

S E C R E T

PART I - NAVIGATION

1. The navigational problems encountered on this mission were nearly identical to those encountered on the Osaka mission of 13 March. Celestial work was hampered by cloud cover above flight altitude, and navigators were required to depend upon Loran as an aid to their dead reckoning. Loran range was effective to the coast of Honshu, with the average landfall error 10 miles east of the briefed point.
2. Crews failed to make sufficient effort to follow the briefed axis of attack. Cases of landfall error were not great enough to justify direct routes to the target with no attempt being made to fly the briefed axis of attack or to pass over the initial point.
3. Awaji-Shima Island and the point at the IP were closed up on several radar scopes, and a large number of navigators and radar operators confused the southern point of the island with the Kobe aiming point. Winds were briefed at 320 degrees at 25 knots and computed at 340 degrees at 25 knots.
4. On return, two aircraft flew directly from target to base, flying west of Iwo Jima. Aircraft in difficulty flew directly over Iwo Jima; others flew as briefed.

PART II - BOMBING

1. A 3/10 to 5/10 undercast was reported on this mission, with the target being obscured because of smoke. A great deal of turbulence was also encountered. The majority of the releases were by radar, with a number of aircraft reporting deflection corrections being made visually just prior to bomb release.
2. All Wings reported little difficulty in locating IP and AP when these points were not smoke covered.
3. The 314th Wing had some difficulty, due to searchlights blinding bombardiers. Searchlights, however, were used only during part of the mission.
4. Flak was reported by all Wings but it did not distract the bombardiers on the bomb run.
5. Few mechanical failures were reported, with the majority of the bombs being dropped in the designated target areas.
6. Several large fires and numerous small fires were visible on strike photographs.
7. Both the 313th and 314th Wings' bombs were short and some bombs were west of the axis of attack. The 73rd Wing's aiming point was completely destroyed.

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PART III - FLIGHT ENGINEERING

1. Narrative of Mission as Flown:

a. Low altitude cruise: The initial cruise was flown as individual aircraft by all Wings, with altitudes and speeds flown being as planned. No attempt was made to assemble elements or groups during the entire mission.

b. Climb to Bombing Altitude: The time required for climb to bombing altitude varied greatly since many types of climb procedure was used.

c. Cruise to target: Very low powers were required to obtain maximum range airspeed in the cruise prior to starting the bombing run, the approximate average power setting being only 2000 rpm and 30.6 inches manifold pressure. The average power setting required to obtain 250 mph calibrated air speed on the bombing run was approximately 2350 rpm and 41. inches manifold pressure. In a few instances, high powers were used for a considerable length of time to elude enemy fighter planes.

d. Return to base: In nearly all cases the returns to base were made at 7000 to 10,000 feet until approximately one hour from the base, where letdowns at approximately 100 feet per minute were made. Fuel consumptions were approximately 200 gallons more than predicted due to slight head winds encountered.

2. Comments on Results of Mission:

a. The 73rd Wing carried the greatest average bomb load that has been carried to Japan to date - 16,637 pounds. All aircraft in the 73rd Wing carried a bomb load specified by the Wing. In the 313th Wing, loads were limited by the type of incendiary bombs available. The 314th Wing specified 22 M-46's or 24 E-46's for bomb loads averaging 10,202 pounds.

b. Average fuel consumptions to target for all Wings were as predicted.

c. Average fuel reserves for all Wings were slightly less than predicted because of head winds.

d. For fuel consumption and weight data, see Consolidated Statistical Summary.

3. Exhibits:

a. For vertical plot, fuel consumption, and bomb load see Chart "A". Cross hatched areas represent allowances for reduced potential bomb load and additional fuel requirement to target for 314th Wing.

b. For historical record of past 9 missions see Chart "B".

Chart "A"

