(10) Tenth Formation: (Not Shown on Annex).

Group	:	462nd
Time	:	0408Z
Altitude	:	13,000' I
Heading	:	240°M
No. of a/c	:	13
Aiming Point	:	B
Bomb Load	:	396 (95.6 tons) M-76 IB fuzed instantaneous nose and non-delay tail.

This formation had Component B as an objective but heavy smoke prevented an early recognition of the target and a late release occurred. A 3800' x 840' pattern was obtained by this formation, the bombs having fallen mostly in open ground about 15000' west of the Aiming Point. Several native hutments and a light industrial building were destroyed.

Frank L. Scott Jr.

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

PREPARED BY: TARGET UNIT
INTELLIGENCE SECTION

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ANNEX

M

CONSOLIDATED MISSION STATISTICAL SUMMARY

Prepared by:

Statistical Control Section

XX Bomber Command

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

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By Authority of the
Commanding General:

12-30-44 SK
Date Initials

Table I - Aircraft Participating - Rear to Forward Area

Group	Total Combat A/C On Hand	Combat A/C in Depot	Combat** A/C Held for Photo Recon	Combat * A/C Under Acceptance Check	Combat A/C on Hand In Group	No. of A/C Particip-ating In Miss.	A/C Remaining in Fwd Area To Participate in Mission	A/C Airborne in Rear Area For Mission	A/C Arriving In F A For Miss							A/C Airborne In Rear Area Failing To Reach Fwd Area	Per-cent
									Tot	On D-6	On D-5	On D-4	On D-3	On D-2	On D-1		
40th	37	3	0	2	32	17	0	17	17			4			13	0	-
444th	39	1	1	1	36	27	0	27	25					4	21	2	7%
462nd	40	0	1	1	38	26	0	26	26					8	18	0	-
468th	40	0	1	1	38	31	0	31	30					11	19	1	3%
TOTAL	156	4	3	5	144	101	0	101	98			4		23	71	3	3%

* A/C arriving in theater from D-3 to D-Day that did not participate in mission.
** 444th - 42-24723
462nd - 42-24590
468th - 42-24567

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

By Authority of the
Commanding General:

12-30-44 SR
Date Initials

TABLE II - AIRCRAFT PARTICIPATING FROM FORWARD AREA

Group	Total A/C In Fwd. Area For Mission	A/C In Fwd. Area Failing To Become Airborne On Mission		Total A/C Taking Off From Fwd. Area On Mission	Airborne A/C Failing to Bomb Designated Primary Target							Time Of First Takeoff	Time * Of Latest Return	Average Time Of Flight *	
							Reason							A/C Bombing Primary	Airborne A/C Not Bombing Primary
		Total No.	Percent		Total No.	Percent	Mech	Pers	Wea	E/A & Flak	Misc. & Unknown				
40th	17	1	6%	16	1	6%	1					2339Z	0641Z	6:43	1:43
444th	25	0	-	25	1	4%	1					0009Z	0723Z	6:16	4:44
462nd	26	3	12%	23	1	4%	1					0005Z	0739Z	6:59	6:18
468th	30	0	-	30	7	23%	7					0008Z	0852Z	6:41	5:08
TOTAL	98	4	4%	94	10	11%	10					2339Z	0852Z	6:36	4:52

* Excludes aircraft which landed at other fields.

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
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18 December 1944

By Authority of the
Commanding General:

12-30 44 SR
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Table III - Bombing Runs

Group	No. of A/C Bombing	Target Bombed	Time of Release		Altitude of Release		Visual Bombing		Radar Bombing		On the Leader	Aircraft Dropping On	
							A/C Sighting For		A/C Sighting For				
			Earliest	Latest	Highest	Lowest	R & D	Range	R & D	Range		AFCE	Manual
40th	15	Hankow	0308Z	0308Z	19,400	18,200	2				13	2	13
444th	24	Hankow	0320Z	0354Z	21,500	20,620	3				21	2	22
	* 22	Hankow	0347Z	0408Z	19,000	18,000	3				19	2	20
462nd	1	Tangyang	0407Z	0433Z	20,500	17,000	1					1	
	** 23	Hankow	0345Z	0404Z	22,200	19,100	3				20	3	20
	3	Yochow	0246Z	0407Z	20,700	18,500	3					3	
468th	1	Tangyang	0403Z	0403Z	20,800	20,800	1					1	
	84	Hankow	0308Z	0408Z	22,200	18,000	11				73	9	75
	3	Yochow	0246Z	0407Z	20,700	18,500	3					3	
TOTAL	2	Tangyang	0403Z	0433Z	20,800	17,000	2					2	

* One A/C Bombed both Hankow and Tangyang.
** One A/C Bombed both Hankow and Target of Opportunity

NOTE: Primary Target - Hankow
Secondary Target - Yochow
Last Resort Target - Tangyang.

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
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By Authority of the
Commanding General:

12-30-44 SR
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Table IV - Bomb Loading & Disposal

Group	* Type of Bombs	Bomb Loading on Airborne A/C in F.A.			On Targets						Bomb Disposal		
		Fusing		Average No. Loaded	Total Loaded	Hankow	Yochow	Tangyang	Targets of Opportunity	Unknown	Jettisoned	Returned	Unknown
		Nose	Tail										
	Inc. M-47	Inst	None	103.3	1652	1652							
40th	Inc. M-76	Inst	N.D.	4.5	72	39					9	24	
	Inc. M-17	34½ Sec	-	26	655	606					49		
444th	Inc. M-76	A.R. Inst	N.D.	3.8	96	96							
462nd	Inc. M-76	Inst	N.D.	31	713	659		52				2	
	Inc. M-47	Inst	-	84.0	2521	1854	316	104	5		236	6	
468th	Inc. M-76	Inst	N.D.	10.5	314	246	32				32	4	
	Inc. M-47	Inst	None	44.4	4173	3506	316	104	5		236	6	
	Inc. M-17	34½ Sec)		7.0	655	606					49		
TOTAL	Inc. M-76	Inst	N.D.	12.7	1195	1040	32	52			41	30	

* 500# Bomb, Oil - Incendiary AN-M 76 (Actual weight 483.0 pounds)
100# Bomb - Incendiary NP (Actual weight 69.1 (M-47))
500# Cluster - Incendiary M-17 (Actual weight 459.0)
NOTE: Bomb weight information supplied by Ordnance Section, XX Bomber Command.

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By Authority of the
Commanding General:
11-30-44 SR
Date Initials

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

Table V -- Aircraft Lost and Damaged

Aircraft Lost

Negative Report

Aircraft Damaged

Major Damage

Group	Serial Number	E/A	A/A	Own Guns	Other	Explanation
444th	6399		X			Fuselage Left Rear Pilot

Minor Damage

Group	Serial Number	E/A	A/A	Own Guns	Other	Explanation
40th	63404		X			Leading Edge and Front Spar - Right Outboard Wing Panel
			1			
444th	24584		X			Radar Set
	63375		X			Vertical Stabilizer
	63451	X				Holes in Radio Compartment, Emergency Hydraulic System, & Fire Extinguisher
		1	2			
462nd	93830		X			Leading Edge Between #3 & #4 Engines
	63362	X				#2 Wheel Well, #1 Oil Cooler Duct, Outboard Wing Panel
	24505	X				Hole in Bomb Bay
		2	1			
468th	24691			X		Hole in Rt. Fwd. Bomb Bay Door
	24487		X			#1 Engine Prop Feathering Line Severed
	6407				X	Tail Gun, Operating Accessories
	6397	X				#1 Throttle Control Cable & Fuselage
	65227		X			Outer Skin of Radar Room
	65208		X			Fuselage
	6265		X			Leading Edge of Wing
		1	4	1	1	
TOTAL		4	8	1	1	

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

S E C R E T

By Authority of the
Commanding General:

