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By Authority of the  
Commanding General:  
1-6-45 SK  
Date Initials

TABLE V - (cont'd)

<u>Group</u>	<u>Serial Number</u>	<u>E/A</u>	<u>A/A</u>	<u>Own Guns</u>	<u>Other</u>	<u>Explanation</u>
468th (cont'd)	63417	X	X			Right outboard wing section, right Horizontal Stabilizer.
	24691	X	X			#2 Oil cooler flap, #2 Flight Hood, #3 and #4 perforated.
	24486				X	Leading edge of left wing between #2 Engine and fuselage
	24546	X	X			Two props damaged and holes throughout the A/C.
	24487		X			Nose Glass.
		4*	5		1	
* 4 A/C hit by both E/A and A/A.						
GRAND TOTALS		15	6	2	2	

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

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Table VI - Attacks & Passes by Enemy Aircraft

DIRECTION	ALTITUDE												TOTAL *			
	HIGH				LOW				LEVEL							
	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th
0800	1	2			1		1						2	2	1	
0900	3	2		3	3								6	2		5
1000	2	6	4	4		1	2		1	1	1		3	8	7	4
1100	6	5	7				1	2	1		1		7	5	9	2
1200	4	1	4	6				1	2			1	6	1	4	8
0100	6	4	4	2			4		5		2	6	11	4	10	8
0200	2	4	12	3		2	1				1		2	6	14	3
0300	1	10	3		2		1	3			2	2	3	10	6	5
0400						1				1		2		2		2
0500		1			1	2		1		1			1	4		1
0600			2			1		2	1				1	1	2	2
0700		1	1		2	2	1	1					2	3	2	1
TOTAL	25	36	37	18	9	9	11	10	10	3	7	13	44	48	55	41

\* 4 Encounters excluded. Lacking information.

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Table VII - Personnel Losses

Crew Position	Killed				Missing				Seriously Injured				Slightly Injured				Total Casualties				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											1	1			12	12			12	13
Co-Pilot							1	1											1	1			12	12			12	13
Navigator							1	1											1	1			12	12			12	13
Bombardier							1	1											1	1			12	12			12	13
Flt. Engr.							2	1											2	1			12	12			13	13
Radar							1	1											1	1			12	12			12	14
Radio							1	1											1	1			12	12			12	13
GFC Spec							1	1											1	1			12	12			12	13
Right Gnr							1	1											1	1			12	12			12	13
Left Gnr							1	1								1			1	2			12	12			12	13
Tail Gnr							1	1											1	1			12	12			12	13
R C M																												2
Unknown																												
Others																							2	2			6	
TOTAL							12	11								1			12	12			134	134			139	146

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XX BOMBER COMMAND  
CONSOLIDATED MISSION STATISTICAL SUMMARY  
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Table VIII - Expenditures of Ammunition and Claims Against Enemy Aircraft

Group	Ammunition Expended Per Plane In Combat Flying					Total Expended	Claims Against Enemy Aircraft			Per 1000 Rounds Expended in Combat		
	Upper Front	Lower Front	Upper Rear	Lower Rear	50 Cal. Tail		Destroyed	Probably Destroyed	Damaged	Destroyed	Probably Destroyed	Damaged
40th	271	164	296	186	173	13070	8	0	9	.61	-	.69
444th	207	74	142	90	74	7045	2	1	0	.29	.14	-
462nd	366	173	298	286	123	12455	5	5	6	.40	.40	.48
468th	275	221	254	145	150	12540	7	0	4	.56	-	.32
TOTAL	276	157	245	172	130	45110	22	6	19	.49	.13	.42

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XX BOMBER COMMAND  
CONSOLIDATED MISSION STATISTICAL SUMMARY  
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Table IX - Gasoline Loading and Consumption

Group	Average Gross Weight Per Plane Before Fwd Area Takeoff	Average Gals Gas Loaded Per A/C Before Fwd Area Takeoff	* Average Gallons Consumed on Mission		* Average Gallons Remaining in A/C After Mission	
			Per Aircraft Bombing Primary	Per Aircraft Not Bombing Primary	Per Aircraft Bombing Primary	Per A/C Not Bombing Primary
40th	132846	7012	5724	4513	1293	2488
444th	134338	7100	6000	5668	1100	1432
462nd	133273	7109	6100	6100	1200	991
468th	133006	6700	5966	4783	734	1917
TOTAL	133358	6990	5862	5562	1046	1477

\* Excludes A/C which did not return directly to home fields.

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Commanding General:

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

Table X - Scheduled and Airborne Aircraft Failing to Bomb Primary

Group	A/C Serial Number	Forward Area		Explanation	
		Airborne	Not Airborne		
40th	24582		X	125 RPM backfiring #2 engine	
	93859	X		Bad turbo amplifier	
	24718	X		Unable to transfer gas	
	63404	X		Personnel error	
	24738	X		Personnel error	
		<u>4</u>	<u>1</u>		
444th	24485	X		Personnel error	
	24538	X		Personnel error	
	63422	X		Personnel error	
	65226	X		Personnel error	
	24724	X		Personnel error	
	93857	X		Personnel error	
	24730	X		Personnel error	
	24731	X		Personnel error	
	24584	X		Personnel error	
	24732	X		Personnel error	
	24462			X	#4 engine cut out - fouled plugs
	6324			X	Starter malfunction
	65228	X			Top blister blew causing nose section to frost over
		<u>11</u>	<u>2</u>		
462nd	24456	X		Personnel error	
	24506	X		Personnel error	
	24728	X		Personnel error	
	63473	X		Personnel error	
	24479	X		Personnel error	
	63454	X		Personnel error	
	65232	X		Personnel error	
	24711			X	#2 prop governor inoperative
	24581			X	#3 fuel tank leak
	24590			X	Mags cutting out
	63393	X			Both salvo & electrical release failed to operate over primary
	24461	X			A/C contracted because of extreme cold and cables became slack
	24463	X			Instructed to escort 461 home
	24505	X			Shot down about 8 minutes before target
		<u>11</u>	<u>3</u>		
468th	24525		X	Engine ran rough on pre-flight	
	24719		X	#1 prop ran away at take-off	
	24704	X		Oil leak #2 engine, hose broken at lower end	
	65208	X		Fuel transfer pump out	
	24487	X		Tail gun and lower end turret out, guns frozen	
	24715	X		X	Rammed over target by enemy A/C
		<u>4</u>	<u>2</u>		
TOTALS		30	8		

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Date Initials

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

TABLE XI - Engineering Malfunctions

Part I - Engineering Malfunctions Preventing Airborne A/C From Bombing Primary

		40th	444th	462nd	468th	Total
POWER PLANT & ACCESSORY SECT.	Turbo supercharger and/or Turbo Control System	1				1
OIL SYSTEM	Oil Leaks				1	1
FUEL SYSTEM	Fuel Transfer System	1			1	2
MISCELLANEOUS	Blown Hister		1			1
TOTALS		2	1		2	5

NOTE: For details, see Table X - "Summary of A/C Failing to Bomb Primary".