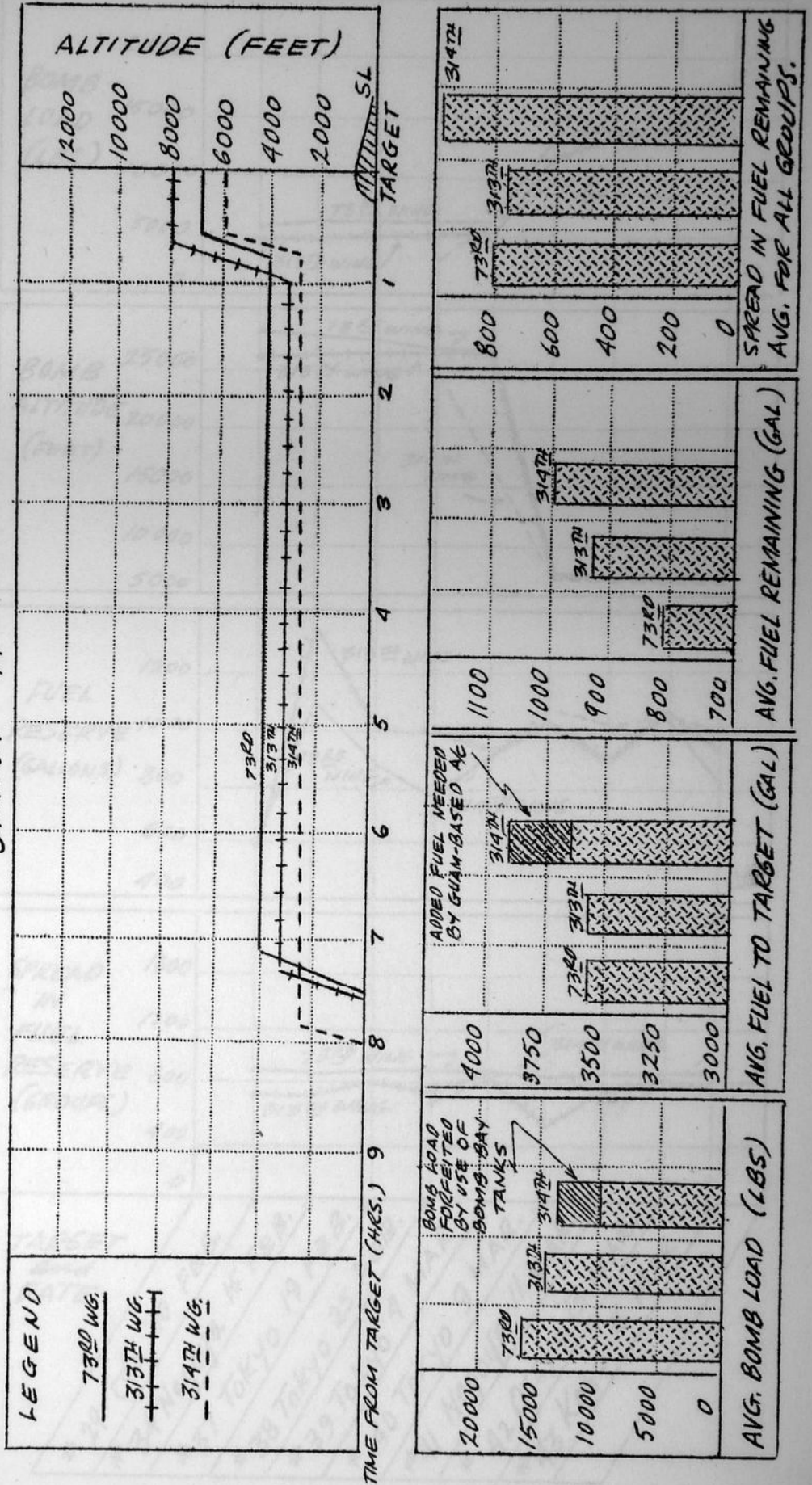
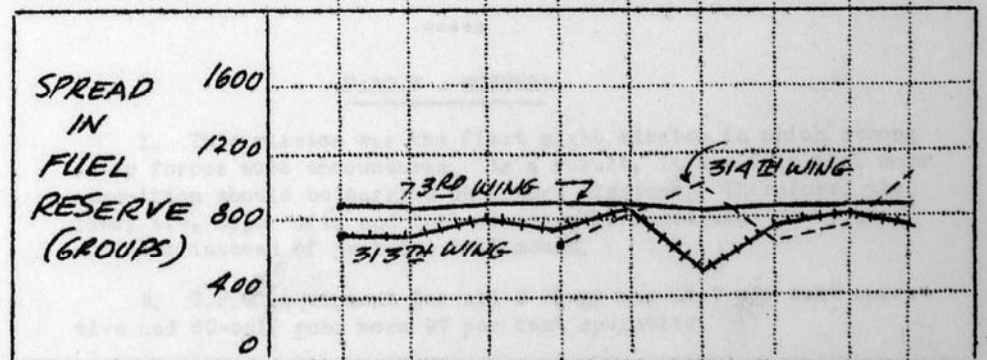
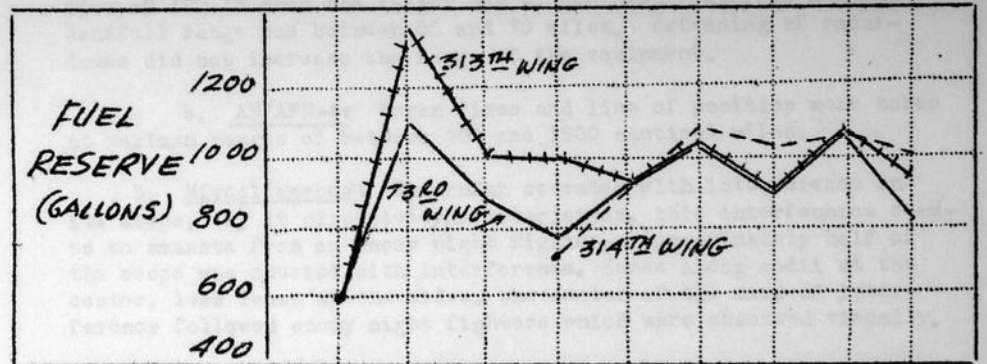
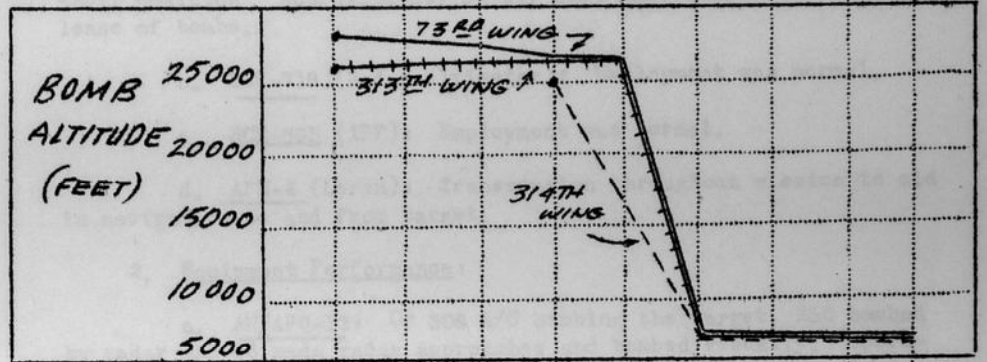
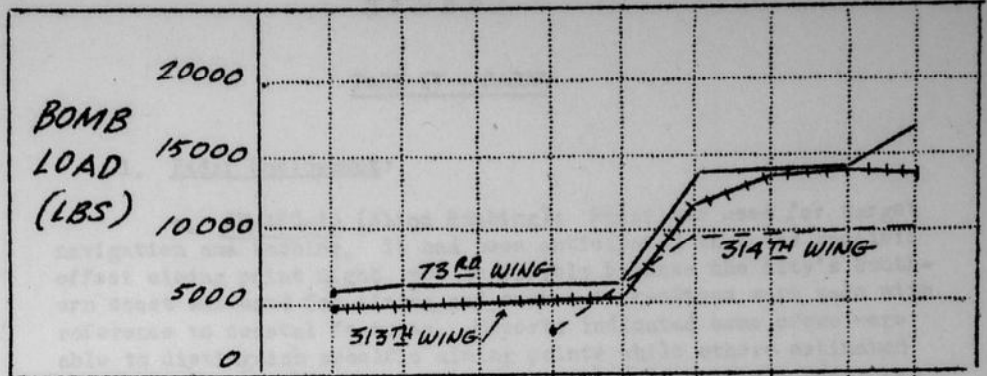


