definite assignment of the others made as follows:

40th and 44th Groups - MALAGON RR YARDS AND SHOPS.
462nd and 468th Groups - CENTRAL STATION AND YARDS.

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JUL 10 1944



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JUL 8 1944
HQ AF

HEADQUARTERS
TWENTIETH AIR FORCE
ADJUTANT GENERAL
1411