12-30-44 SR
Date Initials

Table VI - Attacks & Passes by Enemy Aircraft

DIRECTION	ALTITUDE															
	HIGH				LOW				LEVEL				TOTAL			
	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th	40th	444th	462nd	468th
0800							1								1	
0900			3	5					1		1			1	3	6
1000		4	1	1			1			1				4	3	1
1100	4	3	3	3			1			2	2		4	3	6	5
1200			2	2		1	1	1			1			1	3	4
0100			1	1			4	1			1				5	3
0200		2	5	3		1	3		1	1				4	9	3
0300			1	1		1				1	1			1	2	2
0400		1					1							1	1	
0500						1					1			1		1
0600						2	1							2	1	
0700						1								1		
TOTAL	4	10	16	16		7	13	2		2	5	7	4	19	34	25

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CONSOLIDATED MISSION STATISTICAL SUMMARY
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18 December 1944

S E C R E T

By Authority of the
Commanding General:

12-30-44 S.R.
Date Initials

Table VII - Personnel Losses

Crew Position	Killed				Missing				Seriously Injured				Slightly Injured				Total Casualties				Total 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																					16	25	23	31
Co-Pilot																					16	25	23	30
Navigator																					16	25	23	30
Bombardier																					16	25	23	30
Flt. Engr.																					16	25	23	30
Radar																					17	25	23	30
Radio																					16	25	23	30
CFC Spec																					16	25	23	30
Right Gnr																					16	25	23	30
Left Gnr																					16	25	23	30
Tail Gnr																					15	25	23	30
R C M																								2
Photo																								1
Others																					4	17	6	2
TOTAL																					180	292	259	336

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
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18 December 1944

By Authority of the
Commanding General:

12-30-44 SR
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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 Pounds Expended in Combat		
	Upper Front	Lower Front	Upper Rear	Lower Rear	50 Cal. Tail		Destroyed	Probably Destroyed	Damaged	Destroyed	Probably Destroyed	Damaged
40th	33	2	28	23	19	1660	0	0	1	-	-	.60
44th	53	21	14	22	31	2695	0	0	3	-	-	1.11
462nd	38	25	34	36	26	4005	1	1	2	.25	.25	.50
468th	66	42	45	44	54	6750	0	2	4	-	.30	.60
TOTAL	49	25	32	33	34	15110	1	3	10	.07	.20	.66

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XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

Commanding General:
Date Initials

* Table IX - Gasoline Loading and Consumption

Group	Average Gross Wt. Per Plane		Average Gallons Gas Loaded Per Plane		Average Gallons Consumed Per A/C -- Rear To Forward Area	Average Gallons Consumed On Mission		Average Gallons Remaining in A/C After Mission	
	Before Rear Area Take-Off	Before Forward Area Take-Off For Mission	Before Rear Area Take-Off	Before Mission Take-Off Fwd. Area		Per A/C Bombing Primary	Per A/C Not Bombing Primary	Per A/C Bombing Primary	Per A/C Not Bombing Primary
40th	133,114	124,806	6 [illegible]59	5,478	3,668	3,689	1,[illegible]00	1,794	4,200
44th	133,956	124,691	6,000	4,719	3,354	3,448	2,670	1,259	2,330
462nd	132,411	130,669	6,272	5,554	3,504	3,905	3,170	1,657	2,230
468th	132,679	118,401	6,549	4,161	3,245	3,218	2,494	940	1,677
TOTAL	133,028	124,173	6,347	4,[illegible]81	3,402	3,548	2,450	1,372	2,050

* Certain aircraft participating in Mission #21 remained in Forward Area to take part in Missions #22 and #23 on 19 and 21 December. A special study of the effect of this triple strike on gasoline factors will be included in mission statistical summary for Mission #23.

NOTE: Photo aircraft excluded from all tables.

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By Authority of the Commanding General:
12-30-44 SR
Date Initials

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

Table X - Aircraft Failing to Bomb Primary Target

Reconciliation Summary

Group	Total Combat A/C on Hand	A/C Bombing Primary	Combat A/C Held For Photo Recon	Accept-ance Check	A/C Failing To Bomb Primary	
					Which Were In Depot or Sv. Group	Which Were On Hand In Group
40th	37	15	0	2	3	17
444th	39	24	1	1	1	12
462nd	40	22	1	1	0	16
468th	40	23	1	1	0	15
TOTAL	156	84	3	5	4	60

Aircraft Failing to Bomb Primary Target on Mission #21

A/C Serial No.	Rear Area		Fwd. Area		Reason
	Air-borne	Not Air-borne	Air-borne	Not Air-borne	
40th B.G.					
6276		X			Changing #1 Carburetor.
6295		X			22nd A.D. 3rd Echelon Maintenance (Battle Damage).
6298				*	Changing two Eng & four props.
6313		X			Check #1 eng. #1-2-4 fuel Booster Pump change.
6322				*	At Ankang, waiting return to base.
6331		X			#1 Cylinder change.
6418		X			28th Sv. Gp Installing engines; Maintenance and repairs.
6294			X		Right landing gear would not ret.
24503		X			3rd Echelon maintenance, indicator gyro-horizon, A/P fin assy-ele bolt hinge.
24508		X			Sv Gp Being repaired by Sv Gp. pers at Cox's Bazaar, Maintenance & Repair (Battle Damage).
24522				X	Initial run-up split #9 Cyl. #2 Eng will require engine change.
24582		X			3rd Echelon maintenance.
24587		X			3rd Echelon Maintenance, A/P Wing Assy L.H. Outboard.
24589		X			3rd Echelon maintenance, #1-4 engine changes.
24685		X			3rd Echelon maintenance, aileron Assy. L.H.
24739		X			Retiming; Valve check #1 Engine.
63394		X			#2 Engine change.
63396		X			#2-3 Eng change #1 Prop Gov Change.
65225		X			3rd Echelon maint., #1-2 trim tab cable repairs, one fuel cell being installed.

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XX BOMBER COMMAND

Table X (Cont'd)

By Authority of the Commanding General:

12-30-44 SR

Date Initials

A/C Serial No.	Rear Area Air-borne	Rear Area Not Air-borne	Fwd. Area Air-borne	Fwd. Area Not Air-borne	Reason
40th B.G. (cont'd)					
63407		X			3rd Echelon maint, Sheet Metal repair to #4 engine.
TOTALS		16	1	3	
444th B.G.					
6251				*	Could not pressurize, being repaired from Battle Damage.
6343		X			Fuel Cell leak.
6353	X				APOC door assy-Gunner's emergency.
24507		X			Changing all four engines.
24580		X			#2 engine change.
24730		X			#2 engine change.
63360		X			Oil cooler change.
63376			X		Lost #1 - had to feather.
63403		X			22nd A.D. Wing fuselage & fuel cell repairs.
63411		X			Being repaired from Battle Damage.
63458	X				Engine change.
65226		X			#4 engine change.
65228		X			Fuel cell & Prop change.
TOTALS	2	9	1	1	
462nd B.G.					
6209		X			#2 Engine change.
6213		X			2 Props out, left landing gear repair, oil leaks.
6329		X			#3 engine change.
6338		X			Changing short stacks on #4 engine.
6346		X			#2-3-4 Engine change, A/P Arm Assy Roller not APOC.
6347				X	Changing #3 engine.
6354				X	#2 Tachometer out, #3 cyl head temp gauge out, oil pressure low on #2-3-4 engines.
6382		X			Electrical trouble #1 engine.
24461			X		Lost cap off oil tank, came back and took off again, too late to bomb Primary Target.
24484		X			Arrived too late for Mission.
24728		X			#4 cylinder of #2 engine out.
63450		X			Sheet metal repair.
63452		X			Electrical trouble #4 engine.
63454				X	Engine cutting out, completely on one magneto.
63473		X			#4 engine change, and plug change.
93873		X			Removing De-Icer Boots.
TOTALS		12	1	3	

XX BOMBER COMMAND

Table X (cont'd)

S E C R E T

By Authority of the Commanding General:
12-30-44 SP
Date Initials

A/C Serial No.	Rear Area Air-borne	Rear Area Not Air-borne	Fwd. Area Air-borne	Fwd. Area Not Air-borne	Reason
468th B.G.					
63415	X				Oil leak #1 engine.
6217		X			#3 Inboard supercharger change, 500 hour inspection.
6279		X			Repairing hole in left wing, (Battle Damage).
6409			X		Bomb rack malfunction.
6411			X		Late take-off due to dead batteries.
24429			X		Blown stack #3 engine.
24471		X			#1 engine change, modifying cowl flaps.
24494			X		Prop governor and fuel transfer system malfunction.
24678		X			Became combat operational too late to go on mission.
24546			X		Oil cooler, instr and electrical trouble.
24703		X			Became combat operational too late to go on Mission.
24719		X			Became combat operational too late to go on Mission.
63353		X			#2-3 engine changes, 50-hour inspection.
63424			X		Late take-off due to dead batteries.
63464			X		Feathering line broke; #3 engine.
TOTALS	1	7	7		
GRAND TOTALS	3	44	10	7	

* Aircraft not scheduled to participate in mission.