Chart "B"



- TARGET and DATE
- # 29 Ota 10 FEB.
 - # 34 Nagoya 15 FEB.
 - # 37 Tokyo 19 FEB.
 - # 38 Tokyo 25 FEB.
 - # 39 Tokyo 25 FEB.
 - # 40 Tokyo 4 MAR.
 - # 41 Nagoya 9 MAR.
 - # 42 Osaka 11 MAR.
 - # 43 Kobe 16 MAR.

PART IV - RADAR

1. Radar Employment:

a. AN/APQ-13 (Blind Bombing): Radar was used for target navigation and bombing. It had been anticipated that the specific offset aiming point might not be visible because the city's southern coast was used for timing and course corrections were made with reference to coastal features. Reports indicated some crews were able to distinguish specific aiming points while others estimated their position. Approximately 82 per cent made complete radar release of bombs.

b. SCR-718 (Radar Altimeter): Employment was normal.

c. SCR-695 (IFF): Employment was normal.

d. APN-4 (Loran): Transmission throughout mission to aid in navigation to and from target.

2. Equipment Performance:

a. AN/APQ-13: Of 306 A/G bombing the target, 250 bombed by radar and 56 made radar approaches and bombed visually. Operation of APQ-13 over the target was 94 per cent. Average maximum landfall range was between 65 and 70 miles. Extending of radar-domes did not increase the range of the equipment.

b. AN/APN-4: Loran fixes and line of position were taken at maximum ranges of between 700 and 1500 nautical miles.

3. Miscellaneous: One radar operated with interference on its scope. By its directive characteristics, this interference seemed to emanate from an enemy night fighter. Approximately half of the scope was covered with interference, dense along radii at the center, less dense at the sides; the center of the mass of interference followed enemy night fighters which were observed visually.

PART V - GUNNERY

1. This mission was the first night mission in which strong enemy forces were encountered. As a result, it was felt that more ammunition should be carried on future missions. Therefore, the lower aft, upper aft, and tail mounts will henceforth carry ammunition instead of just the tail mount.

