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HEADQUARTERS
U. S. STRATEGIC BOMBING SURVEY
(PACIFIC)
APO 234
C/O POSTMASTER SAN FRANCISCO

INTERROGATION NO: 384
(Jap Intell No 32)

PLACE: TOKYO
DATE: 19 Nov. 1945

Division of Origin: Japanese Intelligence Section, G-2, USSBS.

Subject: Organization and Operation of First Naval Air Technical Arsenal.

Person Interrogated and Background:

Lt. TOYODA, Takogo, IJN

- 1932: Graduated from the Imperial University of Tokyo in Aeronautical Engineering. Entered the Navy upon graduation as a regular Naval Officer.
- 1942: Received three months of indoctrination training at the Naval Air Base at Tsingtao in Northern China.
- 1943: Joined the YOKOSUKA First Air Technical Arsenal, 2d Department, KOKU HOMBU (Air Headquarters) and worked with the Airframes Unit to the end of the War.

Where Interviewed: Meiji Building.

Interrogators: Lt. Comdr. WILLIAM H. BOTZER, USNR
Lt. Comdr. F. SHACKELFORD, USNR

Interpreter: Mr. KAWAKITA, S.

Allied Officers Present: None

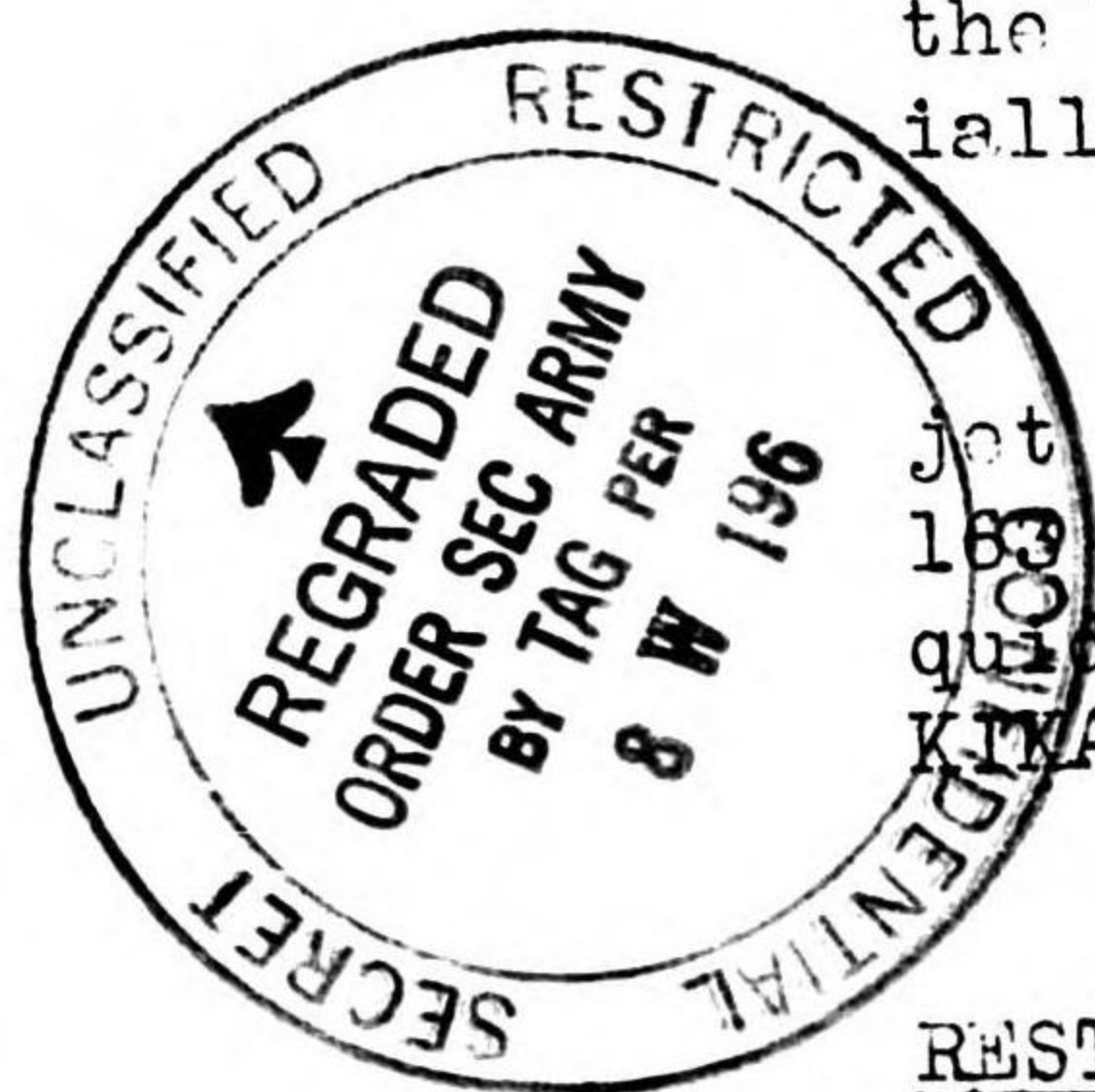
SUMMARY:

