

NATEs of the 84th Independent Chutai, called the "NAGANO-GROUP", 3rd Flight, in French Indo China, 1941. This was one of the early "esprit de corps" units, and carried the red fuselage striping, as well as the eagle wings on the wheel spats. Each Flight was identified by an oblique stripe, colored white for the 1st flight, red for the 2nd, yellow for the 3rd, and blue for the 4th. Also, the entire rear face of the propeller was painted red. This unit was formed from the 3rd Chutai of the 64th Sentai, and although it is not readily discernible in the photo, all aircraft traditionally carried the hawk symbol of Col. Kato, who had commanded the 64th. (Witold Liss)

DEDICATIONS, BOTH PERSONAL, AND PUBLIC

PUBLIC

*To the memory of those "Raging Eagles",
who like their counterparts in other places,
lived and died with their heads and hearts
in the clouds.*

PERSONAL

*For Ev, long suffering and patient,
For Karl, who led the way,
And for Lloyd, who had faith.*



The "Raging Eagles". (J. Wood)

IN APPRECIATION

We would like to express our extreme appreciation to those listed below, and indeed many who, because of space, are not, for their kind and generous contributions to this volume. If, throughout the years to come, there is an upsurge of interest in the recording of the history of flight, it should be noted that only through the efforts of those such as are listed here could this have been possible.

Donald W. Thorpe/Yasuo Oishi

RICHARD BUESCHELL - Japanese aviation historian.

ROBERT MIKESH, Major, USAF, Japanese aviation historian.

C. V. GLINES, Col., USAF, Chief, Magazine and Book Branch, Directorate for Information Services, Office of the Assistant Secretary of Defense.

C. W. BURTYK, Lt. Col., USA, Deputy Chief, Magazine and Book Branch Directorate for Information Services, Office of the Assistant Secretary of Defense.

MAY E. FAWCETT, Chief, Audio-Visual, National Archives.

NATIONAL AIR MUSEUM, Smithsonian Institution.

AERONAUTICAL CHART AND INFORMATION CENTER, USAF

E. KENT LOOMIS, Captain, USN (Ret), Assistant Director of Naval History, Department of the Navy, Officer of the Chief of Naval Operations.

D. G. DERRYBERRY, Lt. Col., USMC, Chief, Media Branch, Division of Information, HQ, USMC.

ROYAL D. FREY, Chief, Research Section, The Air Force Museum

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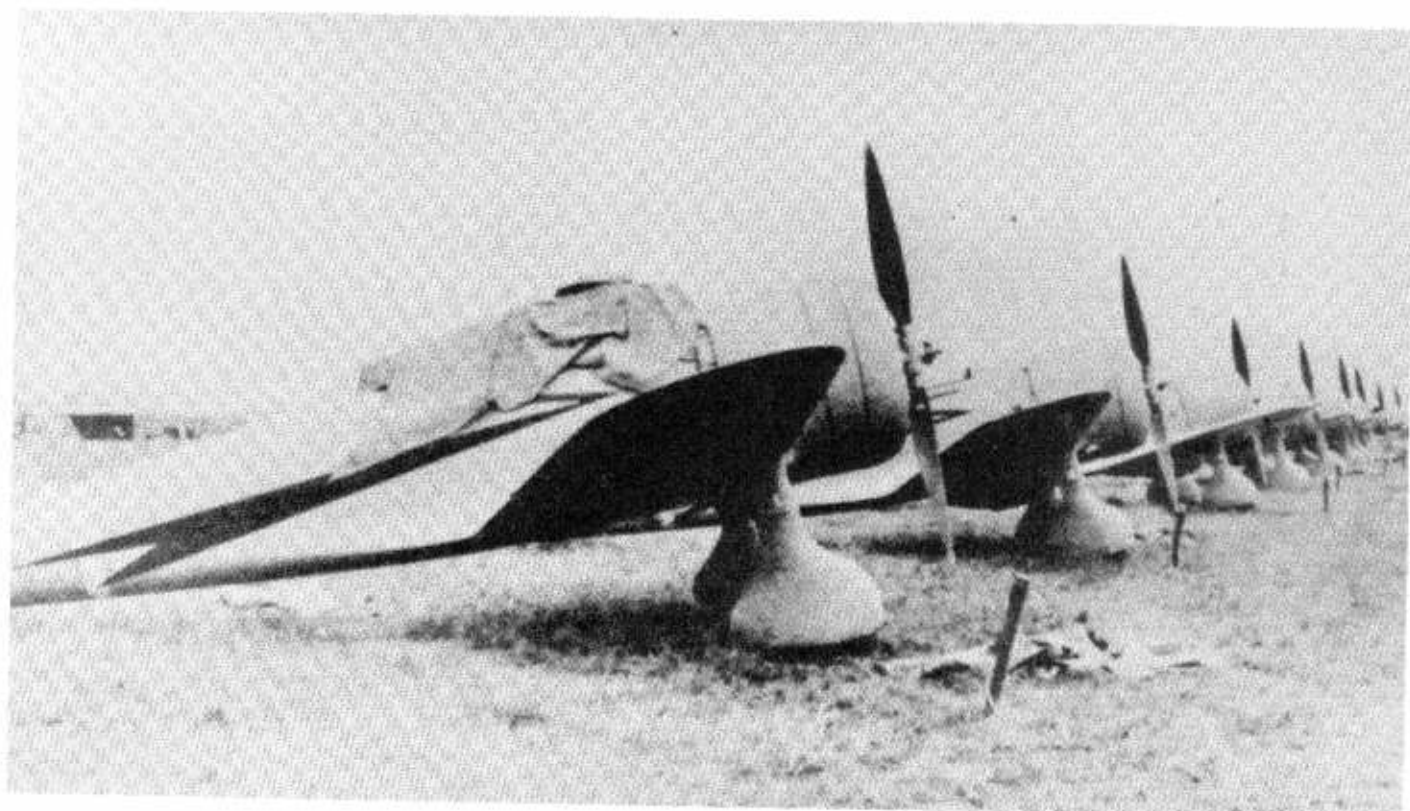
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REFERENCE SOURCES

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FAMOUS FIGHTERS series, Richard Green
PROFILE publications, Great Britain
THE AAHS JOURNAL, The American Aviation Historical Society
THE IPMS JOURNAL, The International Plastic Modeler's Society
THE JAPANESE MANUSCRIPTS Department of Defense
TAIC publications, 1942-1946
JOINT ARMY-NAVY RECOGNITION JOURNALS, Department of Defense

The authors apologize for any omissions to the foregoing list. Like an iceberg, the small amount of recognition given here is similar to what shows above the water, while the vast bulk of what goes before lies hidden from all but a knowing few.

Donald W. Thorpe



NATEs of the 59th Fighter Sentai, 1st Chutai, Manchuria, 1939. The rear faces of the propeller blades were painted in the Chutai color, as was the fuselage flash; red, green, and black, for the 1st 2nd, and 3rd. Aircraft were light grey green overall, none had fuselage Hinomarus.

(R. Bueschel)

JAPANESE ARMY AIR FORCE CAMOUFLAGE AND MARKINGS WORLD WAR II

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In a typically "Airman's" pose, these two young pilots reflect the enthusiasm of the Japanese Army pilot for his station in life.
(J. Wood)

INTRODUCTION

Until quite recently, as far as the average person with an interest in aviation history was concerned, the only aircraft of any significance developed and used by the Japanese during World War Two was the ZERO, a term which was mistakenly applied to anything which sported the red "meatball" of the Japanese Air Armies.

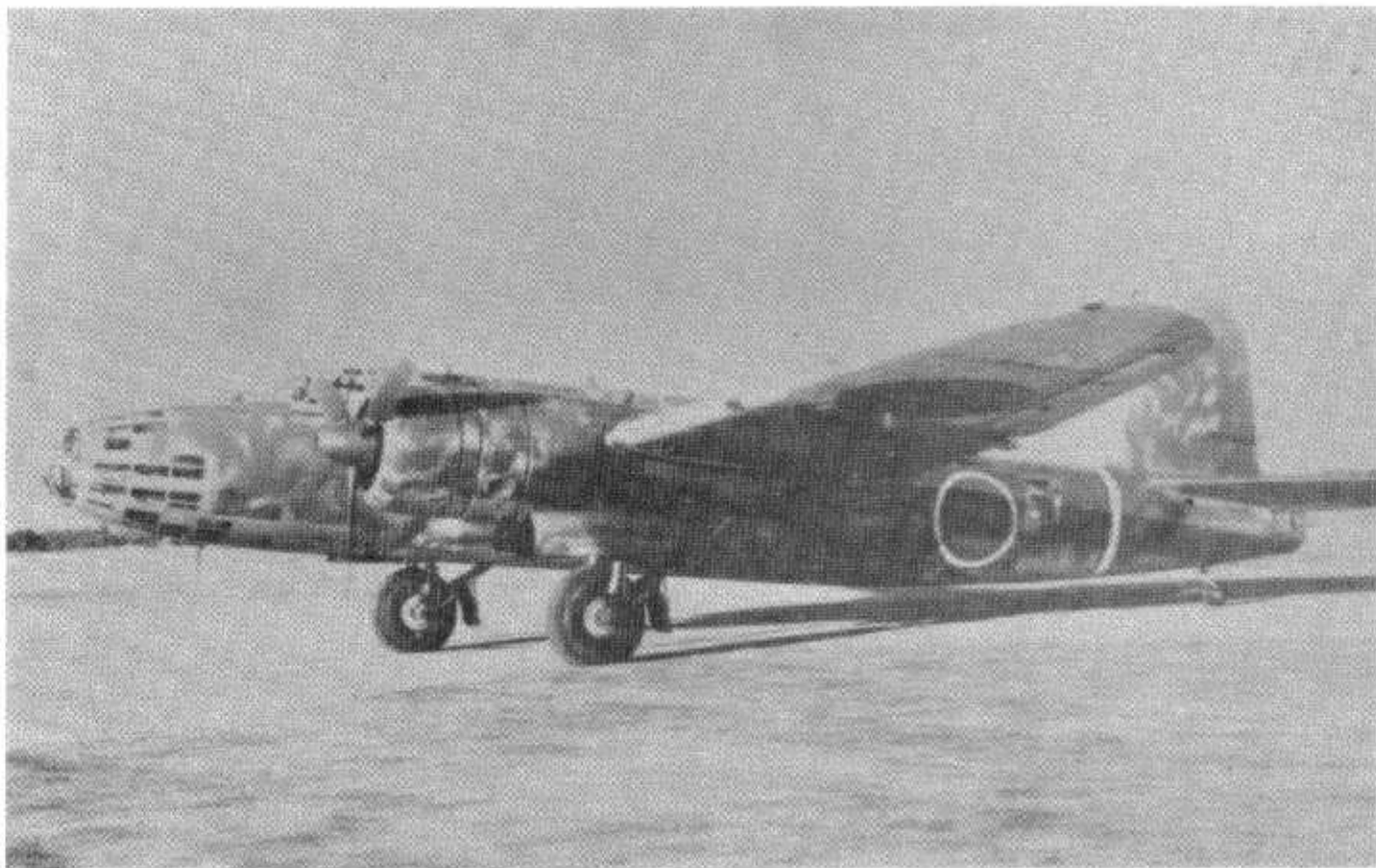
This popular misconception remained for many years until the recent advent of several excellent books dealing with aviation in Japan, which have since acquainted the reader with such exotic names as PERIGRINE FALCON, or perhaps VIOLET LIGHTNING, or some of the more homespun names applied by the Allies, as ZEKE, OSCAR, or LILY.

But still, when one queried the "experts" as to the usual or unusual markings of these aircraft, more often than not only vague descriptions were readily available, and these were often erroneous in their application.

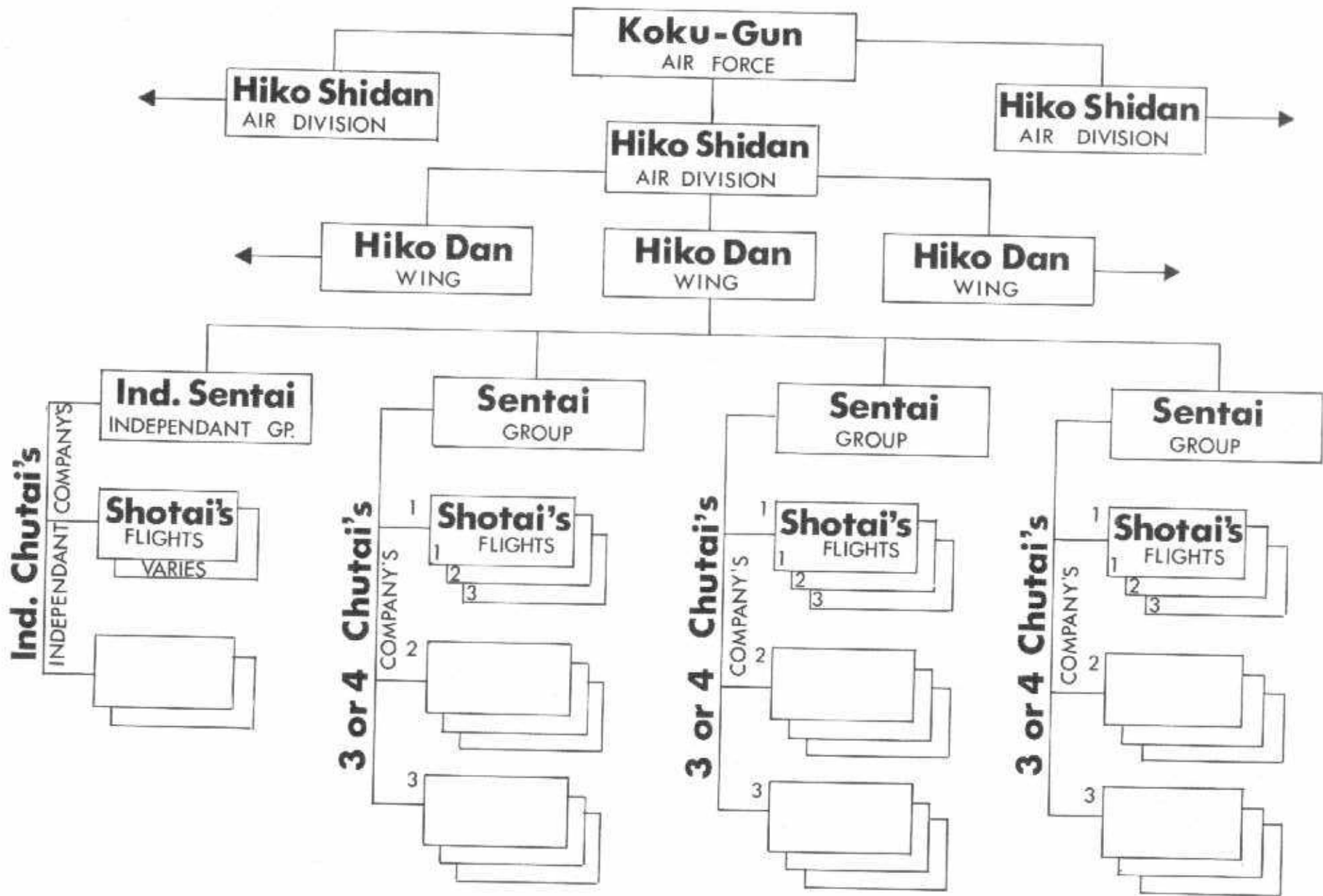
This, then, is the purpose of this book – to present to the interested reader a complete as possible compilation of HOW, WHY, WHEN, and WHERE of the camouflage and markings of the Japanese Military Air Forces.

What we have gathered here can only be a minute portion of the total picture, just a fraction of the vast amount of un-recorded data which lies a-moldering in some veteran's foot locker along with other mementoes of the Great War. If our efforts within these pages serve as a stimulus that will prompt the recovery for posterity of but a fraction of that stored material, then we have indeed succeeded in advancing the goal of all true aviation historians, the recording of the COMPLETE history of flight.

The Authors



*HELEN, unit unknown. Here is a classic example of a standard factory blotch finish as applied to heavy aircraft.
(R. Bueschel)*



J.A.A.F. UNIT STRUCTURE

J.A.A.F. UNIT STRUCTURE

In general, the unit structure within the J.A.A.F. closely followed the patterns of most air forces, the main exception being the Independent Units, or DIRECT-COMMAND Units, whichever one cares to call them, and which are discussed later in this book.

As both the English and the Japanese terms are used interchangeably in various parts of this book, the following definitions are given, beginning with the smallest unit, to the largest.

SHOTAI: Flight or Section (usually three aircraft).

CHUTAI: Squadron or Company (three or four SHOTAI).

SENTAI: Group or Regiment (three or four CHUTAI and a HQ CHUTAI).

HIKODAN: Wing or Brigade (three to five SENTAI).

HIKOSHIDAN: Division (two to four HIKODAN, plus other miscellaneous units, such as training SENTAI or DIRECT-COMMAND UNITS).

KOKUGUN: Air Force (usually two or three HOKOSHIDAN).

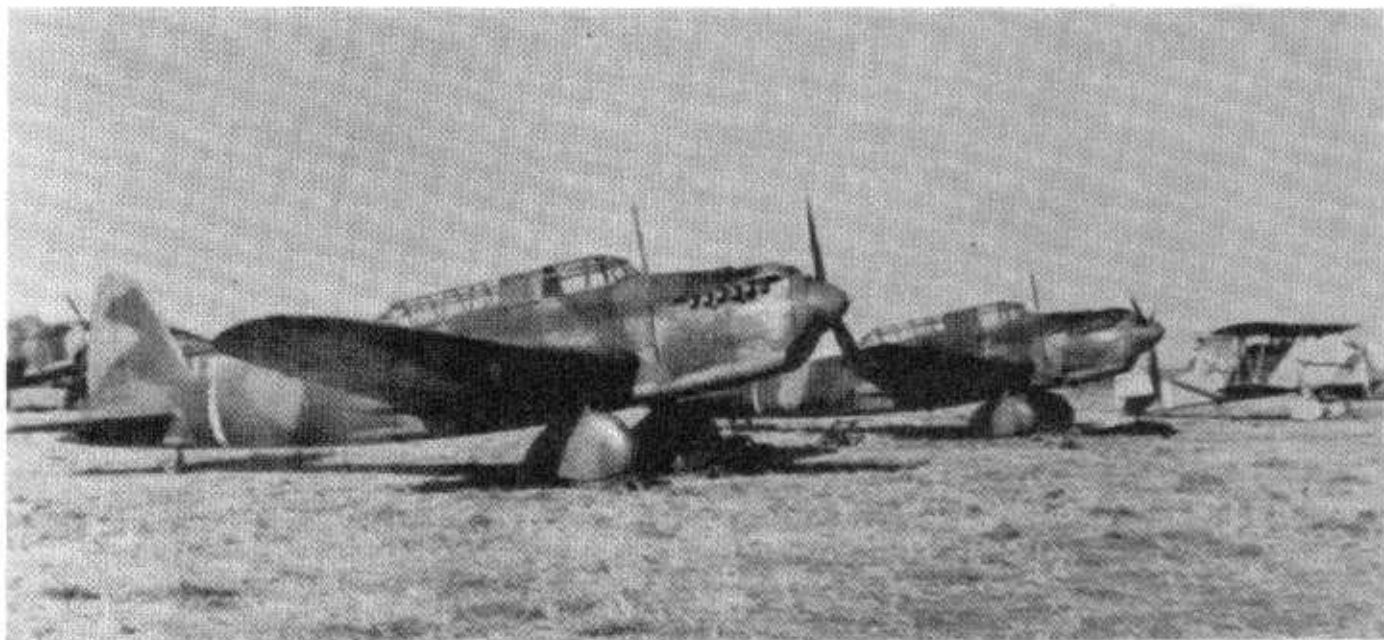
DOKORITSU HIKOTAI: Independent Flying Groups (sometimes referred to as DIRECT-COMMAND UNITS) or Units.

DIRECT-COMMAND UNITS were designed as a quickly mobile force, operating independently of the regular J.A.A.F. Units, or normal chain of command, with the ability

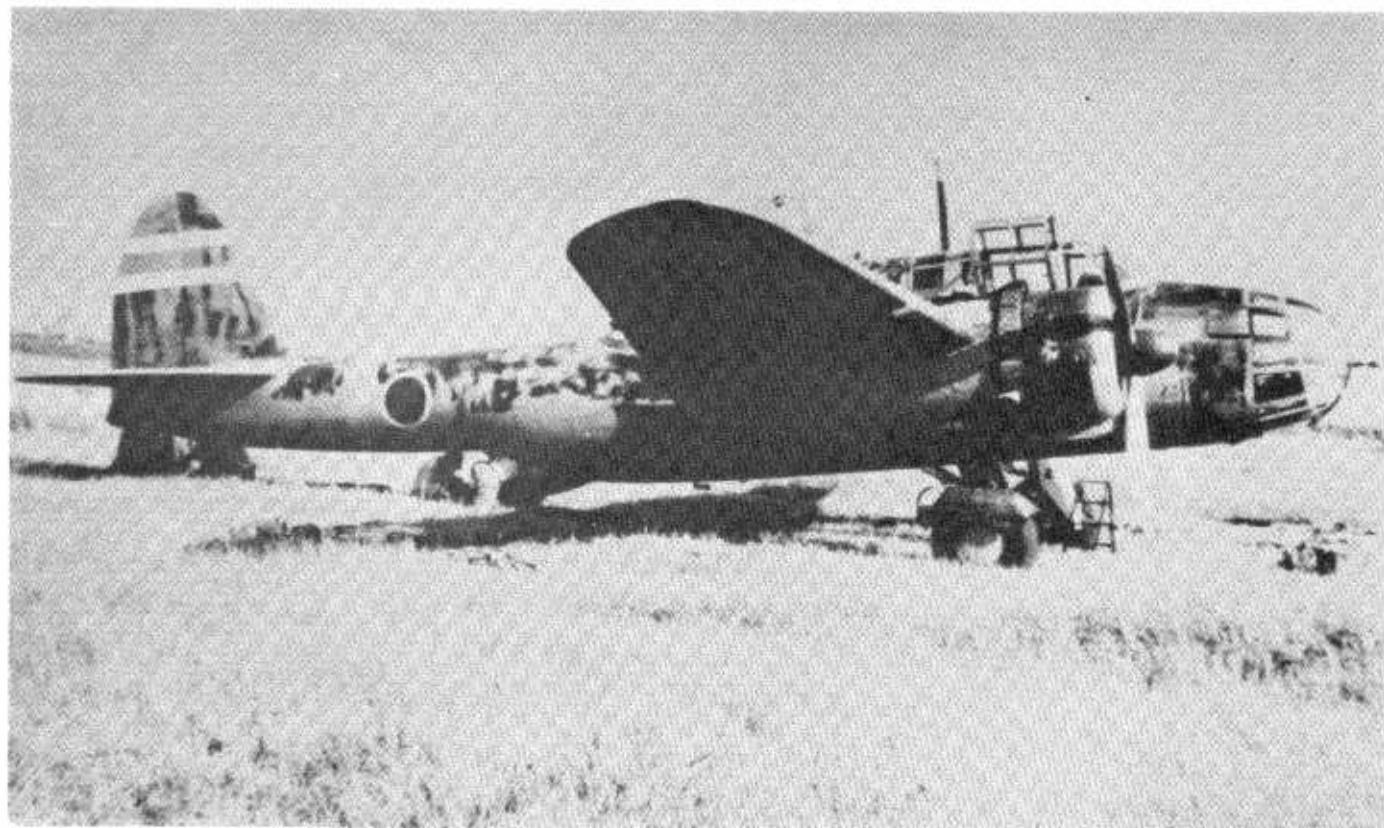
ability to quickly relocate and support other units as needed. These units were usually attached directly to a Division or Air Force, and rarely came under the command of a smaller unit, except for a *specific temporary* need.

The majority of the J.A.A.F. Special Attack Units, which were formed during the latter days of the war, were structured along these lines. Two common forms of the Independent Units were most often encountered: the DOKORITSU HIKOTAI (or Independent Battalion Group, or Regiment) which was roughly structured as the regular SENTAI; and the smallest self-contained unit encountered, the DOKORITSU CHUTAI, (Independent Flying Company or Squadron) which was commanded and employed much in the same manner as the larger DOKORITSU HIKOTAL. However, unit composition changed very rapidly, as missions dictated.

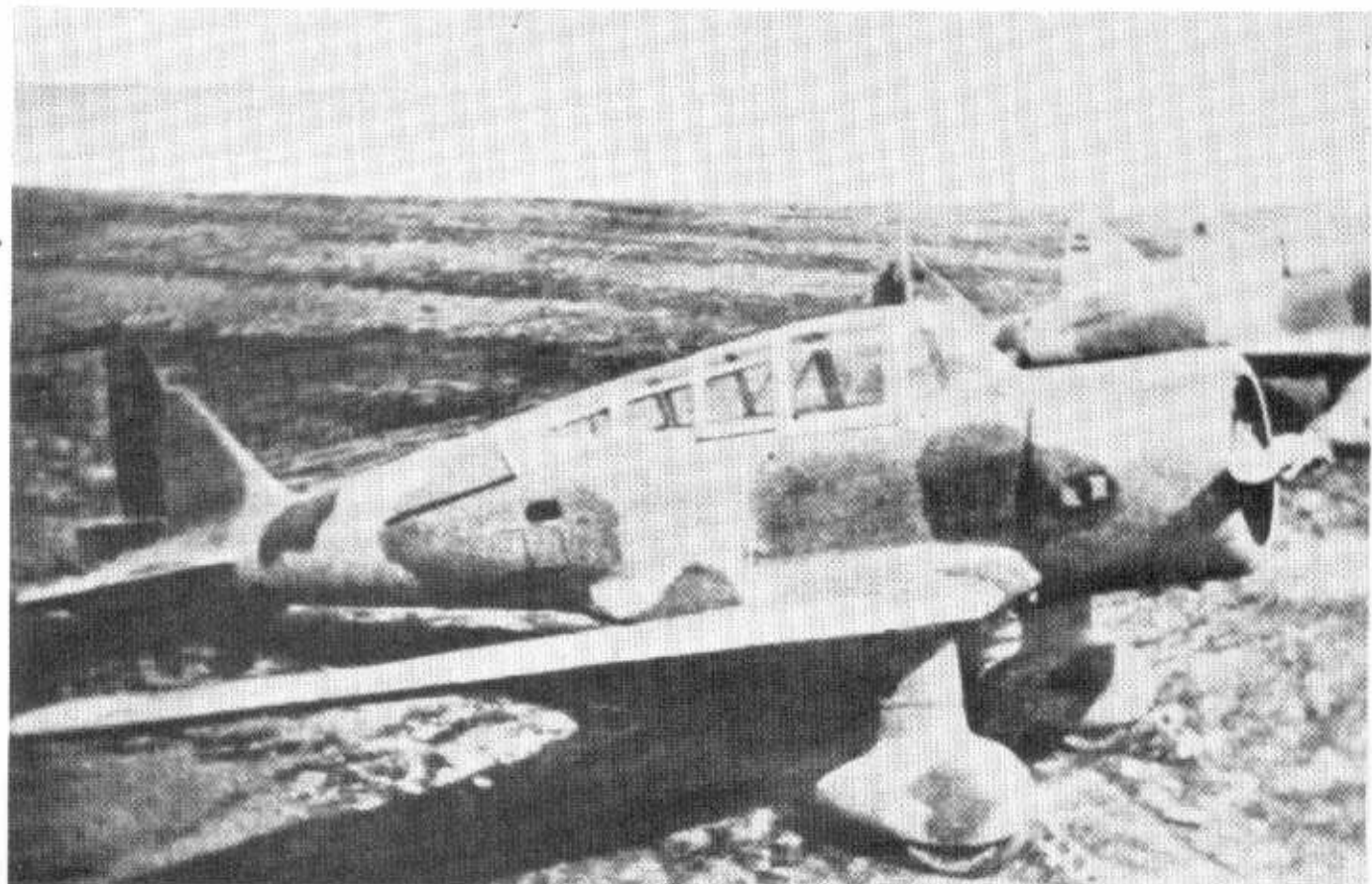
TRAINING DIVISIONS were structured with several training CHUTAI, plus at least one Cadre, or Instructor SENTAI, whose secondary mission, other than training fledgling pilots, was that of Area or Home Defense. Most of these Cadre Units flew TOJOs, or OSCARS, and occasionally TONYs.



MARYs of the 6th Sentai, Manchuria, 1939. Note the use of combat stripe with the "C" type scheme. (J. Wood)



LILYs, 16th Sentai, 1st Chutai, China, 1945. This unit was equipped with FRANKs and NICKs in addition to LILYs. The markings on this aircraft have been re-painted since its blotch finish. (A. Anido)



IDA, unit unknown painted in a locally applied segment type camouflage scheme, which merely consisted of a dark green irregularly applied over the original finish. (1939) (The Author)

SYSTEM OF AIRCRAFT NOMENCLATURE WITHIN THE J.A.A.F.

The majority of the belligerents during World War Two utilized a system of type identification based on a coded version of the manufacturer's name and a number or group of numbers, showing its location within the evolution of the type, such as Dornier DO-17, DO for Dornier, "17" for the 17th within its type, or the 17th model produced by the manufacturer.

Some nations also used a nickname system, although this was usually for quick type identification, and not official in its usage. An example of the unofficial usage would be the "Gustav" of the Germans for the Bj-109 G series; and the official usage is well known by the Mustang, or Spitfire, for the U.S. or G.B.

Although the Japanese utilized all or several of these schemes during various stages of the war, rarely was the manufacturer identified in official mention of the aircraft type. And although the majority of the aircraft used carried a nickname similar to the western practice, these generally were for publicity purposes, and did not become a usual practice until late 1942 and on.

After 1926 J.A.A.F. aircraft were numbered with reference to the Japanese calendar year, which differs from the western calendar. For instance, 1926 A.D. is the Japanese calendar year 2586.

Army aircraft were assigned a type number which was based upon the year in which the development was authorized, followed by the mission, or purpose, for which the aircraft was designed. An example is Type 95 primary trainer. The mission designation was important, especially in the earlier years, as there could be several different types authorized for development during a specific year. Unless the mission was identified it was impossible on paper to differentiate between them.

The "TYPE NUMBER" was taken from the last two or three digits (and in later years from the *last digit*) of the particular calendar year in which the aircraft was authorized for development.

For example:

TYPE 87 HEAVY BOMBER: "87" from the *last two* digits of the calendar year 2587, or 1927 A.D.

TYPE 100 HQ RECON: "100" from the last three digits of the calendar year 2600, or 1930 A.D.

TYPE 4 FIGHTER: "4" from the last digit of the calendar year 2604, or 1934 A.D. In reality, the "4" was a shortened version of "104," or the last three digits of the calendar year 2604.

"KI" (基) AND "HA" (八)

Beginning with TYPE 93, HEAVY BOMBER, Army aircraft were assigned a "KI" (基) number, "KI" being the initialized form of the Japanese "KITAI," or aircraft. In KANA, this becomes (基).

This change in the method of nomenclature was necessitated by the increasing amount of varied design requirements being authorized, and it eliminated the chance of two different aircraft of the same type number being confused with each other. Each individual design type was given an individual "KI" number, in the order in which it was authorized, without any mention of the mission for which it was authorized.

"KI" numbers began with the TYPE 93 HEAVY BOMBER as KI-1, and ended with KI-130. (There were a few KI-160 series and KI-170 series designs designated, and some of the experimental jet and rocket designs were given KI-200 series numbers; however, operational aircraft ended with the KI-130 series.)

DESIGN MODIFICATIONS

To further distinguish an aircraft that had undergone design changes, additional KANA or KANJI characters were added after the "KI" number of the aircraft. These were as follows:

KAI (改) Drastic aircraft structural changes

KO (甲) Engine change or mission change

OTSU (乙) Engine change, mission change, or armament changes

HEI (兵) Armament changes

"HA" or HATSUDOKI (ハツドキ)

"HA" (ハ) was a shortened version of the Japanese HATSUDOKI, or engine, and was usually employed with all powerplant nomenclatures, such as HA-112-II, etc.

Knowing the meaning of some of these Japanese KANA symbols, it is then possible for the historian to readily identify from Japanese text various meanings, especially when used in captions of photos, and where the exact model type is not readily discernable from the photo

Using the foregoing information then, here are some examples of symbol usages and their meanings:

KI-109 (キ-109) with HA 112-II (ハ-112-II) aircraft with engine.

KI-109-KAI (キ-109-改) aircraft with span and fuselage enlarged.

Or, as in the case of two fighter types:

KI-43-I (キ-43-I) first model.

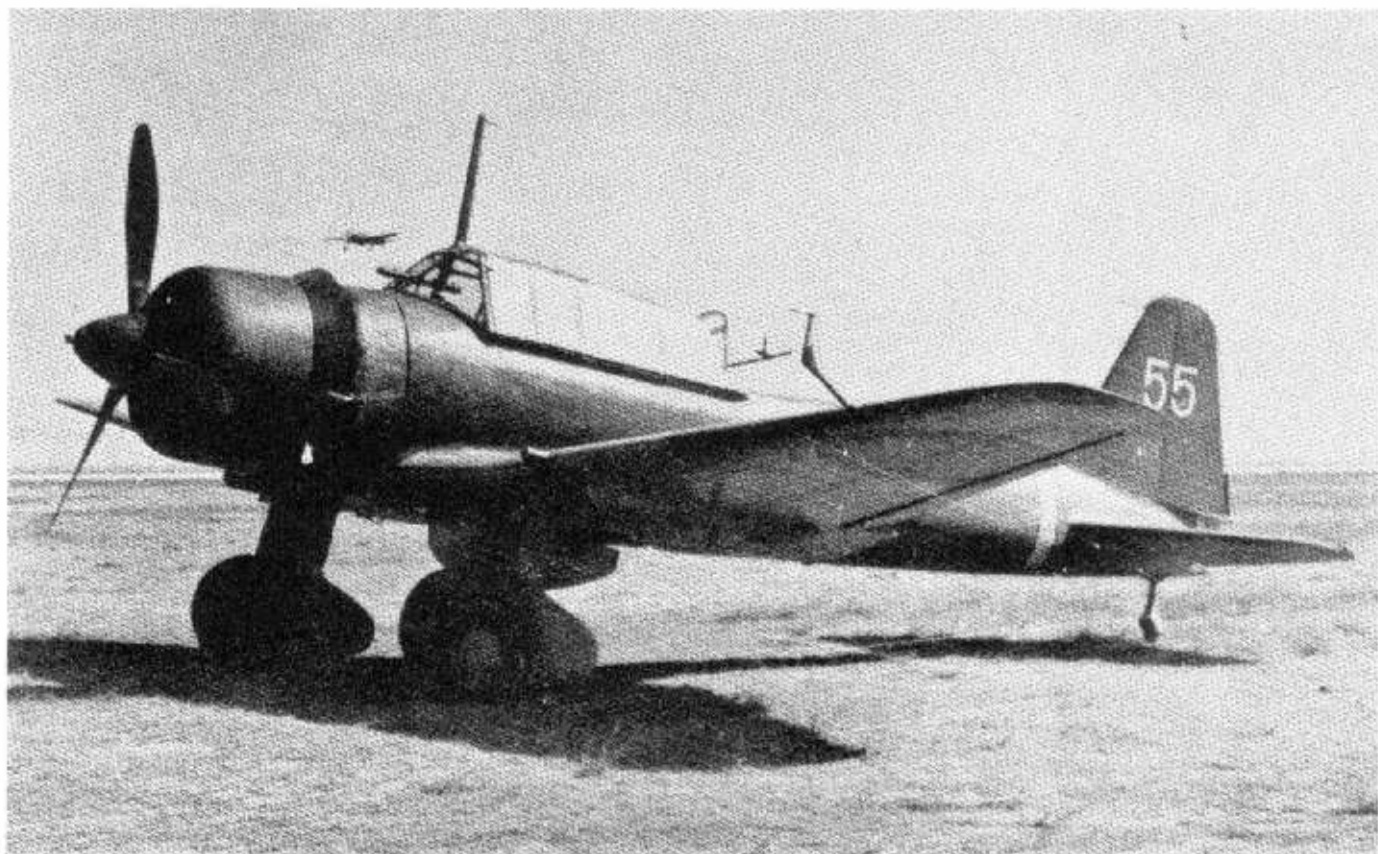
KI-43-I-KO (キ-43-I-甲) armament change.

KI-43-I-HEI (キ-43-I-兵) further armament changes.

KI-61-I (キ-61-I) first model.

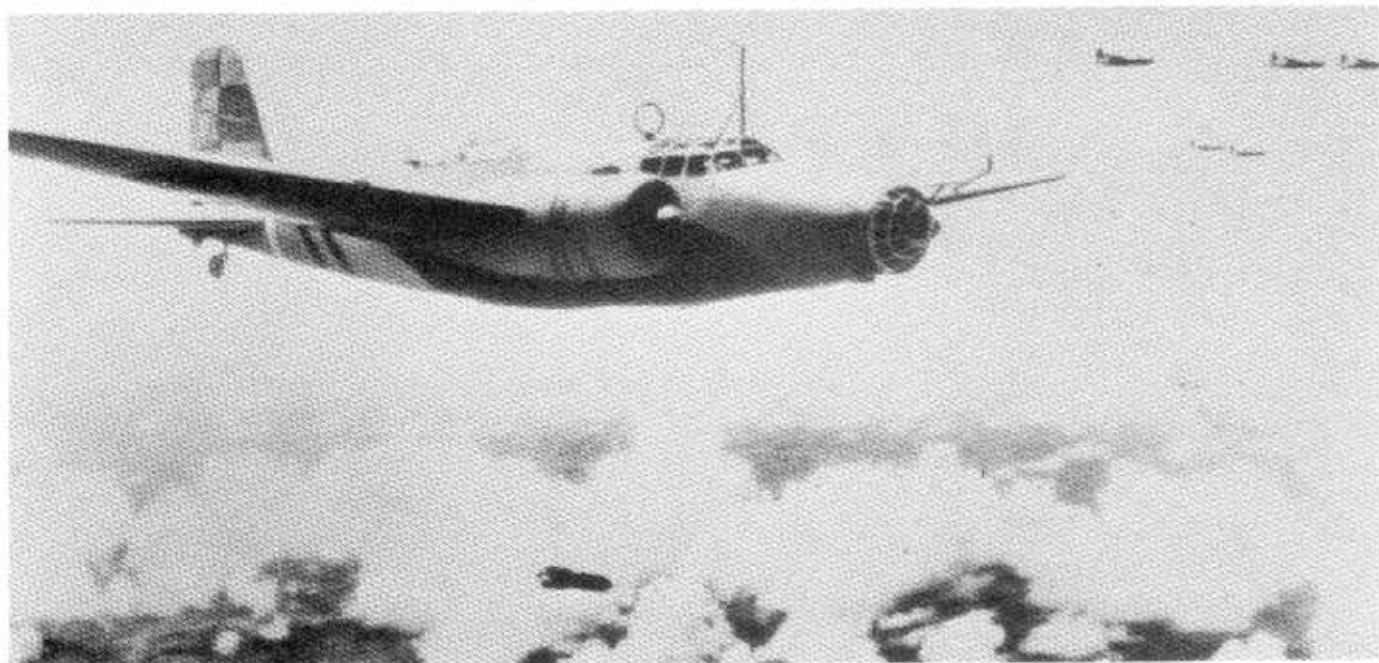
KI-61-I-KO (キ-61-I-甲) armament changes.

KI-61-I-KAI-HEI (キ-61-I-改-兵) further armament and fuselage changes



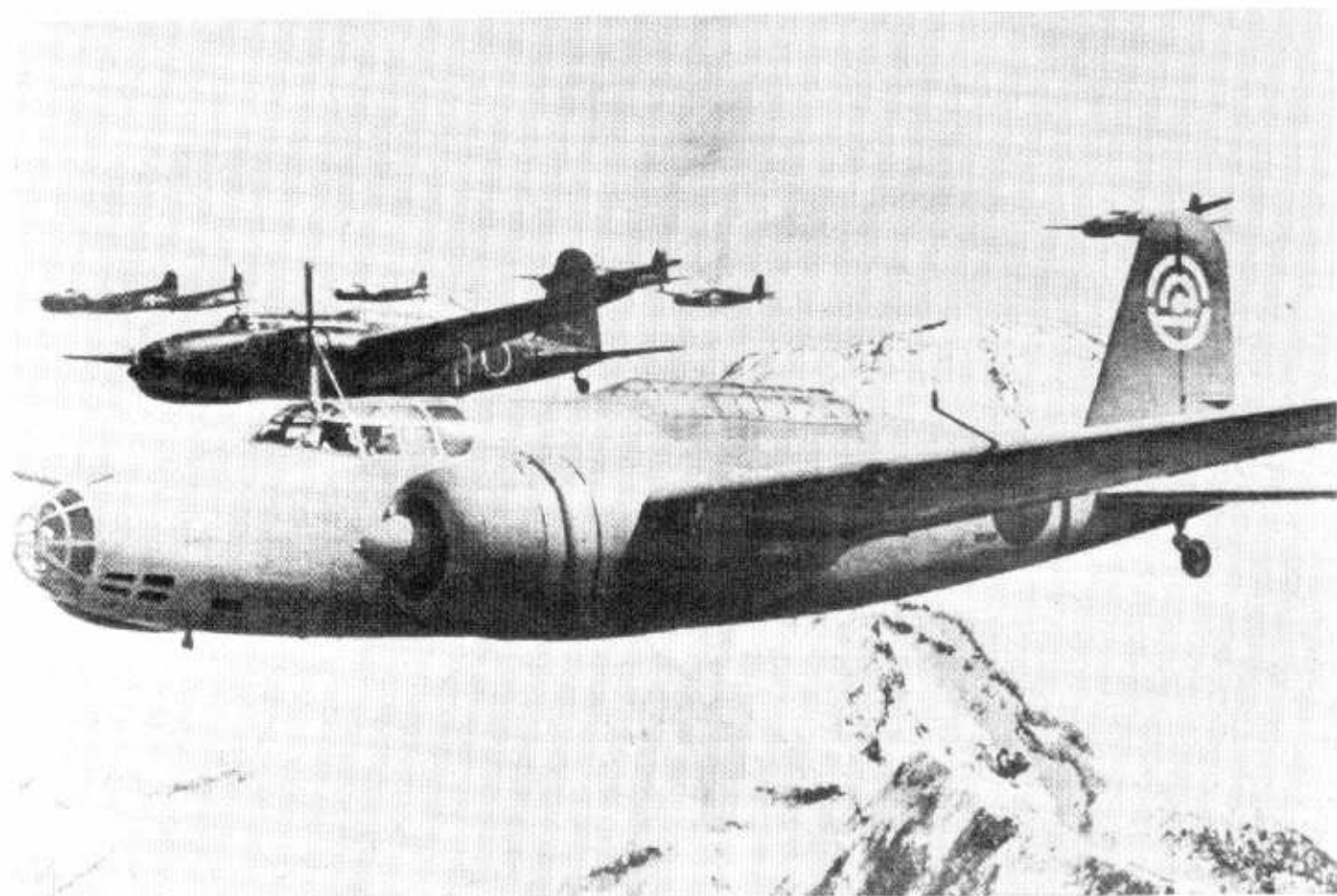
KI-51, unit unknown, probably a training unit, sporting a fresh factory finish.

(Oishi)



SALLY, 60th Bomber Sentai, Manchuria, 1941.

(USAF Photo)



SALLYs of the HAMAMATSU Bomber School on operational training.

(USAF)



DINAH, unit unknown, Clark Field, 1945. Notice that the white surround to the Hinomaru has been overpainted rather crudely with red. (National Archives/E. Kent Loomis)

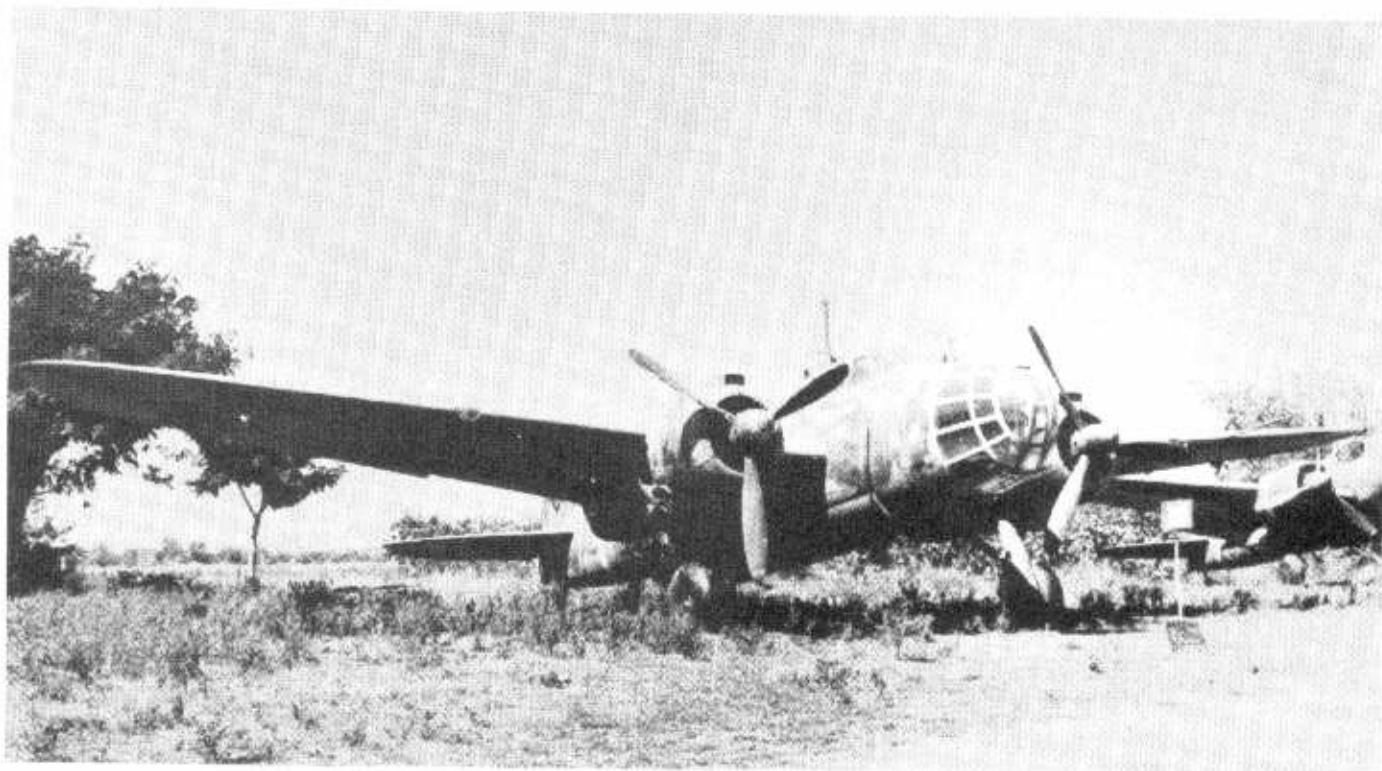
'KANA' ILLUSTRATED

The Two KANA Alphabets... (a & b)

A ^a ^b あア	KA ^a ^b かカ	GA ^a ^b がガ	SA ^a ^b さサ	ZA ^a ^b ざザ	TA ^a ^b たタ	DA ^a ^b だダ
I ^a ^b いイ	KI ^a ^b きキ	GI ^a ^b ぎギ	SI ^a ^b しシ SHI	ZI ^a ^b じジ JI	CHI ^a ^b ちチ	ZI ^a ^b ぢヂ JI
U ^a ^b うウ	KU ^a ^b くク	GU ^a ^b ぐグ	SU ^a ^b すス	ZU ^a ^b ずズ	TS ^a ^b つツ	ZU ^a ^b づヅ
E ^a ^b えエ	KE ^a ^b けケ	GE ^a ^b げゲ	SE ^a ^b せセ	ZE ^a ^b ぜゼ	TE ^a ^b てテ	DE ^a ^b でデ
O ^a ^b おオ	KO ^a ^b こコ	BO ^a ^b ごゴ	SO ^a ^b そソ	ZO ^a ^b ぞゾ	TO ^a ^b とト	DO ^a ^b どト
NA ^a ^b なナ	HA ^a ^b はハ	BA ^a ^b ばバ	PA ^a ^b ぱパ	MA ^a ^b まマ	RA ^a ^b らラ	YA ^a ^b やヤ
NI ^a ^b にニ	HI ^a ^b ひヒ	BI ^a ^b びビ	PI ^a ^b ぴピ	MI ^a ^b みミ	RI ^a ^b りリ	YU ^a ^b ゆユ
NU ^a ^b ぬヌ	FU ^a ^b ふフ	BU ^a ^b ぶブ	PU ^a ^b ぷプ	MU ^a ^b むム	RU ^a ^b るル	YO ^a ^b よヨ
NE ^a ^b ねネ	HE ^a ^b へヘ	BE ^a ^b べベ	PE ^a ^b ぺペ	ME ^a ^b めメ	RE ^a ^b れレ	WA ^a ^b わワ
NO ^a ^b のノ	HO ^a ^b ほホ	BO ^a ^b ぼボ	PO ^a ^b ぽポ	MO ^a ^b もモ	RO ^a ^b ろロ	N ^a ^b んン

Some Commonly Encountered KANA Characters

Red 赤	Green 緑	Light 明	1 一	6 六	100 百
White 白	Brown 茶	Dark 暗	2 二	7 七	1000 千
Yellow 黄	Grey 灰	Upper 上	3 三	8 八	Fuselage 胴体
Blue 青	Color 色	Lower 下	4 四	9 九	Wing 翼
Black 黒	Silver 銀	Overall 全面	5 五	10 十	Tail 尾部

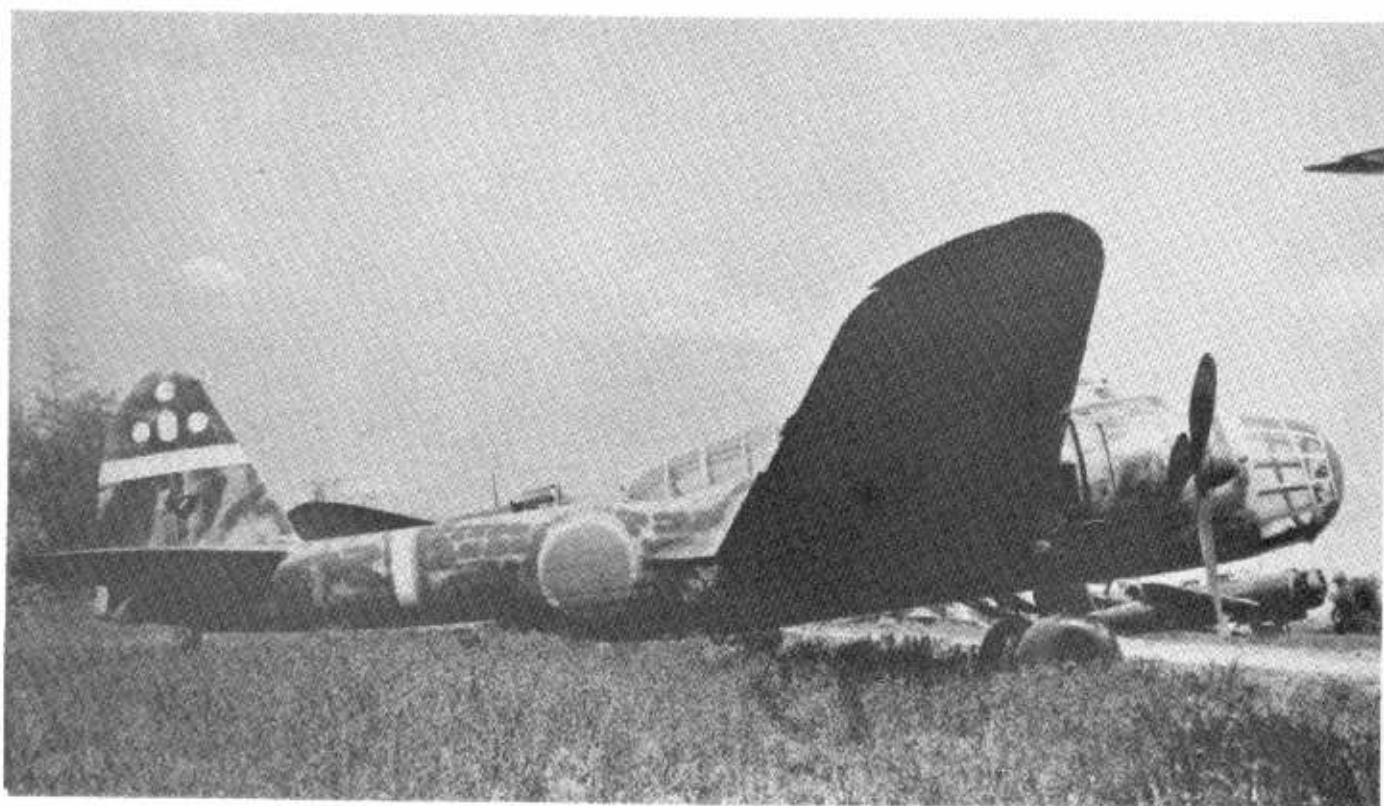


Another view of the aircraft described below. Philippines, 1944.

