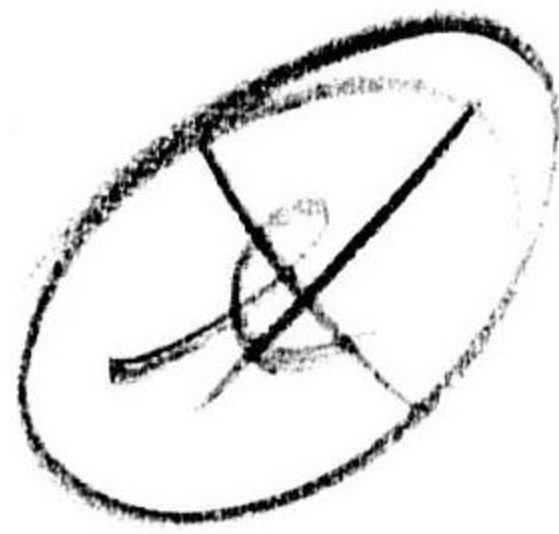


CIRCULATE TO OFFICERS
OF TEAM



JHA

11/27/57

11/27/57

TARGET SUMMARIES



PREPARED BY
TARGET INFORMATION SECTION
G-2
U.S.S.B.S.

11/27/57

PREFACE

1. The following target and bombing statistics have been compiled by the Target Information Section of G-2 for use by the various sections and units of the U. S. Strategic Bombing Survey. Since requirements for the summaries often varied, no precise form was followed in the compilations, and in the interest of time as much editing as possible was dispensed with in putting this information into the present form.
2. These summaries are designed primarily to give a brief resume of the attacks against a target. Additional and supplemental information is often available in the files of this section and can be obtained on request.
3. The target information contained in this publication is listed first by Target Areas and then by specific targets. Urban areas attacked in any given Target Area will be found at the beginning of the section devoted to that area with other numbered targets following, segregated by types wherever practicable.

Robert S. Bennett
ROBERT S. BENNETT,
Major, Air Corps.

~~RESTRICTED~~AOMORI URBAN
90.5Restricted Classification
Removed Per
Executive Order 10501

AOMORI is located in Northern Honshu, in the southern curve of AOMORI WAN, a bay indentation of the larger bay MATSU WAI. It was a highly developed port handling coal, lumber and passengers. It was the funnel for all traffic between Honshu and Hokkaido.

AOMORI had a population of 99,065 (1941), and a built up area of 1.8 sq. mi. Population density reached 3,740 per sq. mi. Capacity of port facilities was approximately 5300 long tons per day. Within the fire zone were two numbered targets; Aomori Marshalling yards, 997; Harbor and Railway Ferries, 993; four unnumbered targets; Iwaki Cement Co.; Aomori Special Co.; Asiatic Can Co. and Prefectural Office. Other targets outside fire zone: Ominato Lumber Co., Aomori Lumber Co., Fujita Lumber Co., Daito Canning Co., Kasai Shipyard, N-81 Chart, Barracks, Garrison Hq. Tekkosha (Iron) Works. West of City - 995, Nonai Oil Storage.

1. MISSION 299 - 28-29 July 45, 61 A/C of the 58th Wing dropped 546.5 tons of incendiary bombs (E-48) between 1337Z-1448Z from 14000-14700 feet, axis of attack 77° - 110°, 5/10-10/10 undercast. 37 attacking A/C bombed visually and 24 by radar. 12 acted as path finders. Leaflets were dropped on this mission.

DAMAGE - .73 sq. mi. or 35% of built-up area destroyed. Target No. 90.5 - 993 Aomori Harbor and Ferry Piers was 70% destroyed. One unidentified industrial area, 15% destroyed.

No strike photos nor bomb plot available. This was the first and only attack on the City of Aomori.

RESTRICTED

NIPPON OIL COMPANY
90.6 - 1066

Located at Tsuchizaki, NW Akita on North Bank of Omono River.

Plant processed crude oil from nearby fields. Estimated capacity 37% of Inner Zone total and greatly in excess of local production. Large oil storage reported.

1. MISSION 328 - 14 August, HE attack against this target, dropping 7360x100# AN-M30 bombs (368 tons) and 4687x250# AN-M57 bombs (585.9 tons). Bombs fused ND tail. Total tonnage 953.9 tons. This was a radar drop.

DAMAGE - 70% of the total storage facilities destroyed, 87% of refinery buildings destroyed and 11% gutted or seriously damaged. RR sidings at S end of plant dislocated and rolling stock destroyed or thrown from the tracks.

Bomb plot entirely computed from radar scope photos. 62% of bombs plotted, 79% of plotted sticks fell in target area.

RESTRICTED

NAGAOKA
90.9

NAGAOKA (37°27' N - 138° 51' E) is a city of about 70,000 population, and an important center of machine and tool production. It is also a railroad junction and trade center for the agricultural area and oil fields nearby.

NAGAOKA is located about 12 miles in from the shore of the Japan Sea, 35 miles S. of Niigata.

NAGAOKA had a built-up area of approx. 2 square miles, including 7 numbered targets and 3 unidentified:

1656 - Tsugami Atagi Mfg. Co.
1660 - Niigata Iron Works (Destroyed; Mission 308)
1661 - Osaka Machinery Co. (" " ")
1669 - Riiken Heavy Industry
XXI-6271 - Unidentified Industry
XXI-6272 - Hokuetsu Chemical Plant
XXI-6273 - " Paper & Pulp Mill

1. MISSION 308 - 1-2 August 45, 125 A/C of the 313th Wing dropped 924.3 tons of incendiary bombs, type M-47 & M-17 between 012335K-020058K from 12,100 to 13,400 feet, 0/10 - 2/10 clouds. 55 A/C bombed visually and 70 bombed by radar.

DAMAGE - 1.33 sq. miles or 65.5% of built-up area destroyed. Targets 1660 - Niigata Iron Works, and 1661 - Osaka Machinery Co. destroyed.

No strike photos or bomb plot available. This was the first and only strike on the City of Nagaoka.

NIIGATA IRON WORKS, PLANT #1, NIIGATA
90.9-998

No attacks or damage reported.

NIIGATA IRON WORKS, PLANT #2, NIIGATA
90.9-999

No attacks or damage reported.

ATAGI MFG. CO., TSUGALI-ATAGI
90.9-1656

1. MISSION 308 - IB attack against Nagaoka Urban, 924.3 tons of bombs dropped (M19, M47A2).

DAMAGE - None visible.

No bomb plot available.

RIKEN HEAVY INDUSTRY, KASHIWAZAKI
90.9-1668

No attacks or damage reported.

RESTRICTED

SENDAI URBAN
90.10

Sendai is the largest Honshu City north of Tokyo, and was the most important military replacement and training center in the area north of Tokyo. The city is a hub for rail transportation, being the most important rail center in the eastern section of northern Honshu.

Sendai is located at the foot of the eastern-most Honshu mountain range, 190 miles north of Tokyo, and 8 miles inland from Sendai Bay and the Pacific Ocean. The port serves Sendai City and the other smaller cities in the vicinity. The port for Sendai Wan is Shiogama Town.

Sendai, a city of 223,630 population, covers an area of 4.53 sq. mile with the Sendai Railway Yards at the center. The city was considered the best urban industrial area north of Tokyo for selection as an incendiary target, not only because of the congestion but also because construction consisted mostly of common wood and plaster.

1. MISSION 257 - 9 July 45; 58 BW dropped 909.3 tons of AN-M17A1 (incendiary clusters) and AN-M47A2 (incendiary bombs with instantaneous fuse) type bombs from 10,000 - 10,700 ft. through 3/10 clouds.

DAMAGE - 1.22 sq. mi. or 27% was destroyed.

Damage to targets in Sendai City:

- 90.10 - XXI BC - 6223A RR Yards - 40%
- " " 6223B Gas Wks. - 80%
- " " 6223C Govt. Monopoly - 100%
- " " Military Install. West part of city - 80%
- " " Army Buildings - 50%
- 90.10 - 1671 - Bvt. A/C Parts Plant - 9%

No previous missions
No bomb plot

RESTRICTEDGOVERNMENT AIRCRAFT PARTS PLANT
90.10-1671

This plant is located on the outskirts of SENDAI approximately 1 mile NE of the airport.

This is a large new plant producing aircraft parts. The exact components are uncertain.

1. MISSION 257 - ⁹⁻¹⁰~~17~~ July 1945. IB attack on SENDAI URBAN.

DAMAGE - 9% destroyed.

No bomb plot available.

HODOGAYA CHEMICAL INDUSTRY COMPANY
90.10-2025

1. MISSION 64 - 12 April 1945 1095x500# AN-M64 bombs, fused .025 nose and tail. 43% bombs plotted, 36% of plotted bombs within 1000'..

DAMAGE - 458,000 sq. ft. (59%) of original roof area. Damage confined to N & E portions of plant. Target 1658, adjacent on the N, severely damaged -- approximately 68% of original roof area affected.

UNIDENTIFIED CHEMICAL PLANT at KORIYAMA
90.10-XXI 6129

Located just N of target between railroad and river.

1. MISSION 65 - 12 April 1945. HE attack against this installation dropping 687x500# AN-M64 bombs (171.8 tons) fused .01 nose and ND tail. 39% of bombs plotted, 75% of plotted bombs within 1000' of A/P.

DAMAGE - 555,000 sq. ft. (73%) of roof area destroyed or damaged.

RESTRICTEDTOYAMA URBAN
90.11

Toyama is the third largest city on the Japan Sea Coast of Honshu. It serves as a business and transportation hub for extensive but relatively new industrial installations within 2-4 miles of the city. Important industries are: Japan's largest aluminum plant, with ball bearing special steel, precision instrument and chemical plants surrounding the city.

Toyama is located on the Japan Sea, 5 miles south of Jinsu River, Port of Higashi-Iwase, and 110 miles north of Nagoya.

Toyama had a population of 127,000 in 1940 and the built-up area covered 1.88 sq. mi. Population density was approximately 5,000 persons per square mile. Two canals divide the Urban Area into 3 segments.

1. MISSION 307 - night of 1/2 Aug 45, between 020136K - 020327K. Primarily a radar mission. 73rd BW participated, dropping 1465.5 tons of AN-M17A1, M-19, AN-M47A2 (IB), AN-M47A2(WP), and M-46(Photo Flash) type bombs, through 0/10 clouds at 12,100 - 13,600 ft.

DAMAGE - 99.5% of city or 1.87 sq. mi. destroyed.

Damage to targets in built-up area.

90.11 - XXI BC - 6251 - Toyama Gas Works - 100%
" " 6261 - Nippon Koshuha KK - 100% Electrolytic
" " 6250 - Rami Spinning Mill, Plant #1 - 100% Steels
2 Unidentified Plants - 100%

Damage to targets outside built-up area

90.11 - XXI BC - 6259 - Taisho Spinning Mill - 100%
Highway Bridge over Jintsu River - 45%

No previous Missions
No Bomb Plots

RESTRICTED

ISEZAKI URBAN
90.13

ISEZAKI(36° 19' - 139° 12') is a small urban center of important Airframe and Aircraft Engine parts production. It is located about 55 mi. NW of the Tokyo Imperial Palace, about 8 Miles west-northwest of Ota and 13 li. NW of Kumagoya..In 1940 Isezaki had a population of 40,000, concentrated in a built-up area of 1.0 sq. mi.

The following are the most important targets within the immediate vicinity of Isezaki City. None were damaged in bomber strikes.

Isezaki A/C Ind. Co. (subsidiary Plant of 90.13-1545) reported to produce hydraulic equipment, engine parts, and POW sources report that fighter aircraft would eventually be produced there.

Three unidentified installations of recent construction located on eastern limits of city. POW reports indicate that all industrial activity in Isezaki is controlled by Nakajima. A new unidentified industry in southern environs of city is also in above category (controlled by the Nakajima A/C Co.).

1. MISSION 330 - 14-15 August 45, IB attack on Isezaki Urban. 73rd and 314th Wings participating, dropped 625.1 tons from 15,300-18,200 ft., M-47 and M19 type bombs were utilized and dropped thru 7/10-10/10 clouds.

DAMAGE - .166 sq. mi. or 16.6% of city was destroyed. No damage to important industrial targets.

No bomb plot available and there were no previous missions.

KUMAGAYA URBAN
90.13

KUMAGAYA(36° 08' - 139° 24') is an important link in the Nakajima Network of aircraft parts centers, containing three important parts plants, a short distance away from other parts centers and final assembly plants.

KUMAGAYA is located about 40 miles NW of the Imperial Palace in Tokyo and 8 miles S of Koizumi. The Toetsu Main Line from Niigata passes through the city and makes it easily accessible from most parts of the North Tokyo Area. In 1940 it had a population of 48,889, for the most part concentrated in an urban and industrial area of .6 sq. mi.

1. MISSION 329 - On the 14th of Aug. 45 there was an incendiary strike against this target. The 313th and 314th Wings dropped a total of 593.4 tons. Type bombs and tonnage dropped of each follows; 89 tons AN-M17A1(500#IC), 274.4 tons AN-M19(500#IC), 218.0 tons AN-M47A2(100#IB), AN-M56(4000#IC) - 12 tons. The bombs were dropped from 14,000-19,000 at 150123K-150239K thru 0/10-5/10 clouds.

DAMAGE - .27 sq. mi. or 45% of City. Target 90.13-1650-Nakajima A/C Co., no damage. Unidentified industrial areas No. 1-100%, No. 2 - 69%, No. 3 - 75%, No. 4 - 89%, and No. 5 - 78%.

There were no previous missions. Bomb plot is available(Worksheet)

RESTRICTED

MAEBASHI URBAN
90.13

MAEBASHI was formerly a textile center but 10-15 textile mills and 30-40 small iron works, machine shops, etc. were converted early in 1942 to A/C parts production for Nakajima. Two large A/C plants operated by Nakajima and the Riken Co. are located on the outskirts of the city. The city has excellent transportation facilities to TAKASAKI, KUMAGAYA, ISEZAKI, KIRYU, OTA AND KOIZUMI, other links in the Nakajima A/C production complex.

MAEBASHI is located about 60 miles NW from the Imperial Palace in Tokyo it is in the NW corner of the KANTO Plain, about 4.5 miles NE of the city of TAKASAKI. The TONE River forms the city's western boundary.

MAEBASHI had a 1940 population of 86,997. The built-up area of the city occupied about 1.85 square miles, chiefly concentrated N of the RR tracks (AYOHO RY LINE). The urban pattern formed a compact mass of small textile mills, shops, and dwellings. Several schools and govt. bldgs. were scattered throughout the city, and no effective fire breaks were apparent. There were no numbered targets in the target area. Target No. 1546, NAKAJIMA A/C CO., MAEBASHI PARTS PLANT, was located just south of the RR yards on the outskirts of the city. Target No. 1646, RIKEN IND. CO., consists of three branches of important RIKEN CO which was believed to be engaged in mfg. of piston rings, engine castings, forgings, and airframe parts. Two important RR yards are located on the southern border of the city; also an electric line from KIRYU terminates in the E-central part of the city. The Gurma Spinning Mill, believed to be converted to war industry, is located NE of #1646, and the Maebashi Spinning Mill located 1500' SE of #1546, also reported converted to war use.

1. MISSION #13 - 5-6 August 45 by the 313th Wing. 92 A/C participated in this attack and dropped 691.0 tons of M-19(500# IB clusters), 17.6 tons T4E4(500# frags) and 15.2 tons of AN M-64(500# GPs). The attack began at 1328Z (pathfinders) and ended at 1508Z. Axis of attack 282° (average) through 0/10 to 10/10 undercast. Wind at bombing altitude was 22K from 216°. 82 of attacking A/C bombed by radar, 4 visual, and 6 combination radar and visual. The target was a difficult radar target and as a result, 'several' A/C dropped bombs 'wide of the target'. The number of A/C missing the target due to this cause is unknown.

DAMAGE - 1.0 sq. mi. burned out as a result of this raid. Area damage outside limits of city totals .007 sq. mi. ('Wide' A/C) No numbered targets were damaged. Four unnumbered textile mills were 100% destroyed.

This was the first and only attack on the city of MAEBASHI. No strike photos were secured - no bomb plot is available.

RESTRICTED

UTSUNOMIYA URBAN
90.13

UTSUNOMIYA is located 60 miles N of Tokyo within the Tokyo Plain and inside the Arc of defense for the Tokyo-Yokohama area. An important Nakajima Aircraft Installation is situated 1 3/4 miles from the center of city.

UTSUNOMIYA had in 1940 a population of 87, 868, but it may be assumed that the population had increased because of increased industrial activity. Two airfields in the Tokyo arc of defense, protecting northern approaches are Utsunomiya and Utsunomiya South, both being situated within 4 miles of the cities center.

1. MISSION 263 - 12-13 July 45(night), IB attack on Utsunomiya Urban. The 58th Wing Participated, dropping a total of 802.9 tons over primary and 43.4 over secondary targets of opportunity. 405.5 tons of AN-M47A2(100#IB) and 440.8 tons of E-46(500#IC) were dropped from an altitude of 13,300-14,600 at 130019K-13-230 thru 10/10 undercast.

DAMAGE - .94 sq mi. or 34.2% of urban area destroyed. Damage to targets within built-up area were; Utsunomiya RR Station 40%, RR Yards and Freight Depot 20%, Shimozuke Paper Mill 100%, Monopoly Bureau 100%. Damage to targets outside built-up area; Small barracks area outside of town, 1643-Utsunomiya Air Training School 15% old damage, 2131-Nakajima Plant 20% removal, 2801-Utsunomiya A/F 20% removed or destroyed, 1 small unidentified industry 100% destroyed.

Previous missions were Army and Navy fighter strikes against airfields. No bomb plots.

RESTRICTED

NAKAJIMA AIRCRAFT CO., NEW OTA PLANT
90.13.1544

Prior to attack this plant produced about 14% of Japanese combat planes, specializing in Army fighters (Frank and Tojo) and Army bomber (Helen). The attack of 10 February 1945 by the XXI Bomber Command and 16-17 and 25 February by Navy Carrier-based Aircraft, together with a slight amount of pre-attack dispersal, have left only 26% of the original roof area untouched. These undamaged areas are both small and scattered totalling only about 225,000 square feet.

1. MISSION 29 - 10 February 1945, by XXI Bomber Command. 84 B-29's participated in the attack dropping 748 GP bombs and 198 IB bombs at 27,000'. 187 tons of 500#GP with 0.1 nose and ND tail fuzing. 49.5 tons of 500# M76 IB with instantaneous nose and ND tail fuzing.

DAMAGE - Destroyed 236,100 sq. ft. (10.8%) gutted 493,400 sq. ft. (21.8%), and 26,000 sq. ft. (1.2%) received minor damage.

2. NAVY CARRIER-BASED AC - 16-17 and 25 February 1945.

<u>No. and Type of Bombs</u>	<u>Nose</u>	<u>Tail</u>
24 HVAR	I	
24 AR		NDND
76 100# GP		.025
122 100# GP		ND
34 250# GP		ND
22 500# GP		.025
75 500# GP	I	ND

No bomb plots available.

No report of damage available.

NAKAJIMA AIRCRAFT, KOIZUMI PLANT
90.13-1545

This NAKAJIMA assembly plant for Navy planes ranked as one of the largest in Japan, probably accounting for more than 20% of the total production of combat aircraft. In addition to final assembly, this plant manufactured some major components and sub-assemblies but no engines. It appears likely that the single-engine planes, Zeke, Myrt, and Jill were manufactured in the western part of the plant, while twin engine Irving and Frances were manufactured in the eastern part of the plant. NAKAJIMA's four engine aircraft were also reported to be assembled here.

1. NAVY STRIKE - 17-18 February 1945

<u>No. of Bombs</u>	<u>Type</u>	<u>Fuzing</u>	
		<u>Nose</u>	<u>Tail</u>
18	HVAR	--	ND
22	250# GP	--	.025
94	500# GP	--	.025
21	1000# GP	--	.025
2	500# GP	VT	1
2	HVAR	--	--

DAMAGE - 16.9%.

2. MISSION 56 - 3 April 1945. 43 B-29's dropped 1099, 500# GP bombs with .01 nose and ND tail.

DAMAGE - 9.5%.

No bomb plots available.

RIKEN INDUSTRIAL COMPANY, MAEBASHI
90.13-1646

1. MISSION 313 - 5 August 1945. 723.8 tons of bombs-M19, AN-M64, T4E4.

DAMAGE - None visible.

RESTRICTED

CHOSHI URBAN

90.14

CHOSHI is the second largest city in Chiba Harbor and the most important fishing harbor on the East Coast of Honshu. The city contains an important concentration of industries associated with a fishing fleet-canneries, net factories and possibly marine engine plants. The city is the protein distribution center for Tokyo, Yokohama and other points on the Tokyo Plain. The city is southern terminus of the important TONE-EDO waterway to Tokyo.

CHOSHI is located in Eastern Honshu, on the prominent Choshi Peninsula. It is 60 miles east of Tokyo and directly south of the fishing village of Hasaki across the Tone River.

CHOSHI had a population in 1940 of 61,000 concentrated in a built-up area of 1.12 sq. mi. The city forms a crescent along the south bank of the Tone River, extending 3 miles E-W. The passenger and freight yards of the Sobu Main Line effectively mark the center of the congested area.

1. MISSION 279 - 19-20 July 45, IB attack against Choshi Urban. The 313th Wing Participated, dropping a total of 704.8 tons at 200131K-200252K from 10,200-11,400 feet. thru 3/10-10/10 clouds. Bomb types dropped were; 597.6 tons E-46(500#IC), 31.2 Tons T4E4(500# frag), 25.4 tons AN-M47A2(100#IB), 50.6 tons AN-M47A3(100#IB).

DAMAGE - Destroyed this mission; .379 sq. mi. or 33.8%. Previous destruction; .104 sq. mi. or 9.2%. Total to date; .483 sq mi. or 43.0%. Damage to targets: XXI6060-Possible Cannery 10%, XXI6061-Possible Cannery 40%, XXI6062-Possible Cannery 10%, and 2 unidentified Industries 100%.

Choshi Urban area was bombed a number of times as a secondary target of opportunity by 20th AF Aircraft. No bomb plots available.

CHIBA URBAN

90.14

CHIBA is the key city in the military defense of Chiba Peninsula which guards Tokyo. It is a transportation hub, the site of military establishments including the New Hitachi A/C Co. (2145) which lies at the southern outskirts of the city.

CHIBA is located 20 miles SSE and around the bay from Tokyo. It stretches length wise around Tokyo Bay for about 3 1/2 miles (N-S). Being an old city, Chiba buildings are made of common wood and plaster, and consequently, highly susceptible to incendiary attacks.

New war industries, expansion of military establishments and traffic are believed to have caused the city's population to increase to 92,061, in a built-up area of 1.98 sq. mi.

1. MISSION 251 - IB attack against Chiba Urban area was flown 6-7 July 45. The 58th Wing Participated dropping a total of 889.5 tons on the primary and 6.3 tons on targets of opportunity, at 070239K-070405K from 11,500' thru 10/10 clouds. Type bombs used were; 377.6 tons AN-M47A2 (100#IB), 486.4 tons E-46(500#IC), and 31.8 tons T4E4(500 Frag).

DAMAGE - .86 sq. mi. or 43.4% was destroyed. Targets damaged in built-up area include; Military Depot Area(Ordinance) 40%, RR Regiment Warehouses minor damage, Infantry School 25%, destroyed, RR Regiment 55% destroyed, Warehouses 5% destroyed. No targets were damaged outside the built-up area.

No bomb plots.

RESTRICTED

HITACHI URBAN
90.14

HITACHI is the center of the most important industrial complex north of Tokyo. It is a center for electrical equipment, machine tools, A/C parts, tanks, and locomotives, and is a copper mining and refining center. The population is , for the most part composed of highly skilled employees of the heavily subsidized Govt. industries which includes the complex of six plants of the Hitachi Engr. Co.

HITACHI is located 30 miles NE of Tokyo on the east coast of Honshu, just 6 miles north of the Tokyo Plain. The city is compressed along the coast except where it breaks back into the hills along narrow river valleys. The city is 15 miles north of Isozaki Misaki (Cape).

HITACHI in 1940 had a population of over 82,000 persons congeded in a built up area of 1.38 sq. miles.

1. MISSION 278 - 19-20 July 45, IB attack against Hitachi Urban. The 73rd Wing participated dropping a total of 963.2 tons on primary and 7.2 tons on target of opportunity at 200020K-200153K from 12,000-13,650 feet thru 9/10-10/10 clouds. Bombs dropped were; 393.5 tons of AN-M47A2(100#IB inst) on primary and 3.2 on secondary, 243.2 tons of E-46(500#IC open 5000') on primary and 4.0 on secondary, 6.7 tons of E-36(500#IC Open 5000') on primary, and 319.8 tons of AN-M17A1(500#IC open 5000') on primary.