The 1st Section of the 2d Department of KOKU HOMBU (Air Headquarters) was organized into technical subdivisions concerned with every phase of aircraft development and research. During the course of the War it studied a crashed F4F, F4U, SB2C, TBF, TBM-1C, and PB4Y-1 and testflew a captured F6F, P-40E, and A-20A. The comparable section in the Army testflew a captured F2A, Hurricane, PBO, B-17D, B-17E, and PBM. On the basis of such studies and flights, detailed information was compiled concerning the performance of enemy planes.

In the case of an enemy plane shot down or crash landing in the Home Islands, the Naval Air Technical Arsenal (1st Section of KOKU HOMBU's 2d Department), if interested, would send experts to analyze it and in some instances they brought back the crashed plane or parts of it for further study at the main office in YOKOSUKA. Only once were technicians sent overseas to make similar studies and that was early in the War when a rather unprofitable trip was made to BURMA to examine a DeHaviland Mosquito oleo. Army technicians, however, made such studies throughout the War and supplied the Technical Arsenal with copies of their reports.

The same organization that developed Japanese aircraft made all of the studies of crashed or captured enemy aircraft until late in the War when a small unit of 3 Officers and 12 to 14 men was specially created to devote its time exclusively to analyzing such planes.

When the War ended, the Technical Arsenal had two experimental jet propulsion planes - the SHUSHI based on plans of the German ME 163 and the KIKI designed by the Arsenal. The SHUSHI employed a liquid rocket engine designed to use hydrogen peroxide for fuel and KIKI had two turbo-driven jet engines.



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Interrogation of Lt. TOYODA, Takogo, IJN.

Q.1. You helped design the KEIUN ("Beautiful Cloud"). Describe it to us.

A. Commander OTSUKI was the chief designer and I helped him. KEIUN was a twin seater, single-engine experimental scouting and reconnaissance plane produced in late 1944 by YOKOSUKA First Air Technical Arsenal. It had an AICHI KEN No 1 engine (AEIT) behind the pilot. The one experimental model was manufactured in late 1944 and test flown in January 1945, but was never flown in combat. The tempo of war was too fast to warrant production of the plane for combat use. Some of its' performance features were as follows:

- Ceiling: 36,000 feet
- Critical Altitude: 30,000 feet
- Speed: 400 Kts
- Wing Span: 14 Metres
- Length: 13.05 Metres
- Height: 4.24 Metres
- Horsepower: 3,000
- Operational Range: 1,500 - 1,600 Nautical Miles
- Rate of Climb: 30 minutes to 10,000 Metres

Q.2. When was your plane test flown?

A. January 1945

Q.3. How did the plane perform on the test flight?