(USAF)

The unusual application of the blotch scheme is worthy of note here. Unit unknown.

(USAF)



1

GENERAL CAMOUFLAGE AND FINISHES

Evolution of Camouflage – Chronological Evolution of Camouflage – Camouflage Key showing Principle Camouflage Finishes – Camouflage Patterns and Using Units – Camouflage Patterns and Using Aircraft – Camouflage Patterns by Aircraft Type – Five Basic Camouflage Schemes – Exterior Color Application – Interior Color Application –

就 翼
鳥 六

EVOLUTION OF CAMOUFLAGE

Throughout the history of camouflage and markings of military aircraft, there is one factor which has been common to all Air Forces. While all governments have exacting requirements for the finishes of their aircraft, the departure from these regulations is more often the rule than the exception. These exceptions commonly are the result of either individual fancy or the tactical situation on a local level.

Probably the most graphic examples of these departures from the norm were the myriad finishes employed by the Luftwaffe during WWII. These have recently received excellent coverage by such able historians as Karl Ries, Jr. and Heinz Nowarra, and by such significant organizations as the International Plastic Modeller's Society, the American Aviation Historical Society, and their counterparts throughout the world.

The Japanese Air Forces were of course no exception to the foregoing, although perhaps individual variations were not as common as in other Air Forces. Although there were more than forty widely used schemes of camouflage employed by the J.A.A.F. during WW II, no more than a dozen of these were authorized at high levels. The balance came into use as a result of field expediency.

These locally applied schemes were usually the result of a particular tactical situation, and not meant to be a permanent finish. However, these "temporary" finishes, once applied, were often carried over into other situations where their appearance was totally incongruous with the local situation that existed, sometimes resulting in more attention being drawn to the aircraft than was desired, somewhat in the manner of an elephant in pink tights at a gathering of field mice. A prime example of this sort of problem occurred during the Sino-Japanese conflict. During this period Japanese aircraft of both services sported the light grey, light grey-green, silver, or pale blue overall finishes, which were factory standard at that time. Along with this scheme, many aircraft wore bright red fuselage and fin flashes, not only as a symbol of *esprit-de-corps*, but as an aid to rescue operations in the event of a crash landing.

Until the advent of more formidable opponents, such as the P-40's of the AVG or Flying Tigers of General Chennault, the J.A.A.F. with its many fighters and bombers roamed the skies over China and Manchuria with little thought to concealment. Also, the chance of an enemy attack on the home bases was remote indeed.

As the Japanese began to suffer losses through interception, and as their fields began to receive attacks, it became apparent to the local commanders that a camouflage scheme was necessary which would afford concealment. Two types of finishes were needed, the first to afford air-to-air concealment, particularly in the case of support aircraft, and the second an air-to-ground camouflage to protect the aircraft at their bases.

From this start evolved five basic types of camouflage: TYPE O, which was a single solid color over all surfaces of the aircraft; TYPE B, which was a blotch or similar type of irregularly applied dark colors, usually over a standard factory finish; TYPE N, natural metal overall, or in the case of a fabric covered aircraft, a silver painted finish; TYPE S, a two color finish, usually a solid dark colored upper and light colored lower surfaces; TYPE C, the fifth and last, which was a segment type scheme, much in the manner of the British camouflages.

During 1939 support aircraft started to sport new finishes, usually TYPE C segment schemes, composed of variations of green and brown, with grey-green overall lower surfaces. Occasionally the segments were separated by irregular strips of cobalt or medium blue, about 1 to 3 inches wide, to simulate the canals and rivers of the Manchurian countryside. Sometimes these strips did not follow the segment separating edges, but were applied at random.

When the OSCAR made its debut over China in 1942, the fighter scheme had changed to standard dark green upper and a light grey lower, with field applied variations of dark grey and eventually blotch patterns. The blotch or mottled patterns pose a very severe problem for the historian, however, as one must take care not to confuse the weathering of an overall finish with that of an actually applied

blotch finish. Also, one could occasionally find an aircraft that appeared to be a combination of blotch and overall, but this was usually due to lack of proper field maintenance. In the process of replacement and repair, crews did not have the time or inclination to refinish an aircraft as they should.

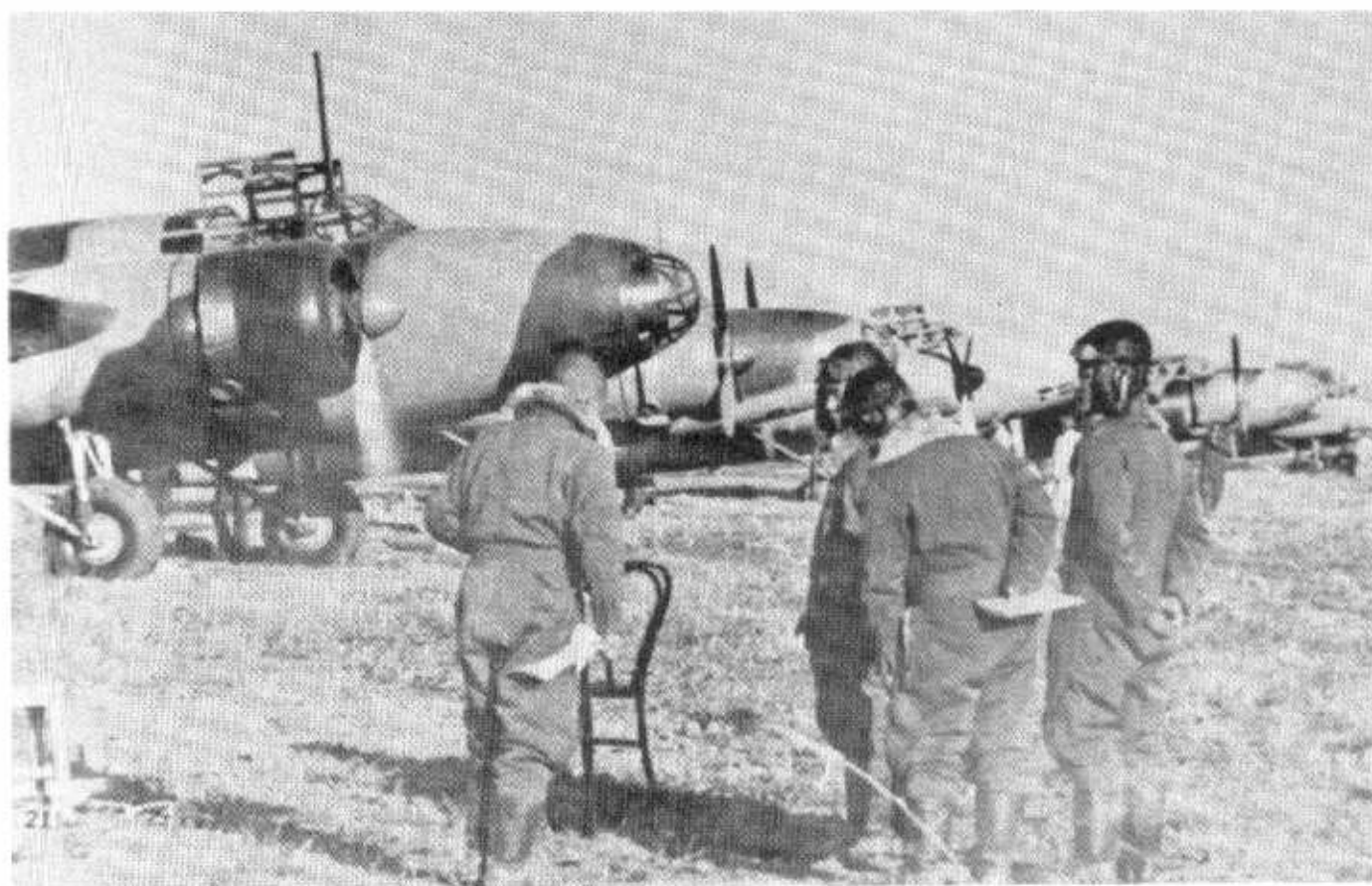
With the deployment of jungle-based aircraft, another type of finish came into use. This was the palm leaf or wave mirror types of patterns. LILY's based on New Britain were good examples of this type of foliage simulation. Over the natural metal or light painted surfaces, irregularly-placed stripings were applied to simulate the foliage patterns of the surrounding jungle.

Towards the close of WW II, aircraft in all of the many finishes were seen, ranging from the sometimes quite gaudy schemes of the Air-Dominating or Special Attack groups to the simple natural metal finishes of hastily issued aircraft, which had somehow managed to survive the terrible fire bombings that were almost constant over Japan in 1945.

Night operating aircraft, such as some FRANK, TOJO, and DINAH equipped units, used an all black "S" type finish. However many other schemes, ranging from natural metal to all white, were also used for this purpose.

Training aircraft, particularly those engaged in primary training were painted overall yellow-orange. But in 1943 the order was given to paint all training aircraft within any combat area in the local finish over all upper surfaces, leaving the warning yellow on all lower surfaces. Finally, towards the end of 1944, when there was no area that was free from attack by the Allies, all trainer aircraft were finished the same as tactical aircraft.

During 1945 Japan became a vast stockpile of aircraft of all types for Kamikaze use as a last ditch defense, if and when needed. Every type, both obsolete and current, were on hand with their finishes ranging from prewar, to what was to become the final symbol of the end of Japan's war effort, the all white finish with green crosses of surrendered aircraft.



SALLYs, 60th Bomber Sentai, Manchuria, 1939.

(J. Wood)

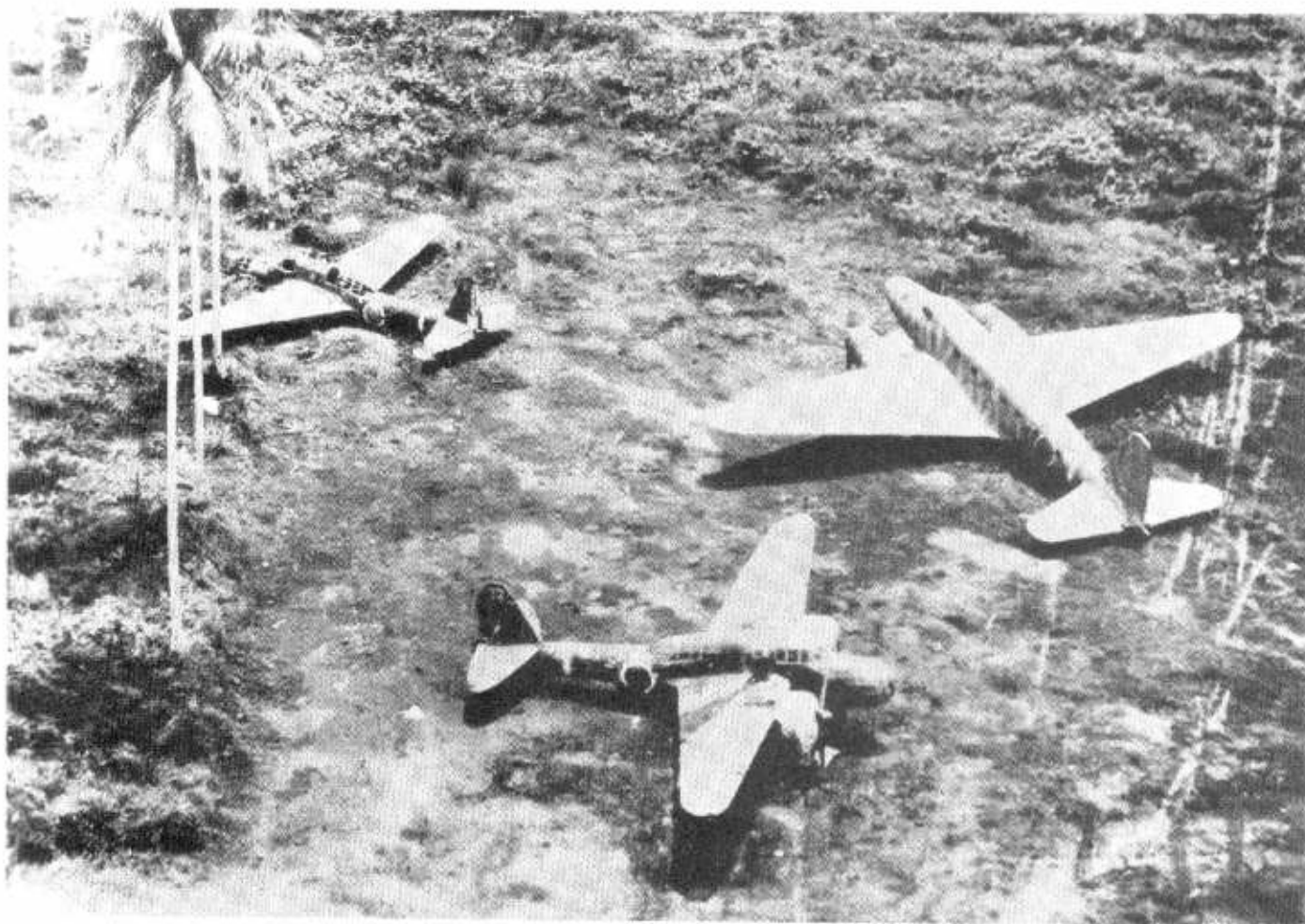


A LILY in a locally applied finish. Note how the dark green has been sprayed around all previous markings, while the newly applied unidentified insignia has been carefully applied over the camouflage coat.

(US Navy/National Archives)



FRANK, 2nd Chutai, 73rd Fighter Sentai, Philippines, 1944. The individual aircraft number is painted on the lower portion of the rudder, the background of which was usually in the Chutai color. This Sentai marking could easily be confused with some of the earlier individual or Chutai markings, especially those of the stripe variety.
(Hideya Anda)



Three separate versions of a type "B" finish may be seen here. The two LILYs are wearing typical blotch finishes, while TOPSY sports a wave-mirror pattern.
(USAF/National Archives)



The veining so peculiar to NICK is very apparent here. Clark Field, 1944.

(USAF/E. Kent Loomis)

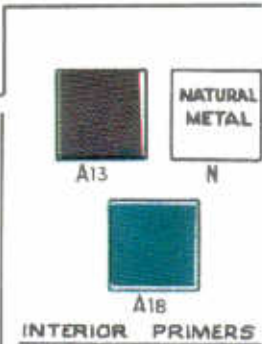
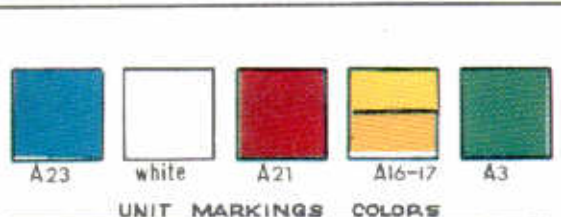
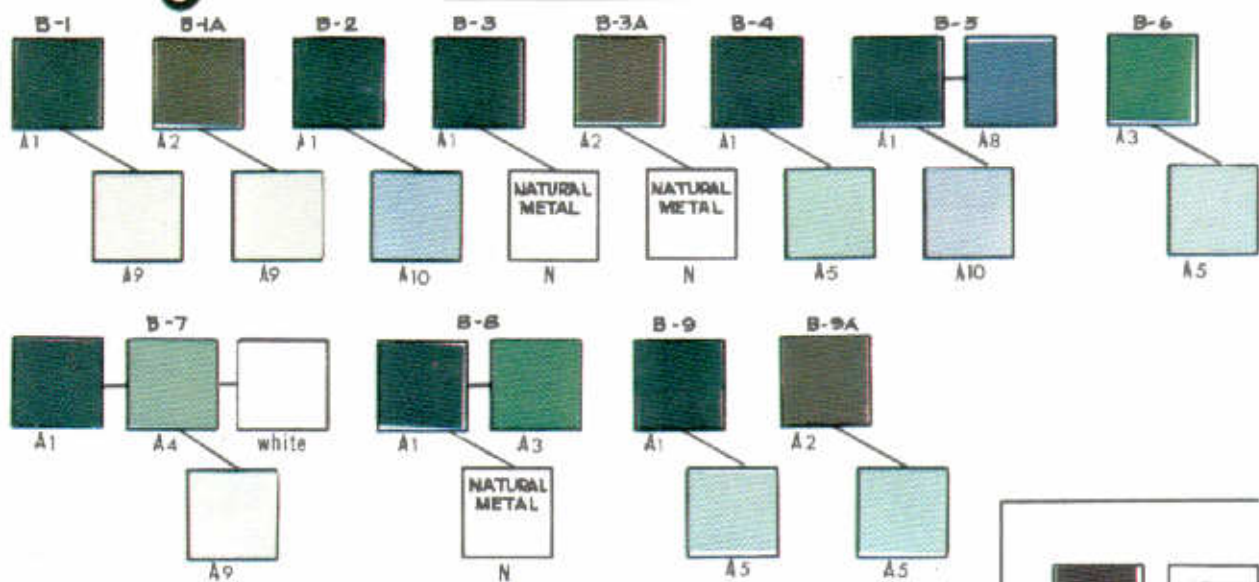
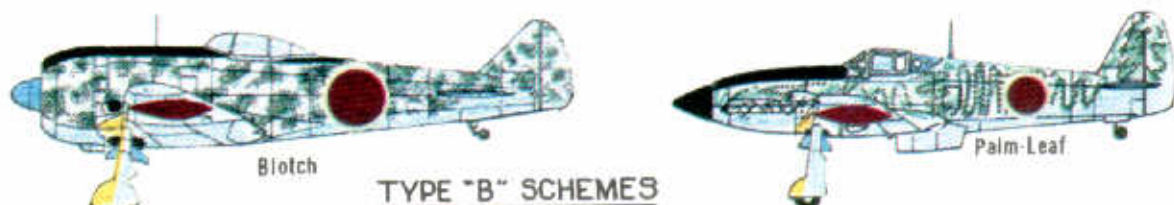
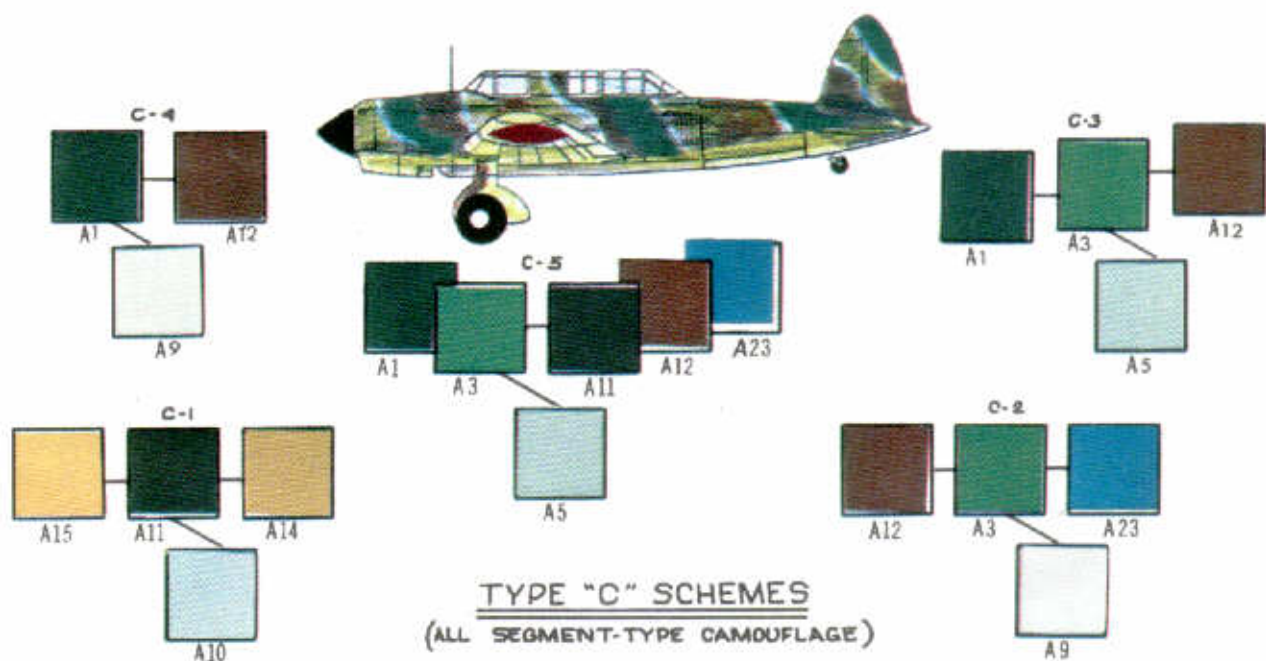


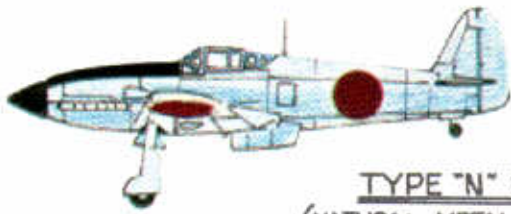
NICK, under inspection at war's end. Shown are two different camouflage schemes common with KI-45s; A8 blue grey overall, and B1 dark green mottle over light grey green. (Imperial War Museum)



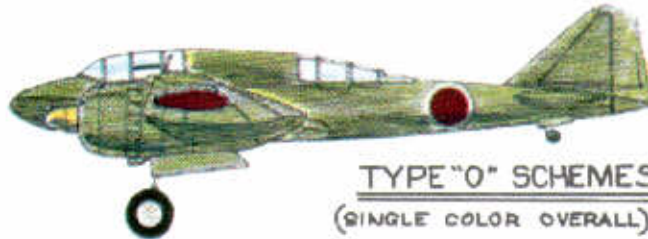
NICK, 27th Fighter Sentai, Philippines, 1944.

(R. Bueschel)

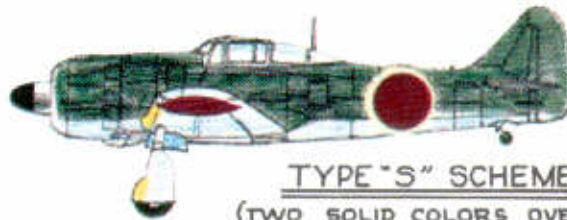




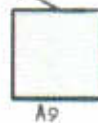
TYPE "N" SCHEMES
(NATURAL METAL OR SILVER)

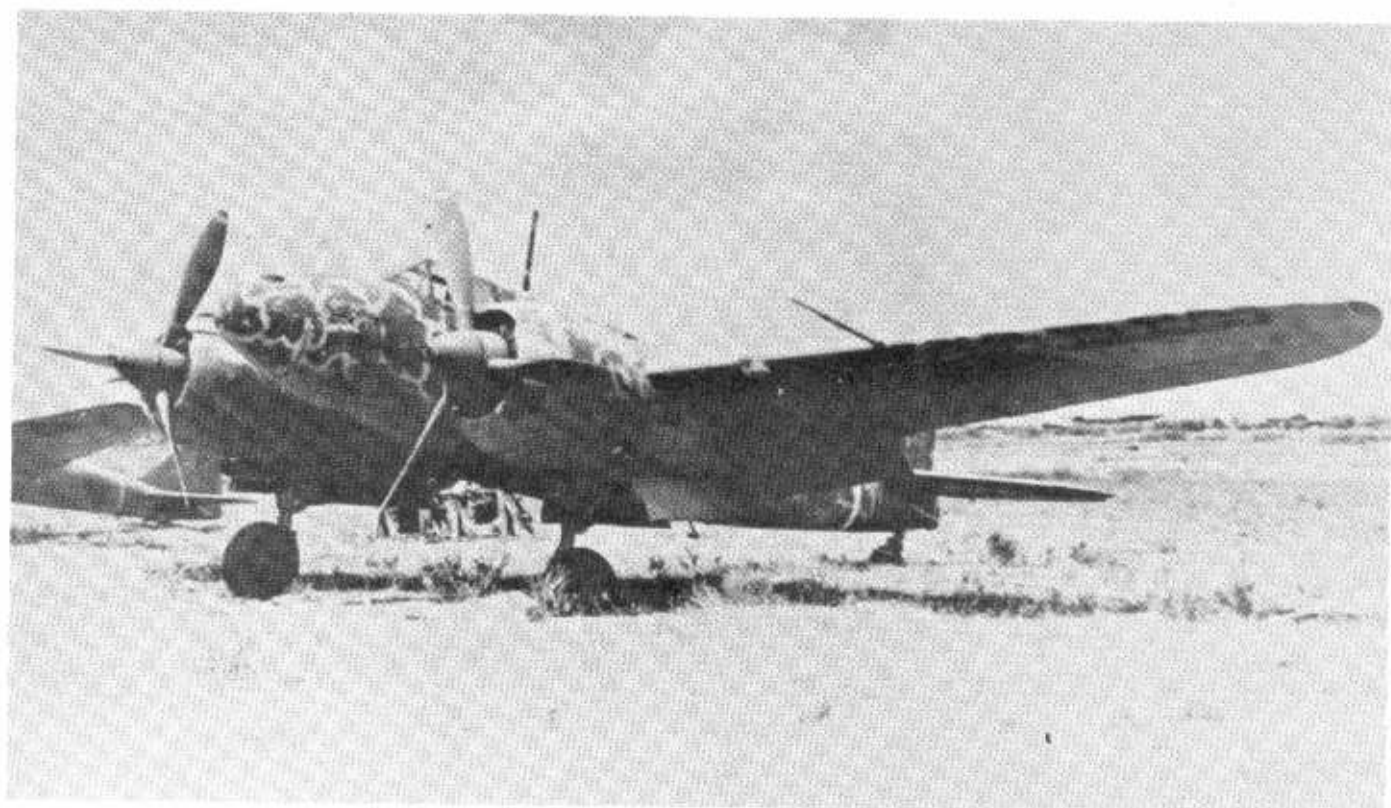


TYPE "O" SCHEMES
(SINGLE COLOR OVERALL)

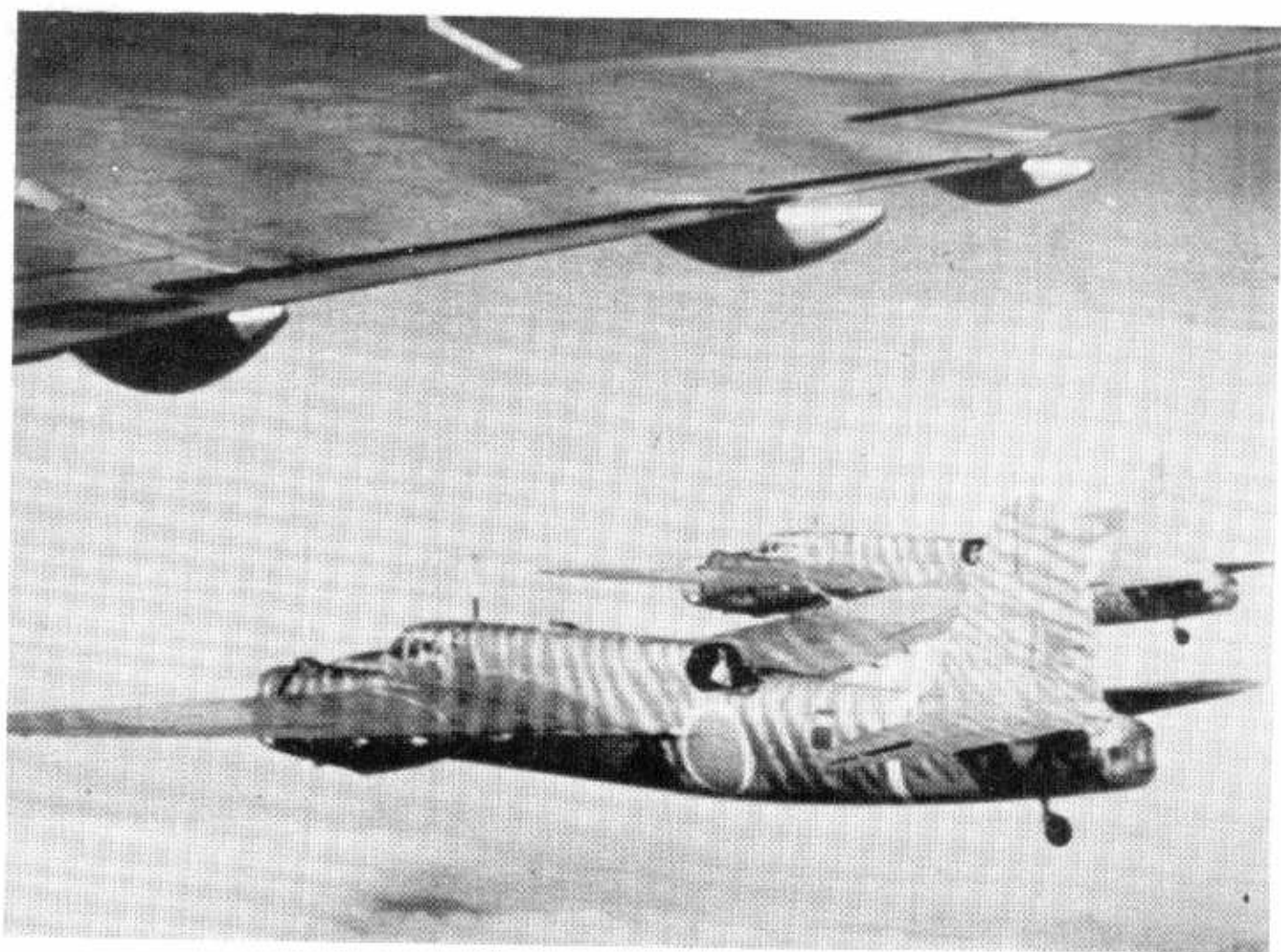


TYPE "S" SCHEMES
(TWO SOLID COLORS OVERALL)

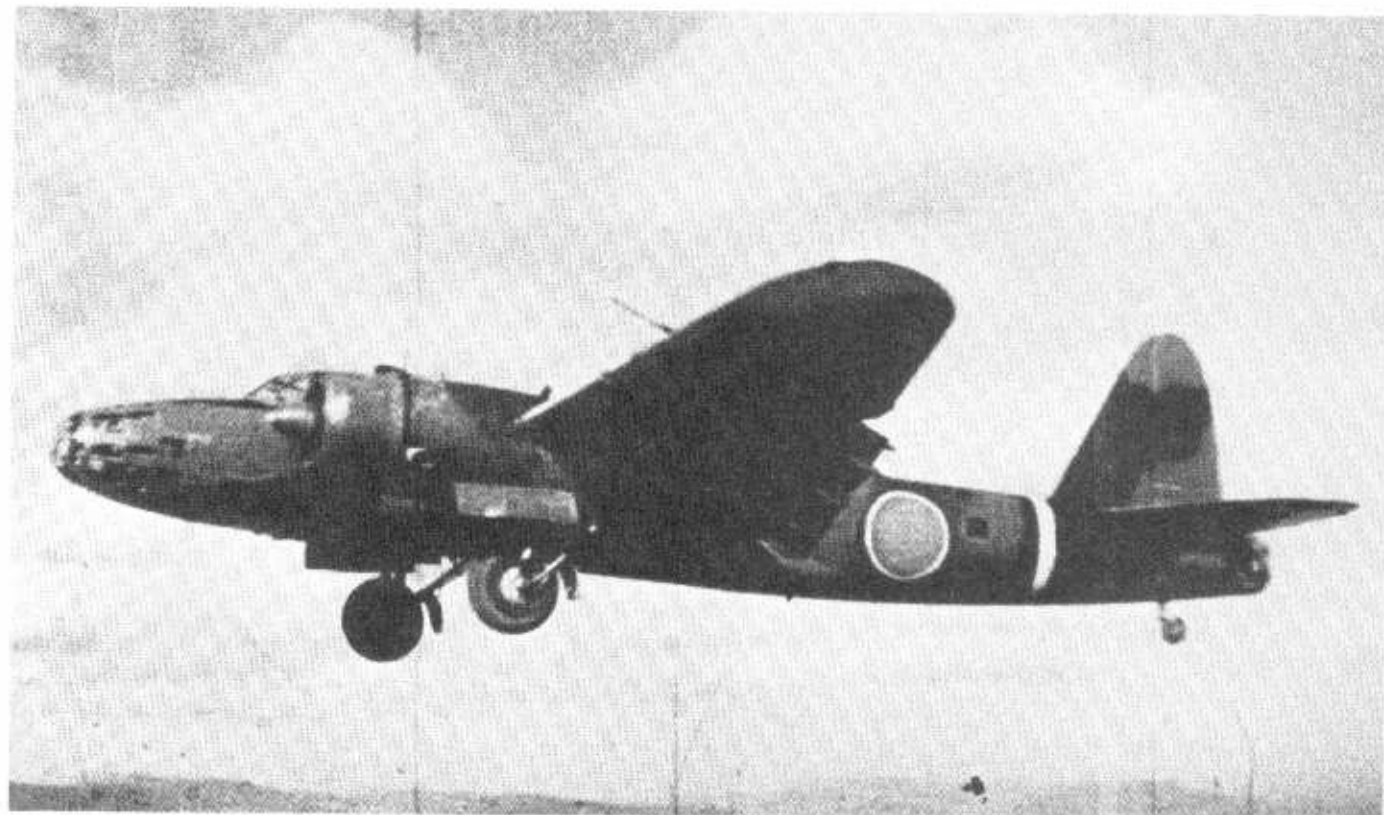




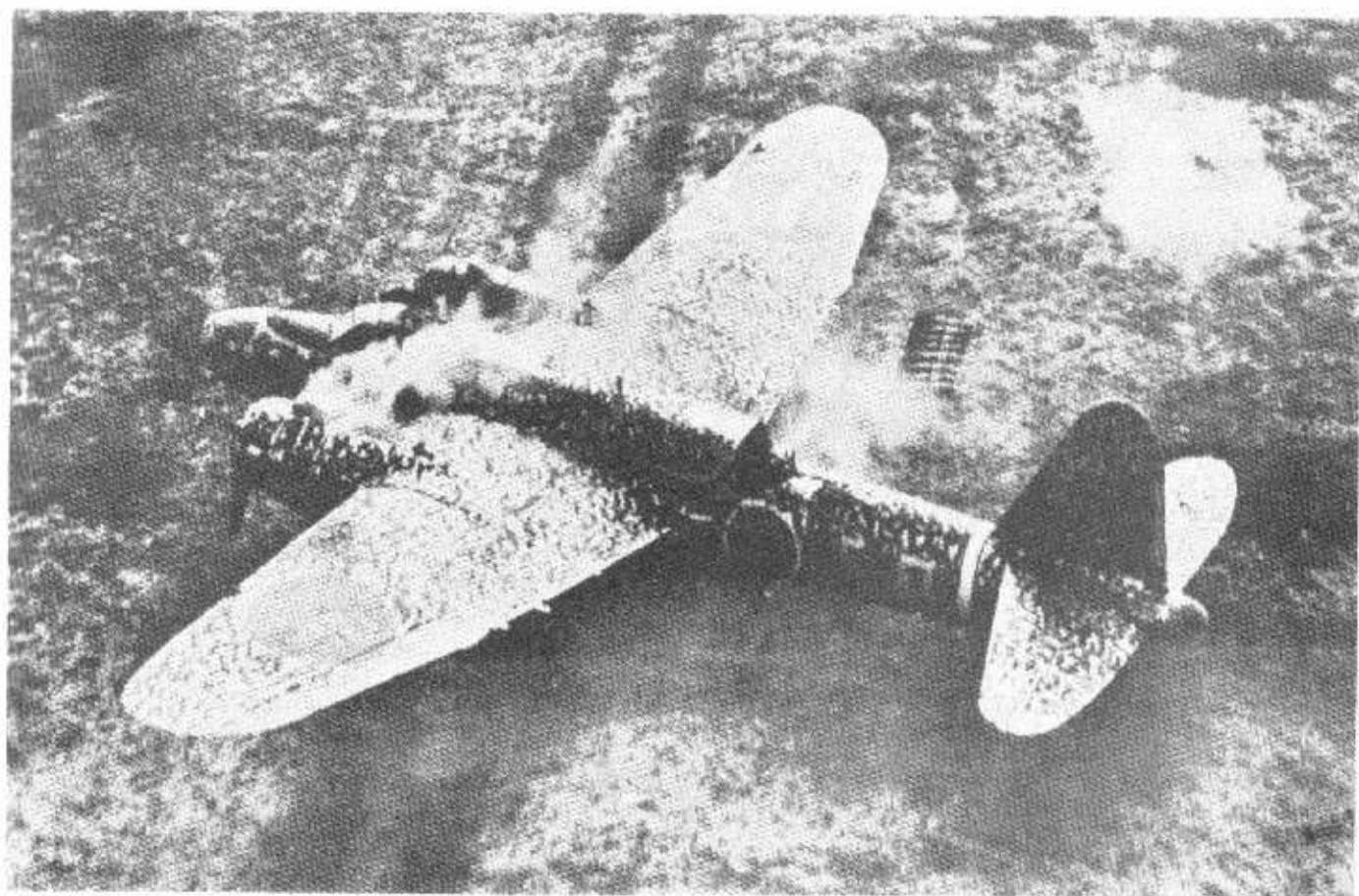
The veining so common and peculiar to NICKs is very evident here. The veining was carried around the leading edges of the wings. Brown primed, white tipped propellers.
(Oishi)



A group of zebra-striped HELENs, a variation of the wave-mirror schemes. The application here would seem to have been with more of an eye to aesthetic appeal than to practicality. Note that the upper wing Hinomarus are without the white surround.
(Hideya Anda)

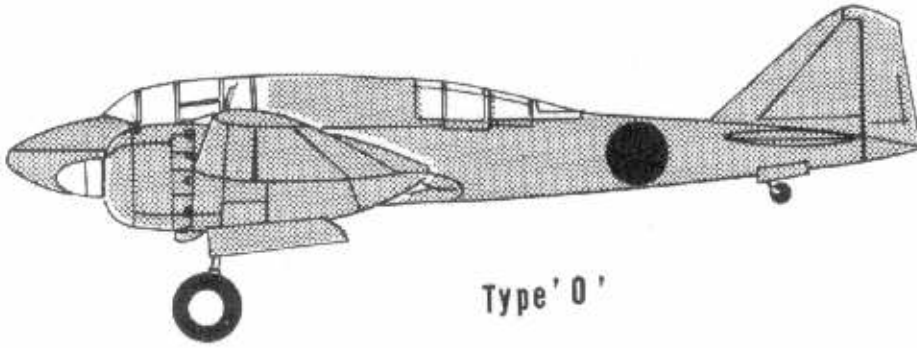


HELEN in unusual battle dress. The segment type camouflage schemes were not frequently encountered on heavy bomber aircraft during the later years of the war, 1943 onwards. (Hideya Anda)



K1-49 HELEN after a low level strafing run. This is a good example of an intricately applied wave-mirror, or ribbon pattern, applied much in the same manner as with Luftwaffe Junkers Ju-88s. (USAF photo)

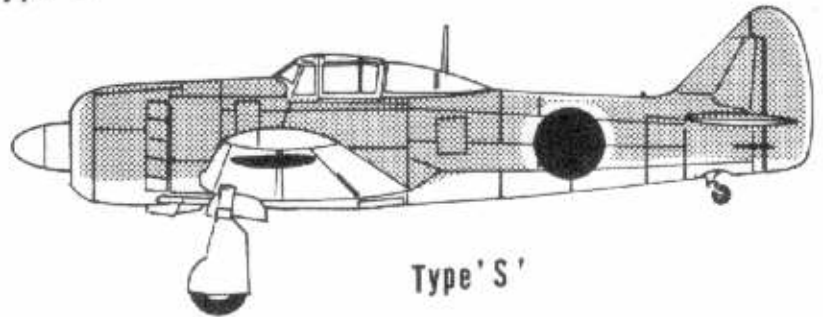
THE FIVE BASIC SCHEMES



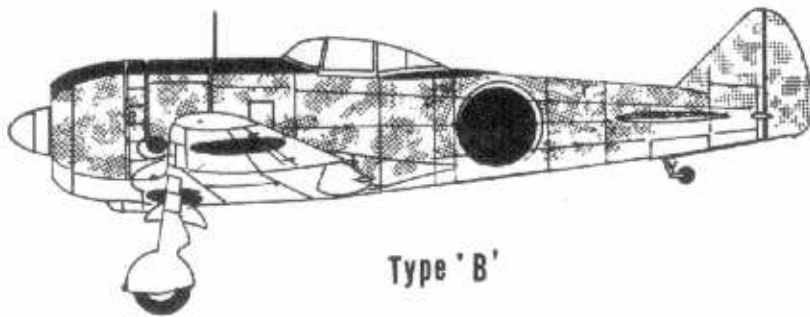
Overall Single
Solid Color

Type 'O'

One Color Upper,
One Color Lower



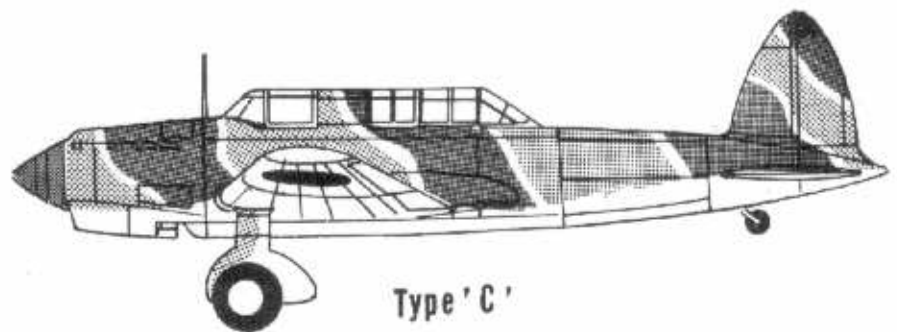
Type 'S'



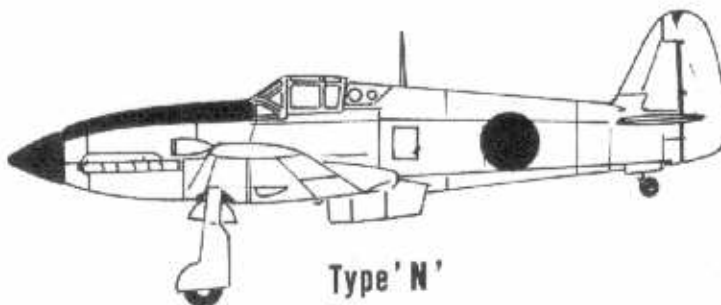
Blotch, Mottle, or
Reticulated

Type 'B'

Segmented or
Barred Colors

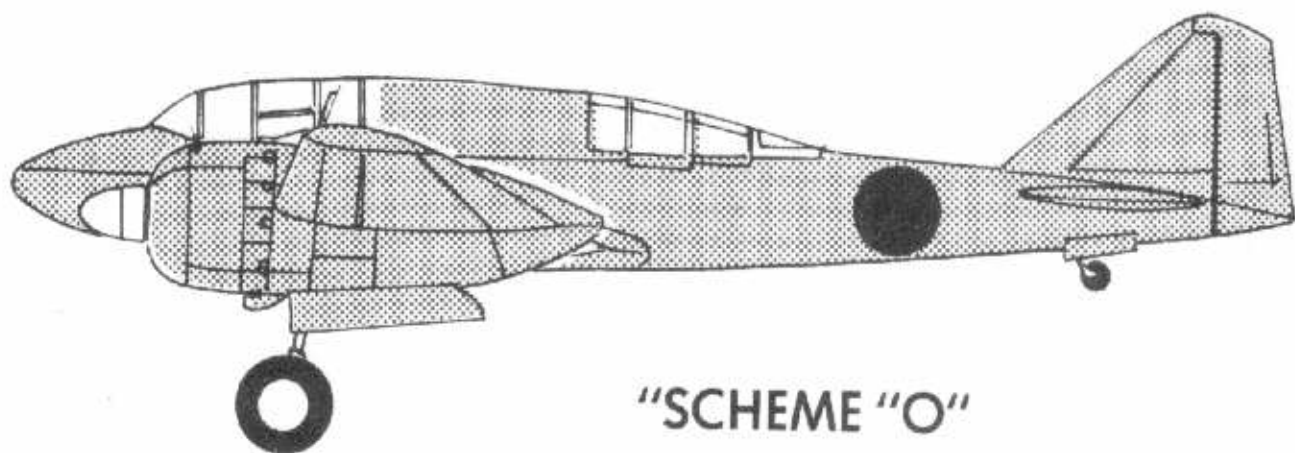


Type 'C'



Natural Metal or
Silver if Fabric

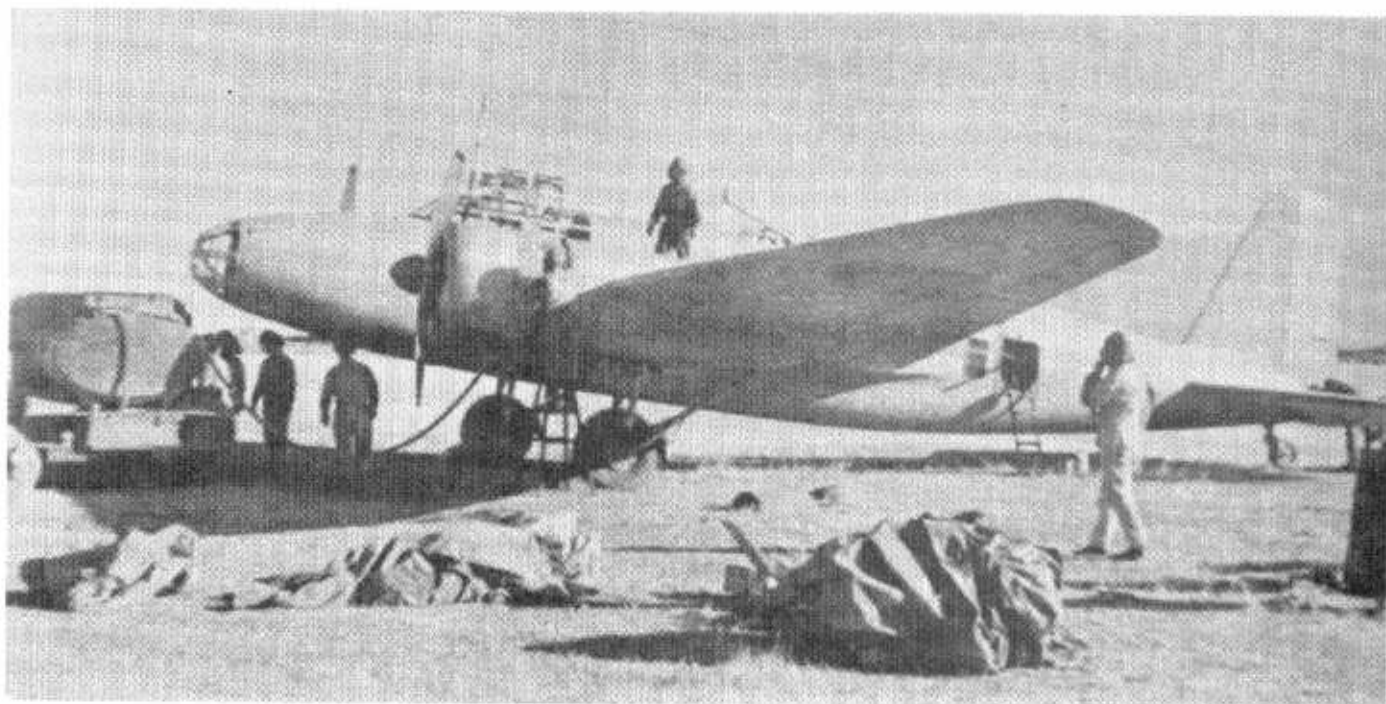
Type 'N'



"SCHEME "O"

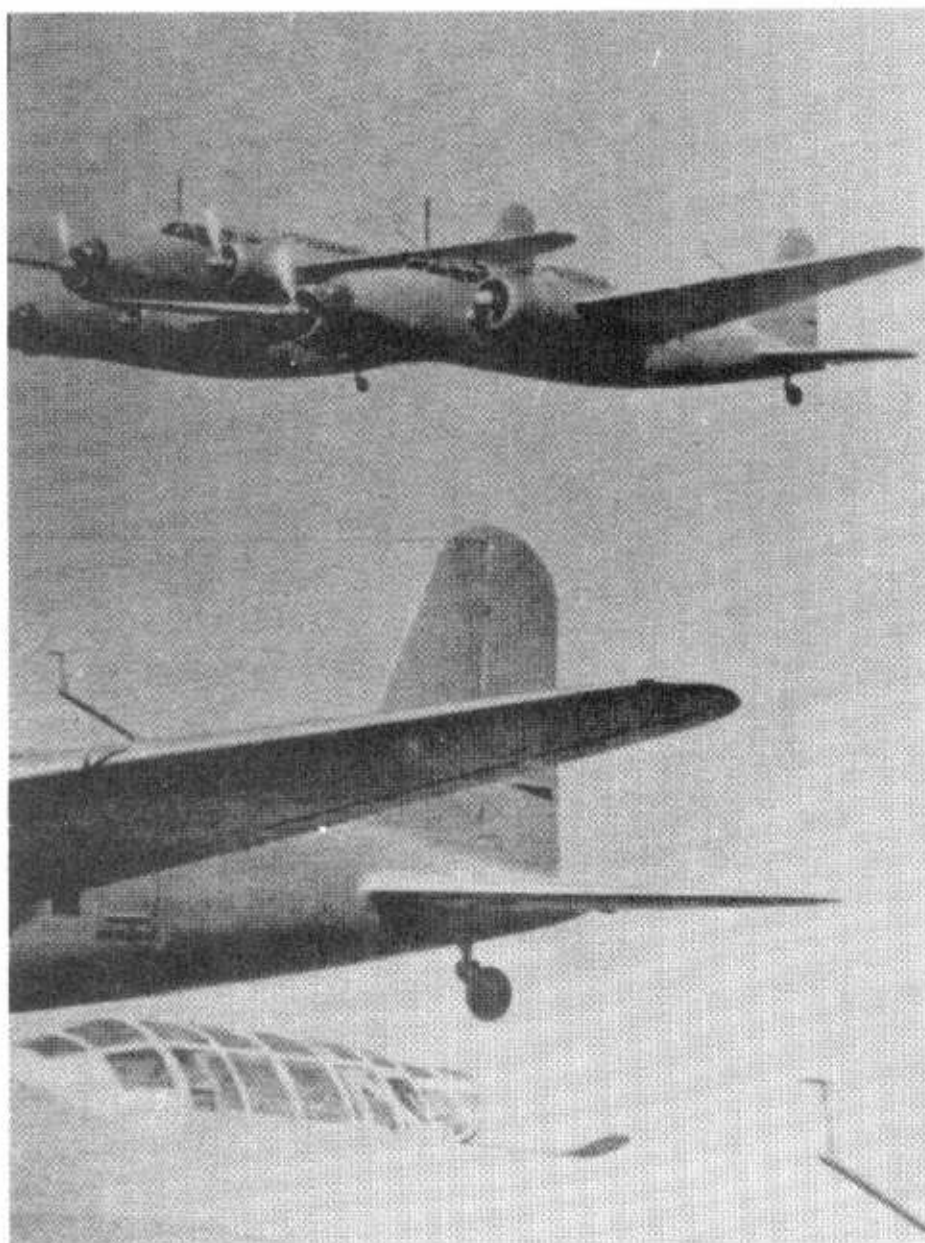
SINGLE SOLID COLOR OVERALL

TIME	SCHEME NO.	DESCRIPTION
1938-1945	01	Light grey (A9) overall
	02	Light grey green (A5) overall
1942-1945	03	Blue grey (A8) overall
	05	Dark green (A1) overall
	05a	Olive green (A2) overall
1943-1945	07	Medium grey (A7) overall
	04	White overall
	06	Dark grey (A6) overall
1940-1944	08	Red orange (A19) overall
	09	Yellow (A16) overall

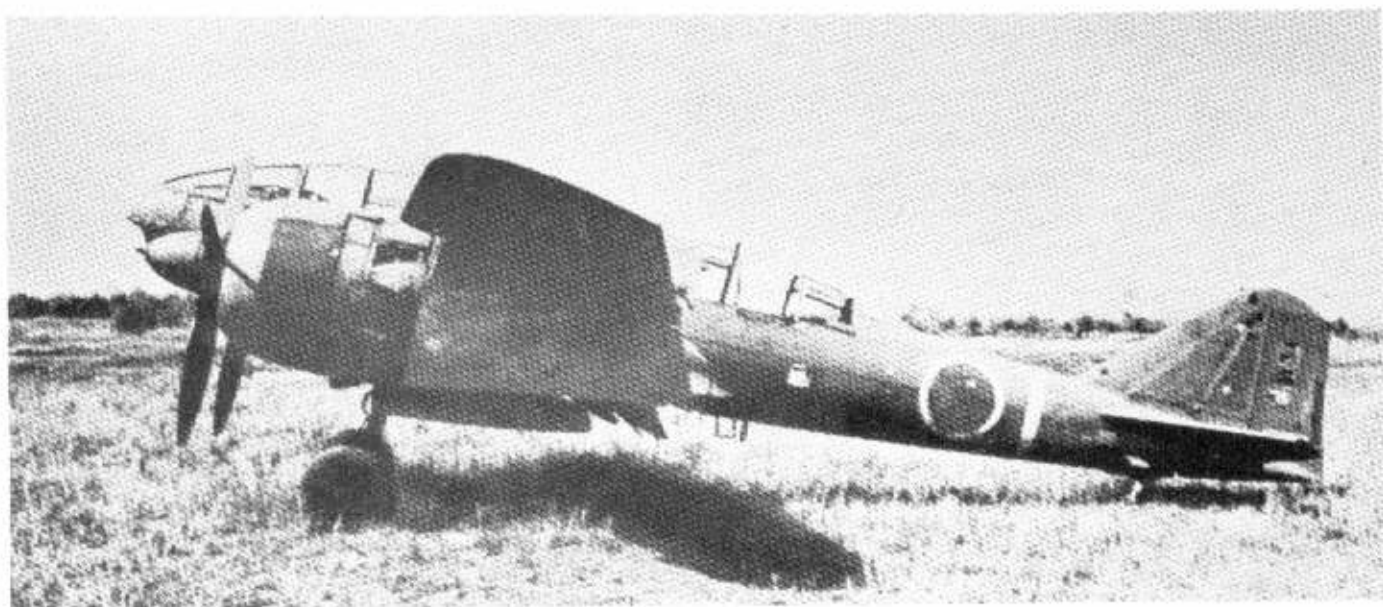


SALLY, unit unknown, Manchuria, 1938.