DAMAGE - .88 sq. mi. or 64.5% destroyed on this mission. Old damage was .20 sq. mi. for a total of 1.08 sq mi. or 78.2%. Damage to targets within built-up area was; Railway Yards- minor damage, 812-Hitachi Copper Ref. 80%, 1476-Hitachi Eng. Works (Kargen Plant) 96.8% old damage, 2098-Hitachi Eng. Works (Bensen Plant) 30%, 2099 Hitachi Eng. Works (Yamato Plant) 8%, 4 small unidentified industries 100%. Damage to targets outside built-up area was; 2100-Hitachi Eng. Works (Taga Plant) damaged as a result of U. S. Naval surface strike on 17-18 July. No damage reported on this strike.

MITO URBAN
90.14

MITO is the principal city in the NE Kanto Plain and Capital of IBARA-KI Prefecture. The city is most important as a transportation center being the focal point on the Joban line, which is during peace time carrying 4 million tons of coal per year. Two, high priority Hitachi plants are located in the environs of the city.

MITO is located about 60 miles NE of Tokyo. The city lies on the southern bank of the Naka River, 7 miles inland from the Pacific Ocean.

MITO has a population of about 80,000 concentrated in the built-up area of 2.6 sq.mi. The city is roughly divided into two congested areas, being pinched in the middle.

1. MISSION 309 - 1-2 Aug. 45, IB attack against Mito Urban. The 314th Wing participated, dropping 1144.8 tons from 12,000-15,200 feet at 020142-020316K, thru 8/10-10/10 clouds. Type bombs dropped were; 639.0 tons M-19(500#IC open 5000'), 505.1 tons AN-M47A2(100#IB Inst), 8.0 tons AN-M47A3(100#IB Inst).

DAMAGE - 1.7 sq. mi. or 65% of the city was destroyed. Targets in Built-up area damaged; 1478-Marshalling Yard 25% of repair, Unidentified industry 100% Shop Area.

No previous missions. Bomb plot worksheet available.

RESTRICTED

HITACHI ENGINEERING CO.
90.14-1476

This plant (the Kaigan plant) is the largest of three Hitachi plants in the area and was reported to produce all types of heavy electrical equipment, marine turbines, elevators, conveyors, electric locomotive parts, diesel engines and boilers.

It is located to the south of Hitachi City, about $\frac{1}{2}$ mile S of Sukegawa railway station and within 300 yards of the coast.

1. XXI MISSION 197 - 10 June 45, HE attack with 2000# bombs. This mission resulted in the virtual destruction of the plant. Total damage is approximately 2,143,000 sq. ft. or nearly 97% of the total roof area. 80.5% of the total roof area was destroyed or damaged structurally. 806 tons of AN-M66 (2000#GP) with fusing of VD-Nose .025 Tail. 98% of bombs plotted with 71.2% within 1000' of AP.

HITACHI AIRCRAFT CO., CHIBA PLANT
90.14-2145

This target represents another step in Japanese attempts to disperse the aircraft industry. This plant was planned for dual purpose - engine manufacture and final airframe assembly. Engine production capacity was estimated to be about 75-100 monthly. No evidence of assembly of airframes was evident up to 5 Sept. 45.

1. MISSION 198 - 10 June 45, 26 A/C dropped 553 bombs (138.2 tons) AN-M64 (500#GP) .01 nose, non-delay tail.

DAMAGE - No damage reported to plant. No bomb fall plot.

RESTRICTEDFUKUI URBAN
90.15

FUKUI is one of the most important industrial cities on the Japan Sea side of Honshu. The war commodities manufactured include A/C parts, electrical equipment, machine tools, iron and other metal products, rubber goods, chemicals and textiles. FUKUI is important as a rail center on the Haseika Main Railroad Line.

FUKUI is located in West Central Honshu, 20 miles inland from the Japan Sea and 45 miles SW of Kanazawa on a narrow plain of the Noto Lowlands.

FUKUI has a population of about 100,000 concentrated in a built-up area of 1.9 sq. mi. The city is roughly rectangular in shape although new built up areas stretch along the roads which fan out from the city.

1. MISSION 277 - 19-20 July 1945, IB attack against FUKUI URBAN, 58th Bomb Wing participated, dropping a total of 961.4 tons on P.T. from 12,400-14,000 feet at 200024K-200145K through 0/10-3/10 clouds.

TYPES OF BOMBS UTILIZED

<u>TYPE</u>	<u>OVER PRIMARY</u>	<u>OVER SECONDARY</u>
E-46 (500# IC open 5000')	757.0 T	8.0
AN-M47A2 (100# IB Instantaneous)	194.9 T	
AN-M47A2 (100# WP Instantaneous)	1.5 T	
TOTAL	<u>953.4 Tons</u>	<u>8.0 Tons</u>

Damage:- 1.61 sq. miles or 84.8% of the city was destroyed.

Damage to Targets Within Built-up Area - 90.15-XXI6346 - U/I
industry 75%

Two areas within 5 mile radius of city's center:
Totaling .14 sq. miles destroyed.

No Previous Missions.

No Bomb Plot.

RESTRICTEDSURUGA - URBAN
90.15

Tsuruga is one of the three most important Japanese ports on the Japan Sea. Military personnel and supplies make up a steady stream westward through the port to Korea and Manchuria. Toward the east into Japan's industrial centers flow iron ore concentrates and raw materials. The city is well equipped in terms of railway transshipment facilities. It is small but very compact.

Location and Identification: The port of Tsuruga is on the Japan Sea at about the center of the west coast of Honshu. It is 11 miles northwest of the most northern tip of Lake Biwa, 47 miles northeast of Kyoto. The city faces Tsuruga Wan, a prominent small bay on the east edge of the larger Wakasa Wan. The city is a rail hub, with three railways servicing the port. One line comes north off the Tokaido Main Line at Maibara; a second, the Hokuriku Line, runs along the coast southeast to Kanazawa and Toyama. The Obama Line runs west to Maizuru. There is a main coastal highway paralleling the coast and running through Tsuruga.

Target Description: The city of Tsuruga has a population of 31,346. The majority of residents are concentrated within a built-up area of 1 square mile. This built-up area is split by a narrow river, the Kyushono Kawa, which is not considered an effective fire break. There are several fine landmarks immediately adjacent to the city. Kanega Saki, a sharp point just northeast of Tsuruga, projects into the bay. A larger river, the Shono Gawa, borders the city on the west. The Kinome Gawa flows along the southern extremity of the city. There are two breakwaters directly north of the city.

1. MISSION 265 - night of 12-13 July 1945, 313th Wing participated, dropping total of 679.1 tons on primary and 16 tons on opportunity, between 130000K - 130307K, from 12,200 - 13,400 ft. Bombs dropped; AN-M47A2, E46.

DAMAGE - .77 sq. miles or 68% of city was destroyed.

Damage to targets within built-up area:

90.15 - 1950 - Tsuruga Harbor Facilities	30% destroyed.
Electric Sub-station	100% destroyed.

Damage to targets outside built-up area:

Small area outside built-up area .062 sq. miles.

90.15 - 1676 - Tsuruga RR yards, shops, roundhouse and 9 warehouses destroyed

No previous mission

No bomb plot

RESTRICTED

KOFU
90.16

KOFU is a prefectural capital (Yamanashi) and the largest city situated in the mountain basin in Central Japan. It is principally a silk spinning and weaving center, it has some light industry and is the headquarters for an infantry replacement unit.

KOFU is located in Central Honshu, about 70 miles West of Tokyo and 30 miles South of Suruga Bay. The city had in 1940 a population of 102,000, concentrated in a 2 sq mile built-up area. KOFU city is roughly rectangular in shape, with steep hills cutting off the NW corner, and the Ara River cutting off the SW corner.

1. MISSION 254 - 6-7 July 1945, dropping a total of 970.4 tons on primary and 1 ton on secondary targets, of opportunity, at 070047K-070235K from 11,200-17,100 feet, 8/10 clouds over target.

TYPE BOMBS

<u>TYPE</u>	<u>OVER PRIMARY</u>	<u>OVER SECONDARY</u>
AN-M47A2 (100# IB Inst.)	231.9 tons	
AN-M17A1 (500# IC Inst.)	7.5 tons	
E-46 (500# IC Inst.)	731.0 tons	1 ton
TOTAL	970.4 TONS	1 TON

DAMAGE - 1.3 sq. mi. or 65% of city was destroyed. Southern part of city almost completely destroyed, while the northern section experienced only scattered destruction. 50% of the buildings in Marshalling Yards south of the city were destroyed.

No Previous Missions:

Bomb Plot WS Available.

RESTRICTED

KAWASAKI URBAN INDUSTRIAL I
90.17-3604

Kawasaki, UIC-I (35°31'N-139°42'E) is predominantly an area manufacturing electrical equipment and electronic products. Among the important electrical products are: insulating materials, communications equipment, wire and cable, switch boards, instruments and equipment for aircraft. This area includes two plants of Tokyo-Shiba Electric Company which produces the majority of Japan's electronic tubes and approximately one half of all Japan's radar equipment. Other products manufactured in this area include radio components, auto and truck tires, aircraft and auto radiators, aircraft parts-instruments, fuel pumps and carburetors, diesel engines, engine parts, ordnance components, military vehicles and special steels for anti-friction bearings and other lesser products.

Kawasaki Urban Area I is bounded on the south by a wide road which runs NE and separates the main city from the highly industrial waterfront. On the North it is bounded by the Tama River, on the NW by a wide highway, and on the west generally by a line extending north from Tsurumi River mouth. This target area contains approximately 2.2 sq. mi. It contains the central business district and the densely populated section of the city. Industries are intermingled with residences throughout the entire area.

KAWASAKI URBAN INDUSTRIAL II
90.17-3605

Kawasaki UIC-II (35°30'N-139°42'E) is one of the most compact industrial areas in Japan. Heavy industry predominates; Steel for shipyards, steel, concrete tubes, structural steel, castings, forgings, — approximately 30% of Japan's heavy electrical mfg. is credited to Shiba Engineering Works, and Fuji Electric Works specializing in electrical equipment for aircraft. Gas and diesel engines, chemicals, and chemical machinery are manufactured in this area. Important targets are Tsurumi Steel Shipbuilding Company, an important builder of large tankers and cargo vessels; Asahi Glass Company, Japan's chief producer of optical glass for military use. Three of the four largest power generating stations located in the area. Lesser targets are secondary oil refineries and related storage facilities.

Kawasaki Urban Industrial II consists of approximately 4 sq. mi. and is bounded on the south by Tokyo Bay, on the west by the Tsurumi River, on the north by a wide road, and on the east by a channel separating it from the easternmost plot of reclaimed land. The rectangular area is 3 miles long and approximately 1 mile wide. Its northern limits are contiguous with Kawasaki UIC No. 1 (90.17-3604)

This area consists almost entirely of reclaimed land. All of the area is industrial except for a few non-industrial structures in NW part of target area. Estuaries, channels and boat basins served as major firebreaks.

RESTRICTEDKAWASAKI URBAN INDUSTRIAL III
90.17 - 3606

Kawasaki UIC-III (35°32'N-139°41'E) contains important electronics and radio plants, machine tools and precision components factories, as well as the extensive Tsurumi Shunting Yard. The area has been built-up recently and consists of approximately 4.3 sq. miles.

Kawasaki UIC-III is rectangular in area following the southern bank of the Tama River from the Nakahara district down almost as far as the bridges of the Tokaido Line in the center of Kawasaki. The area is a lightly built up industrial and residential area, merging into quite heavily congested residential sections at the northern and southern ends.

1. MISSION 68 - 15 April 1945, 313th Bomb Wing participated, dropping a total of 1110.0 tons from 6,420 - 10,020 feet at 152343K-160165K, 0/10-3/10 clouds over target.

STATISTICAL SUMMARY

<u>ZONE</u>	<u>AREA DESTROYED</u>
Kawasaki Incendiary Zone I	.96 sq.mi. or 65%
Target Area 3604 - Kawasaki UIC #I	4.5 sq.mi. or 55%
" " 3605 - Kawasaki UIC #II	.02 sq.mi. or 0.05%
" " 3606 - Kawasaki UIC #III	1.3 sq.mi. or 30%

NOTE: See Damage Assessment Report #47 for information on Damage to Targets.

No bomb plot.

RESTRICTEDHACHIOJI URBAN

90.17

HACHIOJI is an important rail city controlling practically all of the Tokyo rail traffic to Northern Honshu. The city is a dense housing center for vital outlying industries and gained increased importance after the attacks on Tokyo forced some dispersal of industry and populations. The population of this city was estimated at 75,000. It is located in the mountainous area 23 miles West of the Imperial Palace. The city is very densely built-up in an oval-shaped area along the S bank of the Yudona River. This built-up area is about 2 miles long and a maximum of 1 mile wide with the long axis oriented East-West.

Around the E edge of the city are a number of unidentified industries, probably feeder plants for the nearby industrial centers of Tokyo, etc. The important Hachioji Junctions, Bridge, and RR Station, (Target 1375) is in the SE part of the city. The Diesel Automotive Co, Hino Plant, (Target 2044) and two other irregularly shaped industrial areas are about a mile NE of the city. The industries of this city were primarily connected with the textile business but were undoubtedly converted to war use.

The Kosu Highway runs through the center of the city in a NE-SW direction. The Hachioji Station (1375) is the junction of the Chuo Main Line (which connects Tokyo and Nagoya) and a line connecting the Tokaido Main Line with Takasaki. The city also controls traffic on an alternate route between Tokyo and Nagoya and is the terminal for suburban electric trains on the Shuo Main Line. Several local electric RR's meet at this station. The city's electric power is probably supplied by the Kubozawa and/or Yose Hydro plants about 5 miles SW of Hachioji.

1. MISSION 306 - 1/2 Aug 45, IB attack on Hachioji Urban.
Dropped 1524.5 tons of AN-M17A1 and 68.8 tons of AN-M47A2. The M17s' were fuzed to open 5,000 ft. above the city and the M47s' had instantaneous fuzing. Bombing was from 14,800 ft. to 16,000' through 0/10 to 8/10 undercast. 97 A/C bombed visually and 72 A/C bombed by radar sighting. Crews indicated that the target was easily identified. Attack was from 020145K to 020329K. Only two A/C secured strike photos and these show bombs striking in the target area. The remainder of A/C failed to secure photos due to weather and smoke over the city. The strike photos are not available in this office.

DAMAGE: 1.12 Sq. Mi. (80% of built-up area) was destroyed in this attack. The Hachioji Main Station (Target 1375) was 25% destroyed and the Hagashi Hachioji Station (unnumbered) was 100% destroyed. One small area of damage in a populated section across the river from Hachioji was found.

No bomb plot available.

RESTRICTED

HACHIOJI URBAN (CONT.)
90.17

cured strike photos and these show bombs striking in the target area. The remainder of A/C failed to secure photos due to weather and smoke over the city. The strike photos are not available in this office.

DAMAGE - 1.12 sq. mi. (80% of built-up area) was destroyed in this attack. The HACHIOJI MAIN STA. (Target 1375) was 25% destroyed and the HAGASHI HACHIOJI STA. (unnumbered) was 100% destroyed. One small area of damage in a populated section across the river from HACHIOJI was found.

TOKYO URBAN
90.17

1. MISSION 9 - Executed by 73rd Bomb Wing on 29 November 1944 with 25 A/C only. Dropped 84.52 tons M18's and 17.64 tons T4E4 (frags). Bombing altitude 25,000' to 33,200'. Time over target 300050K - 300527K. cloud cover 10/10.

DAMAGE - Negligible.

No bomb plot available.

2. MISSION 38 - Executed by 73rd, 313th and 314th Bomb Wings, on 25 February 1945, daylight formation attack, 172 A/C bombed from 23,500' - 31,000' through 10/10 undercast. Time of attack 251458K-251652K. Bombs dropped:

411.4 tons E-46 fuzed to open 5000' above target.

40.3 tons AN-M64 fuzed 1/10 nose, 1/40 tail.

2.0 tons AN-M43 fuzed 1/10 nose, 1/40 tail.

66 of the A/C dropped by radar, balance visually.

DAMAGE - About one square mile destroyed.

No bomb plot available.

3. MISSION 40 - Executed by 73rd, 313th and 314th Bomb Wings, on 9 March 1945. Time over target, 100107K - 100400K. Bombing altitude was 4900' to 9200'. 279 effective A/C bombed primary target. Bombs Dropped:

828.5 tons E-28 clusters fuzed to open 2000' above target.

709.6 tons E-46 clusters fuzed to open 2500' above target.

126.9 tons M-47A2 fuzed instantaneous nose, ND tail.

(One sq. of each Wing scheduled to drop M-47's to serve as pathfinders for the Wing.)

DAMAGE - 16.8 square miles burned out, including 22 numbered targets.

No bomb plot available.

4. MISSION 67 - Executed by 73rd, 313th and 314th Bomb Wings, on 13 April 1945. 327 A/C bombed primary target from 6,750' - 11,000', Time of attack, 1357Z - 1736Z. (Attack lasted about three hours.) Bombs Dropped:

1815.4 tons E-46 (77 of these bombs were released safe).

222.3 tons M-47A2 (164 of these bombs were released safe).

79.9 tons M-64 (1 of these bombs was released safe).

2.0 tons M-59 (1000# S.A.P.).

DAMAGE - 11.4 square miles was burned out.

No bomb plot available.

RESTRICTED

TOKYO URBAN (CONT)

90.17

5. MISSION 37 - Primary target was 90.17-357, but that area was cloud obscured and bombs were dropped on urban area of Tokyo. Date of attack, 19 February 1945, 73rd, and 313th Bomb Wings participated. 72 A/C of the 73rd wing loaded 60% 500# GP's, and 40% M-17A1's and 38 A/C of the 313th wing loaded 500# GP's bombed visually and by radar. Results very indefinite. Strike photos show some bombs fell 35,000' NE of Palace, some 22,000' N of Palace and some 40,000' E of the Palace and some 35,000' SE of the Palace.

Bombs dropped:

214.8 tons M-64 fuzed 1/10 sec. nose 1/40 sec tail.
127.5 tons M-43 fuzed 1/10 sec. nose 1/40 sec tail.
8.2 tons M-76 fuzed inst. nose, ND tail.
107.2 tons M-17A1 fuzed for cluster to open 5000' over tar.

No bomb plot available.

6. MISSION 22 - ²³~~27~~ January 1945, 56 A/C of the 73rd wing bombed Tokyo as a secondary target dropping 112 tons of 500# GP'S and 56 tons of M-76 (500# I.C.).

Strike photography of poor quality indicated that bombing was poor with all bombs falling several miles NE of A/P, striking in outskirts of city and causing little damage.

7. MISSION 67 - Executed by 73rd, 313th and 314th bomb wings, on 13 April 1945. 327 A/C bombed primary target from 6,750' - 11,000'. Time of attack was 1357Z - 1736Z. (Attack lasted about three hours).

Bombs dropped:

1815.4 tons E-46 (77 of these bombs were released safe.)
222.3 tons M-47A2 (164 of these bombs were released safe)
79.9 tons M-64 (1 of these bombs was released safe)
2.0 tons M-59 (1000# S.A.P.)

DAMAGE - 11.4 square miles burned out.

8. MISSIONS 68 & 69 - IB attack on Kawasaki and S Tokyo. 1878.9 tons of bombs (AN-M47A2, E-46, AN-M64, and T4E4)

DAMAGE - 6.0 square miles of Tokyo and 1.48 sq. mi. Yokohama destroyed.

No bomb plot available.

9. MISSION 181 - Executed by 58th, 73rd, 313th and 314th bomb wings on the night of 23-24 May 1945. 520 A/C participating. Bombing altitudes between 7,800' and 15,100', undercast 1/10 to 6/10. Time of attack was 240239K - 20438K. Attack was compressed into 120 minutes.

Bombs dropped:

52.4 tons E-36
2767.2 tons E-46
777.2 tons M-47A2
48.8 tons M-17A1

DAMAGE - 3.2 sq. mi. of urban area destroyed.

10. MISSION 183 - Executed by 58th, 73rd, 313th, and 314th bomb wings on 25-26 May 1945, 464 A/C participating, bombing altitude 7,915' - 22,000', undercast 1/10 - 9/10. Time of attack: 252338K - 260213K

Bombs dropped:

6.5 tons E-36
633.7 tons M-47A2
1313.8 tons E-46
2.8 tons E-48
953.7 tons M-17A1
347.5 tons M-76
4.0 tons M-81

DAMAGE - 18.6 square miles burned out.

No bomb plot available.

RESTRICTED

TOKYO URBAN (CONT)

11. MISSION 320 - Primary target was 90.17 but that area was completely socked-in and A/C proceeded to bomb briefed secondary target (Tokyo Urban Area). Attack was made by 70 A/C of the 314th Bomb Wing on 10 August 1945 at 100049Z - 100059Z. Bombing was by radar through scattered cloud.

Bombs dropped:

284 tons AN-M66 fuzed Inst. nose, ND tail.

24.9 tons AN-M64 fuzed Inst. nose, ND tail.

One concentration of bombs fell on 90.17-218 and two groups of bursts fell on an unidentified installation.

DAMAGE - Negligible.

Bomb plot is available.

RESTRICTED

HIRATSUKA URBAN
90.17

HIRATSUKA is an important center of aircraft, armament and related industries. It is the focal point for naval activities which include arsenal production, armament repair, air technical research and development, and training. It is the western anchor of an extremely important industrial area with centers of activity in smaller towns situated along the coast to the east.

HIRATSUKA is located in Central Honshu, on the north shore of Sagami Bay, just west of the Sagami River. The city is 18 miles west of Yokosuka and 34 miles SW of the Imperial Palace in Tokyo.

HIRATSUKA had a 1940 population of about 43,000, congested in a 2.35 square mile area.

1. MISSION 274 - 16/17 July 1945, IB attack on HIRATSUKA URBAN. 129 B-29s dropped 1162.5 tons of AN-M47A2, 500# and AN-M17, 500# incendiary clusters fuzed to open at 5,000'. Bombed by radar.

DAMAGE: 1.04 Sq. miles or 44.2% of the built-up area of the city was destroyed..

DAMAGE TO TARGETS WITHIN BURNT OUT AREA:

90.17-1336	Navy Arsenal.....	50%	dest'd.
90.17-2015	Japan International A/C Co.....	10%	"
90.17 2035	2nd Navy Air Arsenal.....	100%	"
90.17-XXI 3011	Prob. Naval Training Station.....	50%	"

DAMAGE TO TARGETS OUTSIDE BURNT OUT AREA:

U/I Industry 90% "

No bomb fall plot available.

RESTRICTED

YOKOHAMA URBAN
90.17

Yokohama Urban area is principally important for auto and truck assembly, oil refining and storage, and aluminum and basic chemicals. The area also contains shipyards, electrical equipment plants and military storage areas. Yokohama is one of Japan's two greatest ports.

Yokohama is located on the W side of Tokyo Bay, bounded by Kawasaki on the N and 10 miles N of Yokosuka. For further information on location and identification of Yokohama refer to Target Information Sheet: Tokyo Urban Industrial Area, 9 March 1945.

1. MISSION 186 - day mission 29 ~~June~~^{May} 1945, by 58th, 73rd, 313th, and 314th Wings participating, dropping a total of 2569.6 tons on the primary and 120.7 tons on opportunity, between 291014K-291129K, from 17,500'-21,000', 9/10 cirrus over target.

Bombs dropped:

<u>TYPE BOMBS</u>	<u>OVER YOKOHAMA</u>	<u>OVER OPPORTUNITY</u>
E-46 (500#IC)	1733.2 tons	105.6 tons
E-36 (500#IC)	45.0 tons	
E-28 (500#IC)	4.2 tons	
AN-M17A1 (500#IC)	20.5 tons	
AN-M47A2 (100#IB Inst.)	766.4 tons	15.1 tons
AN-M47A2 (100#Smoke)	.3 tons	
TOTAL	2569.6 tons	120.7 tons

DAMAGE - 6.9 sq.mi. or 34% destroyed (This mission)
 2.0 sq.mi. or 10% destroyed (Previously)
 TOTAL 8.9 sq.mi. or 44% of city destroyed

Refer to D/A report No. 80, 4 June 1945 for itemization of damage to targets.

Previous damage caused by XXI B.C. missions 68 & 69 on 15 April 1945, and on missions where Yokohama city was a target of opportunity.

Partial Bomb plot.

RESTRICTED

A/C INDUSTRIES - TOKYO AREA

MITSUBISHI AIRCRAFT, SHIBAURA PLANT
90.17-327

This is a small plant of the MITSUBISHI COMPANY, the exact function of which is not known. It is variously reported as producing aircraft engines and engine parts, but photo cover indicates little likelihood of production of engines or major engine components.

DAMAGE - In the incendiary raid of 25 May 1945 against Tokyo, 60% of this target was destroyed.