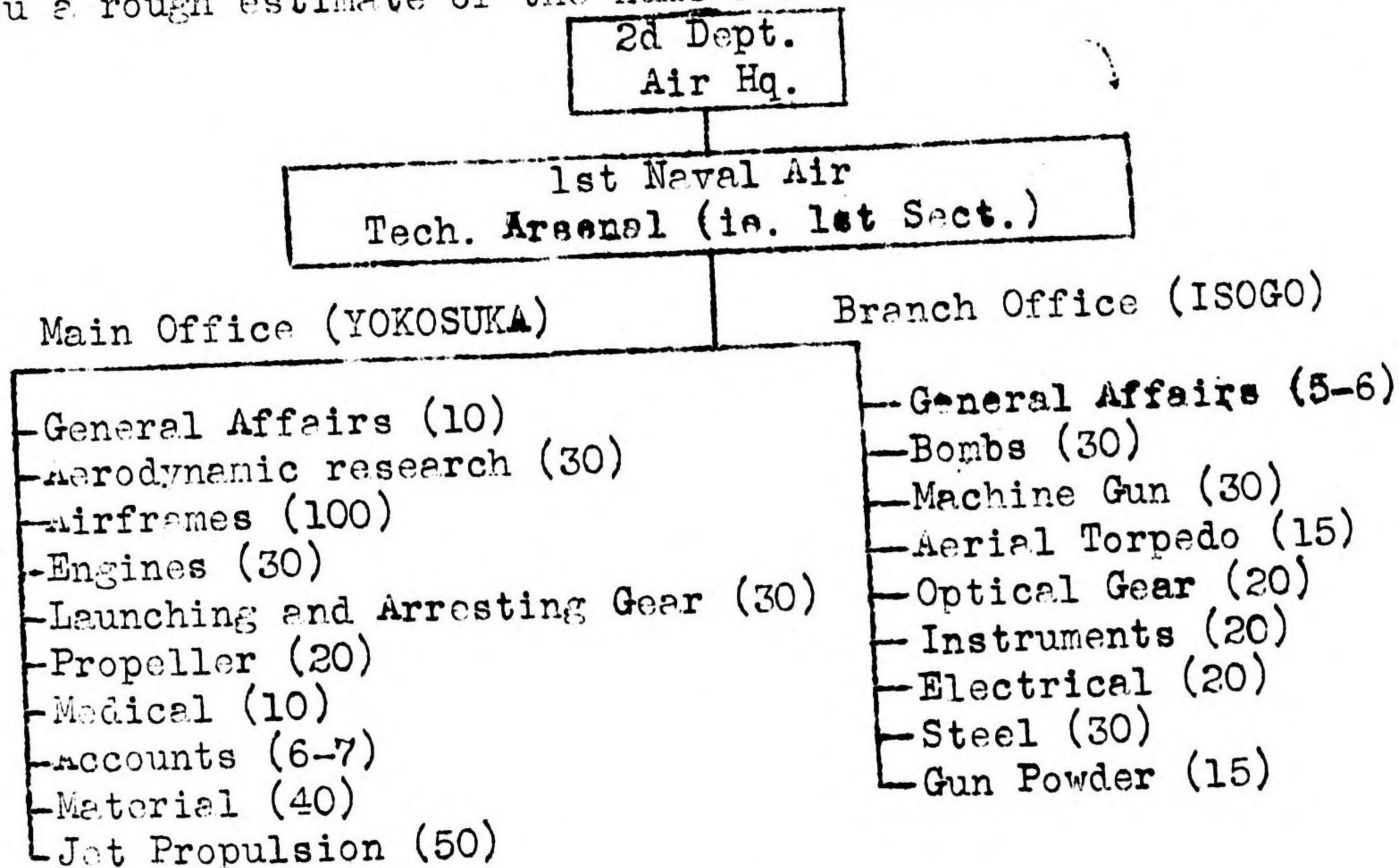
A. Satisfactorily, but the engine caught on fire. A safe landing was made, however. Only this one Plane (KEIUN) was ever built.