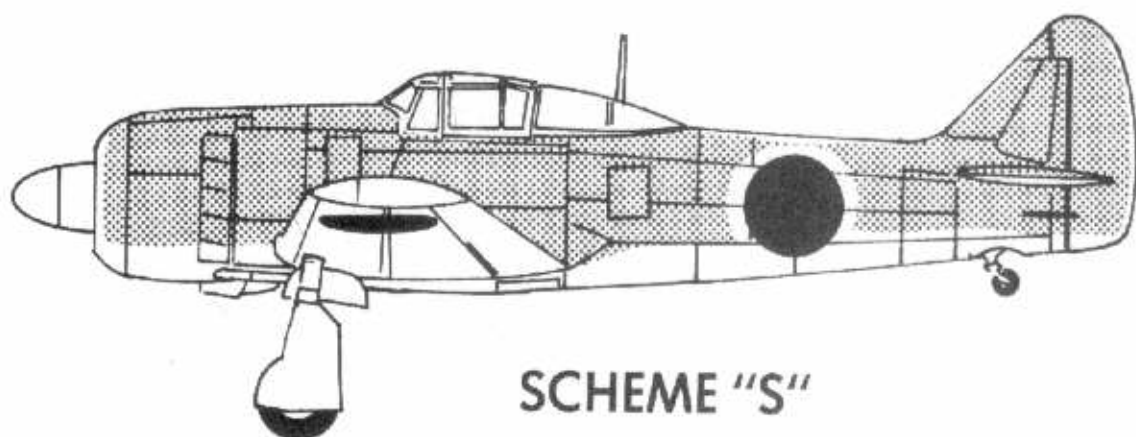
(J. Wood)



*SALLYs over Manchuria, 1939. Probably aircraft of the 60th Bomber Sentai.
(J. Wood)*



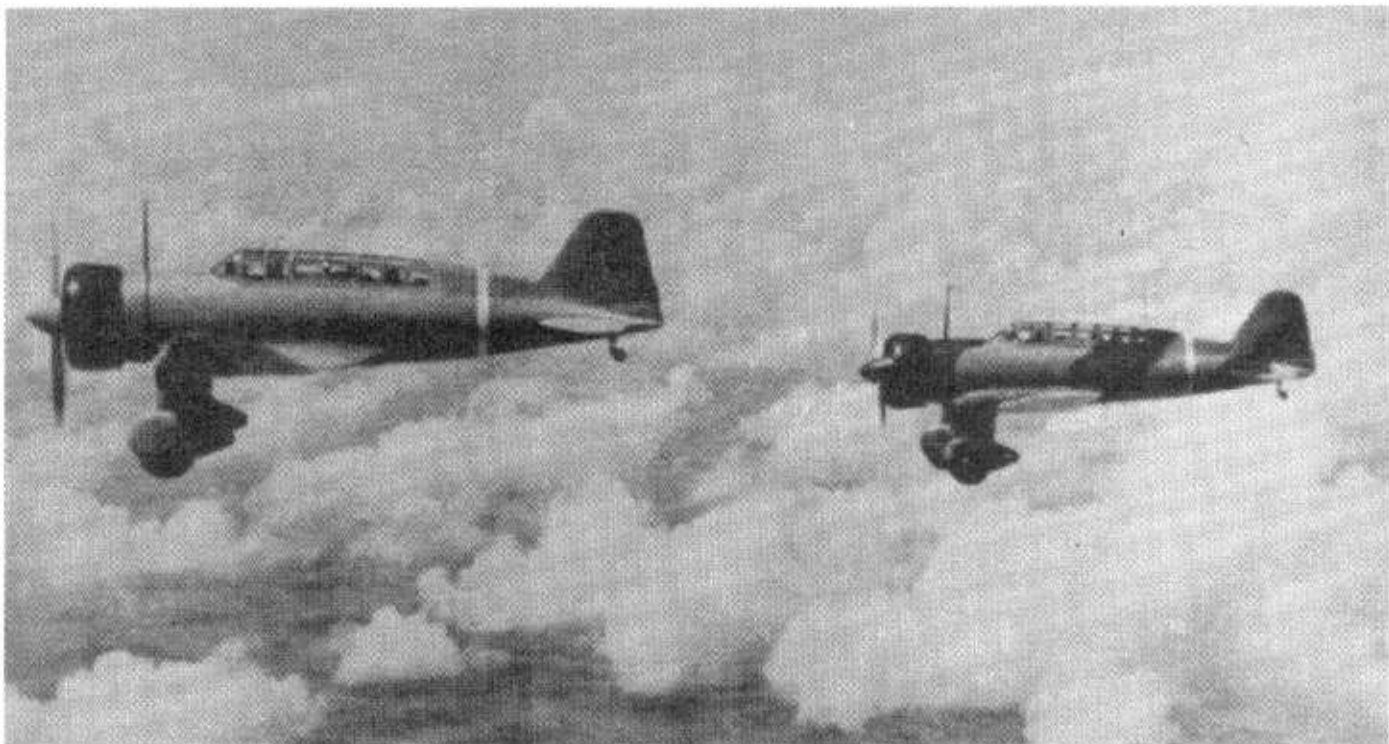
*DINAH III, wearing a typical type "O" camouflage scheme, which was prevalent among recon and courier aircraft during the last days of the war. China.
(Oishi)*



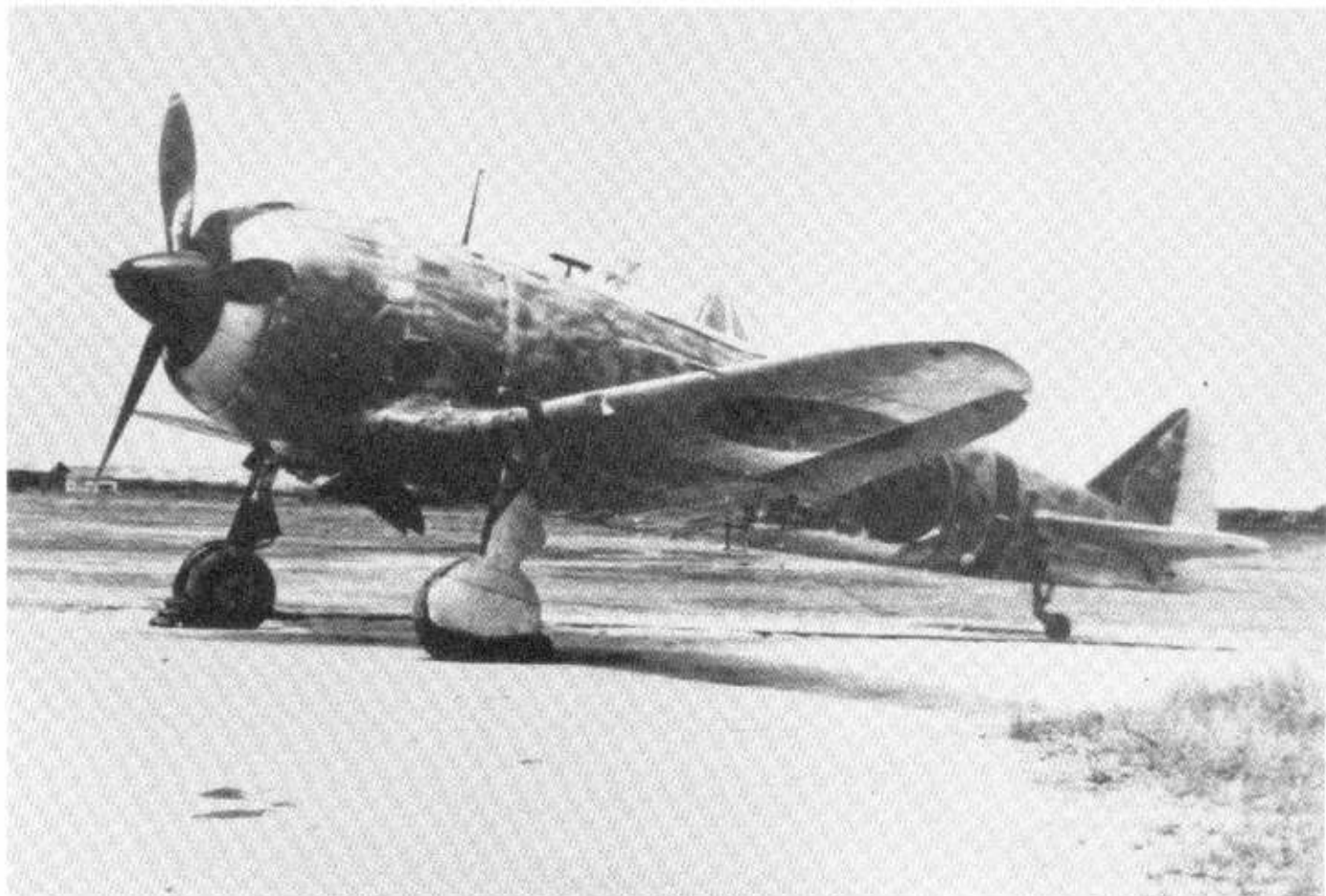
SCHEME "S"

TWO SOLID COLORS, UPPER AND LOWER

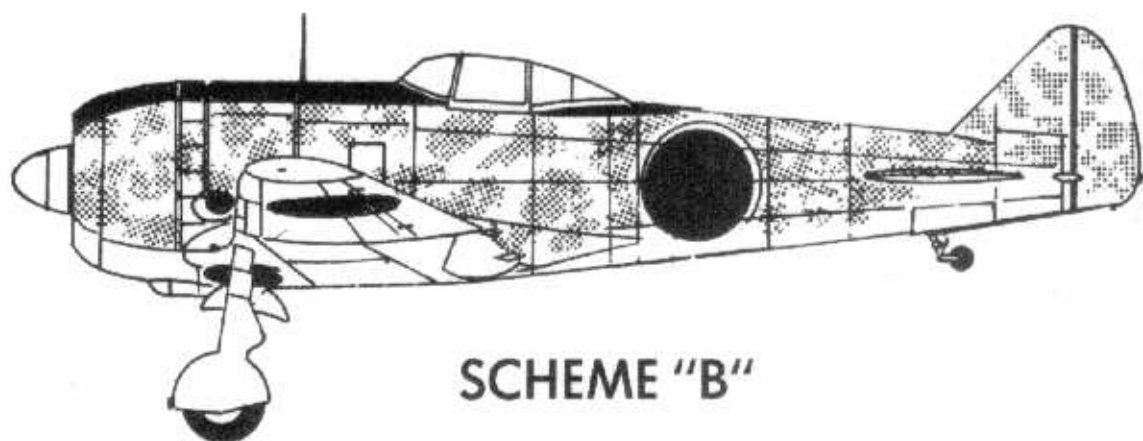
TIME	SCHEME NO.	DESCRIPTION
1938-1945	S2	Dark green (A1) upper, light grey (A9) lower
	S2a	Olive green (A2) upper, light grey (A9) lower
	S3	Dark green (A1) upper, natural metal lower
1941-1945	S1	Dark green (A1) upper light grey green (A5) lower
	S1a	Olive green (A2) upper, natural metal lower
	S12	Medium brown (A12) upper, and light grey (A9) lower
1942-1945	S5	Black (A24) upper, natural metal lower
1943-1945	S8	Medium grey (A7) upper, natural metal lower
	S14	Dark blue (A22) upper, natural metal lower
1944-1945	S15	Dark green (A1) upper, light blue grey (A10) lower
	S6	Dark blue (A22) upper, light grey green (A5) lower
	S7	Medium grey (A7) upper, light grey (A9) lower
	S9	Dark green (A1) upper, light green (A4) lower
1945- war's end	S10	Maroon (A11) upper, natural metal lower
	S13	Dark grey (A6) upper, light grey (A9) lower
	S4	Dark green (A1) upper, red orange (A19) lower



BABS, unit unknown, China, 1939-40. Note the two different schemes, showing the applications for this aircraft type during that time period. (J. Wood)



KI-44 TOJO, 85th Sentai, 2nd Chutai, as indicated by the red Sentai marking. Also, this is a Chutai leader's aircraft. Each Chutai leader's fuselage stripe was painted in the Chutai ID color, white with red outline for the 1st Chutai, red the second, and yellow with red outline for the third. Also rare is the use of un-outlined Hinomarus. The rudder is finished in light grey green rather than the silver dope frequently used over fabric on natural metal aircraft. (R. Bueschel)

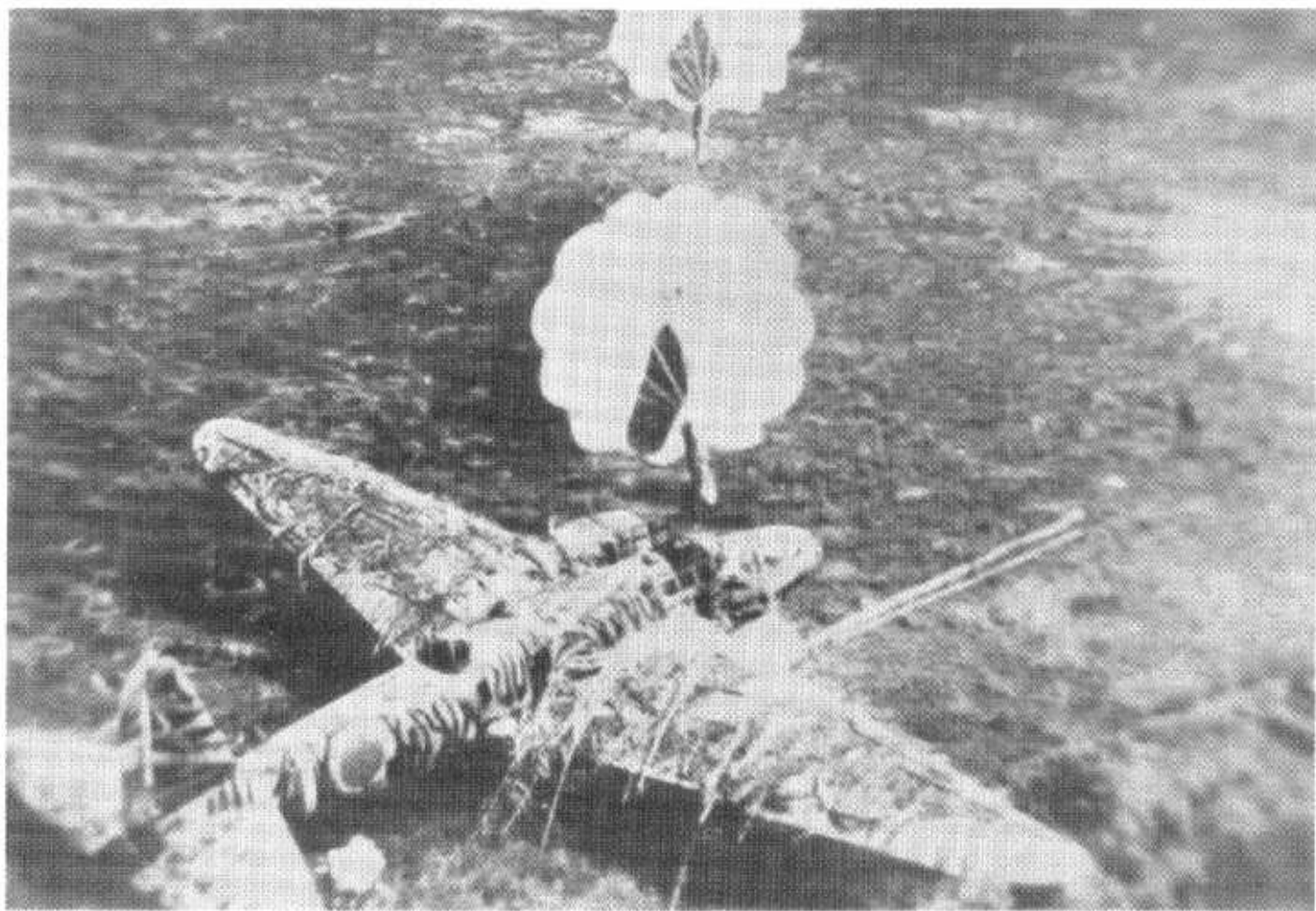


BLOTCH OR RETICULATED FINISHES

TIME	SCHEME NO.	DESCRIPTION
1938-1945	B1	Dark green (A1) mottle over light grey (A9) ground and undersurfaces
	B1a	Olive green (A2) mottle over light grey (A9) ground and undersurfaces
	B4	Dark green (A1) mottle over light grey-green (A5) ground and undersurfaces
1940-1945	B3	Dark green (A1) mottle over natural metal
	B3a	Olive green (A2) mottle over natural metal
1941-1945	B9	Dark green (A1) wave-mirror or palm leaf over light grey green (A5) ground and undersurfaces
	B9a	Olive green (A2) wave mirror or palm leaf over light grey green (A5) ground and undersurfaces
1942-1945	B2	Dark green (A1) mottle over light blue-grey (A10) ground and undersurfaces
1943-1945	B5	Dark green (A1) mottle over medium-blue grey (A8) ground, with light-blue grey (A10) undersurfaces
	B6	Medium green (A3) blotches over light-grey green (A5) ground and undersurfaces
1944-1945	B7	Dark green (A1), Light green (A4), and white blotches over light grey (A9) - ground and undersurfaces
	B8	Dark green (A1) mottle over medium green ground with natural metal undersurfaces
	B10	Dark grey (A6) mottle over natural metal all surfaces
	B11	Various mottles of varied colors over the entire aircraft surface, including undersurfaces

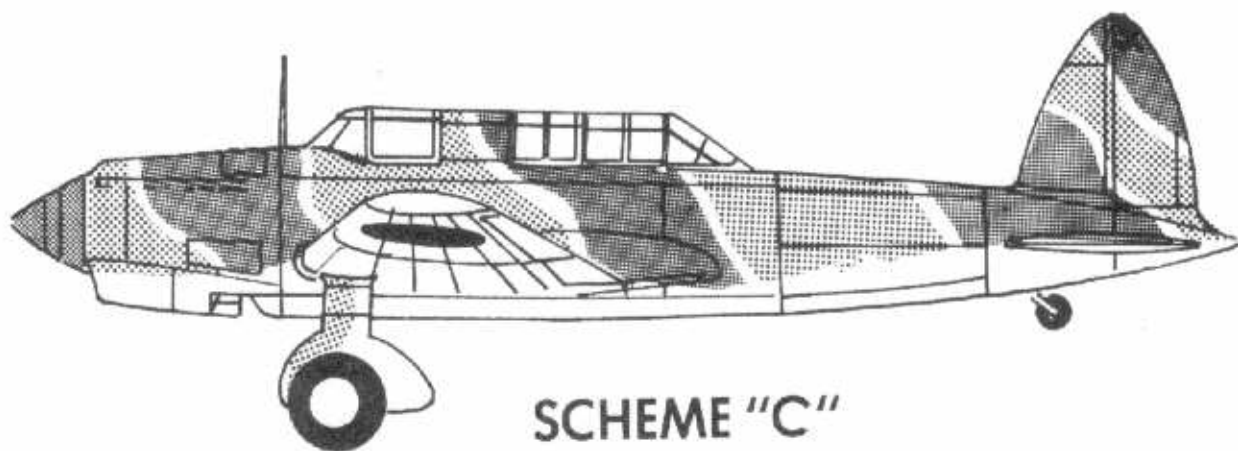


THALIA, during the early days of the Burma campaign. Note the very rare adaptation of a type "C" or segment finish, in this case dark green very large blotches over medium brown, outlined in cobalt blue. This is a fine example of a locally applied finish. (Ian Sibbald)



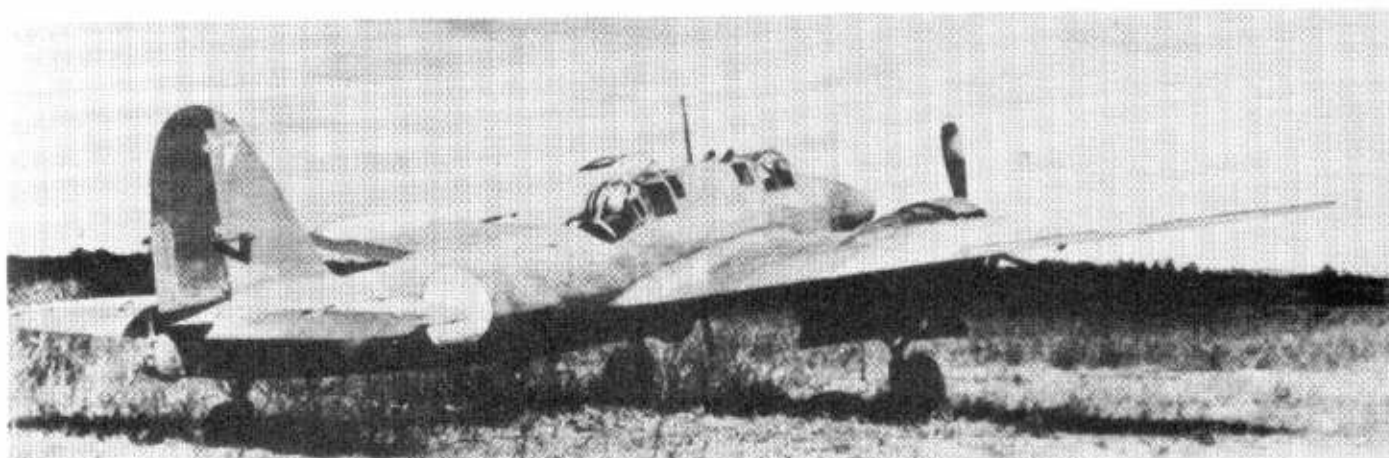
SALLY III about to receive a shock. 14th Bomber Sentai, 1944.

(USAF Photo)

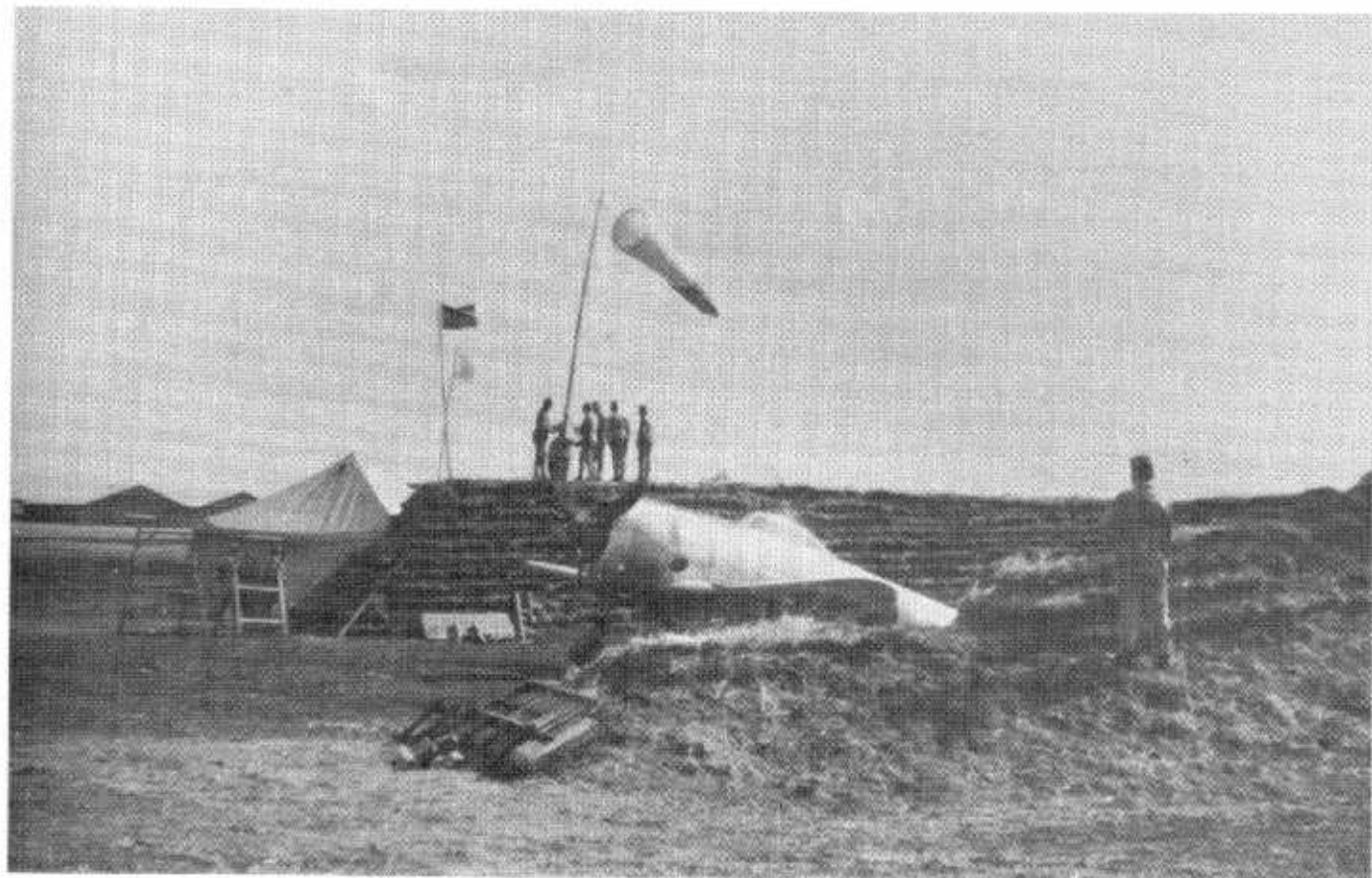


SEGMENT OR 'BARRED' SCHEMES

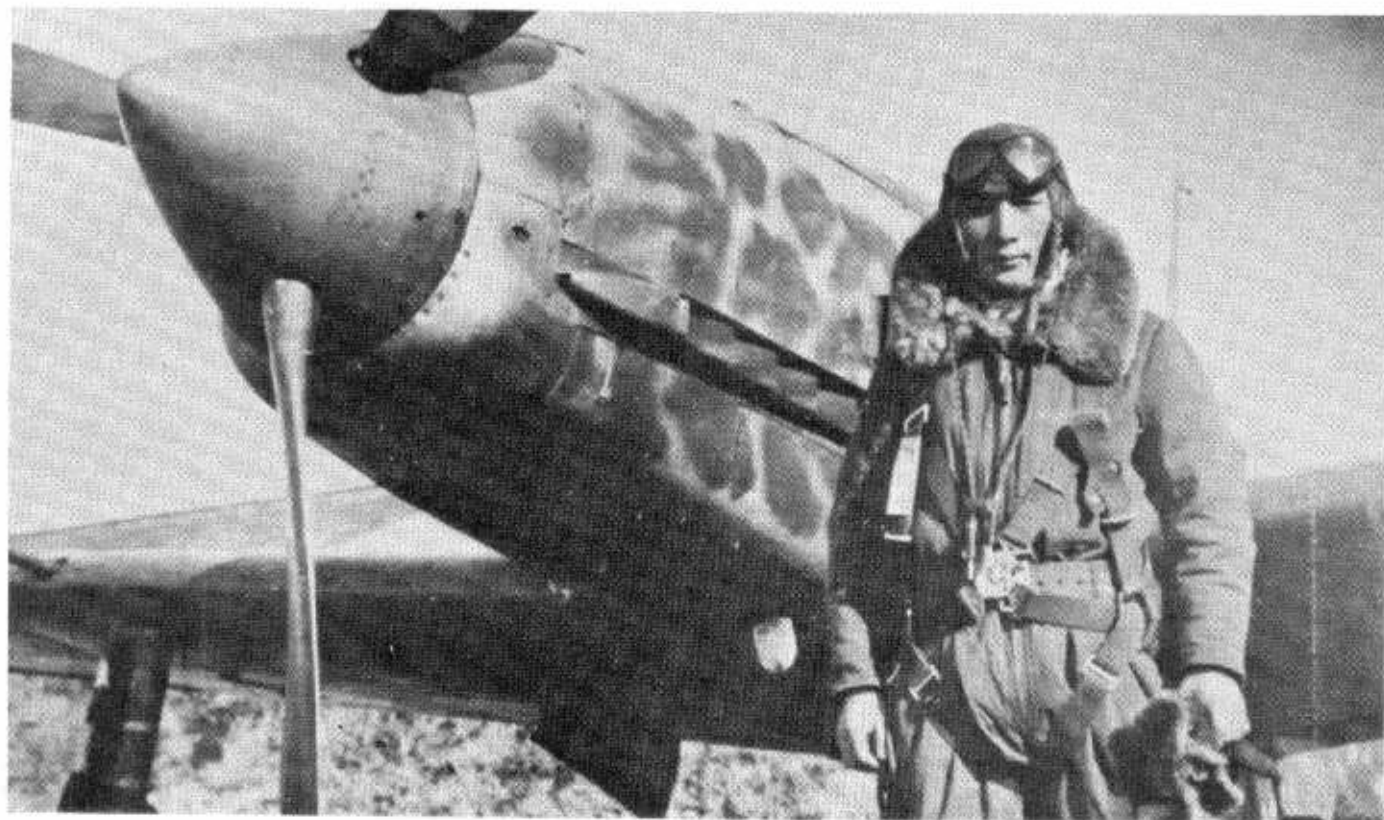
TIME	SCHEME NO.	DESCRIPTION
1938-	C1	Alternate segments; greyish-ivory (A15), Maroon (A11), and light brown (A14) uppers with light blue grey (A10) lower surfaces
	C2	Alternate segments; medium brown (A12), medium green (A3), upper surfaces, with light grey (A9) lower
1938-1940	C4	Alternate segments; dark green (A1) and brown (A12) uppers with light grey (A9) lowers
1938-1941	C5	Alternate segments; greens (A1 or A3) and browns (A11 or A12) with separating strips of medium blue (A23) of from 1" to 3" width, over light grey green (A5) surfaces
1938-1945	C3	Alternate segments; dark green (A1), green (A3) and brown (A12) upper surfaces with light grey green (A5) lower surfaces



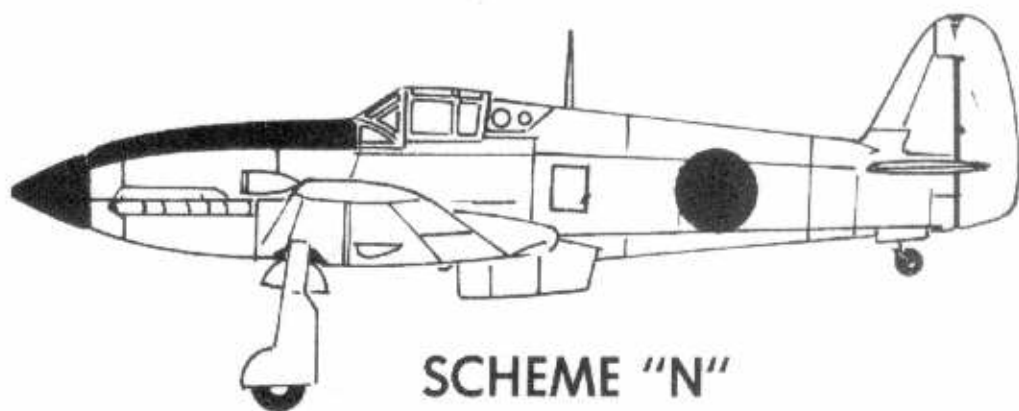
Ki-45 NICK, unit unknown. Note that the entire tip of the propeller blades are painted yellow, rather than the 1" approximate line which was normally used. (R. Bueschel)



*Typical field revetment of Army aircraft. Note the Home Defense bandages barely noticeable on the wings.
(Hideya Anda)*

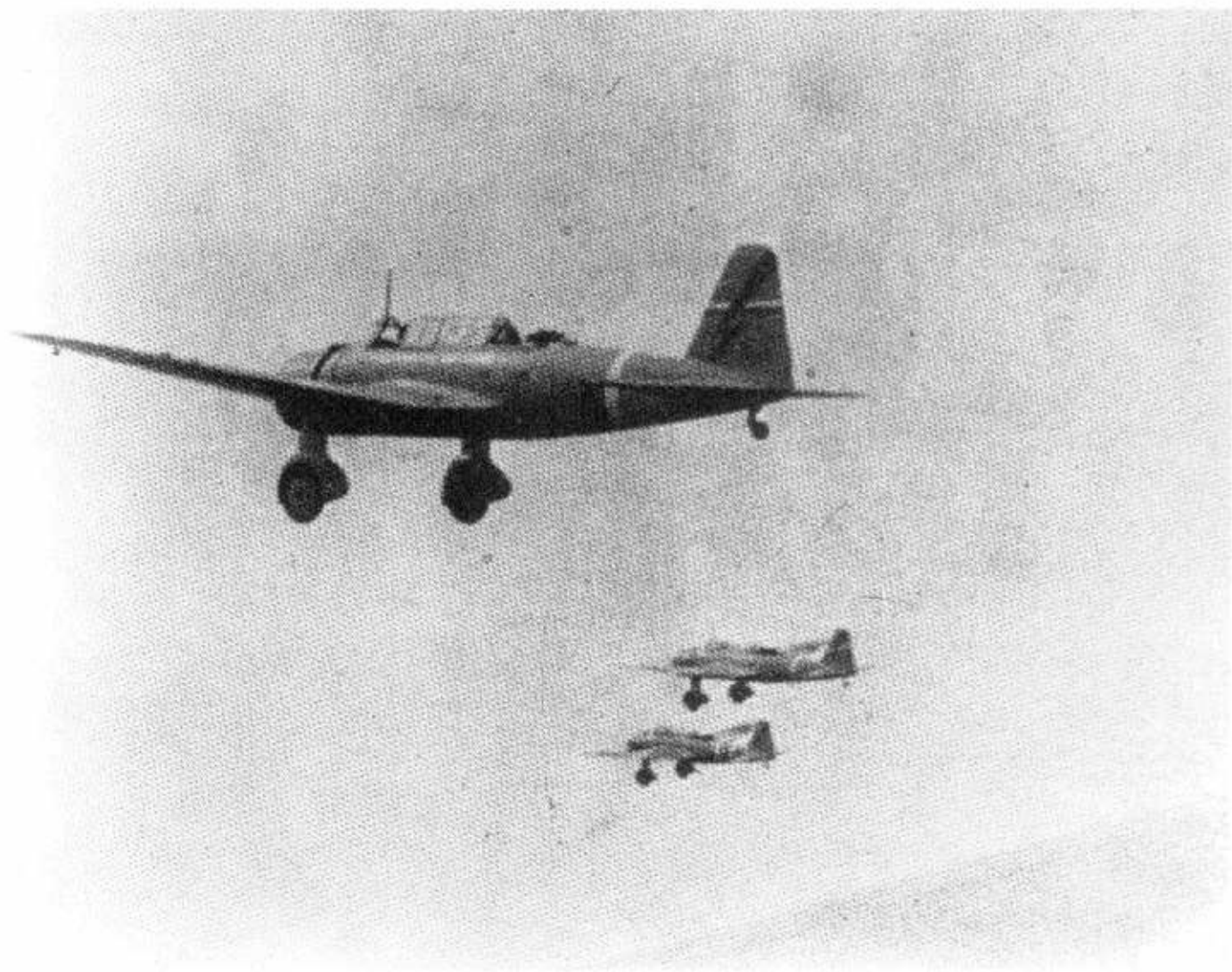


*TONY, KI-61-11, 244th Sentai, HQ Chutai, Chofu, Japan, 1945. The starburst surround to the gun ports are worthy of note, also the soft sprayed blotch finish, which was not usually encountered during the last days of the war. (The personal aircraft of Maj. T. Kobayashi, Sentai Cmdr.)
(Larry Crawford)*



SCHEME "N"

Metal clad aircraft: entirely unpainted, except for markings etc. Fabric covered aircraft: entire aircraft painted with silver dope. Note: Occasionally control surfaces were painted in light grey green (A5).

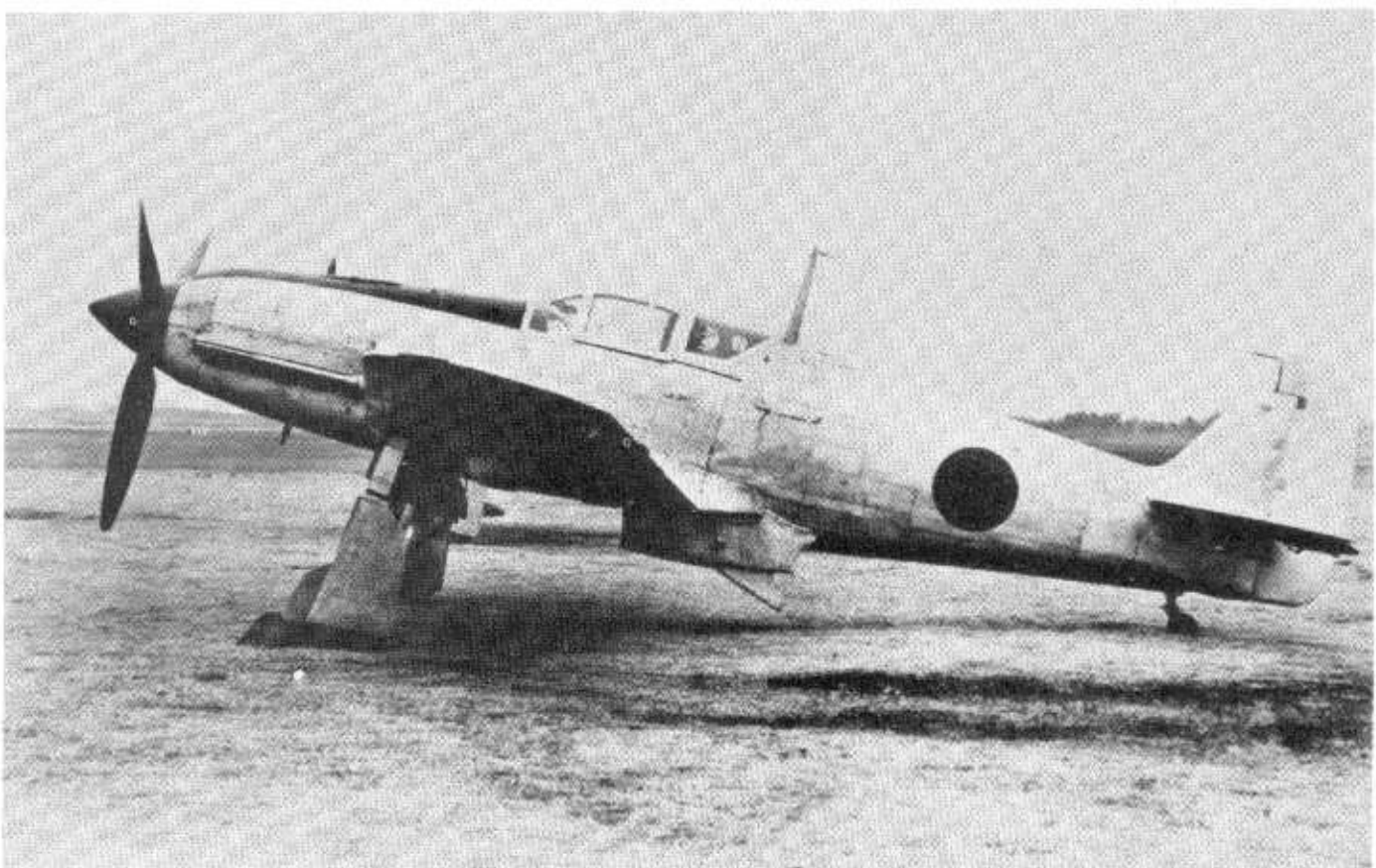


Ki-30 ANNs of the 31st Sentai the 1st Chutai, China, 1942. This is a Chutai leader's aircraft. This unit was eventually re-equipped with OSCARs and was reassigned to fighter duty, retaining the same tail marking.

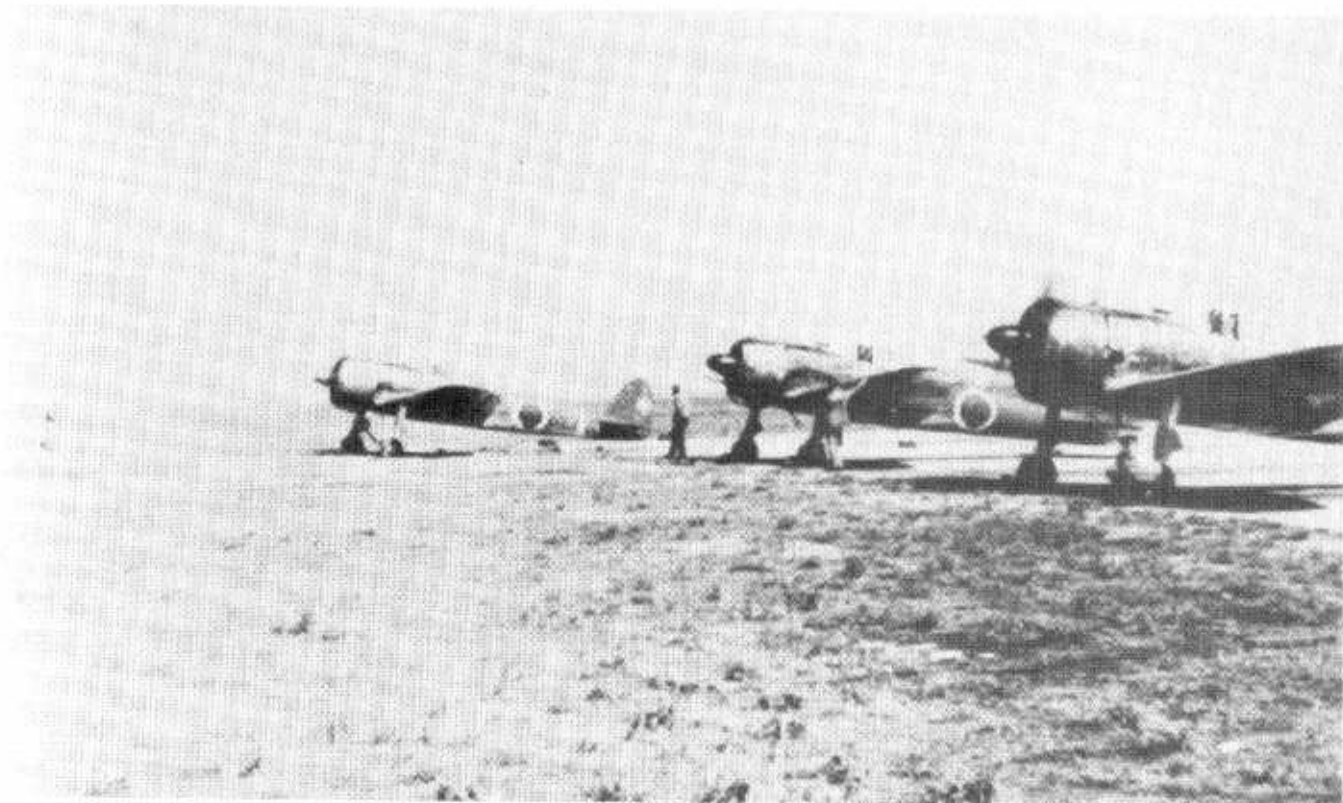
(USAF Photo)



SALLYs of the 60th Bomber Sentai, Manchuria, 1939 . . . Note the application of the segmented type camouflage.
(J. Wood)

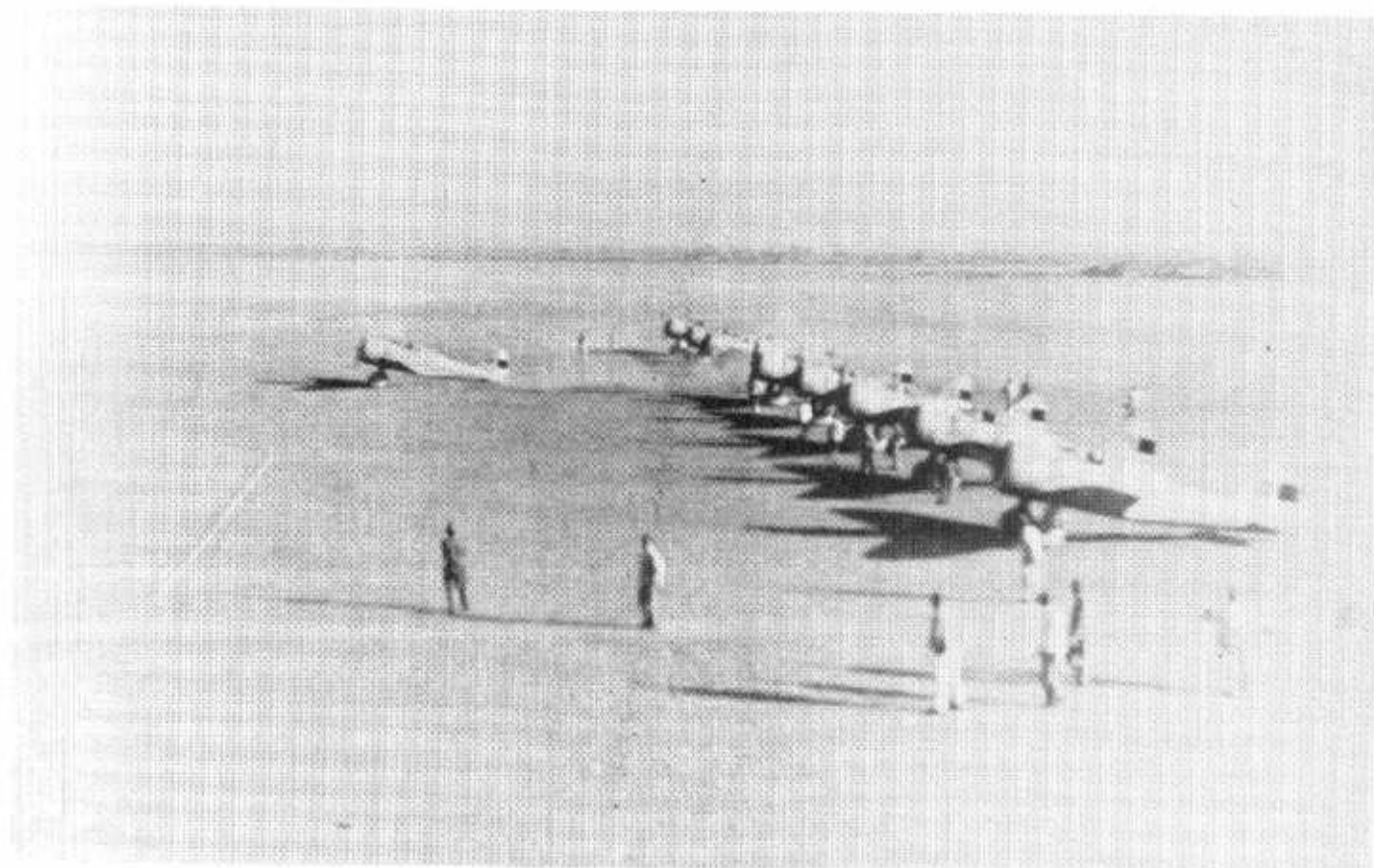


A fine example of a Type "N" finish. Note the application of the wing ID yellow markings to the landing gear cover.
(Oishi)



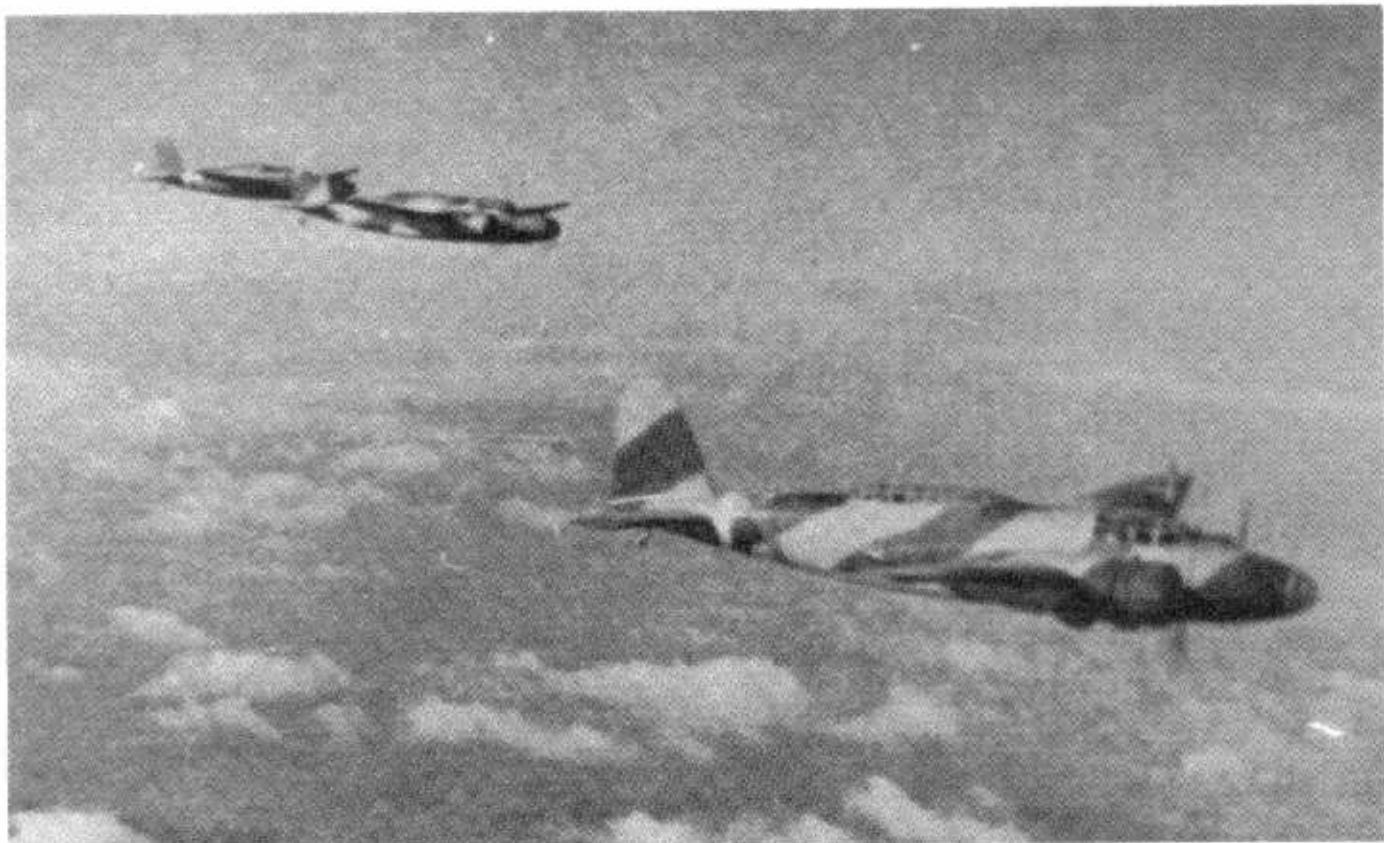
OSCAR of the AKENO Flying School, 1942-1943. These are instructor aircraft, as indicated by the normal operational camouflage carried. Occasionally, training aircraft on operational training assignments would also be marked in this manner.