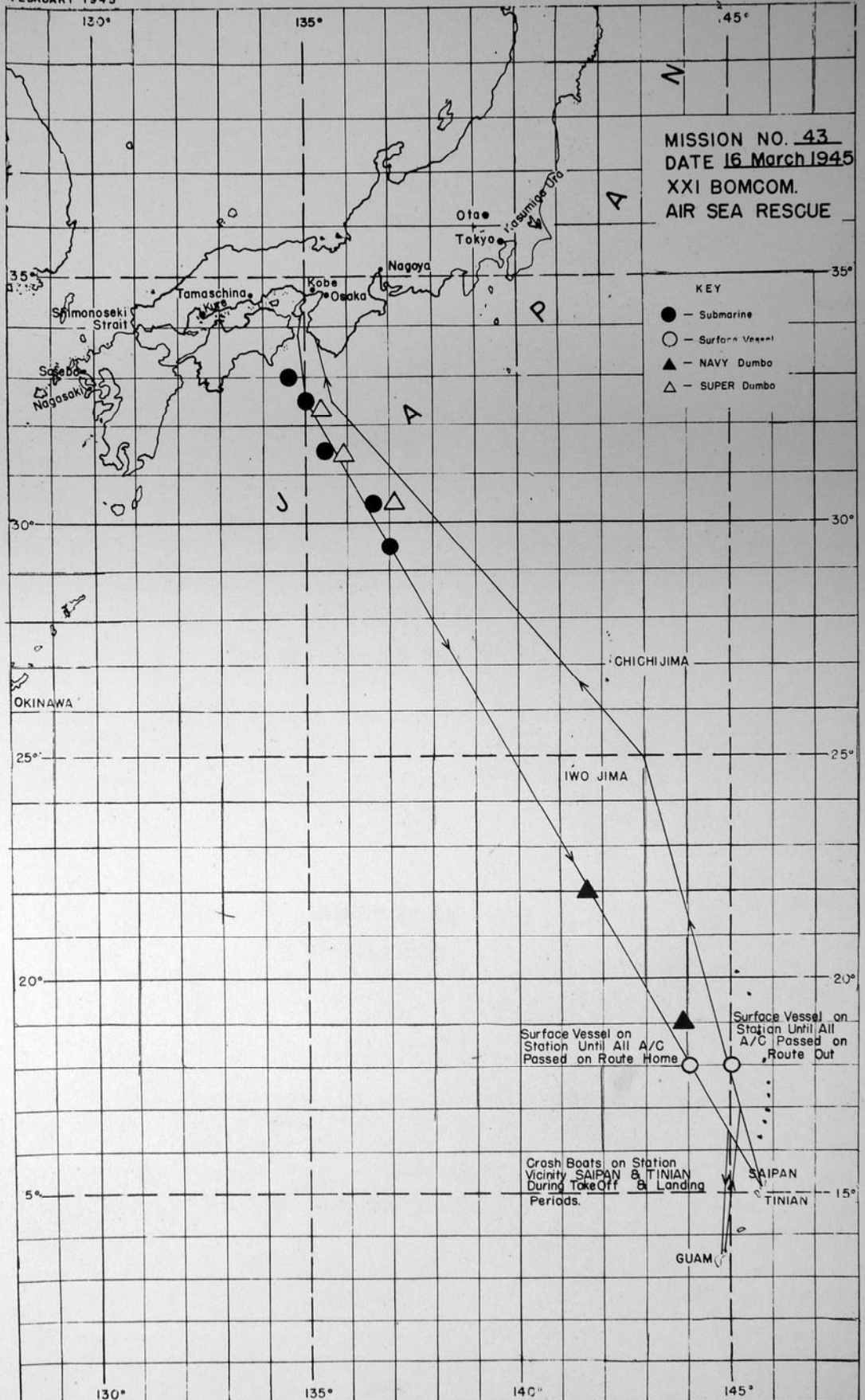
2. C.F.C. equipment for all 3 Wings was 98.7 per cent operative and 50-cal. guns were 97 per cent operative.

PART VI - AIR-SEA RESCUE

There were no known ditchings on this mission. Three aircraft are missing due to unknown reasons. Since no positions were given, no searches could be instituted.

FEBRUARY 1945

SECRET



TRACK CHART XXI BOMBER COM

SECRET

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Authority 745005
 REC NARA Date 5/11/11

PLANNED FORECAST

Route: 30°N to 40°N: 4/10 cumulus, base 1800 ft, top 7000 ft, increasing to 5/10 with showers after 0600Z.
Route: 40°N to 50°N: 4/10 cumulus, base 1800 ft, top 8000 ft, 3/10 alto-cumulus, base 14,000 ft, top 18,000 ft.
Route: 50°N to 60°N: 4/10 cumulus, base 1800 ft, top 8-10000 ft, 3/10 alto-cumulus, base 14,000 ft, top 18,000 ft.
Route: 60°N to 70°N: 4/10 cumulus, base 1800 ft, top 7000 ft, 3/10 alto-cumulus, base 13,000 ft, top 15,000 ft.
Route: 70°N to 80°N: 10/10 clouds, base 1800 ft, top 20,000 ft, with showers, light to moderate turbulence, light icing above 10,000 ft. Ceiling down to 500 ft, in rain.
Route: 80°N to Coast: 9/10 stratocumulus, base 1800 ft, top 8-10,000 ft, 3/10 middle clouds, base 11,000 ft, top 18,000 ft, in layers decreasing to coast.

ANNEX

B

WEATHER

Route: 30°N to 40°N: 4/10 stratocumulus, base 2000 ft, top 8000 ft, 10/10 altostratus, base 8000 ft, top 11,000 ft, changing to 3/10 high stratocumulus after 1800Z.

Part I - Weather Summary

Part II - Chart - Forecast vs. Observed Weather

Part III - Prognostic Map

Part IV - Synoptic Map

Route: 15°N to 25°N: 4/10 cumulus, base 2000 ft, top 5000 ft, visibility 15 miles.
Route: 25°N to 35°N: 3-4/10 cumulus, base 1800 ft, top 6-8000 ft, 5/10 altostratus becoming 10/10, base 13,000 ft, top 14,000. Visibility 20 miles, lowering to 1 mile in new light showers.
Route: 35°N to 45°N: 4/10 cumulus, base 2000 ft, top 8-10000 ft, visibility 20 miles.
Route: 45°N to Target: 3/10 cumulus, base 2000 ft, top 8000 ft, visibility 15 miles.
Route: 15°N to 25°N: 3/10 cumulus, base 2000 ft, top 5000 ft, visibility 10 miles. 3/10 altostratus starting 20°N, base 8000 ft, top 10,000 ft.
Route: 25°N to 35°N: 3/10 cumulus, base 1800 ft, top 8000 ft, 5/10 altostratus, base 10,000 ft, top 13,000 ft, visibility 10 miles, dropping to 5 miles in light showers.
Route: 35°N to 45°N: 3/10 stratocumulus, base 2000 ft, top 5000 ft, 3/10 altostratus, base 10,000 ft, top 14,000 ft.
Route: 45°N to 55°N: 10/10 stratocumulus, base 1800 ft, top 7000 ft, 10/10 altostratus in layers between 8000 ft, and 14,000 ft, visibility 10 miles.
Route: 55°N to Target: 4/10 stratocumulus, base 2000 ft, top 8000 ft, 3/10 altostratus, base 10,000 ft, top 14,000 ft, visibility 10 miles.