S E C R E T

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 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 SECTION	Exhaust System				1	1
PROPELLERS & GOVERNORS	Feathered Props		1			1
	Governor				1	1
OIL SYSTEM	Oil leaks				1	1
	Oil Temperature Regulator				1	1
	Oil tank cap			1		1
FUEL SYSTEM	Fuel transfer system				1	1
ELECTRICAL SYSTEM	Bomb Bay Door Motor				1	1
	Dead Batteries				2	2
MISCELLANEOUS	Landing Gear	1				1
TOTALS		1	1	1	8	11

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
WER PLANT ACCESSORY SECTION	Engine running rough	3	1	1	3	8
	Engine running hot		1			1
	Exhaust System			2	1	3
	Turbo Superchgr &/or Turbo Cont	1	3	1		5
	Erratic operation at low RPM				3	3
OPELLERS & OVERNORS	Feathered Props		1		4	5
	Unsuccessful attempts to feather				1	1
	Governor	1	2	5	2	10
	Prop Oil leak				1	1
IL SYSTEM	Oil leaks		6	9	6	21
	Oil temperature regulator		2			2
	Oil Pressure low	1			1	2
UEL SYSTEM	Fuel transfer system	1	1	2	2	6
	Carburetor			1		1
	Fuel booster pumps			3	1	4
	Fuel quantity gage				1	1
LECTRICAL SYSTEM	APU				1	1
	Generators		2	5	2	9
	Wing Flaps				1	1
	Voltage regulator	1	1			2
	Bomb Bay door motor	1	1	1	1	4
	Bomb rack	1	1		1	3
	Primer switch		1			1
STRUMENTS	Carb Air Temp Gage	1	1		1	3
	Cylinder Head Temp Gage	1	1			2
	Outside Air temp Gage				1	1
	Fuel Press Gage			1		1
	Tachometer	2	4	4	4	14
	Radio Compass		1			1
	Turn & Bank Indicator			1		1
	Flight Indicator		1		4	5
	A F C E			3		3
	Static System			1		1
ISCELLANEOUS	Pressurization				2	2
	Hydraulic System		1			1
TOTALS		14	32	40	44	130

OTE 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.

XX BOMBER COMMAND
CONSOLIDATED MISSION STATISTICAL SUMMARY
Mission Number Twenty One
18 December 1944

By Authority of the
Commanding General:
12-30-44 SR
Date Initials

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	Av. 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	1497	4	Bomb Bay Tanks	125066	75532	49538	Inc M-47 53.0 Inc M-76 12.0	9458	33300	6780
		11	Cen Wing Tanks	124699	74890	49802	Inc M-47 130.9	9046	32755	8001
444th	1455	7	Bomb Bay Tanks	121717	75102	46615	Inc M-17 10.3 Inc M-76 13.7	11345	28286	6984
		17	Cen Wing Tanks	125611	75335	50276	Inc M-17 31.9	14661	28200	7415
462nd	1453	8	Bomb Bay Tanks	128085	74954	53131	Inc M-76 22.0	10626	33450	9056
		14	Cen Wing Tanks	131943	75319	56624	Inc M-76 35.5	17147	32721	6757
468th	1464	8	Bomb Bay Tanks	116313	74857	41456	Inc M-47 64.9 Inc M-76 8.5	8588	25650	7218
		15	Cen Wing Tanks	119120	75214	43906	Inc M-47 89.7 Inc M-76 12.1	12061	24480	7365
TOTAL	1475	27	Bomb Bay Tanks	122499	75049	47450	Inc M-47 27.1 Inc M-17 2.7 Inc M-76 14.4	10032	29778	7637
		57	Cen Wing Tanks	125281	75213	50068	Inc M-47 48.9 Inc M-17 9.5 Inc M-76 11.9	13504	29211	7353

* 100# Bomb Incendiary M-47 = Actual Weight 69.1 Pounds.
500# Bomb, Oil-Incendiary AN-M76 = Actual Weight 483.0 Pounds.
500# Cluster-Incendiary M-17 = Actual Weight 459.0 Pounds.

SECRET

ANNEX

N

FIELD ORDERS

All Field Orders Material in the following Annex originally classified TOP SECRET is hereby reclassified to SECRET. By Authority of the C.G., XX Bomber Command.

3/2/45 FLS Jr.
Date Initials D

SECRET

NOT TO BE TAKEN INTO THE AIR
ON COMBAT MISSION

TOP SECRET
Auth: CG XX BC
Initials: AVK
Date: 15 Dec 44

Copy Number _____

FIELD ORDERS)
:
NUMBER 21)

XX Bomber Command
APO 493
15 Dec 44 - 0800Z

MAPS: AAF Aeronautical Charts: 493, 494, 495, 496, 497, or equivalent International Maps of the World.
AAF Long Range Air Navigation Chart: 17 or equivalent Naval Aviation Charts, V-30 series.

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

2. On 18 December 1944 this Command attacks XX BC Target 83.8-A.
ROUTE OUT: Base Area - Assembly Point - 29°14'N, 113°06'E - 29°54'N, 115°27'E - IP (North tip of Island at 30°23'N, 115°04'E) - Target. Aircraft will climb on course to 10,000', or on top, immediately after take-off.
BASE ALTITUDE: 10,000' pressure altitude.
ROUTE BACK: Direct.
AXIS OF ATTACK: 292° Magnetic.

3. a. 40th Group: TAKE-OFF: Beginning at 172331Z.
ASSEMBLY POINT: LIANGSHAN AIRFIELD (30°42'N, 107°50'E).
BOMBING ALTITUDE: 19,000' pressure altitude.
AIMING POINT: 025; 093 on HANKOW, CHINA, mosaic for target 83.8-A for M-47 bombs; 026; 065 for M-76's.
BOMB LOADS: A maximum number of M-47 incendiary bombs, using cluster adapters, fuzed instantaneous nose and non-delay tail, per aircraft loaded in the rear area. A maximum number of M-76 incendiary bombs, fuzed instantaneous nose and non-delay tail, per aircraft loaded in the forward area.

b. 444th Group: TAKE-OFF: Beginning at 172324Z.
ASSEMBLY POINT: LIANGSHAN AIRFIELD (30°42'N, 107°50'E)
BOMBING ALTITUDE: 21,000' pressure altitude.
AIMING POINTS: 021; 120 on HANKOW, CHINA, mosaic for target 83.8-A, for planes loaded with M-17 incendiary clusters. 026; 065 for planes loaded with M-76 incendiary bombs.
BOMB LOADS: A maximum number of M-17 incendiary clusters, fuzed to burst at 5000', per aircraft loaded in the rear area. A maximum number of M-76 incendiary bombs, fuzed instantaneous nose and non-delay tail, per aircraft loaded in the forward area.

c. 462nd Group: TAKE-OFF: Beginning at 172318Z.
ASSEMBLY POINT: PEISHIYI AIRFIELD (29°30'N, 106°22'E).
BOMBING ALTITUDE: 18,000' pressure altitude.
AIMING POINT: 026; 065 on HANKOW, CHINA, mosaic for target 83.8-A.