(R. Bueschel)



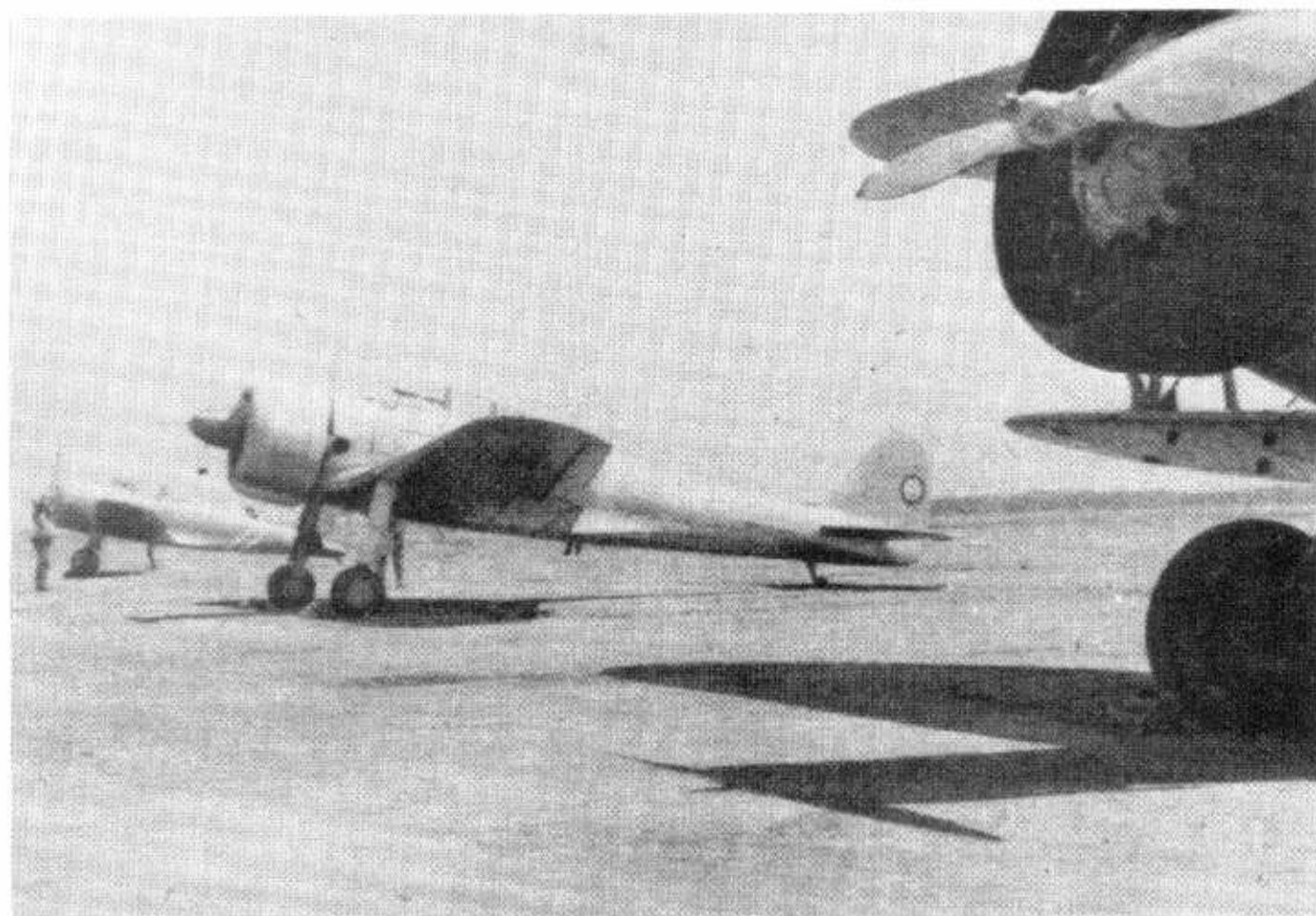
NATEs, training. Note the Chutai leader's aircraft has identifying white rudder.

(R. Bueschel)



SALLYs of the 60th Bomber Sentai, Manchuria, 1939.

(J. Wood)



Aircraft of the AKENO Flying School. The two OSCAR 1's are unusual as the foreground aircraft does not carry an anti-glare panel, while the background aircraft carries the two stripes of a Chutai leader, in this case white denoting the 1st Chutai.

(R. Bueschel)

EXTERIOR COLOR APPLICATION

During early 1938 the majority of operational Army aircraft wore the standard factory finish, that is either 01 or 02. During this time period there was little need for any type of concealment, and the necessity of protective finishes had not yet presented itself.

Many NATEs and PERRYs at this time sported bright red fuselage and tail flashes, both as an *esprit de corps* symbol and as an aid in emergency rescue operations. These early finishes were invariably meticulously applied, resulting in veritable masterpieces of painting schemes.

However, when enemy penetration became a real problem rather than the conjecture it had been, the need for greater concealment became quite evident, and although the High Command at home refused to recognize this need, the field commanders began applying locally "expedient" camouflage. These first locally applied schemes were for two purposes: the first being concealment for the aircraft when in flight; the second for concealment on the ground.

The field applied Scheme "C", or segment type of camouflage, was designed basically for aerial concealment, and was usually encountered in one of five basic styles. The most common of these were C3, C4, and C5. C4 and C3 differed only in the amount of colors used, C3 being a combination of green and brown, while C4 used two shades of green with one shade of brown. C5 differed from the two foregoing in that the various segments were usually separated by 1" to 3" irregularly applied strips of medium blue, although some aircraft were observed with the stripes applied at random without apparent regard for the direction or pattern of the segments. These strips were to represent the appearance of the many rivers and canals of the Manchurian countryside as observed from high in the air. These segment schemes were applied mainly to such aircraft as SALLY, BR20, BABS, and MARY, usually only support aircraft.

Camouflage schemes designed for ground concealment were usually solid colors, or "B" (blotch) type schemes, applied over the original factory applied colors. Schemes S2 and S3 were common examples of the two color system, with a dark green paint being applied to all surfaces observable from the air, and the undersurfaces being left in the original type "O" finish.

The "S" type schemes were quite satisfactory in most cases, but where adequate covered areas were not readily available, such as those areas with sparse vegetation, the blotch patterns became necessary. B1 and B4 were most usual, being applied in dark green over the basic scheme. These blotch patterns were usually sprayed on whenever possible, but when spray equipment was not at hand, it was applied with rag, brush, or sponge.

1940

Some SALLYs and SONIAs during 1940 were seen in Scheme B3, which was dark green blotch over natural metal. Also some of the first OSCARs encountered had this locally applied scheme, although the majority of the initial supply of OSCARs wore an S2 type finish. Other aircraft, which appeared to be in a blotch finish at this time, usually carried the remnants of a solid color, which due to operational wear and tear had lost a lot of paint, giving them a deceptive appearance.

1941

1941 saw the advent of four previously unencountered schemes: S1, S12, S15, and B9. Dark green uppers and natural metal lower surfaces were, at this time period, a factory applied finish, particularly for OSCAR, NICK, and STELLA. Later on, almost all types could be found in this scheme, which was the most commonly encountered scheme for the remainder of the war years.

S12 was a specialized finish found almost exclusively on recon type aircraft, usually DINAHs, and was a local finish for the China-Burma area. S15 was a variation of S1, with the undersurfaces in light blue-grey instead of natural metal. MARYs, DINAHs, and LILYs were found in the China-Burma skies in this scheme.

B9 was perhaps the first use of the palm leaf or wave-mirror pattern, with an almost infinite variety of schemes appearing during the coming years. This was of

course another fine example of the locally applied schemes, and was almost exclusive to jungle-based aircraft. Although there were many individual examples of the use of palm leaf camouflage, group usage was mainly confined to TONY, SALLY, or LILY. B9 was applied over many different ground colors. TONY was usually natural metal ground, while SALLYs and LILYs were usually light grey or light grey green.

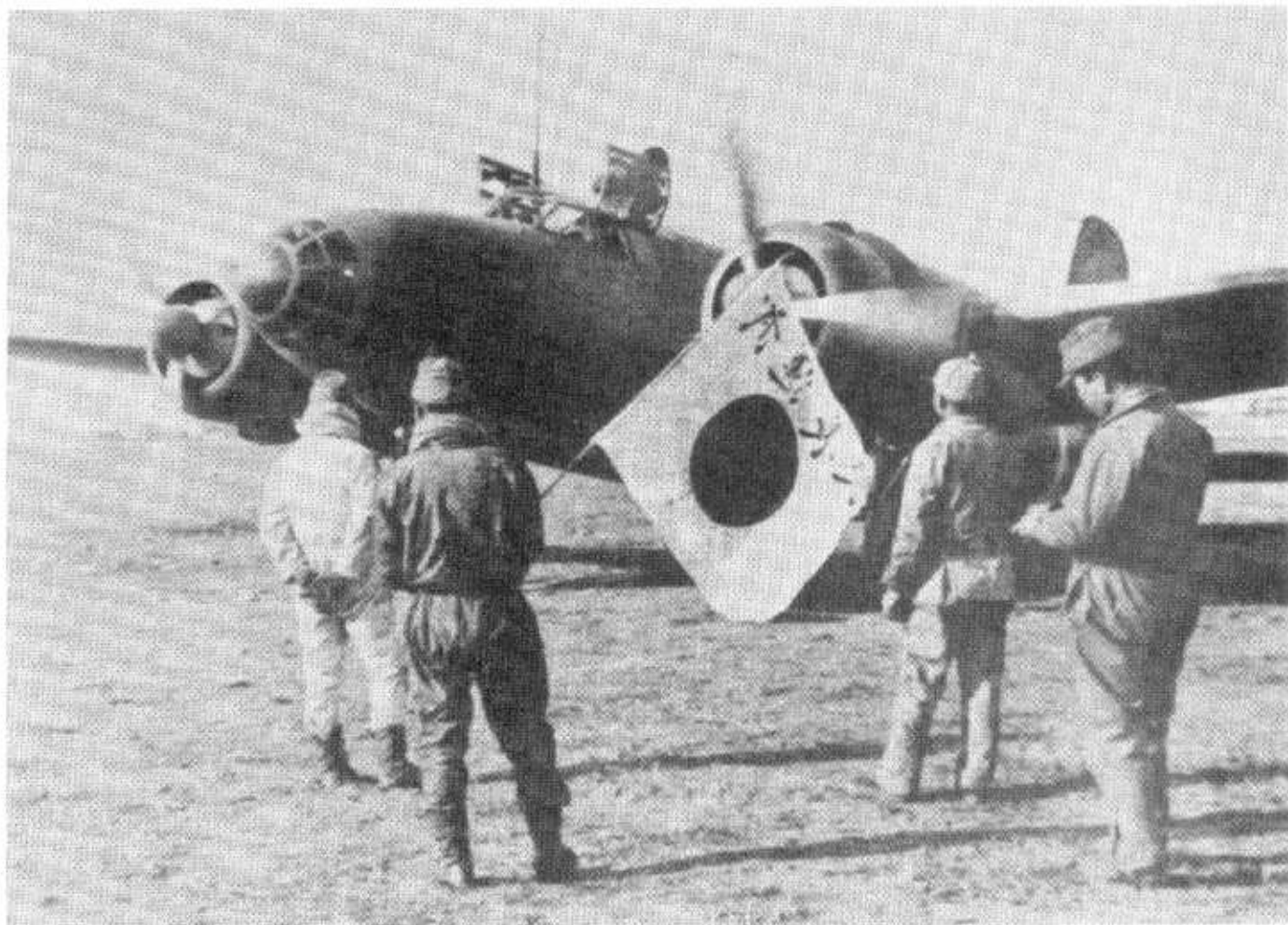
1942

In 1942 N, 03, 05, and S5 were encountered. N was simply natural metal overall surfaces, or silver overall in the case of fabric surfaced aircraft. This finish was more prevalent with fighter aircraft of this period than with support aircraft. TONYs, TOJOs, and some OSCARs were found in this scheme, usually with blue-black anti-glare cowl panels. TONYs and TOJOs occasionally had light grey green control surfaces with this finish.

03 was an overall blue-grey scheme and was peculiar to NICKs, DINAHs, and TONYs as a delivered finish, particularly in a Home Defense role.

05 was another special finish, used for night operational aircraft, and was not restricted to any particular type. B2 was a dark green mottle applied over 03 blue grey. This was usually a local application, with the exception of NICKs, which were an unusual variation, very symmetrical in appearance, hand-painted rather than sprayed, which gave the impression of veining rather than a blotch finish. This was a most pleasing scheme, probably one of the more colorful used during the war. NICKs of the 4th and 6th Direct Command units on Home Defense were a prime example of this effect, as were those of the 53rd Fighter Interceptor Sentai.

S5 was another night finish, matte black upper surfaces with the natural metal lower surfaces, found mostly on NICKs, OSCARs, and TOJOs.



Typical of the esprit-de-corps minded Japanese was the "Honor" send-off of the earlier sorties over Manchuria. Note the "Fight with Honor" flag.

(J. Wood)

1943

1943 saw the advent of 07, B5, B6, S8, and S14. 07 was a medium grey overall finish, and was widespread among support aircraft, particularly recon and heavy bomber Sentais.

B5 was a variation on the blotch theme, and probably resulted from a very heavily oxidized ground finish.

B6 was popular with SALLYs and was found more often where aircraft were based among dense foliage, the medium green blotches blending well.

S8 was medium grey uppers with natural metal lowers, found mainly on transport and courier aircraft such as TOPSY.

S14 was a short-lived two color system, perhaps the most garish solid color application within the history of the J.A.A.F., solid blue upper surfaces with natural metal undersurfaces. It was found among OSCAR, TONY, DINAH, and KI-100 equipped units, particularly those engaged in Home Defense. Its primary purpose is unknown, although the possibility of its being intended as a night intercept scheme does present itself.

1944-1945

The greatest inception of varied finishes occurred during these years. The most striking of these were O4 and B7, although no less than 8 distinct finishes came into use during this period.

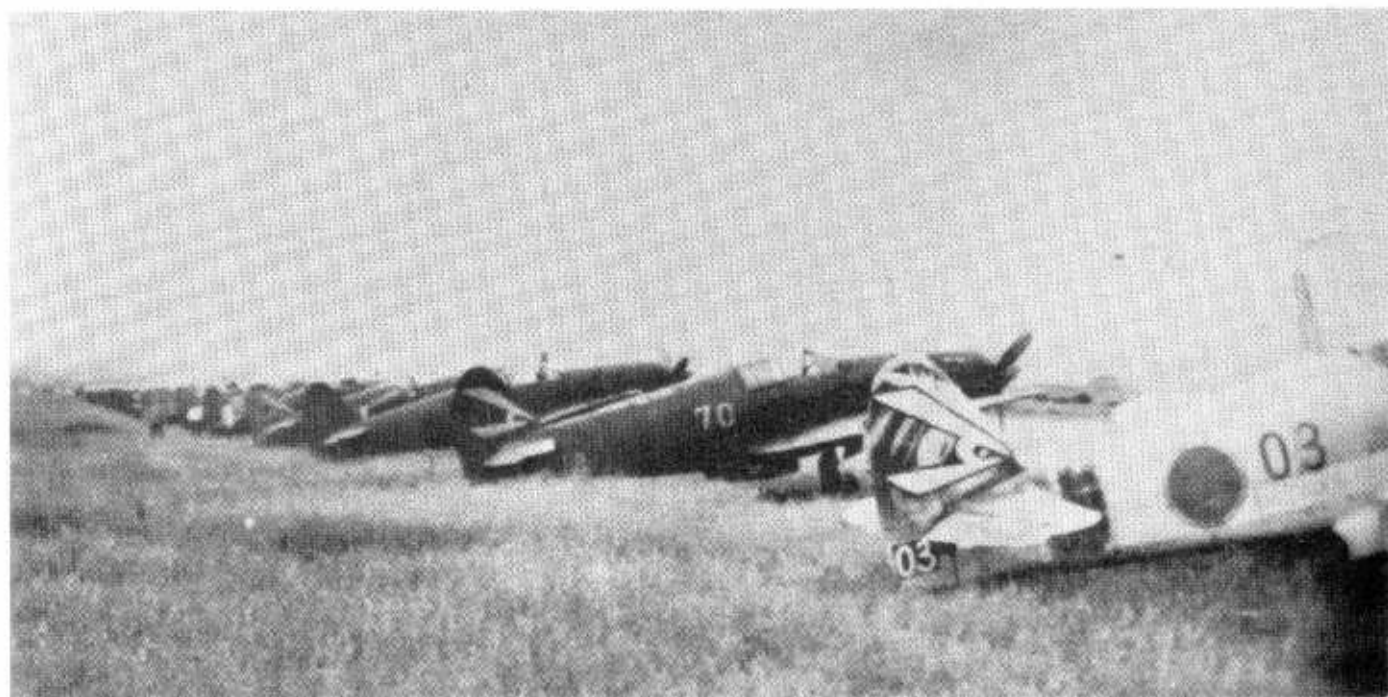
O4 was white overall, used by at least one Sentai of DINAHs, and was a grim portent of the finish specified by the Allies for surrender aircraft at the end of the war.

B7 was a variation on the blotch scheme found on close support aircraft such as SONIA, and consisted of as many as four different colors applied as blotches over all upper surfaces.

From the middle of 1944 through 1945, as the situation rapidly deteriorated for the J.A.A.F. the niceties of regulations began to be less and less observed. This was due mainly to the lack of material, although much of this was caused by the lack of proper repair facilities, or for that matter, the lack of aircraft to repair.

During 1945 the last really notable schemes came into effect, S10 and S13. S10 was a wine-colored upper surface scheme, mostly found on FRANKs and TOJOs. Many times this consisted of merely priming the exterior.

S13 was a support aircraft scheme, usually among PEGGYs, with a few HELEN-equipped units being painted thus.



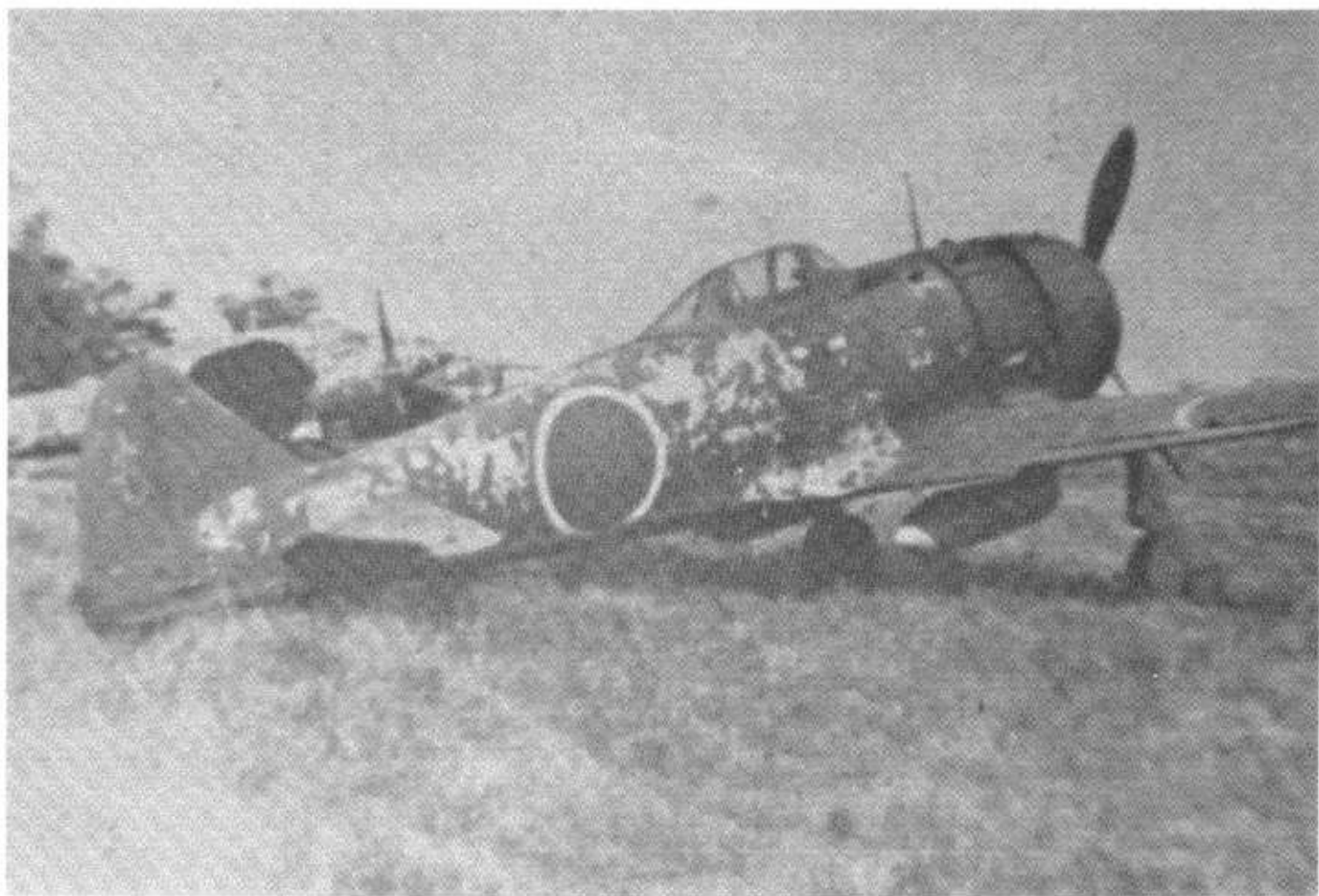
Unit unknown, 1945. This is a rare example of the practice of marking numerals on the aircraft fuselage.

(R. Bueschel)



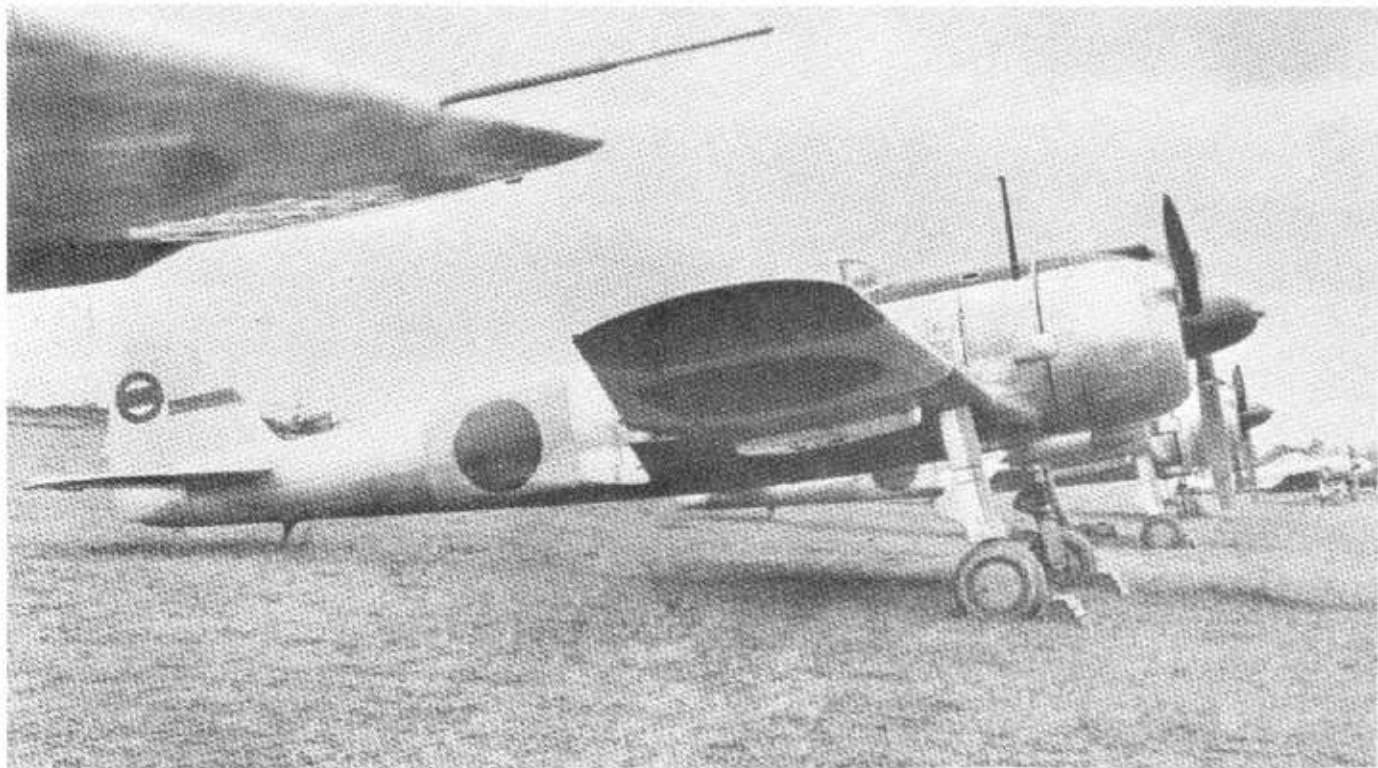
A bombardier's-eye view of a SALLY pilot, 60th Sentai, Manchuria, 1939.

(J. Wood)



FRANK, 1st Sentai, Philippines, 1945.

(USAF Photo)



OSCAR II, KUMAGAYA Flying School, the Instructor's Sentai, 1943. This aircraft's markings are unusual in that YELLOW is substituted for WHITE in the Home Defense bandages around the fuselage, while the white is retained on the wings. This use of yellow was to denote the dual purpose of this aircraft, both operational and training. The aircraft in the foreground is a leader's aircraft, as indicated by the yellow and red stripe forward of the fuselage Home Defense band. Also note the 2nd flight ID stripe in red on the vertical stabilizer. The school insignia is black. (Oishi)



All that is left of a once proud bird – a NICK as it reposes today in the jungles of New Guinea.

(B. Darby)

TRAINING AIRCRAFT; EXPERIMENTAL AIRCRAFT

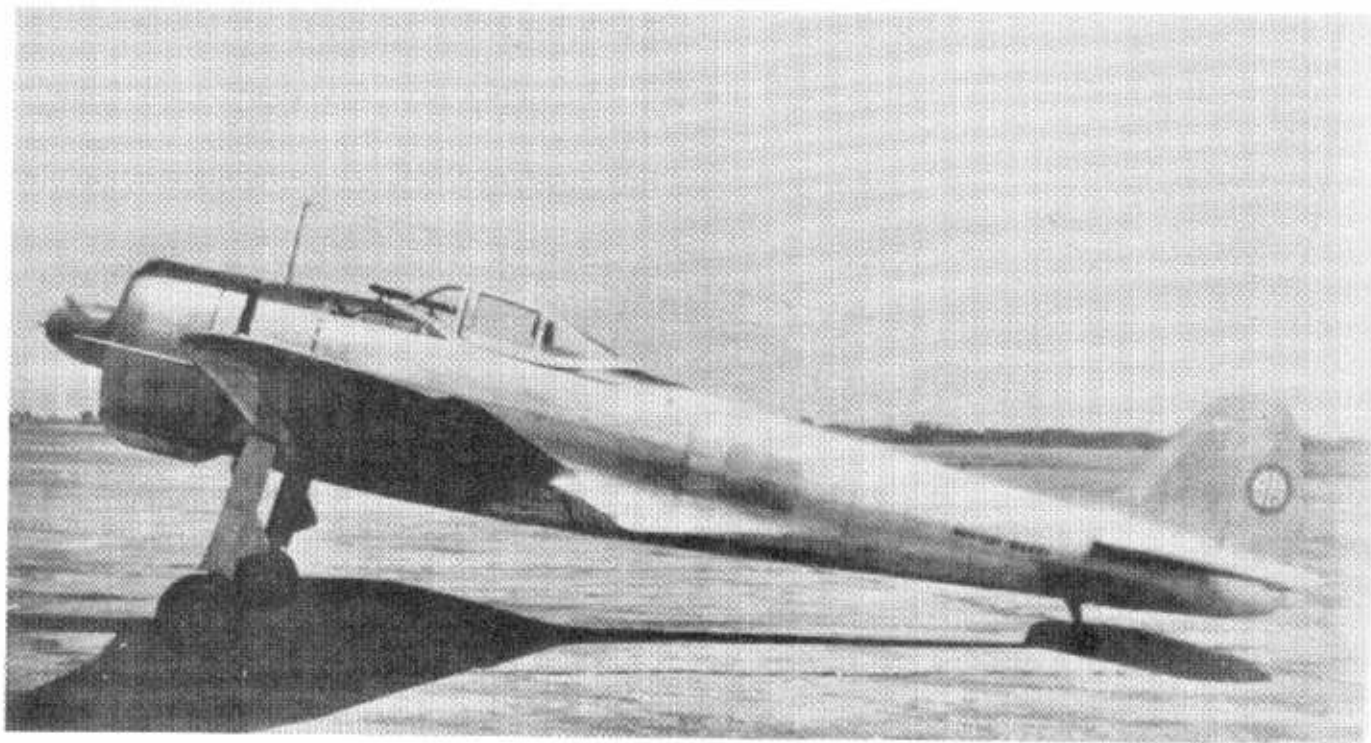
Experimental aircraft, mainly the first prototype, were painted red orange overall, while further models, especially those on operational test, were finished in the standard factory schemes for that period.

Until late 1944 and early 1945 all training aircraft assigned to regular training units were finished in yellow or orange overall. Sometimes radial engined aircraft had matte black prime on cowls and wheel covers. Cadre aircraft and other operational training aircraft were finished in normal operational scheme.

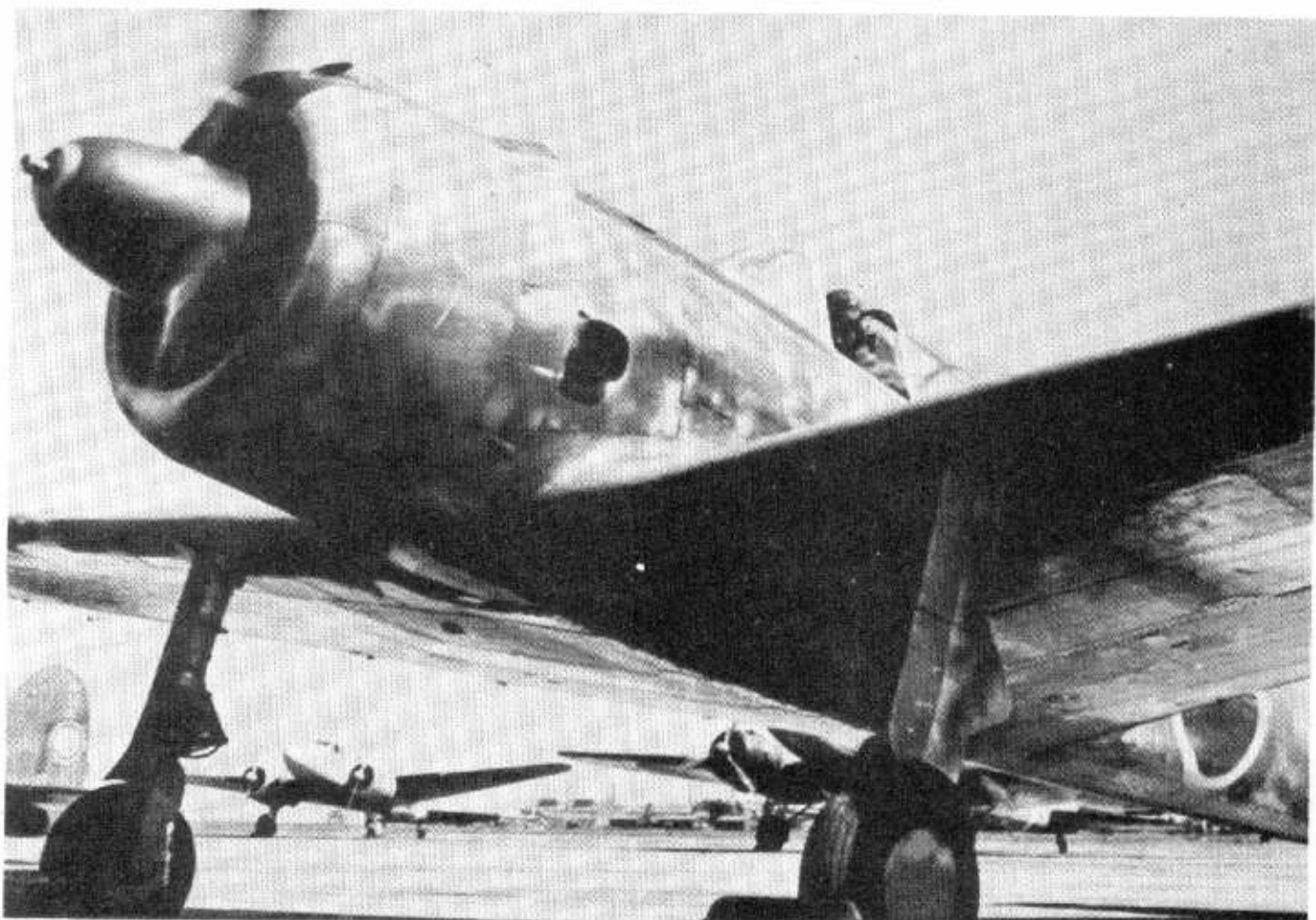
From late 1944 on, trainers were first finished in standard camouflage scheme for the type on all upper surfaces, retaining the yellow undersurfaces. But during early 1945 trainers were painted overall in the same manner as any operational aircraft.



SALLY I, HAMAMATSU Flying School, 1943. The wing ID panels extend to the wing lights, or approximately one-third of the outboard span. The inboard span also was marked. (Hideya Anda)



OSCAR I of the AKENO Flying School in a rarely seen natural metal finish. Note the absence of fuselage Hinomarus, and wing ID panels, which would seem to indicate an aircraft prior to delivery. However, there are KANA symbols on the rudder above the school insignia, denoting the assignment of this aircraft. (R. Bueschel)

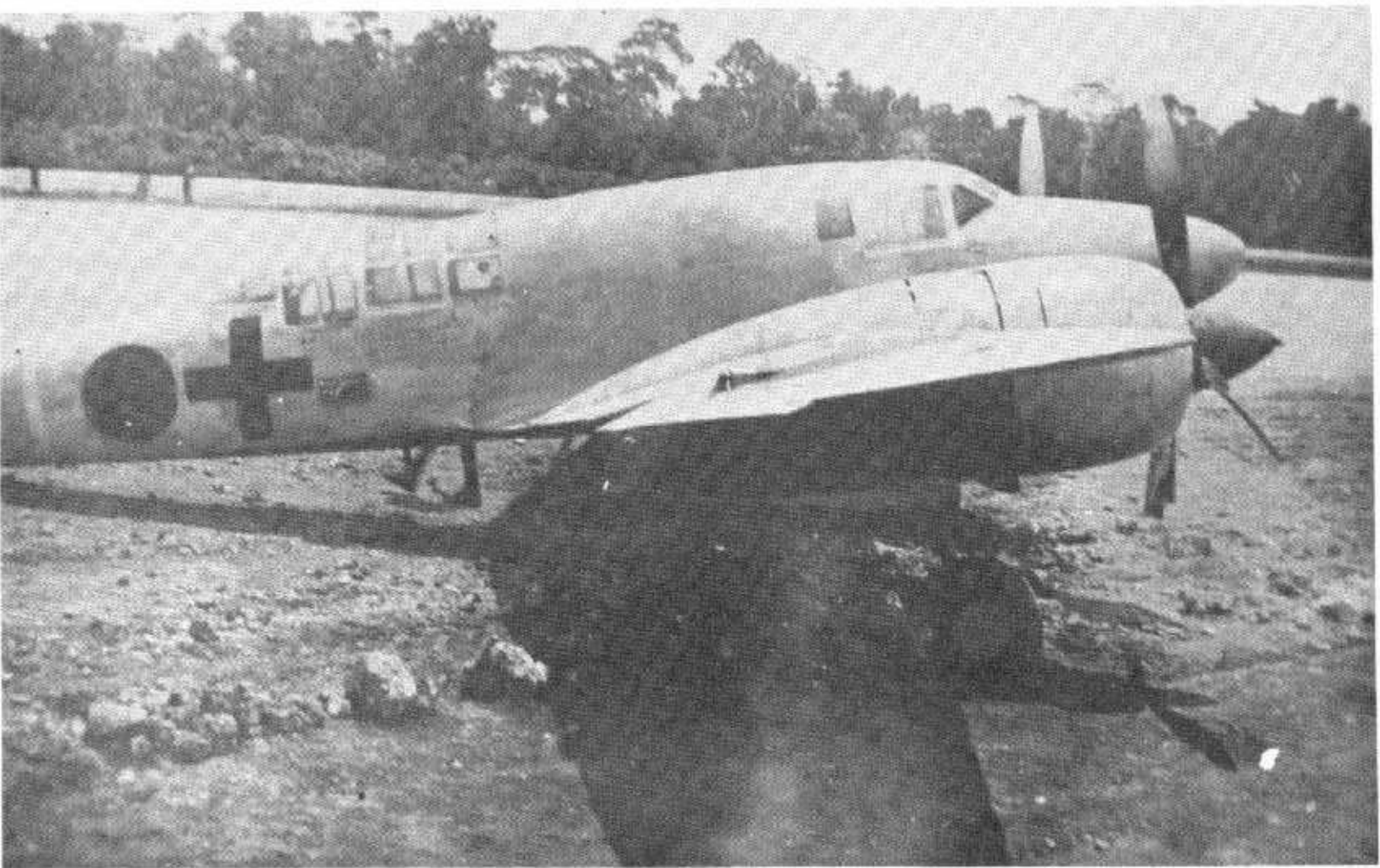


OSCAR II of the AKENO Flying School, 1943. Dark green, very softly mottled over natural metal. The yellow of the ID panelling is clearly defined on the landing gear covers. (Witold Liss)

SURRENDER AIRCRAFT

At the close of hostilities the Allies specified that all aircraft being surrendered-Flown were to be painted overall white, or to have all national markings obliterated by overpainting those areas with white, either squares or circles. These were surmounted by green crosses, signifying their acceptance of the terms of surrender. This particularly applied to aircraft which were to carry surrender delegations, to ensure their safety in the air.

In a sense, then, the J.A.A.F. finished out the war with its aircraft sporting as garish a finish as had appeared during the span of seven years covered in this book.

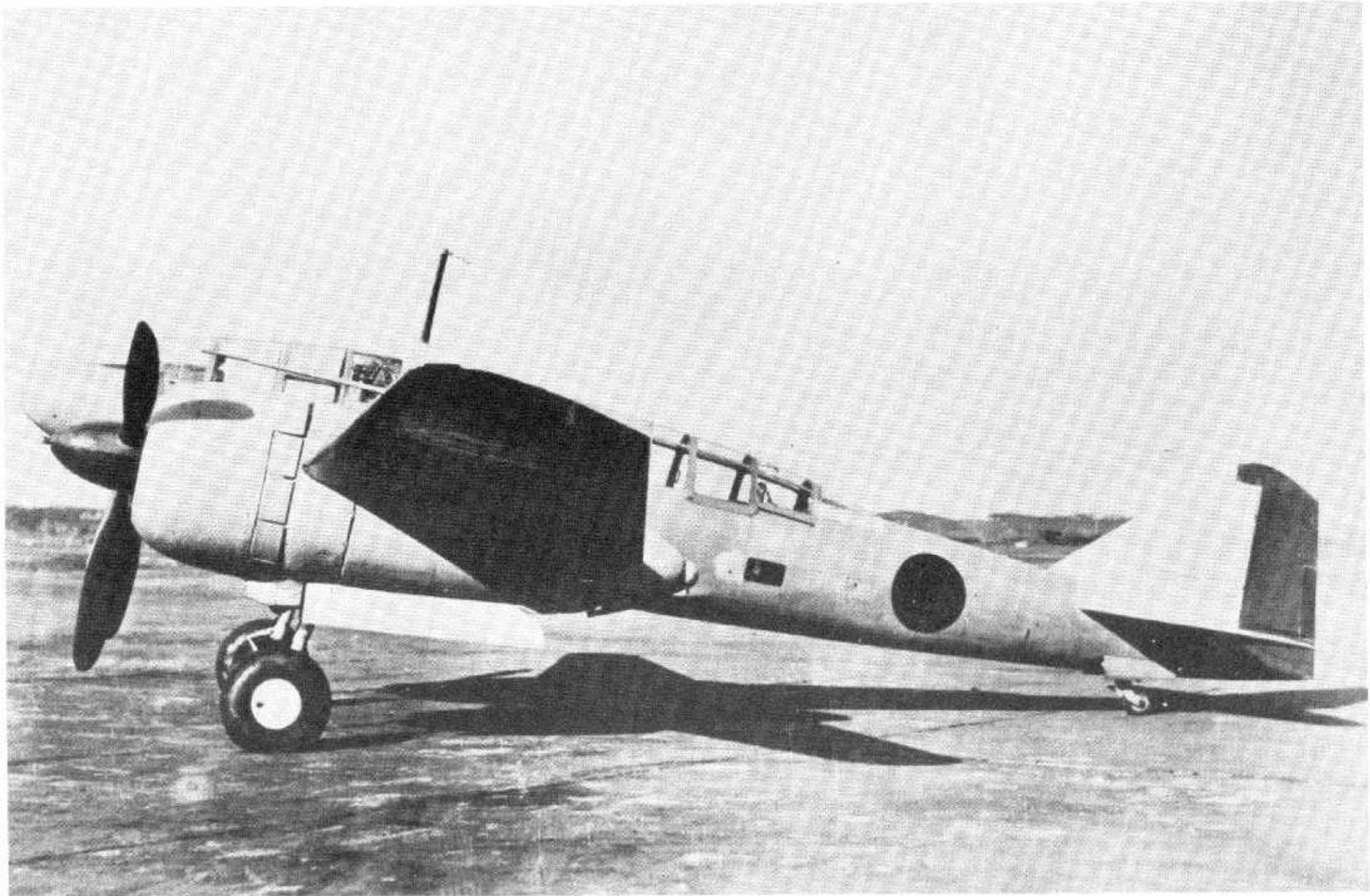


KI-46, all white with green surrender crosses, the second most commonly encountered system of surrender markings. Jacquinot Bay, 1945.

(B. Darby)



KI-54, Labuan, August, 1945. This aircraft carried the Japanese surrender delegation. In this variation on the specified surrender markings for operated aircraft, white crosses are used. Note that while the white cross is painted over the fuselage Hinomaru, they are not on the wing undersides. Unit Unknown. (B. Darby)

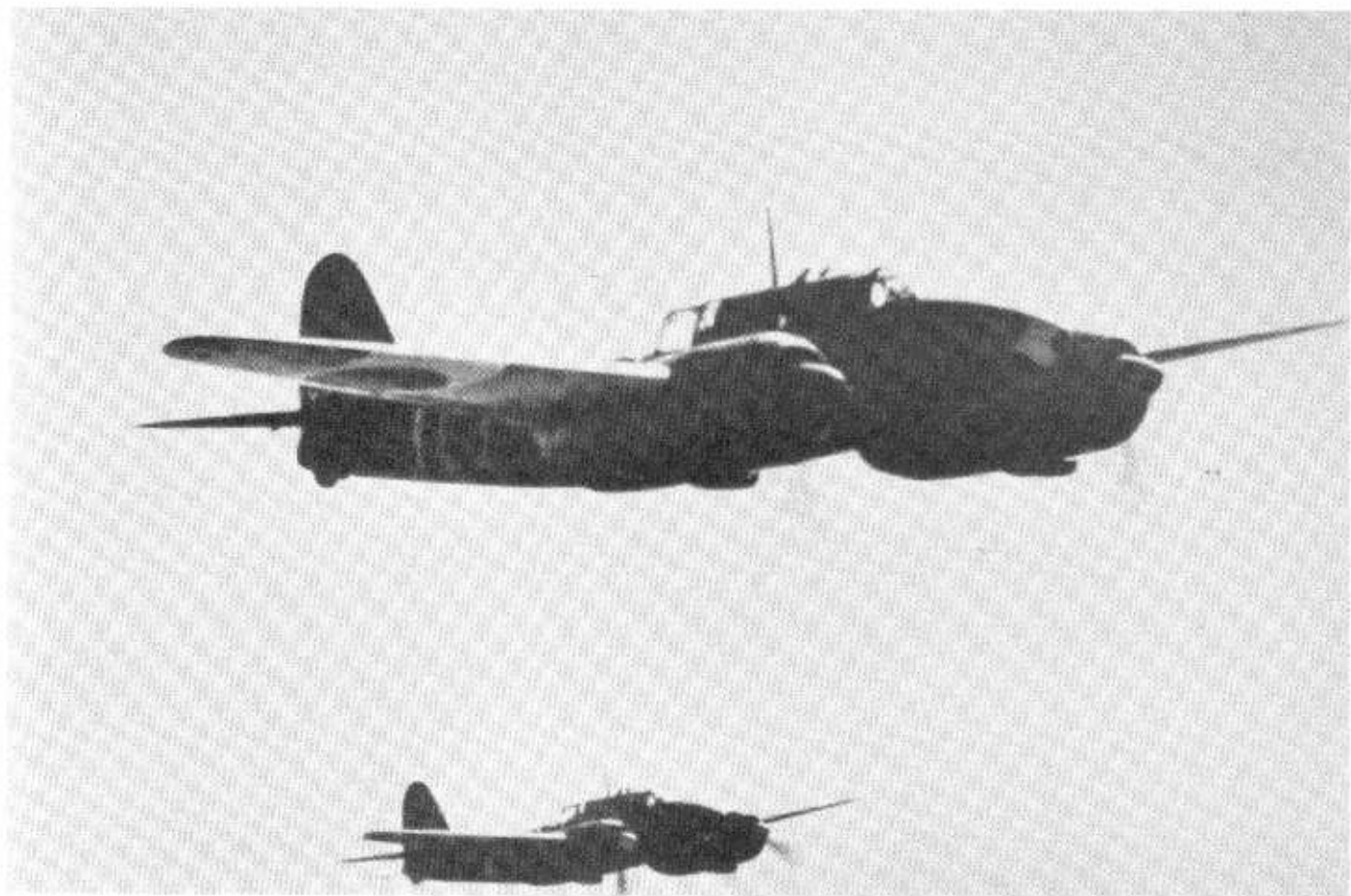


K1-6 IV DINAH under operational testing with the 1st Chutai, 90th Sentai, 1944. (Imperial War Museum)



NATE, 59th Fighter Sentai, Manchuria, 1939.

(J. Wood)



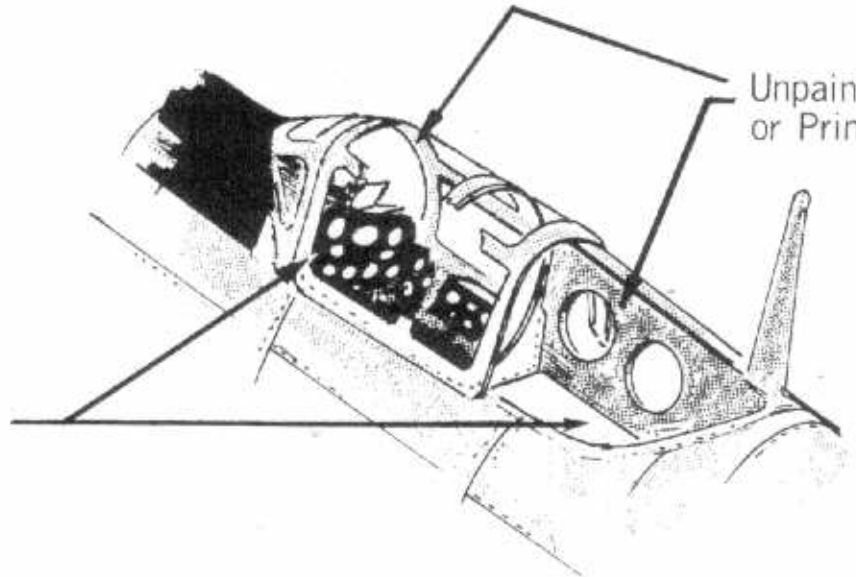
NICK, 53rd Sentai, Home Defense, Fussa, Japan, 1945.

(Oishi)

COCKPIT INTERIOR COLORS

Dull Red,
Flat Black or
Brown Prime

Unpainted
or Primed



Red Brown

Dark Grey or
Brown Prime

Fabrics in Khakis
or Olive Greens

Unpainted or
Primed

Various Brightly
Painted Knobs

White or Yellow
Inscriptions

Dark Grey

Red
or
Yellow

INTERIOR COLOR APPLICATIONS

Usually J.A.A.F. aircraft were finished on all interior surfaces with a clear prime lacquer, giving the metal a rather unpainted look. However some aircraft were primed with the translucent blue or green lacquers which were more prevalent with J.N.A.F. aircraft.

When used, this prime coat was usually applied before assembly of the aircraft began, sometimes giving quite a patchy look to the interior areas. It might be interesting to note at this time that, although this prime coat is referred to as a "metallic" finish, actually it was nothing more than a transparent paint, merely tinting the surface in the base color and allowing the metal to shine through, thus giving it the misleading metallic sheen.

The area immediately in front of the instrument paneling and also that behind the pilot seat, but still under the canopy framing, was usually painted in either flat blue-black, dark brown, or with a red-brown, which was encountered quite often on the shelving immediately behind the pilot.

The interior surfaces of movable control surfaces, such as flaps, wheel covers, etc., were usually clear primed, with the exception of KI-84's, which were usually primed in the translucent blue throughout, or painted in the exterior base color.

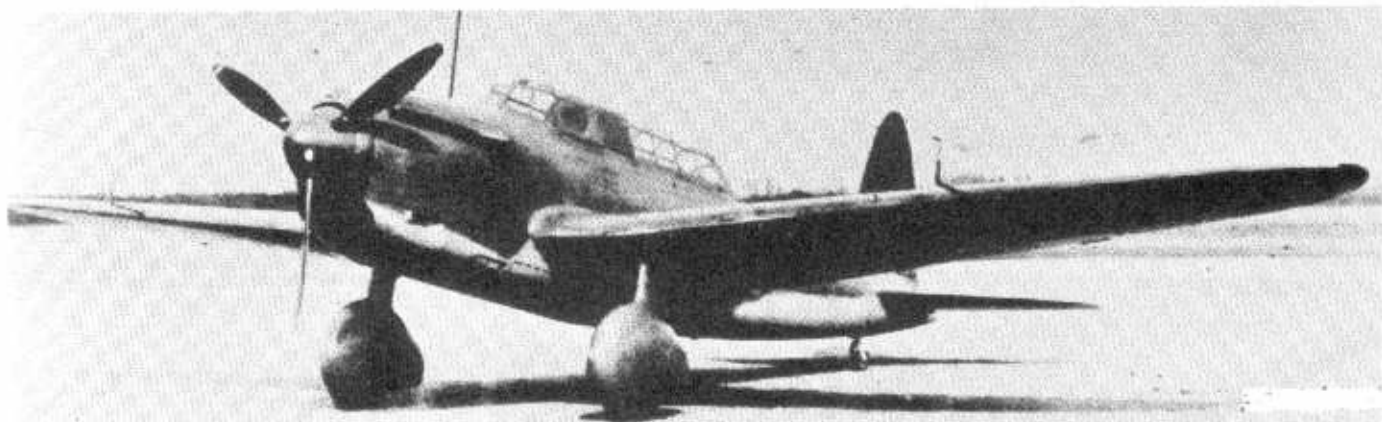
Instrument paneling was usually painted flat black, or dark brown prime, with most instruments having matte black faces; exceptions were the artificial horizon indicators, which were almost always faced in light blue. The seat was either dark grey or brown prime, rarely unpainted.

Control knobs, levers, and switches were normally marked in the factory according to a J.A.A.F. wide standardization. However, the system was often ignored in the field upon repair or replacement.

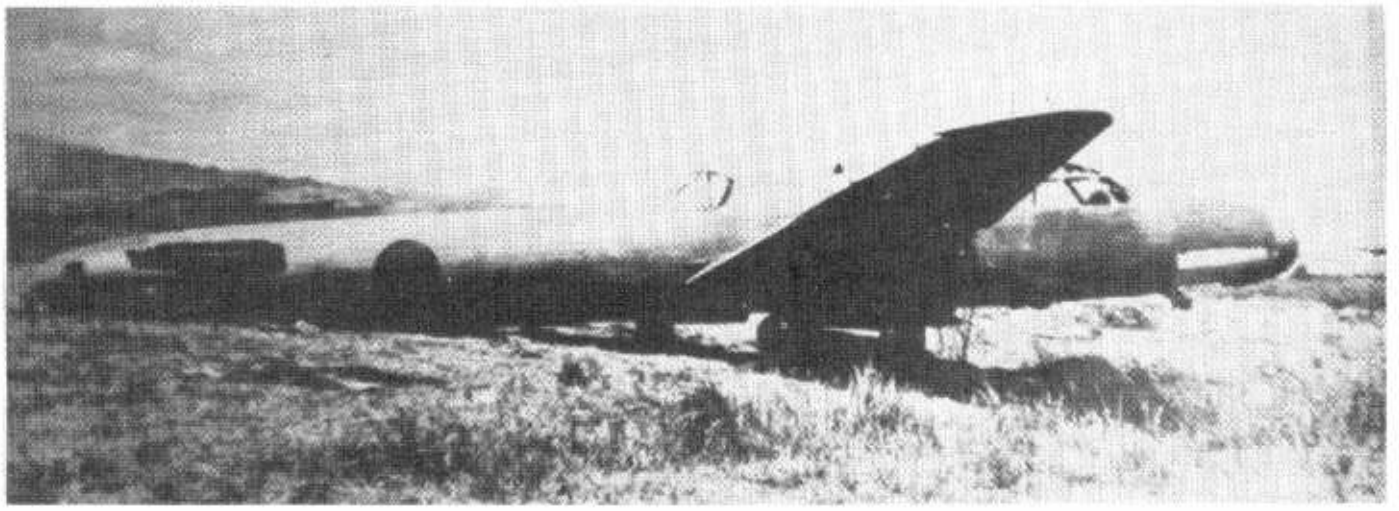
Some of the more common codings were:

LANDING GEAR LEVER:	red
THROTTLE:	red
RADIATOR:	light blue
FLAPS:	dark grey or unpainted
FUEL TANK SWITCH LEVER:	dark brown
GUN SELECTOR:	yellow
PROP PITCH:	yellow
FUEL PUMP HANDLE:	dark brown
FIRING LEVER OR BUTTON:	red

Most interior inscriptions were white or, in the case of warnings, yellow.