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PART I - WEATHER

PLANNING FORECAST

Base: Guam: 4/10 cumulus, base 1800 ft, top 7000 ft, increasing to 6/10 with showers after 0600Z.
Saipan: 4/10 cumulus, base 1800 ft, top 6-7000 ft, 3/10 alto-cumulus, base 14,000 ft, top 15,000 ft.
Route: To 24°N: 4/10 cumulus, base 1800 ft, top 6-7000 ft; 3/10 alto-cumulus, base 14,000 ft, top 15,000 ft.
24°N to 26°N: 6/10 cumulus, base 1800 ft, top 7000 ft; 8/10 alto-cumulus, base 13,000 ft, top 15,000 ft.
26°N to 28°N: 10/10 clouds, base 1200 ft, top 20,000 ft; with showers. Light to moderate turbulence, light icing above 10,000 ft. Ceiling down to 500 ft. in rain.
28°N to Coast: 9/10 stratocumulus, base 1500 ft, top 8-10,000 ft. 8/10 middle clouds, base 11,000 ft, top 18,000 ft, in layers decreasing to coast.
Target:
Kobe: 2/10 stratocumulus, base 2000 ft, top 4000 ft; 10/10 altostratus, base 6000 ft, top 11,000 ft, changing to 6/10 high stratocumulus after 1400K.

Operational Forecast

Weather Encountered

Base at 5/10 cumulus, base 1500 ft,
Take Off: top 8000 ft; 5/10 middle cloud, base 12,000 ft, top 13,000 ft, 6/10 cirrus, base 30,000 ft. Visibility 13 miles, lowering to 1 mile in showers.

4/10 cumulus, base 2000 ft, top 6000 ft; 2/10 altostratus, base 13,000 ft, top 14,000 ft; 8/10 cirrus base 28,000 ft. Visibility 15 miles.

Route 15°N to 23°N: 4/10 cumulus,
Out: base 2000 ft, top 5000 ft, visibility 15 miles.

15°N to 25°N: 5/10 cumulus, base 2000 ft, top 5000 ft. Visibility 15 miles. 3/10 altostratus starting 22°N, base 8000 ft, top 10,000 ft.

23°N to 27°N: 6-8/10 cumulus, base 1500 ft, tops 6-8000 ft; 5/10 altocumulus becoming 10/10, base 10,000 ft, top 14,000. Visibility 10 miles, lowering to 1 mile in moderate showers.

25°N to 27°N: 9/10 cumulus, base 1200 ft, top 8000 ft; 5/10 altostratus, base 10,000 ft, top 13,000 ft. Visibility 15 miles, dropping to 5 miles in light showers.

27°N to 34°N: 8/10 cumulus, base 2000 ft, top 5-6000 ft, visibility 20 miles.

27°N to 29°N: 3/10 stratocumulus, base 2500 ft, top 5000 ft; 3/10 altostratus, base 10,000 ft, top 12,000 ft.

34°N to Target: 5/10 cumulus, base 3000 ft, tops 6000 ft. Visibility 15 miles.

29°N to 33°N: 10/10 stratocumulus, base 1500 ft, top 7000 ft; 10/10 altostratus in layers between 9000 ft, and 16,000 ft. Visibility 10 miles.

33°N to Target: 4/10 stratocumulus, base 3000 ft, top 6000 ft; 3/10 altostratus, base 9000 ft, top 12,000 ft, visibility 15 miles.

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Target: 5/10 cumulus, base 3000 ft, top 6000 ft, visibility 15 miles.

4/10 stratocumulus, base 3000 ft, top 6000 ft; 3/10 altostratus, base 10,000 ft, tops 12,000 ft. Visibility 12 miles.

Route Re- Similar to Route Outgoing.
turning: ing.

Similar to Route Outgoing.

Base on 4/10 cumulus, base 1500 ft, top 7000 ft; 3/10 middle clouds, base 13,000 ft, top 14,000 ft. Visibility 15 miles, lowering to 1 mile in showers.

5/10 cumulus, base 1800 ft, top 6000 ft; 5/10 middle clouds, base 12,000 ft. Visibility 15 miles.

