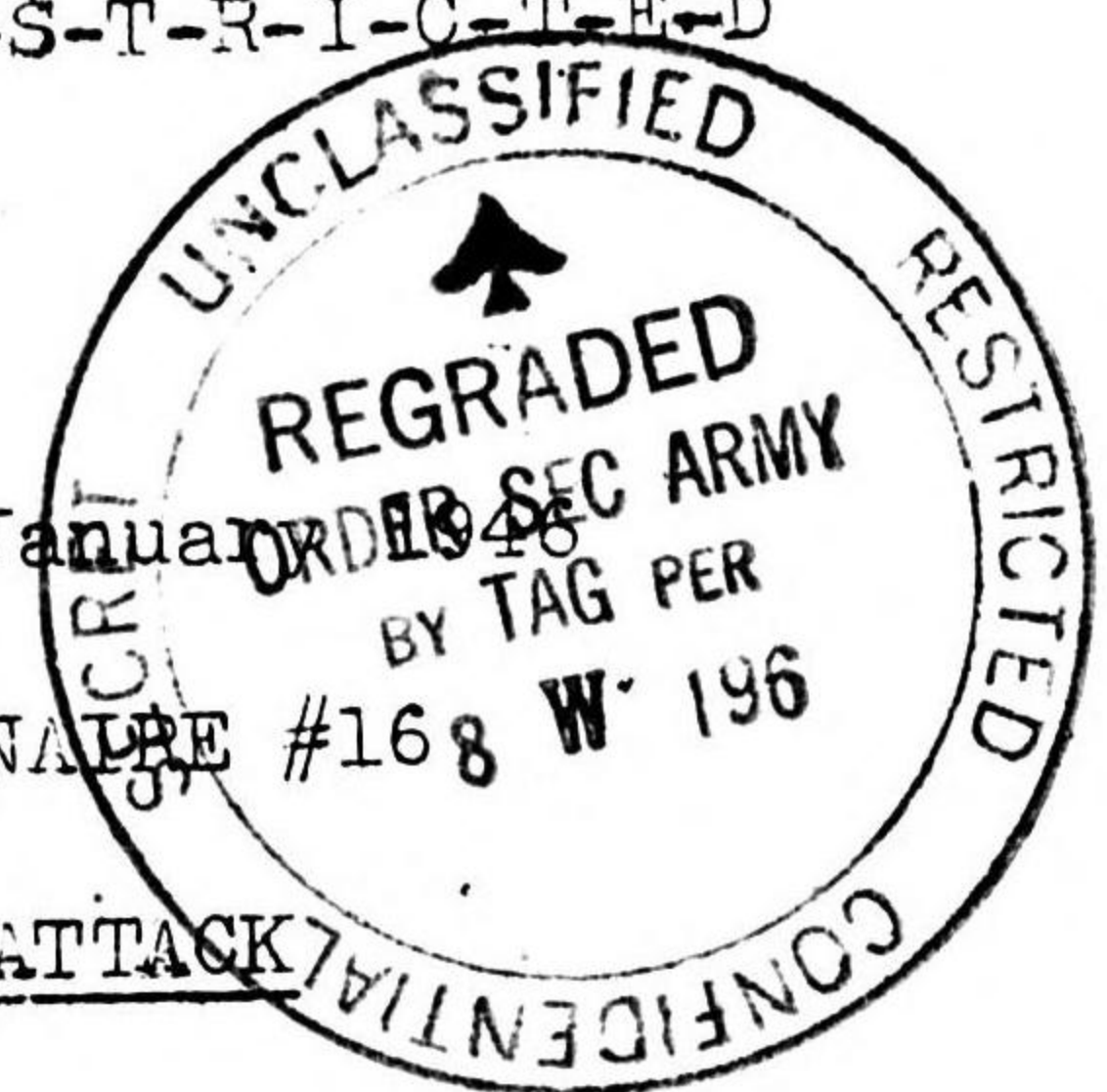


HEADQUARTERS
U. S. STRATEGIC BOMBING SURVEY
Military Analysis Division

R-E-S-T-R-I-C-T-E-D



17 January 1948

Answers to MILITARY ANALYSIS DIVISION QUESTIONNAIRE #168

DEFENSE OF THE MAIN JAPANESE ISLANDS AGAINST AIR ATTACK

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I. Japanese estimate at the beginning of the war.

a. Estimate of the Allied plans and capabilities for an air offensive against JAPAN proper.