Part II - Engineering Malfunctions Not Preventing A/C From Bombing Primary

		40th	444th	462nd	468th	Total
POWER PLANT & ACCESSORY SECT.	Engine running rough	2	1	1	1	5
	Engine running hot	1				1
	Exhaust system				1	1
	Turbo Supercharger and/or Turbo Control System		1	1		2
PROPELLERS & GOVERNORS	Unsuccessful attempts to Feather Governor	3		1		3
OIL SYSTEM	Oil Leaks	3	2		2	7
	Oil Temperature Regulator	1	2			3
	Oil Pressure Low			1	1	2
FUEL SYSTEM	Fuel Transfer System	1		1		2
	Fuel Pressure Low			1	1	2
	Fuel Pressure High	3				3
	Fuel Booster Pumps	1				1
	Fuel Quantity Gage				1	1
	Mixture Control		1			1
ELECTRICAL SYSTEM - FAILURE	Generators		1			1
	A P U	1				1
INSTRUMENTS	Carb. Air Temp. Gage				1	1
	Cylinder Head Temp. Gage		3			3
	Rear Oil Press. Gage				1	1
	Gyro Compass		2			2
	Tachometer		1	1	2	4
	Flux Gate Compass	1	1			2
	Flight Indicator	2		1	1	4
	AFCE			2		2
	Manifold Pressure Gage		2		1	3

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TABLE XI - Engineering Malfunctions

Part II - cont'd

	40th	444th	462nd	468th	Total
MISCELLANEOUS					
Pressurization			1		1
Brakes	1				1
Hydraulic Leak		1			1
Defroster System	2				2
Hydraulic System			1		1
Blown Blister	1				1
TOTALS	23	18	12	13	66

NOTE PERTAINING TO BOTH PART I AND PART II:

Only engineering malfunctions are listed. All other malfunctions, such as radar, are excluded. If one aircraft had more than one engineering malfunction, all malfunctions have been listed.

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XX BOMBER COMMAND  
 CONSOLIDATED MISSION STATISTICAL SUMMARY  
 Mission Number Twenty Three  
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Table XII - Utilization of Useful Load  
 (Based on A/C Bombing P.T.)

Group	No. of Ground Miles	Number of A/C Considered	Type of A/C	Av. Gross Weight at Takeoff For Mission	Aver Basic Weight of A/C	Aver Useful Load	Aver. Number of Bombs Loaded	* Aver Weight of Bombs Loaded	Aver Weight of Gas Loaded at 6 Pounds Per Gal	Average Miscellaneous Weight
40th	2840	8	Gen. Wing Tanks	132579	74661	57918	500# GP 8.0 500# Inc 8.1	8275	42180	7463
444th	2880	1	Gen. Wing Tanks	133464	75169	58295	500# GP 9.0 500# Inc 8.0	8759	42600	6936
462nd	2855	1	Gen. Wing Tanks	135394	75874	59520	500# Inc 15.0	7245	43800	8475
468th	2860	**	Gen. Wing Tanks	132981	75108	57873	500# GP 10.9 500# Inc 10.6	11047	40200	6626
**							500# GP 8.9			
TOTAL	2865	18	Gen. Wing Tanks	132963	74955	58008	500# Inc 9.6	9477	41413	7118

\* 500# G.P. - AN-M 64 equals 543.9 pounds (actual weight).  
 500# Incendiary - M-76 equals 483 pounds (actual weight).  
 \*\* One A/C bombed primary on which basic weight was not reported.

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XX BOMBER COMMAND

SPECIAL GASOLINE STUDY  
 Of Missions 21, 22 & 23

Run 18, 19 & 21 December 1944

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Group	Gallons Loaded Per A/C In Rear Area	Consumed Rear to Fwd. Area	In Tanks On Landing In Fwd. Area	Mission #21		Mission #22		Mission #23		In Tanks For Return To Rear Area	Consumed Fwd To Rear Area	In Tanks On Landing In Rear Area	Total Gas Taken Out Of Fwd Area
				Av. Gas Consumed On A/C Bombing Primary	Av. Gas Consumed On A/C Not Bombing Primary	Av. Gas Consumed On A/C Bombing Primary	Av. Gas Consumed On A/C Not Bombing Primary	Av. Gas Consumed On A/C Bombing Primary	Av. Gas Consumed On A/C Not Bombing Primary				
110th	6659	3668	2991	3689	1200	6449	5787	5724	4513	3788	2734	1054	209843
444th	6000	3354	2646	3448	2670	6444	6470	6000	5668	3607	2807	800	245762
462nd	6272	3504	2768	3905	3170	-	6191	6100	6100	3565	2409	1156	229451
468th	6549	3245	3304	3218	2494	6400	-	5966	4783	3623	2648	975	220965
TOTAL	6347	3402	2945	3548	2450	6438	6218	5862	5562	3634	2681	953	906021

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ANNEX

N

FIELD ORDERS

\* \* \* \* \*  
\* All Field Orders Material in the following \*  
\* Annex originally classified TOP SECRET, is here- \*  
\* by reclassified to SECRET. By authority of the \*  
\* C. G. XX Bomber Command. \*  
\* 11 January 1944 *F. L. S.* \*  
\* \_\_\_\_\_ \*  
\* Date Initials \*  
\* \* \* \* \*

NOTE: The last resort target, originally planned as Loyang, and carried as such in the Intelligence Annex to Field Order No. 23, was later changed to Chenghsien as indicated in the Field Orders.