Winds Aloft - Forecast

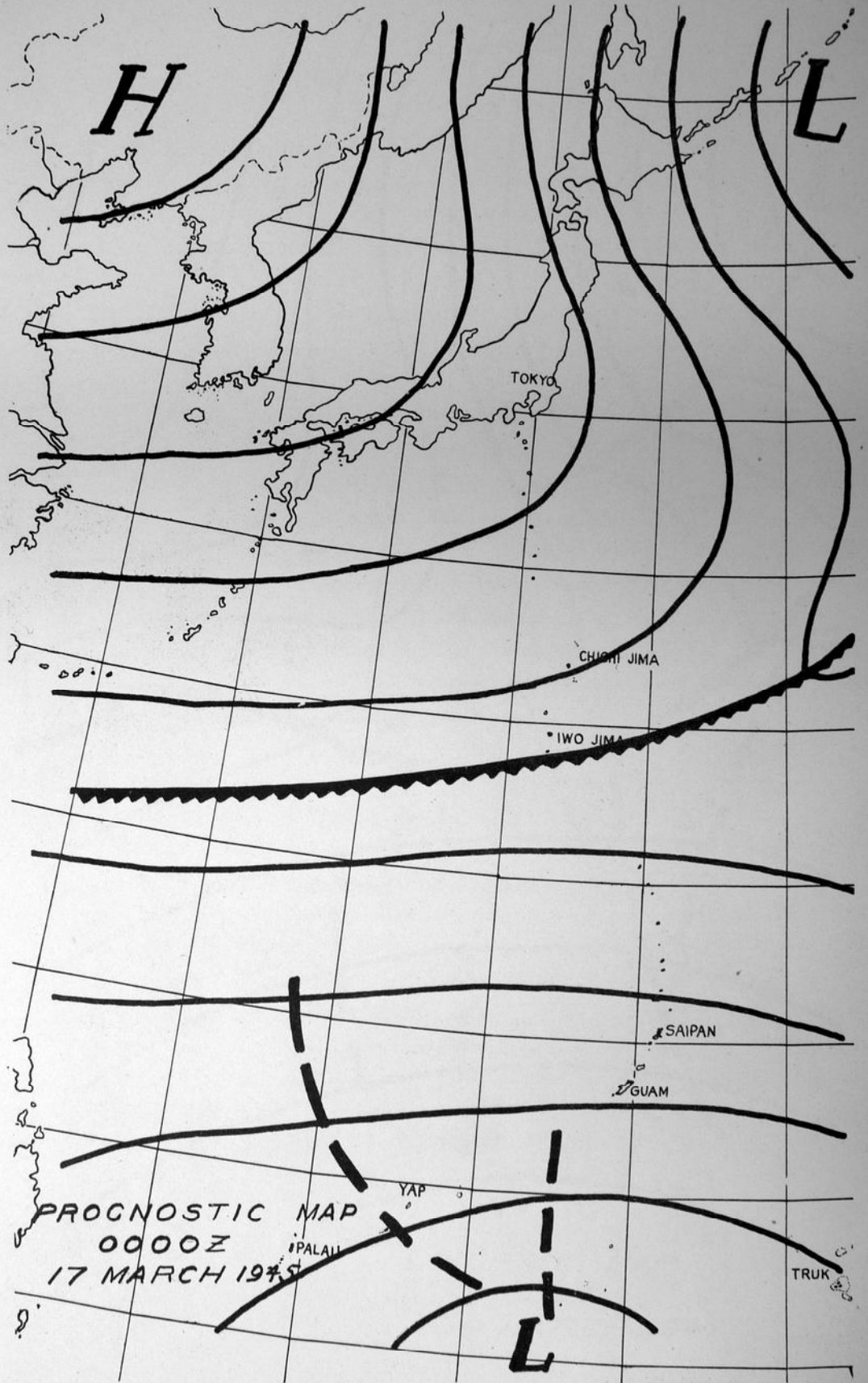
	<u>15°N - 20°N</u>		<u>20°N - 28°N</u>		<u>28°N - 33°N</u>		<u>Target</u>	
15,000	65/12	0	310/35	-4	390/55	-9	280/65	-19
10,000	70/15	8	320/27	4	290/35	-2	290/40	-11
8,000	70/15	12	340/25	7	310/30	1	300/35	-9
6,000	70/15	16	10/22	10	330/25	4	320/30	-7
4,000	70/15	20	40/22	13	360/20	8	350/25	-5
2,000	70/17	24	75/21	16	30/20	8	20/20	-3
Surface	70/11	27	60/14	18	10/14	10	360/13	-1