We felt at the beginning of the war that the Allies might launch, as a propoganda stunt, a surprise attack with a small element of long range seaplanes from bases in MIDWAY Island, but that they were incapable of launching a sustained air offensive.

b. The Japanese plan for the defense of the homeland.

1. Navy

Our Navy planned to launch air attacks against any enemy carriers that approached the homeland and to sink them before the enemy could launch its attack.

2. The army planned to employ its air force and AA units to protect the homeland against any enemy planes that broke through the above mentioned navy attack.

c. The strength and dispositions of the Air Force Units and the approximate time the plan was drawn up.

1. It is difficult to determine exactly when the plan was drawn up due to the changes in the situation, but this plan for an organized defense seems to have originated about August 1941 at the time of the establishment of the General Defense Headquarters.

2. Unit Dispositions and strength.

General Defense Headquarters

1st HIKOSHIDAN
(located at GIFU and primarily
responsible for training)

244th HIKOSENTAI (fighters; located at CHOFU; responsible for
air defense but had insufficient strength)

5th HIKOSENTAI (fighters; located at KASHIWAGI)

13th HIKOSENTAI (fighters; located at KAGOGAWA) These units were
primarily responsible for training. They were
also responsible for defensive operations for which
they had adequate forces.

4th HIKOSENTAI (fighters; located at TACHIARAI)

RESTRICTED

We organized an Aircraft Warning System which was operative during the 18 April 1942 attack.

This system was incorporated into the Eastern (also Central and Western) District Army Hqs (later into the 12th, 16th, and 15th, Area Army Hq.) However due to the lack of experience, it failed to function properly during the Doolittle Raid and was later improved.

II. The carrier-based B-25 raid April 1942 (Doolittle Raid).

a. The Japanese air force received intelligence reports on these planes prior to the bombing. Although Navy intelligence had warned of the approach of American Carriers to the vicinity of JAPAN, the attack came as a complete surprise because of our confidence in and reliance upon counter-actions presumably taken by our navy. Furthermore, no one guessed that the attack would be launched by medium bombers such as the B-25, from a comparatively long range.

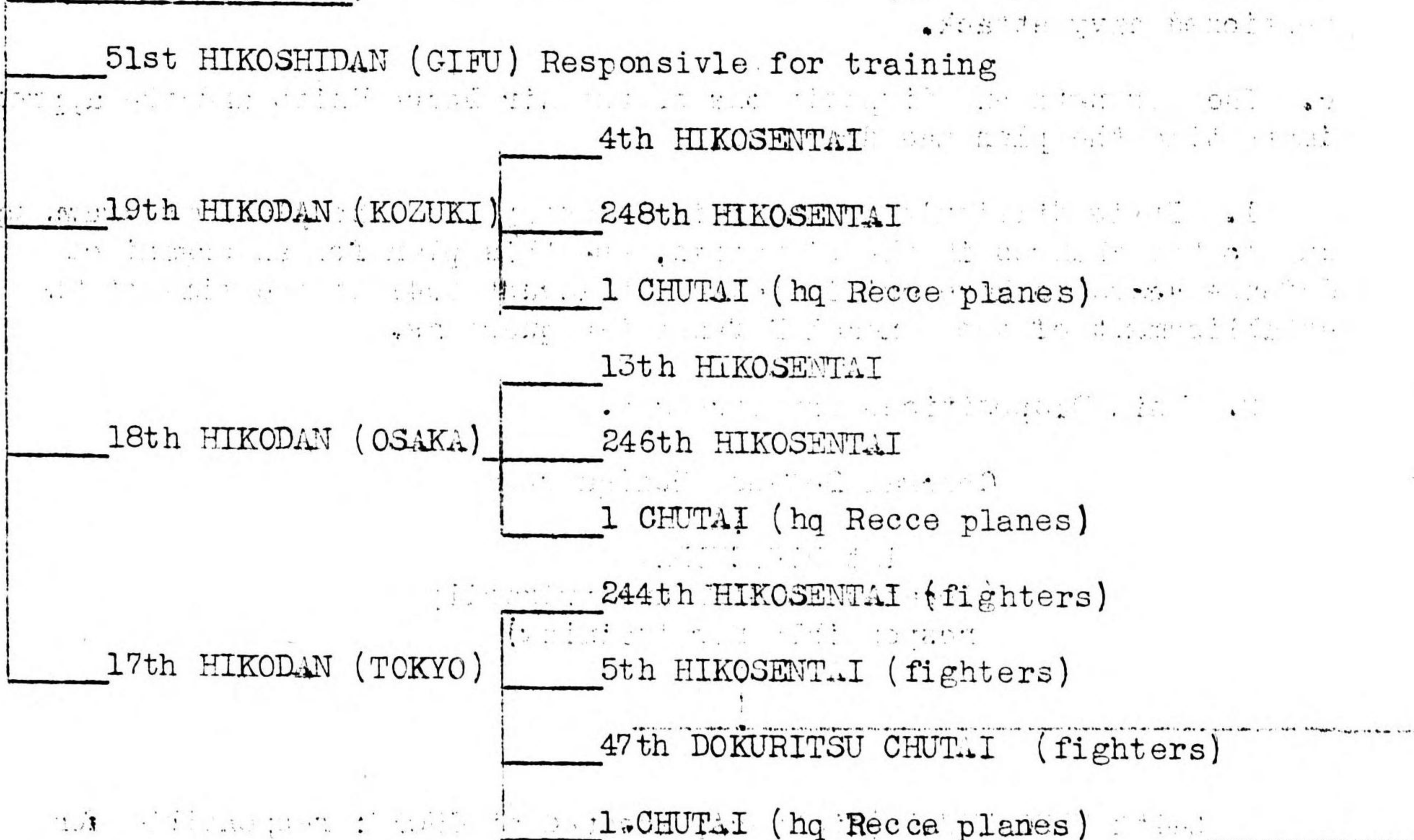
b. Changes made in the defense plan after the Doolittle Raid. When it was realized that the Army's responsibility for air defense of the homeland had increased, the following changes in the defense plan were made.