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Auth: CG XX BC

Initials: ECT

Date: 16 Dec 44

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ON COMBAT MISSION

FIELD ORDERS )  
: )  
NUMBER 23 )

Copy Number \_\_\_\_\_

XX Bomber Command  
APO 493  
16 Dec 44 - 0800Z

MAPS: AAF Aeronautical Charts: 289, 290, 380, 381, 382, 384, 385, 436, 495, 496, 552, 553, 554, 555, 557, 558, or equivalent International Maps of the World.

AAF Long Range Air Navigation Charts: 7, 17, 26, or equivalent Naval Aviation Charts, V-30 Series.

1. Omitted (see Annex No. 1, Intelligence Summary).

2. On 21 December 1944 this Command attacks AAF Target 93.3-177.

ROUTE OUT: Base Area - ANKANG AIRFIELD (32°35'N, 109°14'E) Assembly Point #1 - Assembly Point #2 (CHUHWA ISLAND, 40°31'N, 120°48'E) - IP (40°50'N, 121°51'E) - Target. Immediately after take-off aircraft will climb on course to 13,000' or on top of overcast.

BASE ALTITUDE: 14,000' pressure altitude.

ROUTE BACK: Target - 38°04'N, 118°10'E - 35°35'N, 110°35'E - HSIAN AIRFIELD (34°11'N, 108°54'E) - HANCHUNG AIRFIELD (33°05'N, 107°03'E) - Base Area.

AXIS OF ATTACK: 58° Magnetic.

AIMING POINT: Southeast corner of Building No. 20 as shown on AAF Illustration No. 93.3-177P3.

METHOD OF BOMBING: By 12-plane formations.

3. a. 40th Group: ASSEMBLY POINT #1: TAKIN ISLAND (38°18'N, 120°50'E).  
BOMBING ALTITUDE: 22,000' pressure altitude.  
TIME OVER TARGET: 210219Z.

b. 444th Group: ASSEMBLY POINT #1: TA-HEI-SHAN ISLAND (37°58'N, 120°38'E).  
BOMBING ALTITUDE: 23,000' pressure altitude.  
TIME OVER TARGET: 210221Z.

c. 462nd Group: ASSEMBLY POINT #1: 37°42'N, 120°14'E.  
BOMBING ALTITUDE: 20,000' pressure altitude.  
TIME OVER TARGET: 210215Z.

d. 468th Group: ASSEMBLY POINT #1: TAINPINGWAN (37°22'N, 119°52'E).  
BOMBING ALTITUDE: 21,000' pressure altitude.  
TIME OVER TARGET: 210217Z.

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- x. (1) Primary target will be bombed visually, if possible, but in no case below 20,000' pressure altitude. If primary target is cloud-covered and secondary is open, secondary will be bombed visually. If weather conditions require radar bombing of primary target, the aiming point will be the center of the Industrial Area on the west side of the city.
- (2) SECONDARY TARGET: Shipping at DAIREN or AAF Target No. 93.5-13.  
AIMING POINT: 105093.
- (3) LAST RESORT TARGET: CHENGSIEN Railroad yards.  
AIMING POINT: 048097.
- (4) BOMB LOADS: A combined minimum of fifteen 500# GP (TNT or amatol filled) bombs, fused .1 second nose and .025 second tail, and M-76 incendiary bombs, fused instantaneous nose and non-delay tail, will be carried in each aircraft, mixed in the ratio of one to one insofar as the supply available permits, with the incendiaries loaded to release last.
- (5) Each Group will furnish a maximum number of fully modified aircraft and a sufficient number of unmodified aircraft to bring total airborne to 13.
- (6) Movement to the forward area will be completed by 20 December 1944.
- (7) Intervalometer Setting: Minimum Train.
4. No change.
5. a. (1) Convoy sighting messages addressed to "CQ" will be broadcast on 8280 KCS.  
(2) No change.
- b. No change.
- By command of MAJOR GENERAL LEMAY:

JOHN E. UPSTON  
Brigadier General, U. S. A.  
Chief of Staff

OFFICIAL:

*Joseph J. Preston*  
JOSEPH J. PRESTON  
Colonel, Air Corps  
Deputy Chief of Staff,  
Operations

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ANNEXES:

#1 - Intelligence Summary.

DISTRIBUTION:

- 1 - CG, Twentieth Air Force
- 1 - CG, India Burma Theatre
- 1 - CG, China Theatre
- 1 - CG, AAF, IB
- 1 - CG, Fourteenth Air Force
- 1 - CG, AAF, IBT Evaluation Board
- 1 - CG, 312th Wing (F)
- 1 - CO, Fwd Ech Det, XX BC
- 1 - Chief, Tact. Opns Br., XX BC
- 3 - Chief, Communications Section, XX BC
- 2 - Chief, Intelligence Section, XX BC
- 3 - CO, 40th Bomb Group
- 3 - CO, 444th Bomb Group
- 3 - CO, 462nd Bomb Group
- 3 - CO, 468th Bomb Group

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\* By Auth of the C.G.\*  
\* XX Bomber Command \*  
\* 16 Dec 1944 \*  
\* Date Initials \*  
\* \* \* \* \*

NOT TO BE TAKEN INTO THE AIR  
ON COMBAT MISSIONS

ANNEX NO. 1 TO FILLD ORDERS NO. XX BOMBER COMMAND

INTELLIGENCE SUMMARY

1. Operational Intelligence

SECTION I: ENEMY GROUND SITUATION:

1. Refer to Radiogram Extract Reports from this Headquarters, dated 10, 13, and 17 December 1944.
2. See "Navigator's Aid Chart", dated 16 December 1944.

SECTION II: ENEMY ORDER OF BATTLE - SEA:

No major enemy fleet units are known to be operating in the Yellow Sea, the Gulf of Chihli, or Liaotung Bay.

SECTION III: ENEMY ORDER OF BATTLE - AIR:

1. Varying numbers of enemy fighters, estimated at 30 to 50, are known to be operating in northern China, particularly in the area bounded by Kaifeng, Yuncheng, Lingfen, and Sinsiang. Based upon previous B-29 experience, and observations of enemy aircraft in north China, enemy capabilities for interception over this territory are estimated as generally weak.

2. The estimated enemy fighter strength in Manchuria is 81 single engine and 36 twin engine planes. Based upon this estimate and interception experienced by B-29's over Mukden and the Anshan area on 7 December 1944, it is estimated that fighter interception will be generally weak to moderate, and aggressive.

SECTION IV: ENEMY AIRCRAFT:

For new types of enemy aircraft which might be encountered, see "Technical Air Intelligence Center Summary #5", dated September 1944.