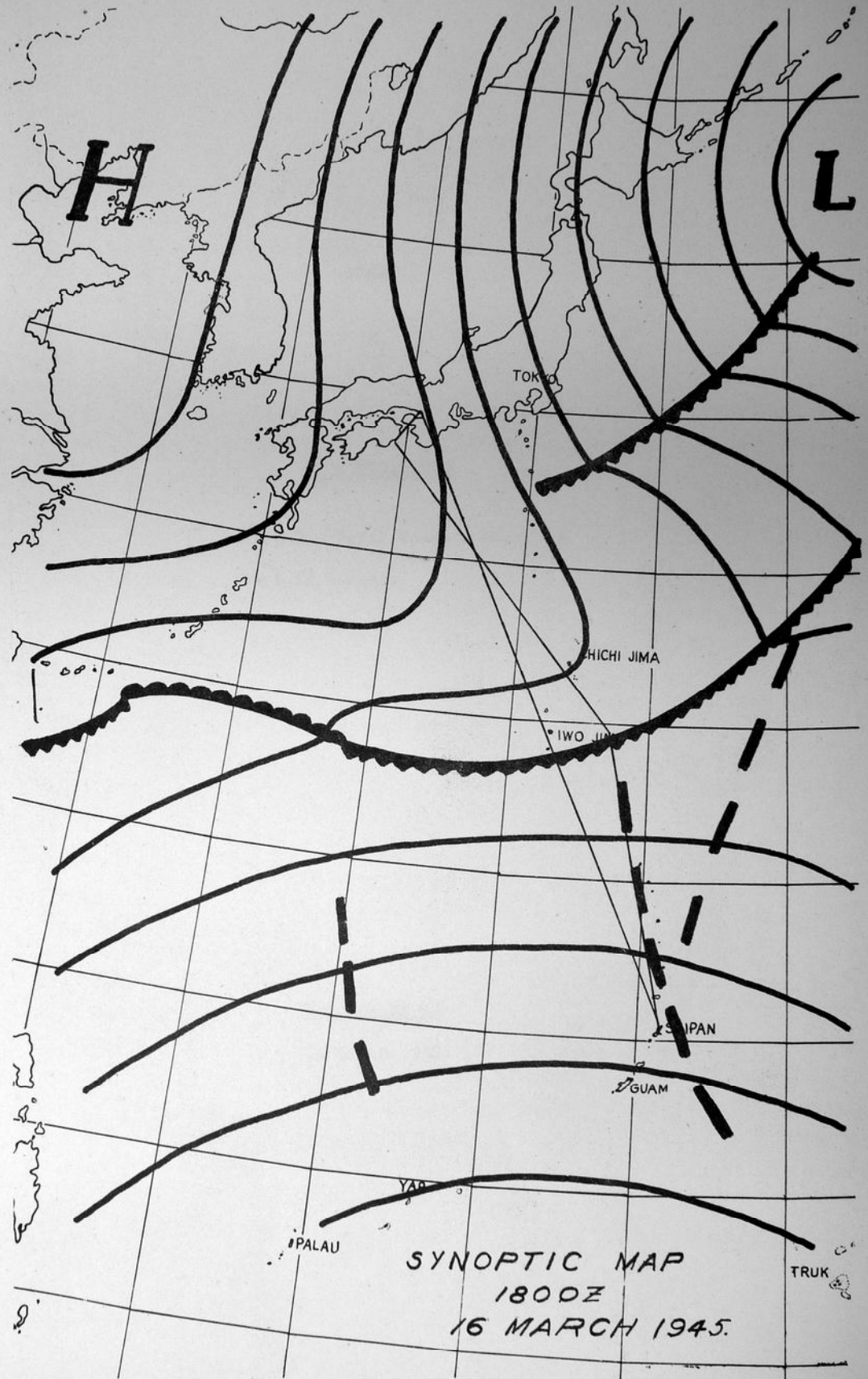
Winds Aloft - Observed

	<u>15°N - 22°N</u>	<u>22°N - 30°N</u>	<u>30°N - 33°N</u>	<u>Target</u>
10,000	90/28	270/40	290/35	
8,000				300/32
6,000				300/30
4,000				
2,000	80/25	60/25	300/35	
Surface				

Remarks: This forecast was considered good except that winds on return were off on direction, shifting through the south instead of through the north.

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 By REC NARA Date 5/11/11





SYNOPTIC MAP
 1800Z
 16 MARCH 1945.

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 NARA Date 5/11/11

PART I - RADAR COUNTER MEASURES

1. General:

a. Four ECM Search aircraft participated in and completed this mission. Search was performed for enemy transmissions in the frequency bands of 4-10 mc, 15-150mc, and 100-100 mc. While over the target, the search was concentrated on logging radar signals with high PRF and short pulse length of 100-200 mc.

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b. A total of 54 signals was logged, but after analysis for repetition and ambiguity, this number was resolved into 10 different signals. Analysis included coincidence of the signals with enemy action, their possible transmission from particular enemy equipments, and previous intercepts.

c. No offensive counter measures were employed.

COMMUNICATIONS

2. Results of Search

a. The following are the particular intercepts:
Part I - Radar Counter Measures

Part II - Radio

(1) 100/100/200: This signal was intercepted about 10 miles from Kato over Okinawa and is believed to be the Mark 21 A.A. Fire Control type radar equipment. It was coincident with intense but inaccurate flak through 5/10 to 9/10 clouds. The few searchlights at the target area were ineffective except in a few cases in which aircraft were seen by several searchlights and visual sighting of A.A. was used. This signal was tracking.

(2) 70/200/200: This Mark 21 Model 2 signal was very strong in the target area and can be compared with the incidence of flak stated above in paragraph (1). This signal was tracking.

(3) 100/100/200: This signal, intercepted 50 miles off Okinawa-Mitsuki, was low switching and tracking. A few minutes later 4 or 5 twin-engine B-24 were following the aircraft. No attacks were made.

(4) 100/100/200: A similar signal was picked up in the Okinawa area on a previous mission. No definite coordination with fighters was made on either side. The signal with 100. Fighters were below until 10:00. Aircraft after creative action through clouds was employed. This signal was intercepted at 16 March 1945.

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b. Other signals intercepted to and from target areas:

Approximate	Intensities	Location	Remarks
100/700/7-10	30/200 - 100/200		Strong signals, low switching and tracking.
24/200/20			
27/200/20			
110/200/20			

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PART I - RADAR COUNTER MEASURES1. General:

a. Four RCM Search aircraft participated in and completed this mission. Search was performed for enemy transmissions in the frequency bands of 4-10 mc, 25-100mc, and 100-300 mc. While over the target, the search was concentrated on logging radar signals with high PRF and short pulse length characteristics.

b. A total of 54 signals was logged, but after analysis for repetition and ambiguity, this number was resolved into 15 different signals. Analysis included coincidence of the signals with enemy action, their possible transmission from particular enemy equipments, and previous intercepts.

c. No offensive counter measures were employed.

2. Results of Search:

a. The signals intercepted which were of particular interest follow:

(1) 195/2000/3: This signal was intercepted about 10 miles from Kobe over Osaka Wan and is believed to be the Mark 21 A A Fire Control type radar equipment. It was coincident with intense to meager but inaccurate flak through 2/10 to 9/10 clouds. The few searchlights at the target area were ineffective except in a few cases in which aircraft were coned by several searchlights and visual sighting of A A was used. This signal was tracking.