1. Changes made in the Command organization.

(a) Training and air defense responsibility were separated with the establishment of the 1st KOKUGUN Hq and 1st HIKODAN Hq which was responsible solely for air defense.

Chain of Command

1st KOKUGUN (TOKYO)



2. The strengthening of the units assigned to air defense.

The 246th and 248th HIKOSENTAI were activated and assigned to air defense. The 5th, 13th, and 4th HIKOSENTAI, which had been primarily responsible for training, were assigned to air defense (this was done in June). The 47th HIKOSENTAI, which had been deactivated in JAPAN after it had lost its strength in Southern Area operations, was activated again as a fighter unit responsible for air defense.

3. The AA defenses were strengthened.

4. We realized the necessity of destroying the airbases used in CHINA (YUSHAN, LISHUI, and CHUCHOU) and did so.

c. As a result of the 18 April air raid, we were undecided as to whether or not we should stop sending units from JAPAN and whether or not we should summon other units back to JAPAN.

III. The B-29 attacks.

a. Japanese intelligence on the B-29.

1. We think that the information that the United States had begun to manufacture B-29s for air attacks against JAPAN was obtained in March or April 1943.

2. Although the original intelligence received indicated to us that the B-29 would not attack before fall 1943, subsequent intelligence indicated that the first attacks would come in April or May 1944 with about 50 planes flying from INDIA or CHINA bases.

3. We received intelligence in May 1944 that the B-29s had arrived at their bases in INDIA and CHINA.

4. We found out on about 20 October that the B-29s arrived in the MARIANAS Area.

b. Japanese estimate of the capabilities of the B-29.

1. We originally estimated that large scale B-29 raids would begin at the end of 1943; but then, in the early part of 1944 it was felt that there was a good possibility of attacks from CHINA bases in May or June of that year.

2. After the fall of SAIPAN, it was estimated from the condition of the airfields that operations against JAPAN would commence about October 1944.

3. It was estimated that air raids would be launched with other types of heavy bombers about 2 or 3 months respectively after the fall of IWO JIMA and OKINAWA.

c. Counter-measures against B-29 attacks.

(the details can be provided by Lt. Col. URA of the Army Liaison committee and the man in charge of the Technical Section of the KOKUHOMBU)

1. Attacks against the B-29 bases.

Increase the number of attacks against bases in Central CHINA (CHENG TU Area). Plan air attacks against the Marianas bases.