THE NAKAJIMA AIRCRAFT COMPANY
90.17-356

This target is located west by north from the Imperial Palace. The MUSHASHINO-TAMA ENGINE PLANT (Target 90.17-357) is about 2.2 miles west of target #356. The target area extends about 1100 feet N to S and 1100 feet E to W. Besides the research and experimental work being conducted within the area, engine parts and possibly complete engines are manufactured here.

There have been two HE attacks directed against this target of which Mission 199 only was effective.

1. MISSION 199 - 10 June 1945, 314th Bomb Wing participated. 7 A/C dropped 168 (42 tons) AN-M64 500# GP bombs, fuzed with 1/100 sec. nose and ND tail.

DAMAGE - 58,500 square feet (10%) destroyed.

No bomb plot available.

2. MISSION 323 - 10 August 1945, 314th Bomb Wing participated. The primary visual target (356) was ten tenths undercast, and the force attacked the secondary visual and primary radar target (The Tokyo Arsenal Complex).

NAKAJIMA A/C ENGINE WORKS, MUSASHINO
90.17-357

The plant is currently estimated to have produced nearly 40% of all Japanese operational aircraft engines. It produces Army Ha45 and Navy Homare (both 18 cylinder 1800-2000 hp engines) and is believed to be the largest Japanese maker of engines in this hp class. The plant is located 9.75 miles west by north of the Imperial Palace in Tokyo. Located midway between two main railroad lines leading west from Tokyo, and about 4000 feet NNE of a large reservoir.

1. MISSION 7 - 24 November 1944.

24 aircraft of the 73rd wing dropped approximately 240,000 lbs. of bombs. Further data not available.

2. MISSION 8 - 27 November 1944.

No bombs dropped.

3. MISSION 10 - 3 December 1944

73 aircraft of the 73rd wing dropped approx. 365,000 lbs. of bombs. No further data.

4. MISSION 16 - 27 December 1944.

39 aircraft of the 73rd wing dropped approx. 214,500 lbs. of bombs on target. No further data.

5. MISSION 18 - 9 January 1945

18 aircraft of the 73rd wing dropped 90,000 lbs. of bombs. No further data.

6. MISSION 24 - 27 January 1945.

No bombs dropped on target.

RESTRICTED

A/C INDUSTRIES - TOKYO AREA (CONT)

NAKAJIMA A/C ENGINE WORKS, MUSASHINO (CONT)
90.17-357

7. NAVY STRIKE - 17 February 1945:
20 HVAR short delay.
133 100#GP Instantaneous
19 250#GP Instantaneous nose, .025 tail.
65 500#GP Instantaneous nose, .025 tail.
No further data.
8. MISSION 37 - 19 February 1945. Nobombs on target.
9. MISSION 39 - 4 March 1945. No bombs on target.
10. MISSION 51 - 1 April 1945.
115 aircraft of the 73rd wing dropped 4075 X 500#GP (1018.8 tons), 0-0.1 sec nose, .025-6hrs tail on target. No bomb plot. No damage assessment.
11. MISSION 58 - 7 April 1945.
101 aircraft of the 73rd wing dropped 490 X 2000#GP (490 tons) 0.1 sec nose, .025 sec tail. No bomb plot. Damaged several bldgs.
12. MISSION 63 - 12 April 1945.
94 aircraft of the 73rd wing dropped 490 X 2000#GP (490 tons) .025 nose, .025 tail.
13 bursts (6.4%) within 1000 feet of AP.
DAMAGE - (from missions 58 and 63) 886,900 sq. feet of original roof area (48.2%).
13. MISSION 197 - ¹⁰~~28~~ June 1945. No bombs on target.
14. MISSION 320 - ⁸⁻⁷~~16~~ August 1945.
51 aircraft of the 314th wing dropped 5340 X 500# incendiary clusters (1301.9 tons) and 289 X 2000# GP (289 tons) .1 nose, .025 tail
195 visual bursts, 135 within 1000 feet of AP.
DAMAGE TO DATE - 1,274,200 square feet (69.5%) original roof area.

TACHIKAWA AIRCRAFT COMPANY
90.17-792

This was the third largest airframe plant (in floor space) in Japan and it was the fifth largest manufacturer of combat aircraft, producing Army types including Oscar, Ida or its successor the Ki 72, and Clara or Edna. The plant was also reported to produce a new engine bomber-reconnaissance airplane designated as Patsy. In addition to combat aircraft production the plant was reported to assemble some advanced trainers and to produce fuel tanks.

1. NAVY AIR STRIKE - 17 February 1945.
2 bombs 250#GP .025 tail.
4 bombs 500#GP .025 tail.
1 bomb 1000#GP .025 tail.
DAMAGE - Total from Navy strike, 5%.
2. MISSION 57 - 3 April 1945.
61 B-29's dropped 1899 M-64, 500#GP bombs on primary target.
DAMAGE - 17.5%
Total Damage - 23.5%
No bomb plot available.
3. MISSION 96 - 24 April 1945.
11 B-29's dropped approximately 3 tons of 500#GP bombs with instantaneous nose and ND tail.
DAMAGE - 10.4% total damage 33.9%.
No bomb fall plots available.

RESTRICTED

A/C INDUSTRIES - TOKYO AREA (CONT)

ISHIKAWAJIMA ENGINE WORKS AND JAPAN A/C CO., TOMIOKA
90.17-1391/2000

Both of these targets are smaller companies in the Japanese A/C industry. In spite of their small size, the two plants in this location are important units in over-all Japanese A/C production. No figures on production are available, but the presence of 14 test cells is indicative of the possible processing of 200-300 engines per month. Ground reports indicate that some manufacture of engine components take place, and it is possible that engines are brought from the adjoining Tomioka Seaplane Station, target 1402, for repair and overhaul.

The Tomioka area is located on the western shore of Tokyo Bay approx. five miles south of Yokohama Harbor.

1. MISSION 196 - Target 1391, 10 June 1945, 58th wing. 32 aircraft dropped 690 (172.5 tons) AN-M64 500#GP bombs - fuze setting - nose, Instantaneous, Tail, ND. There were no strike photos.

DAMAGE - Target 1391 was not damaged by this strike.
Target 2000 had 247,900 sq. ft. or about 33% of the roof area (748,400 sq. ft.) damaged or destroyed by this strike.

KANEGAFUCHI SPINNING MILL CO.
90.17-1394

Large spinning mill reported licensed to produce aircraft. The plant apparently has been converted to aircraft engine production. It is possible that they are now producing ordnance components. Located in north Tokyo on the east bank of the Sumida River, north of the Japan Bakelite Co. (90.17-1365).

DAMAGE - Minor amounts of damage sustained as a result of XXI BC incendiary mission of 19 February 1945 against Tokyo Urban Areas.

HITACHI ENGINEERING WORKS (KAMEARI PLANT)
90.17-1686

Located in the Adachi section of Tokyo 8 miles NE of the Imperial Palace on the west bank of the Naka River just north of the Kameari.

It is one of the largest Hitachi plants, producing A/C engine parts, machine tools, tractors, tank engines, and heavy industrial equip.

DAMAGE - None is apparent on available photography or reported on Damage Assessment reports.

TACHIKAWA AIR DEPOT, TACHIKAWA
90.17-2008

Principal Army Air Arsenal in Japan proper with airframe and aero engine production in addition to research, experimentation, repair, and modification facilities. Sonia was produced here. There is evidence that the Typel, 1050 engines used in Dinah, Nick, and Topsy were either produced or given complete overhaul at this plant. Eight engine test cells suggests a capacity of between 150 and 175 engines per month. There is no evidence to indicate engine production in quantity. It is possible that these cells are used for "running in" engines. The plant is located about 21 miles west of the Imperial Palace in Tokyo along the Ome Electric Line at the NW edge of Tachikawa.

There have been three HE attacks against this target, of which missions 126 and 200 were effective.

Damage resulting from these missions is approximately 1,623,500 sq. ft. or approx. 38.5% of the total roof area.

RESTRICTED

A/C INDUSTRIES - TOKYO AREA (CONT)

TACHIKAWA AIR DEPOT, TACHIKAWA (CONT)
90.17-2008

1. MISSION 126 - Target Tachikawa Air Depot PV, and city of Hamamatsu PR. 69 A/C of 73rd, and 313th wings hit PV and PR with average load of 11,595 lbs. of this total, 7 A/C from 313th wing dropped 30.1 tons 500#GP 1/100th sec delay nose, non delay tail on PV. 120 bombs dropped on PV.

No Plot.

2. MISSION 178 - Target Tachikawa Air Arsenal (90.17-2008) and A/C Plant (792) PV, Hamamatsu City (PR). 272 A/C of 58th, 73rd, 313th and 314th wings dropped 1486 tons 500#GP on PR. PV was not bombed.

No Plot.

3. MISSION 200 - Target Tachikawa Air Depot (90.17-2008). A/C of the 314th wing dropped 163.5 tons 500#GP (AN-M64 1/100 sec nose, ND tail) on target. Strike attack photos indicate that bombs from two sqdtns. hit the target. Damage resulting: 1,142,100 sq.ft. or 27.8% of total roof area damaged. (Total area is 4,232,500 sq.ft.) 654 bombs were dropped.

No Plot. No bombs dropped on PV.

HITACHI AIRCRAFT, TACHIKAWA PLANT
90.17-2009

Important producer of low-powered aero engines for trainer A/C. Also manufactures 600-900HP aero engines for liaison type and reconnaissance A/C. Probably most important plant of Hitachi Co. Located approx. 19 miles W of the Imperial Palace in Tokyo and about 1 mile N of the Tachikawa A/C Co. (90.17-792), airfield, and Army Air Arsenal (90.17-2008). A road leads south from the plant to the Tachikawa A/C Plant. Target area is irregular in shape. It measures 2000' in a NS direction and 2000' in an EW direction, maximum dimensions. Built-up area is roughly 1,000,000 sq.ft., or about 1/3 of the compound.

1. NAVY STRIKE - 17 February 1945. Total A/C: 84.

<u>No. Bombs</u>	<u>Type</u>	<u>Fuze</u>	
		<u>Nose</u>	<u>Tail</u>
88	HVAR	I	.015
41	250#GP	-	.025
156	500#GP	-	.025
21	1000#GP	-	.025

DAMAGE- 115,000 sq.ft. of built-up area.

62% of bombs fell within target area.

2. WEATHER STRIKE MISSION - 28 April 1945 (WSM E415)

Bomb data not available.

DAMAGE - Minor damage to plant.

3. MISSION 96 - 24 April 1945.

Target Hitachi Aircraft Plant Tachikawa, 73rd, 313th and 314th wings participated. 101 A/C dropped 473.5 tons 500#GP 1/100 nose, ND tail.

DAMAGE - 608,310 sq. ft. (53.5%) of total roof area damaged or destroyed, with heavy damage occurring in the engine assembly and engine parts manufacturing buildings.

Plot of bomb burst areas (by wings) available.

RESTRICTED

A/C INDUSTRIES - TOKYO AREA (CONT)

JAPAN INTERNATIONAL A/C CO., HIRATSUKA PLANT
90.17-2015

Makes fuselages for transports, trainers, and other aircraft. Reported to be making suicide rocket aircraft (possibly Baka). Reported production of electric controlled propellers. Located 34 miles SW of Tokyo Imperial Palace, and 2 miles NW of the mouth of the Sagami R. It adjoins the SE corner of the Navy Arsenal, and is connected by a N-S highway to a station on the Tokaido Main Line RR about 2600' S.

1. MISSION 274 - ¹⁶⁻¹⁷~~31~~ July 1945.
Target Hiratsuka Urban Area.

DAMAGE - 10% destroyed.

RESTRICTED

PETROLEUM - TOKYO AREA

MITSUBISHI/HAYAMA OIL REFINERIES
90.17-116/127

Located 2.9 miles SW mouth Tama River and about 2.5 miles ENE mouth Tsurumi River.

These adjacent targets make up the largest unit on the Kawasaki-Yokohama waterfront for refining crude oil and for the storage of oil & oil products.

Irregularly shaped area of 5,005,800 sq.ft. with a total roof and tank area of 900,104 sq. ft. Total storage capacity 1,472,000 bbls.

1. MISSION 291 - 25 July, HE attack against these targets, dropping 2600x500# AN-M64 bombs (650) tons, used .1 nose and .025 tail. Wind run bombs not included. Radar drop.

DAMAGE - 32% (Target 116) and 36% (Target 127) of total original storage capacity destroyed and damaged. Misc. damage throughout the area. Flash report only.

2. MISSION 310 - 1 August, HE attack against these targets, dropping 4069x 500# AN-M64 bombs (1017.2 tons) fused .1 nose and .025 tail. Wind run A/C bombs not included. Radar drop.

DAMAGE - (Total for MISSIONS 291 & 310). Target 116 practically inoperative with 12 of 14 primary buildings destroyed, while 40% of the primary structures of target 127 were destroyed. At 116, 38% of storage and 30% of intermediate tank capacities were destroyed or damaged, and at 127, 44% of storage and about 26% of intermediate capacities were destroyed or damaged.

KAWASAKI PETROLEUM CENTER
90.17-128

Located on Kawasaki waterfront about 1 1/2 miles E Tsurumi River mouth.

Major oil storage target and 7th largest crude oil refinery in the Inner Zone.

1. MISSION 267 - 12 July, HE attack on this target, dropping 1808x 500# AN-M64 bombs (452 tons) fused .1 nose and .025 tail. Radar drop.

DAMAGE - Widely scattered damage with the major destruction in the warehouse areas of 128A & 128B. Damage also visible in 128C where only fractionation units are located. Of the 84,400 bbls. storage capacity (9% of total) damaged, 33,400 bbls. were damaged previously by an unknown mission.

2. MISSION 310 - 1 August, HE attack on this target, dropping 4069x 500# AN-M64 bombs (1017.3 tons) fused .1 nose and .025 tail. Radar drop.

DAMAGE - Damage was scattered over the target area and into the adjoining targets. A heavy concentration fell in 128C where storage, refining units, and warehouses were destroyed or severely damaged. 42% of the oil storage capacity was destroyed or damaged with possibility of additional damage by near misses. Total storage capacity destroyed or damaged to date equals 51%.

MISCELLANEOUS PETROLEUM TARGETS
90.17-910, 911, 1366

1. MISSION 40 - 9 March, IB attack against Tokyo Urban. Bombs used: M47A2, E28, E46, total 1665 tons.

DAMAGE - Target 910-Rising Sun Pet. Ctr. - destroyed, 911-Ogura Oil Co, - destroyed, 1366-Nippon Oil Co. - damaged.

RESTRICTED

HEAVY INDUSTRIES, MACHINE TOOLS - TOKYO AREA

SHIBAURA ENGINEERING WORKS

90.17-133

Located on the Kawasaki waterfront about 1 mile NE of the Tsurumi River mouth.

Plant produced approximately 1/3 of the Japanese heavy electrical equipment (generators, transformers, etc.) and was a major producer of heavy high-precision machine tools. It was one of the two known Japanese manufacturers of heavy steel rolling mill equipment.

DAMAGE - None reported or visible on available photography.

TOKYO GAS AND ELECTRIC ENGR. CO.

90.17-331

Located in SE Tokyo near Tokyo Bay approximately 6 miles SSE of the Imperial Palace and 700 feet west of the ship canal between the shore and the filled land.

The plant is a Hitachi concern and one of the leading Japanese machine tool producers. It also produced most types of grinders, ordnance, aircraft and engine parts. It was possibly the most important producers of milling machines.

The plant is located in an irregularly shaped area of approximately 1.2 million square feet. The main 7 buildings cover approximately 205,000 square feet.

1. MISSION 68,69 - 15 April, IB attacks on Kawasaki and South Tokyo.

DAMAGE - One large and two small buildings (approximately 5% of the plant) destroyed.

2. MISSIONS 181, 183 - 24-26 May, IB attacks against Tokyo Urban.

DAMAGE - One building destroyed.

MITSUBISHI HEAVY INDUSTRY (OIMACHI PLANT)

90.17-799

This plant in SW Tokyo near the waterfront about 1/2 mile SW of the Oi RR Works (90.17-370) and adjoining Nippon Light Works to the east. It is reported to manufacture Aero-engines, and is possibly part of Mitsubishi Tank Factory.

DAMAGE - This target was 25% destroyed (C.I.U. D/A Report #81) in the incendiary raid against Tokyo on 25 May 45.

JAPAN MILITARY GOODS CO. (TOMIOKA PLANT)

90.17-899

Located midway between Yokohama and Yokosuka, west of the Shonai Electric railroad tracks.

This plant is one of the leading private manufacturers of automatic weapons and ammunition and of high-precision machine tools.

DAMAGE - None is apparent on available photography or reported on Damage Assessment reports.

RESTRICTED

HEAVY INDUSTRIES, MACHINE TOOLS - TOKYO AREA (CONT)TOKYO MEASURING INSTRUMENT WORKS

90.17-919

Reported largest precision instrument plant in the far east, Produces aircraft instruments, searchlights, compasses, marine steering gear. Located south of Tokyo, two miles northwest of Haneda Airport.

DAMAGE - This plant was 80% destroyed by incendiary missions 68 and 69, 15 April 1945. These missions were flown against Tokyo urban areas.

MITSUI MACHINE TOOL CO. (OGEKAWA PLANT)

90.17-1687

Located along the railroad about 7 miles NNW of Omiya and the Imperial Government Railroad shops.

The plant was built to specialize in production of high-precision grinders of the Norton type, important for the aircraft and armament industries.

DAMAGE - Damage Assessment reports and available photography show no apparent damage to this target.

EBARA MFG. CO. (KAMATA PLANT)

90.17-2026

Located in S. Tokyo just N of the mouth of the Tama River and across the canal from the airport.

Plant was a major producer of machine tools used in ordnance manufacture. It made large size boring and turning mills.

1. MISSIONS 68,69 - 15 April, IB attacks against Kawasaki and South Tokyo.

DAMAGE - Though no damage is apparent from available photography, there is a possibility of some damage from these attacks.

RESTRICTED

CHEMICAL INDUSTRIES - TOKYO AREA

SHOWA FERTILIZER CO.

90.17-137

DAMAGE - Severe damage listed for MISSIONS 291, 310. Photography does not permit separation of damage between these two attacks, though damage from mission 310 is believed greater.

YOKOHAMA RUBBER CO.

90.17-141

DAMAGE - At least 40% destroyed by MISSIONS 68, 69. Smoke on photography observed center of target, but 4 major buildings and several small shops were destroyed and burned out.

TOKYO ARTIFICIAL FERTILIZER CO.

90.17-204

DAMAGE - 5% destroyed - 2 medium, 10 small buildings destroyed, one large building roof damaged by MISSIONS 181, 183. These missions were assessed together for damage.

MEIJI SUGAR FACTORY

90.17-487

DAMAGE - 30% destroyed - 5 small buildings destroyed with possible damage to remaining buildings. MISSIONS 68, 69.

NIPPON CARBON PLANT NO. 1

90.17-499

DAMAGE - 90% destroyed by MISSION 186.

TOKYO GAS COMPANY

90.17-907

DAMAGE-- Virtually destroyed (2 gasometers standing) by MISSION 40.

JAPAN REFINING WORKS

90.17-1397

DAMAGE - Possible damage by MIS ION 40 though it is not listed on the D/A report, fire damage evident near the plant.

HODOGAYA SODA CO.

90.17-1399

DAMAGE - Destroyed. 80% destroyed - 2 large buildings destroyed and 2 large buildings gutted by MISSIONS 68, 69. 20% destruction by MIS- SION 186.

RESTRICTED

ELECTRONICS INDUSTRIES - TOKYO AREANIPPON ELECTRIC CO. (MITA PLANT)

90.17-326

Located 2½ miles south of the palace, ¾ mile west Tokyo Bay and 2½ miles north of Shinagawa railroad yards.

This plant is one of the most important Japanese manufacturers of radio and radar components and telephone and telegraph equipment.

1. MISSIONS 181 & 183 - 24-26 May. IB attack on Tokyo Urban destroyed one small building in this target. AC/AS (WDC) assesses the damage at 2.5% of roof area.

2. NAVAL AIR STRIKE - 13 August. 3rd Fleet Air is reported to have attacked this target on this date, but no reports are available.

SHIBAURA ELECTRIC CO. (PLANT 2)

90.17-488

Located in Kawasaki on N side of the Tokaido RR about 1/3 mile S of the Tama River.

This plant is the 3rd most important electronic tube manufacturer in Japan. It also makes other radio and radar components.

1. MISSIONS 68 & 69 - 15 April, Kawasaki and Tokyo Urban. IB attack.

DAMAGE - 10% damaged, 3 small buildings destroyed and 4 gutted.

No bomb plot available.

2. NAVAL AIR ATTACK - 13 August. HE attack against this plant dropping 1x1000# GP and 1x2000# GP (1.5 tons) fuses .01 nose and .025 tail. Results unknown.

SHIBAURA ELECTRIC CO. (PLANT 1)

90.17-496

Located in Kawasaki within the angle formed by the Tama River and the Tokaido Main Line Railroad and directly east of Target 488.

This plant performs all major processes required for large scale manufacture of radio and radar receiving tubes. Also contains an electronics research laboratory.

1. MISSIONS 68 & 69 - 15 April. IB attack on Kawasaki and South Tokyo resulted in the destruction or damage of 174,400 sq. ft. (51.2%) of roof area.

2. NAVAL AIR STRIKE - 13 August. HE attack against this target with 18x2000# GP fused .01 nose and .025 tail, 29x1000# GP fused .01 nose and .025 tail, 8x250# GP fused .1 nose and .02 tail (total 32.75 tons) Results unknown.

RESTRICTEDNUMAZU URBAN
90.18

Numazu (35°06'N-138°52'E) is an important area of industrial concentration containing several large ordnance and armament plants, and a great number of smaller textile mills, electrical machinery plants, foundries, at least one electro-metallurgical plant, and possibly plants producing military vehicles. It is also an important Army manufacturing and depot center, and a vital transportation link on the E-W Tokaido Mainlines. The harbor at the mouth of the Kano River provides large lighter basin, warehouse facilities and rail connections.

Numazu is located at the NE end of Suruga Bay, about 25 miles SE of Mt. Fuji, and 32 miles NE of Shizuoka. The Kano River, opening into Suruga Bay, bisects the Urban pattern of the city.

Numazu had a 1940 population of about 55,000, and the city's built-up area is approx. 1.4 sq. miles. There are many large and small plants scattered throughout the Urban pattern.

1. MISSION 271 - night of 16-17 July 1945, 58th Wing participated, dropping a total of 1035.8 tons over primary and 3.2 tons over secondary target of opportunity, at 170213K-170352K from 10,600-11,600 ft, 7/10-10/10 clouds over target. Bombs dropped AN-M47A2, AN-M17A1, E46.

DAMAGE - 1.25 sq. miles or 89.5% of city was destroyed.

Damage to targets within built-up area:		<u>Damage</u>
90.18 - 1181 - RR Station, yards & roundhouse		Minor
90.18 - XXI BC - 6050 - U/I industry (arsenal area)		35%
U/I industrial areas (3)		100%
U/I industrial areas (1)		80%
Two easternmost bridges		100%

Damage to targets outside built-up area within 5 mile radius of center of city:		
90.18 - 2116 - Kokusan Electric Mfg. Co.		3 bldgs. destroyed of Mishima Plant

No previous missions
No bomb plot

RESTRICTED

SHIMIZU URBAN
90.18

Shimizu is the only deep-water harbor between Tokyo and Nagoya. With a pre-war population of 68,000 and ranking seventh among Japanese ports in value of overseas trade, Shimizu also handled, by way of the double-track Tokaido RR, a considerable volume of coal and other coastwise traffic for Hamamatsu, Shizuoka, and Numazu - all now war industry centers.

Shimizu is the site of a sizeable steam power station and Japan's largest alumina plant, which uses imported bauxite and primarily supplies Target 90.10-1177 (Japan Light Metals, Aluminum Plant) at Kambara, 10 miles NE. Aircraft components plants, boatbuilding and repair yards, minor oil refining facilities, lumber mills and food-packing plants constitute the other industry. Reconnaissance has confirmed reports that fleet units use Shimizu at intervals.

Shimizu is located at the head of Suruga Bay, midway between Tokyo and Nagoya on the main railroad and highway connecting these centers. To the E, Miho Point (site of the alumina plant, power station and boatyards) protects the harbor and extensive anchorage area, which can accommodate vessels drawing 30 feet. The town proper extends along the Tomoye River, the Tokaido RR and the wharves on the western edge of the harbor. In addition to the rail sidings and handling facilities near the station, a spur leads around the shallow southern end of the bay to industries and military storage areas on Miho Point. Dockside warehouses are also served by rail. An electric line and improved highway as well as the Tokaido RR lead to Shizuoka city 8 miles SW.

1. MISSION 253 - night of 6-7 July 1945, 313th Wing participated, dropping a total of 1029.6 tons, at 070133K-070310K from 7100-8300 ft. 4/10 - 10/10 clouds over target. Bombs dropped: AN-M47A2 (100# IB Inst) and AN-M17A1 (500# IC Inst.)