Here is MARY, wearing a softly sprayed segment type camouflage scheme. This specific instance is unusual in that the vast majority of segment type schemes had a definite hard separation line between colors. (USAF Photo)



The somewhat dilapidated remains of a KAMIKAZE version of PEGGY, was to have been fitted with an impact fuse in the nose. These are believed to have been attached to the 7th Sentai on a "temporary" basis. (The Author)



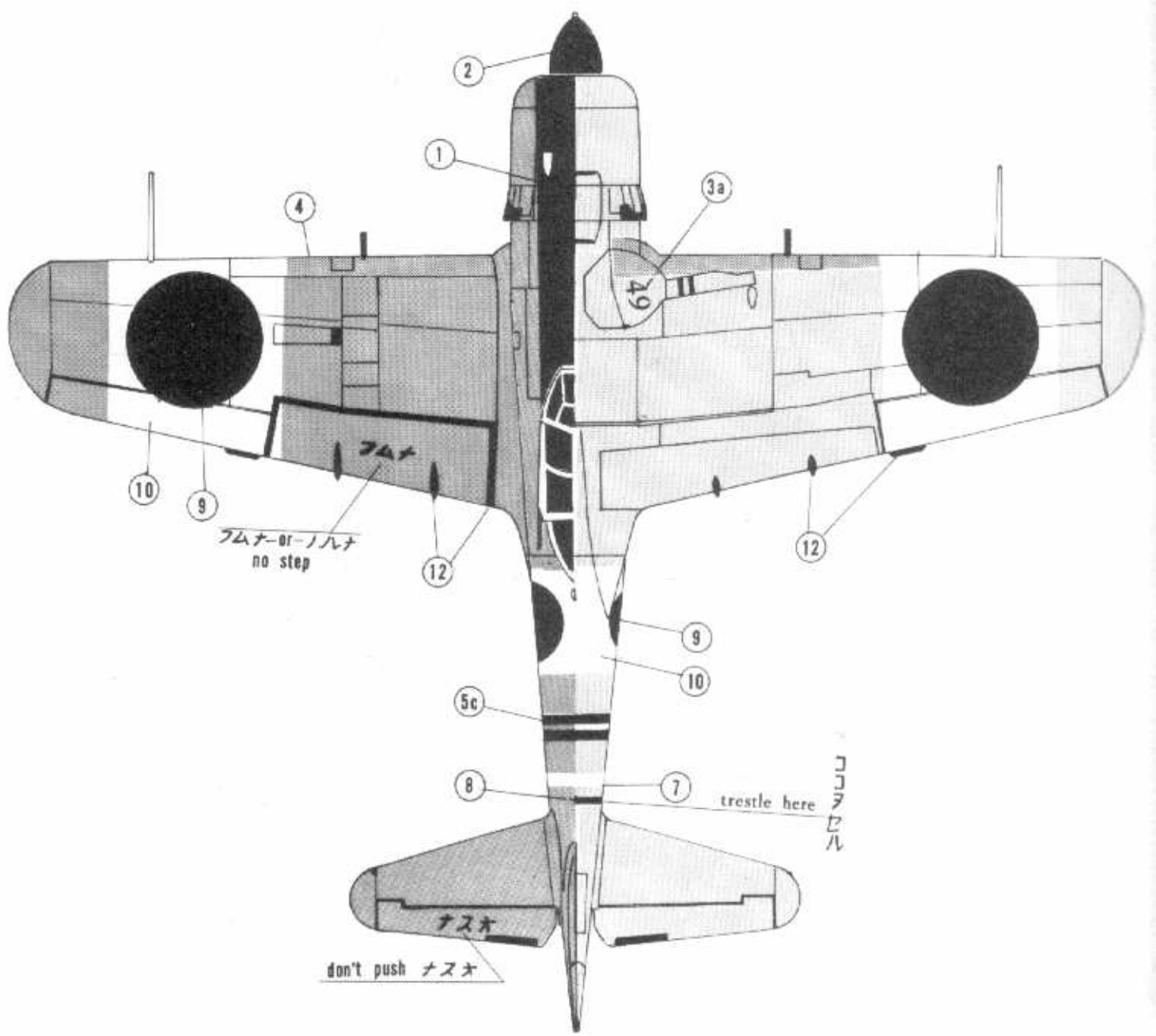
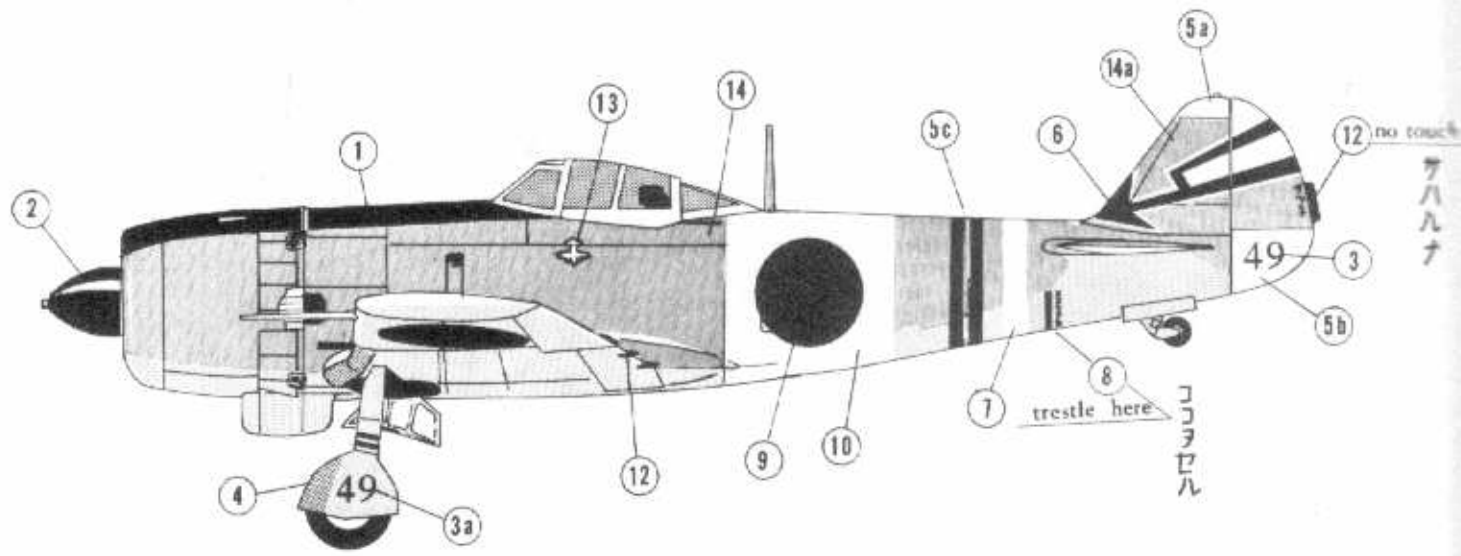
2

GENERAL MARKINGS

Illustrated Key to Markings – National Markings – Anti Glare Panels – Spinners and Propellers – Wing ID Panels – Command Stripes and Panels – Operational Markings – Information Markings – Application of the Hinomaru – Home Defense Markings – Victory or Kill Marks – Application of Numerals – Personal Marks and Symbols

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KEY TO AIRCRAFT MARKINGS JAPANESE ARMY AIR FORCES



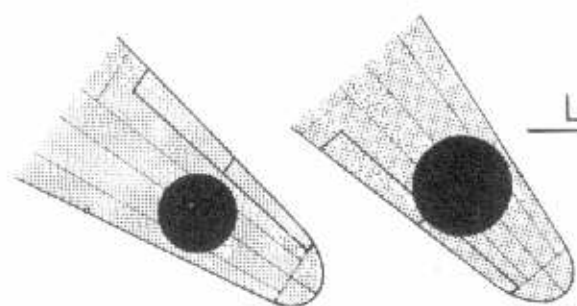
KEY TO J.A.A.F. AIRCRAFT MARKINGS

1. Anti-glare paneling: see page 67
2. Spinners and Propellers: page 78
3. Use of numerals: page 97
- 3a. Use of numerals: page 97
4. Identification paneling: page 74
- 5a. Command stripes and panels - pages 76-82
- 5b. Command stripes and panels - pages 76-82
- 5c. Command stripes and panels - pages 76-82
5. Unit identification symbols: section 3
7. Operational identification striping: page 73
8. Information Markings: page 85
9. Use of the Hinomaru: page 62
10. Home defense markings: page 62
11. Overall finishes: section 1
12. Information markings: page 85
13. Victory, mission markings: page 88
14. Camouflage finishes: section 1
- 14a. Special tail colors: section 3

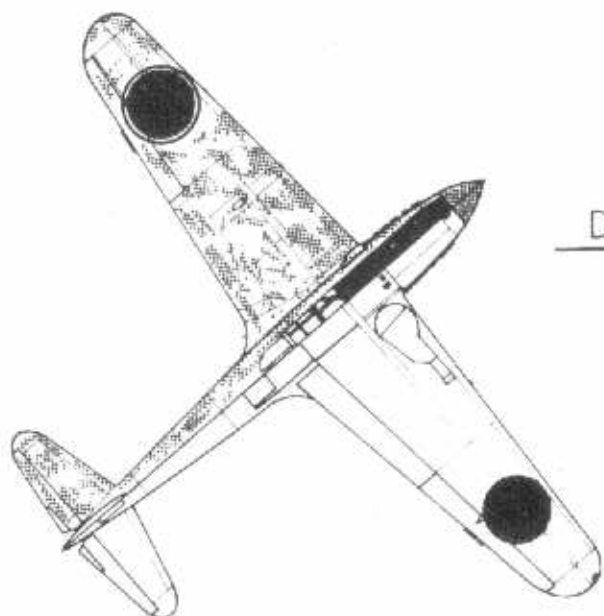
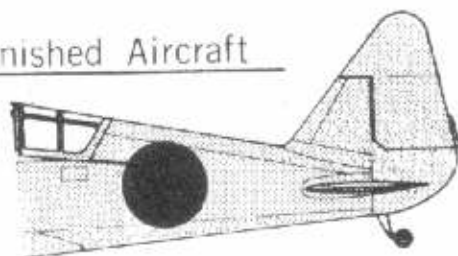


TOJOs of the 47th Fighter Sentai, on Home Defense duties near Tokyo, 1944. Note the unusual application of anti-glare panelling, which was peculiar to this particular aircraft type. (Hideya Anda)

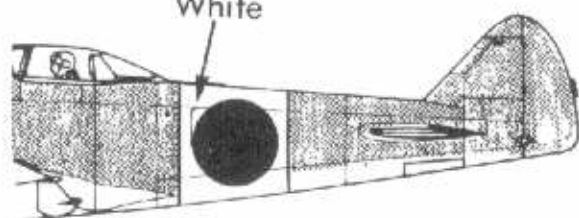
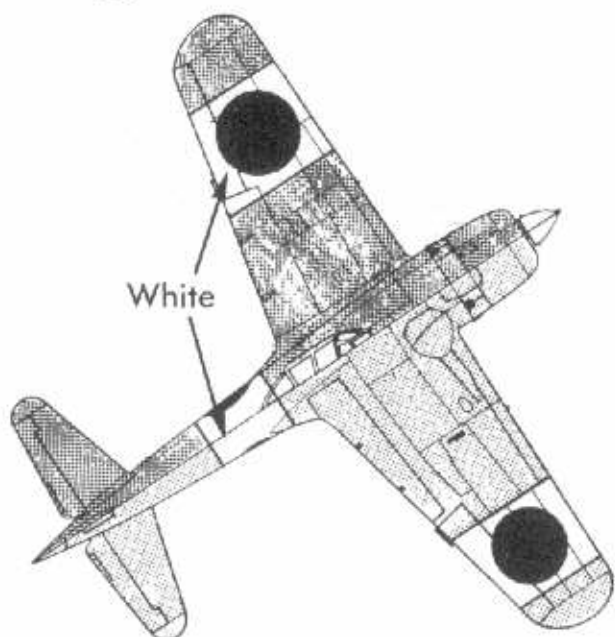
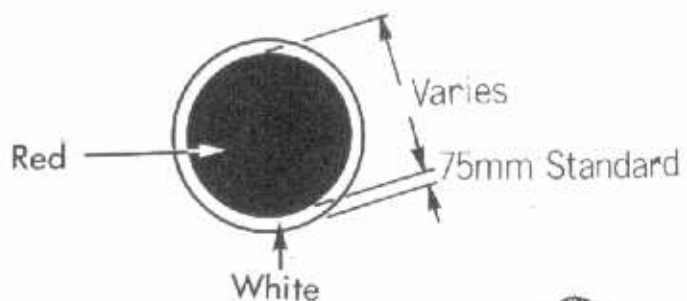
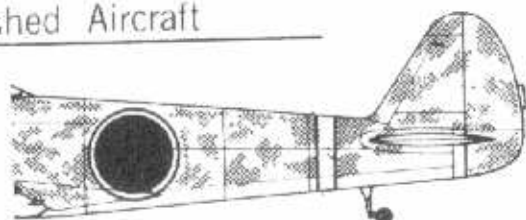
THE 'HINOMARU' AS APPLIED



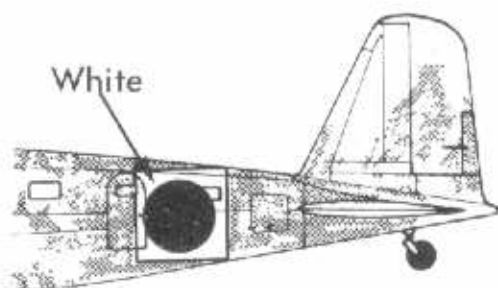
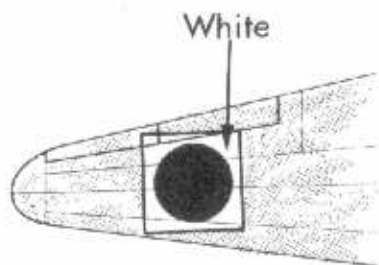
Light Finished Aircraft



Dark Finished Aircraft



Area or "Home" Defense Markings



A Variation, More Common With Civil

APPLICATION OF THE HINOMARU, OR NATIONAL INSIGNIA

The Hinomaru, which translates as "The Sun's Red Disc," has a deep-seated significance to the Japanese, being of divine origin and implications. It replaced the star of the J.A.A.F. in the thirties, when the need for a unified symbol became evident. The disc was usually carried in all six positions, on the wings near the tips, both overlapping the control surfaces and not overlapping, with the usual practice being the latter. Hinomarus normally were not carried on fuselage sides during the early days of the war, particularly during the Sino-Japanese conflict. However after 1942 it was fairly standard to apply the Hinomaru to fuselage sides as well as the wings.

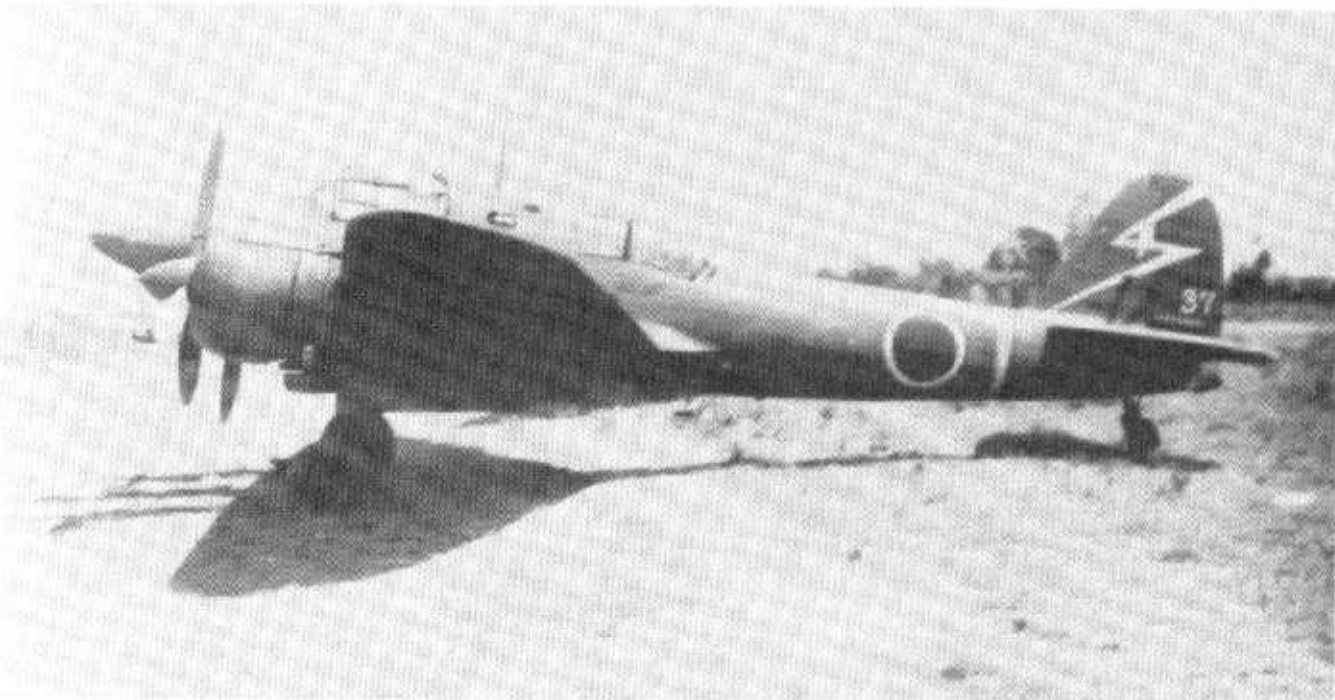
Aircraft with dark finishes usually carried a white surround on the upper wing and fuselage Hinomarus, of a uniform 100mm width. This width was supposedly maintained throughout both air arms, and did not vary in width with the diameter of the different sized Hinomarus applied. This constance of width gave some aircraft such as SALLY or HELEN the appearance of having a much thinner surround than perhaps that carried on a DINAH.

There has been much conjecture concerning the color red which was used for the Hinomaru, some sources stating it was a deep rust-red, others a dark blood-red, and still others bright red. We have found, after considerable research and examination of samples, that in a sense all of these conjectures are correct, as the paint had a strange characteristic in that after much weathering, it would appear to have a rust color when, as factory-applied, it was indeed bright red.

Also, one must remember that the basis for the most commonly (although erroneously) recognized Hinomaru color today is chips taken from aircraft painted over twenty years ago.

Additionally, the mixing formula which was specified then is exactly the same as that used today.

To further support this, allied fighter pilots of that period were instructed to be especially watchful for aircraft with bright appearing Hinomarus, this denoting either a new replacement aircraft, or "green" pilot.



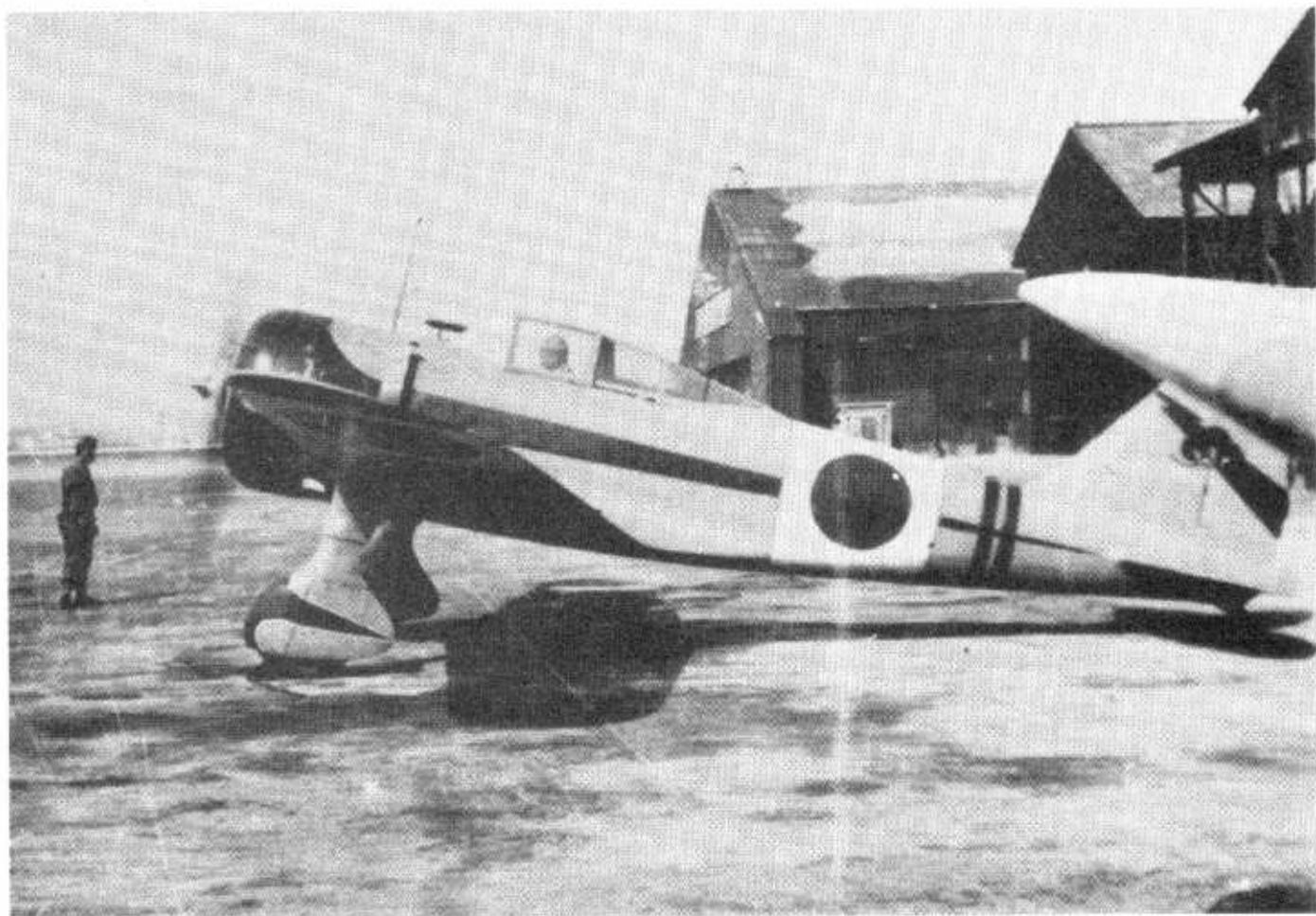
K, 45th Sentai, 1st Chutai, Philippines, 1944.

(R. Bueschel)

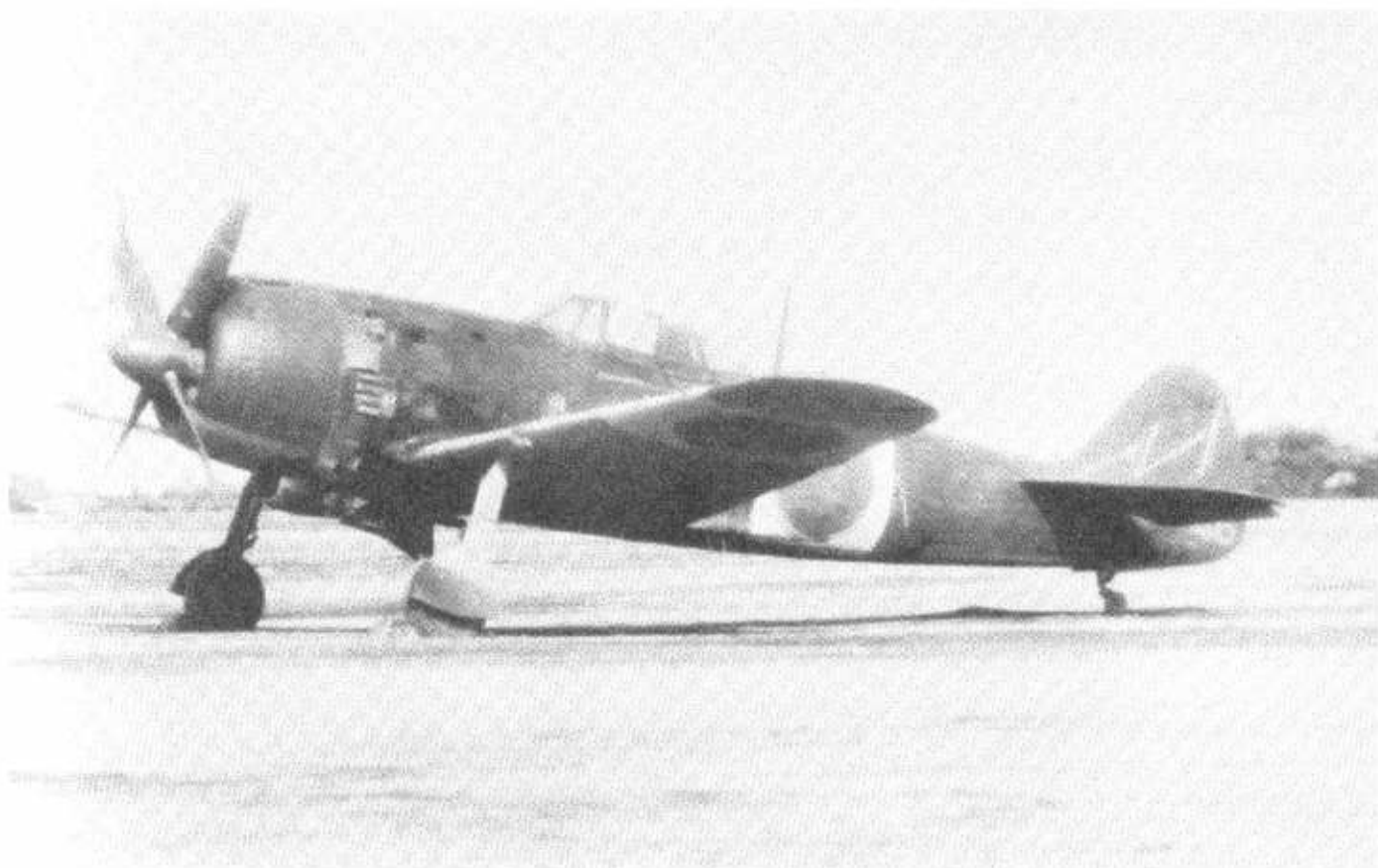
HOME DEFENSE MARKINGS

As a quick identification feature, most aircraft assigned to Home or Area Defense duties carried white bands, or bandages, upon the fuselage, or around the wings, surmounted by the Hinomaru. Although these bands were usually white, occasionally yellow was used, particularly by cadre aircraft or instructor Chutais, denoting their primary duties as training aircraft.

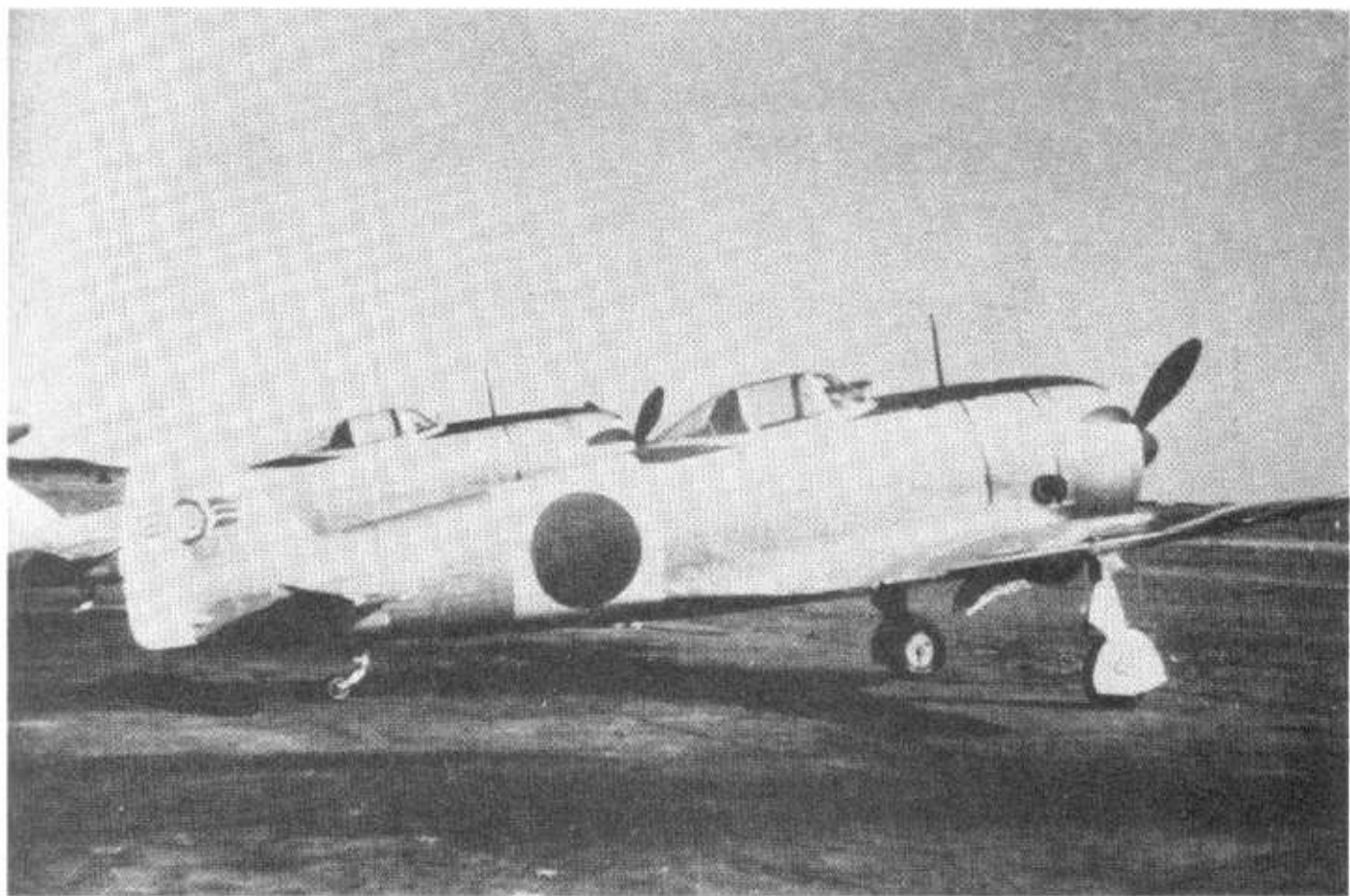
Normally the Home Defense band was only carried by fighter or interceptor aircraft, with the main exception being special attack or "Kamikaze" aircraft which sometimes carried Home Defense markings.



KI-27 NATE of the 3rd Chutai, 246th Fighter Sentai, 1943, Japan. The two fuselage stripes denote the 3rd Chutai (the 1st Chutai had no stripes, the 2nd one, the 3rd two) rather than the color system which was popular at that time. Note also that the propeller also was painted RED. The red "esprit de corps" fuselage stripes were not commonly observed after December 1941.
(R. Bueschel)

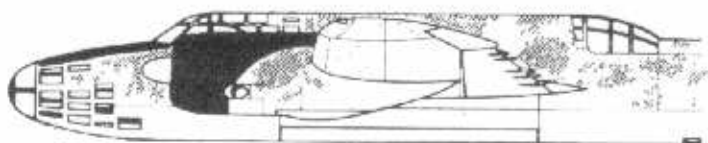
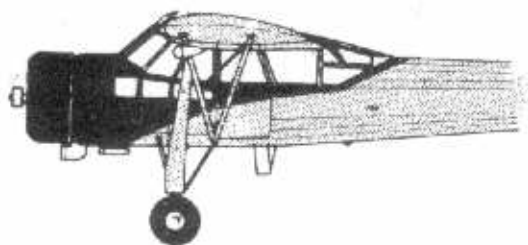
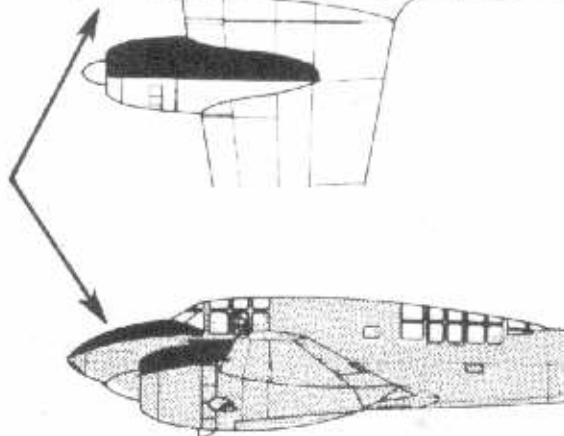
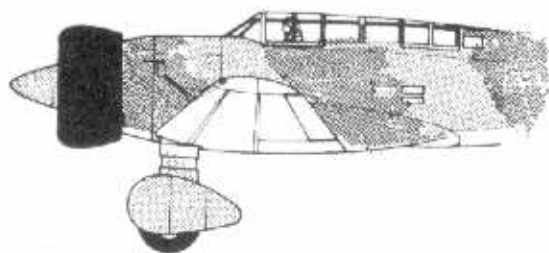
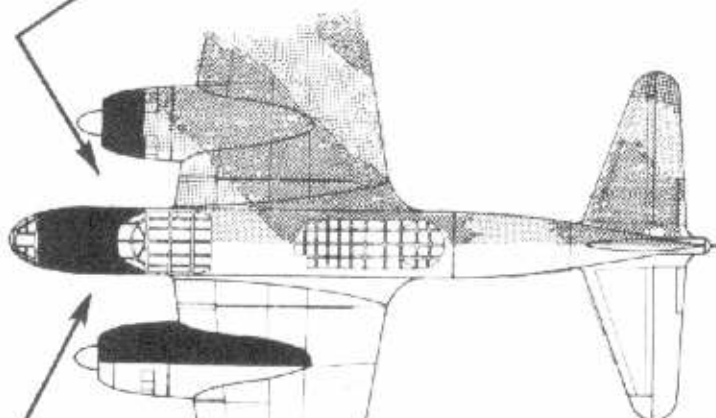
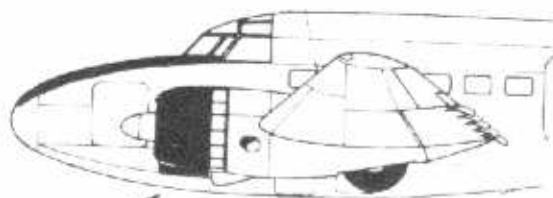
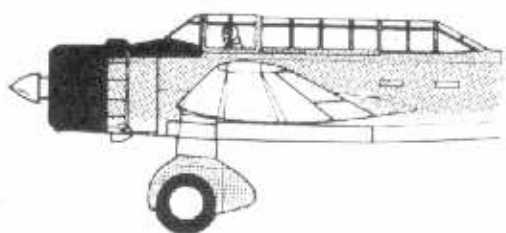
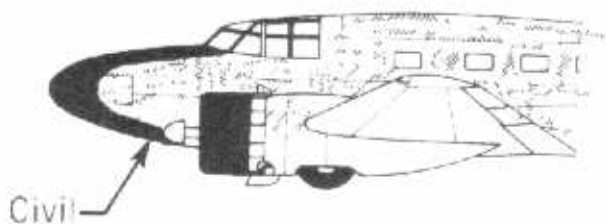
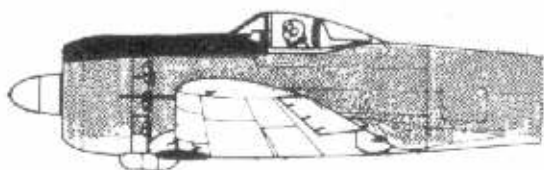
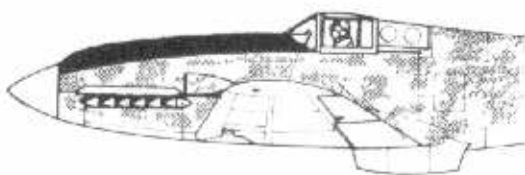
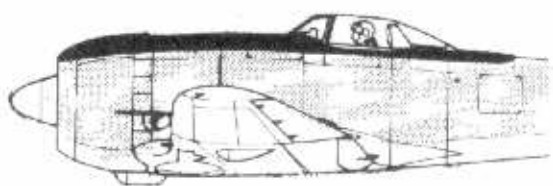


FRANK, 47th Fighter Sentai, 2nd Chutai, Home Defense, 1945. Worthy of mention is the unusual application of warning stripes on the propeller blades. This Sentai was also one of the rare units to use the color blue as a Chutai ID color for other than the HQ Chutai.
(R. Bueschel)



TOJO of the Instructor's Sentai, AKENO Flying School, 1945. On this one aircraft can be seen most of the "usual" practices of markings within the J.A.A.F. — the use of numerals, the Home Defense markings, and the use of the anti-glare panel. TOJOs, however, were unusual in that the anti-glare panelling was carried aft to a point where the rear of the canopy would extend in an opened position.
(Witold Liss)

ANTI-GLARE PANELS IN THE J.A.A.F.



BLACK, DARK BLUE, OR DARK GREEN

ANTI-GLARE PANELING

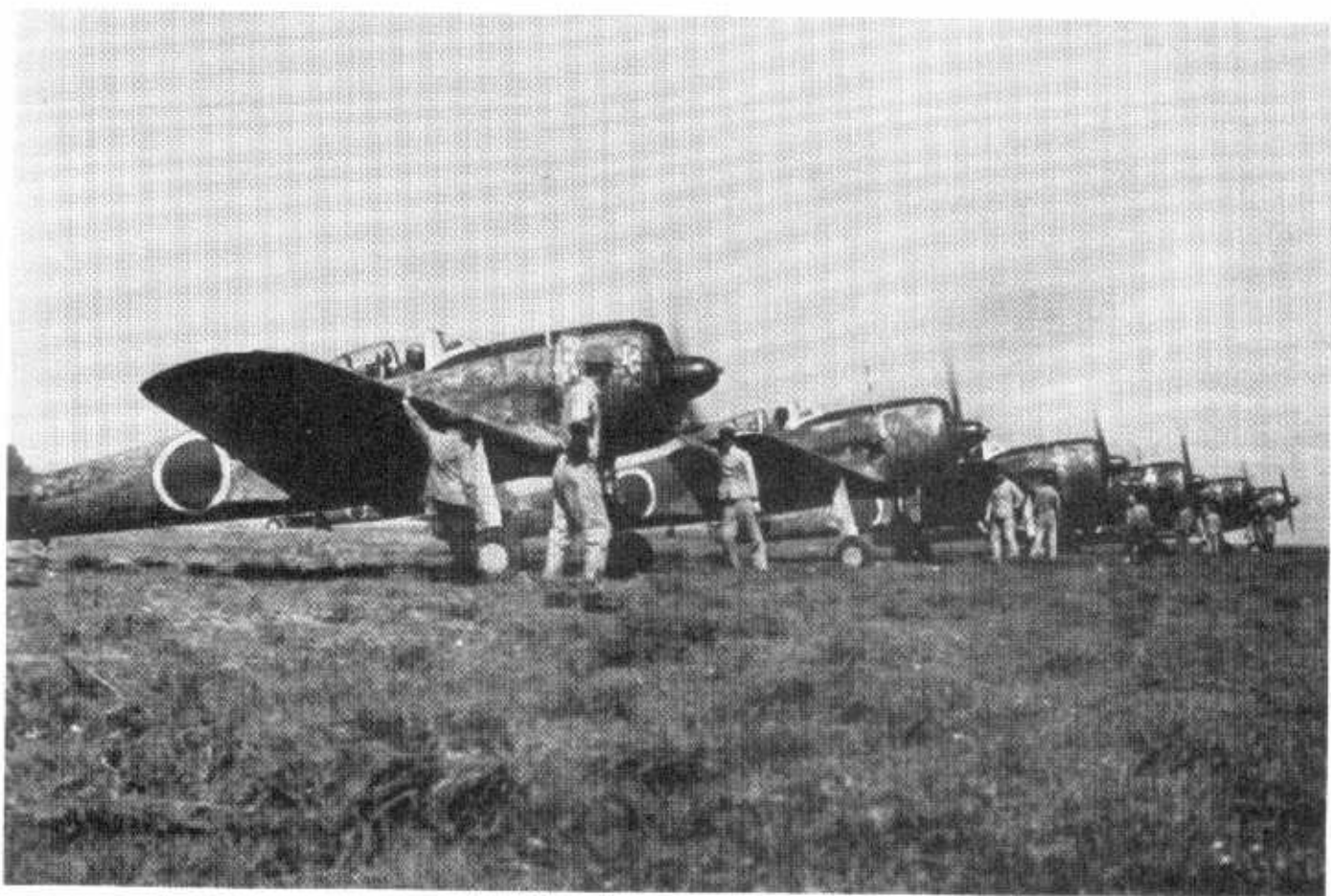
Most aircraft manufacturers painted on anti-glare panels at the factory. In the case of TONY and TOJO it was more the rule than the exception. Most fighter aircraft had anti-glare paneling in the usual forward areas except TOJO, which carried the panel completely through the area which would be covered by the movable part of the canopy when it was in a fully extended position. This also included that portion of the aircraft which was normally under the rear portion of the canopy when it was in a closed position.

During 1938-1942 dark blue was used for this purpose at the factory, but this was exchanged for matte blue-black, which differed from the dead black matte finish used by the J.N.A.F. Because of this bluish content these often took on a purplish cast after severe oxidation.

This paneling was also used by multi-engined aircraft, but in the same manner as with single-engined aircraft. There were exceptions, one of which is illustrated in this section.

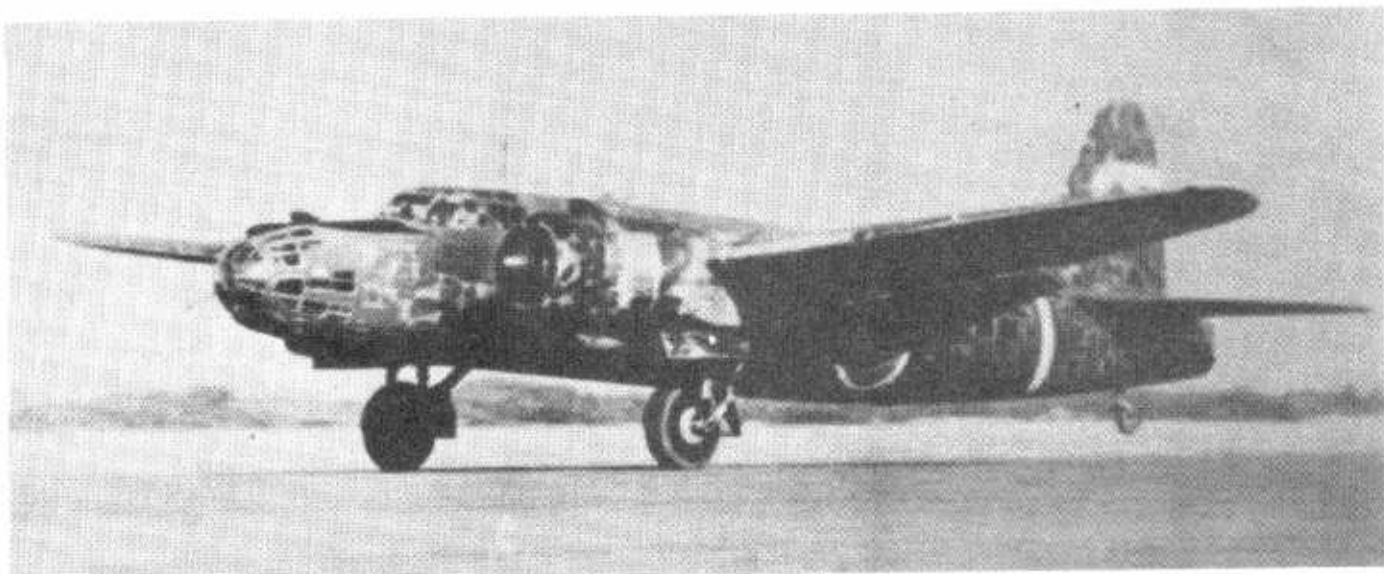
Anti-glare paneling was often used in conjunction with dark finishes, particularly with fighter aircraft.

Some support aircraft painted the entire motor cowling (radial engined) with the anti-glare coloring, much in the manner of the usual J.N.A.F. practice, especially training units, along with their yellow-orange overall finishes. Sometimes this anti-glare painted area was done in glossy enamels, which quite defeated the original purposes.



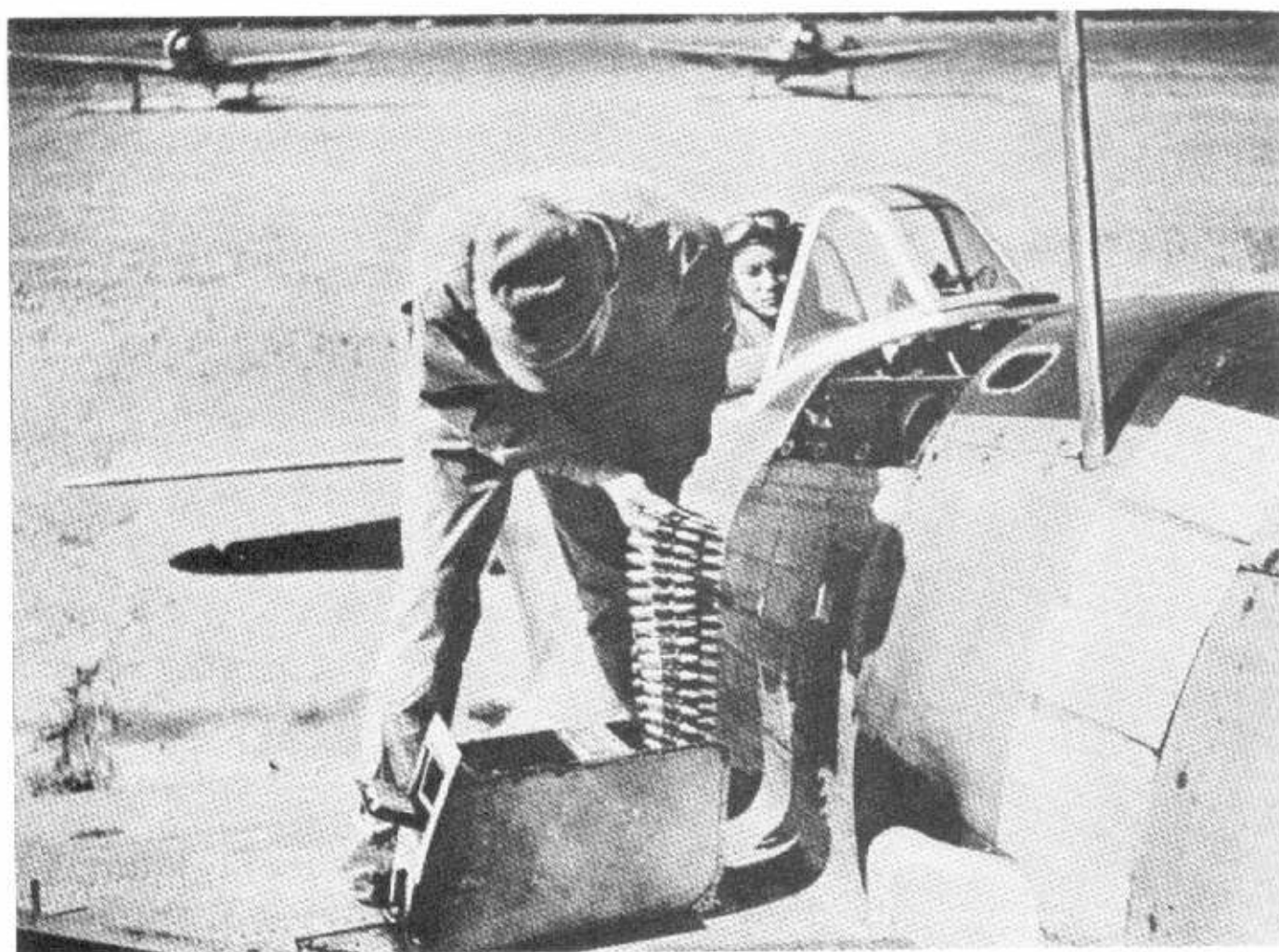
Line up of OSCARs, probably training unit; note fresh appearance of the aircraft, denoting newness to service.