Q.4. What kind of technical intelligence organization did you have for testing and checking crashed or captured Allied aircraft?

A. I was in the 1st Section of the 2d Department of KOKU HONBU (Air Headquarters). Captain TERAII, K. Was in charge of the Section.

Q.5. Just what was the organization of the Section?

A. I will draw you a diagram. After each subdivision, I will give you a rough estimate of the number of Officers in the unit.



I was in the Airframes subdivision.

Q.6. You have given us a chart showing the organization working on the technical development of your own planes. Was there a similar organization for technical analysis of enemy aircraft?

Interrogation of Lt. TOYODA, Takogo, IJN, (contd)

A. No, but the head of each unit in the organization I have outlined was interested in enemy aircraft and would analyze such parts of the plane as concerned his specialty.

Q.7. What would you do with an enemy aircraft that was shot down or made a forced landing?

A. A B-29 was shot down in ARIAKE BAY on 10 November 1944 and I went along with 10 Officers to study it. They represented the Airframe, Engine, Propeller, Material, Bomb, Machine Gun, Instruments, and Electrical Sections. A pilot and an aircraft engineer from YOKOSUKA also were in the party. It was down in the Bay 1,500 feet from the base. We raised it up and took as much of it as we could to the shore. Small parts were brought back to YOKOSUKA and were studied for about three weeks. The larger parts were left at ARIAKE for study by a second party which later went down there.

Q.8. What interested you most about this B-29?

A. The gun turrets, Norden bombsight, radar (which was examined only by the Army), and communications equipment.

Q.9. Were the bombsight and radar in good condition?

A. The radar was not. The calculating box of the bombsight and some of the communications equipment were alright.

Q.10. What struck you as outstanding about the B-29?

A. I was surprised at the very skilled workmanship and was impressed by the efficiency of the plane. We had examined a B-29 earlier shot down in Northern KYUSHU. In that plane we found a chart giving operational details of the B-29 and some photographs. In the pocket of the pilot was a notebook containing useful data regarding the plane and its performance. From the photographs, we secured dimensions of the plane.

Q.11. Just what information did the operational chart contain?

A. Such data as speed, rate of climb, gasoline consumption, etc. There were many graphs illustrating details.

Q.12. What design features did you find helpful?

A. From the construction standpoint, we were impressed by the rugged character of the plane, its ability to take punishment. Also we were struck by your lavish use of all materials. Unlike us you seemed to have no problem of critical shortages. The machine gun construction was of such a nature that you had remote control which we thought very good.

Q.13. Did you have remote control of guns in any of your planes?

A. No.

Q.14. Did anything else strike you?

A. Yes, the electrical equipment and the turbo supercharger. We had had much trouble with our own supercharging equipment.

Q.15. In earlier years of the war did you study enemy aircraft?

A. In early 1942 we captured, at JAVA, I think, a P-40E which was studied in the same way as we studied the B-29. In addition we test flew it. At about the same time, we also captured the following:

Interrogation of Lt. TOYODA, Takogo, IJN, (contd)

Douglas A-20A
Martin PBM
Brewster F2A
Hawker Hurricane
Lockheed Hudson PBO (1 and 2)
Boeing B-17D, B-17E

All of them were testflown, although the Navy test flew only the P-40E and A-20A. The Army flew the rest.

Q.16. Were any other enemy planes captured or shot down during the War and test flown?

A. Yes, an F6F was taken and flown in OKINAWA. The data was sent to JAPAN. Also shot down and studied (but not flown) were an F4F, F4U, SB2C, TBF, TBM-1C, and PB4Y-1 (B-24).

Q.17. Which of these wrecked planes were brought to YOKOSUKA?

A. F4U, SB2C, TBM-1C. Not much time was spent studying them because we had so much else to do at the time.

Q.18. Did any group devote itself exclusively to studying enemy planes?