<u>DAMAGE</u> -	Sq.Miles	Sq.Mi.	Per-
	<u>Built-up area</u>	<u>Damaged</u>	<u>cent</u>
Industrial area along harbor	.53 sq.mi.	.13 sq.mi.	25%
Commercial-Residential area	.88 sq.mi.	.58 sq.mi.	65%
TOTAL	1.41 sq.mi.	.71 sq.mi.	50%
Sq. Mi. Damaged previous XXI BC Mission03 sq.mi.	
Total damage to date :		.74 sq.mi.	52%
Damage to targets within built-up area:			
90.18 - 1178 - Shimizu Docks			40%
90.18 - XXI BC - 6000 - Shimizu plant of Fuji Eng. Co.			40%
" " 6002 - Shimizu RR Sta. & Trans-shipping Dep.			30%
" " 6080 - Honan Vegetable Oil Plant			55%

Previous XXI BC Mission caused slight & scattered damage.
No Bomb plot

RESTRICTEDSHIZUOKA URBAN

90.18

Shizuoka City, prefectural capital and tea-packing center, had a pre-war population of 212,000. An old-time infantry training center its strategic importance is focused on two new war plants located directly east of the city - a Mitsubishi aircraft engine works and a related Sumitomo components plant. One of the city's textile mills along with small iron works, etc., are reported now devoted to war production.

Shizuoka is located mid-way between Tokyo and Nagoya on the narrow coastal plain west of Suruga Bay. The broad Abe River which borders Shizuoka on the west is not suitable for navigation, but the city is served by the double-track Tokaido railroad and a trunk highway, both of which lead through the deepwater port of Shimizu, located 8 miles NE. In addition to the barracks in the former Castle grounds, new military installations have been constructed NE of the city.

The textile mills and new aircraft plants are located outside the city proper to the east, but considerable warehousing and light industry is intermixed with residences in the west section of the built-up area and adjacent to the railroad. A sizeable part of the central residential-commercial section was burned out in 1940. As rebuilt, this area-extending from the railroad to the Castle grounds-is considerably less congested than adjoining sections of the city.

1. MISSION 212 - night of 19 June 1945, 314th BW participated dropping 868.3 tons over primary and 9.6 tons on secondary target of opportunity, at 0151K - 0354K, from 8000-12,000 ft. 0/10-2/10 clouds over target. Bombs dropped: E-46, AN-M47A2

DAMAGE - 2.25 sq.Mi. or 66% of city was destroyed
.03 sq.mi. of city was destroyed on previous mission

Damage to targets within built-up areas	
Toyo Textile Mill	10%
Ogura Ammunition Storage	60%
Gas Works	80%
RR yards and shops	20%
Shizuoka Castle Infantry Barracks	80%
Light Industrial District	90%

Damage to targets outside built-up area.	
90.18 - 2011 - A/C engine works (destroyed & pre-Mission)	86%
90.18 - 2024 - Sumitomo Light Metals (5% pre-mission)	76%
Probable textile mill	25%

Bomb Plot work sheet available.

RESTRICTED

SHIZUOKA A/C ENGINE WKS.
90.18-2011

This plant lies about 1.3 miles E of SHIZUOKA station, and was thought to be just getting into production in March 45. The then existing plant was not believed to exceed 20% of ultimate capacity. Eventual capacity of the existing plant was estimated to be 500-600 Aero-Engines per month.

1. MISSION 55 - 3 April 45, 48 A/C dropped 725 (181.2 tons) of bombs as follows: 705 (176.2 tons) M-64 (500#GP) and 20 (5 tons) M-76 (500# IB).. The GP bombs had a .01 nose fuze and a N.D. tail fuze. The IB bombs had inst. nose fuzes and no tail fuzes.

This being a night mission there were no strike photos or damage assessment reports.

2. MISSION 63 - 12 April 45, 11 A/C dropped 56 (56 tons) AN-M66 (2000# GP) bombs visually on target 2011 as a target of opportunity. These bombs had .025 nose fuzes and .025 tail fuzes. 40 bombs or 71.4% of total dropped fell within 1000' of AP.

DAMAGE - 823,000 sq. ft. or 86% of the original roof area in the target proper.

RESTRICTED

GIFU URBAN

90.20

GIFU is located approx. 22 miles NNW of Nagoya. The city has a population of 172,000, concentrated in a built-up area of 2.6 sq. mis.

1. MISSION 260 - 9-10 July 1945, 314th B.W. participated, dropping a total of 898.8 tons on primary and 8.7 tons on opportunity, between 100034K- 100220K, from 14,720 - 17,700', 0/10 clouds over target. Bombs dropped: AN-M47A2, E-46.

DAMAGE - 1.93 sq. mis. or 74% of the city was destroyed.

	<u>Damage</u>
RR Station & Yards	90%
Nippon Woolen Mill	100%
Mine Electric RR Co.	100%
Kydo Textile Mill I	100%
" " " II	100%
" " " III	100%
" " " IV	100%
Fuji Gas Yarn Mill	100%
Nippon Spinning & Weaving Co.	100%
Nippon Woolen Thread Co.	100%
Kanagafuchi Spinning Mill	100%
Regimental District Hdqs.	100%

Damage outside built-up area (within a radius of 5 miles):

90.20 - 240 - Kawasaki A/C works	60.2%	all damage prev.
- 249 - Kagamigahara Milit. AF	75.4%	" " "
-1833 - Mitsubishi A/C Wks.) Kagamigahara Plant)	77.5%	" " "

No previous damage to Urban Area.

Tgts. 249 & 1833 hit by mission 228, 26 June 1945.

Tgt. 240 hit by mission 231, 26 June 1945.

Bomb Plot Work Sheet available for mission 260.

ICHINOMIYA URBAN

90.20

ICHINOMIYA is one of a series of secondary cities within a radius of 30 miles of Nagoya, a city which early in the war began to convert into satellites of Nagoya's A/C industry. The city is a secondary RR center on the Tokaido Main Line, and former Kiso River Textile Center, which has rapidly developed into a munitions center; at least two large textiles mills in the city were converted into chemical plants, and a third converted to manufacturing A/C parts and doing sub assembly work for Kawasaki A/C at Kagamigahara.

ICHINOMIYA is 9 miles NW of Nagoya, 27 mi. due E of Maibara and the E edge of Lake Biwa. It is 9 mi. SE of Gifu.

ICHINOMIYA, in 1940 had a population of approx. 50,000, concentrated in a built-up area of 1.28 sq. mi. The city is old with typical inflammable construction, congested.

1. MISSION 264 - 12-13 July 1945, 73rd B.W. participated, dropping 772 tons on primary (AN-M47A2, 100#IB inst.) and 12.6 tons on opportunity between 130154K - 130345K, from 6,000' - 12,200', 10/10 clouds over target.

DAMAGE - .02 sq. mi. or 0.8% of city was damaged. Refer to Statistical Summary for Target Damage.

2. MISSION 299 - Night of 28-29 July 1945, 73rd B. W. participated, dropping 868.8 tons on primary and 16.7 tons on secondary targets of opportunity, between 282356K - 290148K, from 13,500' - 16,700', 4/10 to 8/10 clouds over target.

RESTRICTED

ICHINOMIYA URBAN (CONT)

90.20

<u>DAMAGE</u>	<u>Built-up Area</u>	<u>Destroyed</u>	<u>Percent</u>
Damage Current Strike	1.28	.96	75%
Damage from old Strikes	1.28	.97	76%

Damage to Targets Within Built-up Area.

Destruction

90.20 XXI 4099 Textile Mill (Reported munitions)	100%
90.20 XXI 4100 Textile Mill (Reported munitions)	100% (20% old.)
90.20 XXI 4101 Nippon Tex. (Reported Kawasaki A/C Co)	100%

Damage outside built-up area (within 5 miles radius of city's center)

Scattered - about .02 sq. miles.

Previous Mission caused scattered damage in NW section of city.

No bomb plot available.

OGAKI URBAN

90.20

OGAKI is an important medium sized industrial city which supplies A/C parts, munitions, chemicals, machine tools, light metals and iron products to the big industrial plants in and around Nagoya. There are about 36 small industries in OGAKI of which 9 plants are numbered targets.

OGAKI is located 17.5 miles NW of Nagoya Castle, 7.5 miles SW of Gifu and 10 miles NW of Ichinomiya. The city lies in the NW section of the Nagoya plain, immediately W of a narrow valley which separates the Suzuka Highlands from the Wagara Mts., and the valley connects the Biwa Basin with the Nagoya plain.

OGAKI is a city of 56,117 population. Concentrated in a built-up area of 1.20 sq. mi. The city is roughly a square in shape with a population density of about 45,000/sq. mi.

1. MISSION 301 - night of 28-29 July, 1945, 314th BW participated, dropping a total of 658.7 tons, between 290152K-290350K from 14,000'-16,400', 2/10-5/10 clouds over target.

Bombs Dropped:

E-46, AN-M17A1, AN-M47A2.

DAMAGE -.48 sq. mi. or 40% of city was destroyed.

Damage outside built-up area (5 Mi. radius of city)

90.20-1882 Ibigawa Electrical - Chemical Co.	10%
XXI - 4080 Nippon Cotton Spinning Co.	20%
XXI - 4081 Dai Nippon Chemical Plant	50%
Chuo Woolen Mill	80%
Shinko Woolen Mill	80%
U/I Industry	90%

No previous missions.

No bomb Plots.

OKAZAKI URBAN

90.20

OKAZAKI is another of the cities developed in recent years to absorb the overflow of Industry from Nagoya City. In prewar days, OKAZAKI was primarily concerned with agriculture and textile manufacturing but today it is turning out implements of war such as: A/C parts, ordnance, electrical equipment, and innumerable light metal parts for various industries. In addition there are countless "backyard" shops throughout the city.

OKAZAKI is located on the Yahagi and Ohira Rivers, 18 miles NW of

RESTRICTED

OKAZAKI URBAN (CONT)

90.20

Toyohashi city, and 9 mi. due E of the mouth of the Sakai River.

OKAZAKI has a population of about 84,073, concentrated in a built-up area of .95 sq. mi. It is an "L" shaped city, bounded on the S by the Ohira River, on the W by a 2000' wide open delta and the Yahagi River, and on the N and W by low wooded hills.

1. MISSION 287 on the night of 19-20 July 1945, the 314th B.W. participated, dropping a total of 850 tons on the primary and 6.3 tons on opportunity, between 200152K - 200310K from 12,700'-16,300', 0/10-9/10 clouds over the target.

Bombs dropped: AN-M47A2, AN-M17A1 and E-46.

DAMAGE - .65 sq. mi. or 68% of the city was destroyed.

Damage to Targets within the built-up area:
Refer to D/A report No. 159, 1 August 1945.

Damage outside built-up area:

Three small residential areas totalling 0.03 sq. mi. destroyed.

No previous missions.

No bomb plot available.

TSU URBAN

90.20

TSU is another of the highly industrialized cities developed in recent years, to absorb the overflow of industrial expansion in the Nagoya area. Prior to the war TSU was important for its textile manufacturing and light metal work. However, today, with the wartime conversion that has taken place in small Japanese cities, it is believed that most of the industrial plants within TSU and its environs have been converted to wartime production.

LOCATION AND IDENTIFICATION: TSU is situated on the coastal plain 34 miles SW of NAGOYA. Irrigated rice fields and low deltas characterize the immediate area N and S of TSU. Low rolling hills rise to the W and ISE Bay is to the E.

TARGET DESCRIPTION: TSU is a very compactly built city of more than 2 sq. mi. It has a population of 68,625 people and a population density of 30,000 persons per square mile. The overall dimensions of the target area are 8,000' N-S and 10,000' E-W. A small river, used as a harbor, cuts through the middle of the city and constitutes the most effective firebreak which spans the entire N-S axis of the city.

1. MISSION 288 - night of 24 June 1945, 313th BW participated, dropping a total of 280.3 tons on primary and 14.8 tons on opportunity, between 241127K-241154K, from 15,800'-18,600', 10/10 clouds over tar.

<u>TYPE BOMBS</u>	<u>OVER PRIMARY</u>	<u>OVER SECONDARY</u>
AN-M64 (500#GP)	280.3 tons	14.8 tons

2. MISSION 289 - night of 24 July 1945, 314th BW participated dropping a total of 298 tons on primary and 5 tons on opportunity, between 241138K-241154K from 18,000'-22,600', 10/10 clouds over target.
Refer to Statistical Summary.

Bombs dropped: AN-M56 (400#LC) and AN-M64 (500#GP)

3. MISSION 297 - night of 28-29 July 1945, 58th BW participated, dropping a total of 729.8 tons (E-48 500#IC), between 290047K-290156K from 11,000'-11,600', 8/10-10/10 clouds over target.

STATISTICAL SUMMARY:

Previous Mission Unknown .021 sq. mi.

Damage M-288) ----- .238 sq mi.

Damage M-289) ----- .93 sq. mi.

Damage M-297 ----- .93 sq. mi.

TOTAL 1.189 sq. mi. or 81% of city destroyed.

RESTRICTED

TSU URBAN (CONT)
90.20

Damage to Targets

U/I industry - 100% destroyed.

One small area outside of the built-up area: .02 sq. miles.

No bomb plot available.

YOKKAICHI URBAN
90.20

1. MISSION 209 - night of 17 June 1945, 313th BW participated, dropping 567.3 tons, between 0246K-0405K from 7,000'-7,800', 7/10 clouds over target. Bombs dropped: AN-M17A1, AN-M47A2, and E-46.

DAMAGE: - 1.23 sq. mi. or 35% of the city was destroyed.

Target Damage

- 90.20-1684 Utsube River Oil Refinery - 0.5% damaged.
- 1685 Metaki River Oil Refinery - 10% damaged.
- 1776 Ishihara Smelter & Refinery 5% damaged.
- 1773 Yokkaichi Harbor Facilities 20% damaged.
- XXI-4052 U/I industry 95% damaged.
- XXI-4053 U/I Shipway 20% damaged.
- XXI-4054 U/I industry 25% damaged.

No previous missions.

No bomb plots available.

YOKKAICHI is located on ISE BAY, 20 miles SW of NAGOYA. The city has a population of about 102,000, concentrated in an area of 3.51 sq. mi.

RESTRICTED

KUWANA URBAN

90.20

Kuwana is an important industrial city SW of Nagoya. It is part of the Nagoya War Production Center which is one of the four largest in Japan and supplied such items as anti-friction bearings, A/C parts, electrical equipment, machine tools, duval sheets and special steels to the Japanese War Machine.

Kuwana is located on the west bank of the IBI River in the open coastal plain 12 miles SW of Nagoya.

Kuwana had, prior to the war, a population of about 20,000 concentrated in the congested built-up area of .82 sq. mi. Due to its increasing importance, the populations doubled in the past ten years, making its present population about 42,167.

1. MISSION 273, Night of 16/17 July 45, 313 BW participated, dropping a total of 693.3 tons on primary and 16 tons on targets of opportunity, between 170225K - 170340K from 10,200 - 11,300 ft. 10/10 clouds over target. Bombs dropped: AN-M47A2, AN-M47A3, and E-46.

DAMAGE: .63 Sq. Mi. or 77% of city was destroyed.

Damage to targets within built-up area:

90.20-1779 Gamamoti Heavy Industry - 30%
Converted Textile Mill - 80%

Damage outside built-up area:

90.20-1815 Toyo Bearing Co. - 30%

Bomb Craters noted: N. of City &

S. of City near Target 1814.

Total area damaged outside city from all strikes: .05 sq. mi.

Previous missions were probably 20AF Nos. 285, 286, on 24 Jul 45.

No bomb plot

RESTRICTED

NAGOYA URBAN

90.20

1. MISSION 41 - City attacked 11 March 45 by 280 A/C of the 73rd, 313th and 314th Wings. Time of attack 1519Z-1817Z, from altitudes of 5100'-8500' thru 1/10-9/10 undercast. Bombs dropped: 889.6 tons E-28 fused for 2000' air burst, 787.8 tons E-46 fused for 2500' air burst, 112.4 tons M-47A2 fused Inst. nose, ND tail.

DAMAGE - Negligible

2. MISSION 44 - City attacked 18 March 45 by A/C of the 73rd, 313th, and 314th Wings. 290 A/C participated. Time of attack 1704Z-1948Z, altitude of attack 4500'-9000', thru 2/10-10/10 undercast (plus smoke) Bombs dropped: 958.4 tons M447A2, 114.5 tons M-17A1, 36.5 tons E-28, 181.0 tons E-46, 54.4 tons E-36, 493.5 tons M-76, 19.0 tons M-64 and .2 tons T4E4.

DAMAGE - 2.95 sq. mi. urban area burned out, including damage to five major industries. Numerous small scattered fires throughout city.

3. MISSION 174 - City attacked 14 May 45 by 472 A/C of the 58th, 73rd, 313th, and 314th Wings at 2305Z-0025Z from altitude 16,200-20,500'. Bombs dropped: 2471.6 tons E-46, 43.5 tons E-36.

DAMAGE - 3.15 sq. mi. burned out. Many scattered fires throughout city.

4. MISSION 176 - City attacked 16 May 45 by 457 A/C of the 58th, 73rd, 313th and 314th Wings. Bombing was from 6,600'-18,340', time of attack was 1705Z-1958Z. Bombs dropped: 3406.7 tons M-17A1 (158 bombs dropped safe), 126.7 tons M47A2, 75.6 tons E-46.

DAMAGE - 3.82 mi. of urban area destroyed. (Damage separation between Mission 174 and 176 is arbitrary due to lack of interim photography).

RESTRICTED

A/C INDUSTRIES - NAGOYA AREAMITSUBISHI A/C CO., ENGINE WORKS
90.20-193

This plant is located in the northeast corner of Nagoya along the S bank of the Snonai River about 2½ miles east of the Nagoya Castle.

Intelligence indicated that Mitsubishi produced at this plant as many 14 different types of engines for both Army and Navy planes. It was estimated that this plant turned out more than 1600 operational engines per month, or 40% of the Japanese total.

A large proportion of the engines went to the Mitsubishi A/C Works, (90.20-194), but engines were also sent to the Assembly Plants of Kawanishi A/C Co., (90.25-18) (90.20-1729) (90.13-1545) and (90.25-1547).

DAMAGE - Total damage to plant is 3,584,100 sq. ft. or 94%.

1. MISSION 12 - 13 Dec. 44 by 73rd Wing. 71 A/C bombed target. Other bomb data unavailable - Bombing results reported as good. No damage assessment available.

2. MISSION 14 - 22 Dec. 44 by 73rd Wing. 48 A/C bombed primary target by radar. No bomb strike photos or damage assessment.

3. MISSION 22 - 23 Jan. 45 by 73rd Wing. 28 A/C bombed target with unsatisfactory results due to weather conditions. No bomb data or damage assessment.

4. MISSION 34 - 15 Feb. 45 by 73rd and 313th Wings. 33 A/C dropped 244 (61 tons) AN-M64(500# GP), 38 (9.5 tons) AN-M43(500# GP), 126 (31.5 tons) M-17A1(500# ICLU), and 9 (2.2 tons) AN-M76(500# IB) bombs. Total bombs dropped, 417(104.2 tons). Average fuse setting of nose .1, tail ND. Number of bombs falling within 1000' of the aiming point was 16 or 6% of the bombs dropped.

DAMAGE - 203,000 sq. ft. or 5.4% of the total roof area damaged or destroyed.

5. MISSION 45 - 24 Mar. 45 by 73rd, 313th, and 314th Wings. 223 A/C dropped a total of 6031 bombs (1507.6 tons) as follows; 4776 AN-M64 (500# GP), 466 M-76(500# IB), 785 M-17A1(500# IC), 4 M-81(260# frag). The 500# GP's had a .01 nose fuse and N.D. tail fuse. The 500# IB's had inst. nose fuse and N.D. tail fuse. The 500# IC's had a 14.1 nose fuse and no tail fuse. The 260# frags had inst. nose fuse and no tail fuse.

DAMAGE - 173,500 sq. ft. or 4.5% of total roof area damaged.

No bomb plot available.

6. MISSION 48 - 30 Mar. 45 by 314th Wing. 12 A/C bombed primary dropping 199 (49.8 tons) M-64(500# GP) bombs. Fuse setting was nose inst. and tail .025. No bomb plot as this was a night mission.

DAMAGE - Bombing results poor. No new damage visible.

7. MISSION 59 - 7 Apr. 45 by 313th and 314th Wings. 153 A/C bombed primary dropping 2443 (610.7 tons) AN-M64(500# GP) bombs with .01 nose fuse and inst. tail fuse.

DAMAGE - 2,370,821 sq. ft. was damaged or destroyed -62.2% of total roof area.

A total of 36 bombs fell within 1000' of the AP which was 2.5%.

8. MISSIONS 174,176 - Target North Nagoya Urban area, 14 and 16 May 45 by the 58th, 313th and 314th Wings. Dropped IB's on the primary and very slight damage was done to the SSW area of the plant. Insufficient damage assessment data available.

RESTRICTED

A/C INDUSTRIES - NAGOYA AREA (CON'T)MITSUBISHI AIRCRAFT WORKS

90.20-194

The largest combat aircraft assembly plant in Japan producing Jack, Zeke, Sam and Betty for Navy, and Dinah, Sonia, Peggy and Tiayan for the army. Two sections of the plant engaged in production of unknown types and probably providing wings used in above mentioned production.

1. MISSION 13 - 18 Dec. 44, 63 A/C of 73rd Wing dropped 157.5 tons of HE bombs. (type and fusing unknown).

DAMAGE - 921,670 sq. ft. damaged or destroyed. No bomb plot.

2. MISSION 19 - 14 Jan. 45, 40 A/C of 73rd Wing dropped 100 tons of HE bombs (type and fusing unknown).

DAMAGE - About 166,100 sq. ft. destroyed and damaged. No bomb plot.

3. MISSION 176 - 16 May 45, Fire raid on Nagoya Urban.

DAMAGE - 39.5% damaged or destroyed. No bomb plot.

AICHI A/C WORKS, ATSUTA PLANT

90.20-198/2010

The Atsuta plant carries a combination target number - 198/2010, of which 198 applies to the eastern and older and larger section of the plant. The 2010 represents the western and newer section of the plant, and is the center of A/C production for this target.

Aichi was, with Kawasaki, one of the two known companies manufacturing in-line engines. These engines were used in the Navy SE dive-bomber Judy and in the new SE bomber Seiran. The estimated production of this plant was 175-200 engines a month.

1. MISSION 44 - Primary target: Nagoya Urban area on 18 Mar. 45 by A/C of the 73rd, 313th, and 314th Wings. 290 A/C dropped 1858 tons of 500#GP, M-69, AN-M17A1, E-28, E-36, and E-46 bombs.

DAMAGE - In this raid 36,400 sq. ft. of plan area or 7.1% of the total plan area, of 2010 was damaged or destroyed. No bomb plot.

2. MISSION 193 - Target 198/2010 on 9 June 45 by 313th Wing. 41 A/C dropped 265 tons of AN-M66(2000#GP) and AN-M56(4000#GP) bombs. All bombs were fused with inst. nose and ND tail.

DAMAGE - Both targets were heavily damaged or destroyed (31% destroyed or structural damage: 64.7% superficial damage). Target 2010 has 53% of its total roof area damaged or destroyed. Total damage to date to this plant is 65% of its total roof area. No bomb plot available.

RESTRICTED

A/C INDUSTRIES - NAGOYA AREA (CON'T)

KAWASAKI AIRCRAFT CO., KAGAMIGAHARA PLANT
90.20-240

This plant is believed to assemble the "Tony" SE in-line fighter, the Army 2E bomber "Lily" and other Kawasaki aircraft. Prior to XXI BC attack of 19 Feb.45, on the Kawasaki A/C, Akashi Plant (Target 1547) this company ranked third among Japan's principal aircraft manufacturers, producing roughly 15% of the Japanese combat A/C. It manufactured A/C for the Army only.

1. MISSION 219 - 22 June 1945, 17 B-29's dropped 116 tons (50 bombs) of AN-M56 (4000# LC bombs), and AN-M66 (2000# G.P.) with instantaneous nose and non-delay tail. Bombs of the first squadron fell 700' SE of the briefed M.P.I., 8 bombs landed within 1000' of M.P.I.

DAMAGE - 33.5% damaged or destroyed.

2. MISSION 231 - 26 June 1945, 25 B-29's dropped 143 tons (572 bombs) of AN-M64 (500# G.P.) with instantaneous nose and non-delay tail. 79 bombs within 1000' of M.P.I.

DAMAGE - 22.5%

NAKAJIMA A/C PLANT at HANDA
90.20 - 1635

This target was the second largest Nakajima Plant assembling Navy aircraft. The assembly of Jill and Myrt were confirmed by fuselage logs and maker's plates. Reports that the Rufe was also in production here lack confirmation.

1. MISSION 290 - 24 July 1945, 77 B-29's dropped 2149 bombs (537.3 tons) AN-M64 (500# G.P.) .025 nose non-delay tail

DAMAGE - 39.3% damaged and destroyed

Computed bomb plot available.