(Witold Liss)



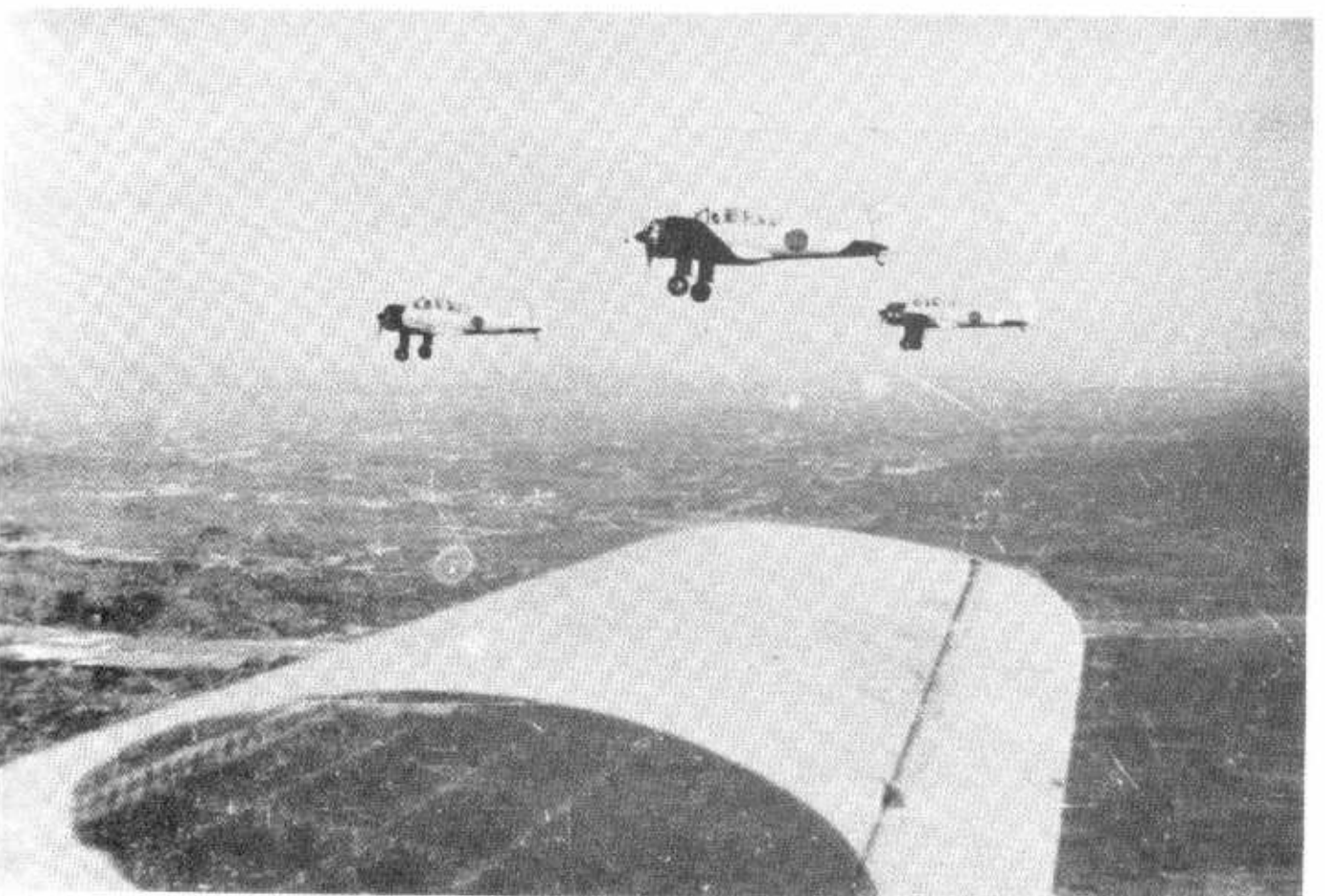
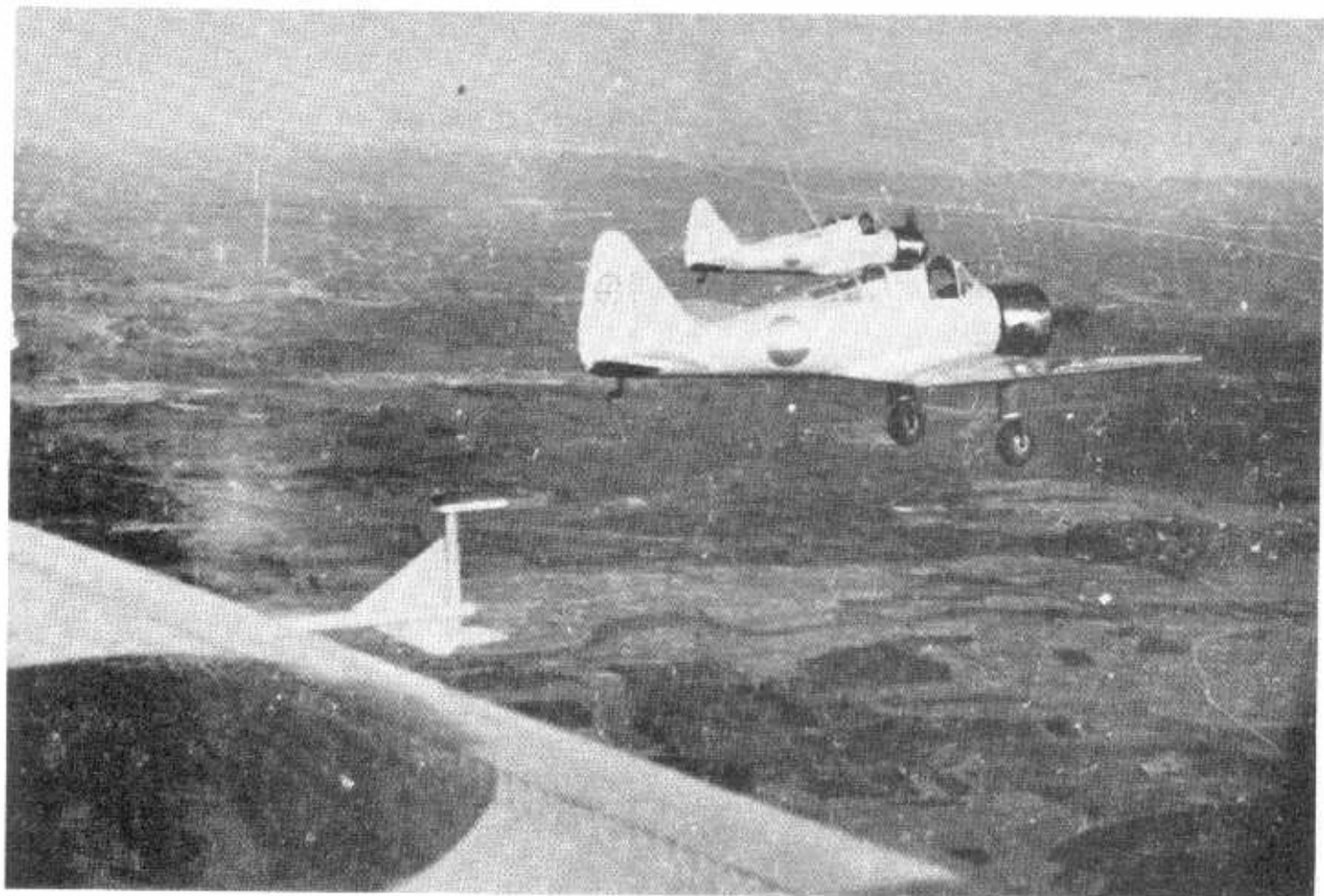
HELEN, 62nd Bomber Sentai, 3rd Chutai, 1944.

(Oishi)



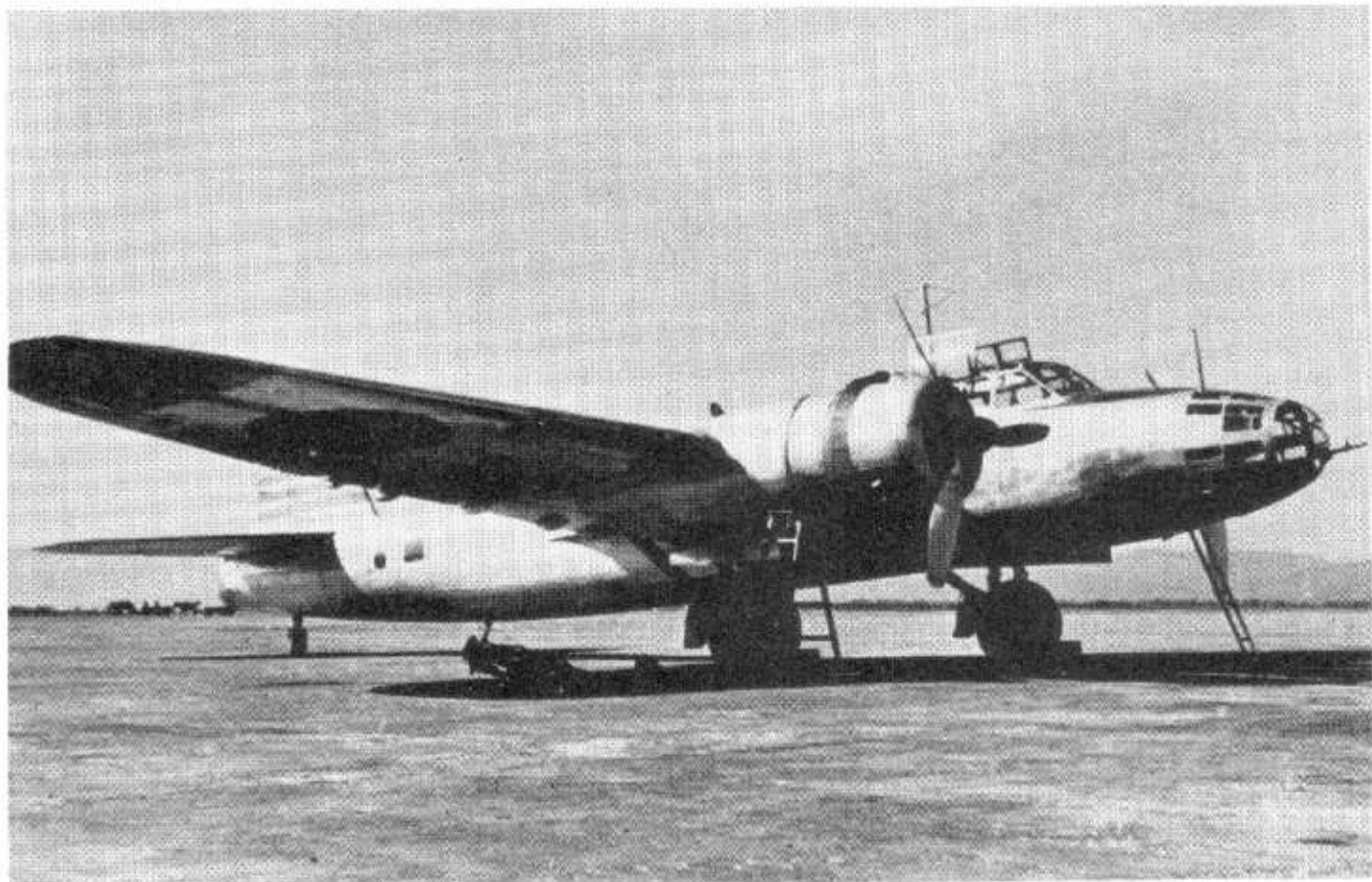
OSCAR, probably AKENO Flying School, 1943.

(Oishi)

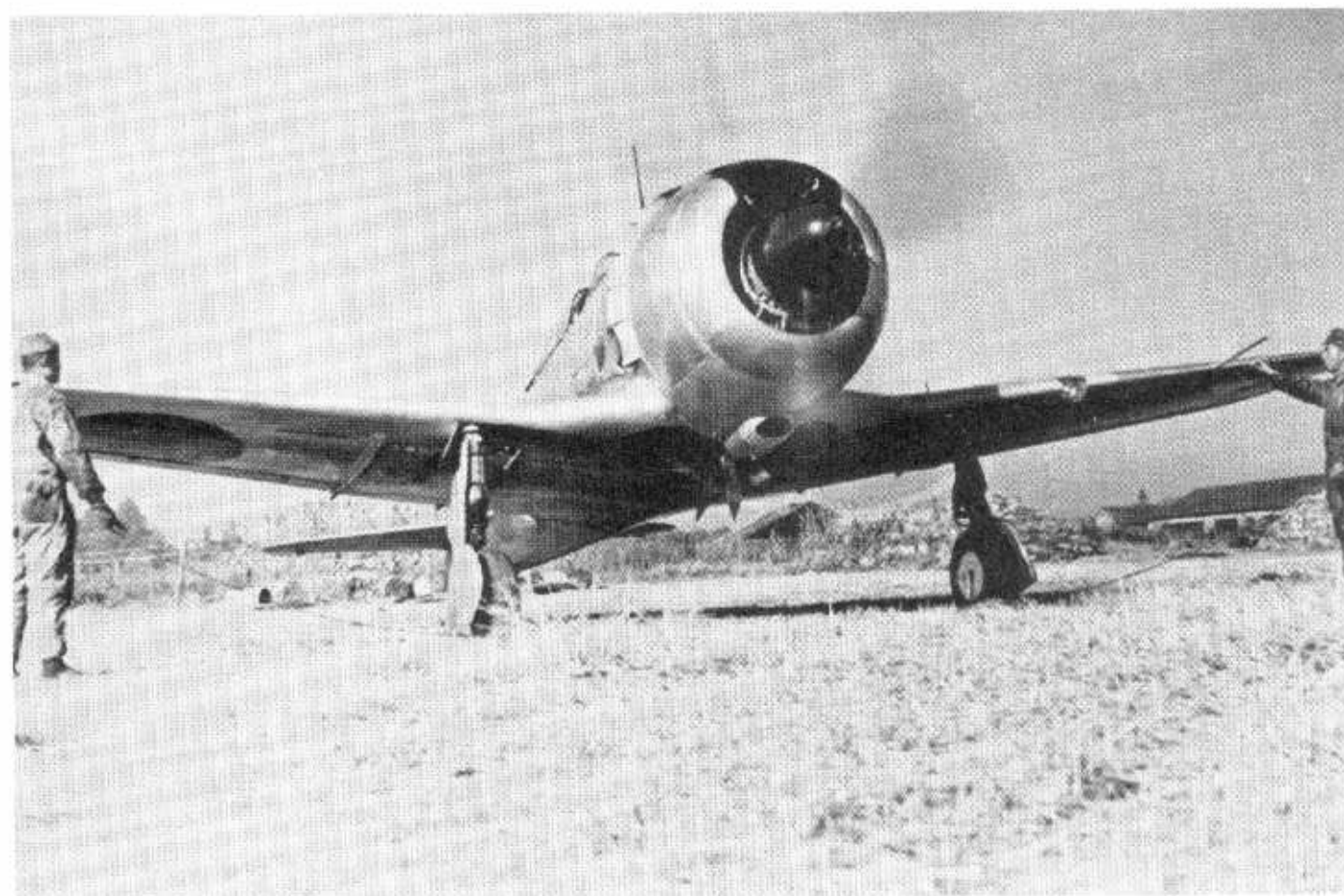


IDAs of the UTSUNOMIA Flying School, 2nd Flight, 1941-45. Overall color was orange with black semi-gloss cowls and landing gear legs. The two white fuselage stripes indicate the Flight, while the diagonal tail stripe, in the Flight color, indicates the Flight Leader's aircraft. The school insignia was often painted in black as well as red, often with a white background, as shown here. Also notice the individual KANA symbol on the cowling, a not too unusual ID practice.

(Hideya Anda)



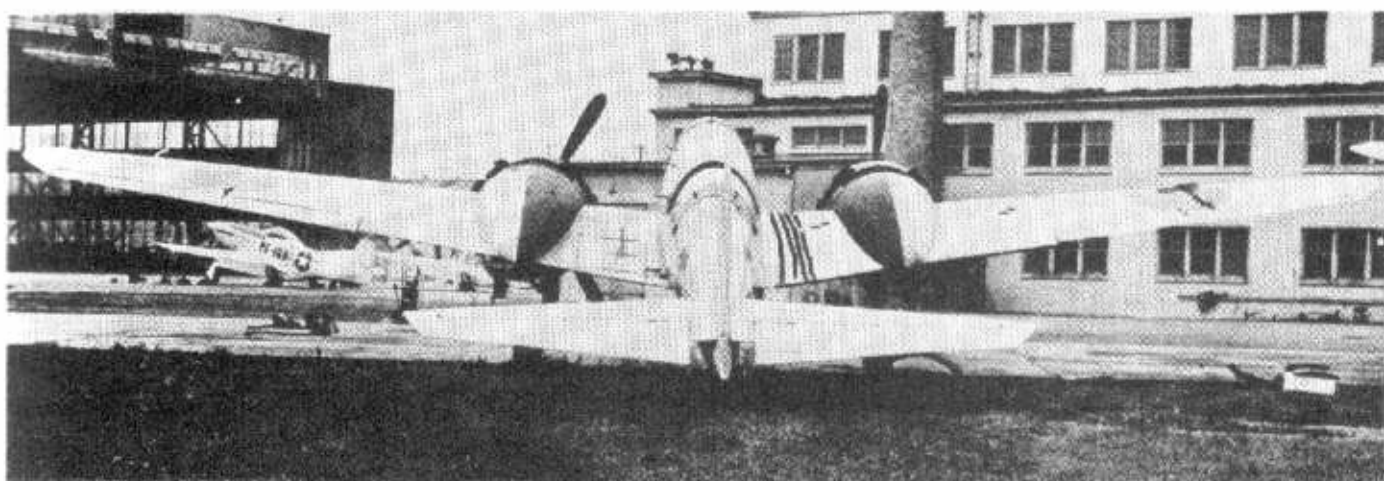
HELEN, 59th Bomb Sentai, 2nd Chutai, Formosa, 1944. Natural metal, no fuselage Hinomarus, three red stripes on the vertical stabilizer. Notice the unpainted propeller blades, unusual for the time period. (Witold Liss)



TOJO, with freshly applied wing panels, which are seen to overlap the landing gear covers to a considerable degree. (Hideya Anda)

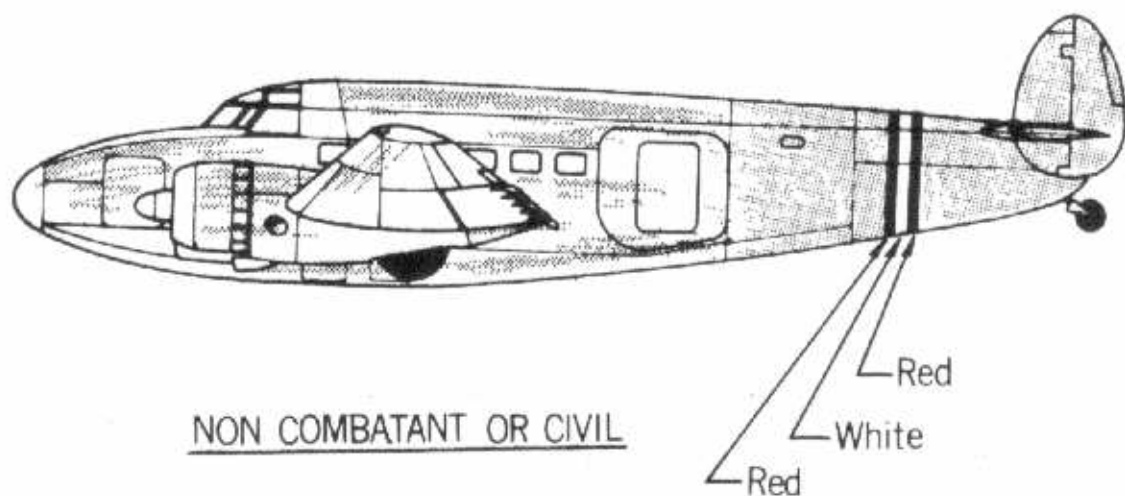
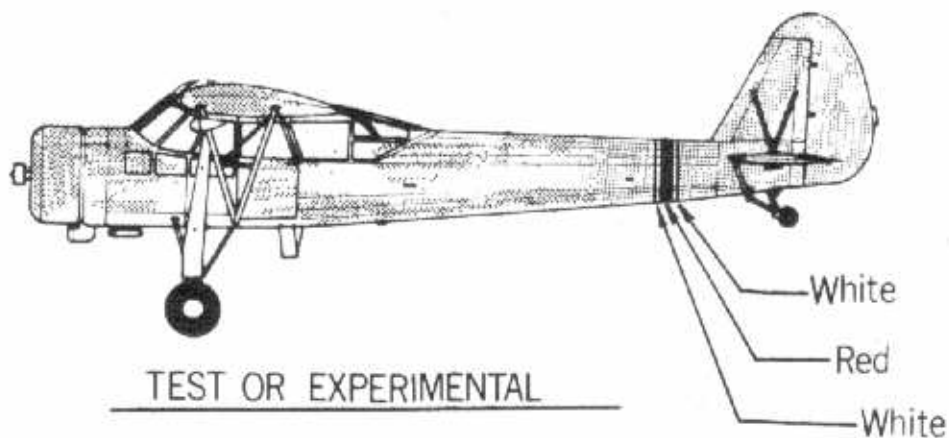
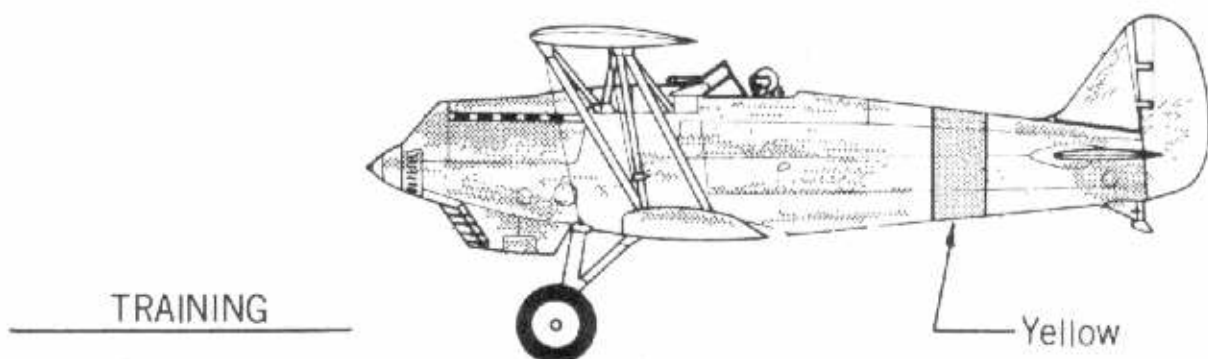
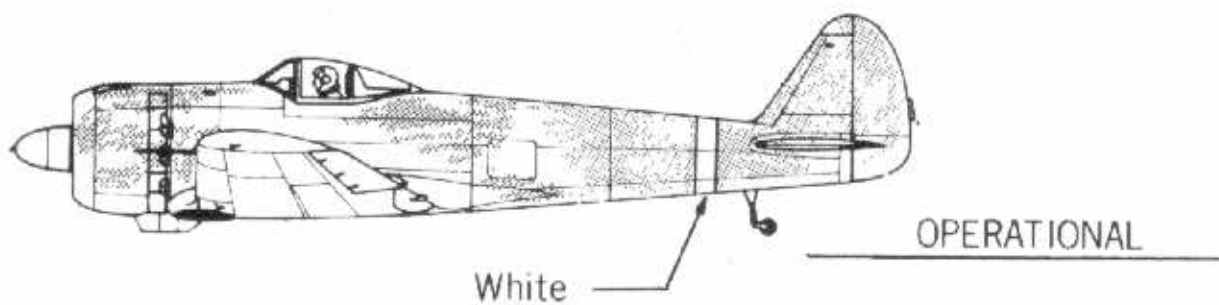


*OSCAR II. Natural metal, with a very uncommon anti-glare application, the same as TOJO. Unit unknown.
(R. Bueschell)*



*Although not usual practice, some multi-engined aircraft had the anti-glare panelling painted on the INBOARD side of the engine nacelles, especially unpainted aircraft.
(Oishi)*

THE FUSELAGE 'MISSION' STRIPE



OPERATIONAL MARKINGS

COMBAT STRIPES

Common practice throughout the war years among J.A.A.F. aircraft and units was the use of the so-called "Combat Stripe" to identify friendly aircraft or assignment/operational status, although all aircraft did not follow this practice.

The Combat Stripe, when used, was usually located just forward of the vertical tailplane, completely encircling the fuselage. White was the normal color, although red or yellow, or combinations of two or more colors, were also used on occasion. Combinations were usually reserved for secondary-missioned aircraft, or for aircraft with special assignments.

White-red-white was reserved for experimental or test aircraft, red-white-red for civil aircraft, and yellow for training aircraft.

A notable exception to the above was the 50th Fighter Sentai which was based in China and used combinations of yellow-red-yellow and red-yellow-red in conjunction with their fuselage lightning flashes.

WING IDENTIFICATION PANELS

From late 1941 throughout all the war years almost all J.A.A.F. aircraft used the identification yellow panels on the leading edges of the wings. Although these were usually painted yellow-orange (A), they sometimes were painted on in A yellow. Often, due to weathering, these panels took on a very pale yellow appearance, seeming almost cream colored at times. And at the other extreme, instances have been observed where the yellow had darkened due to age, and seemed to be almost medium ochre in color.

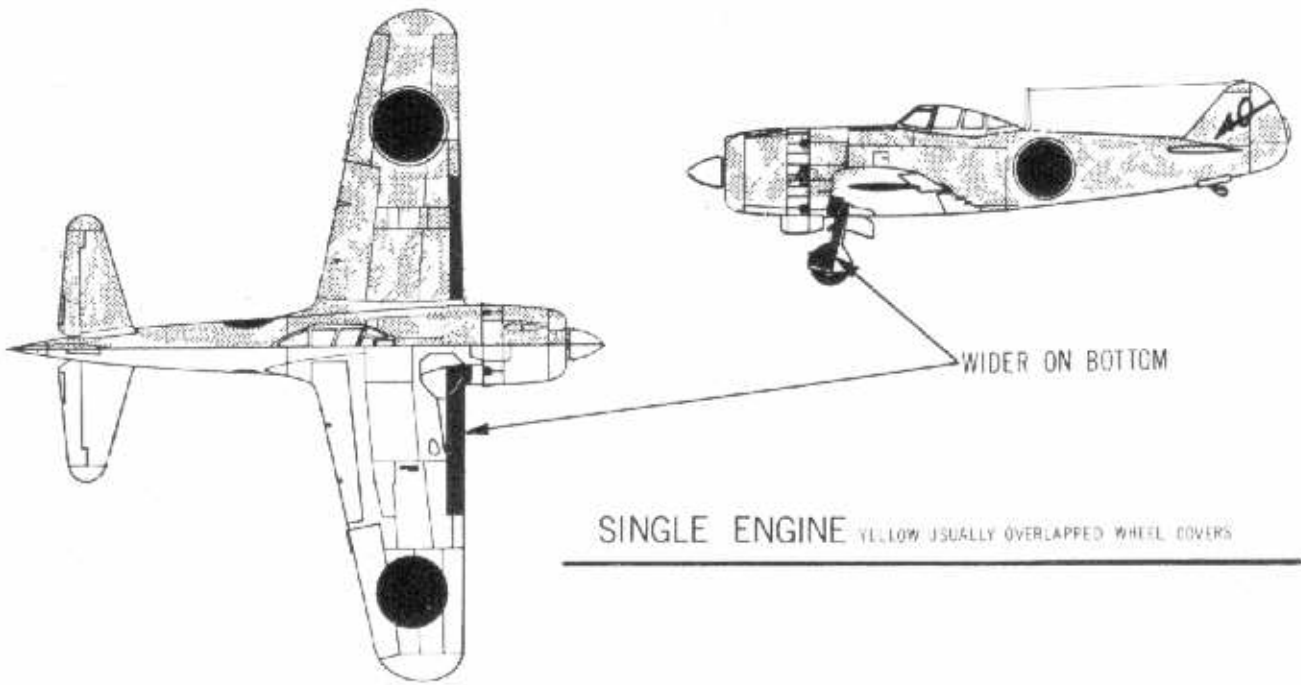
When used, these wing panels were rarely narrower than 6", and in the case of single-engined aircraft were usually painted over a portion of the landing gear cover.

The official requirements for these panels were that they were to be painted along the leading edges of the main wings, not to exceed 2/3 of the span of either wing, and less than 1/3 of either span. This was measured from the outboard side of engine nacelles in the case of multi-engined aircraft.

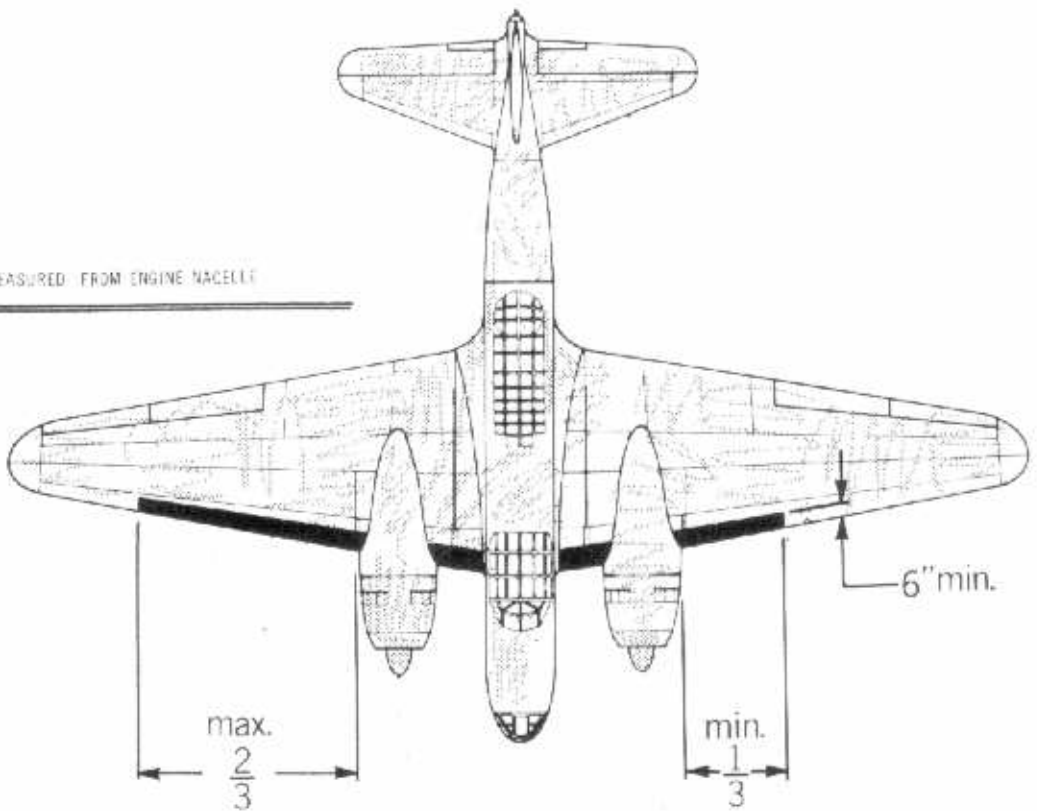
In the case of biplanes the ID panels were painted on both wings, with the paneling extending unbroken along the top wing surface.

There were rare cases recorded where these recognition panels were carried on all leading edges, tailplanes as well as main wings. A prime example of this was a KI-46 Dinah found and photographed at New Guinea in 1964. This aircraft is a subject of profile #98, section 4.

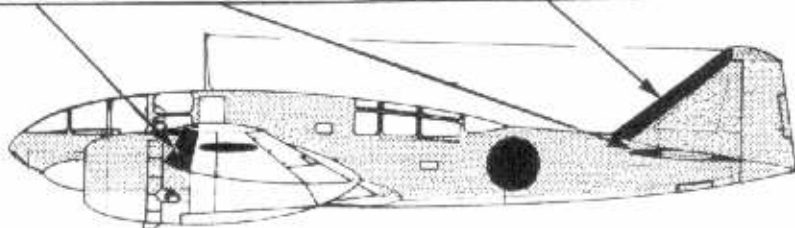
LEADING-EDGE I. D. MARKINGS

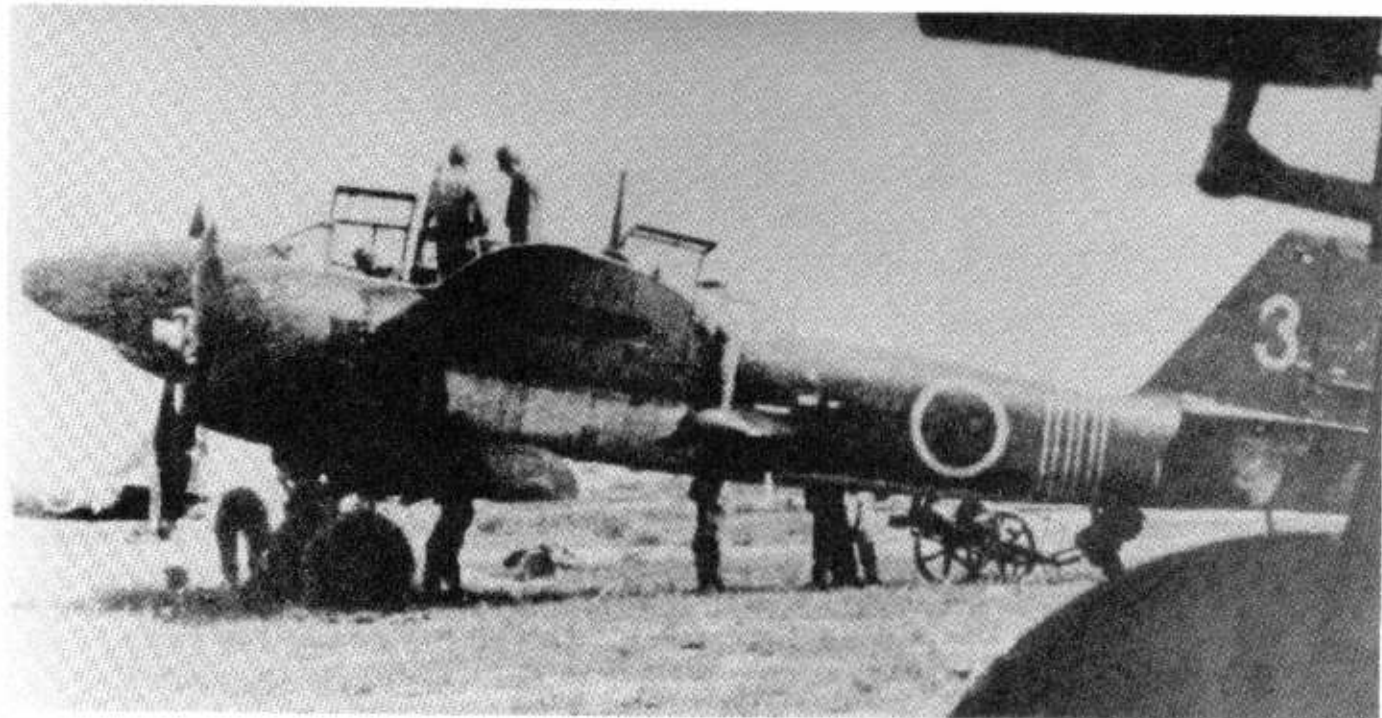


MULTI ENGINE MEASURED FROM ENGINE NACELLE



OCCASIONAL VARIATION - YELLOW PANELS ALONG ENTIRE LEADING EDGE OF ALL SURFACES

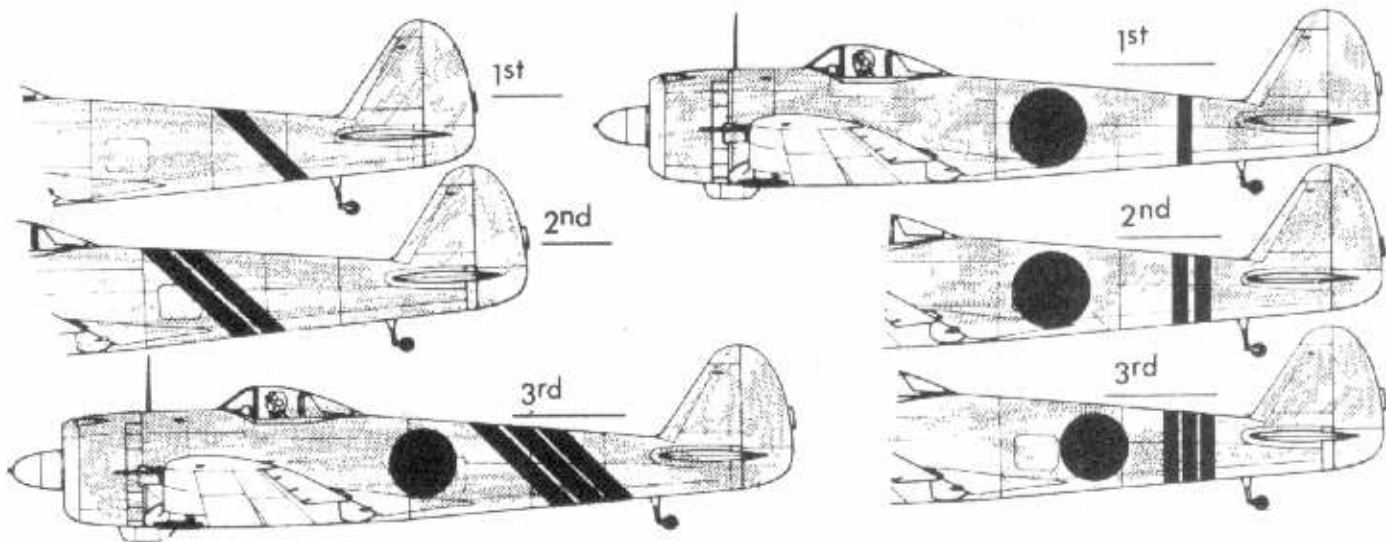




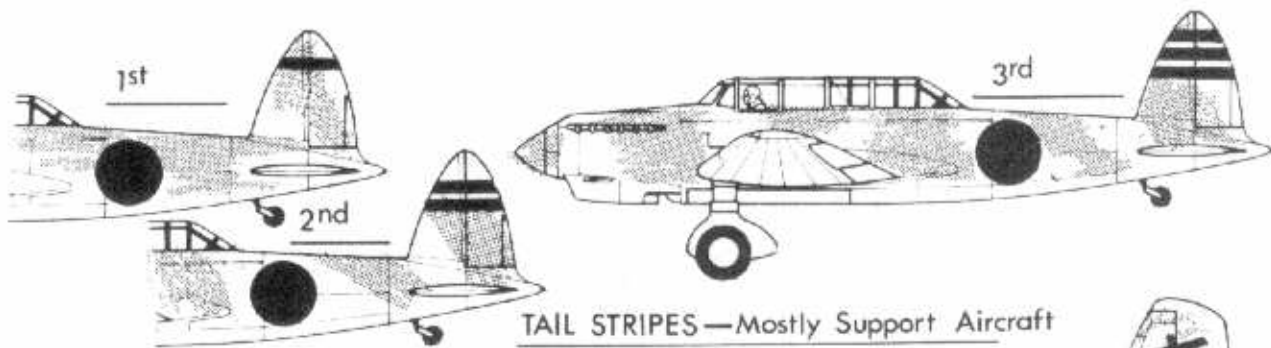
To add to the general markings confusion, here is a KI-102 RANDY of the 3rd Operational Testing Unit, Fussa, 1945, wearing three stripes, white-red-white, which, although the colors of civil aircraft, and used in the manner of command stripes, are only to indicate a special purpose aircraft. Sometimes second line aircraft which were assigned to line units were marked in this manner. The un-outlined upper-wing Hinomarus are worth mention.

(R. Bueschel)

FORMATION AND POSITION MARKINGS



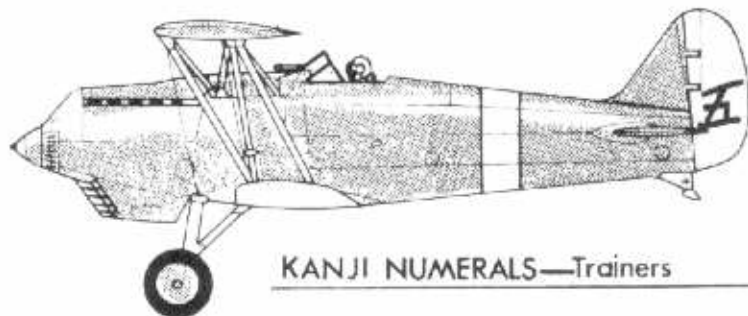
FUSELAGE STRIPING — More common with Tactical Aircraft



TAIL STRIPES — Mostly Support Aircraft



KANA SYMBOLS Prevalent during Earlier Years



KANJI NUMERALS — Trainers

- 一 1st
- 二 2nd
- 三 3rd
- 四 4th
- 五 5th
- ECT

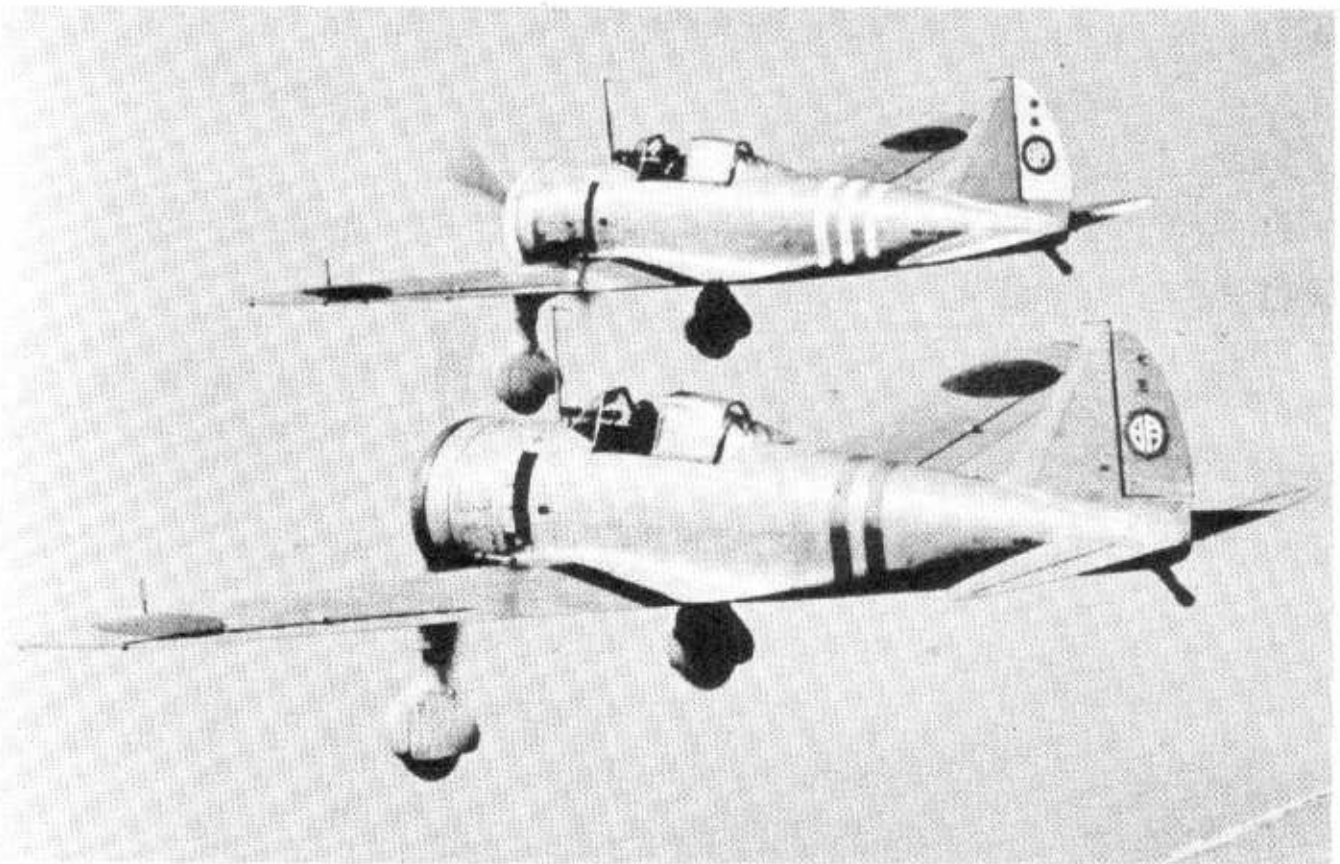
INDIVIDUAL, FORMATION, AND POSITION MARKINGS

Although there were several commonly encountered methods of indicating position within a formation, striping of one sort or another was the most usually observed.

Of these, there were two main categories; fuselage striping, and tail striping. Fuselage stripes were more common with tactical aircraft, especially the fighter. Tail stripes were usually the badge of either the tactical support aircraft, or the trainer. Aircraft within the SHOTAI were usually identified by the number of stripes used, such as one stripe, 1st aircraft, two stripes, 2nd aircraft, etc. These stripes were usually in the CHUTAI color. When upon rare occasions a 4th aircraft was used within the SHOTAI, usually it was left unmarked.

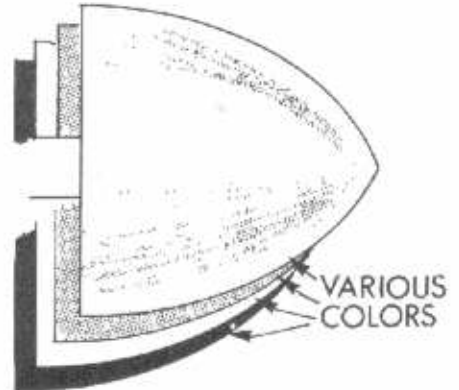
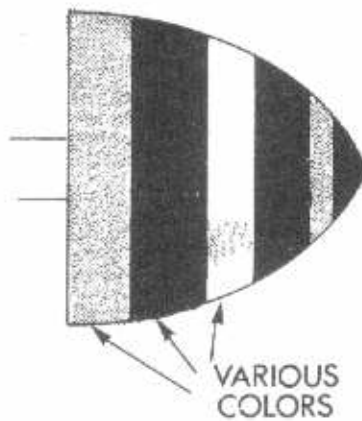
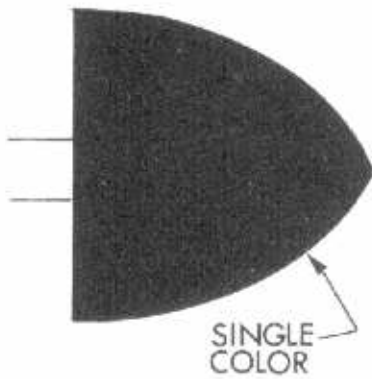
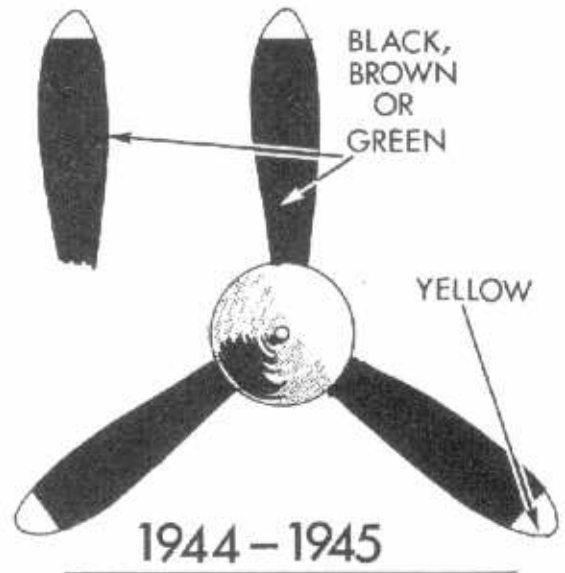
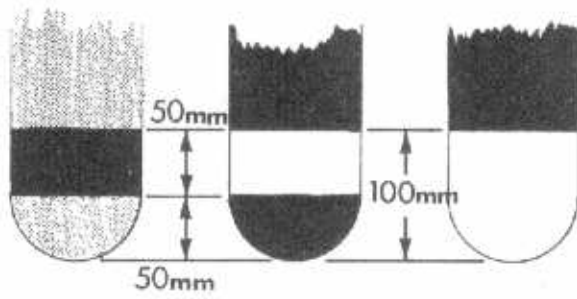
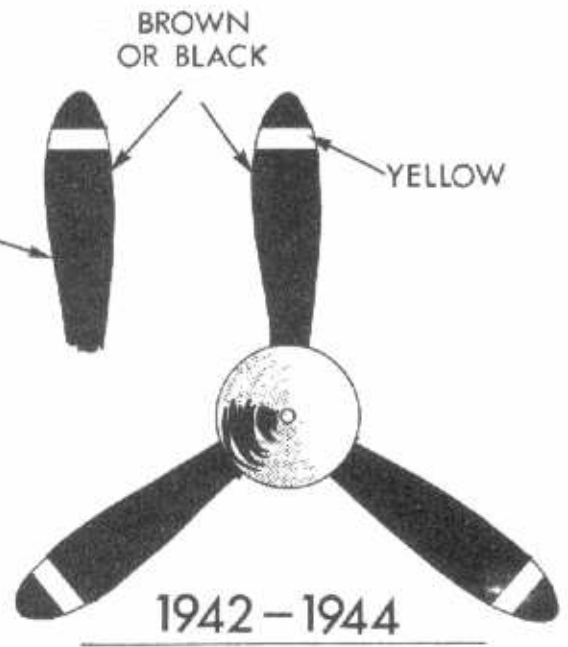
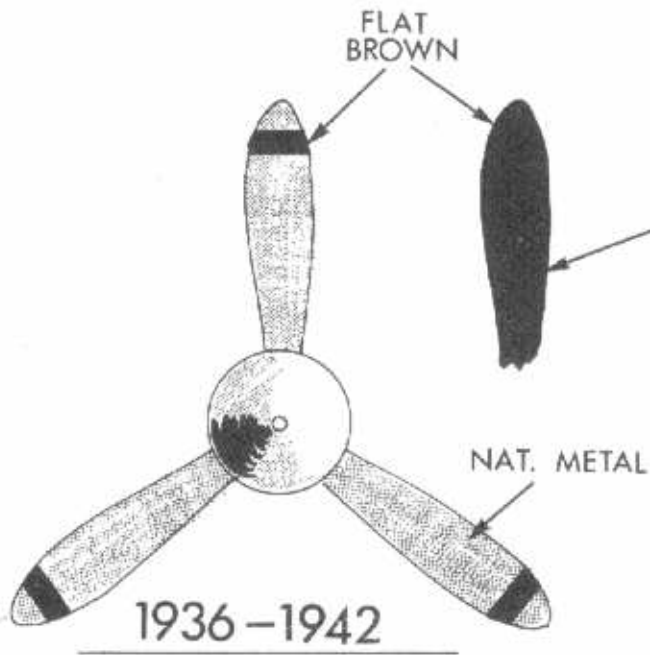
Sometimes KANA symbols were used to denote formation position. These usually were carried on the aircraft vertical stabilizer, and were common during the period 1938 through 1942, especially in the China theater. There was no set sequence of usage; rather the pattern varied with each individual SENTAI.

The one rigid rule was that arabic numerals were *never* used to indicate position; however, during the early days of the war, and occasionally in training units, the KANJI numerals were used in this manner.



NATES of the Akeno Flying School, light grey green finish. Here can be seen very clearly the use of color and striping to identify individual aircraft, and Chutais, or flights. The Chutai color is carried on both the fuselage and the motor cowling, while the number of stripes signified the position of the aircraft within the flight. The KANA symbols on the vertical stabilizers are the initials of the pilots. (R. Bueschel)

SPINNERS AND PROPELLERS



SPINNERS AND PROPELLERS

SPINNERS

Most spinners were painted dull reddish brown (A13) or flat black at the factory, but several Sentais repainted them in more vivid colors when the aircraft were delivered and became operational.

Some Sentais painted the spinners in the particular Chutai color to which they were assigned. These were usually white for the 1st, red for the 2nd, and yellow for the 3rd, with HQ Chutai using blue. Sentais which did not follow this procedure usually painted their spinners in bright red, however white and yellow were also used.

Most spinners were painted a single solid color, with an occasional Sentai or Chutai marking themselves much in the manner of the German Luftwaffe with several rings of contrasting color. A fine example of this practice was the NICKs of the 53rd Heavy Fighter Sentai when on Home Defense service in late 1944.

Rarely were spinners left in natural metal. When this occurred it was usually in a test or training unit.

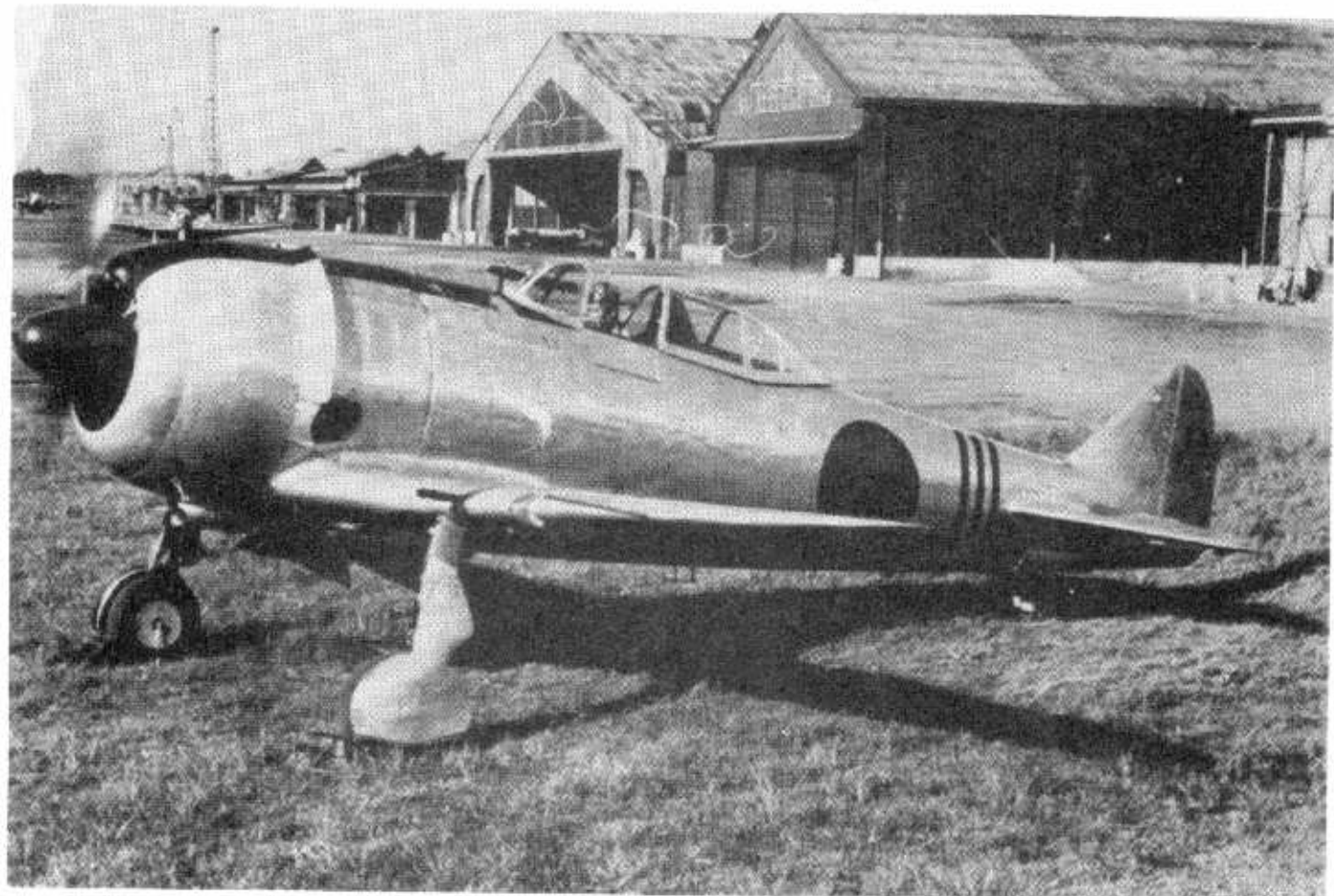
PROPELLERS

During the early days of aviation in Japan, propellers were left in natural metal, buffed to a high degree of luster, to retard corrosion. The rear faces of the propeller blades were painted in dark brown prime. In addition a matching brown line was painted on the front of the blade near the tip.