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SECRET

BOMB LOAD: A maximum number of M-76 incendiary bombs fuzed instantaneous nose and non-delay tail, per aircraft.

d. 468th Group: TAKE-OFF: Beginning at 172321Z.
ASSEMBLY POINT: PEISHIYI AIRFIELD (29°30'N, 106°22'E).
BOMBING ALTITUDE: 20,000' pressure altitude.
AIMING POINTS: 026;065 on HANKOW, CHINA, mosaic for target 83.8-A, for aircraft loaded with M-47 incendiary bombs. 035;029 for aircraft loaded with M-76 incendiary bombs.
BOMB LOADS: A maximum number of M-47 incendiary bombs, using M-47 cluster adapters, fuzed instantaneous nose and non-delay tail, per aircraft loaded in the rear area. A maximum number of M-76 incendiary bombs, fuzed instantaneous nose and non-delay tail, per aircraft loaded in the forward area.

x. (1) PRIMARY TARGET RADAR AIMING POINT: Center of strong signal from city; 1500' from west bank of YANGTZE R.

(2) SECONDARY TARGET: XX BC Target 83.8-B.
VISUAL AIMING POINT: Center of cluster of warehouses north of railroad.
RADAR AIMING POINT: Target area 2000' northeast of west shore line of TUNG-TING-HU.

(3) LAST RESORT TARGET: XX BC 83.8-C
AIMING POINT: Center of either storage area.

(4) For M-47 incendiary bombs only electrical release will be used with intervalometer set at minimum train.

(5) Each Group will dispatch all aircraft possible.

(6) Each group will schedule three aircraft not equipped with fully modified engines to CHENGKUNG AIRFIELD (24°51'N, 102°47'E) direct from the target. In case maintenance is anticipated being required on aircraft so scheduled, they will return to CHENGTU bases, instead. Formation leaders will make substitutions, if necessary, after leaving the target. These aircraft will be reserviced to a total of 3000 gallons of burnable fuel, necessary engine oil and oxygen and will return to their INDIA bases immediately.

(7) Movement to the forward area will be completed by 17 December 1944.

(8) Formations will be so composed that all aircraft in each formation will carry the same type bomb. Insofar as is possible bombing will be done from 12 plane formations.

4. No change.

I-1

5. a. (1) No change.

(2) No change.

b. Command Post: Forward Echelon Detachment Headquarters, XX Bomber Command, APO 210.

By command of MAJOR GENERAL LEMAY:

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

OFFICIAL:

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

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 - CG, XX BC
1 - CO, Fwd Ech Det XX BC
1 - Chief, Tact. Opns Branch 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

#1

SECRET

NOT TO BE TAKEN INTO THE AIR

ON COMBAT MISSIONS

* * * * * * * * * * * *
* SECRET *
By Auth of the C.G.
* XX Bomber Command *
* [illegible] *
* Date Initials*
* * * * * * * * * * * *

ANNEX NO. 1 TO FIELD ORDERS NO. 21 XX BOMBER COMMAND

INTELLIGENCE SUMMARY

1. Operational Intelligence

SECTION I: ENEMY GROUND SITUATION:

1. For Battle Line see Navigator's Aid Chart dated 16 December 1944.

2. Refer to "radiogram extract reports" dated 10, 13, 17 December 1944.

SECTION II: ENEMY ORDER OF BATTLE - SEA:

Enemy naval craft reported as operating in the Yangtze River are not capable of effective AA fire against aircraft flying over 15,000 feet.

SECTION III: ENEMY ORDER OF BATTLE - AIR:

Refer to letter of 15 December 1944 from this Headquarters Subject: "Air Estimate Central and Southern China."

SECTION IV: ENEMY AIRCRAFT:

Refer to "Technical Air Intelligence Center Summary #5" dated September 1944.

SECTION V: ENEMY AIRFIELDS:

Refer to "Enemy Airfield Report, No. 4" dated 2 November 1944, Subject: "Japanese Air Facilities-China", published by this Headquarters, and Confidential Map of Jap Airfields in the Hankow-Wuchang Area, 11 Dec 44

SECTION VI: ENEMY ANTIAIRCRAFT:

1. For General Information refer to Enemy Antiaircraft Defense Bulletin Number 7, this Headquarters dated 1 December 1944.

2. HANKOW - Flak Intelligence Bulletin Number C-1, 16 December 1944, and Antiaircraft Defense Chart (14th Air Force) Number 41, dated 22 September 1944.

3. YOCHOW - Flak Intelligence Bulletin Number C-2, 16 December 1944, and Antiaircraft Defense Chart (14th Air Force) Number 42, dated 16 September 1944.

4. TANGYANG - At least 4 HAA guns in the area based on information received up to 16 September 1944. Exact location unknown.

SECRET

SECTION VII: ESCAPE AND EVASION:

1. Refer to "Evasion in Occupied China" published in B.E.E., 11 December 1944 with particular reference to pages 25-30.

2. See "Navigator's Aid Chart" dated 16 December 1944 - Note particularly the Communist base areas in the vicinity of Hankow.

SECTION VIII: Prisoner of War Camps:

None known to be in the target areas.

SECTION IX: NAVIGATOR'S AID CHART:

A new Navigator's 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.

II. Target Intelligence

SECTION I: LIST OF VISUAL TARGET DATA:

1. Primary Target: Docks and Storage Area, Hankow, China.

a. Objective Folder Data No. 83.8-A (for briefing).
b. 14th A.F. Target Charts Nos. 106, 107 or 108.
c. XX Bomber Command large scale Mosaic No. 83.8-A.
d. XX Bomber Command small scale Mosaic No. 83.8-A.

2. Secondary Target: Railroad Yards and Storage Area, Yochow, China.

a. Objective Folder Data No. 83.8-B (for briefing).
b. 14th A.F. Target Chart No. 160
c. XX Bomber Command Mosaic No. 83.8-B.

3. Last Resort Target: Airfield Storage Area, Hangyang, China.

a. Objective Folder Data No. 83.8-C (for briefing).
b. XX Bomber Command Mosaic No. 83.8-C.

SECTION II: LIST OF RADAR MATERIAL:

1. Primary Target: Docks and Storage Area, Hankow, China.

1-250,000 Radar Approach Chart C-8.
Radar Scope Sheet. 206°T. Point "F" 83.8-A Sheet B.
Scope Photograph Sheet. Hankow Area. 83.8-A Sheet A.
14th USAAF Target Chart No. 106.
3 Mosaics XXBC 83.8-A.

2. Secondary Target: Railroad Yards and Storage Area, Yochow, China.

Photo Mosaic - 83.8-B.
14th USAAF Target Chart No. 160.

3. Last Resort Target: Airfield Storage Area, Tangyang, China.

Photo Mosuic. 83.8-C.

By command of MAJOR GENERAL LEMAY:

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

OFFICIAL:

Frank L. Scott Jr. for JEU.

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

ANNEX

O

SUPPLEMENTAL INFORMATION

I - Target Information
(prepared by Target Intelligence Unit,
XX Bomber Command)

II - Antiaircraft Information
(prepared by Antiaircraft Officer,
XX Bomber Command)

III - Determination of Bomb Load
(prepared by Operations Analysis Section, XX BC)

IV - Hankow Mosaic

NOTE: Effective with this issue of the Tactical Mission Report, aids to visual bombing and aids to radar bombing (exhibits to field orders reduced to standard size) will no longer be included as part of this Report. If exhibits to field orders on any future mission are desired for planning or training work, arrangements should be made with Target Intelligence Unit, XX Bomber Command, and copies of visual and radar bombing aids in original size will be forwarded.

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

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

TARGET NO. A
OBJECTIVE FOLDER NO. 33-8

TARGET DATA

1. OBJECTIVE:

DOCKS AND STORAGE AREA, HANKOW, CHINA.