2. The use of hollow-charge ammunition.

All fighters were modified to enable the use of hollow-charge ammunition.

3. The training of high altitude fighters.

4. Experiments on the SHUSUI

5. The training of night fighter units.

6. The use of large calibre guns.

The plane types equipped with large calibre guns to fight B-29s are as follows:

Plane	Guns
Type 2 Fighter Model B	2x40mm 2x12.7mm
Type 4 Fighter Model C	2x30mm 2x20mm
KI 102	1x37mm 2x20mm
Type 2 Twin-seater Fighter	1x37mm 2x12.7mm
KI 109	Equipped with a Type 88 Mobile AA Gun in the nose of the plane.

7. Emphasis was placed on suicide crash tactics.

IV. Army and Navy plans.

- a. The Army-Navy command organization.
Joint operations.

In July 1944, KOKUTAI of the SASEBO, YOKOSUKA, and KURE Naval Districts were placed temporarily under the command of the Army General Defense Commander (RIKUGUN BOEI SOSHIREIKAN) The General Defense Commander then placed them under the 10th, 11th and 12th HIKOSHIDAN.

- b. Air Defense Units.
See appendix no. 1.
- c. Outline of the plan for the employment of air defense interceptor units as of 1 June 1944.
See appendix no. 2.
- d. Changes in the plan for the employment of the interceptor force.
1. The transfer of air units to air defense of JAPAN is shown in IV d. and the strengthening of these units is shown in VI.
 2. We organized the 23rd HIKODAN in October 1944 in order to strengthen the command organization of the NIICOYA Area defense.
 3. We planned in the end of October 1944 to bomb the MARLANNIS bases with IWO JIMA as the staging base.
 4. When we moved air force units from JAPAN DURING the PHILIPPINES Campaign, it weakened our air defense potential and made the interception of B-29 attacks very difficult.
 5. Due to the situation in the PHILIPPINES campaign, the combat experience gained there, and the anticipated attacks of the United States Task Force, we disposed certain elements of our suicide force in JAPAN Proper.
 6. Air defense grew increasingly difficult after the large scale B-29 attacks of March 1945 and the diversion of interceptor units from air defense to combat in OKINAWA.
 7. The air defense units, which until July 1945 were assigned to the various areas, Eastern, Central, and Southern Areas, were reassigned to the command of KOKUSOGUN. Thereafter with other operational units they were under a unified command for both offense and defense. Subsequently some of the fighter units were disposed permanently in the eastern, central and western areas and in the eastern coast area. When the occasion arose, we could then assemble our full fighter force (including all operational units) and with great mobility mass our interception of B-29 attacks at key points.

V. The strength of the units assigned to air defense as of 1 June and thereafter.

In our opinion the figures below are of little value since they are quite inaccurate due to the lack of ample dates. The figures below are compiled in 3 month periods.

See appendix no. 3.

VI Night fighters

- a. Units with special night fighting training and equipment as of 1 June 1944.

53rd HIKOSENTAI (twin-seater fighter) located in the eastern area; about ten planes operational.

4th HIKOSENTAI (twin-seater fighter) located in the western area; about ten planes operational.

Note: The training and equipment cannot be really called special. About 1/3 of of the strength assigned to air defense could be mustered for night combat.

b. Subsequent changes.

1. The 5th HIKOSENTAI was later assigned to night combat (Actually this unit plus the previous two assigned to night combat had to be used also for operations during the day). The total strength was then about 20 planes. There were no other units especially assigned to night combat.

c. The types of planes equipped as night fighters.

Type 2 twin-seater fighter
A modified fighter version of the type 100 Hq Recce Plane.

d. Special equipment for night fighters.

1. The type 2 twin-seater fighter was equipped with a 37mm cannon in a fixed forward position. After the excellent results achieved in the first night raid against northern KYUSHU, many planes were equipped with this cannon. Some of the Hq Recce Planes were also given this equipment.

2. We also experimented with equipping night fighters with electrical illuminating flares (incandescent light) that illuminated the enemy planes to make firing on them simpler. However, this experiment was not successful.

e. Planes were equipped with fire control radar but not with search radar.

1. Combat aircraft.

KI 45 (type 2 twin-seater fighter) were equipped with fire control radar and guide beacons.