SECTION V: ENEMY AIR OPPOSITION:

Enemy fighter opposition during the 7 December mission on Mukden was moderate as to strength, with determined and aggressive attacks. Attacks were concentrated within a 50 mile radius of the aiming point, and were divided roughly 50 per cent before bombing and 50 per cent after bombing.

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2 collisions occurred; 1 is classified as unintentional and the other as a case of probable intentional ramming after possible wounding of pilot, and extensive damage to his aircraft. Several attacks were coordinated by large numbers of enemy fighters. High frontal attacks predominated.

SECTION VI: ENEMY AIRFIELDS:

1. For enemy airfields in China, refer to Enemy Airfield Report No. 4, this Headquarters, dated 2 November 1944.
2. For enemy airfields in Manchuria, refer to Enemy Airfield Report No. 5, this Headquarters dated 18 November 1944.

SECTION VII: ENEMY ANTI-AIRCRAFT:

1. For general information refer to Enemy Antiaircraft Defense Bulletin No. 7, this Headquarters, dated 1 December 1944.
2. MUKDEN - refer to Flak Intelligence Bulletin C-5, dated 16 December 1944.
3. DAIREN - refer to Flak Intelligence Bulletin C-6, dated 16 December 1944.
4. LOYANG - No information concerning locations of heavy AA guns is available. Heavy AA fire has been encountered at unstated altitude with unreported intensity and accuracy up to June 1944.

SECTION VIII: EVASION AND ESCAPE:

1. Refer to "Evasion from Occupied China", published in B.E.E. 11 December 1944, with particular references to pages 25 to 30.
2. See "Navigator's Aid Charts" for communist base areas.

SECTION IX: PRISONER OF WAR CAMPS:

None known to be in target areas. Refer to "Japanese P.O.W. Camps", issued by P.O.W. Unit, XX Bomber Command and distributed in July.

SECTION X: NAVIGATOR'S AID CHART:

A new Navigators Aid Chart, dated 16 December 1944, has been provided. This chart portrays the latest available information on Communist held areas, and supersedes all other data on this subject. Also shown on the chart are the battle line, radar warning nets, AA emplacements, and data on friendly emergency airfields.



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## II. Target Intelligence

### SECTION I: LIST OF VISUAL TARGET DATA:

1. Primary Target: Manchuria Airplane Mfg. Co., Mukden, Manchuria.
  - a. Objective Folder Data 93.3-177 (for briefing).
  - b. Target Model No. A31-3 (for briefing).
  - c. XX Bomber Command Jumbo Mosaic (for briefing).
  - d. Target Illustration No. 93.3-177, P3 (for briefing).
  - e. XX Bomber Command Chart No. 37.
  - f. XX Bomber Command Target Charts Nos. 38, 38A.
  - g. XX Bomber Command Perspective Chart No. 38A.
  - h. XX Bomber Command Mosaics Nos. 93.3, 93.3-177.
  - i. Target Model Photos.
2. Secondary Target: South Manchurian Railway Piers and Facilities, Dairen, Manchuria.
  - a. Objective Folder Data 93.5-13 (for briefing).
  - b. AAF Target Chart 93.5-10.
  - c. XX Bomber Command large scale Mosaic No. 93.5-13.
  - d. XX Bomber Command small scale Mosaic No. 93.5-13.
3. Last Resort Target: Military Area between Yellow River and Railroad yards at Loyang, China.

### SECTION II: LIST OF RADAR MATERIAL:

1. Primary Target: Manchuria Airplane Mfg. Co., Mukden, Manchuria.

1-1,000,000 A-4 2nd Edition Radar Navigation Map.  
1-1,000,000 A-1 2nd Edition Radar Navigation Map.  
1-500,000 B-8 Radar Approach Chart.  
1-250,000 C-9 Radar Approach Chart.  
Scope Sheets: 171°15'T point "I".  
                  30°T point "D".  
                  26°31'T point "K", 93.3-29 sheet A.  
                  55°12'T point "L", 93.3-29 sheet B.  
Scope Photo Sheets: Anshan Area, R93.3-29 sheet A.  
                      Po Gulf Area, R93.3-29 sheet C, R93.5-13.  
                      Hungtze-Paoying Lake, sheet B.  
                      Hungtze Lake, Sheet A.  
                      Anshan, 8"x 16".  
                      Chinwangtao, R83.12-24, sheet A.
2. Secondary Target: South Manchurian Railway Piers and Facilities, Dairen, Manchuria.

1-1,000,000 A-1, Radar Navigation Map.  
1-350,000 C-9, Radar Approach Chart.

- 3 -

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Scope Sheets: 154<sup>OT</sup>, point "G", 93.5-13, sheet B.  
154<sup>OT</sup>, point "H", 93.5-13, sheet H.  
Scope photo sheet, Anshan area, R93.3-29, sheet A.  
Photo Mosaic 93.5-13.

3. Last Resort Target: Military Area between Yellow River and Rail-  
road yards at Loyang, China.

No material furnished.

By command of MAJOR GENERAL LEMAY:

J. E. UPSTON,  
Brigadier General, U.S.A.,  
Chief of Staff.

OFFICIAL:

*Frank L. Scott Jr.*  
FRANK L. SCOTT JR., *for*  
Lt. Col., Air Corps,  
Chief, Intelligence Section.

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S E C R E T

ANNEX

0

- I - Target Data
- II - Determination of Bomb Load
- III - Antiaircraft Information \*

\* Figures 1 and 2 to which reference is made in Flak Intelligence Bulletin C-5, Mukden, may be found in Tactical Mission Report No. 19, Annex O.

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

TARGET NO. 177

OBJECTIVE FOLDER NO. 93,3

TARGET DATA

1. OBJECTIVE:

MANCHURIA AIRPLANE MANUFACTURING COMPANY, MUKDEN, MANCHURIA.

2. COORDINATES AND ELEVATION:

Latitude: 41° 48' N.  
Longitude: 123° 30' E.  
Elevation: Approximately 160 feet.

3. LOCATION AND IDENTIFIABLE FEATURES:

Industrial Mukden lies on the northeastern edge of the great Manchurian central plain about 100 miles northeast from the entrance of Taling River into Liaotung Bay. To the north, west, and southwest the country is featureless, with meandering rivers, lakes and swamp lands. To the northeast, east, and southeast is rugged terrain with peaks from 1000 to nearly 5000 feet high.