2. COORDINATES AND ELEVATION:

Latitude: 30° 35' N
Longitude: 114° 17' E
Elevation: 200 Feet

3. LOCATION AND IDENTIFIABLE FEATURES:

Hankow is in the heart of the Central Yangtze River Basin about midway between Chungking and Shanghai. It lies on the northwest bank of the Yangtze river where it flows in from the southwest and makes a sweeping bend to the east. The surrounding area is saturated with large lakes, -- a characteristic of the Yangtze valley throughout the Central Basin. The Han River marks the southwest edge of the city. Wuchang is across the Yangtze just above the mouth of the Han. There are several airfields in the vicinity. The two largest are the Wuchang Airfield on the southeast edge of Wuchang and the Hankow airfield which is about two miles north of the Han and three miles west of the Yangtze.

The main docks and storage occupy an area averaging about 2000 feet wide that extends from the mouth of the Han northeast along the bank of the Yangtze about three and a half miles in an almost uninterrupted pattern. Many large warehouses, docks and wharves are included as well as several light industries.

4. IMPORTANCE:

Hankow is one of the major Japanese Military bases in China, and a focal control point for the flow of troops and military supplies. There are two supply routes into Hankow. One of these is the Yangtze River on which ships from Nanking, Shanghai, and Japan itself regularly bring cargoes to Hankow. During recent months an average of close to 20,000 tons of shipping has been observed at the docks in the target area at any one time. A second supply route is provided by the Peking-Hankow Railroad. Materials and personnel shipped from Japan via Korean ports or the China coastal ports of Taku and Laoyao are sent along this railroad to Hankow.

Practically all supplies entering Hankow are either stored or trans-shipped at the target area before being distributed to forward depots and battle zones in southern China. Small boats are loaded from stores in the target area and procced south along the Yangtze, thru Tungting Lake, and up the Siang River. Other supplies are taken from storage in the target

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

area, moved across the Yangtze to Wuchang, and there loaded on freight cars for shipment south on the Wuchang to Henyang RR, which has been reconstructed as far as Chuchow.

The importance of successful attacks upon this target area at this time is clear. Delay and destruction of Japanese supplies will help to relieve some of the pressure on the defenders of Kunming.

5. VULNERABLE AREAS AND SUGGESTED AIMING POINTS:

The Japanese have occupied the area extending from the Han River northeast for a distance of 15,700' with a depth from the water front of approximately 1500'.

The Chinese residential area directly north of the Han River should be avoided.

The southern portion of the area, at the junction of the Han and Yangtze Rivers, contains new warehouses partially camouflaged. The remainder of the area is filled with commercial buildings of heavy construction, warehouses and offices.

Aiming points will be specified in the Field Order.

14 DECEMBER 1944

TARGET UNIT, INTELLIGENCE
XX BOMBER COMMAND

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

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

TARGET NO. B

OBJECTIVE FOLDER NO. 83.8

TARGET DATA

1. OBJECTIVE:

RAILROAD YARD AND STORAGE AREA, YOCHOW, CHINA.

2. COORDINATES AND ELEVATION:

Latitude: 29° 22' N
Longitude: 113° 03' E
Elevation: 300 Feet.

3. LOCATION AND IDENTIFIABLE FEATURES:

Yochow is located about 100 miles southwest of Hankow on the shore of Tungting Lake at a point just south of where the Yangtze River flows out of the Lake. The long axis of the town is oriented northeast-southwest. The southwestern part of town extends out on a narrow peninsula. A half-mile long causeway extends from this peninsula at the end of which is a railroad bridge on the line to Changsha. The single track railroad line from Hankow enters the town from the northeast. The railroad yards are located in the southern part of town and are approximately 2100 feet long and 10 tracks wide. Yard storage consists of 1/4 large buildings. Other storage is distributed throughout the town. Located east of town is a large and widely dispersed ammunition storage dump and motor vehicle dispersal area that includes over 40 buildings averaging 100' x 25' nestled in cuts and bases of hills and connected by a network of roadways.

4. IMPORTANCE:

Yochow is an important Japanese supply base on the Wuchang-Hengyang railroad, which has been reconstructed as far south as Chuchow. Supplies move in and out of Yochow on this railroad and also by boat on Tungting Lake, the Yangtze and Siang Rivers. A certain amount of trans-shipment of supplies between boat and rail occurs at Yochow. The railroad yards and adjacent storage area comprising the target are active. Attack upon this target will destroy enemy supplies and delay their flow to battle zones in southern China.

5. VULNERABLE AREAS:

In the area between the railroad tracks and the water front on the west are widely dispersed, storage depots and M/V parking areas. Much of this has been built up since February 1944 and will be found to contain an increasing amount of material.

Aiming Points should be selected from any cluster of buildings in the area or concentration of rolling stock in the yards.

14. DECEMBER 1944

TARGET UNIT, INTELLIGENCE
XX BOMBER COMMAND

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

NOT TO BE TAKEN INTO THE AIR ON COMBAT MISSIONS

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

TARGET NO. C

OBJECTIVE FOLDER NO. 83.8

TARGET DATA

1. OBJECTIVE:

AIRDROME STORAGE AREA, TANGYANG, CHINA

2. COORDINATES AND ELEVATION:

Latitude: 30° 51' N
Longitude: 111° 41' E
Elevation: 500 Feet.

3. LOCATION AND IDENTIFIABLE FEATURES:

Tangyang is approximately 25 miles northeast of Ichang which is at the eastern entrance to the Yangtze River Gorges. It lies on the eastern edge of the Kweichow Mountains and is about 17 miles east-southeast of Pichchiata Mountain which is at least 3000 feet high. The town is on the southwest side of the Chiuching Ho. The rather prominent Ichang road leads in from the southwest and another comes up along the southwest side of the river. The airfield is about three-quarters of a mile southeast of town. The runway parallels the river, is about 5000 feet long and is hard-surfaced. Dispersal areas are on the southwest side and between the river and the southeast half of the runway. The main storage concentration is between the river and the northwest half of the runway. Other storage is located in the center of the southwestern dispersal area.

4. IMPORTANCE:

The airdrome, and the storage area connected with it, at Tangyang offer a last resort target for a mission to Hankow. Tangyang is an advanced base for enemy planes in the Yangtze River Area.

5. VULNERABLE AREAS:

The storage and barracks area at the northwest end of the runway is a suggested aiming point.

14 DECEMBER 1944

TARGET UNIT, INTELLIGENCE
XX BOMBER COMMAND

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

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-1	HANKOW - WUCHANG 30°35'N - 113°17'E	16 December 1944

I. HEAVY ANTIAIRCRAFT DEFENSES

This area is defended by 12 heavy antiaircraft guns from photo cover up to 12 September 1944. Reference Antiaircraft Defense Chart (14th Air Force) Number 41, dated 22 September 1944.

II. HEAVY ANTIAIRCRAFT FIRE ENCOUNTERED

HAA fire encountered has varied from meager to moderate and has generally been inaccurate at unstated altitudes.

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

For altitudes above 20,000 feet under CAVU conditions HAA fire will probably be meager and generally inaccurate.

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 warning net in the area.

V. SMOKESCREENS, BARRAGE AND HIGH-ALTITUDE BALLOONS

No information.

VI. SEARCHLIGHTS

This area is known to be defended by at least 12 Searchlights, reference Antiaircraft Defense Chart Number 41 (14th Air Force) dated 22 September 1944.

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

IN Headings: 100° through 180° and/or 230° through 330°
OUT Headings: 60° through 165° and/or 300° through 350°

VIII. SOURCES OF INFORMATION

Antiaircraft Defense Chart Number 41 (14th Air Force) 22 September 1944.