AICHI A/C CO., ASSEMBLY WORKS, EITOKU PLANT
90.20 - 1729

The largest of the several plants of the Aichi A/C Works. It is believed it manufactured the major components and assembled all of Aichi's aircraft. Aichi A/C Works was not a large producer in terms of total Japanese aircraft production, but it did manufacture important combat types for the Navy, including the standard Navy dive bomber Judy, and was a major developer of new aircraft types. This was one of the newer Japanese airframe plants--built in and after 1941.

1. This target was damaged about 20% as a result of incendiary attacks on Nagoya. These missions were No. 41, 11 March 1945, and Missions 174 and 176 on the 14 and 15 of May 1945.

2. MISSION 229 - 26 June 1945, 50 B-29's dropped 346 tons (346 bombs) of AN-M66 (2000# G.P.) with 1/100 sec. delay nose and non-delay tail. 133 bombs fell within 1000' of M.P.I.

DAMAGE - 6.7%

3. MISSION 287 - ^{24 July}~~3 August~~ 1945, 66 B-29's dropped 451 tons (451 bombs) of AN-M66 (2000# G.P.) bombs with 1/100 sec. delay nose and non-delay tail. This was a radar mission--no bomb plot.

DAMAGE - 18.9%

RESTRICTED

A/C INDUSTRIES - NAGOYA AREA (CONT.)

AICHI AIRCRAFT WORKS, TSUKIJI PLANT
90.20 - 1828

This plant is on reclaimed land, north part of Nagoya Harbor, and SE of lock and drainage gate of Naka Canal. There are only testing facilities for Aichi Aero-engines here.

1. MISSION 176 - 16 May 1945, I.B. attack against Nagoya Urban South dropping 3609 tons of M17A1, M47A2, E46 bombs.

DAMAGE - 40% destruction of this plant.

RESTRICTED

PETROLEUM - NAGOYA AREA

TOHO GAS WORKS AND SYNTHETIC OIL PLANT
90.20-456

Located in Nagoya 1 mile N mouth of Naka canal on the E bank.

Plant is an important producer of synthetic oil, gasoline, gas, coke and tar.

No damage to this target reported.

UTSUBE RIVER OIL REFINERY
90.20-1684

This installation consists of Japanese Navy Refineries, a hydrogenation plant for fuel oil and aviation gasoline, as well as storage facilities. A tetra-ethyl lead plant has been identified in the area.

The plant is located 2 miles S of the town of Yokkaichi on the N bank of the Utsube river. It is built partly on reclaimed land.

1. XXI Mission 218, 22 June 1945, Utsube Oil Refinery was secondary target with what appears to be excellent results. No Damage Assessment report available for this strike. 1 Sq. dropped 21x4000HE
2. XXI Mission 232, 26 June 1945, HE attack with 500# bombs with undetermined results since no Damage Assessment report is available for this strike.
3. XXI Mission 261, 9 July 1945, HE attack with 500# bombs. No separate itemization for results available for this attack.
4. XXI Mission 209, 17 June 1945, IB attack against Yokkaichi Urban resulted in .5% damage to target 1684, 5 small shop type buildings destroyed and 2 medium-sized shop type buildings being damaged.

DAMAGE:

Damage from all missions is scattered throughout the entire refinery area with the heaviest concentration in the SE section where nearly every building is damaged or destroyed.

Missions 209, 218, 232 destroyed 645,760 sq. ft. (34%) of original roof area. Tanks with capacity of 33,870 bbls. (1.6%) of original total tank capacity were destroyed.

Mission 261 destroyed 292,610 sq. ft. (15.4%) of total roof area and tanks with capacity of 50,370 bbls. (2.4%) of original refinery tank capacity.

Total damage is 938,370 sq. ft. of original roof area (49.4%) and storage capacity of 84,240 bbls. (4%).

Removal between 13 Nov 44 and 10 July 45 consisted of tanks with a capacity of 862,700 bbls. (41.6%) of original storage capacity and two buildings with a total roof area of 17,400 sq. ft.

Mission No.	Bombs	Tonnage	Type	Fusing	% Plotted	% of Plot
209			IB			
218	13		AN-M56	Inst Nose	95	75
		34	4000# LC	ND Tail		
	8		AN-M66			
			2000# GP			
232	891	222.8	AN-M64	1/40 Nose		Radar Drop
			500# GP	ND tail		
261	1875	468.7	AN-M64	1/40 Nose		
			500# GP	ND tail		Radar Drop

PETROLEUM - NAGOYA AREA - Cont'd.

MISCELLANEOUS OIL INSTALLATIONS DAMAGED IN INCENDIARY ATTACKS

MITAKE RIVER OIL REFINERY - 90.20-1685

Mission 209, 17 June. IB attack against Yokkaichi Urban. Bombs
used: M17A1, M47A2, E46 - 567.3 tons.

DAMAGE: 10% damage - 5 small buildings destroyed
5 small buildings damaged Consecutively

RESTRICTED

RESTRICTED

HEAVY INDUSTRIES - NAGOYA AREA

SUMITOMO DURALUMINUM MILL
90.20-2040

This is one of Japan's largest modern duraluminum mills.

It is located in Nagoya, south of Aichi Ordnance Plant, Target 198.

1. MISSION 174 & 176 - 14 and 16 May, IB attacks against Nagoya Urban. These strikes resulted in destruction of 20% of the target.

2. MISSION 193 - 9 June 45, HE attack against targets 198/2040 with 2000# and 4000# bombs, resulted in 8.8% new damage confined to 3 medium-sized buildings in the north part of the plant. Total to date 32.3%.

3. MISSION 230 - 26 June 45, HE attack against this target with 500# bombs, resulted in 22.3% new damage in the central and southern sections of the plant. Total to date 1,339,900 sq. ft. or 55% of the original roof area.

MIS* SION	NO. BOMBS	TONS	TYPE	FUSING	%PLOTTED	% 1000' % Plotted
193	121	242	AN-M56 4000#LC	Inst. Nose ND tail	96%	30.7%
	23	23	AN-M66 2000#GP	Inst. Nose ND tail	96%	30.7%
230	600	150	AN-M64 500#GP	.025 Nose ND tail	59%	33%

RESTRICTED

CHEMICAL INDUSTRIES - NAGOYA AREA

NISSAN CHEMICAL PLANT
90.20-253

1. MISSION 41 - 11 Mar. 45 Nagoya Urban. Incendiary attack with 1789.8 tons of E28, E46, AN-M47A2, AN-M64(very few).

DAMAGE - Minor damage with fire visible at time of photography.

SHOWA SODA PLANT
90.20-467

1. MISSION 174 - 14 May 45, Nagoya Urban North. Incendiary attack with 2515.1 tons of E36 and E46.

2. MISSION 176 - 16 May 45, Nagoya Urban South. Incendiary attack with 3609.2 tons of AN-M17A1, AN-M47A2, E46.

DAMAGE - Damage assessment combined for both of the above missions 8% destroyed - 2 warehouses, 2 shop type buildings destroyed, 1 warehouse 50% gutted.

DAI NIPPON CELLOPHANE PLANT
90.20-1827

1. MISSION 174 - 14 May, Nagoya Urban Area North. Incendiary attack with 2515.1 tons of E36, E46.

2. MISSION 176 - 16 May, Nagoya Urban Area South. Incendiary attack with 3609.2 tons of AN-M17A1, AN-M47A2, E46.

DAMAGE - Damage assessment combined for both of the above missions 50% destroyed - 6 large buildings, 16 small and medium buildings destroyed.

YAHAGI ELECTRICAL CO.
90.20-255

1. MISSION 174 & 176 - (See above) may have caused some damage, though D/A reports list nothing.

IBIGAWA ELEC. CHEMICAL PLANT(KIDO PLANT), OGAKI
90.20-1822

1. MISSION 301 - Ogaki Urban, 28 July 45. Incendiary attack with 658.7 tons of AN-M17A1, AN-M47A2, E46.

DAMAGE - 10%.

RESTRICTED

HAMAMATSU URBAN
90.21

The second largest city between Yokohama and Nagoya, Hamamatsu is an outlying component of the Nagoya industrial area and contains important plants producing parts and materials used in the aircraft industry. It is also the site of an Imperial Government Railway Shop, third largest railroad repair works in Japan.

LOCATION AND IDENTIFICATION: The city is about four miles inland from Hamamatsu Beach, a 70 mile long stretch of unusually regular coastline between Tokyo and Nagoya. To the east, a sandy beach terminates in Omae Point on Suruga Bay; to the west, the beach, merging into low cliffs, juts into Ise Bay to form the Atsumi Peninsula. The coastline is broken by the mouth of the Tenryu River, which projects slightly beyond the otherwise crescent-shaped shoreline; this river is about four miles east of Hamamatsu and is crossed by a very vulnerable 19-span 4000 foot RR bridge on the main Tokaido line from Tokyo to Kobe. Roughly six miles to the west of the city is the Hamana Lagoon, a large body of water that is joined to the sea by a narrow inlet through a sand bar. Here the same railroad crosses the lagoon on Bentenjima Bridge and Causeway, 2 3/4 miles long, a strategic single link in Japan's transport system.

TARGET DESCRIPTION: Hamamatsu has a population of 165,000, covering 4.4 square miles, and an average population density of 37,500 per square mile. Most of the city lies west and north of a loop in the Magome River. It is a relatively small but typical Japanese urban industrial area, with congested districts of predominantly wooden houses and narrow streets and a very considerable mixture of small industries. There is scattered housing outside the congested zone, but it does not furnish any substantial cushion for dehousing personnel.

1. MISSION 34: 15 February 1945, 73rd & 313th B.W. participated, dropping most of 205.7 tons of bombs dropped on Hamamatsu, as a target of opportunity from 25,000 - 30,000 ft. Bombs dropped: AN-M64, AN-M43, M-17A1, AN-M76.

DAMAGE: .07 sq.mi. (1.2%) of city destroyed.

2. MISSION 126: 30 April 1945, 73rd & 313th B.W. participated, dropping a total of 378.3 tons on primary and 44.9 tons on opportunity, between 301122K - 301154K, from 17,800 - 21,500 ft., 6/10-10/10 clouds over target. Bombs dropped: AN-M64.

DAMAGE: .24 sq.mi. (6%) of city destroyed.

3. MISSION 178: 19 May 1945, 58th, 73rd, 313th, 314th Wings participating, dropping a total of 1486.3 tons over primary and 74.1 tons over opportunity, between 191151K - 191258K, from 13,300 - 26,640 ft., 10/10 clouds over target. Bombs dropped: AN-M64A1, AN-47A2.

DAMAGE: .22 sq.mi. (5%) of city destroyed.

4. MISSION 208: 17-18 June 1945, 73rd BW participated, dropping a total of 911.7 tons between 0159K-0305K, from 7840'-9010', 3/10-9/10 clouds over target.

DAMAGE: 2.44 sq. miles or 57.5% of entire city destroyed this mission. Bombs dropped: AN-M17A1, AN-M47A2, E46.

TOTAL RESULTS SUMMARY

Total damage (all missions): 2.97 sq.mi. or 70%

Damage to numbered targets (all missions):

90.21-1230 Imperial Govt. RR Shops - 60%

90.21-1219 Japan Musical Inst. & Propeller Fact. - 35%

RESTRICTED

TOTAL RESULTS SUMMARY (Cont.)

Damage to numbered installations (all missions):

Photographic Equipment Co. - 100%
Gas works - 100%
Spinning Mill (Center of city) - 100%
Naval Air Station - 100%
Spinning Mill (N side of city) - 100%
Military Installations (NW part of city) - 80%

All missions summarized above.

Bomb Plot for mission 126, 30 April, available.

TOYOHASHI URBAN
90.21

Toyohashi Urban Area is located about 20 miles WNW of Hamamatsu, 3 miles east of Mikawa Bay, and 40 miles SE of Nagoya. The city has a population of 242,700, concentrated in a built up area of 3.3 square miles.

1. MISSION 210: Night of 19-20 June 1945, 38th Bomb Wing participated, dropping 946.4 tons of bombs on primary target, between 0158K-0417K, from 6900'-8800', 7/10-10/10 clouds over target. Bombs dropped: E-46, AN-M17A1, AN-M47A2, E28.

DAMAGE: 1.7 sq.mi. or 52% of city destroyed. In addition to this, .24 sq.mi. was damaged outside built-up area.

DAMAGE TO TARGETS:

Gas Works - 100% destroyed
2 U/I industries - 100%
90.21-1224 Toyohashi Army Base - 5% destroyed
90.21-2692 Toyohashi A/F - 2 large hangars completely damaged on previous mission.

Previous mission (unknown) caused damage to Toyohashi A/F.

No Bomb Plot.

RESTRICTED

JAPAN MUSICAL INSTRUMENT CO., PROPELLER PLANT
90.21-1219

Principal plant of the Japan Musical Instrument Co., which is estimated to provide the Japanese Air Force with 20-30% of the propellers used on combat aircraft. Produces primarily for the army. Located on the northern outskirts of Hamamatsu about 4800 feet northwest of the RR roundhouse in the center of the city, and about 8700 feet north by east of the Imperial Government RR shops.

1. MISSION 208 - 17 June 45, IB attack on Hamamatsu Urban with 911.7 tons of M17A1, M47A2, and E46 bombs dropped.

DAMAGE - 40% damaged or destroyed (37.4% complete destruction). An unknown part of the damage is the result of one A/C from mission 199 having bombed 1219 as a target of opportunity - all bombs falling within the target limits.

RESTRICTED

UJIYAMADA URBAN

90.24

UJIYAMADA is another of the secondary cities in the NAGOYA industrial region. A former textile center, UJIYAMADA is believed to have converted most of her industrial capacity to war production.

Located $2\frac{1}{2}$ miles inland from the S coast of ISE WAN (Bay), UJIYAMADA is approx. 43 miles S of NAGOYA CASTLE, 18 miles SW of CHITA HANTO (Peninsula) and 16 miles WSW of ATSUMI HANTO. This region is known as the UJIYAMADA TERRACES, the southernmost part of the western arm of the ISE WAN LOWLANDS. The terrain is characterized by narrow, flat-topped, steep-sided terrace ridges and intervening valleys.

UJIYAMADA, a city of 52,555 people, is narrow but sprawling and covers an area of approximately 2 sq. mi. 1.2 sq. mi. of the total area is highly congested having a population of 30,000-50,000 per sq. mi.

There are no firebreaks of any consequence although there are several small parks throughout the city.

Some of the more prominent and identifying landmarks are: two RR lines which run into UJIYAMADA from the N and one from the E. Four bridges cross the MIYA RIVER W and N of the city. There is an A/F located $2\frac{3}{4}$ miles to the N and four large industrial plants are located on the outskirts N of the city beyond the fire zone. UJIYAMADA is bounded on the N and E by open rice fields, on the S by low hills and on the W by the MIYA RIVER.

1. MISSION 300 - night of 28-29 July 1945, 313th BW participated, dropping 734.6 tons on primary and 7.8 tons on opportunity, between 290215K-290324K from 12,000'-13,800', 0/10-5/10 clouds over target. Bombs dropped: E-46 (500#IC fuzed to open at 5000').

DAMAGE - .36 sq. mi. or 39% of the city was destroyed. Some

Damage to targets within built-up area:

- 3 Industrial areas 100% destroyed.
- 2 Industrial areas 10% destroyed.

Damage to targets outside built-up area:

Area surrounding city - .03 sq. mi. (Scattered)

- 90.24-XXI 6070 - Textile mills believed to have been converted to war production - 20%
- 90.24-XXI 6168 - Textile mills believed to have been converted to war production - 30%

No previous missions.

No bomb plot available.

RESTRICTED

CITY OF AKASHI
and
Target 90.25-1547

The 1940 population of AKASHI was approximately 48,000 persons. The city is irregularly shaped and lies along the S coast of HONSHU on the INLAND SEA. It is 41 miles SW of the center of KOBE and lies on the Sanyo RR which runs between KOBE and SHIMONOSEKI. The city occupies 1.42 sq. mi. which area includes the built-up area of the Kawasaki A/C plant. The city furnishes the labor of the Kawasaki A/C plant.

There have been four HE attacks directed against Target No. 1547 (Kawasaki A/C Co.) and on many if not all, of these missions bombs fell within the residential area of the city and caused damage.

1. MISSION 252 - IB attack directed at Urban AKASHI, 6-7 July 1945, 73rd Wg., 123 A/C dropped 975 tons M-69 IB's fuzed for 2500' airburst, 50' intervalometer setting. Bombing was from 6,900 to 8,200', heading 39°. Attack was compressed into 72 minutes and target time was 061515Z - 061627Z.

DAMAGE - .90 sq. mi. built up area (63.5%).

Bomb plot not available.

CITY OF KOBE

1. MISSION 26 - 4 February 1945.

69 A/C of the 73rd and 313th Bomb Wings participated. Time of attack was 0557Z to 0656Z. Daylight mission. Bombing altitude from 24,500' to 27,000'.

Bombs dropped:

159.2 tons E-28 (500#IC) fuzed to open 5000' over target.
13.6 tons T4E4 (500#FC) fuzed to open 1000' below formtn.

DAMAGE - Destroyed .09 sq. mi., damaged three numbered targets.
See D/A #6.

No bomb plot available.

2. MISSION 43 - 16 March 1945

307 A/C of the 73rd, 313th and 314th Bomb Wings participated. Time of attack was 1738Z to 1946Z. Bombing altitude was 4,660' to 9,000'. Night attack.

Bombs dropped:

295.8 tons E-36 (500#IC) 1280.6 tons M-17A1 (500#IC)
307.6 tons E-46 (500#IC) 374.6 tons M-76 (500#IC)
50.1 tons E-28 (500#IC) 19.4 tons T4E4 (500#FC)

DAMAGE: Dest. 2.9 sq. mi. incl. three no. targets. See D/A #26.

3. MISSION 188 - 5 June 1945.

473 A/C of the 58th, 73rd, 131st and 314th Bomb Wings. Time of attack was 2222Z to 2347Z. Bombing altitude was 13,650' to 18,800'.

Bombs Dropped:

924.4 tons E-46 (500#IC) 1.8 tons AN-M47A2 (100# Smoke)
71.0 tons T4E4 (500#FC) 935.3 tons AN-M17A1 (500#IC)
1128.6 tons AN-M47A2 (100#IB)

DAMAGE - Destroyed 4.35 sq. mi. Destroyed or damaged 18 numbered targets. See D/A #96.

Partial Bomb plot available.

RESTRICTED

NISHINOMIYA - MIKAGE URBAN
(90.25)

The area covered by this target information sheet begins with MIKAGE, and extends eastward beyond NISHINOMIYA to the MUKO River. NISHINOMIYA is an incorporated shi (city) with a population of 111,796 (1940). MIKAGE and FUKAE, although not incorporated, are comparable in size. Thus the total population for the area is around 300,000. NISHINOMIYA-MIKAGE is, from a target analysis point of view, within the limits of NISHINOMIYA-MIKAGE hundreds of small household industries similar in type to those found in either KOBE or OSAKA. See other T.I.S. on KOBE and OSAKA for general background.

Location, Identification and Description: The area is situated along the northern coast of OSAKA Bay midway between KOBE and AMAGASAKI. The target area extends eastward, beginning with MIKAGE, along the narrow coastal plain for approximately 10 miles. The main TOKAIDO Railway line passes through the section before reaching KOBE. A number of small streams flow through the area and into OSAKA Bay. The largest and most easily identified is the MUKO River which forms the eastern boundary of the target area. NISHINOMIYA Airfield is located in the southern portion of the area, adjacent to the now non-existent KAWANISHI Aircraft Co., Target 90.25-18. The demolished KAWANISHI Aircraft Co., Target 90.25-1702, once stood on the coast in the western part of the target area.

Importance: The following type products are being manufactured in the target area: Aircraft parts, light electrical equipment, machinery, iron and steel products and light metal parts for ordnance.

Mission 314,5/6 August 1945, 73rd and 314th Wings participated dropping a total of 2003.9 tons on primary and 23.8 tons on opportunity, between 060125K-060201K from 12,600-16,000 feet, 0/10-8/10 clouds over target. Bombs dropped M-19, T4F5, AN-M47A2, An-M64, AN-M17A1.

Damage: 2.8 sq. miles or 29.6% of city destroyed this mission.
.7 sq. miles of city destroyed by previous missions.
3.5 sq. miles or 37% of city destroyed.

No visible damage to targets.
Previous missions (unknown) scattered damage throughout city.
No Bomb Plot.

SAKAI URBAN
(90.25)

SAKAI CITY is located (34° 34' - 135° 29') 9 miles due south of center of Osaka and just south of the Yamato River.

Mission 258, on night of 9/10 July 1945, 73rd BW participated, dropping a total of 778.9 tons on primary and 19.6 tons on opportunity, between 100233K-100406K, from 10,000-11,350 ft., 1/10 clouds over target.

Type Bombs	Over Primary	Over Opportunity
AN-M47A2 (100#IB)	367.3	6.3
E-36 (500#IC Open 5000')	256.0	13.3
E-46 (500#IC Open 5000')	155.6	
Total	778.9 tons	19.6 tons

Damage: 1.02 or 44 % of city destroyed.
Damage to targets within built-up area:
90.25-383 Dai Nippon Celluloid Co. - 20% destroyed.
For further target damage refer to D/A 164, 5 Aug. 1945.
Damage outside built-up area:
3 small industrial areas just outside and west of built-up area were destroyed.
No previous missions.
No Bomb Plot.

RESTRICTED

CITY OF OSAKA

90.25

1. MISSION 42 - 13 March 1945.
275 A/C of the 73rd, 313th and 314th Bomb Wings participated. Time of attack was 1457Z to 1825Z. Altitude from 5,000' to 9,400'.

Bombs dropped:

194.5 tons	E-28	(500#IC)
812.0 tons	E-36	(500#IC)
671.4 tons	E-46	(500#IC)
54.7 tons	M-47A2	(100#IB)

DAMAGE - 8.1 sq. mi. destroyed. 13 Number targets destroyed or damaged. See D/A #24.

No bomb plot available.

2. MISSION 187 - 1 June 1945, by 458 A/C of 58th 73rd, 313th, 314th Bomb Wings. Time of attack 0028Z - 0200Z. Bombing altitude from 18,000' to 28,500'.

1328.0 tons	AN-M47A2	(100#IB)
697.6 tons	E-46	(500#IC)
81.2 tons	T4E4	(500#FC)
681.3 tons	AN-M17A1	(500#IC)
.4 tons	AN-M47A2	(smoke)

DAMAGE - 3.15 sq.mi. destroyed, 7 numbered targets damaged.
See D/A #84.

No bomb plot available.

3. MISSION 189 - 7 June 45, by 409 A/C of 58th, 73rd, 313th, 314th Bomb Wings. Time of attack 0209Z - 0328Z. Bombing altitude was 17,900' to 23,150'.

537.2 tons	E-46	(500#IC)
46.8 tons	T4E4	(500#FC)
195.5 tons	E-48	(500#IC)
1044.7 tons	AN-M47A2	(100#IB)
162.0 tons	AN-M65	(1000#GP)
6.8 tons	AN-M64	(500#GP)
581.0 tons	AN-M66	(2000#GP)
18.2 tons	E-36	(500#IC)
1.4 tons	AN-M47A2	(100#Smoke)

DAMAGE - 2.21 sq.mi. destroyed, four numbered targets damaged.
See D/A #90.

Partial Bomb Plot Available.

4. MISSION 203 - 15 June 1945, by 444 A/C of 58th, 73rd, 313th, 314th Bomb Wings. Time of attack 2344Z - 0155Z. Bombing altitude was 16,300 to 26,900ft.

2581.5 tons	AN-M17A1	(500#IC)
505.6 tons	AN-M47A2	(100#IB)
69.2 tons	E-46	(500#IC)

DAMAGE - 2.49 sq.mi. destroyed. 9 numbered targets damaged, including 263A, 382, 2041. See D/A #99, #100.

No bomb plot available.

RESTRICTED

WAKAYAMA URBAN
(90.25)

WAKAYAMA is an example of a medium-sized outlying city whose facilities were beginning to absorb the shock of the wartime expansion felt by a nearby metropolis (OSAKA). This trend has been hastened by attacks on the parent city with resultant industrial damage, dispersal and worker displacement. In the case of WAKAYAMA, the city has drawn important new plants of the SUMITOMO interests. The city's 30 textile machinery plants, 13 textile dyeing machine plants and 15 small pig iron and casting establishments are all in a category suitable for conversion. In addition to the plants listed specifically below, the city contains miscellaneous small industry: a gun metal plant, 6 knitting machine plants, 3 "cog wheel" plants, a government silk mill, 4 small crude petroleum refineries, an electrolytic chlorine and soda plant and a cement plant.