2. Experimental aircraft.

The same equipment was installed in KI 102 but no tests were ever made.

VII. Jet or rocket-propelled aircraft were never used in combat against B-29s. However we were conducting experiments on the KI 200 (SHOSEI) from information given to us about the ME 163. We began the research work in the first part of 1944 and the first test flights were made in July 1945. However little progress was made due to defects in the power unit and the fuselage.

VIII. Not answered.

IX. Army and Navy cooperation in the air defense of JAPAN.

See question IV.

The General Defense Command (BOEISOSHIREIBU), the Combined Fleet and the various Naval Districts exchanged intelligence.

b. The Navy was responsible for air defense of the naval installations in the vicinity of the Naval Bases. The Army was responsible for air defense of the whole country.

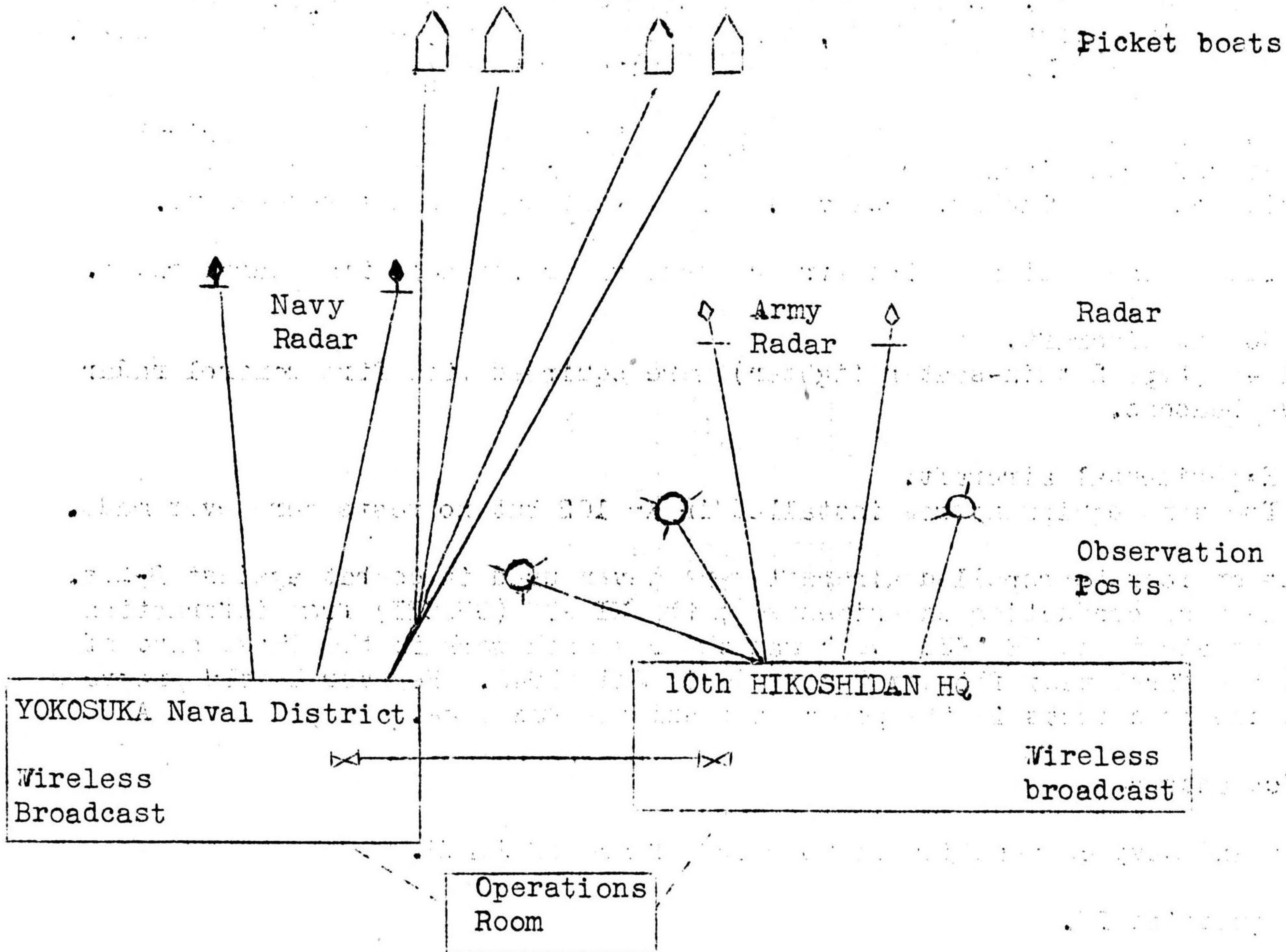
3. After July 1945, the KOKUSOGUN drew up all plans for interception of B-29 attacks and submitted them to the Navy. The Navy generally acted in accordance with these plans.