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

DISTRIBUTION:
Squadrons

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

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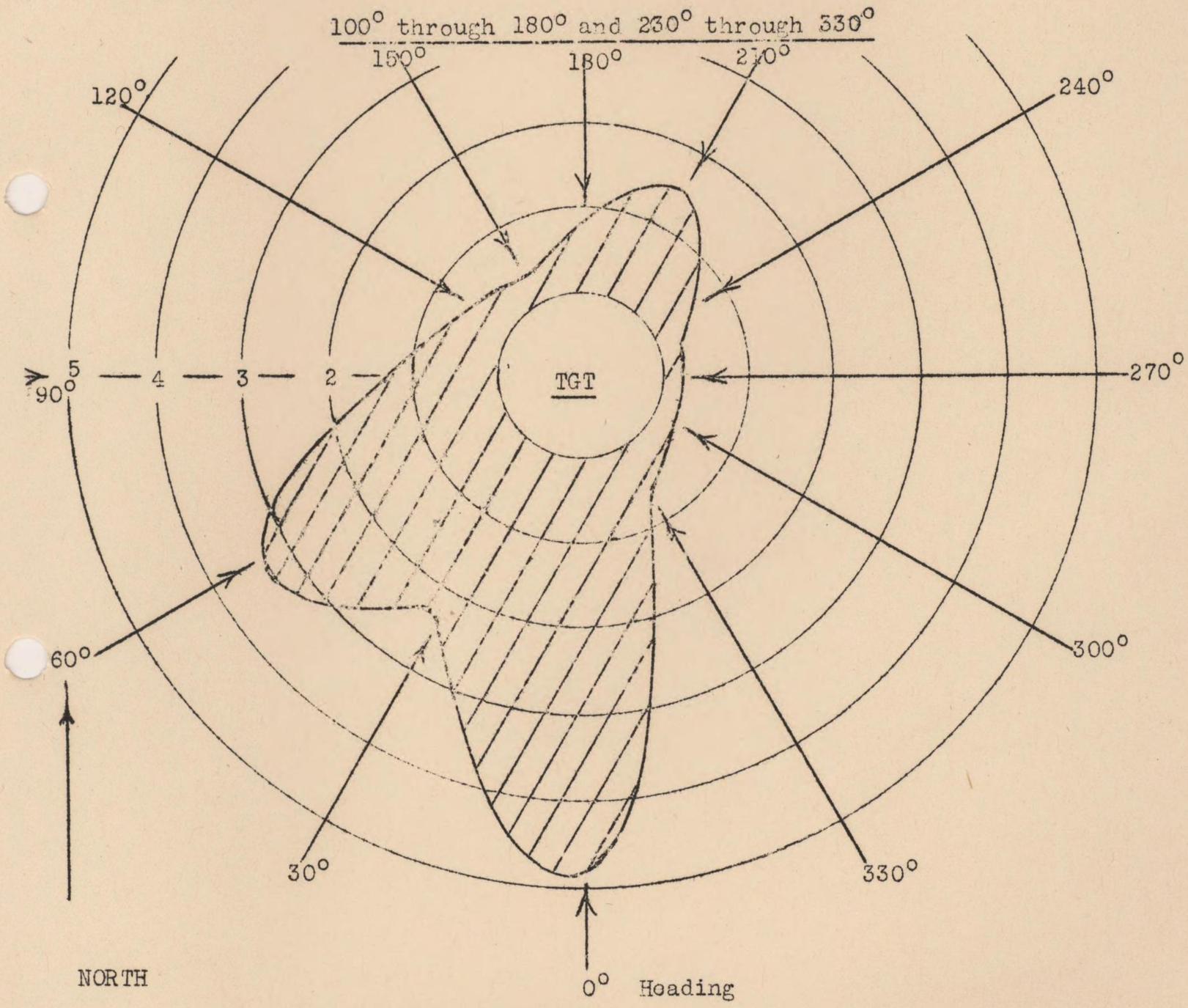
F L A K C L O C K - HANKOW-WUCHANG Figure 1

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:



Wind: 55 knots from 300 degrees
Altitude: 20,000 feet
Ground Speed: 290 mph (no wind)
Gun: Japanese 75mm
Group of A/C, straight and level flight until bombs away.

Photo Cover to 22 September 44 shows a total of 12 Heavy AA Guns.

TARGET: HANKOW DOCK AREA

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

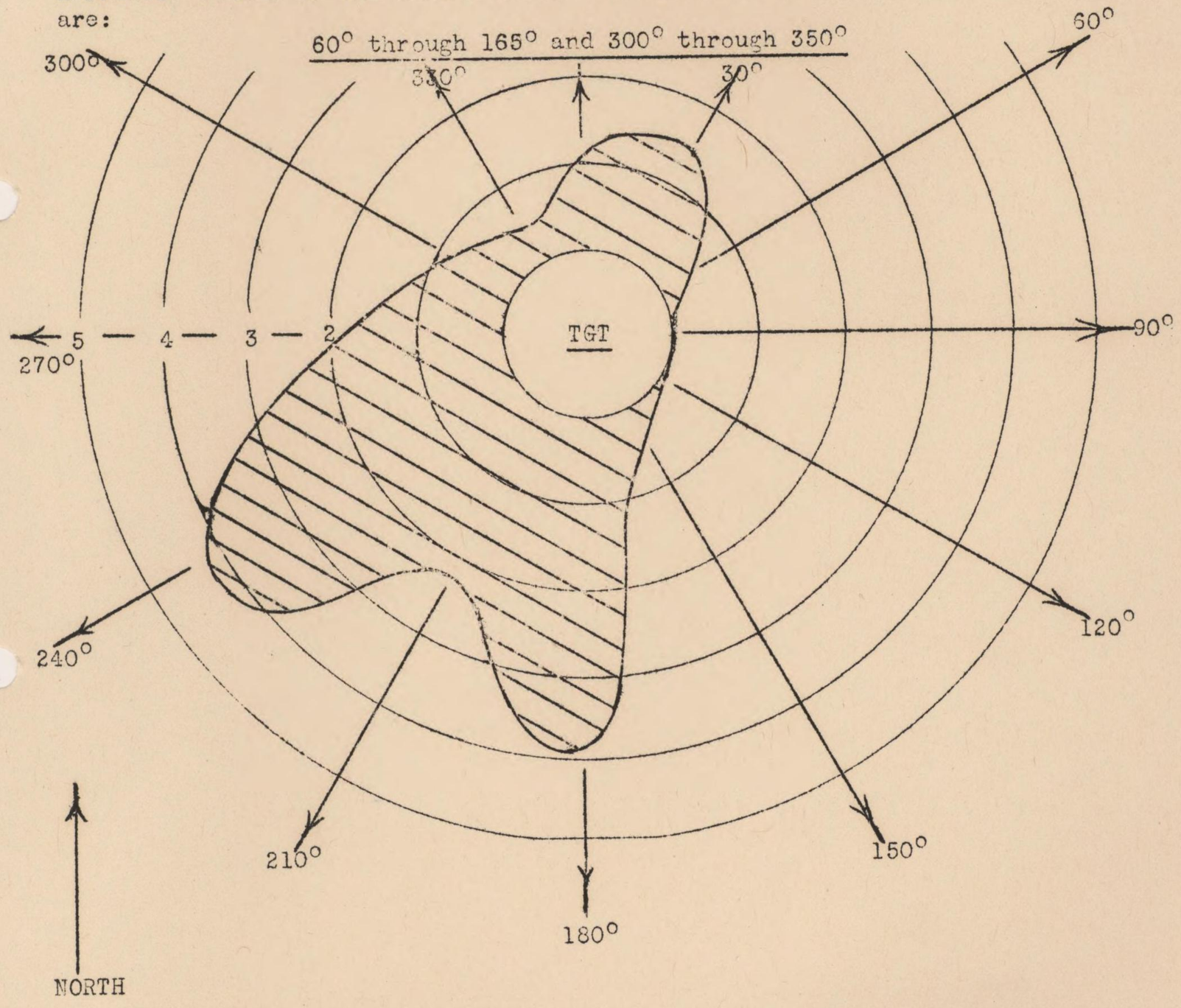
C O N F I D E N T I A L

F L A K C L O C K - HANKOW-WUCHANG Figure 2

W I T H D R A W A L

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: 55 knots from 300 degrees
Altitude: 20,000 feet
Ground Speed: 290 mph (No wind)
Gun: Japanese 75mm
Group of aircraft, straight and level flight until bombs away.

Photo cover to 22 Sep 44 shown a total of 12 Heavy anti-aircraft Guns.