Location and Identification: The city is located at the base of the peninsula (TAKURA SAKI) guarding the TOMOGA-SHIMA Strait entry to OSAKA WAN. It is 30 miles due south of KOBE and 40 miles southwest of OSAKA on the south bank of the KINO River. Here the coastal plain on the eastern shore of OSAKA WAN Broadens to a width of from 6 to 8 miles. A first class highway connects WAKAYAMA with OSAKA and continues to the end of the peninsula.

Target Description: Two outstanding landmarks are available. The old castle and grounds are just north of the center of the city. About 2 miles south of the mouth of the river is a hilly prominence, which juts into WAKINOURA WAN and marks the southwestern edge of the built-up area. The harbor is shallow as a result of silting and is used only by motor-driven fishing boats. Two breakwaters form a blunt point extending west from the south bank of the river and from a prominent island in the river's mouth.

Mission 259, 9-10 ^{July} ~~August~~ 1945, 313th BW participated, dropping a total of 800.3 tons, between 100058K-100258K from 10,200-11,600' 1/10 clouds over target.

Type Bombs	Dropped over Target
AN-M47A2 (100#IB)	441.5
AN-M17A1 (500#IC)	358.8
Total	800.3 tons

Damage: 2.1 sq. miles or 52.5% of city destroyed.

Damage to Targets:

	<u>Destruction</u>
Dempobashi Plant of Daiwa Boseki	100%
U/I Industry	90%
U/I Industry	100%
Kanega Fuchi Boseki	100%
Ki-No-Kawa Plant of Daiwa Boseki	100%
U/I Textile Mill	100%
Koyosenko KK - Dyeing Plant	80%
U/I Industrial Area	90%
Tookagyo Textile Mill	90%
Ounzo Kogyo KK (Spinning)	100%
Kigo Shukuta (Weaving)	100%
U/I Industry	90%
Koa Boseki (Spinning)	5%
Commercial District (adjacent to castle)	90%
Castle grounds	100%
Nakagana Seiko KK, Yara Seilo KK	5%
Nakoi RR Terminal	40%
Gas Works	Prob. fire damage
Military Hdqrs.	25%
XXI 5047 Sumitomo Metals Ind.	10%
XXI 5049 Sumitomo Electrical Ind.	Minor damage

In addition there are 26 small U/I industries destroyed. .09 sq. miles (area) adjacent to Target 5047, outside of built-up area destroyed. This area contains barracks and small industries. No Previous Missions. No Bomb Plot.

RESTRICTED

A/C INDUSTRIES, OSAKA AREA

KAWANISHI A/C CO. & NARUO
90.25 - 18

Only know Japanese producer of Multi-engined flying boats. Some float planes are also manufactured here. There are some indications of recent entry into fighter production. Some production of propellers, fuel pumps, and other components; reports of limited engine production. Target 18 is the original plant of the company. Located on the N shore of Osaka Bay, just S of Naruo. The city of Kobe is 10 miles west. The Naruo River enters Osaka Bay a short distance NW of the plant, and across the river is a large race track. The Muro river runs along the southeast edge of the plant site. Airplane runway in the SW corner of the plant site and a seaplane anchorage in Osaka Bay to the SW.

1. MISSION 191 - ⁹~~20~~ June 1945. Target Kawanishi Aircraft Co. at Naruo. 44 A/C of the 58th wing dropped 263.5 tons of 1000#GP 1/100 sec nose, ND tail. 243 bomb burst were plotted in the target area.

No. Bombs Dropped - 527

66.3% fell within 1000' of the MPI.
16.4% fell within 1-2000' of the MPI.
3.3% fell within 2-3000' of the MPI.
14.0% fell beyond 3000' of the MPI.

DAMAGE - 69% of total roof area was damaged or destroyed.
26% of the plant was damaged beyond repair.

KAWASAKI A/C, AKASHI PLANT
90.25-1547

Believed to be the main Kawasaki plant for manufacture of aero engines. Some airframe assembly also takes place. All production is for the Army. Located 2 mi. NW of Akashi between main gov. RR and a local narrow gauge electric line. Village of Fuji is less than 1/2 mile to the S. Airfield adjacent to and NW of the plant site.

1. MISSION 20 - 19 January 1945, 610 bombs dropped with inst. nose and ND tail fuzes. 62 A/C of the 73rd wing hit the plant with 152.5 tons of 500#GP. Major damage total 39% of the total roof area.

No bomb Plot available.

2. MISSION 192 - 9 June 1945, 72 bombs dropped. 24 A/C of the 313th wing dropped 144 tons of 4000#LC inst. nose, ND tail.

DAMAGE - None. N

No bomb plot.

3. MISSION 220 - 22 June 1945, 74 bombs dropped. 25 A/C of the 313th wing dropped 148 tons 4000#LC, inst. nose, ND tail.

Total Burst Plotted - 59.

29% bursts within 0-1000' of MPI.
20% bursts within 1000(-2000' MPI.
51% bursts beyond 3000' of MPI.

DAMAGE - 18% of total original roof area.

Total Damage to date: 45.1% of original roof area.

4. MISSION 225 - 26 June 1945, 92 bombs dropped. 31 A/C of the 313th wing dropped 184 tons of 4000#LC inst. nose, ND tail.

21 bursts were plotted within the target area.

19% within 1000' of MPI.
19% within 1-2000' of MPI.
24% within 2-3000' of MPI.
38% beyond 3000' of MPI.

DAMAGE - New: 29.1% of original roof area.

Total Damage to date - 74.3% of original roof area.

RESTRICTED

KAWANISHI A/C - FUKAE PLANT
90.25-1702

KAWANISHI'S four-engine flying boat EMILY was manufactured and assembled at this new and modern plant. Since the floor space was greater than that required for the production of EMILY, it is probable that the two-engine land based planes photographed here were manufactured in this plant. The planes are of dimensions roughly similar to FRANCES.

1. MISSION 172, 11 May 45. 92 B-29s dropped 1838 AN-M64 (500#GP) bombs. .01 second nose - ND tail. 65 bombs fell within 1000' of aiming point.

DAMAGE: 39% damaged or destroyed.

SUMITOMO KANZAKI PROPELLER PLANT
90.25-2041

The most important propeller plant in Japan engaged in the production of hub assemblies for an estimated 60% of the propellers used on Japanese combat aircraft. The plant has facilities for experimentation with new types, notably contrarotating and hydro-matic propellers for use with high powered engines. Located in the N outskirts of Amagasaki, about 3 mi. N of the Shinyodo River, 1.4 miles W of the Kanzaki River, and 2 miles ESE of the Tokaido Mainland RR Bridge across the Muko River.

1. MISSION 203, 15 June 1945. IB attack against Osaka-Amagasaki Urban Area.

DAMAGE: As a result of the above mission, this target was 66.1% destroyed.

KAWANISHI AIRCRAFT CO. - TAKARAZUKA
90.25-2137

This target is approximately 2 3/4 miles south of Takarazuka Town and 5 1/2 miles west of Nishinomiya Airfield.

It is believed that this plant manufactured Power Turrets, Machinery Parts, Ball Bearings, and various Aircraft Parts. The plant was probably organized as a feeder to the main Kawanishi Plant at Naruo, Target 90.25-18, six miles to the south.

1. MISSION 285, 24 July 1945, 58th BW, Target 90.25-2137. 77 A/C dropped 901 (450.5 tons) AN-M65 (1000#GP) bombs. (.01 nose fuse and non-delay tail fuse.)

Total bursts within 0-1000' MPI 418 - 49.2%
Total bursts within 1-2000' MPI 342 - 40.3%
Total bursts within 2-3000' MPI 56 - 6.6%
Total bursts 3000' or beyond MPI 33 - 4.0%

(849 bombs plotted - percent based on bombs plotted)

DAMAGE: Original roof area was 1,747,600 sq. ft. and of this area 1,488,800 sq. ft. (85%) was damaged or destroyed.

CHEMICAL INDUSTRIES - OSAKA AREA

NIPPON DUNLOP RUBBER CO. - KOBE
90.25-14

1. MISSION 188, 5 June 45, Kobe Urban. Incendiary attack with 3079.1 tons of E46, T4E4, AN-M17A1, AN-M47A2.

DAMAGE: 100% destroyed.

RESTRICTED

CHEMICAL INDUSTRIES, OSAKA AREA, Cont'd

DAI NIPPON CELLULOID CO. - SAKAI
90.25-383

1. MISSION 258, 9 July 45, Sakai Urban. Incendiary attack with 778.9 tons of E36, E46, AN-M47A2.

DAMAGE: 20% destroyed.

KANEGAFUCHI SODA CO. - KOBE
90.25-785

1. MISSION 26, 4 Feb 45, Kobe Urban. Incendiary attack with 172.8 tons of E28, T4E4.

DAMAGE: About 820,000 sq. ft. (49%) destroyed.

JAPANESE DYESTUFF MFG. CO. (Dyes) - OSAKA
90.25-1733

1. MISSION 42, 13 March 45, Osaka Urban. Incendiary attack with 1732.6 tons of E28, E36, E46, AN-M47A2, AN-M64 (very few).

2. MISSION 187, 1 June 45, Osaka Urban. Incendiary attack with 2788.5 tons of AN-M17A1, AN-M47A2, E46, T4E4.

DAMAGE - Mission 42: Minor Damage.
Mission 187: Minor damage - 4 small buildings destroyed, small buildings gutted (3).

JAPANESE DYESTUFF MFG. CO. (Drugs) - OSAKA
90.25-1734

1. MISSION 187, 1 June 45, Osaka Urban. Incendiary attack with 2788.5 tons of AN-M17A1, AN-M47A2, E46, T4E4.

DAMAGE: 195,000 sq. ft. (15%) built-up area destroyed.
11 storage type buildings destroyed.

KOBE GAS WORKS - KOBE
90.25-2142

1. MISSION 188, 5 June 45, Kobe Urban. Incendiary attack with 3079.1 tons of E46, T4E4, M17A1, M47A2.

DAMAGE: Minor Damage.

RESTRICTED

HEAVY INDUSTRIES - OSAKA AREA

SUMITOMO LIGHT METAL INDUSTRY

90.25 - 263A

This plant was one of the big producers of Japanese A/C Propellers and was one of the largest and most modern aluminum sheet rolling mills in Japan. It also produced tubes, bars, strips, crankshafts and plates.

The plant is located in Osaka near the waterfront on reclaimed land between the Shin Yodo and Aji Rivers.

1. MISSION 189 - 7 June 1945, IB attack against Osaka Urban, Destroyed 30% of the neighboring plant, 263B, but apparently did not damage target 263A.

2. MISSION 203 - 15 June 1945, IB attack against Osaka-Amagasaki Urban, destroyed 2% of the plant--1 small building destroyed and 2 large buildings damaged.

3. MISSION 223 - 26 June 1945, HE attack against the target using 4000# bombs. 13.5% of original roof area damaged. Destroyed or structural damage totaled 15,800 sq.ft. or 0.8%. Damage to date 12.4%.

4. MISSION 284 - 24 July 1945, HE attack against this target using 4000# bombs. 77.5% of new damage resulted, with all main buildings either gutted or damaged. Total damage to date 90.5%. Total Damage plus removal 96.4%.

MISSION	NO.	BOMBS	TONNAGE	TYPE	FUSING	%PLOTTED	%1000' (% OF PL)
189, 203				I.B.			
223	191	382		AN-M56	Inst. Nose		No Strike
				4000#LC	ND Tail		Photos
284	246	492		AN-M56	Inst. Nose		
				4000#LC	ND Tail	85%	55%

OSAKA ARMY ARSENAL

90.25 - 382

Largest and most important single plant in the empire engaged primarily in ground forces armament production. It is essentially a heavy armament plant producing: Heavy AA guns, Heavy field artillery, Heavy shell cases. Known to have produced virtually every type weapon used by the Japanese Army. Located in the NE section of Osaka, ENE of the adjacent Osaka Castle.

1. MISSION 224 - 26 June 1945, 109 A/C of the 73rd wing dropped 758 tons of 2000#GP .025 nose and tail fuze. Total No. bombs released over target: 758. 146 visible bursts plotted, 28 hits scored within 1000' of AP.

DAMAGE - 19.7% of total roof area.

2. MISSION 286 - ~~3 August~~ ^{24 July} 1945, 35 A/C of the 73rd wing dropped 216 tons 2000#GP 1/40 sec. nose and tail. Total No. bombs dropped: 216. No bomb plot.

DAMAGE - 10.2 % of original roof area.

RESTRICTED

HEAVY INDUSTRIES - OSAKA AREA

OSAKA ARMY ARSENAL (CONT)

90.25-382

3. MISSION 326 - ~~14~~ August 1945, 105 A/C of the 73rd wing dropped 570 tons of 2000#GP & 273x1000#GP (136.5 tons): .025 Nose and Tail. 546 visible bursts plotted, 216 bursts or 26% within 1000' of AP.
DAMAGE - 44.5% of original roof area. Total damage to plant 64.3%.

PETROLEUM INDUSTRIES - OSAKA AREA

RISING SUN PETROLEUM OIL STORAGE

90.25-17

1. MISSION 188 - 5 June 1945, IB attack against Kobe Urban.
Bombs Used: M47A2, M17A1, E-46, T4E4, totaling 3079.1 tons.

DAMAGE - 10% damaged, 10% destroyed.

NIPPON OIL REFINERY

90.25-1203

Located SW Amagasaki harbor on E bank of the mouth of the Muko River. Plant has important storage and refinery capacity and is also a synthetic oil plant.

1. MISSION 281 - 19 July 1945, HE attack against this target, dropping 701.8 tons of bombs (XX AN-M64, .1 nose .025 tail) by radar.

DAMAGE - 39% (5,873,000 bbls. of total storage capacity) destroyed, and most of the structures in the W part of the synthetic oil plant destroyed or severely damaged.

2. MISSION 322 - 9 August 1945, HE attack against this target, dropping 902 tons of bombs (AN-M64, .1 nose and ND tail) by radar.

DAMAGE - 30% (453,200 bbls.) of total original capacity destroyed (69% to date), with heavy damage inflicted to the refinery area. Target is almost completely destroyed and is inoperative.

MARUZEN OIL REFINERY

90.25-1764

Located on Shomozu Ko, 4½ miles SW Kainan and 3 miles NE Minoshima.

Target reported as one of the important refineries and oil storage points for the Japanese Navy.

1. MISSION 245 - 2 July 1945, HE attack against this target dropping 1187x500# AN-M64 bombs (296.7 tons) fused .025 sec nose and Ins. tail. Radar drop.

DAMAGE * 54,225 Sq. ft. (10.35%) of roof area showed damage. Two small tanks destroyed and additional damage indicated but not confirmed in S end of the plant.

2. MISSION 255 - 6 July 1945, HE attack against this target, dropping 1766x500# AN-M64 bombs (441.5 tons) fused .025 nose and Ins. tail. Radar drop.

DAMAGE - 409,975 sq. ft. (79.1%) of total roof area damaged, and 900,000 bbls. (88.5%) of total tank capacity destroyed or damaged. Five of six refinery units destroyed or damaged, and all other plant installations were either destroyed or damaged. Open stores in N end of the plant received direct hits and much of the material was destroyed.

RESTRICTED

PETROLEUM INDUSTRIES - OSAKA AREA

SHIMOTSU OIL REFINERY
90.25-2252

Located near Wakayama just N of Minoshima Town.

1. MISSION 303 - 28 July 1945, HE attack against this target, dropping 658.3 tons of bombs (AN-M64 fused .1 nos and ND tail) by radar.

DAMAGE - 75% of total tank storage capacity destroyed, and the major portion of probable hydrogenation areas almost totally destroyed. Heavy damage inflicted to refining and refined products storage areas.

RESTRICTED

HIMEJI URBAN

90.27

Condensed in an area about 2 miles long and 1½ miles wide and having a population of 104,000 (1940 census), Himeji is an important rail terminal located on the San-yo main line, which is a trunk of the Kobe-Shimonoseki line. Himeji also has a spur connection to Hirohata, Shikama, and to the northern Honshu coast. An important military center, Himeji has two sizable military zones, one just north of and outside the densely populated area and one in the north-west section of the built-up area. The Kawanishi A/C Assembly Plant, (Target No. 2047) is located in the city.

1. MISSION 217 - 22 June 1945, HE attack by 52 B-29 A/C of 58th Bomb Wing directed against the Kawanishi A/C Plant at Himeji (90.27-2047). Time of attack was 1046K - 1137K. Altitude of attack 15,200 - 18,000 ft. Weather over target 0/10 to 5/10. Bombs dropped: 350.7 tons of AN-M64 (500# G.P.) fused 1/100 sec. nose and ND tail.

DAMAGE - Target 2047 completely destroyed (96.1% of roof area). Some bombs fell into urban-residential area and caused damage. See D/A #133.

2. MISSION 249 - 3/4 July 1945 by 106 B-29 Aircraft of the 313th Wing, 20 AF, between 1507Z and 1629Z. Bombing altitude was from 10,100 to 11,500 feet. The following bombs were dropped on the city in consecutive order:

546.6 tons E-46 (500# I.C.) fused to burst 5000' above city

220.5 tons AN-M47A2 (100# I.B.) Inst. fuse.

Weather over target was 4/10 to 7/10 undercast. Severe thermals were reported. 48 A/C bombed by radar, remainder visually.

DAMAGE - 1.12 sq. mi. of city destroyed.

No bomb plot available.

RESTRICTED
OKAYAMA URBAN
(90.27)

OKAYAMA, a city of diversified activities, with industrial, commercial and military installations, is primarily important as the hub of a new center of the Jap aircraft industry. It produces a wide variety of manufactured products and is a domestic-trade port of importance and a training center for troops.

Location and Identification: OKAYAMA is about 100 miles west of Osaka and 12 miles north of Uno, a port on the Inland Sea. It is built on a large delta of the Asahi River just 3 miles north of Kajima Bay. The city is shaped roughly like a bullet pointing south, the N-S axis about 2½ miles long and the E-W axis about 1 mile across. The Asahi River borders and runs the full length of the city on the east. There is flat land for 4 miles NE and south to the bay; otherwise the terrain is steep and mountainous.

Target Description: The population of Okayama was 163,000 in 1940 and since it has become more important industrially, it has probably grown considerably. Unlike most cities on the Inland Sea, it has had plenty of room for expansion so that the population density is not unusually great. Exact figures on population density are not available but it is probably about 50,000 per square mile in the city proper. The buildings in Okayama are largely one or two-story, wood or plaster houses with some modern concrete offices and stores in the section. A number of small industries are located in the city proper, but the larger factories and military installations are on the outskirts.

Mission 234, 28-29 June 1945, 58th BW participated, dropping a total of 981.5 tons, between 0343K-0407K, from 11,000' - 13,300', 0/10 - 10/10 clouds over target.

<u>Type Bombs</u>	<u>Dropped over Target</u>
AN-M47A2 (100% I.B. Inst.)	434.6
E-48 (500% I.Cl. open 5000')	546.9
Total	981.5 tons

Damage: 2.13 sq. miles or 63% of city was destroyed.
Damage to targets within built-up area:

XXI 6235		85%
6236)	-- Prob. textile mill converted to war production.	95%
6237	Gas Works	20%
6238	Chem. Plant	50%
6242	Nakajima Casting Co.	80%
6241	U/I Industrial Area	95%
6234	RR Yards	3%
Castle and Barracks - 12 buildings		100%
2 small U/I industries		50%

No previous mission.

No bomb plot.

TAKAMATSU URBAN
90.27

TAKAMATSU is the leading port on SHIKOKU and the terminus of RR ferry service connecting with UNO on the HONSHU coast. The city is the focal point for the major rail and road systems of SHIKOKU. Strategically, the city commands BISAN STRAITS. It is the capital of KAGAW Prefecture and has important industrial significance for SHIKOKU.

The city is located on the extreme NE coast of SHIKOKU on BISAN straits, the narrow neck of the Inland Sea between HONSHU and SHIKOKU. It is 23 mi. almost due S of OKAYAMA. The city is located on a flat coastal plain and delta with two hills on the S. TAKAMATSU WAN (Bay) and the straits are on the N and the KOTO River on the W. Two peninsulas NE of the city encompass a perfectly triangular bay, DANNO URA. There are many small islands to the N. SHODO, NE of TAKAMATSU is the

RESTRICTED

TAKAMATSU URBAN (CONT)

90.27

largest. Note: That portion of the Straits which is N of the city is often called TSUCHINOTO SETO.

The majority of TAKAMATSU's 111,207 population (1940) is confined within an area of approx. $2\frac{1}{4}$ sq. mi. The population density of the built-up area is over 45,000 per sq. mi. The built-up area is roughly triangular with the base on the waterfront and the apex to the S. A spur of IWASIO hill invades the city. The built-up area is compact. The city does not seem to be sharply differentiated functionally since small industries are scattered throughout. It is congested with no large firebreaks with the exception of the school area on the W and near the A/C plant on the E. The streets are narrow and almost universally intersect at right angles.

1. MISSION 247 - night of 3-4 July 1945, the 58th BW participated dropping a total of 833.1 tons on primary and 22.3 tons on opportunity, between 040356K-040542K, from 9,900'-11,100', 0/10-clouds over target. Bombs dropped: AN-M47A2, and AN-M64, E-46.

DAMAGE - 1.4 sq. mi. or 78% of the city was destroyed. In addition an industrial area in E part of city was destroyed 100% (.23 sq. mi.) Small area (.041 sq. mi.) SW of city was destroyed.

Damage to targets:

Kuroshiki spinning Mill (A/C plant)	100%
Makita Iron Works	25%

In addition, 15 of 31 industrial plants were destroyed.
2 barracks areas were also destroyed.

No previous missions.

No bomb plot available.

TOKUSHIMA URBAN

90.27

TOKUSHIMA is located on the E coast of SHIKOKU Island, about $3\frac{1}{2}$ mi. SE of TAKAMATSU and $1\frac{1}{2}$ mi. from the S end of AWAJI Island.

1. MISSION 250 - 3-4 July 1945, 314th BW participated, dropping a total of 1050.8 tons on primary and 12.6 tons on opportunity, between 040224K-040414K, from 10,200'-16,940', 0/10 clouds over target. Bombs dropped: AN-M47A2 and AN-M17.

DAMAGE - 1.7 sq. mi. or 74% of the city was destroyed. .1 sq. mi. outside of city was destroyed.

Damage to Targets:

XXI 6108 - U/I Industry	95%
Two barracks areas	100%
1 small U/I Industry	50%
4 small U/I Industries (along canal)	100%
XXI 6103 - U/I Industry	100%
1 small U/I Industries N of city (along canal)	100%

No previous missions.

No bomb plot available.

RESTRICTED

MITSUBISHI AIRCRAFT WORKS

(Mishima Plant), TAMASHIMA

90.27-1681

This plant was the newest large identified unit of the Mitsubishi Aircraft Co., primarily engaged in airframe manufacture and final assembly of two-engine bombers (notably Bettys).

1. MISSION No. 216, 22 June 45, 108 B29 Aircraft dropped 2411 bombs (602.8 tons) of AN-M64 (500#GP), .025 nose, non-delay tail. 665 bombs fell within 1000 ft of MPI.

DAMAGE: 86% damaged or destroyed.

KAWANISHI A/C CO., HIMEJI PLANT

90.27-2047

This plant was the former Nippon Koeri Textile Mill, and appears to be the second most important aircraft plant of the Kawanishi Aircraft Co. Ground Intelligence and photography indicate that the plant assembled and probably manufactured major parts of GEORGE, one of the newer and important of Navy fighter types.

1. MISSION 217, 22 June 45, 52 B29s dropped 1403 bombs (350.7 tons) AN-M64 (500#GP), .01 nose, non-delay tail. 587 bombs fell within 1000' of MPI.

DAMAGE: 82.5% destroyed
13.3% damaged
Total damage from this strike - 95.8%

RESTRICTED

KOCHI URBAN
90.28

Kochi is the prefectural capital and the industrial and commercial center of southern Shikoku. With Takamatsu and Tokushima, its 106,000 people place it among the three most important cities on Shikoku. It is the center of a double rice cropping area and an urban area which specializes in paper making and textiles.

The industries in the city include small paper and textile mills some of which are probably converted to making war goods. Around the city are the larger industries, including a plywood factory, metal working plant and cement and chemical plants.

LOCATION AND IDENTIFICATION: Kochi is situated on the south side of the island of Shikoku at the head of Urado Bay, which is an arm of Tosa Bay. The city lies approximately 5 miles inland from the open sea.

TARGET DESCRIPTION: The city has an E-W length of about 3 miles and N-S width of 1 mile near its central portion, just east of the castle park. East and west from this point, the city narrows down to less than 1/2 mile. A much smaller portion of the city extends south of the river and this development is more scattered and given over to industrial plants. North of the river the city is compact, especially to the east of the castle park. The entire municipality contains over 106,000 people.

The construction is predominately wood and plaster, one and two-story buildings, with the business district in the eastern portion of the city and the residential section surrounding the castle park. A third district, south of the river, includes buildings related to the port and some industrial plants. On the periphery are small suburbs and villages.