(2) 79/2000-2500/5-7: This Mark TA Model 3 signal was very strong in the target area and can be compared with the incidence of flak stated above in paragraph (1). This signal was tracking.

(3) 150/1200/---: This signal, intercepted 50 miles off Shiono-Misaki, was lobe switching and tracking. A few minutes later 4 or 6 twin-engine E/A were following the aircraft. No attacks were made.

(4) 1300/---/2: A similar signal was picked up in the Osaka area on a previous mission. No definite coordination with fighters was made on either mission to associate the signal with AI. Fighters were known still to be trailing the aircraft after evasive action through clouds was employed. No signal, however, was intercepted at this time.

b. Other signals intercepted to and from target area:

<u>Characteristics</u>	<u>Intercept Location</u>	<u>Remarks</u>
100/750/7-10	32/55N - 135/50E	Strong signal, lobe switching and tracking.
94/800/20		
97/800/20		
110/800/20		

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The foregoing three signals (on the preceding page) were intercepted at 33/20N - 134/40E, and are believed to be Mark II Fixed Air Search based near Muroto Zaki.

156/350/7.5	Nishino Shima	Possible Mark 34,35
104/600/18	28/10N - 141/00E	Tracking
78/400/40	31/10N - 138/30E	Tracking
107/750/7-10	West of Smith Is.	
123/700E/10	100 mi from Smith Is.	Lobe Switching
	Is.	
146/450/5	100 mi SW Smith Is.	
310/600/10	Nishino Shima	1 rpm

The foregoing seven signals were intercepted en route to Japan, and indicate adequate Japanese early warning equipment from Nishino Shima to Smith Island with a range exceeding 100 miles.

3. Analysis and Conclusions:

- a. No D/F'ing of any signal was possible due to the lack of suitable equipment. The locations listed are suspected locations.
- b. The signals intercepted in the target area failed to indicate any extensive use of gun-laying activities. Radar searchlight control was noticeably lacking except in a few isolated cases in which the aircraft was coned effectively by lights. Visual sighting is presumed for A A. Heavy A A was reported only by illuminated aircraft. Three types of fire were encountered through 0/10 to 10/10 clouds.
- c. The suspected AI signals are still being intercepted, but as yet cannot be definitely associated with coordinated fighter attacks. Further search is being maintained for more evidence of these signals.

PART II - RADIO

1. Strike Reports: Aircraft radio operators transmitted 26 strike reports, all being received by the Ground Stations. Three reports were transmitted on 11080 Kc but were not received. These reports were then retransmitted on 6055 Kc and were received by the Ground Station.

2. Fox Transmissions: Ground Stations transmitted UCOPAC weather and time ticks simultaneously on all strike frequencies on the half hour and hour respectively. Guam weather was held in reserve by Saipan and Tinian in case of a diversion of aircraft to other than their home bases.

3. Frequencies: Air-sea rescue frequencies were monitored during the entire mission. The following information was intercepted: An aircraft of the 313th Wing informed a station guarding 4475 Kcs that he was low on fuel and might not make base. Later interception indicated that this plane was in sight of the field and would be able to land safely. This aircraft landed at Saipan. The above information was relayed to the aircraft's headquarters upon receipt by the Ground Station. Radio operators reported that frequency 11080 Kcs was not received near the target. However, 6055 Kcs and 3145 Kcs (the other fre-

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quencies used by the 73rd Wing) were received with an excellent signal. Aerial operators stated that jamming was received on all strike frequencies at one time or another during the mission. Atmospheric interference was slight to moderate on all frequencies. Following is a percentage breakdown of traffic: 42 percent on 7 megacycle frequency; 37 percent on 3 megacycle frequency; and 21 percent on 11 megacycle frequency.

4. Navigational Aids: Thirty-nine HF/DF bearings were requested and all obtained. Eight requests were made for VHF/DF bearings; all were obtained. One HF/DF bearing was not requested but the aircraft transmitted an emergency (XXX) message. The Ground Station immediately shot a bearing on the aircraft and sent it to the aircraft. Ranges and homers were utilized extensively with good results. One Group attempted air-to-air homing with only satisfactory results. Most Groups reported too much interference for air-to-air homing purposes. Although the O.W.I. Broadcasting Station was intermittently jammed, 2 crews reported homing on this station all the way from the coast of Japan.

5. Net Discipline and Security: Net discipline was good. Aircraft operators were carrying 2 CSP 1270 code books since one went out of effect during the mission. Seven radio operators used the compromised code after it became effective. Steps are being taken to rectify this situation.

6. Enemy Transmissions: The following incidents of jamming and interference were noticed during this mission:

a. 3145 Kcs:

(1) Intentional CW jamming was particularly effective over target.

(2) Steady tone was effective at 1100Z, 1320Z and for 3 hours after leaving target area.

(3) CW jamming, narrow band width, was very effective at 1930Z.

b. 6055 Kcs:

(1) Jap music at 1510Z, also at 1559Z, sounded like Jap broadcast.

(2) Short period of bagpipe jamming at 1725Z; ineffective.

c. 11080 Kcs:

(1) CW jamming at 2000Z; wide band spread made it effective; some at 1130Z.

(2) Unidentified CW at 1545Z; was partially effective.

d. Frequencies 3410, 3990, 7510, 7435, 10820 and 11160 kcs reported no outstanding incidents of jamming, although atmospheric interference was present on all frequencies.