A. Toward the end of the war about 3 officers, 3-4 non-coms, and 9-10 men were taken from the Airframe Section to devote all their time to analyzing enemy aircraft.

Q.19. Were any technicians sent to examine enemy planes in outlying areas?

A. In 1942, we sent some to BURMA to study the DeHaviland Mosquito oleo. The trip was not very successful and we never sent anybody else outside the Homeland. The Army did, however, and supplied us with copies of its reports.

Q.20. What was the relation between the Arsenal and KOKU HOMBU?

A. We sent our reports to the Headquarters of KOKU HOMBU.

Q.21. Were regular reports prepared?

A. Yes.

Q.22. Were the reports detailed?

A. Yes, very detailed - drawings, blueprints, etc.

Q.23. To whom in KOKU HOMBU did the reports go?

A. To the chief of whatever section would be most interested in the report - fighter, dive bomber, torpedo bomber, transport and heavy bomber sections.

Q.24. Who was the intelligence officer of KOKU HOMBU?

A. Comdr. NOMURA, Suetsu first and then Comdr. IWAYA, Eiichi.

Q.25. Would a copy of the report go to the Naval General Staff?

A. Yes, to the 3d Department - the Aircraft Unit of the 5th Section. They were not very interested in our reports because they were not technical minded.

Q.26. From your study of U.S. planes which fighter did you conclude was best?

Interrogation of Lt. TOYODA, Takogo, IJN, (contd) -----

A. P-51.

Q.27. Which of the Navy carrier-based planes?

A. F6F.

Q.28. Which of your fighters did you think was the best?

A. SHIDEN, Modified (George II). We didn't have in action any carrier-based planes in the last phases of the War. In the early phases I liked the ZERO 52 (ZEKE 52).

Q.29. What was your program for developing jet-propelled planes?

A. We had plans of the Me 163. We built the SHUSHI from these plans, using a liquid rocket engine. It employed hydrogen peroxide for fuel.

Q.30. How did it perform on its test flight?

A. It went up on first flight to 9,000 feet and the engine stopped. On landing, the plane crashed into a building.

Another jet plane was called KIKA which was to be used as a fighter. It could be employed either as a KAMIKAZE plane or as a standard fighter. One engine was carried in each wing, a bomb under the fuselage (250 kilogram load). It used turbo driven jet engines.

Q.31. What was the top speed of KIKA?

A. 365 Kts at 6,000 metres.

Q.32. How was the performance of KIKA?

A. KIKA had 2 turbo driven Jet engines as compared to SHUSHI's one liquid rocket engine. SHUSHI was designed primarily for attacking B-29s at high altitudes. It could climb to 10,000 metres in 3½ minutes. The endurance of SHUSHI was 5.5 minutes at 430 Kts after reaching 10,000 metres. KIKA's endurance was 37 minutes when flying at sea level at 324 Kts. At 6,000 metres its endurance was 49 minutes at 365 Kts.

Q.33. What equipment or engineering principles that you found on enemy aircraft were used on your own aircraft?

A. We learned that your planes were mass produced and by examining them we found out how to employ certain of your techniques. Examples:

- (1) Stamp forged instead of machine cut parts.
- (2) The elimination of certain washers.

Q.34. How about engines?

A. Our engines were troubled with oil leakage which yours were not. I think we learned something on this point from you, too.

Q.35. Did you gain anything from enemy radar?

A. The Army gained a great deal, but the Navy studied the radar in your crashed planes very little. On the whole, I thought your radar was much more delicate (sensitive) than ours.

Q.36. You have with you some notes and blueprints of the performance of enemy aircraft, performance of captured enemy planes, and data on your own experimental planes. May we have the notes and copies of the blueprints?

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A. Yes, but may I have the notes back when you are through with them? I will get the blueprints to you within a week.

Q.37. We will return the notes. Who in your opinion are the leading Japanese aircraft designers?

A. Comdr. YAMANA (dive bombers) and HORIKOSHI (fighters).

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