The sizeable Hun River flows along the southeast and south edge of the city and a tributary to this river flows in from the northwest through the northeastern part of the city. About 10 miles west is a large swamp and lake area. There are two lakes within the city, one at the southwest and one at the northwest edge.

Several railroad lines lead into Mukden. The Dairen and Mukden South Manchurian R.R. main line runs north-south through the city, a line from Sinmin leads in from the northwest and a single-track line comes in from the east. The Penhsihu line from the southeast and a line from mining-town Fushun 15 miles east join the main double-track line just south of the river.

Mukden is a very congested city. Its most outstanding check point is the almost perfect 4000-foot square formed by the old walled city. About two and one-half miles west of it is the very large railroad yard area oriented northeast-southwest, -- another outstanding check point. On the west and northwest edges are two areas, not as yet developed, that have conspicuous rectangular street patterns.

Five airfields surround the city. One is located about five miles east on the Fushun side of the Hun. One is on the north edge, one is on the west edge, one is on the southwest edge and the fifth is on the east edge of the city. The latter is designated as the "East Airfield". This is a grass field about 3000' x 2900' with no defined runways.

The target is located at the northeast corner of the "East Airfield". Its outline forms nearly an equilateral triangle that is bounded on the northeast by a tributary of the Hun and on the west by the large rectangular Mukden Arsenal. The area covered by the plant is about 3,800,000 square feet. Over 75% of this area is covered with buildings. The plant is a complete unit consisting of all elements and phases of assembly. There are 64 buildings with a combined floor space of 1,257,180 square feet.

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At the northeast corner of the airfield outside the enclosed plant area are two tall arch-shaped hangars and one long shed or shop. Adjoining these on the north is the largest building in the plant. This, together with three large buildings immediately to the west, is for sub assembly and final assembly. The large "E"-shaped building in the southwest corner area is the administration building. At about the center of the plant are three large buildings for sheet shaping, bench work and machining. The power plant is at the northeast corner of these. On the east are three large and several small sub assembly buildings and on the west is the probable stock processing and cutting area. Four engine testing blocks are located in the northwest corner of the plant.

4. IMPORTANCE:

This is a medium sized aircraft assembly plant which is believed to be primarily or entirely producing final stage training planes resembling the obsolescent Nate. Considerable difference of opinion exists among photo interpreters as to whether or not aircraft engines are produced here. The balance of opinion seems to suggest that they are not, and that engines are obtained elsewhere, possibly from the Mukden Arsenal and its satellite factories. In any event the Manchuria Airplane Manufacturing Company does contain a number of buildings housing machine tools, presses and jigs. The damage or destruction of this machinery would delay or halt aircraft production for as long a period as six months.

5. SUGGESTED AIMING POINT AND BOMB REQUIREMENTS:

- a. The suggested aiming point is the southwest corner of the square formed by the three sheet shaping, bench work and machinery buildings near the center of the plant.
- b. The 500# GP bomb should be adequate for this type of construction.
- c. Bomb Requirements.

1000' Cep - 640 Bombs  
1500' Cep - 1280 "  
2000' Cep - 2560 "

The above requirements are based on a saturation of one hit per 10,000 square feet, or 380 bombs in the target area, with an 85% assurance of success.

OCTOBER 31, 1944.

TARGET UNIT, INTELLIGENCE  
XX BOMBER COMMAND.

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Date: 27 Aug 44

TARGET NO. 13

OBJECTIVE FOLDER NO. 93.5

TARGET DATA

1. OBJECTIVE:

HARBOR FACILITIES, DAIREN, MANCHURIA.

2. COORDINATES AND ELEVATION:

Latitude: 38° 56' N  
Longitude: 121° 39' E  
Elevation: Approximately sea level.

3. LOCATION AND IDENTIFIABLE FEATURES:

DAIREN is located on the southeastern coast of LIAOTUNG PENINSULA. It is approximately 30 miles northeast of the tip of the peninsula where DAIREN BAY on the southeast and KINSIU BAY on the northwest restrict the peninsula to a width of only five miles. The surrounding terrain is fairly rugged but with no peaks rising above 1,000 to 1,500 feet.

The South MANCHURIAN RAILWAY PIERS are located on the south side of DAIREN BAY and the piers together with the associated breakwaters form the most conspicuous landmark of the entire waterfront. There are four large piers averaging approximately 350' - 400' in width which jut out into the Bay in a north-northeast direction. The distance laterally between the piers is approximately 1,000'. The piers are 2,000' long and form a berthing space of 17,900 feet. About 80 warehouses are known to exist on the piers and immediate harbor front just south and east giving a total capacity of about 340,000 tons and a yearly capacity of about 10 million tons. Railway lines run along the shore south of the piers and numerous sidings serve the piers and warehouses along the waterfront.

Four breakwaters combine to form a rough rectangle enclosing the piers on the north, east and west sides. Approximately 2,200' directly north of the piers is an 8,000' breakwater, paralleling the waterfront,

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with a pronounced shoreward curve on the west end. Two smaller breakwaters one about 500' and the other 1,500', jut out from shore on the west end and another of about 1,000' jutting from the east side of the eastermost pier completes the rectangle. There are two entrances for ships on the west side of the breakwater rectangle and one on the east side.

4. IMPORTANCE:

DAIREN is the finest mainland port north of SHANGHAI and is also MANCHURIA'S principal harbor, and the terminus of the double-tracked mainline railroad from HARBIN and NUKDEN. Much of the material wealth that JAPAN is extracting from MANCHURIA is exported thru DAIREN. Although the enemy is diverting substantial tonnages to the rail route down the KOREAN PENINSULA and thence by steamer across the narrow TSUSHIMA STRAITS to JAPAN, recent photo cover of DAIREN (incomplete and partially obscured by cloud) reveals considerable activity in the harbor.

It is estimated that in the neighborhood of 3,600,000 metric tons of commodities are shipped annually from DAIREN to JAPAN. The cargoes are mainly composed of coke, non-coking coal, fertilizer, iron ore, pig iron, and salt. Their removal will require the presence in DAIREN HARBOR of from 10 to 15 ships of 5,000 tons (deadweight) at any one time, plus numerous miscellaneous small vessels. JAPAN is known to be facing a critical shortage of shipping and each vessel that she loses now represents a definite weakening of her military and economic strength. Destruction of piers and loading facilities will increase turn-around time, thus delaying the flow of supplies and exposing ships to potential air attack for longer periods of time.