X. After the OKINAWA campaign, the Imperial Hq (DAIHONNEI) decided that the defense of JAPAN against a land invasion was the top priority. The influence of this decision on defensive operations is shown in question IV.

XI. The Army-Navy early warning system.

In principle the Army was responsible for the warning system throughout the country and the Navy for the warning system in the special naval areas (such as YOKOSUKA, KURE, and MAIZURU) and in the sea frontier. There was close telephone communication between the Army and the Navy with out any friction.

An example of the early warning system.



Note: Although the Army and the Navy were trying to unify their radar communication systems, they did not succeed before the end of the war.

XII. The effects of Allied Jamming of Japanese search radar.

The United States carried out jamming of the Japanese AA fire control radar, but this had almost no effect on the early warning radar system. The tactical control over AA fire became difficult when the fire control radar was jammed. We tried to cope with this problem by changing the training program and unit commanders but we were not too successful.

APPENDIX NO. 1

As indicated on the following chart

Outline of the history of the interceptor Air Units

Name of units	Time organized	OUTLINE OF HISTORY	Time of In-activation
10th HIKOSHIDAN	March 1944	Formed from 17th HIKODAN. In charge of air defense of Eastern JAPAN.	
11th HIKOSHIDAN	July 1944	Formed from 18th HIKODAN. In charge of air defense of Central JAPAN.	
12th HIKOSHIDAN	July 1944	Formed from 19th HIKODAN. In charge of air defense of Western JAPAN.	
17th HIKODAN	April 1942	In charge of air defense of Eastern JAPAN. In March 1944 formed into 10th HIKOSHIDAN.	March 1944
18th HIKODAN	April 1942	In charge of air defense of Central JAPAN. In July 1944, formed into 11th HIKOSHIDAN.	July 1944
19th HIKODAN	April 1942	In charge of air defense of Western JAPAN. Formed into 12th HIKOSHIDAN.	July 1944
23rd HIKODAN	Aug. 1944	In charge of air defense of NAGOYA Area.	
5th HIKOSENTAI	June 1942	Heretofore in charge of training. In June 1942, reorganized for air defense. In charge of air defense for Eastern section. In June 1944 dispatched to Northern Australia Area. Returned to JAPAN in July 1944 and afterwards placed in charge of air defense of NAGOYA Area.	
4th HIKOSENTAI	June 1942	Heretofore in charge of training. In June 1942, reorganized for air defense and responsible for Western Area.	
13th HIKOSENTAI	June 1942	Heretofore in charge of training. Reorganized for air defense in June 1942. Dispatched to NEW GUINEA Area in April 1943, then engaged in operations in that area.	
18th HIKOSENTAI	Feb. 1944	In charge of air defense of Eastern Section. Participated in PHILIPPINES operations in Nov. of 1944.	
23rd HIKOSENTAI	Oct. 1944	In charge of air defense of Eastern Section. A portion dispatched to IWO JIMA in Jan 1945 to protect convoy in this area.	
47th HIKOSENTAI	May 1942	In April 1942 returned to JAPAN after operations in Southern Areas as 47th DOKURITSU HIKOCHUTAI. In charge of air defense of Eastern Area. After May 1945, transferred to KYUSHU and participated in OKINAWA operations.	
55th HIKOSENTAI	May 1944	In charge of air defense of Central Section. Participated in PHILIPPINES Operations in Oct. 1944 and returned to Homeland in Feb. 1945.	
56th HIKOSENTAI	May 1944	In charge of air defense of NAGOYA.	