In February 1942 the usual practice was to paint the propeller over both front and back with the dark brown prime, with yellow warning lines on the prop tips. Additionally, some aircraft were issued with the same general color arrangements, except that matte black was substituted for the early dark prime coat. During the final days of the war some manufacturers issued aircraft with the propellers finished in a yellow-green anti-corrosion paint similar to the zinc chromate interior paint used by the Allies, or the anti-glare green paint used by the USAF.

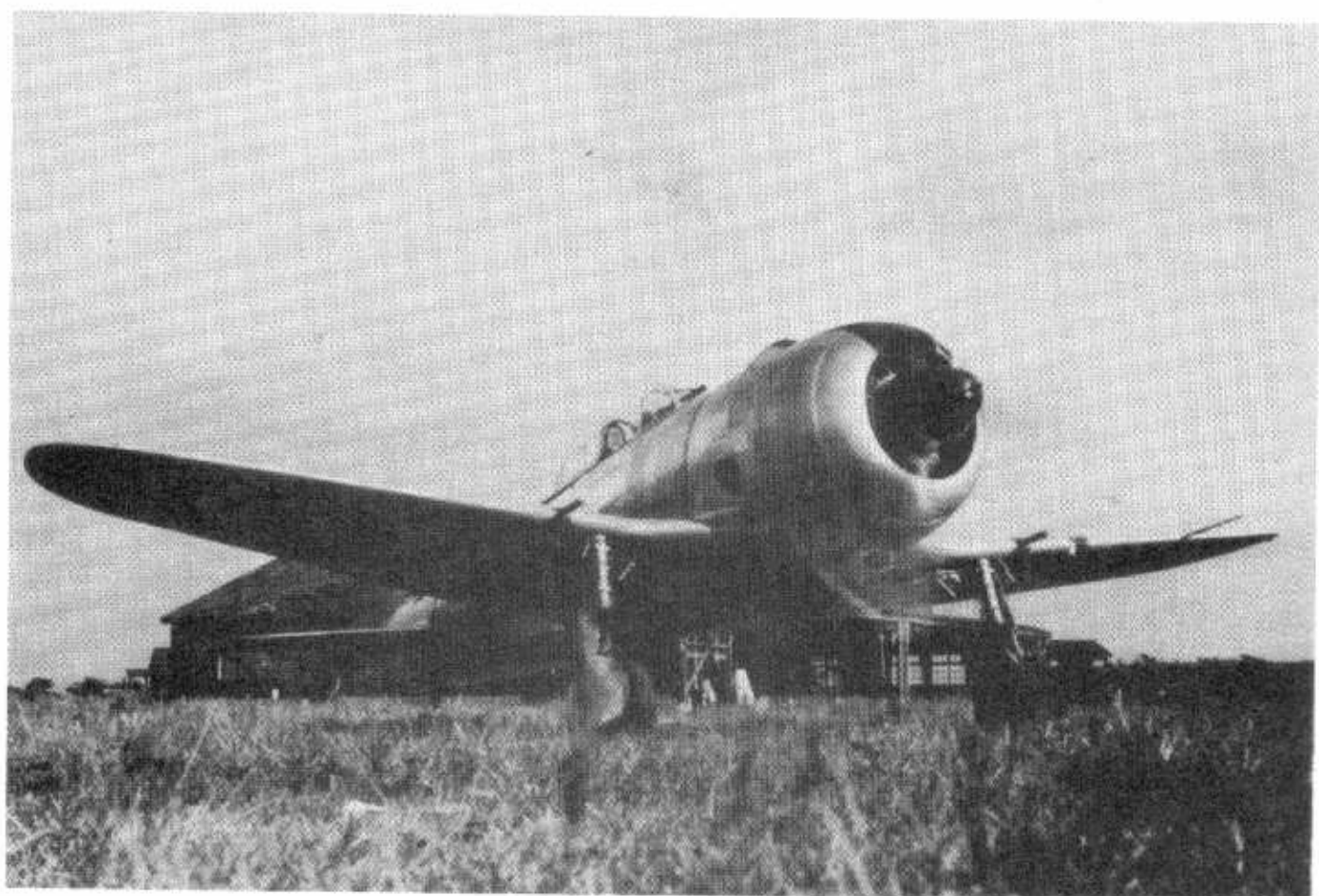
Propeller tips at this time were painted in yellow or yellow-orange both front and back. As the end of the war drew near, attention to the niceties of painting were often ignored in the severity of the situation. It was just as commonplace to see propellers which were finely polished natural metal as those which were totally painted in black or brown.

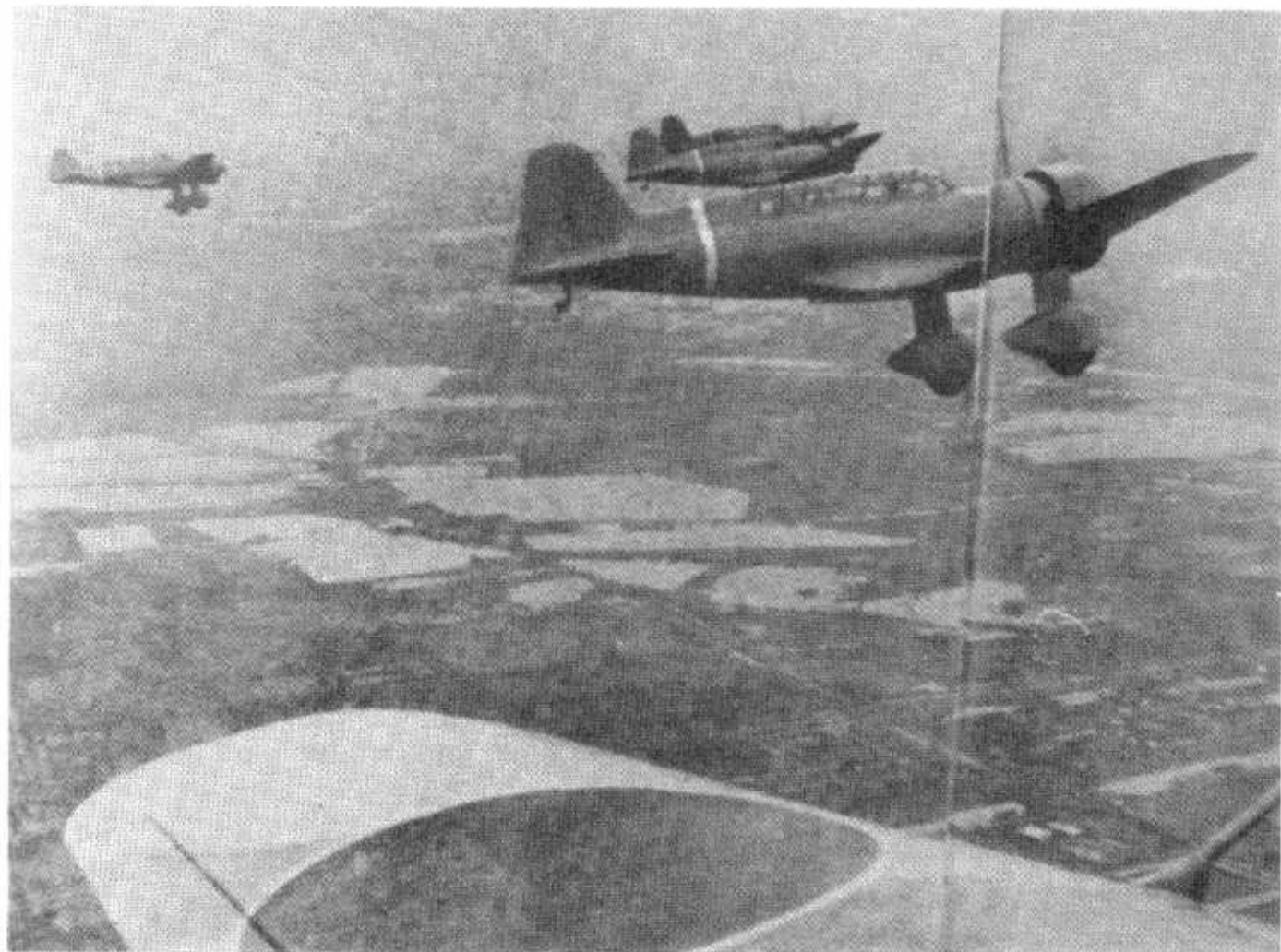
There were rare occurrences of the entire propellers being painted in bright colors, one of which was the KI-84's of the 104th Fighter Sentai in Manchuria, 1945. These aircraft had the entire spinner, *forward* propeller face, and tips in the Chutai color. Earlier the fighters involved in the Nomanhon, or Sino-Japanese wars, had the *rear* faces painted in red in some instances.



KI-44 TOJO in operational test markings, as signified by the three red fuselage stripes. Note the absence of the yellow wing ID panels.

(Witold Liss)





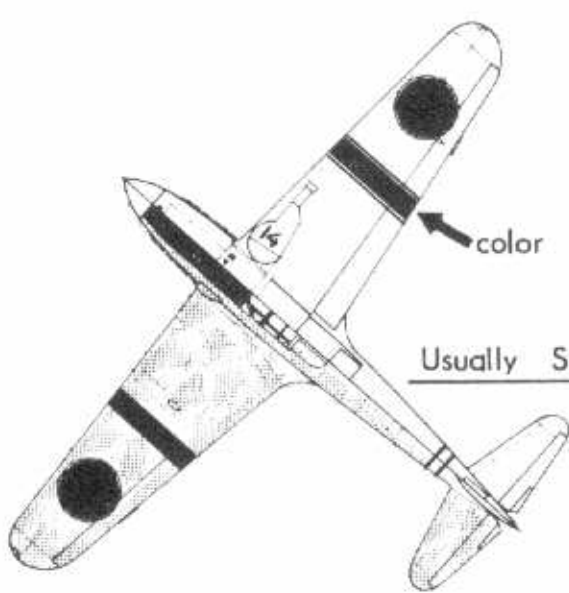
BABS, 10th Support Sentai, China, 1939. Note the camouflage pattern on the wing in the foreground. (J. Wood)



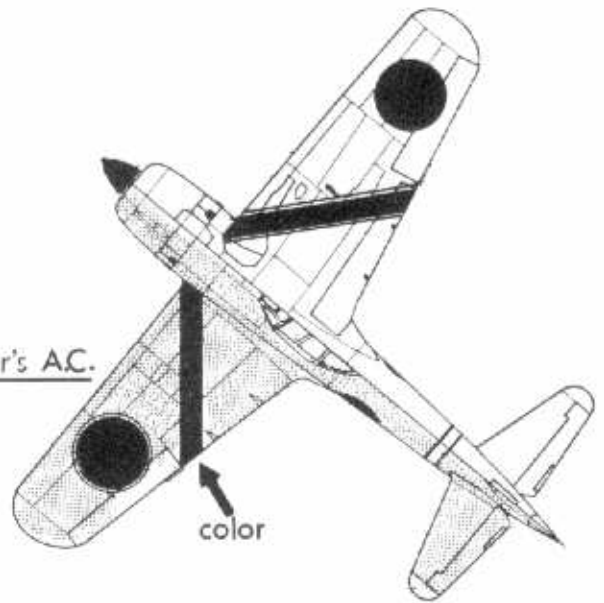
ANN, 90th Attack Sentai, Manchuria, 1938-39.

(J. Wood)

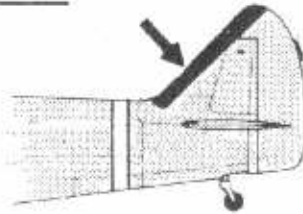
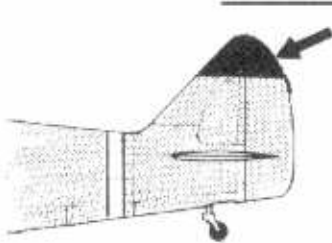
COMMAND MARKINGS



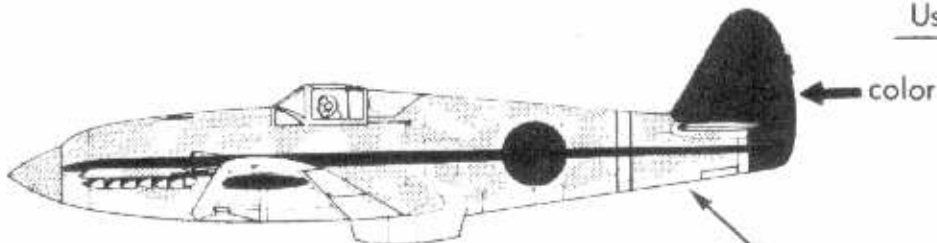
Usually SENTAI Cmr's AC.



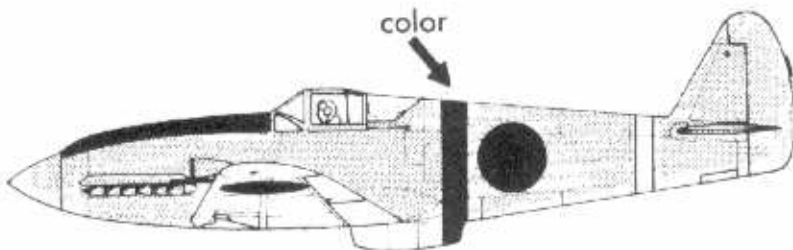
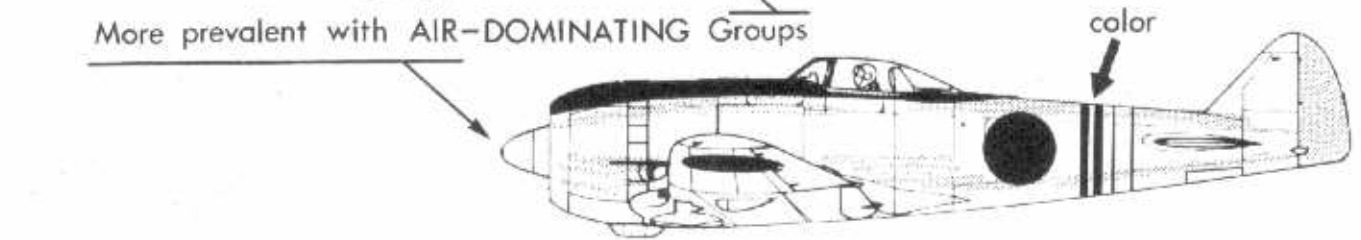
Chutaj color



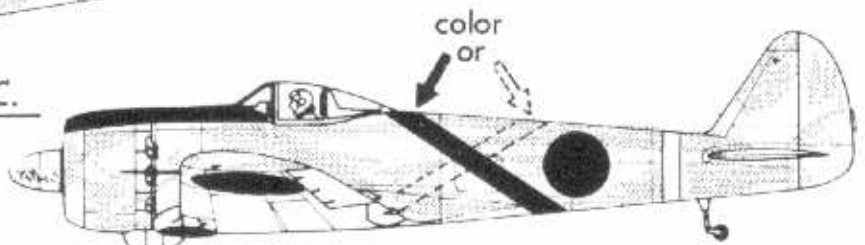
Usually with number 35



More prevalent with AIR-DOMINATING Groups



Usually CHUTAI Leader's AC.



COMMAND STRIPES AND PANELS

There were no set patterns within the J.A.A.F. for indicating command or the position of the aircraft within the unit. Many variations existed, and sometimes two or three different methods would be found within one Sentai, each Chutai using its own system of identification.

The one basic rule that seemed to be fairly universal was that command and position stripes and panels, or other types of markings, were usually in the Chutai color.

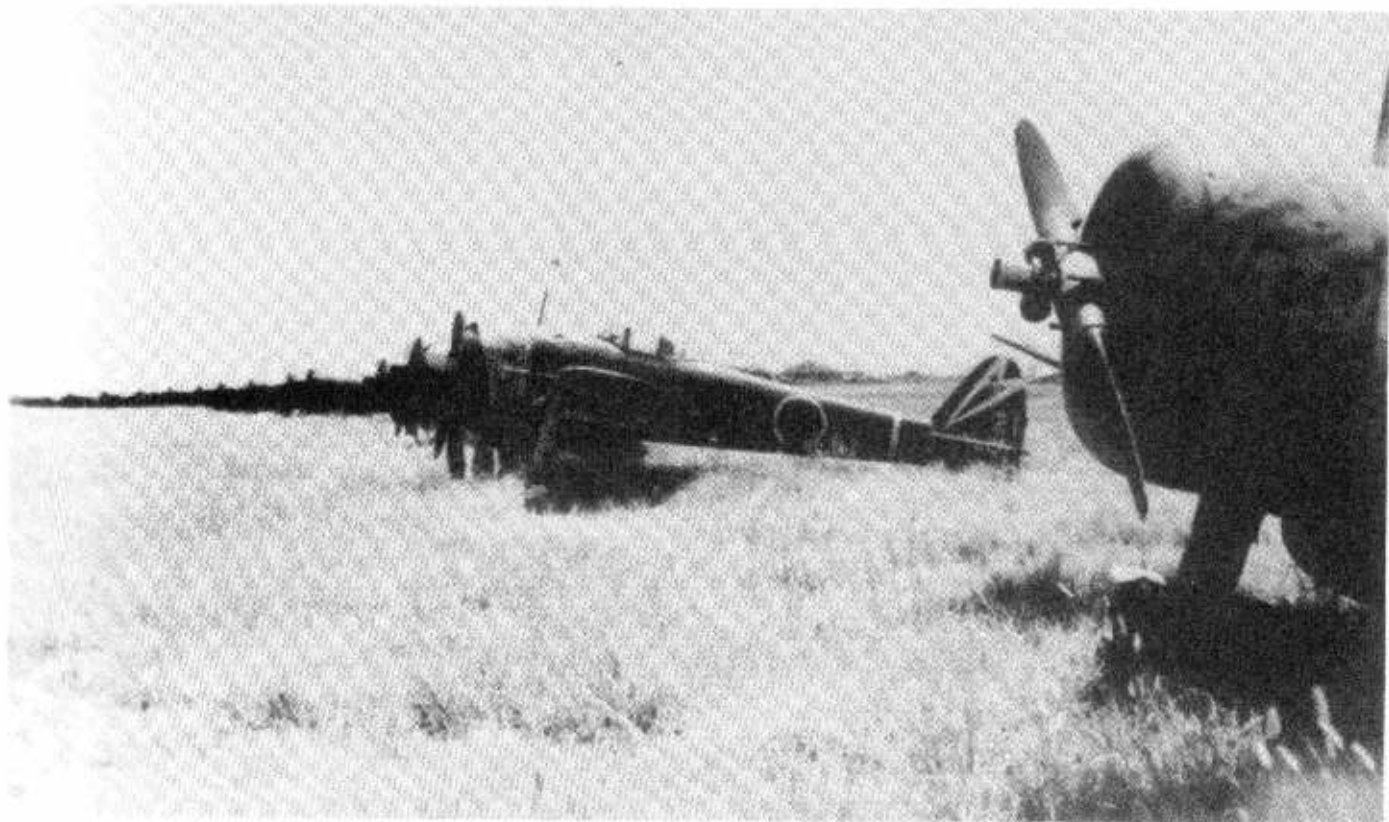
Numerals were NEVER used in this manner.

The most commonly encountered method of denoting command was the color flash at the vertical tail fin. This was usually in the Chutai color, or in the case of a Sentai Leader, the HQ Chutai color, if one was employed. Some Sentai Leaders utilized an elaborate tail marking which generally was an embellishment of the Sentai theme. A good example of this were the Sentai Leader's aircraft, 11th Fighter Sentai (see section IV).

Some Sentais used the background area behind the individual aircraft number on the lower portion of the rudder as Chutai identification, painting this area in the Chutai color.

Fuselage stripes were occasionally used to denote leadership. Usually they were reserved for Chutai identification or positioning of the aircraft within the Chutai, one, two, or three stripes for the particular Hotai (Flight), and all stripes in the proper Chutai color. Occasionally these stripes were carried on the wings of the aircraft, but this was not a common practice.

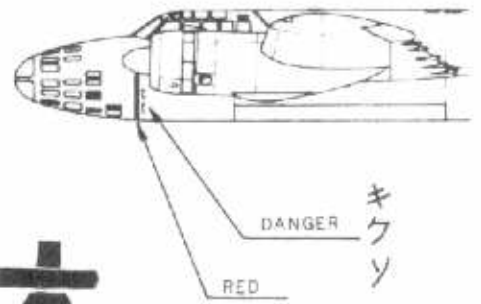
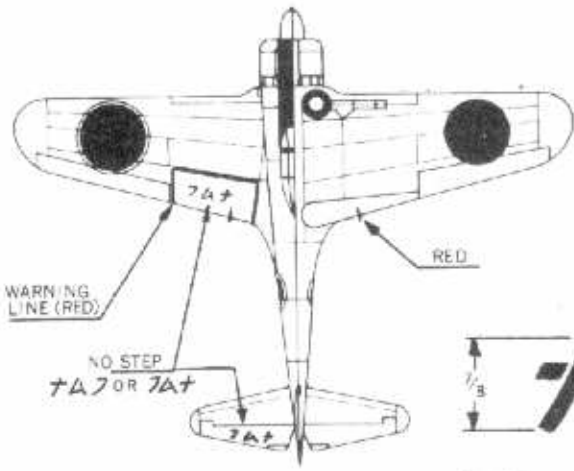
Rarely did Hotai, or flight, leaders use special recognition markings. Mostly their aircraft were marked as per usual Chutai practice.



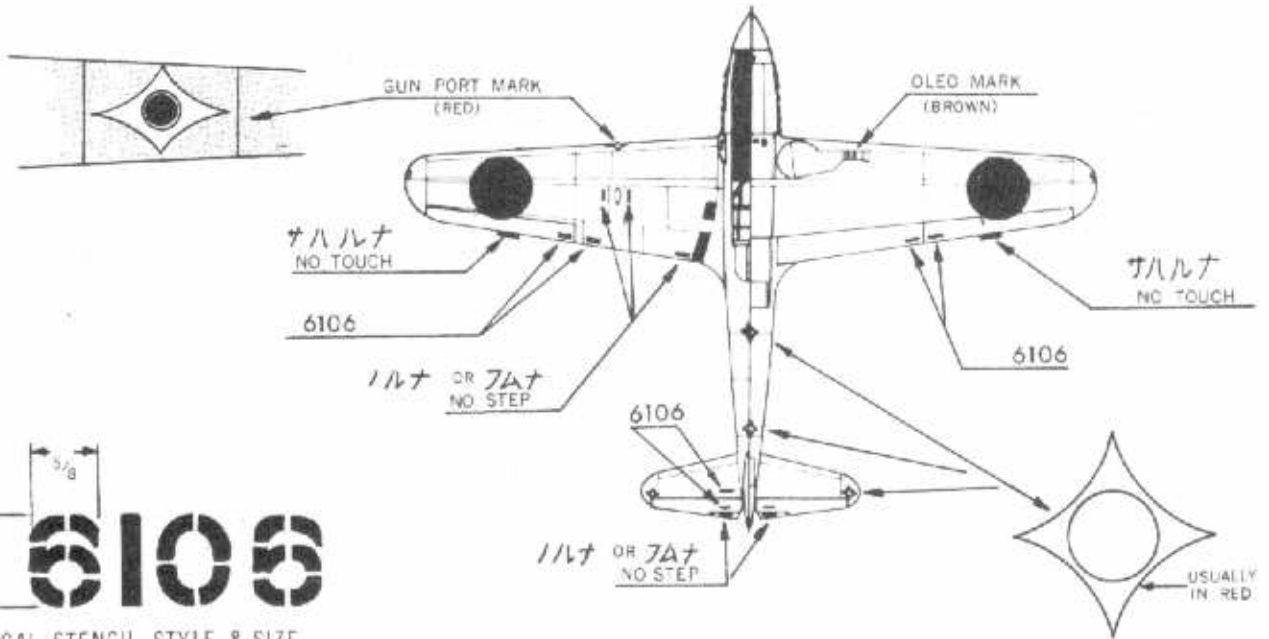
OSCAR III, 48th Sentai, 1st Chutai, China, 1945. The Sentai symbol is a stylized "48." Note the white spinner on the leader's aircraft in the foreground. The aircraft number was often painted in the Chutai color.

(R. Bueschel)

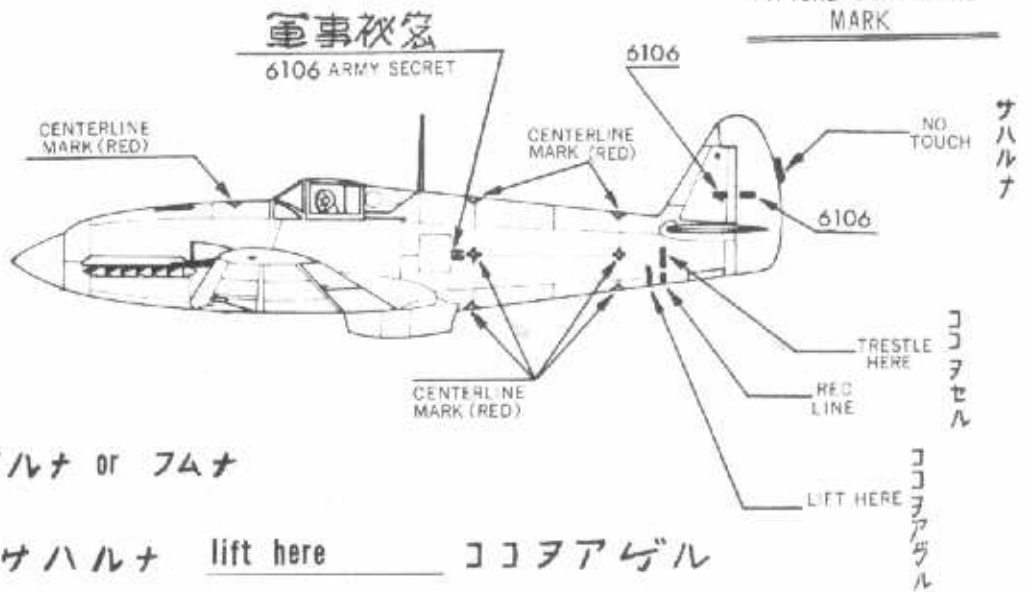
INFORMATION MARKINGS



ナスオ



TYPICAL CENTERLINE - MARK



- | | | | |
|------------|------------|-----------------|--------|
| no step | ナムナ or ナムナ | | |
| no touch | サハルナ | lift here | ココヲアゲル |
| don't push | ナスオ | trestle here | ココヲセル |
| danger | ソクキ | emergency hatch | ヒツヨウフタ |

INFORMATION MARKINGS

CHEAT AND TRIM LINES

Trim tabs, aileron horns and balancers, and flap lines were usually identified with red, as shown in plate J, upon release from the factory. These marks and lines were generally accompanied by various inscriptions in Kana or Kanji characters, which translated into the usual phrases, such as: "no step," "caution," "no lift," etc. Center of gravity marks, access panels, filler caps were also rendered in this manner. Particularly sensitive areas were outlined in red or yellow (rare).

TRESTLE LINE

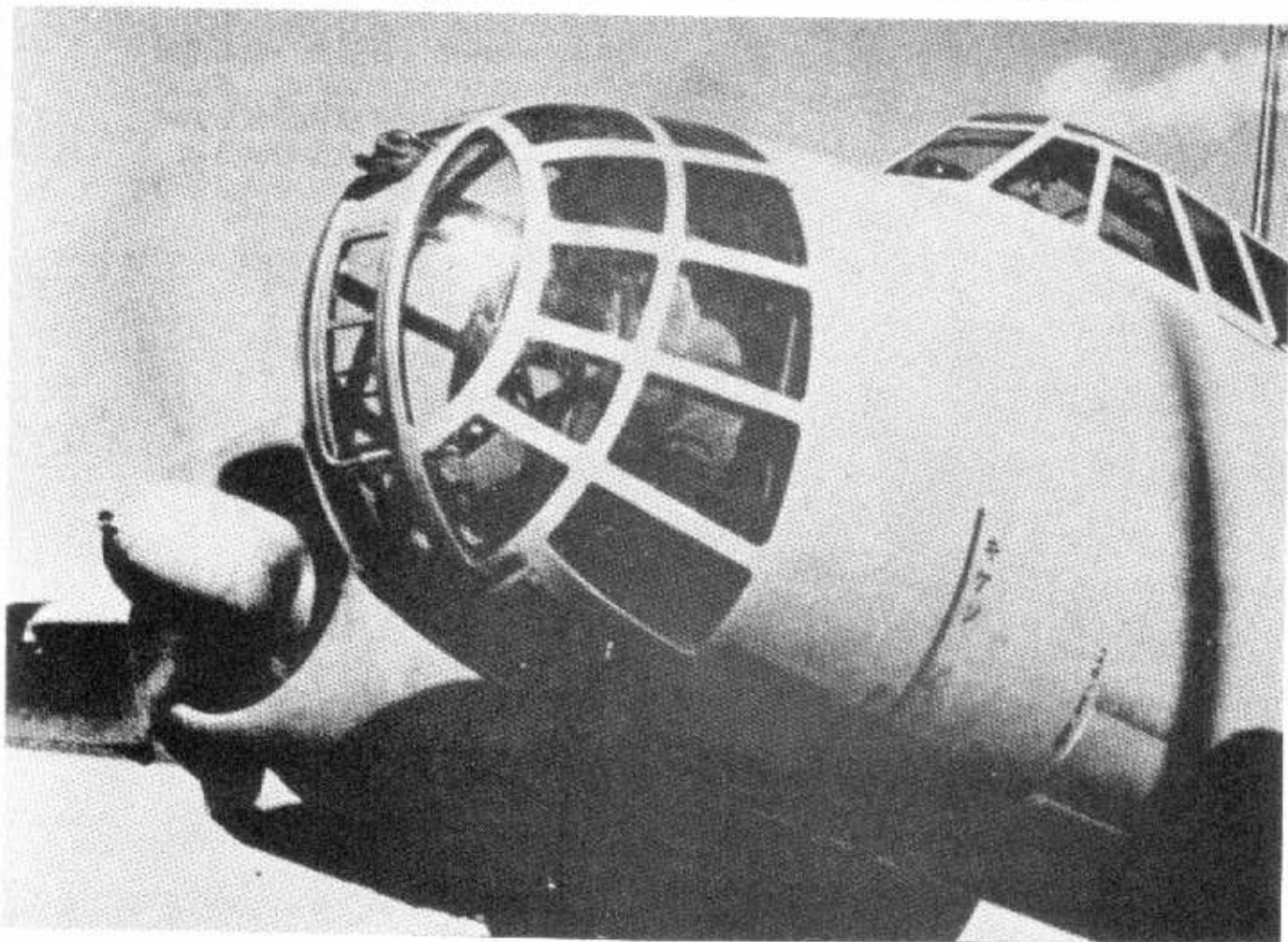
This was generally indicated by a vertical red stripe, with the Kana characters for "Trestle Here" written vertically in red or black beside the line, or in white surmounting the line. Exceptions to this rule were NICKs, which usually carried the line in white with the Kana symbols in red surmounted.

GUN PORTS

These were generally not marked as such; however the KI-61 was a notable exception to the rule, some TONYs using a bright yellow or reddish "star" or "burst" around the gun opening.

I.D. PLATES

Generally these were stenciled on in white or yellow on dark finished aircraft, or in black on natural metal. The practice of stenciled ID plates was not nearly as prevalent within the J.A.A.F. as in the J.N.A.F. (However see "Application and Usages of Numerals," page 97.)



KI-48 LILY. Propeller warning line and red "Danger" marking. The three KANA characters, meaning "Danger," were vertically written on either side. When these characters were written horizontally, the order was often reversed.

(Oishi)



PERRY, showing the early manner of stencilling serial numbers of aircraft. The background color was yellow, black lettering. (J. Wood)



This colorful NATE of the 246th Fighter Sentai sports both yellow wing ID panels and yellow KANAs for no step on the landing gear covers.

(R. Bueschel)

VICTORY MARKINGS



1938-1940

Birds



1942-1945



PROBABLE OR
SHARED KILL



1938-1942

Stars



CONFIRMED KILL



1942-1945



Cherry
Blossoms

NO VEINING
FOR SHARED
OR PROBABLE



1938-1945

Daisies or Mums

VICTORY OR KILL MARKINGS

The use of "kill" marks, or victory symbols such as mission tallies, was not limited to aircraft of the western powers. In fact the practice was rather widespread throughout both the J.A.A.F. AND the J.N.A.F., with *one major exception*. It was rather misleading to try to judge the score of an individual pilot from the amount of tallies appearing on the side of the aircraft that he was flying at a given moment, because, unlike the usual western practice of assigning an aircraft to an individual pilot, the J.A.A.F. rarely did this, resulting in the pilot's flying operationally whatever aircraft was most readily available at a given moment. The exceptions to this were those pilots who were unit leaders or of high enough rank to merit a single aircraft.

The result of the foregoing was that the *aircraft* was credited with a kill, rather than the pilot who was flying when the kill was made. This practice resulted in some very impressive scores appearing on the sides of various aircraft during the war.

There were several methods of representing kills, of which six were most commonly used. These six were: a star, a cherry blossom, a daisy or chrysanthemum, a stylized bird's wing, a stylized plan view of an aircraft, or the actual outline of the type shot down.

The STAR, which originated during the Nomanhan incident, was usually painted red on light grey or light grey-green finish of J.A.A.F. fighters of the period, such as NATE or PERRY. With the advent of the darker camouflages they were painted in white or yellow, as were all types of kill marks.

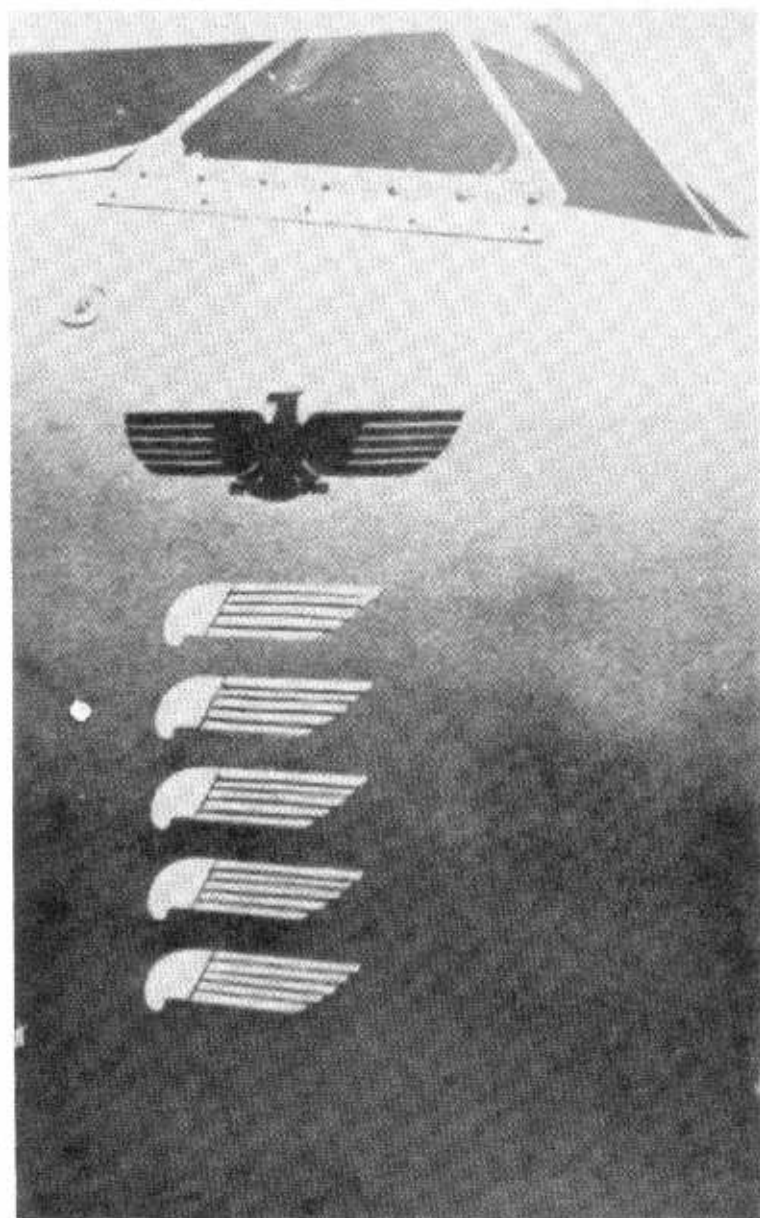
The CHERRY BLOSSOM had two main variations: either as a stenciled outline, or as a solid color with black detailing. In the latter, the interior veining of the design was often omitted in the case of either a "shared" kill or a probable. These cherry blossoms were usually outlined in yellow or pink.

Some units used the stenciled plan view of an aircraft accurately depicting the type destroyed. A variation of this was the use of arrows behind the aircraft outline, crossed much in the manner of "crossbones," two arrows for a confirmed kill, one arrow for either a probable or "shared" kill. Sometimes these "crossbones" took the form of simple rectangular bars instead of arrows.

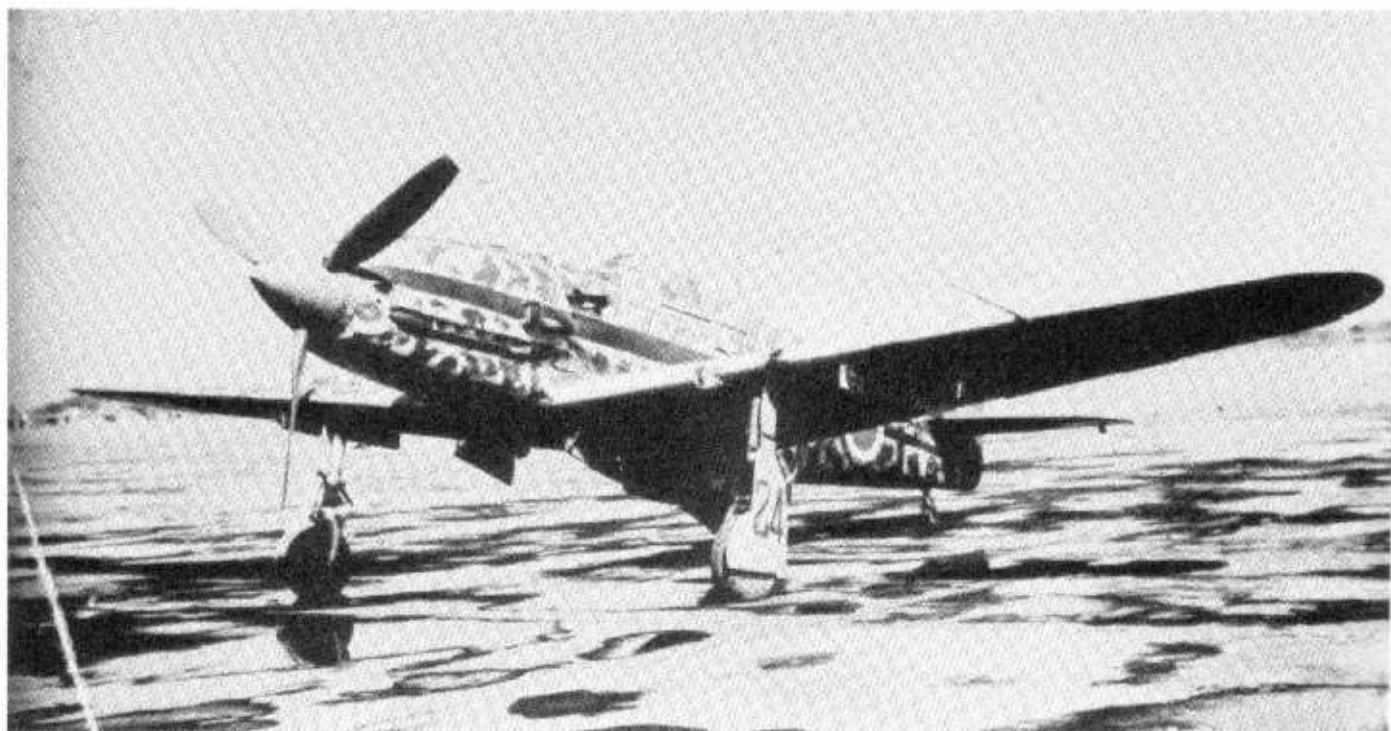
Occasionally several different types of markings would appear on the same aircraft, denoting the different pilots who had made the kills.

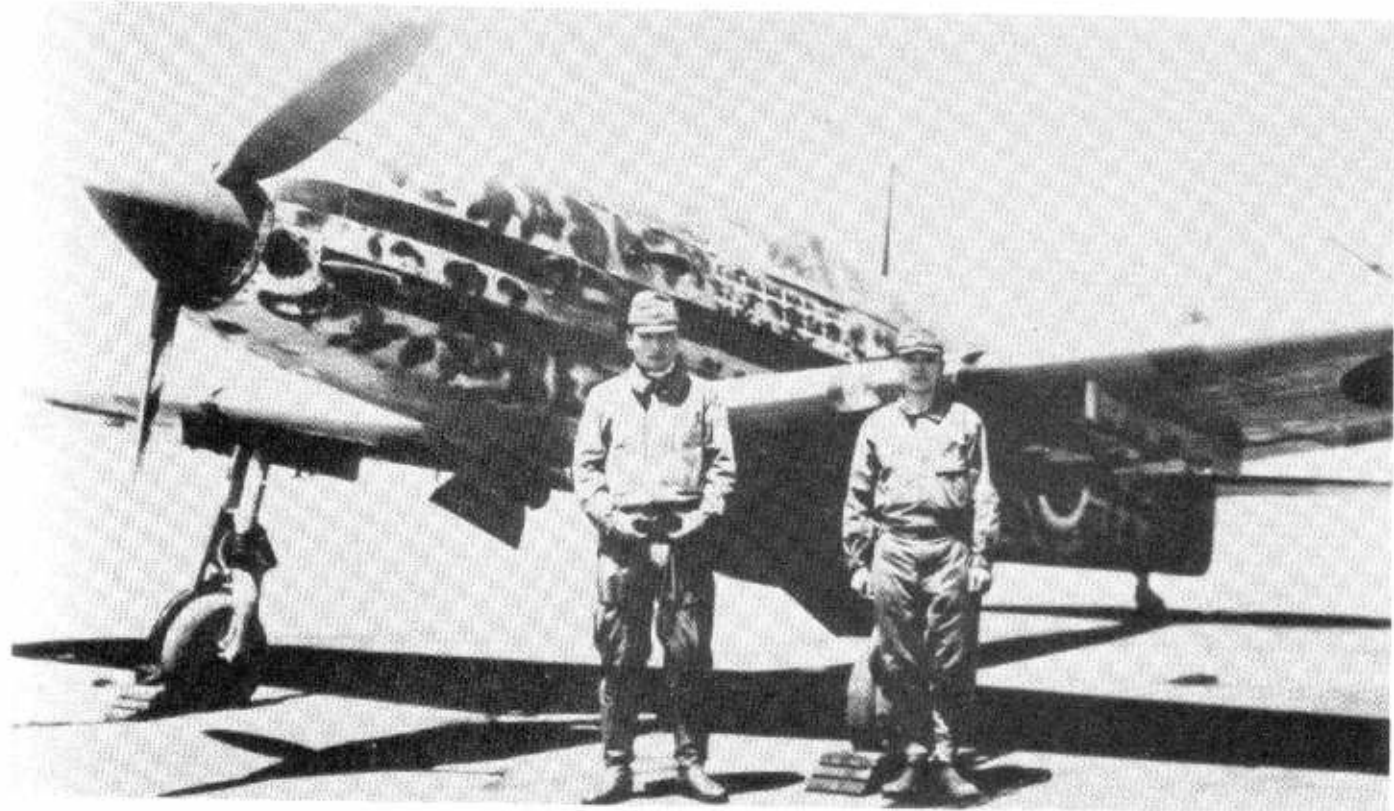
As with the J.N.A.F., the usual practice was to present the kill marks on the port (left) side of the aircraft, under the cockpit, although some two-place aircraft kept them near the rear position.

Sometimes the Kanji, or symbol of a particular pilot, would appear alongside the kills he had earned.

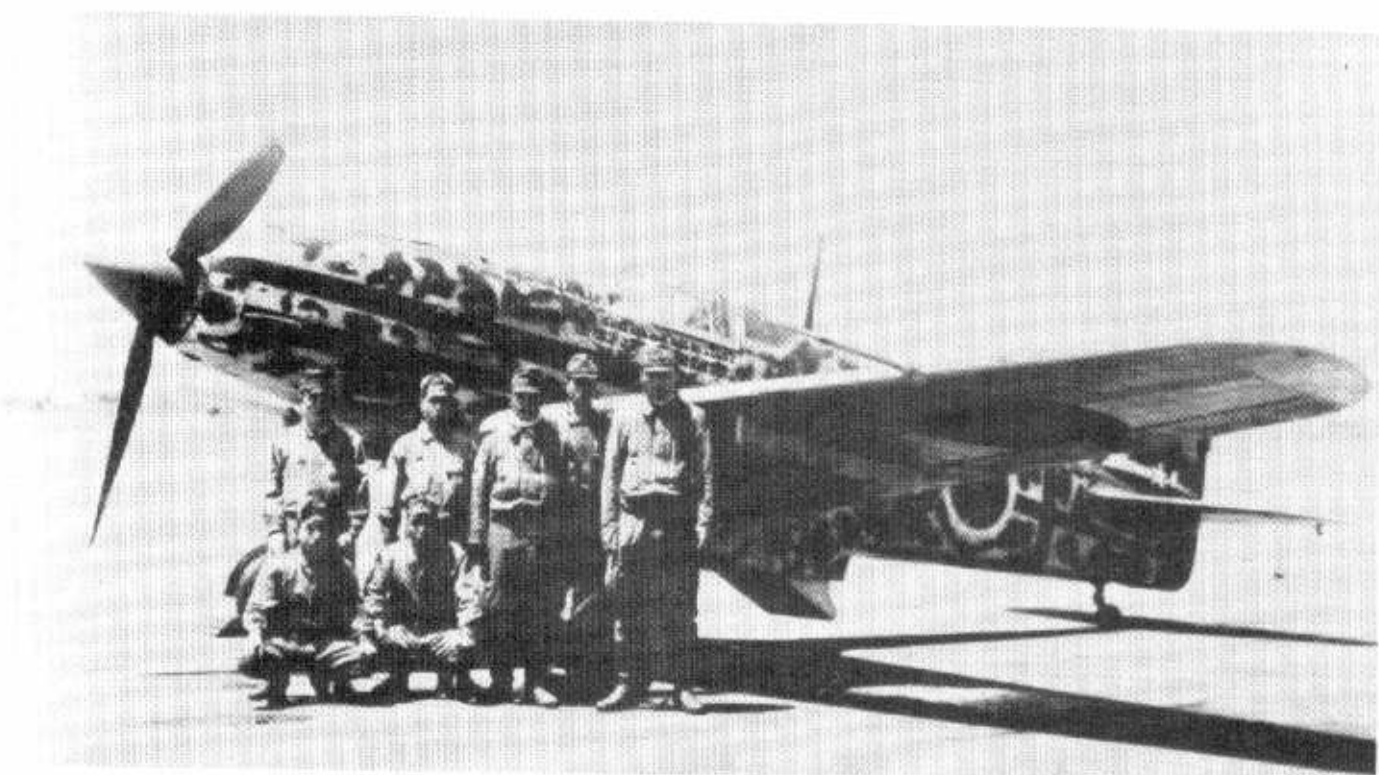


*The personal insignia and kill marks of the great KATO.
The aircraft is a PERRY. (J. Wood)*

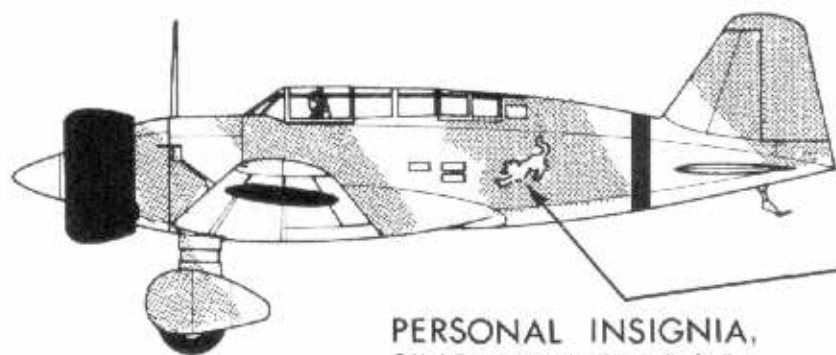




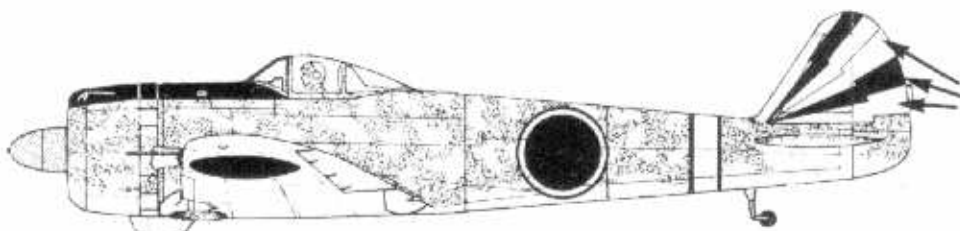
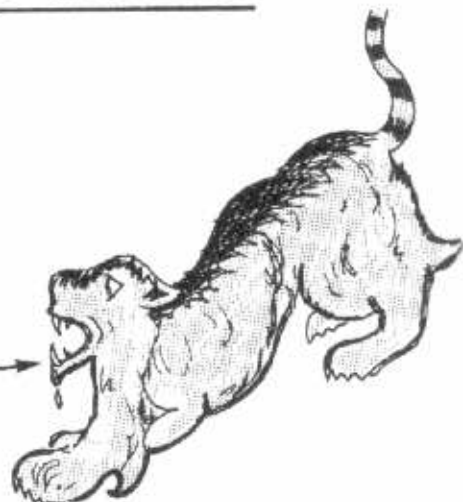
The personal KI-61 TONY of Major Tembico Kobayashi, commander of the 244th Shinten Sentoki, Chofu, 1945. The aircraft carries the HQ Chutai markings. Compare this aircraft with that in plate 40, noting the small differences in the same unit's aircraft. Here the fuselage stripes are in the HQ blue, as are the bands around the wings. The victory markings take the form of silhouettes of the actual aircraft shot down. (Larry Crawford)



PERSONAL BADGES AND MARKS

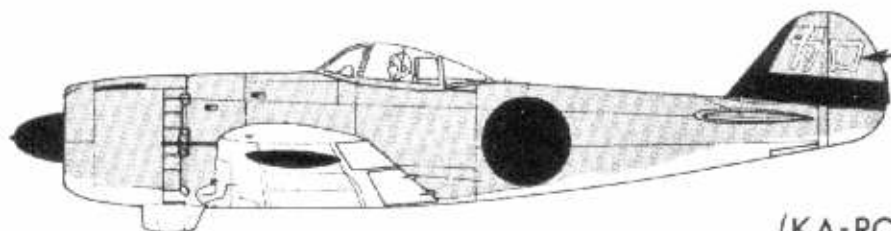


PERSONAL INSIGNIA,
SINO-JAPANESE WAR



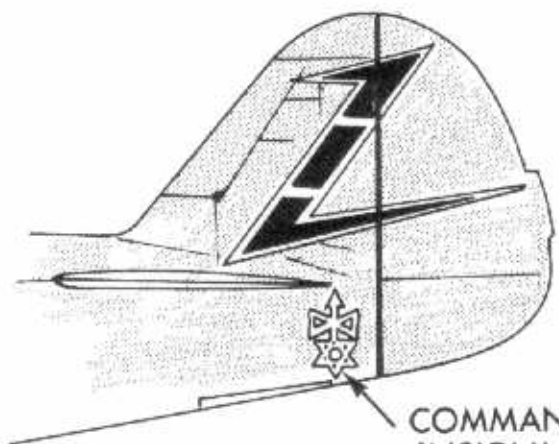
PERSONAL AIRCRAFT,
COMPOSITE INSIGNIA
(Three Chutai Colors)

(Unit Cmdr, 11th Sentai)



PILOT'S INITIALS

(KA-RO, 3rd Chutai, 85th Sentai)



COMMANDER'S
INSIGNIA

(21st Wing, 1944)



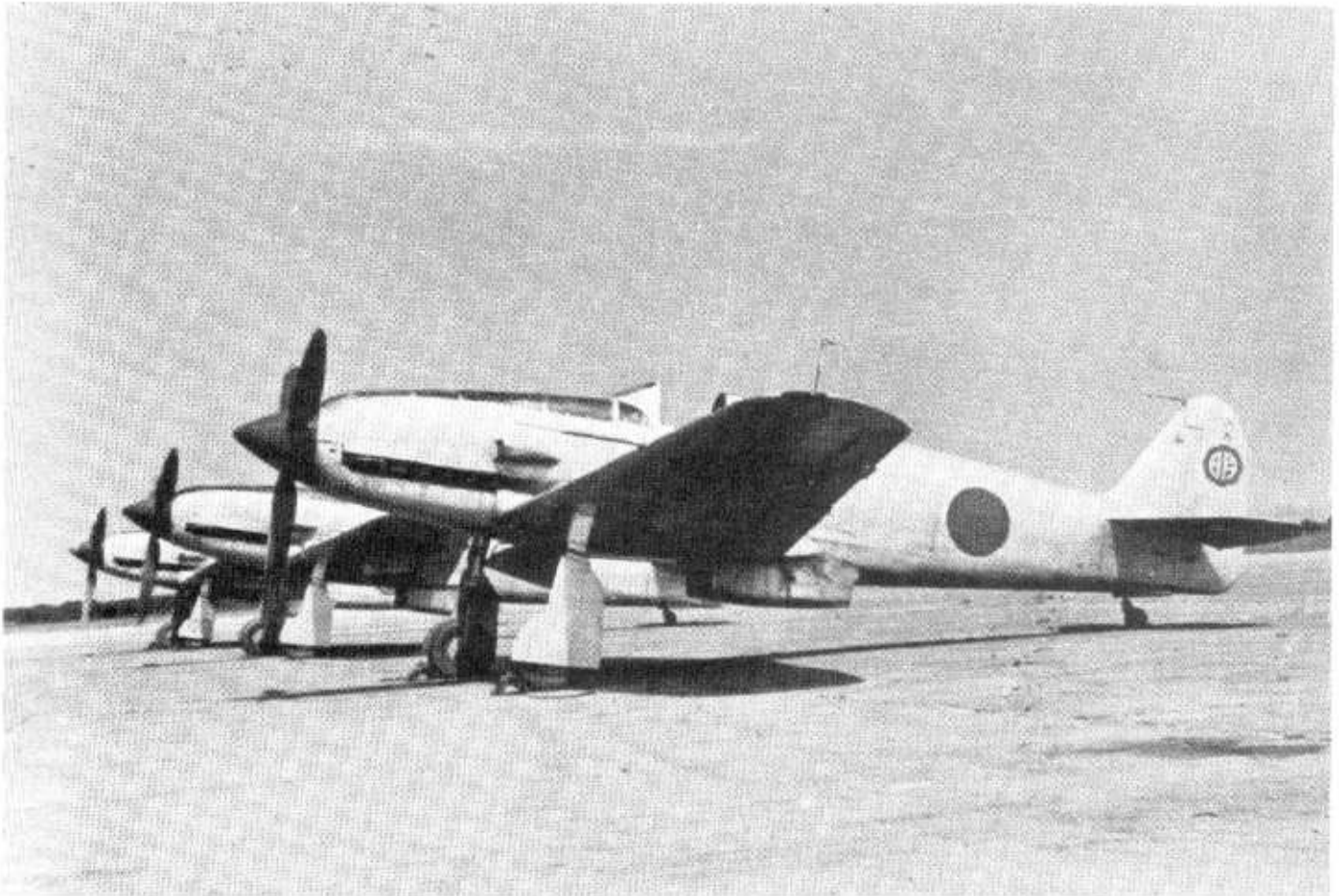
PERSONAL MARK, LATER
ADOPTED AS UNIT BADGE

(KATO, 64th Sentai, 84th D.C.)