1. MISSION 248: flown on night of 3-4 July 1945, 73rd BW participated dropping total of 1060.8 tons, between 040252K-040352K from 10,270-11,530', 1/10-2/10 clouds over clouds. Bombs dropped: F-46, AN-M76.

DAMAGE: .92 sq.mi. or 48% of city was destroyed. Industrial damage includes at least 5 small unidentified industrial plants located along N bank of Kagami River.

DAMAGE TO TARGETS:

RR yards, Roundhouse and yard shops - Minor damage
Boatyards - 80%
Manganese Steel Plant (SF of city) - 90%

No previous missions.

No bomb plot.

RESTRICTED

FUKUYAMA URBAN

90.29

FUKUYAMA is a center for chemical production, its dyestuffs plants having been converted to the wartime production of gasses and chemicals for explosives. Recently the city has attracted dispersed A/C production and its electrical equipment plant are undoubtedly making parts for A/C sub-assembly.

FUKUYAMA is on the HONSHU coast of the INLAND SEA about halfway between its entrances at SHIMONOSEKI and the KOBE-OSAKA REGION. The INLAND SEA is twenty miles wide at the point where a prominent peninsula, MI SAKI on SHIKOKU, points NW at the city on the HONSHU coast. FUKUYAMA is 45 miles E of HIROSHIMA, 42 miles NE of KURE, and 33 miles SW of OKAYAMA.

FUKUYAMA is on the double track SANYO Main Line, the coastal railway which is the extension of the TOKAIDO M.L. from TOKYO to KOBE. The SANYO runs through FUKUYAMA and SW to SHIMONOSEKI. A spur runs S along the river to TOMO.

The 1940 population of FUKUYAMA was 56,653. The city has decreased in size since 1935 when it had a population of 58,186. The political boundaries of the municipality enclose 11.26 sq. mi. but the main urban area is from one to 1.5 sq. mi. The built-up section which has been designated as target is about 1 sq. mi. The main industrial development of FUKUYAMA lies around the edge of the city but most of its plants are included within the fire zone. The most prominent targets are XXI-6282, the Barracks and A/C Plant, to the SE; and Target 1931 to the NE. The northern section of the city contains many small plants which are clustered around the RR yards. To the W along the banks of the river is the spinning mill district.

1. MISSION 321 - night of 8-9 August 1945, 58th BW participated, dropping a total of 555.7 tons on primary and 1.2 tons on opportunity, between 08235K-090035K, from 13,100'-13,800', 0/10-5/10 clouds over the target. Bombs dropped: AN-M17A1, AN-M47A2.

DAMAGE - .88sq. mi. or 73.3% of the city was destroyed.

Damage to Targets:

90.29-1931 Imperial Dye Works	60%	of visible portion destroyed.
U/I Industry	20%	partial cloud cover
3 U/I Industries	100%	gutted
20 of 23 U/I Industries	100%	
90.29-XXI 6282 Barracks Area	15%	
2 of 15 small U.I Industries outside built-up area were destroyed.		

No previous missions.

No bomb plot available.

IMABARI URBAN

90.29

IMABARI like UWAJIMA on SHIKOKU, is a small but compact urban area of many light industries. Prior to the war its chief activity was textile spinning. Of the thirty installations within the area, at least some are believed to have been converted to the manufacture of sail cloth and wooden ships.

The city of IMABARI is located on the extreme NW tip of the island of SHIKOKU. It is about 50 miles NE of UWAJIMA and about 50 miles W of TAKAMATSU. It is a port city on KURASHIMA STRAIT which separates SHIKOKU from HONSHU at one of the narrowest water courses. The city of KURE is about 30 miles NW of IMABARI.

IMABARI occupies an area of about 1 sq. mi., N of the SOSHA RIVER. All of the built-up area is contained within the railway on the W the river on the S, the straits on the E and a small canal emptying

RESTRICTED

IMABARI URBAN (CONT)
90.29

into the N boat basin on the N. The area is fairly diffuse except for the fact that light industry is scattered throughout.

The industrial character of the city is marked by marine activity and light manufacturing. There are 30 sawtoothed roof buildings throughout the area in ten separate industrial areas. Just N of the river and just inshore from the boat basin is a typical Japanese moated castle. NE of the castle is the larger boat basin. A smaller basin is on the N shore. These are the most prominent landmarks.

1. MISSION 316 - night of 5-6 August 1945, the 58th BW participated dropping 510 tons on primary target, between 060105K-060147K, from 12,200'-12,800', 0/10-5/10 clouds were over the target.
Bombs dropped: M-19(500#IC), T4E4(500#Frag.), AN-M64(500#GP)

DAMAGE - .73 sq. mi. or 76% of the city was destroyed.

Target Damage:

XXI 6096 - U/I Industry	10%
6097 - U/I Industry	50%
6098 - U/I Industry	100%
6099 - U/I Industry	35%
6100 - U/I Industry	40%

In addition:

5 Unidentified industrial areas were damaged, for detail refer to D/A Report No. 169, of 17 August 1945.

.02 sq. mi. was destroyed outside built-up area.

No previous missions.

No bomb plot available.

RESTRICTED

MATSUYAMA URBAN
90.29

The city is important as a military center, a transportation hub, and a light metals industrial city. The area has been under attack previously with the objective the Matsuyama Airfield, a Navy MAD.

Matsuyama is the largest city in western Shikoku, a military headquarters, and a railway center. As a military center the city serves the airfield and naval air installations as well as a branch of the Kokura Arsenal, Army Depot. Secondary railway shops and yards on the main line single out Matsuyama in transportation in the western area of the island. Industrially, Matsuyama presents a city of only light manufacturing; many of the small plants are metal working installations. Some are agricultural implement makers. In pre-war days the city was a center for the silk and rural region of western Shikoku.

LOCATION AND IDENTIFICATION: Matsuyama is located on the western coast of Shikoku. It is 33 miles almost directly south of Kure. It is 47 miles North by East of Uwajima, previously attacked. The city is 47 miles northeast of Sagano-Seki, the easternmost tip of Kyushu. The built-up area of the city lies about 5 miles inland and is served by two small ports to the northwest: Mitsuhamma and Takahama.

TARGET DESCRIPTION: The population of Matsuyama in 1940 was 117,534.

There are three medium sized railway installations within the built-up area: (1) directly south of the castle grounds, a yard with possible shops; (2) northwest of the castle, a second small yard with warehouses interspersed; (3) west of the castle, the largest yard with a round house, turntable, and barracks buildings on the southern edge

1. Mission 293 On night of 26/27 July 1945, 73rd Bomb Wing participated, dropping 896 tons over primary target, between 270008K-270218K, from 11,000'-12,350', 0/10-2/10 clouds over target.

<u>Type bombs</u>	<u>Dropped over target</u>
AN-M17A1 (500# I.C. open 5000')	15.0
E-46 (500# I.C. open 5000')	470.0
E-36 (500# I.C. open 5000')	16.6
AN-M47A2 (100# I.B. Inst.)	<u>394.4</u>
TOTAL	896.0 tons

DAMAGE: 1.22 sq.mi or 73% of city destroyed.

DAMAGE TO TARGETS: 3 u/i industries - destroyed 100%.

No previous mission. No bomb plot.

RESTRICTED

IMPERIAL DYE WORKS, FUKUYAMA
90.29-1931

1. MISSION 321, 8 Aug 45, Fukuyama Urban. Incendiary attack with 555.7 tons of AN-M17A1, AN-M47A2.

DAMAGE: 20% cloud cover on photos. 60% visible plant area destroyed.

SUMITOMO CHEMICAL PLANT, NIIHAMA
90.29-923

No report of attack or damage to this target.

RESTRICTED

KURE URBAN
90.30

IMPORTANCE: Kure Naval Base is Japan's largest fleet building and maintenance base. Because of the crippling blows which Japan's fleet has received in recent months, the base is undoubtedly overtaxed as regards repair and maintenance. The arsenal included in Kure Naval Base is the largest producer of naval AA guns, including the 40mm, the 120mm and the 100mm guns. The city proper has a number of small industries included in the congested area but it is probably more important as a housing reservoir for the employees of the naval base.

LOCATION AND IDENTIFICATION: Due north of the western end of Shikoku is Hiroshima Bay, one of the largest bays in southwestern Honshu. At the southeastern tip of the bay, 15 miles SE of Hiroshima City, lies the city of Kure. Kure occupies an amphitheater-like site in a small valley, bounded on three sides by high hills and by Kure Harbor on the southwest.

TARGET DESCRIPTION: The great bulk of Kure's population, reported as over 238,000 in 1940, is concentrated within an area of about 2 1/2 square miles. The population density is estimated at over 70,000 per square mile in the city proper.

Most of the houses are one or two-story, wood or plaster structures, jammed together in the usual hodge-podge way. The few large commercial buildings are located along the single wide avenue in the southwestern part of the city.

1. MISSION 240: On night of 1 July 1945, 58th wing participated dropping total of 1081.7 on primary and 14.3 on opportunity, between 0102K-0305K, from 10300'-11,800', 6/10-8/10 clouds over target.

<u>Type bombs</u>	<u>Over Primary</u>	<u>Over Secondary</u>
E-46 (500# I.C.)	611.8	8.0
AN-M47A2 (100# I.B. Inst.)	<u>469.9</u>	<u>6.3</u>
TOTAL	1081.7 tons	14.3 tons

MISSION 146: 5 May 1945, Target: Hiro A/C (660) and Hiro Engine and Turbine Factory (730) 58th and 73rd bomb wing participated, dropping 144 tons of AN-M65 (1000 GP) and 434 tons of AN-M66 (2000 GP), between 01462-02112, from 18,900'-24,700'.

MISSION 215: 22 June 1945, target (Kure Naval Arsenal (657A)), 58th and 73rd bomb wing participated, dropping a total of 795.8 tons on primary and 65.5 tons on opportunity, between 00312-01432 from 18,000'-26,250'.

<u>Type bombs</u>	<u>Dropped on Kure Naval Arsenal</u>
AN-M64 (500# GP)	56.8
AN-M65 (1000# GP)	323.0
AN-M66 (2000# GP)	<u>416.0</u>
TOTAL	795.8 tons

DAMAGE FROM ALL MISSIONS: 1.3 Sq. Mi. or 40% of the city destroyed.

DAMAGE TO TARGETS:

90.30-798	Kure RR Station	30%
657B	Kure Naval Shipyard	80%
657C	Torpedo Base and Mine Depot	80%
657D	Provisions and Clothing Depot	40%
656	Kure Naval A/F	Unknown
657A	Kure Naval Arsenal	72% old damage
730&794	Hiro Engine & Turbine Fact.	71.5% old damage

All missions Kure Area XXI BC M-146, 5 May, XXI BC M-240, 1 July, Naval Air Strikes on 19 March 1945; XXI BC Mission 215 on 22 June 1945.

No bomb plot for Urban Mission No. 240, 1 July 1945.

RESTRICTED

KURE NAVAL ARSENAL
90.30-657A

This target and its branch factory at Hiro (Target 90.30-794), constitutes the principal arsenal of the Japanese Navy. Known to be at these plants are the following items:

40mm AA machine guns, 120 and 140 mm Naval Guns, projectiles, fuses, propellants, and torpedoes.

This plant is reported to be producing naval guns up to 16 inches, together with mounts for fortress guns and turrets for ship's guns, all types of projectiles, primers and armour plate, gun sights periscopes, primers and radio and other electrical equipment except radar, which is repaired but not manufactured in quantity here.

1. MISSION 215 - 22 June 1945, 162 B-29's dropped 795.8 tons (1289 bombs) of AN-M65 (1000# G.P.) bombs with 1/10 and 1/40 sec. delay nose, 1/40 sec. delay tail; and AN-M64 (500# G.P.) bombs with 1/40 sec. delay nose and tail; AN-M66 (2000# G.P.) bombs 1/40 sec. delay nose and tail. 288 bombs fell within a 1000' radius of M.P.I.

<u>DAMAGE</u> - Destroyed	250,100 sq.ft.	6.3%
Structural Damage	411,515 sq.ft.	10.3%
Gutted	1,804,125 sq.ft.	45.0%
Minor Roof	41,770 sq.ft.	10.4%
<u>TOTAL</u>	<u>2,879,510 sq.ft.</u>	<u>72.0%</u>

HIRO NAVAL A/C FACTORY
90.30 - 660

The plant is located about 2000 yards SSW of the town of Hiro and about 3¼ miles SE of Kure. It is on the eastern prong of the Kurose River which enters Hiro Bay at two places. The Kure Naval Air Station (Target 90.30-656) is 2100 feet west of the plant.

The Hiro Naval Aircraft Factory manufactured aircraft engines and air frames, and there were indications that the factory was also providing third and fourth echelon maintenance and repair. Planes produced at the factory were "Emily", The "Cherry", and a new, un-coded twin-engine patrol bomber.

1. NAVAL AIRCRAFT ATTACK - Target 660, 19 March 1945, Aircraft from Yorktown. No. of aircraft participating (unobtainable) dropped 72 bombs as follows:

<u>No.</u>	<u>Type</u>	<u>Fusing</u>	
		<u>Tail</u>	<u>Nose</u>
17	500# GP	.01	.025
5	500# GP	-	.025
12	HVAR	No delay	
4	AR	-	.01
27	100#GP	-	.025
7	250#GP	-	.025

2. MISSION 146 - 5 May 1945, 58th and 73rd Wing, 148 A/C dropped 288 bombs (144 tons) AN-M65 (1000#GP) and 434 (434 tons) AN-M66 (2000#GP), with fuse settings of .01 nose and non-delay tail. Of the total HE bombs released (722) 28.9% scored within 1000'.

DAMAGE - Total Roof area damaged or destroyed to date is 779,000 sq.ft. or 71.5% of the total plant roof area (1,099,229 sq.ft.).

RESTRICTED

HIRO NAVAL ENGINE & TURBINE FACTORY
90.30-730

Located on the Hiro waterfront immediately N of target 660. This is the reported location, and there is disagreement as to the exact areas covered by this target, by 730, and by 794. Interpron 2 PIR 516, 29 March 45 lists target 660 as including the area assigned as target 730 by CIU in D/A Report 68, 14 May 45. Plant makes turbines, engines and auxiliary machinery.

1. NAVAL AIR STRIKE - 19 March 1945, HE attack against target 660, dropping 9 x 500#GP bombs (.025 tail), 17 x 500#GP bombs (.01 nose, .025 tail), 27 x 100#GP bombs (.025 tail), and 7 x 250#GP bombs (.025 tail). TOTAL: 8.125 tons. Also 12 x HVAR (High Velocity A/C Rocket) no delay fused, and 4 x AR (A/C Rocket) fused .025 tail.

DAMAGE - Results of attack unknown.

2. MISSION 146 - 5 May 1945, HE attack against target 660, Hiro Naval A/C Factory. Bombing statistics are for the attack against 660, since it is impossible to determine accurately what bombs fell on target 730. 288 x AN-M65 (1000#GP) and 434 AN-M66, (2000# GP) (8 released safe) were dropped on target 660. Total tonnage of 578. Fusing .01 nose, ND tail.

DAMAGE - 51.5% of total roof area of targets 730 and 794 damaged or destroyed. These two targets were assessed together in D/A Report 68.

3. NAVAL AIR STRIKE - 24 July 1945, HE attack on target 660, dropping 3 x 260# F. (Inst. nose, ND tail), and 4 x 260# F. (VTnose, ND tail). Total tonnage: 1820. Also used were 8 x HVAR (Inst. nose). Results of the attack unknown.

HIRO ARSENAL
90.30 - 794

No definite line of demarcation can be drawn between target 794 and target 730 which adjoins it. Target is a subsidiary of the Kure Arsenal (90.30-657A) and is reported to specialize in naval ordnance repair, and manufacture large naval rifles, AA guns, carriages, mounts, and shells, Located at the mouth of the eastern branch of the Kurose river about 3 miles east southeast of Kure. Adjoining the target to the south is the Hiro Naval Aircraft factory (90.30-660).

1. MISSION 146 - 5 May 1945, 37 aircraft of the 58th wing dropped 288 x 1000#GP (144 tons) .01 nose, non-delay tail.
111 aircraft of the 73rd wing dropped 434 x 2000#GP (434 tons) .01 nose, non-delay tail.
Total tonnage dropped: 578 tons, 722 bombs.

DAMAGE - on targets 730/794: 1,251,125 sq.ft. (51.5%) of total roof area of both targets.

No bomb plot.

RESTRICTED

OTAKE OIL REFINERY
90.30-2121

Located on Hiroshima bay on a promontory of reclaimed land immediately S of Otake town.

This plant was the Japanese army's largest active refinery in the home islands. Probably major source of aviation gasoline. Completely modern, probably with hydrogenation facilities for treatment of heavy oil fractions.

1. MISSION 165 - 10 May 1945, HE attack, dropping 2197 x 500#GP AN-M64 bombs (549.2 tons), fused Inst. nose, ND tail.

DAMAGE - Refining and finished product areas received most of the visual damage; with approximately 45% of the plant installations destroyed. Assessment limited by photo coverage. Plant considered probably inactive after the attack.

No bomb plot available

RESTRICTED

UWAJIMA URBAN

90.31

UWAJIMA URBAN is one of the four largest cities on the Island of Shikoku, and is an important port for inner Island shipping. It was one of Japan's Textile Centers, and since the war has converted some of the idle textile plants to war production.

UWAJIMA is located on Uwajima Bay on the west central coast of Shikoku, about 40 miles west of Matsuyama.

The city has a population of 52,101, concentrated in a built-up area of .1 sq.mi.

1. MISSION 266 12/13 July 1945, 314th BW participated, dropping a total of 872.5 tons on primary and 9 tons on opportunity, between 130013K-130226K, from 10,400'-16,400', 10/10 clouds over target. Bombs dropped: AN-M47A2, E46.
2. MISSION 302 28/29 July, 314th B.W. participated, dropping 205.3 tons of bombs, between 290116K-290225K, from 10,400'-11,230', 4/10-6/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .52 sq.mi. or 52% of city destroyed.

DAMAGE TO TARGETS: Dockyard Warehouses 50% destroyed.

No Bomb Plot.

RESTRICTED

TOKUYAMA URBAN
90.32

TOKUYAMA is a small industrial concentration of about 40,000 persons, with two large soda (CHEMICALS) plants, large refinery and oil storage facilities (heavily damaged by B-29's) and scattered small industrial establishments. In addition it is the main population center of an area of sizeable industrial importance in Japanese war production. It is served by the SANYO Mainline railroad double track, has reasonably good highway connections and dock facilities for small shipping.

LOCATION AND IDENTIFICATION: TOKUYAMA is located on the southern coast of HONSHU near the western end of the Inland Sea about 50 miles from SHIMONOSEKI Strait. The city lies on the shore of TOKUYAMA WAN (bay) in a narrow coastal plain between low hills behind the city and the island-dotted bay. The waterfront is dominated by two large installations, the TOKUYAMA Soda Co. (Target 675) and the TOKUYAMA Naval Fueling Station (Target 673/674, now largely destroyed).

TARGET DESCRIPTION: The city occupies an area of about 1 sq.mi., extending about 8000 ft. along the shore and running back about 5500 ft. at its widest part. It is bisected by the main coastal highway and the SANYO Mainline Railway cuts through the city about 1000 ft. from the water front.

1. MISSION 294 26/27 July 1945, 313th BW participated, dropping a total of 751.5 tons on target, between 270122K-270235K, from 11,000' to 12,500', 3/10-10/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .47 sq.mi. or 37% of city was destroyed.

DAMAGE TO TARGETS: 7

7 small U/I industries	-	100% destroyed.
90.32 - 673 & 674 - Tokuyama Naval Fueling Station.	-	50% old damage.
90.32 - 672 - Nippon Oil Co.	-	20% old damage.
90.32 - 669 - Hanano Waki Oil Storage	-	80% old damage.
90.32 - 825 - Hitachi (RR Equipment)	-	40% old damage.

Previous Missions: XXI B.C. M163 & M164 caused the old damage referred to above.

No bomb plot.

RESTRICTED

UBE URBAN

90.32

Ube is the largest city in southwestern Honshu, with coal mines producing $1\frac{1}{2}$ million metric tons of black lignite coal. Varied industrial activities include several key plants in the Jap war production scheme. The most important single target is the Riken Metal Co., Target 922, the largest magnesium plant in Japan. The primary source of electricity for the electrolytic process used in this plant comes from Ube #2 Steam Power Plant, Target 1626, a 75,000 KW plant, the largest in Western Honshu. In the absence of major interconnections in the power grid of Western Honshu, the destruction of this plant would strain the present power grid. With coal being mined at the waterfront, the Ube Coal Liquefaction Plant, Target 1841, has a ready source of raw material and is one of the larger Jap synthetic oil plants. The tar for the hydrogenation process in the synthetic oil plant is furnished by the Ube Nitrogen Fertilizer Co., Target 818, the third largest nitrogen fixation plant in Japan proper. The above targets are all concentrated on one peninsula of reclaimed land, the larger portion forming the Western Side of Ube Harbor. Also on the peninsula is a small titanium plant, producing a product used in covering welding rods, and a cement plant. Clustered along the waterfront on the edge of the incendiary zone are two chemical plants, two special steel plants, and a small oil plant.

Location & Identification: The city of Ube lies on the southwest coast of Honshu, approximately 25 miles east of the narrow Shimono-seki Straits between Honshu and Kyushu, and approximately 35 miles west along the Inland Sea coast from Tokuyama, previously attacked for oil storage facilities located there.

Target Description: Ube had a 1940 population of 100,680, with an overall area of 15 Sq. Mi. The greater part of the built-up and densely populated area is compressed in a narrow fringe hugging the waterfront, with an East-West axis of approximately 2 miles, and a short North-South axis of hardly more than $\frac{1}{4}$ of a mile. A less densely built-up area continues to the Ube RR Line to the north for a total distance of $\frac{1}{2}$ mile. This provides a good incendiary area of about 1 square mile.

1. MISSION 242, 1 July 45, 313th BW participated, dropping a total of 714.6 tons on primary target, between 0147K-0312K, from 10,000'-11,600', 0/10 - 5/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .42 sq. mi., or 23% of city was destroyed.

Damage to Targets:

90.32-1880 Nippon Motor Oil Co.	Minor damage.
Higaski-Misome Coal Mine	90% destroyed.
Ube Spinning & Weaving Co.	50% destroyed.
Needle Factory	Minor Damage.
City Gas Co.	Minor damage.
Miyaoki Coal Mine	Minor damage.
Brick Yard	100% destroyed.

No Previous Missions.

No Bomb Plot.

RESTRICTED

NIPPON OIL COMPANY
90.32-672

This installation had an estimated annual refining capacity of 2.5 million bbls. and a cracking capacity of 660,000 bbls. Storage capacity was estimated at 200,000 bbls.

The plant is located on the tip of the peninsula at the south edge of Kudamatsu.

1. MISSION 238 - 30 June 1945, HF attack with 500# bombs.

DAMAGE - This mission resulted in the damage of about 1% of the total storage capacity.

2. MISSION 270 - 15 July 1945, HE attack with 500# bombs.

DAMAGE - This mission resulted in widespread damage throughout the plant with almost all major units showing structural damage. 349,000 bbls. (60%) of the original capacity was destroyed or damaged.

MISSION	NO. BOMBS	TONS	TYPE	FUZING	% PLOTTED	% 1000'
238	834	208.5	AN-M64	.1 nose .01 tail		Radar Drop
270	1907	476.8	AN-M64 500#GP	.1 Nose .01 Tail		Radar Drop

TOKUYAMA NAVAL FUELING STATION
90.32-673

Located immediately S of Tokuyama Town on the water front between the sea and the railroad.

Plant refines and treats crude oil through hydrogenation, tetra ethyl production and possibly methanol manufacture. The solid fuel and briquetting plant were removed prior to May 1945.

1. MISSION 163 - 10 May 1945, HE attack against this target, dropping 971x500# AN-M64 bombs (242.8 tons) fuzed .1 nose and .025 tail. 95% bombs plotted, 65% bombs plotted within 1000' MPI.

DAMAGE - Approximately 50% of the total roof area destroyed or damaged, all crude oil tanks destroyed and approximately 32% of byproducts tanks destroyed or damaged. Experimental laboratories and one refining unit and washing, loading and mixing unit destroyed; cracking, oil testing and hydrogenation units approximately 70% destroyed; two refining units 14% and 47% destroyed. Plant inoperative.

2. MISSION 244 - 26 July 1945, IB attack against Tokuyama Urban, dropping 751.5 tons (E-46x500# fuzed to open at 5000', M47A2x100# fuzed inst. nose, and T4E4x500# fuzed to open 1000' below A/C.

DAMAGE - 37% (.47 sq.mi.) destruction of built-up area. No evidence of damage to target 673 reported.