TARGET: HANKOW DOCK AREA

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

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-2 | YOCHOW AREA 29°22'N - 113°04'E | 16 December 1944

I. HEAVY ANTIAIRCRAFT DEFENSES

YOCHOW is defended by 11 heavy antiaircraft guns and PAILIUCHI A/D (which should be by-passed on any attack against YOCHOW) is defended by 9 HAA guns, based on information contained in Antiaircraft Defense Chart Number 42 (14th Air Force) dated 16 September 1944.

II. HEAVY ANTIAIRCRAFT FIRE ENCOUNTERED

HAA fire encountered has generally been meager and inaccurate for altitudes up to 15,000 feet.

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

For altitudes above 20,000 feet and under CAVU conditions HAA fire will probably be meager and generally inaccurate.

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 warning net in the area.

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

No information

VI. SEARCHLIGHTS

This area is known to be defended by 2 S/L's at YOCHOW and 1 S/L at PAILIUCHI based on information contained in AA Defense Chart #42 (14th Air Force) dated 16 September 1944.

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

IN Headings: 30° through 150°
OUT Headings: 210° through 330°

VIII. SOURCES OF INFORMATION

AA Defense Chart #42, (14th Air Force) dated 16 September 1944.

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

DISTRIBUTION:
Squadrons

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

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

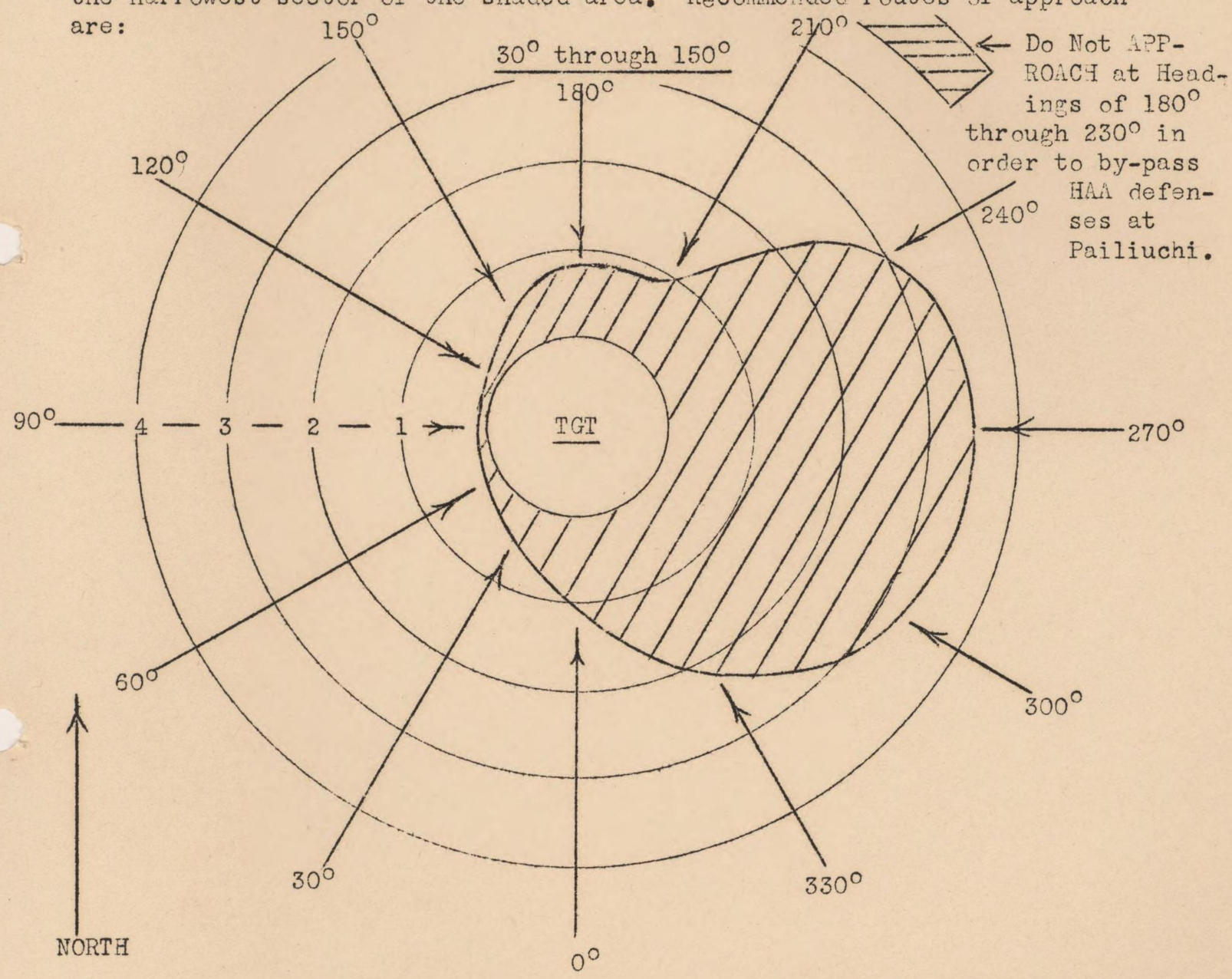
F L A K C L O C K - Y O C H O W

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:



Wind: 45 mph from 270°
Altitude: 20,000 feet
Ground Speed: 290 mph (no wind)
Gun: Japanese 75mm
Group of aircraft, straight and level flight until bombs away.

Photo cover to 16 Sep 44 shows 11 HAA guns at Yochow.