Name of units	Time organized	OUTLINE OF HISTORY	Time of In-activation
70th HIKOSENTAI	July 1941	First stationed in MANCHURIA. Transferred to JAPAN in May 1944 and responsible for air defense of Eastern Section. Sent out temporarily for air defence of ANSHIN.	
87th HIKOSENTAI	Prior to 1941	First stationed in MANCHURIA. Transferred to JAPAN in June 1943 and responsible for Air Defense of Eastern Section. Dispatched to PALERANG in Nov. 1943.	
107th HIKOSENTAI (Heavy Bombers)	Nov. 1944	Was stationed in HAMAMATSU and a portion was sent to Southern KOREA. However, neither saw any action.	July 1945
59th HIKOSENTAI	Prior to 1941	From Dec 1941 to Jan 1944, participated in the South, North, North of AUSTRALIA and NEW GUINEA Operations. After Jan 1944, was responsible for air defense of Western Section and one portion was sent to S. ISHU Island.	
244th HIKOSENTAI	July 1941	Air Defense of Eastern Area.	
246th HIKOSENTAI	June 1942	In charge of air defense of Central Section. Participated in PHILIPPINES Operations in Nov 1944 and returned to JAPAN in Feb. 1945.	
248th HIKOSENTAI	June 1942	In charge of air defense of Western Section and sent to NEW GUINEA in Oct. 1944	Aug. 1944
54th HIKOSENTAI	Dec. 1941	First operated in CHINA and transferred to KARAFUTO in Dec 1942 and from 1943 to Oct 1944 was responsible for air defense of MURORAN, HOKKAIDO. Participated in PHILIPPINES operations in Nov 1943 and returned to JAPAN in Feb 1945. (Although air defense was not its sole responsibility, the 54th HIKOSENTAI was nevertheless predominantly an air defense unit).	
16th DOKURITSU HIKOCHUTAI (Hq Recce Planes)	July 1944	At the time of the formation of 13th HIKODAN in April 1942, it was formed as a Hq. Reconnaissance CHUTAI in the HIKODAN and was responsible for locating enemy planes in the Central Sector.	
17th DOKURITSU HIKOCHUTAI	March 1944	At the time of the formation of 17th HIKODAN in April 1942 it was formed as the Hq Reconnaissance Chutai in the HIKODAN and was responsible for location of the enemy in the Eastern Sector.	
19th DOKURITSU HIKOCHUTAI (Hq Recce Planes)	July 1944	At the time of the formation of 19th HIKODAN in April 1942, it was formed as the Hq Reconnaissance CHUTAI in the HIKODAN and was responsible for the air defense of the Western Sector.	
28th HIKOSENTAI	Feb. 1945	Stationed first in MANCHURIA as Hq. Reconnaissance unit, and in Nov 1944, transferred to Homeland and made responsible for location of the enemy in the Eastern areas. In Feb 1945, reorganized into high-altitude fighter unit.	
82nd DOKURITSU HIKOCHUTAI (High-altitude Fighters)	Feb. 1945	Responsible for air defense of ? (TN: illegible)	

REMARKS

1. This chart indicates only the outline of the history of the units which were organized and planned as Air Units responsible for the Air Defense, and it does not include the history of units which were temporarily assigned to Air Defense duty from among the general operational units.

2. As indicated in this chart, the units whose only responsibility was Air defense were also sent overseas frequently in order to increase the strength of the operations areas.

3. The time of inactivation is shown only in the case of units that were inactivated prior to the ending of the war.

APPENDIX #2

 OUTLINE OF PLANS FOR THE ASSIGNMENT OF INTERCEPTOR
 AIR UNITS AS OF JUNE 1, 1944

 GENERAL DEFENSE COMMAND

(command)

10th HIKOSHIDAN ---5th HIKOSENTAI: (Fighter)---Was preparing to be shipped to the North of Australia Area.

---18th HIKOSENTAI: (Fighter)---

---47th HIKOSENTAI: (Fighter)---

---70th HIKOSENTAI: (Fighter)---

---244th HIKOSENTAI: (Fighter)---Responsible for the air defense of Eastern Mainland especially TOKYO Area.

---53rd HIKOSENTAI: (Fighter)---

---17th DOKURITSU:---
HIKOSHUTAI: (Hq Recce)---

18th HIKODAN Central District Army ---56th HIKOSENTAI: (Fighter)---Mainly responsible for air defense of NAGOYA Area.