AUGUST 1944

TARGET UNIT, INTELLIGENCE SECTION  
XX BOMBING COMMAND

-2-

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

TARGET NUMBER A  
OBJECTIVE FOLDER NO 83.10

1. OBJECTIVE:

CHENGHSIEN RR YARDS, CHINA

2. COORDINATES AND ELEVATION:

Latitude: 34°43'N  
Longitude: 113°41'E  
Elevation: Approximately 300'

3. LOCATION AND IDENTIFIABLE FEATURES

The Chenghsien RR Yards are located on the W side of the city, on the Peking-Hankow RR line. The RR tracks at this point run approximately NNW-SSE. The dimensions of the target area are 3400' X 850'. The yards contain six tracks at their widest point. There are six small buildings and a turning "Y".

4. IMPORTANCE:

One hundred forty (140) cars have been recently observed in these yards, which have assumed increased importance with the Japanese occupation and reconstruction of the Peking-Hankow RR. This line provides the enemy with an alternate supply route, relieving Yangtze River traffic of part of the burden. The Chenghsien Yards form one of the possible bottle-necks on the railroad, and air attack against them would temporarily impede the flow of Japanese military traffic along the line.

July 1944

Target Section  
A - 2  
XX Bomber Command

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S E C R E T

II - DETERMINATION OF BOMB LOAD

Mission No. 23

21 December 1944

A. The field order prescribed that each Group would furnish a maximum number of fully modified aircraft and a sufficient number of unmodified aircraft to bring the total airborne to 13. Rather than establishing a fixed bomb load, the field order prescribed that each aircraft would load a combined minimum of 15 500-pound (TNT or Amatol filled) GP bombs and 500-pound M-76 incendiary bombs. The bombs were to be loaded in a ratio of 1 demolition bomb to 1 incendiary bomb, with the M-76's loaded to release last. The 500-pound GP bombs, either the AN-M43 or the AN-M64, were to be fused .1 second nose and .025 seconds tail delay, while the M-76 incendiary bombs were to be fused instantaneous nose and non-delay tail. The bombs were to be released in train with minimum intervalometer setting. The method of bombing was by 12-plane formation and release was to be on the range and deflection sighting of the bombardier in the lead plane. The assigned aiming point was the southeast corner of building No. 20 as shown in AAF Illustration No. 93.3-177-P3.

B. Analysis of the target in the light of past experience with similar types of target indicated the advisability of executing a combined high explosive and incendiary attack. The size of the target, its compactness or high ratio of built-up area to plant area, its separation into only a few fire divisions all relatively large in area, and the vulnerability of the structures to both fire and demolition made it desirable to place co-extensive patterns of 500-pound GP and M-76's on the target in such a manner that a reasonably uniform distribution of both types of bombs could be expected in the target area. The method providing the greatest assurance that this would be accomplished was for each aircraft to carry a combined load of GP and incendiary bombs. In order to increase the effectiveness of this method of attack the Operational Analysis Section recommended that the density of M-76's within the pattern be increased above that previously employed against similar targets by raising the ratio of M-76 to GP bombs from a 1 to 2 ratio to a new ratio of 1 to 1. This was achieved by having each aircraft carry a combined load composed of approximately 50 per cent demolition and 50 per cent incendiary bombs. Demolition bombs were loaded on the lower racks and the incendiaries on the upper racks.

C. The actual time of fall of the M-76 from 22,000 feet true altitude with a true air speed of 300 miles per hour is only .30 seconds longer than that of the 500-pound GP bomb and its trail angle is only 16 mils greater. As a result the two bombs if released simultaneously from 22,000 feet true altitude at a true air speed of 300 miles per hour, the expected point of impact of the M-76 would be approximately 264 feet behind that of the 500-pound GP bomb. This difference in trail would be further reduced by the present method of loading the M-76's on the top racks. In any case the difference in point of impact of the two bombs is negligible in a formation release since a reasonably uniform distribution of both types of bombs can be expected in the resulting bomb pattern. The normal dispersion of bombs plus their release in minimum train, combined with the present pattern size and bomb density within the formation pattern, minimizes the probability that the detonation of the demolition bombs will have any appreciable deleterious effect on the incendiary action of the M-76's.

D. Operational problems in the forward area made it necessary to select an all purpose fusing for the bombs which would permit their employment against any one of several types of targets. Analysis of the Mukden

O-II-1

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Plant in conjunction with the other target areas with respect to height, type of structure, roof construction and probable contents led to the selection of .1 second nose and .025 second tail for the 500-pound GP bombs and instantaneous nose and non-delay tail for the M-76's.

O-II-2

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

HEADQUARTERS  
XX BOMBER COMMAND  
Intelligence Section  
APO 493

FLAK INTELLIGENCE  
BULLETIN NUMBER C-5

MUKDEN  
41°49'N - 123°26'E

16 December 1944

Note: Although Figures 1 and 2 and dated 23 November 1944, the information contained is still correct with the exception that HAA fire has been encountered from MUKDEN as covered in Section II below.

I. HEAVY ANTI-AIRCRAFT DEFENSES

This area(MUKDEN) is defended by 24 HAA guns based on cover to 19 June 1944 and partial cover from strike photography of 7 December 1944.

II. HEAVY ANTI-AIRCRAFT FIRE ENCOUNTERED

Meager to moderate and generally inaccurate black HAA fire was encountered on 7 December 1944 at altitudes varying from 19,300 to 24,000 feet under CAVU conditions.

III. PROBABLE ACCURACY AND INTENSITY OF HAA FIRE THAT WILL BE ENCOUNTERED

Provided the headings recommended below are followed, HAA fire should be generally meager and inaccurate for altitudes above 20,000 feet under CAVU conditions.

IV. WARNING NETS

It is expected that the enemy will have prior warning of any approach to the area because of the existence of a probable warning net.

V. SMOKESCREENS, BARRAGE AND HIGH-ALTITUDE BALLOONS AND BLACKOUT

Smokescreens: On 7 December 1944 an effective smokescreen was used by the enemy and during the later stages of the attack screened the target area. The enemy will, no doubt, utilize smokescreens in this area during future attacks.