TOKUYAMA SODA COMPANY, TOKUYAMA
90.32-675

1. MISSION 294 - ^{1/2} ~~26~~ July 1945, Tokuyama Urban, IB attack with E-46, T4E4, and AN-M47A2 bombs used.

DAMAGE - None visible.

RESTRICTED

UBE COAL LIQUEFACTION COMPANY
90.32-1841

Located NW of Ube Town on the E bank of the Kato River.

Target is a synthetic oil plant credited with capacity of about 1/3 of the Japanese Home-island production.

1. MISSION 270 - 15 July 1945. Wind run A/C from this mission bombed target 1841 as primary target, dropping 17 tons AN-M64x500#GP bombs fuzed .1 nose and .01 tail. Drop was made by radar.

2. MISSION 283 - 23 July 1945, HE attack against this target, dropping 619.8 tons of bombs (AN-M64 fuzed .1 nose and .01 tail) by radar.

3. MISSION 315 - 5 August, HE attack against this target, dropping 938 tons of bombs (AN-M64 fuzed .1 nose and .01 tail) by radar.

DAMAGE - (Assessed for all three missions). Entire storage capacity and all of the main installations damaged or destroyed by these attacks. The least damage was done in the storage and warehouse section in the N part of the plant.

NIPPON MOTOR OIL COMPANY
90.32-1880

1. MISSION 242 - 1 July 1945, Bombs used: M47A2 and E46, 714.6 tons,

DAMAGE - Minor damage.

O-SHIMA NAVAL OIL STORAGE
90.32-1884

Located on NW shore of O-Shima peninsula, SSW of Tokuyama Town. Naval Oil Storage Depot.

1. MISSION 166 - 10 May 1945, HE attack against this target, dropping 1533x500# AN-M64 GP bombs (382.2 tons) fuzed .1 nose, .025 tail.

DAMAGE - 74% (14) of useable storage tanks and 90% (9) of the buildings destroyed. Much of the depot had been removed prior to the attack.

RESTRICTED

NOBEOKA URBAN
90.33

Nobeoka is of strategic importance because its output of chemicals and explosives is one of the most important in Japan. As a transportation center, the city is the most important on the East Coast between Oita and Miyakonojo. Its railway yards, repair facilities and highly vulnerable railway bridge offer an excellent opportunity for cutting the only East coast main line.

Location and Identification: The city is about halfway up the east coast of Kyushu. Nobeoka is on a delta plain and lies in an irregular band across the fork of the Gokase and the Ose Rivers, with open patchwork fields between it and the Sea, $1\frac{1}{2}$ miles to the east. It is accessible from the sea probably by coastal vessels only. The city is partly flanked by mountains on the south, west, and north.

Target Description: Nobeoka has a population of about 80,000 (1940), and the built-up area covers an area of about $1\frac{1}{2}$ square miles. It is about 2 miles long and has a maximum width of about $1\frac{1}{2}$ miles near the southern end. The northern half is only about $\frac{1}{2}$ mile wide. The city is divided into 3 parts by the two rivers cutting through near its center. These rivers provide good firebreaks.

1. MISSION 237, 28/29 June 1945, 314th Bomb Wing participated, dropped a total of 828.8 tons on primary, between 0246K - 0417K, from 7,000 - 12,000 ft, 8/10 - 9/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .52 sq. miles or 36% of city was destroyed.

Damage to targets:

Targets 1314 & 1315	received scattered damage.
Middle School	80% destroyed.
Nobeoka RR Station & Yards.	2 bldgs. destroyed.
Civic Center	15% destroyed.

Refer to D/A report No. 121.

No Previous Missions.

Bomb Plot Work Sheet Available.

RESTRICTED

OITA URBAN
90.33

Oita is the most important Kyushu city on the Inland Sea. It is a Prefectural Capitol and a District Regimental Hq. The city is located on the Nippo Main Line, the chief east coast RR between Kokura and the southern part of Kyushu. Two cross-island routes form a junction with the main line here. Oita is the seat of an important Naval Air Depot which serves three Kyushu A/F and their replacement shops. A six-mile electric line connects Oita with Beppu. The "circum-island" National Highway runs from Kokura through Oita and continues to Nobeoka and Kagoshima.

The population of Oita was 76,985 in 1940. The city is fairly well diffused with an average population density of about 26,000 per sq. mi. The area of the city is approximately 3 sq. mi. The main built-up area lies west of the river and is about 0.8 sq. mi. in extent. The most densely populated area of the city is split by a small river, the Sumiyoshi Gawa.

1. Oita A/F located about 1½ mi. E of Oita was attacked by small forces on eight occasions between 27 March and 11 May. Bombs carried were G.P.'s.

DAMAGE - On several of these missions bombs fell in the city of Oita and caused some damage to the residential and business districts. The Oita A/F, Naval Air Depot, 47th Inf. Reg. Replacement Unit, pumping station, Bogakoji Silk Mill, and Japan Artificial Wool Co. were damaged as a result of these missions.

2. MISSION 272 - 16/17 July 1945, 73rd Wing bombed the city with 124 A/C dropping 790.4 tons of AN-M47A2 (100#IB with inst. nose fuse). The city was bombed at 170112K - 170232K from an altitude of 10,000 to 11,500 ft. by individual A/C through 4/10 to 5/10 undercast.

DAMAGE - Post strike ren. shows damage from this attack amounted to a total of 0.555 sq. mi. (25.2%) of burned-out area with important damage to the Oita RR Yds. Sta., and shops; Oita Oil Ref., Matsukan & Co. (Petroleum), Tin Ore Ref. Co., and Telephone Exchange.

No bomb plot available.

NIPPON NITROGEN EXPLOSIVES CO., NOBEOKA
90.33 - 1311

1. MISSION 237 - 28 June 1945, Nobeoka Urban. Incendiary attack with 828.8 tons E46, AN-M47A2.

DAMAGE - No visible damage.

ASAHI BEMBERG CUPRAMMONIUM PLANT, NOBEOKA
90.33 - 1314

1. MISSION 237 - 28 June 1945, Nobeoka Urban. Incendiary attack with 828.8 tons E46, AN-M47A2.

DAMAGE - Minor Damage.

RESTRICTED

OITA NAVAL AIR DEPOT, ENGINE SECTION
90.33 - 2080

Situated in NE Kyushu near the S entrance to the Inland Sea, about 1 Mile S from Beppu Bay on the S edge of the coastal plain between the Oita and Ono River Mouths. This relatively new plant was probably engaged in engine repair and overhaul but could manufacture new engines on a limited scale. Many tunnel entrances in the surrounding hills may lead to underground installations. This target was bombed once by the navy air arm, and twice by the XXI B.C. This plant is considered 90% damaged or destroyed

1. NAVY ATTACK - 19 March 1945, Squadron AG-10 from the Intrepid dropped 10 HVAR. The ACA report No. 12, which contains other information is unavailable.

2. MISSION 144 - 5 May 1945, 314th Wing, 8 A/C dropped 171 (4.3 tons) AN-M64, 500# G.P. bombs with inst. nose fuse and ND to 12 hour delay tail fuse. 79 bombs, or 46%, fell within 1000 ft. of A.P.

DAMAGE - 40% of plant was damaged in this raid.

3. MISSION 167 - 11 May 1945, 313th Wing. 17 A/C dropped a total of 142, 1000# and 2000# G.P. bombs on targets 2080 and 2081. No break down for individual targets available.

DAMAGE - Target 2080 was 50% damaged in this raid.

OITA NAVAL AIR DEPOT, AIRFRAME SECTION
90.33 - 2081

Principal function of the plant is probably repair and modification of naval aircraft. It is possible that the plant manufactures new aircraft on a limited scale. It is located in NE Kyushu near the south entrance to the Inland Sea about 1.1 miles south of Beppu Bay on the south end of an island in the mouth of the Oita River. The city of Oita lies across the river to the west.

1. MISSION 144 - 5 May 1945, 17 Aircraft of the 314th wing dropped 375 x 500# GP inst. nose, ND-36 hour tail. 93.8 tons were dropped on targets 2080 and 2081. 9 of above aircraft dropped 204 x 500# GP on 2081 (51 tons). 204 impacts visible. 101 fell within 1000 feet of AP (49%).

Damage statement appears under mission 167.

2. MISSION 167 - 11 May 1945, 17 Aircraft of the 313th wing dropped 114 x 1000# GP Inst. nose, ND tail (57 tons) and 39 x 2000# GP. inst. nose, ND tail (39)tons). 105 bursts were plotted. 99 bursts, or 70% within 1000 feet of MPI.

DAMAGE - Results of missions 144 and 167: 85% destroyed or damaged

RESTRICTED

MOJI URBAN
90.34

MOJI, along with Shimonoseki, are the transportation funnels upon which depend the maize of industry located in Northern Kyushu and Southern Honshu. They offer a most concentrated and inflammable target area, the destruction of which would go far to hamper the economic potential of the entire industrial complex. Through the cities RR Yards passes most of the coal and steel headed for Honshu's finished products plants.

Moji is located on the Northern tip of Kyushu, $\frac{1}{2}$ mile across Shimonoseki Strait. The city lies on a narrow plain backed by hills

Moji has a population of 140,000, concentrated in a built-up area of 1.12 Sq. Mi.

1. MISSION 236, 28/29 June 1945, 313th BW participated, dropping a total of 625.9 tons on primary and 17.3 tons on opportunity, between 0111K - 0243K, from 9,900' - 11,600', 10/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .302 sq. miles or 26.9% of city was destroyed.

Damage to Targets:

90.34 - 44A - Moji Central Wharf	-	100%	destroyed.
44B - Moji Southern Wharf		5%	"
49 - Moji Ordnance Storage		30%	"
		70%	guttled.
7 of 18 small U/I industries	-	100%	destroyed.
Waterfront warehouses		100%	"

No Previous Missions

No Bomb Plot.

RESTRICTED

SHIMONOSEKI URBAN

90.34

Shimonoseki, like Moji, is a transportation funnel upon which the maize of industry in northern Kyushu and Southern Honshu depends. Installations in the city are largely related to city's role as the southern Honshu gateway for inter-island and mainland traffic.

Shimonoseki is located on the south western tip of Honshu, 1/2 mile across Shimonoseki Strait from the Island of Kyushu and Moji City.

Shimonoseki is long and narrow, about 4 miles long 1 mile at the widest point. The city lies lengthwise along Shimonoseki Strait, backed up by a mountain range. The city has a population of 200,000.

Mission 243 1/2 July 1945 314th Bomb Wing participated, dropping a total of 833 tons on primary and 37.3 tons on opportunity, between 0325K-0400K, from 7,900-19,000, 4/10-9/10 clouds over target. Bombs dropped: AN-M47A2, E46.

DAMAGE: .51 sq.mi. or 36% of city was destroyed.

DAMAGE TO TARGETS:

90.34-42 Shimonoseki Port - 20% damaged

90.34-111 Shimonoseki RR Shop and Yards - 25% destroyed.

No Previous Missions

Bomb Plot Work Sheet Available.

RESTRICTED

YAWATA - URBAN
90.34

Yawata was one of the four ranking urban industrial concentrations in Japan. The region, a complex of five industrial cities, contained the largest single iron & Steel Plant in Japan, chemical plants, arsenals and vital transportation facilities.

Yawata is located along the N Kyushu coast, the area taking a fringe like shape along the coast and extending S and W of the Shimonoseki Straits.

Yawata had a built-up area of 5.78 sq. mi., containing 8 numbered targets and industrial areas.

1. MISSION 319, 8 Aug 45, 58th, 73rd, 313th Bomb Wings dropped 1301.9 tons of M17 and M19 500# Incendiary Bomb Clusters between 081101K and 081136K from 19000 to 24300 ft. through 4/10 to 6/10 clouds.

DAMAGE - 1.22 sq. mi. (21% of built-up area) destroyed, 5 numbered targets damaged.

Target No. 28	Japan Iron Works	Minor Damage
567	Asahi Glass Co.	None
569	Kyushu Chemical Co.	2% minor damage
1108	Nippon Aluminum Co.	None
1113	Nippon Synthetic Industry	Minor Damage
1126	Yawata Electrical Co.	5% damaged
1851	Nippon Synthetic Industry	None
2169	Yawata RR Yards	Minor damage

No bomb plot available

Strike photos in files

IMPERIAL IRON & STEEL WORKS - YAWATA
90.34-28

1. 20BC MISSION 2, 15/16 June 44. HE attack on this target with 370x500# GP bombs (92.5 tons) fused .1 nose and .025 tail. No bomb plot available.

DAMAGE - Powerhouse appears damaged. At least 4 buildings in Kokura Arsenal destroyed or damaged. Several buildings in Kyushu Chemical Works destroyed or damaged.

2. 20BC MISSION 7, 20/21 Aug 44. HE attack on this target with 446x500# GP bombs (111.5 tons) fused .1 nose and .025 tail. No bomb plot available.

DAMAGE - Direct hit seen on coke ovens. No reconnaissance photography for damage assessment at the time of Tactical Mission Report.

IMPERIAL IRON AND STEEL WORKS - TOBATA
90.34-29

1. 20BC MISSION No. 3, 7/8 July 44. One A/C Mission on the target, dropping 8x500# GP bombs and 1xM18 Incendiary cluster. Results unknown.

KYUSHU CHEMICAL CO. - YAWATA
90.34-569

1. 20BC MISSION No. 2, 15/16 June 1944, Yawata Steel Works. HE attack with 370x500# AN-M64 fused .1 nose and .025 tail.

DAMAGE - 1 large and several small buildings in target 569 damaged or destroyed.

2. 20BC MISSION No. 7, 20/21 Aug 44, Yawata Steel Works. HE attack with 446x500# AN-M64 fused .1 nose and .025 tail.

DAMAGE - None reported to target 569

RESTRICTED

YAWATA - URBAN 90.34, KYUSHU CHEMICAL CO. - YAWATA, Continued.

3. 20AF MISSION 319, 8 Aug 45, Yawata Urban. Incendiary attack with 1301.9 tons AN-M17A1, M19.

DAMAGE - 2% minor damage.

RESTRICTED

KUMAMOTO URBAN
90.35

Kumamoto, the fourth largest city in Kyushu, is the capital of Kumamoto Prefecture and as such an important government center. In addition, it is the headquarters of the 6th Army Division, and the commercial center of the area east of Shimabara Gulf, and includes a number of industrial installations probably converted to war production. Kumamoto is also a strategically important rail and highway transportation hub.

LOCATION AND IDENTIFICATION: The city is on the western side of Kyushu, about half way between Moji in the north and Kagoshima in the south; it is 5 miles east of Shimabara Gulf on the Shira River. The plain surrounding the city extends east to the margins of Aso-Zan, the great volcano dominating central Kyushu.

TARGET DESCRIPTION: The population of Kumamoto (1940) is 210,000 and its area is about 3 square miles. The greatest concentration is along a 1/2 mile wide strip between the Shira River and the Tshai River. There is no marked differentiation between commercial, industrial, and residential sections.

1. MISSION 241: 1/2 July 1945, 73rd B.W. participated, dropping a total of 1113.2 tons on primary and 7.8 tons on opportunity, between 0059K-0230K, from 10,050'-11,500', 9/10-10/10 clouds over target. Bombs dropped: M47A2, E36, F46, F48.

DAMAGE: 1.0 sq.mi. or 20% of built-up area destroyed.

DAMAGE TO TARGETS WITHIN BUILT-UP AREA:

90.35-1248 Kumamoto Military Zone - Minor Damage.
2 U/I light industries. - Minor Damage.

DAMAGE TO TARGETS OUTSIDE BUILT-UP AREA:

90.35-2139 Mitsubishi A/C Co.)
Kumamoto Plant) - 29% (old damage).

No Previous damage to Urban Area.

Naval Aircraft completed four missions over target 90.30-2139
Navy Bomb Plot Available.

No Bomb Plot for Urban Area.

RESTRICTED

SAGA URBAN
90.35

SUMMARY COMMENT: Saga is the capital of Saga Prefecture, an important railway center, and a small manufacturing city which concentrates on foundries and electrical equipment products. It is also the service center for the 48th Infantry Regiment Replacement Unit which is located one mile from the center of the city.

LOCATION AND IDENTIFICATION: Saga is located in the north-central region of Kyushu, 4 miles northeast of the head of a large gulf, the Ariake Kai. This gulf is the upper extension of Shimabara Kaiwan (Bay). The city lies 13 1/2 miles southwest of Kurume and an equal distance northwest of Omuta. Fukuoka lies 25 miles north by east. Saga lies in the broad floodplain of the Chikugo Gawa, one of Kyushu's largest rivers. The city is on the right bank.

TARGET DESCRIPTION: The city of Saga is about 2 miles long, east-west, and one mile wide, north-south. The built-up area is about 1.5 square miles in area, of which approximately one-fourth is accounted for by the castle and moat. It is estimated that there is 0.8 square mile within the target zone, built-up. The population is 50,406 at the last count (1940).

1. MISSION 312 Flown on night of 5/6 August, 58th Bomb Wing participated dropping a total of 458.9 tons, between 060041-060056, from 12,400'-15,500', 0.10-9/10 clouds over target. Bombs dropped M19, T4E4, AN-M64.

Flash Strike Report indicates no area damage caused by this mission.

No Previous Mission.

No Bomb Plot.

OMUTA URBAN
90.35

OMUTA, a city manufacturing technically complicated chemicals, coke and such allied products as synthetic oil, makes an excellent target. With its adjacent local fields and important harbor facilities it represents the most important concentration in the Kurume Area, and one of the most important in Kyushu.

LOCATION AND IDENTIFICATION: Omuta is located in the southern end of the Saga-Kurume-Omuta plain on the northeast coast of the Shimabara Gulf. The city itself is crossed by two rivers, the Omuta through the northern section and the Suwa through the southern section.

TARGET DESCRIPTION: (1) The city is roughly 5 miles long along the waterfront in a north-south direction and 2 1/2 miles wide. (2) Population 177,000 (3) The principal industrial plants are of steelframe construction with sheet iron or asbestos roofing. Predominant construction materials are wood and plaster. The homes of the workers are typical of Japanese old style industrial-workers' dwellings, highly inflammable and closely packed together around the plants. The Mitsui interests control the mines, the port, and the factories; the community is a company town. The industrial targets are clustered at three points: (1) Miike Harbor, (2) Omuta River Mouth, and (3) East Omuta. These are connected by the Mitsui Mines RR which swings in a loop southward from Omuta then westward from the Manda Mines (Target 1278).

1. MISSION 207: 17/18 June 1945, 58th Bomb Wing participated, dropping a total of 769.2 tons on primary and 16.2 tons on opportunity, between 0200K-0409K, from 6550'-9000', 10/10 clouds over target. Bombs dropped: AN-M47A2, F46.

2. MISSION 295: 26/27 July, 314th Wing participated, dropping a total of 964.6 tons on target, between 270113K-270231K, from 13,100'-16,300', 0/10-10/10 clouds over target. Bombs dropped: M17A1, M47A2.

RESTRICTED

OMUTA URBAN (Cont'd.)

DAMAGE: 2.27 sq.mi. or 42.5% of city was destroyed, approximately 4% destroyed by mission 207.

DAMAGE TO TARGETS:

Kanegofuchi Spinning Mill - 75% destroyed.
90.35-1254 - Miike Harbor Facilities - Minor damage.

No Bomb Plot.

FUKUOKA URBAN
90.35

Numerous industries are located in and around Fukuoka, including two iron works producing naval ordnance, and a rubber company estimated to be producing 700 tires daily. Some textile mills and a number of warehouses are also located here.

The city is a funnel for all types of transportation. Kyushu's main highway runs through the city, the harbor receives a large part of the shipping from Korea, and a major branch of the Kyushu RR runs through town with the Hakata Yards, target 1270, serving it.

SUMMARY COMMENT: Fukuoka is the commercial and administrative center for the adjoining coastal plain in northern Kyushu. Its port receives a large amount of the shipping from Korea, and a major branch of the Kyushu RR runs through the city. A number of important industries are located within the area of and adjoining the city.

LOCATION AND IDENTIFICATION: Fukuoka Bay is in the NW section of Kyushu, 35 miles SW of Moji and Shimonoseki Straits. The bay is approximately 12 miles across at its widest part and is shaped roughly like a shoe, with the city of Fukuoka at the position of the sole. Hills rise to 1000' in the vicinity of the city and to 3500' a few miles south of the city.

TARGET DESCRIPTION: The city of Fukuoka is crescent shaped extending for about 7 miles along the coast and from 1 to 2 miles inland. The north side of the city follows the harbor while the south side is bounded by abrupt hills. The city had a population 323,000 in 1940 and has probably grown since then, due to the increase in shipping from Korea and the development of new industries. It has a population density of about 40,000 per square miles in the congested area of the city proper.

1. MISSION 211: 19/20 June 1945, 73rd and 313th B.W., dropping a total of 1525 tons on primary and 13.3 tons on opportunity, between 0011K-0153K, from 9000-10000', 1/10-3/10 clouds over target. Bombs dropped: AN-M47A2, E36, E46.

DAMAGE: 1.37 sq.mi. or 21.5% of city was destroyed.

DAMAGE TO TARGETS:

Tgt. 1255 - Hakata Harbor and Facilities	- 30% bldgs. des.
Tgt. 1270 - Fukuoka RR Stat. & Yards	- Minor damage.
Military Brigade Hdqs.	- 60% destroyed.
Warehouses	- 30% destroyed.
Ship (200' or less) bldg. facilities	- 35% destroyed.
21 small industries	- 100% destroyed.

No Previous Missions.

No Bomb Plot.

RESTRICTED

SASEBO URBAN

90.36

One of Japan's four principal naval bases, SASEBO is important for the construction, repair and maintenance of naval vessels. In addition, it serves as defense base for the area, base port and defense headquarters for convoy escort throughout the EAST CHINA SEA and down the Ryukyu Island chain to points S. It is also a supply base for the mainland and the naval administrative center for KYUSHU.

SASEBO, the westernmost large city in Japan, lies at the head of SASEBO BAY. It is located just SE of TSUSHIMA STRAIT, which is off the NW tip of KYUSHU, and guards the important narrows between KYUSHU and TSUSHIMA. It therefore commands the upper end of the EAST CHINA SEA and the lower end of the JAPAN SEA.

SASEBO lies in a NW-SE direction along the shore of the bay and the lower valley of the SASEBO RIVER. The residential section has expanded N, NE and SW, into the vales of the streams which run throughout the city. The population of 206,000 is concentrated mainly in an area about $3\frac{1}{4}$ sq. mi. (See Air Objective Folder 90.36-SASEBO). Average population density in this city is about 62,000 per sq. mi., with the heaviest population congestion in Zone I.

The industries all lie along the waterfront area, and include an A/C factory, a gas plant, a power station, the SASEBO Naval Dockyard, shipbuilding and ship repair plants, and minor industrial establishments.

28 June
1. MISSION 235 - 6 July 1945, 73rd B.W. participated, dropping a total of 1058.9 tons on primary and 18.11 tons on opportunity, between 0137K-0253K, from 10,100'-11,700'; 9/10-10/10 clouds over tgt. Bombs dropped: M17A1, M-76, E-48, and E-46.

DAMAGE - .97 sq. miles or 42% of the city was destroyed.

90.36 - 752 Dockyards	5%
90.36 - 758 Naval Arsenal & Engineering Depot	25%
90.36 - 845 Provision Wharf	5%
Navy Barracks	25%
Military Barracks	50%

No previous damage.

No bomb plot available.

RESTRICTED

JAPAN NITROGEN FERTILIZER CO. - MINIMATA
90.37-1386

1. NAVAL AIR STRIKE, 14 May 45. HE attack against this target with 17 tons 14x500#GP fused .1 nose; 39x500#GP fused .1 nose and .025 tail; 24x250#GP fused .1 nose and .025 tail; 156x100#GP fused .1 nose and .025 tail.

DAMAGE: None reported.

RESTRICTED

KAGOSHIMA URBAN
90.38

KAGOSHIMA is the largest port in S. KYUSHU, and was used largely for importing.

KAGOSHIMA is located along the W. shore of KAGOSHIMA BAY in a N-S direction for about 4 miles. The city is divided by the KOTSUKI RIVER. An airfield is located at the S end of the city.

KAGOSHIMA had a population of 181,750 with a built-up area of 4.8 sq mi. and a population density of 45,000 per sq. mi. Within the congested area were one numbered target, 1518 - Kagoshima Freight Yards and several unnumbered industrial areas, including the Yoshima Iron Works, Gas plant, and Silk Mills (thought to have been converted.).

L. MISSION 207 - 17 June 1945, 117 A/C of the 314th BW dropped 809 tons of E-46, AN-M17A1, and AN-M47A2 IB's between 0006K-0149K from 7,000'-9,200' through 6/10-10/10 clouds.

DAMAGE - 2.15 sq. mi. or 44.1% of the built-up area was destroyed.

Target 1517. Kagoshima RR Repair Shop - 10% dam or destroyed.
Satsuma Cotton Spinning Mill - 75% destroyed.

Bomb plot WS available.