---55th HIKOSENTAI: (Fighter)---

---246th HIKOSENTAI: (Fighter)---Mainly responsible for air defense of OSAKA, KOBE Area.

---16th DOKURITSU (Hq Recce)---
HIKOSHUTAI:

19th HIKODAN Western District Army ---4th HIKOSENTAI: (Fighter)---

---59th HIKOSENTAI: (Fighter)---

---248th HIKOSENTAI: (Fighter)---Mainly responsible for air defense of SHIMONOSEKI-MOJI area and YAWATA.

---19th DOKURITSU
HIKOSHUTAI: (Hq Recce)---

In case it is possible to detect the enemy's plans before the attack increase the strength of area concerned transferring a portion of the strength from other areas by order of Defense Hq.

APPENDIX #3

GENERAL OUTLINE OF AIR DEFENSE STRENGTH

EASTERN AREA												
Major Echelon	Unit	1June 1944	1Sep 1944	1Dec 1944	1Mar 1945	1June 1945						
Permen- ently Assigned	10th HIKO- SHIDAN	18th HIKO SENTAI	25	30								
		47th HIKO SENTAI	35	Total	35	Total	35	Total	35	Total	Total	
		70th HIKO SENTAI	30	about	30	about	35	about	35	about	35	about
		244th HI- KOSENTAI	35	150-	35	150-	35	160	35	180-	35	130-
		53rd HIKO SENTAI	15	160	20	160	25	planes	25	190	25	140
		23rd HIKO SENTAI		planes		planes	15		25	planes	25	planes
		17th DOKU RITSU HI- KOCHUTAI	6		6		6		6		6	
		28th HIKO SENTAI					12		12		12	
		Tempor- arily Assigned	Normally under their regular com- mand but temporarily under 10th HIKOSHIDAN for Air De- fense duty.	1st HIKO SENTAI	35	Total	40	Total				
11th HIKO SENTAI	35			about	35	70-						
22nd HIKO SENTAI	30			planes		80						
Training units				about		about		about		about		about
				130		140		110		90		60
CENTRAL AREA												
Permen- ently Assigned	11th HIKO- SHIDAN (18 HIKODAN up to July 1944)	56th HIKO SENTAI	10		20		25		30		35	
		55th HIKO SENTAI	10	Total	20	Total		Total		Total	Total	
		246th HI- KOSENTAI	35	about	35	about		about		about	about	
		5th -HIKO SENTAI	60		5	80	15	40	20	60	25	80-90
		16th DOKU RITSU HI- KOCHUTAI	6	planes	6	planes	6	50 planes	6	planes	6	planes
Tempor- arily Assigned	Normally under their regular com- mand but temporarily under 11th HIKOSHIDAN for Air De- fense duty.	17th HIKO SENTAI	30	about	30	about						
		19th HIKO SENTAI	30	60 planes	30	60 planes						
		Train- ing Units		about		about		about		about		about
				110 planes		110 planes		110 planes		110 planes		110 planes
WESTERN AREA												
Permen- ently Assigned	12th HIKO- SHIDAN (19th HIKO DAN up to July 1944)	4th HIKO SENTAI	35	Total	35	Total	35	Total	35	Total	35	Total
		59th HIKO SENTAI	20	about	30	100-	30	about	35	about	35	about
		248th HI- KOSENTAI	35	80-90 planes	35	110 planes		70 planes		70-80 planes		70-80 planes
		19th DOKU RITSU HI- KOCHUTAI	6		6		6		6		6	

WESTERN AREA Cont'd.

	Major Echelon	Unit	1June 1944	1Sep 1944	1Dec 1944	1Mar 1945	1June 1945	
Temporarily Assigned	Normally under their regular command but temporarily under 12th HIKOSHIDAN for Air Defense duty.	51st HIKO SENTAI	15	Total 30	Total 30		15	
		52nd HIKO SENTAI	15	planes	30 planes		15	
		Training Units		about 20 planes	about 40 planes	about 40 planes	about 60 planes	about 30 planes

15 August 1945:

Due to the intensification of B-29 raids and the impending landing on JAPAN, no distinction could be made between air defense units and general operational units. The totals are as follows: Eastern Area - 200 planes; Central Area - 130 planes; and Western Area - 150 planes.

Note: All figures are approximate.