Barrage Balloons: 5 conventional barrage balloons were observed from 3 to 4 miles NW of the western part of MUKDEN on 7 December 1944. The balloons were at approximately 4,000 feet altitude.

High-altitude Balloons: High altitude balloons have been sighted in this vicinity.

VI. SEARCHLIGHTS

This area is defended by one S/L from cover of 9 June 1944.

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VII. RECOMMENDED ROUTES OF APPROACH AND WITHDRAWAL Ref: Figs 1 and 2

Routes to the target area should by-pass all areas where HAA guns are reported or where HAA fire has been encountered. The following headings at the target for the least probability of damage are:

IN Headings: 210° through 300° through 30°  
OUT Headings: 30° through 90° through 180°

VIII. SOURCES OF INFORMATION

See Legend Figure 1 or Figure 2.  
Operations by XX Bomber Command

DISTRIBUTION:  
Squadrons

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

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HEADQUARTERS  
XX BOMBER COMMAND  
Intelligence Section  
APO 493

FLAK INTELLIGENCE  
BULLETIN NUMBER C-6

DAIREN  
33° 55'N - 121° 37'E

16 December 1944

I. HEAVY ANTI-AIRCRAFT DEFENSES

This area is known to be defended by 16 HAA guns based on photo cover to 9 September 1944.

II. HEAVY ANTI-AIRCRAFT FIRE ENCOUNTERED

HAA fire encountered has been meager and inaccurate under conditions varying from C.VU to 9/10's undercast at altitudes of 18,000 to 26,000 feet.

III. PROBABLE ACCURACY AND INTENSITY OF HAA FIRE THAT WILL BE ENCOUNTERED

For altitudes above 20,000 feet under C.VU conditions HAA fire will probably remain meager and inaccurate for the headings recommended below.

IV. WARNING NETS

It is expected that the enemy will have prior warning of any approach because of the existence of a warning net in the area.

V. SMOKESCREENS, BARRAGE AND HIGH-ALTITUDE BALLOONS

Three barrage balloons at an altitude of approximately 2,000 feet were sighted on 8 September 1944.

VI. SEARCHLIGHTS

Based on photo cover up to 9 September 1944 it is known that this area is defended by 4 searchlights.

VII. RECOMMENDED ROUTES OF APPROACH AND WITHDRAWAL

IN Headings: 210° through 270° and/or 70° through 140°  
OUT Headings: 30° through 180° and/or 240° through 300°

VIII. SOURCES OF INFORMATION

3rd Phase P.I. Report Number 133, 14th Air Force, based on photo cover of 9 September 1944.

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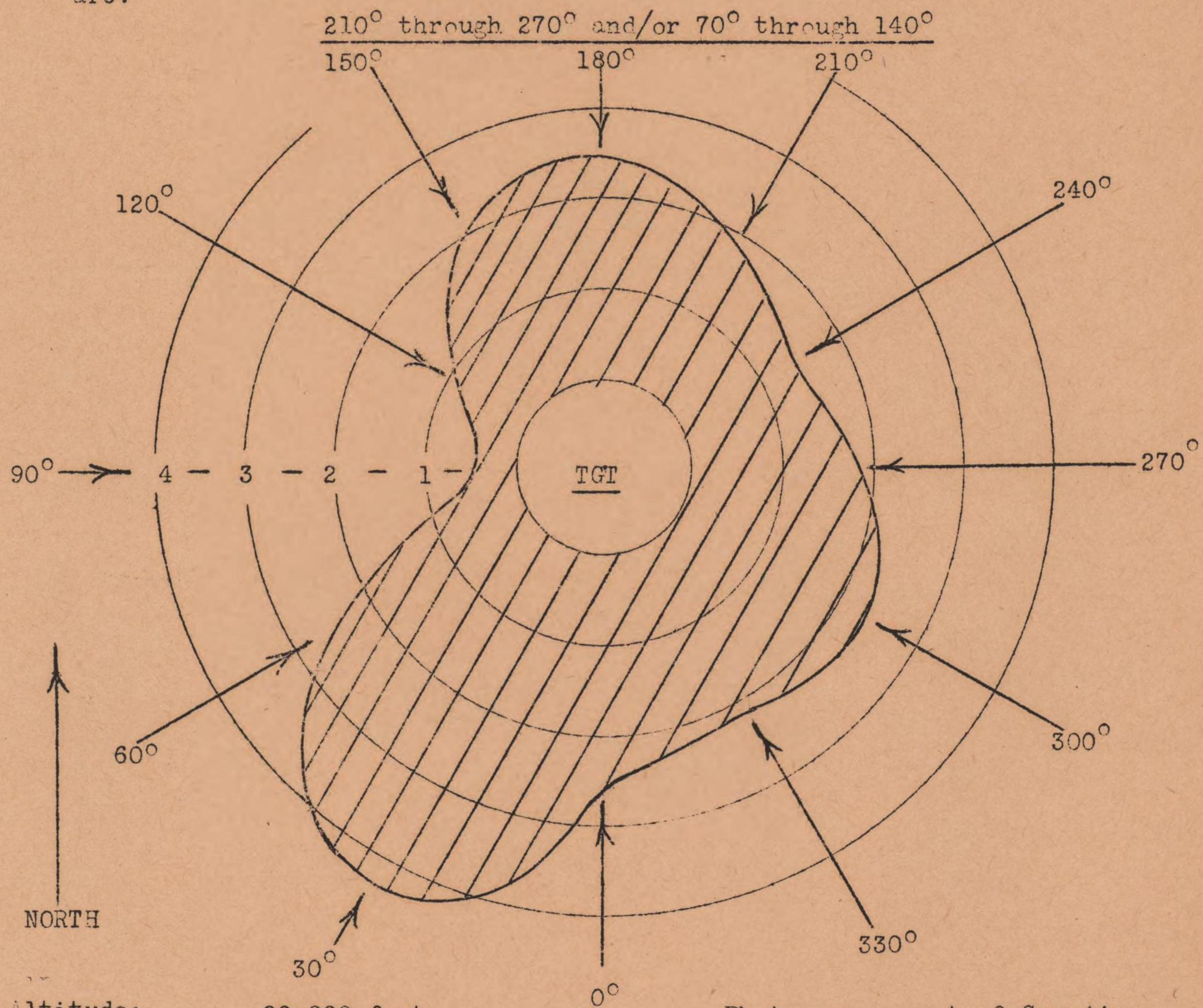
FLAK CLOCK - DAIREN

Figure 1

A P P R O A C H

Flak Officer, Intelligence Section  
XX Bomber Command

This diagram when used as a map, represents an evaluation of the heavy antiaircraft defenses of the target. The shaded section represents the total probability of damage (in arbitrary units) due to flak, for any particular IN HEADING. The BEST course IN is through the narrowest sector of the shaded area. Recommended routes of approach are:



Altitude: 20,000 feet  
Ground Speed: 290 mph (no wind)  
Gun: Japanese 75mm  
Group of aircraft, straight and level flight until bombs away.  
Wind: 60 mph from 300°

Photo cover up to 9 Sep 44 shows 16 HAA guns.