TARGET: YOCHOW DOCK AREA

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

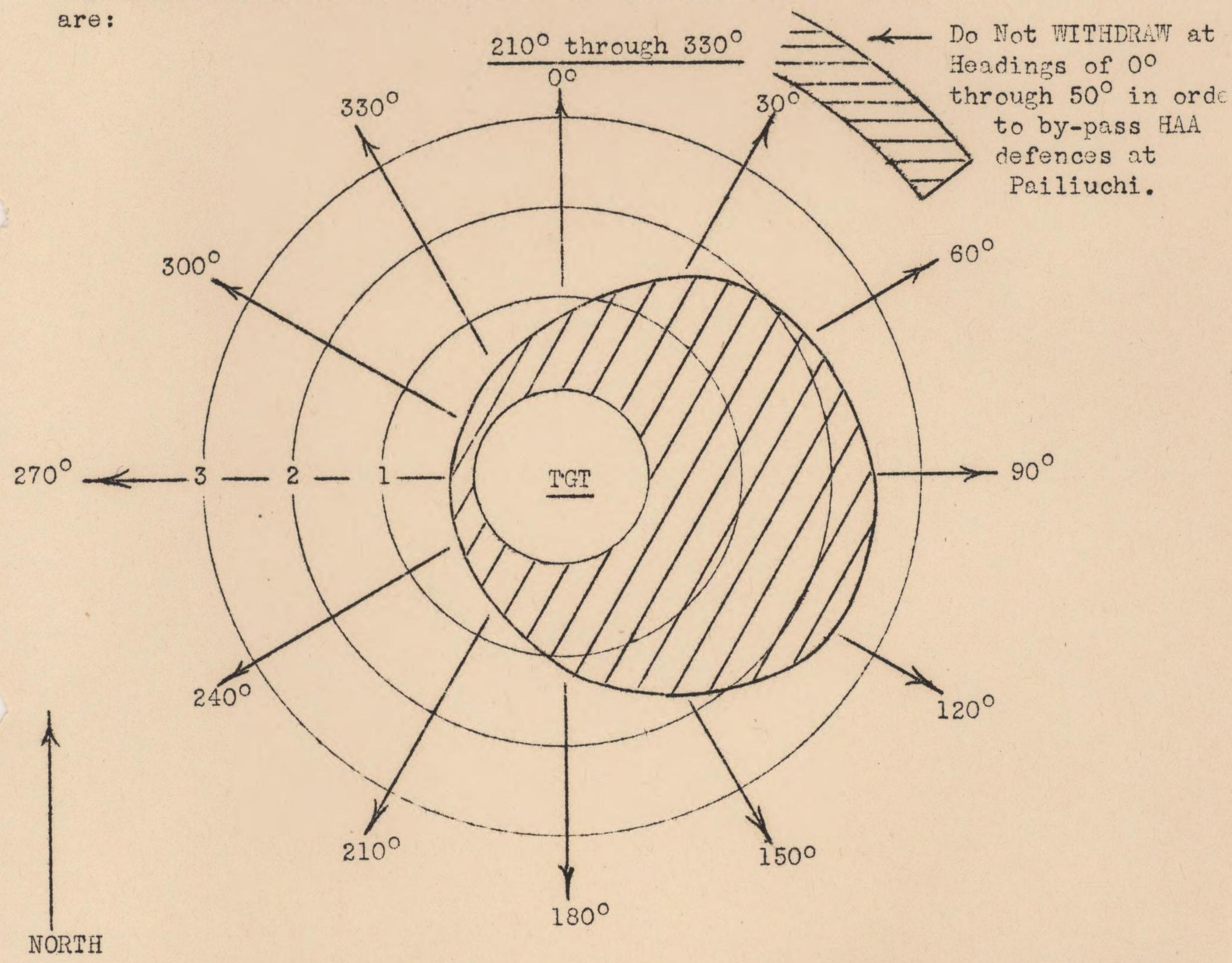
C O N F I D E N T I A L

F L A K C L O C K - Y O C H O W W I T H D R A W A L

Figure 2

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: 45 mph from 270°
Altitude: 20,000 feet
Ground Speed: 290 mph (no wind)
Gun: Japanese 75mm
Group of aircraft, straight and level flight until bombs away.

Photo cover to 16 Sep 44 shows 11 HAA guns at Yochow.

TARGET: YOCHOW DOCK AREA

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

III - DETERMINATION OF BOMB LOAD

Mission No. 21

18 December 1944

1. The Hankow Dock and Storage Area extends more than 3 miles along the west bank of the Yangtze River and has an average depth of almost one-half mile. With a view to determining the method of attack, the bombardment force required, the type of bombs to be employed, and the selection of aiming points, analysis of the target by Operations Analysis Section in conjuction with Intelligence and Operations produced the plan which is briefly described in the following paragraphs.

2. Analysis of the target with respect to its vulnerability resulted in the decision to conduct an incendiary assault designed to neutralize the military installations in the target area, while at the same time to minimize the incidental damage that might be inflicted upon those areas contiguous to the target and inhabited by the Chinese. Consideration of firebreaks, combustibility, area of roof coverage, structural analysis, and the striking force available led to the decision to divide the target into four distinct components as follows:

a. Component A: The new Japanese storage depot is contained in an area 1485 x 1080 feet located just north of the Han River. In view of the relatively large fire divisions, the possibility that these new structures possess resistant roof structures, the size of the target, and its proximity to the Chinese Quarter on both the north and the west boundary, the decision was made to use the 500-lb. M-76 Incendiary Bomb. The excellent ballistics of the bomb, its penetratibility, and immediate fir-raising ability (coupled with the possibility of containing resultant fires within the effective firebreak area formed by the river on the south and east and newly constructed boulevards on the north and west) made the M-76 the logical choice. The estimated force required was one 12-plane formation.

b. Component B: This component consisted of an area 4040 x 2375 feet extending along the Yangtze River north of the Chinese Quarter and separated from it by an effective fire break. This area, estimated at approximately 60 per cent roof coverage, is composed largely of multi-storied fire-resistive structures of modern construction. While the fire divisions were large, they were separated by wide streets which, even under the most favorable conditions, could be expected to act as effective firebreaks. Numerous structures within this component contained roofed areas which would afford considerable resistance to penetration. In order to provide a high assurance that immediate appliance fires would be initiated below the roof and in the top stories of these buildings ranging in height from 2 to 8 stories, two 12-plane formations loaded with

500-lb. M-76 Incendiary Bombs were to be directed at this component. In order to increase the number of probable appliance fires to be started in this area and to provide additional assurance that a fairly uniform distribution of fire would be placed within this component, an additional 12-plane formation loaded with M-47 Incendiary Bombs was required. This was possible inasmuch as the Command Chemical Officer had recently devised a method by means of which 6 M-47's could be carried on the majority of 500-lb. bomb stations, thus enabling a B-29 to carry a more economical loading of a satisfactory incendiary bomb.

c. Component C: This component of the target extended northward from Component B and formed a rectangle 3800 x 2375 feet. This area, estimated at 45 per cent roof coverage, consisted largely of 2 and 3 storied structures, closely grouped in large fire divisions bounded by effective firebreaks formed by a rectilinear system of wide streets. Although each fire division contained considerable open area, the built-up sections within each fire break were almost contiguous and afforded a strong probability of spreading local conflagration within each fire division and a possibility of spread from one division to another under favorable conditions. Numerous buildings were known to house contents of high combustibility. The probable resistance to penetration was such that M-47's would penetrate the majority of the structures and come to rest in the first story below the roof. Concrete roofs appeared to be present on only 3 or 4 structures within the component. The estimaded force requirement was two 12-plane formations carrying M-47's clustered by means of cluster adapters.

d. Component D: This target component was located adjacent to Component C and extended northwards to the end of the dock and warehouse area. Its dimensions were 3960 x 2375 feet. It was estimated that this component had an overall roof-coverage of approximately 30 per cent and although the southern third of the area was roughly comparable to Component C in structural types, the structures were less closely grouped together. The preponderance of buildings was of 1 and 2 storied structures, although several multi-storied fire resistive buildings were contained within the area. While the roof structure in general was not as heavy as in Components A, B, and C, it offered considerable resistance. The structures within Component D were contained within small fire divisions and in most cases were not closely grouped together. The possibility of a conflagration spreading from one fire division to another was extremely low, while the probability that local conflagrations would be initiated in more than a few instances seemed doubtful. The bombardment problem therefore was to initiate an appliance fire in each fire division with a bomb which had sufficient penetrability to enter the structures. The weapon selected was the M-17 Aimable Cluster containing 110 M50 magnesium Incendiary Bombs. The estimated force required was two 12-plane formations.

3. Bomb Fusing:

a. Component A - M-76 500-lb. (463-lb. actual weight) Incendiary Bombs fused instantaneous nose and non-delay tail. Bombs to be salvoed.

b. Component B - M-76 500-lb. Incendiary Bombs fused instantaneous nose and non-delay tail. Bombs to be salvoed.
M-47 100-lb. (69.1-lb., actual weight) Incendiary Bombs fused instantaneous nose and non-delay tail. Bombs to be released in train at minimum intervalometer setting.

c. Component C - M-47 100-lb. Incendiary Bombs fuzed instantaneous nose and non-delay tail. Bombs to be released in train at minimum intervalometer setting.

d. Component D - M-17 500-lb. (457-lb., actual weight) Aimable Clusters fused for cluster opening at 5000 feet. Bombs to be salvoed.

4. The expected pattern dimensions of a standard 12-plane B-29 formation with 500-lb. M-43 G.P. bombs when releasing in salvo on the leader from 20,000 feet was 2500 feet in range and 2900 feet in deflection. The salvo release of the M-17 Aimable Cluster and the minimum train release of M-47's were expected to produce a slightly longer pattern. This method of release was employed in order to obtain saturation of the target area at which each formation was directed. Bombing accuracy expected under favorable conditions of visibility was a Cep of 1000 feet at 25,000 feet altitude.

5. In order to compensate for expected bombing errors each formation attacking a particular component was assigned the same aiming point. Extreme care was used in selecting the aiming points within each component to insure that they would be recognizable, favorably situated with respect to the axis of attack, and such that the expected pattern dimensions would be fully utilized, while at the same time reducing the wastage of bombs in the Yangtze River.

6. The axis of attack, 292° Magnetic, was selected to provide the best approach from the initial point and minimize the interference of smoke resulting from the first formations over the target. It was expected that the surface wind would be from out of the north, this made it imperative that the attacks take place in quick succession in the following order, Components A, B, C, D. It was planned that the full weight of the attack should be concentrated in time -- a maximum of 20 minutes from the time of the first plane over the target until the last had been bombed -- if maximum results were to be obtained.

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