TARGET: DOCK AREA

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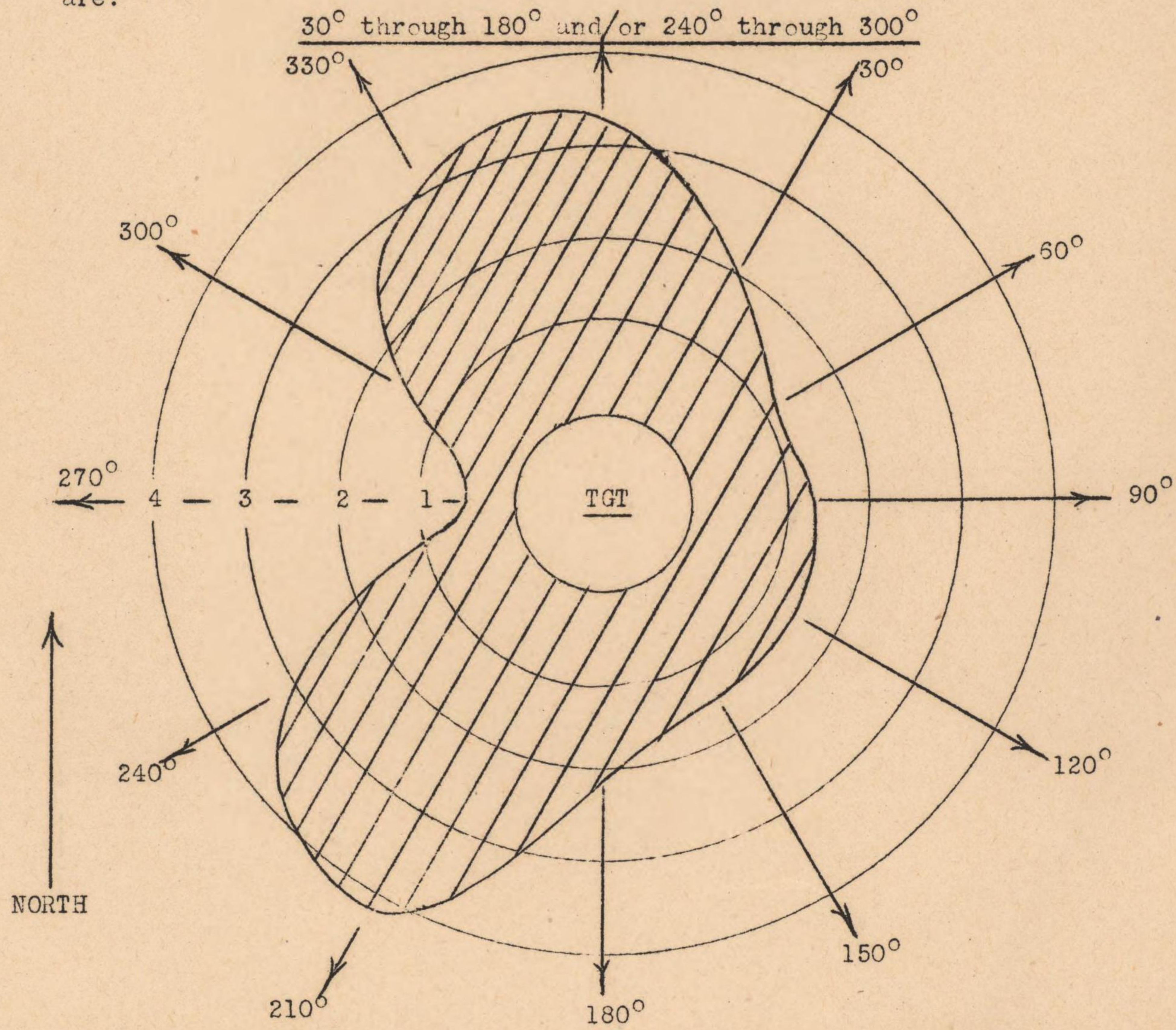
FLAK CLOCK - DAIREN

Figure 2

WITHDRAWAL

Flak Officer, Intelligence Section  
XX Bomber Command

This diagram when used as a map, represents an evaluation of the heavy antiaircraft defenses of the target. The shaded section represents the total probability of damage (in arbitrary units) due to flak for any particular OUT HEADING. The BEST course OUT is through the narrowest sector of the shaded area. Recommended routes of withdrawal are:



Wind: 60 mph from 300°  
Altitude: 20,000 feet  
Ground Speed: 290 mph (no wind)  
Gun: Japanese 75mm  
Group of aircraft, straight and level flight  
with bombs away

Photo cover to 9 Sep 44 shows  
16 HAA guns.

TARGET: DOCK AREA

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

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HEADQUARTERS  
XX BOMBER COMMAND  
APO 493

DISTRIBUTION -- MISSION NO. 23

21 December 1944

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4 Chief, Intelligence Section, XX Bomber Command  
5 Commanding Officer, Forward Echelon Detachment, Head-  
quarters, XX Bomber Command (Attn: Intelligence Officer)  
6 Commanding Officer, 40th Bombardment Group  
7 Commanding Officer, 444th Bombardment Group  
8 Commanding Officer, 462nd Bombardment Group  
9 Commanding Officer, 468th Bombardment Group  
10 - 39 Commanding General, Army Air Forces, Attention: AC/AS  
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40 Assistant Chief Air Staff, Intelligence  
41 CINCPAC (Thru DEPCOMAF Twenty)  
42 COMGENPOA (Thru DEPCOMAF Twenty)  
43 Air Commander, Eastern Air Command, Attention: DCAS, OPTI  
44 Chief, Air Evaluation Board, Headquarters, Army Air Forces,  
United States Forces, India Burma  
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