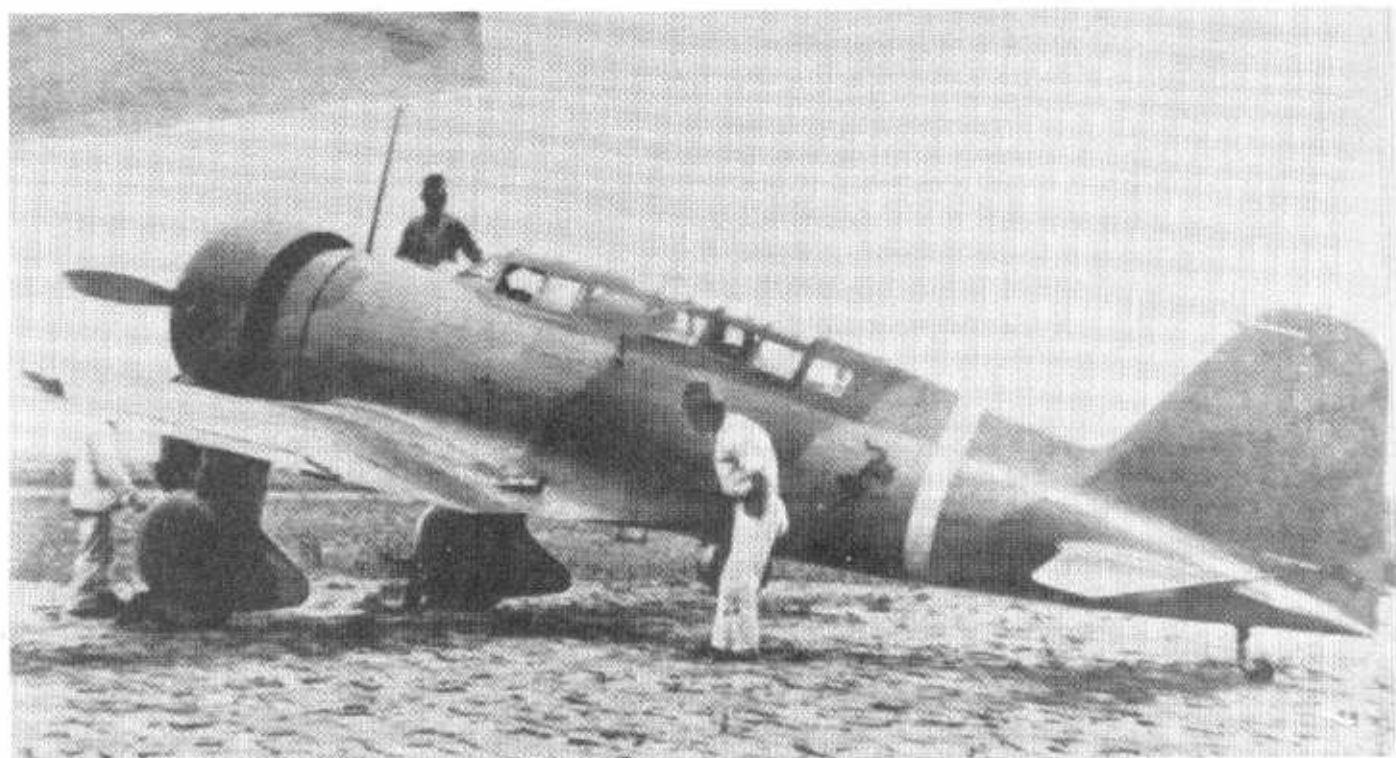
PERSONAL MARKS AND SYMBOLS

During the period 1941 through the last days of the war J.A.A.F. pilots were not normally assigned a personal aircraft within the Sentai, and because of this it was not a general practice to adorn an individual aircraft with a personal symbol. There *were* exceptions, however. Occasionally a pilot, through either attainment of "greatness" status, or as a result of high rank or position of leadership, *did* manage to obtain his own personal aircraft. These were the usually encountered aircraft with personal symbols, which often took the form of a stylized group of Kanji characters, placed usually near the cockpit, in the case of fighter aircraft, and on the engine cowlings with multi-engined aircraft.

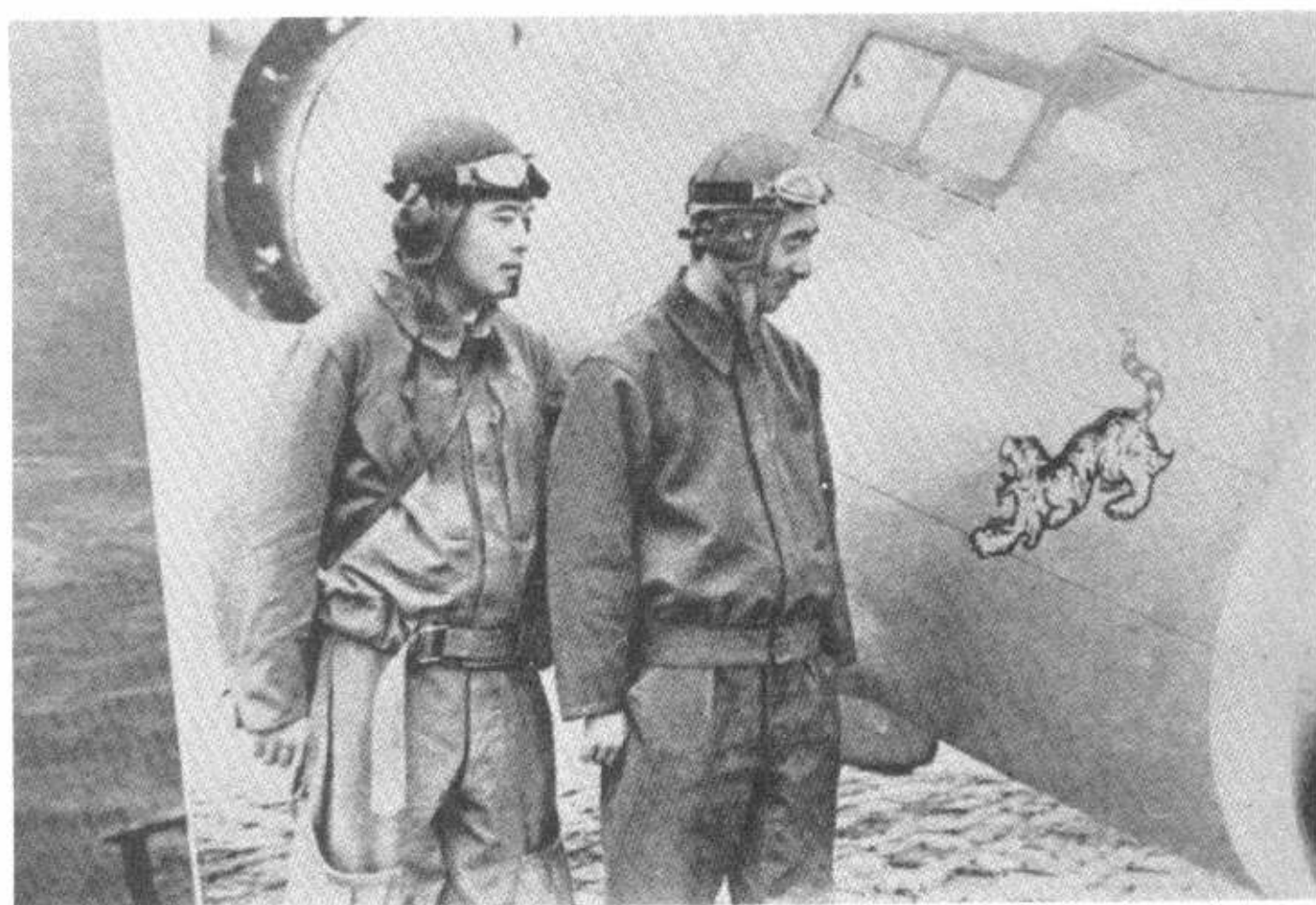
Units operating during the Sino-Japanese war period and immediately before the opening days of the U. S. involvement *did* follow the single assignment practice, usually identifying their aircraft by the use of a Kana character on the vertical stabilizer of their aircraft. This generally represented the first syllable, or sound, of their name, such as "KA" (カ) for Kanamoto, or "SHI" (シ) for Shibusawa. This system had its drawbacks, one of which was the circumstance of two pilots with the same last name. This was generally solved by placing an inverted chevron above the name-symbol of the higher ranking pilot, one chevron for warrant grade, two for a commissioned officer, or if both pilots were of enlisted rank, a single chevron for the pilot with the greater seniority. Occasionally the entire name was spelled out with Kana symbols, eliminating the chevrons.



TONY, AKENO Flying School 1943. Note the personal symbols above the school insignia, which are actually the initials of the pilot.
(Hideya Anda)

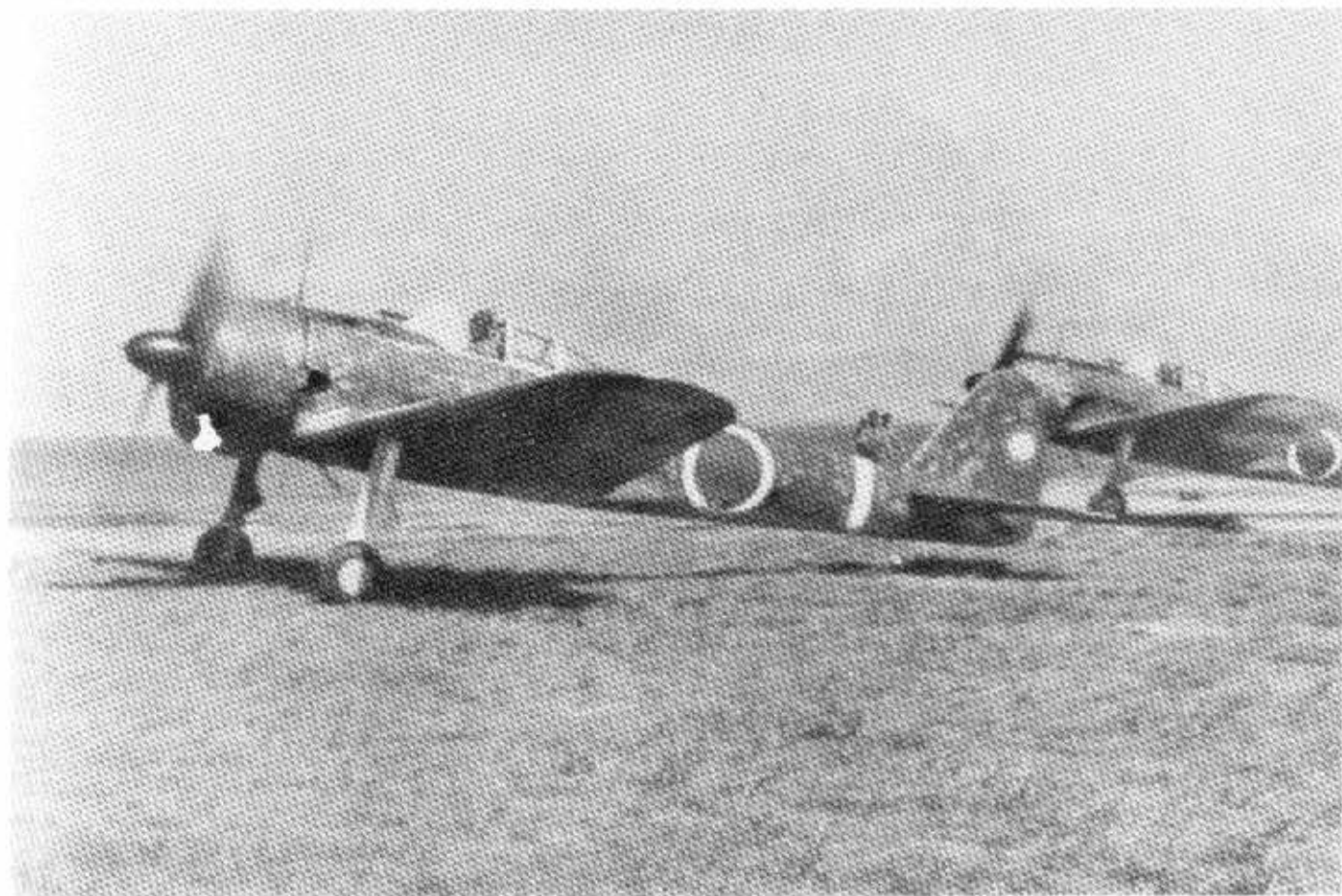


A rare example of personal adornment on J.A.A.F. aircraft. This "pussycat" was carried by a BABS of the 10th Sentai in China, 1938.
(J. Wood)



Another, closer view of the BABS shown above.

(J. Wood)

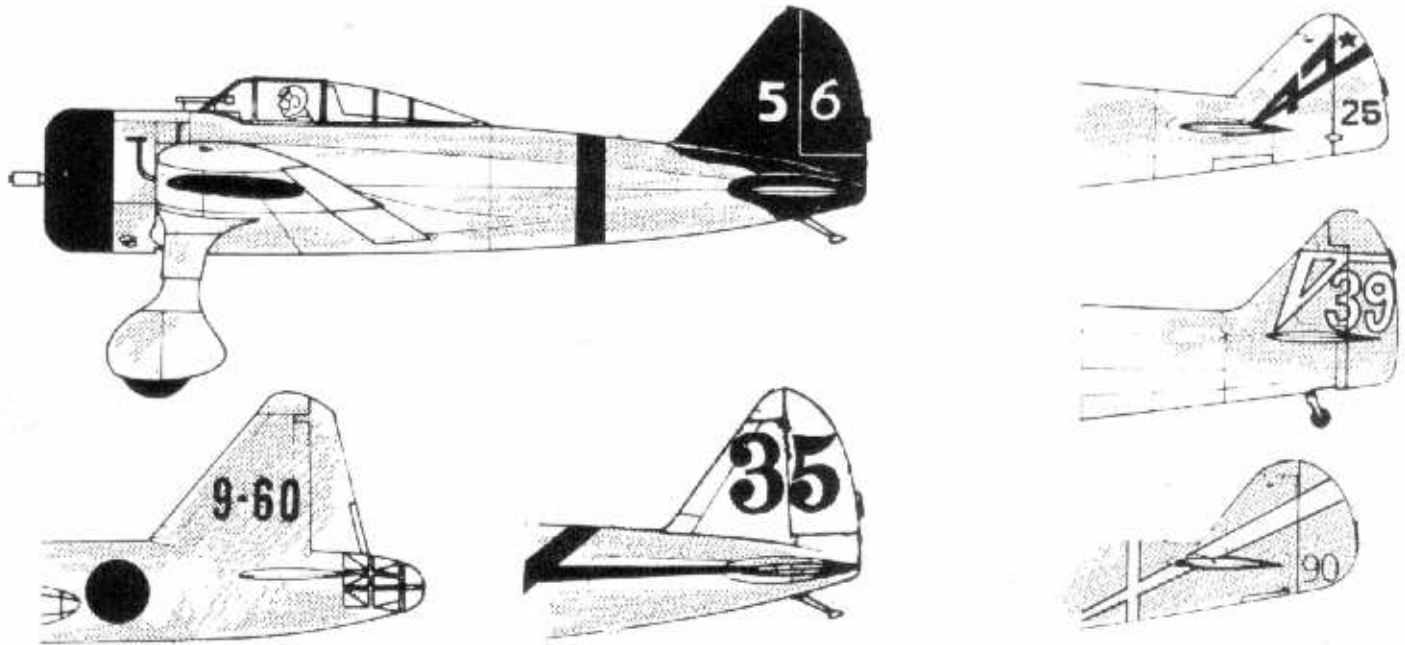


OSCAR I, unit unknown, probably AKENO Flying School. A meticulously applied local blotch type finish, close examination shows that great care was taken in avoiding such areas as the school insignia or Hinomaru.
(R. Bueschel)

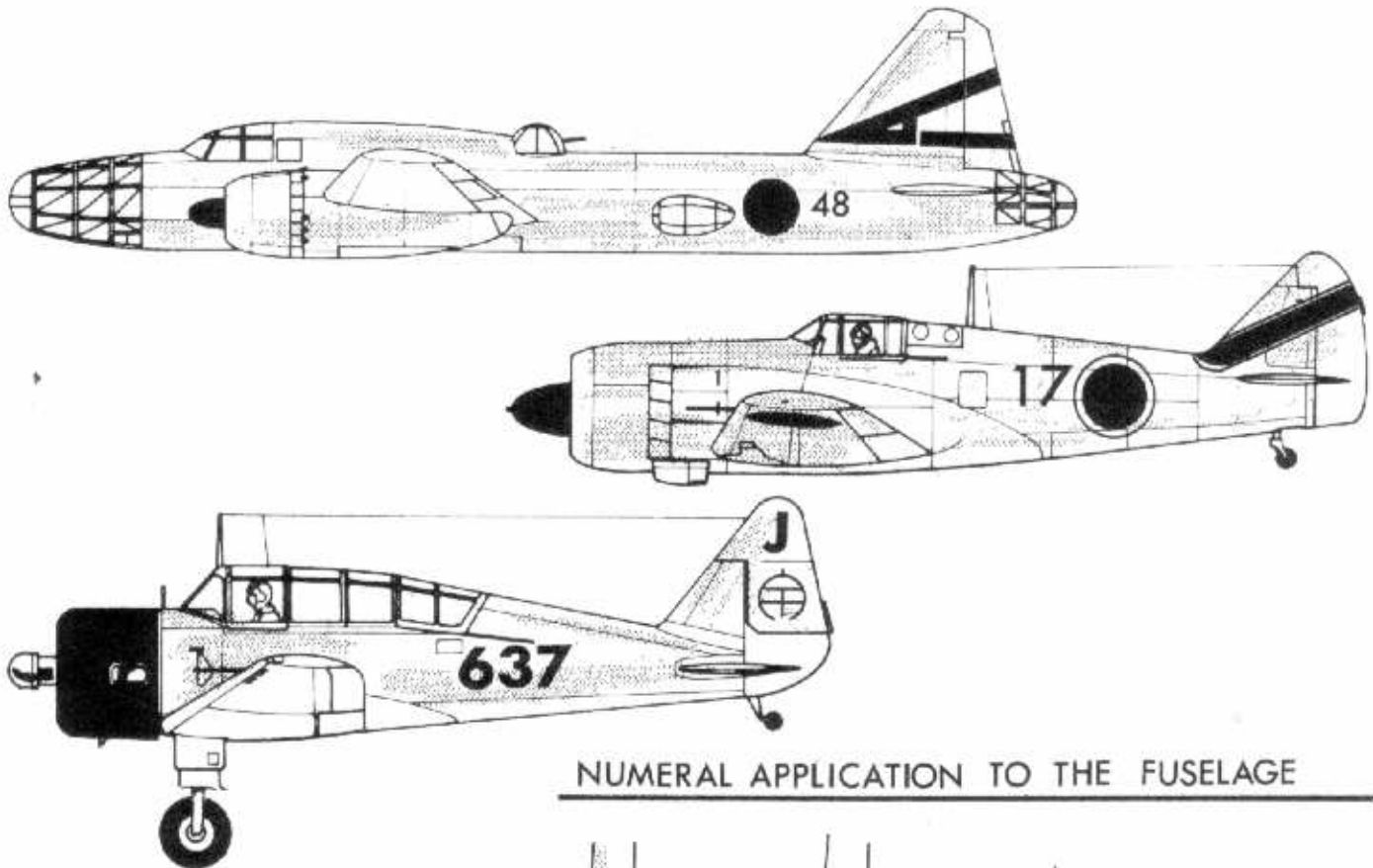


KI-54 in civil markings, with the red and white and red stripe of the non-combatant, plus the international "J" for Japan, besides the individual code. Light grey overall.
(Hideya Anda)

THE USE OF NUMERALS, J.A.A.F.

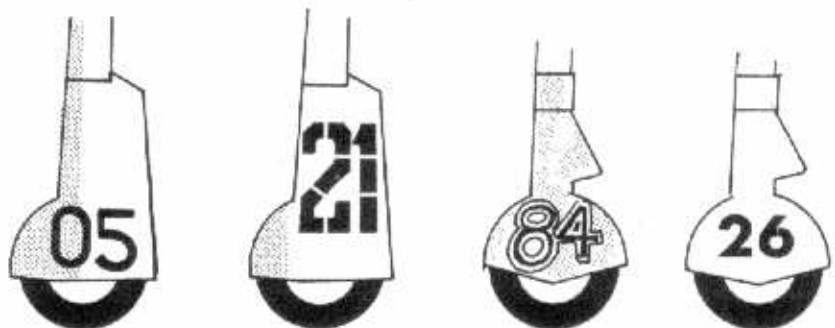


THE MOST PREVALENT PRACTICE OF NUMERAL DISPLAY WAS AS SHOWN THIS PAGE



NUMERAL APPLICATION TO THE FUSELAGE

NUMERALS STYLE VARIED—
CRUDE TO SKILLFULLY DONE



USE OF NUMERALS WITHIN THE J.A.A.F.

As with almost all Air Forces, along with special identifying marks for each unit, aircraft within the unit were sometimes marked with individual numbers signifying their position within that unit. These numbers were usually found in one of four common areas, depending upon Sentai procedure at that time period. These were: the vertical stabilizer, or rudder, the fuselage sides, the landing gear covers, and with radial engined aircraft, the cowling sides.

When numbers were used on the fuselage sides, these were generally painted on in front of the Hinomaru, if one was used, at a given instance. The numbers painted on the landing gear covers were generally a repeat of numbers shown elsewhere on the aircraft, or the repeat of a portion of that number. Exceptions to this were some training aircraft, such as the TOJOs of the Akeno Flying School in late 1944; the instructor's Sentai carried the formation number *only* on the LG cover and was unusual because of the red color in which it was painted.

By far the most common usage was painting the numbers of either the vertical stabilizer or rudder, or both together, as with the NATEs of the Nagano Group (84th DC) during late 1941-42, which painted the aircraft number in bright red across the whole tail surface.

Sometimes the usage of numerals on tail surfaces could be very misleading. For example, some units used number combinations as Sentai markings, incorporating the aircraft number into the Sentai mark, such as the 5th Sentai (KI100), PEGGYs of the 98th Sentai, NATEs of the 10th DC, and FRANKs of the 72nd Sentai.

At the factory a simple block type letter was usually used, and this was almost always stenciled. In the field the exact opposite applied. The styles ran the gamut from very crude and hastily applied formation markings, to very professionally applied "works of art," depending upon the quality of the available artists and, of course, time.

Unlike the U.S. practice of assigning a specific number within the unit to an aircraft, this number being transferred to each succeeding aircraft within that position, the J.A.A.F. never assigned the same number twice within one unit, numbers of wrecked aircraft not being used a second time around. This in itself could be very misleading, giving a completely erroneous picture of a unit's strength to the enemy.

In training units numbers were occasionally applied to the bottom surfaces of the wings as well as the fuselage sides, especially in the primary units. This was eliminated after the order to camouflage all aircraft was given. These numbers were usually in conjunction with Kana characters.

During the early days of the war, Kana characters were used in some units in the place of numbers, each character being assigned a place within the Sentai. The 12th Sentai, flying BR-20's was a prime example of this practice.



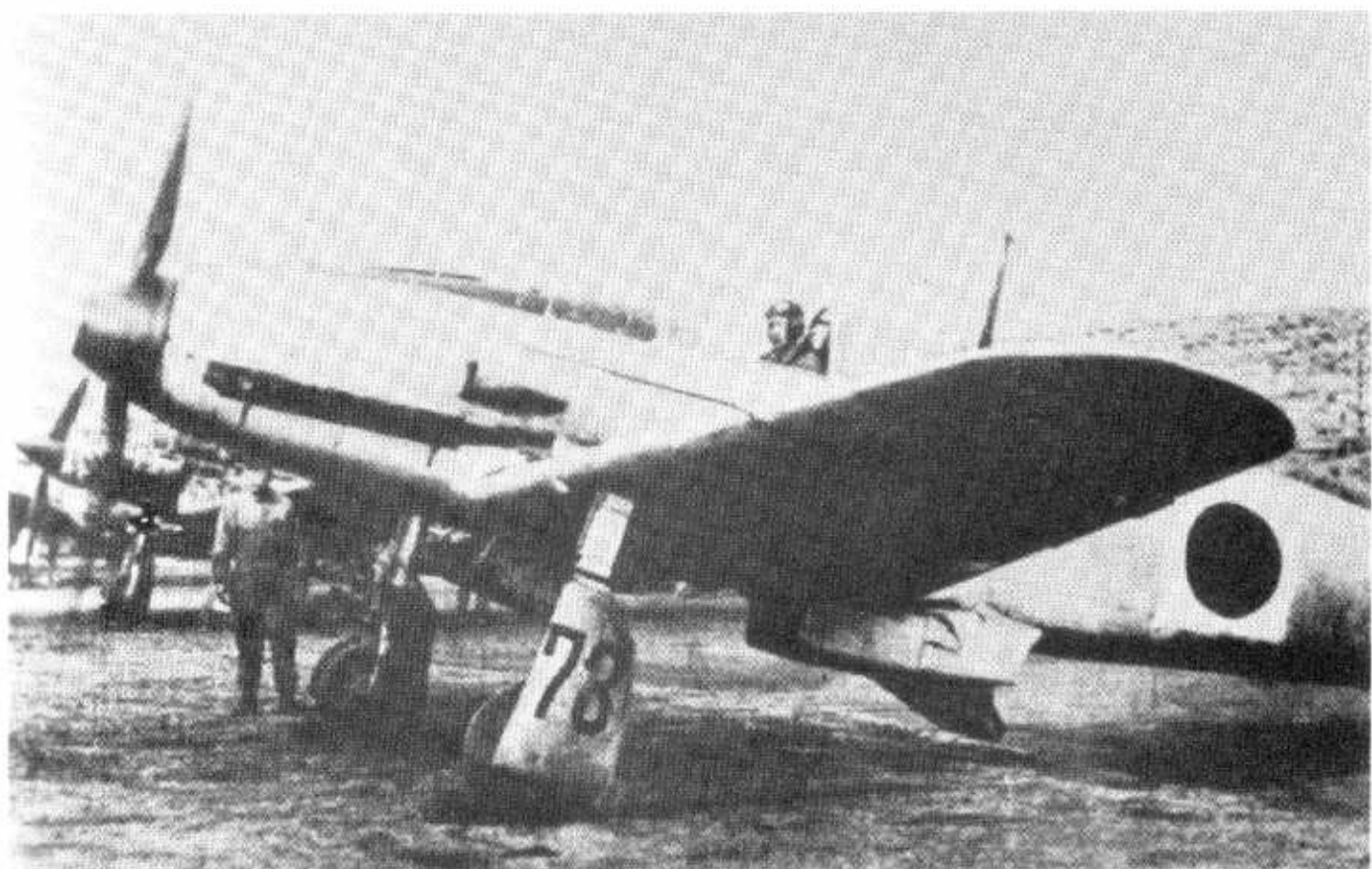
KI-45 NICK III, 53rd Sentai, 2nd Chutai, Home Defense, 1945. The numeral "65" on the rudder is about as hurriedly painted as one would find during the period.

(Oishi)



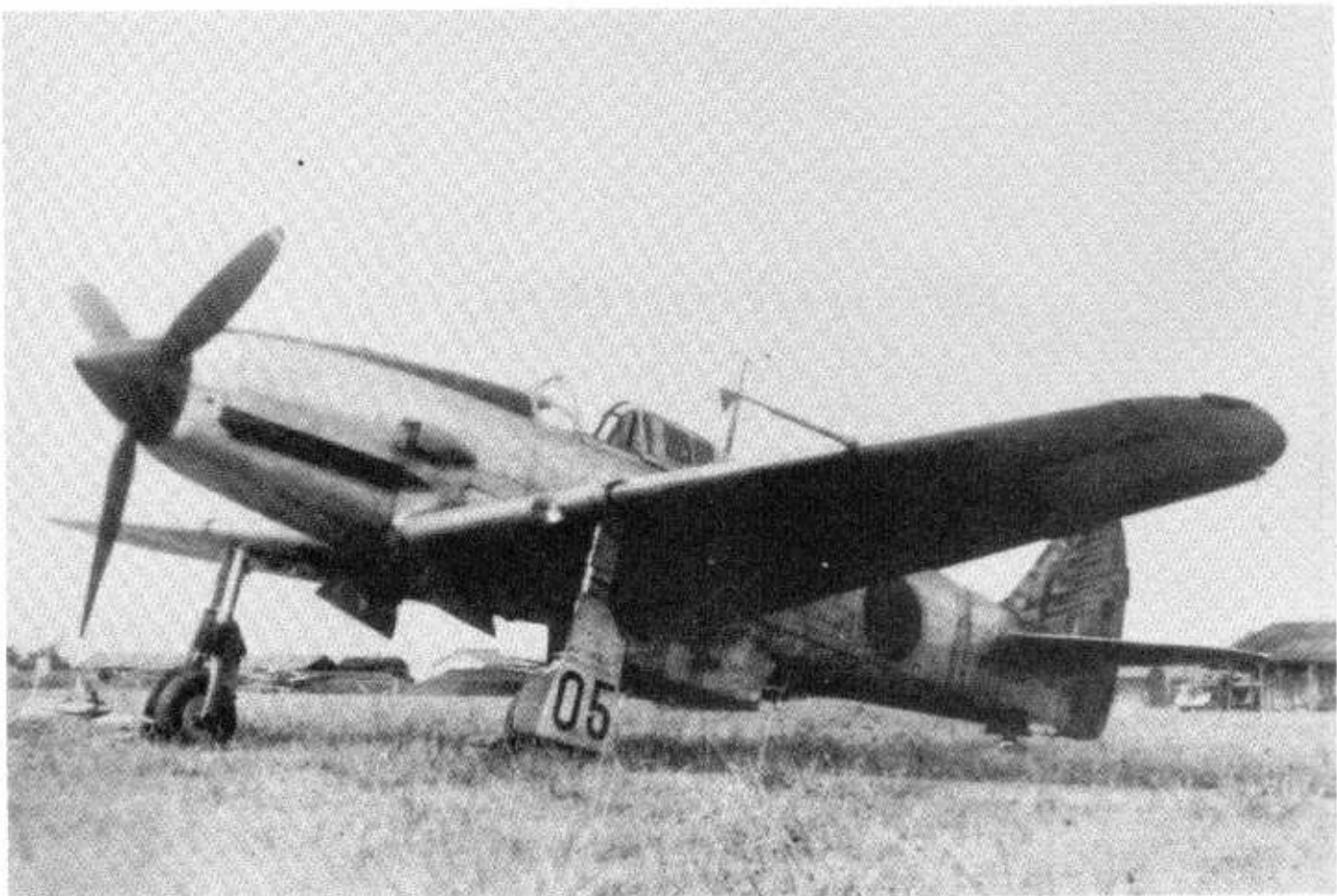
Unit Unknown, 1945.

(R. Bueschel)



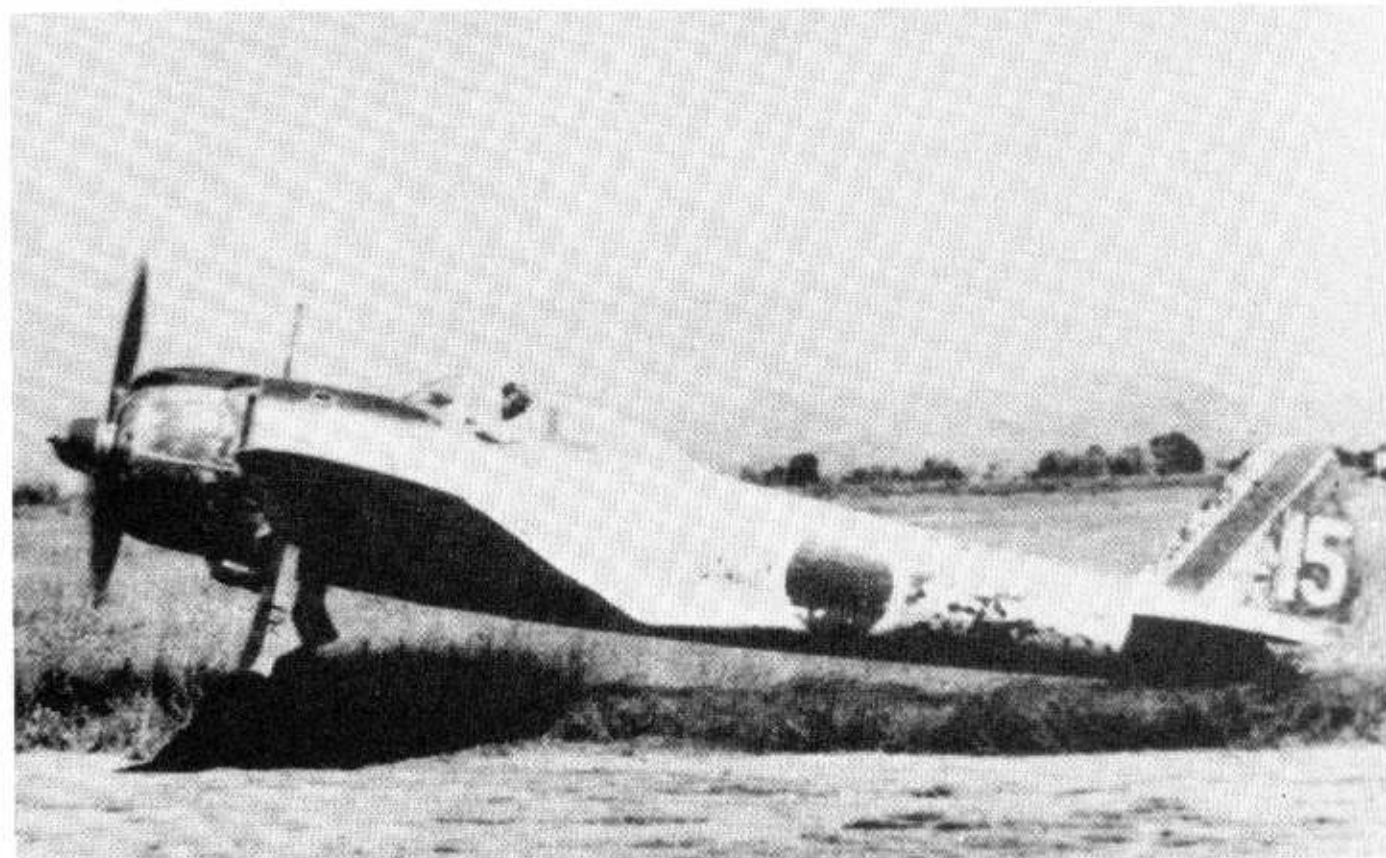
TONY, 59th Fighter Sentai, 1945.

(R. Bueschel)



TONY, 37th Fighter Sentai, Japan, 1945.

(R. Bueschel)



OSCAR, 25th Sentai, 2nd Chutai, showing extreme weathering.

(R. Bueschel)

3

UNIT MARKINGS

Application and Practices of Unit Markings – Regular Units – Independent Units – High Echelon Units – Training and Miscellaneous Units – Special Attack Units

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SENTAI IDENTIFICATION PRACTICES

As was discussed earlier, with few exceptions all J.A.A.F. aircraft carried distinctive markings which identified both the Sentai, or unit, to which it belonged, and in most cases even the Chutai, or sub-unit. The vast majority of these markings were carried on the vertical tail surfaces. Some Sentais however carried their ID markings on the fuselage. This was mainly found during the early days of the war, and usually took the form of longitudinal striping on the aircraft.

Most Sentai markings were an extremely stylized rendition of either the particular number of the Sentai, or a Kanji character which represented some facet of the traditions of the unit. A fine example of the former was the "V" of the 5th Sentai late in the war, and the latter, the tiger of the 82nd Sentai, and also the 18th Independent Chutai which used the same symbol. The basis of this was the ancient fable about the tiger which can run 1000 miles, fight a battle, and run 1000 miles home, still untired.

Within the Sentai each Chutai was usually identified with a color, with either the Sentai marking in that color, or with some uniform portion of the aircraft painted in that manner. Although over twenty varied color assignments have been recorded, by far the most commonly encountered system was: HQ Chutai, Blue; 1st Chutai, White; 2nd Chutai, Red; 3rd Chutai, Yellow; and when a 4th Chutai was employed, Green. This particular system was used by over sixty Sentais during the war with consistency.

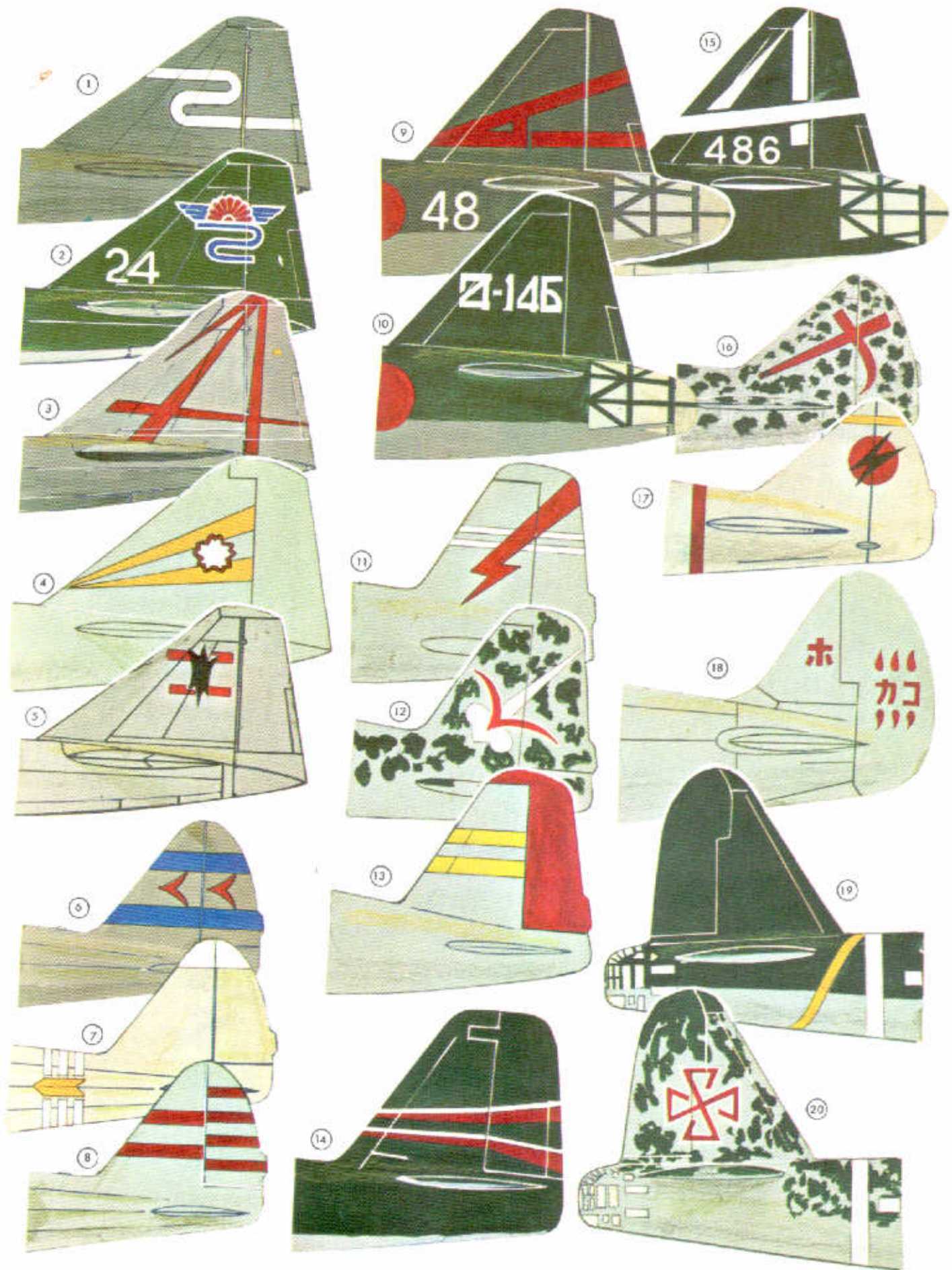
A few Sentais used a stripe-system rather than color, which was the 1, 2, and 3 stripe system for the 3 Chutais, usually in the Chutai color, or all the same color.

Another fairly common stripe system was the use of vertical, horizontal, and diagonal striping for the 1st, 2nd, and 3rd Chutais.

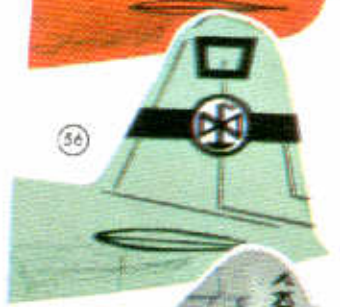
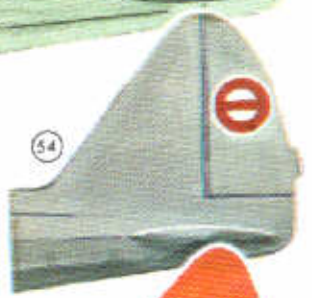
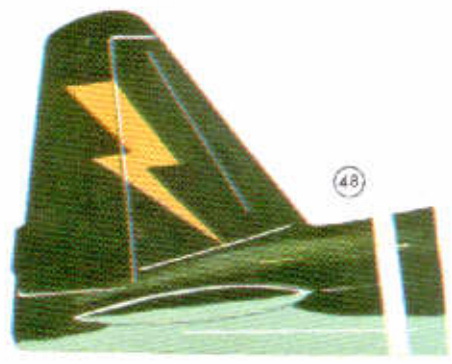
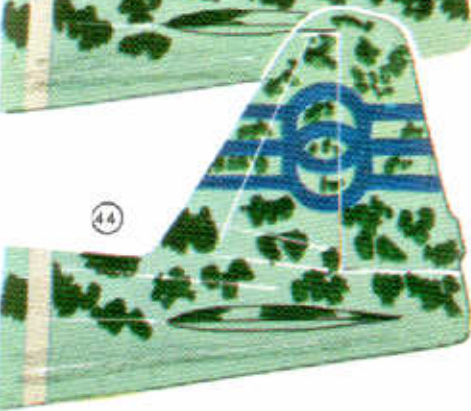
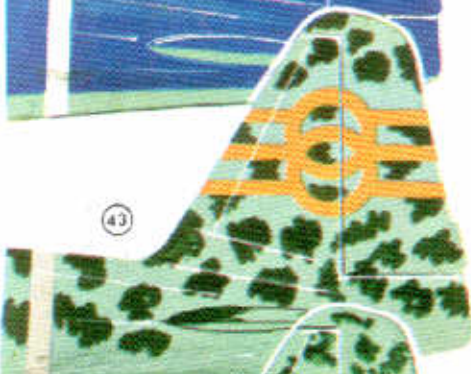
The 3rd most common type of Sentai identification system was the use of numbers, such as some bomber Sentais, which used a "100-200-300" series to identify their Chutais. A variation of this was the use of random blocks of numbers, such as: 1 through 90, 1st Chutai; 100 through 600, 2nd Chutai; etc.

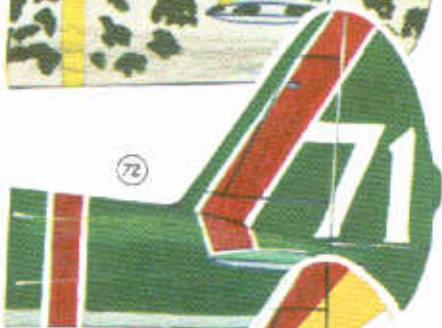
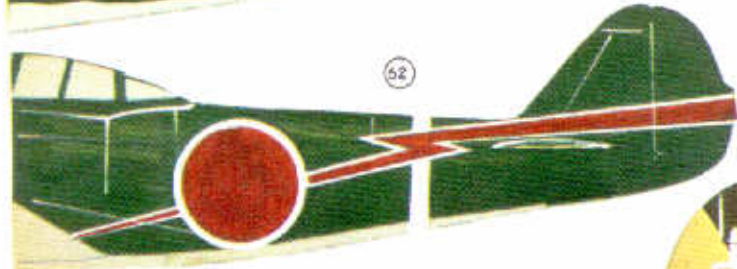
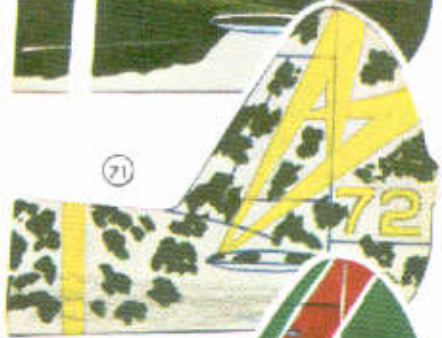
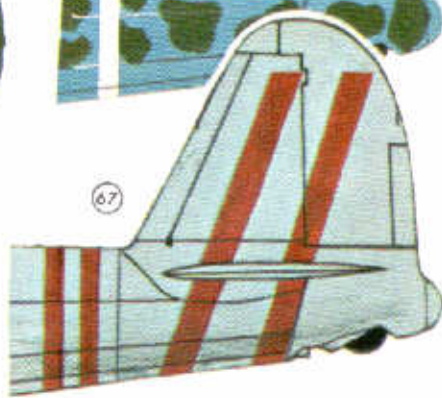
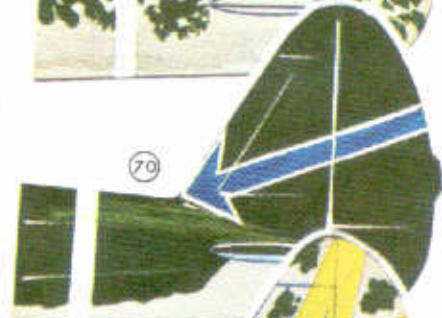
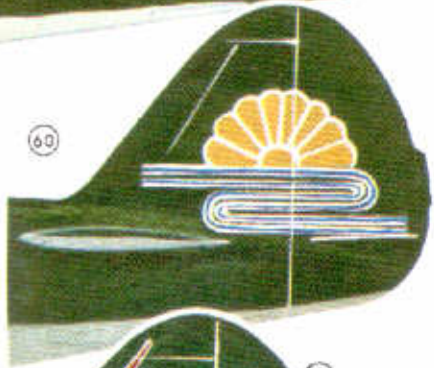
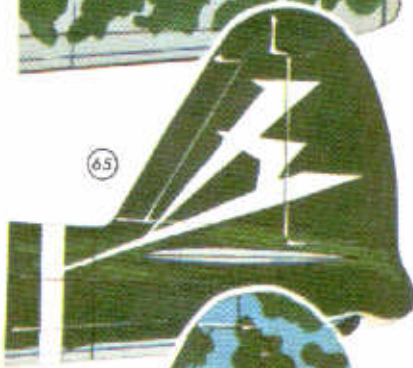
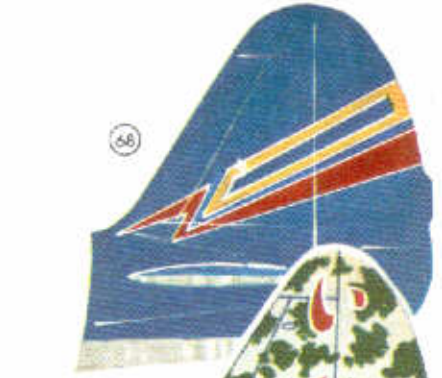
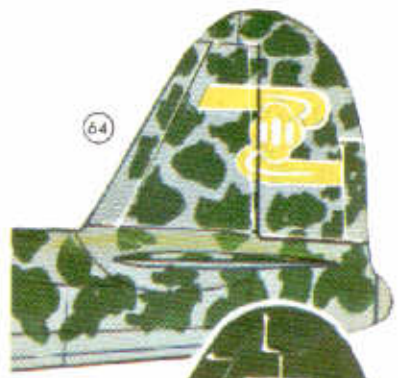
The most common area to be color coded, especially on fighter aircraft, was the spinner, although some Sentais utilized the whole vertical tail surfaces in the Chutai color.

The historian must exercise extreme caution in determining the meanings or purposes of markings found on Japanese aircraft of the period, because, as one can see from the foregoing, all systems were very loosely organized, if at all, with some Sentais having widely varied markings for each Chutai. This was particularly true in the Sentais where several different types of aircraft were being used by the same unit.

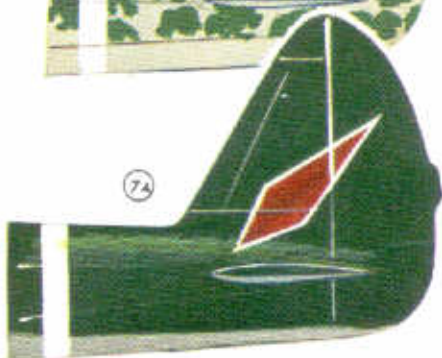
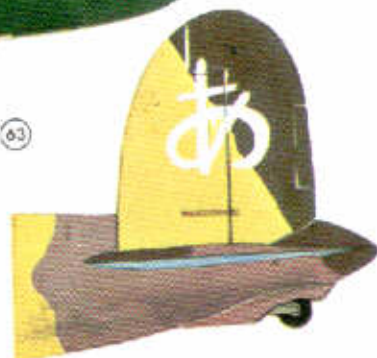








1st Chuta:	あ	い	う	え	お
2nd Chuta:	か	き	く	け	こ
3rd Chuta:	さ	し	す	せ	そ
4th Chuta:	た	ち	つ	て	と
5th Chuta:	な	に	ぬ	ね	の
6th Chuta:	は	ひ	ふ	へ	ほ



UNIT MARKINGS

1. 10th Recon Sentai, Philippines, 1943. (DINAH)

All Chutais were marked in the same manner. The tail symbol is that of the River Fuji, and the unit was first organized in 1938, at Nongko Manchuria.

2. 16th Direct Command Chutai, Japan, 1944-war's end. (DINAH)

This so-called "Chrysanthemum and River" marking was perhaps the most honored of all the J.A.A.F. tail markings, as the complete "Mum" was the symbol of royalty. To be permitted the use of a half-round denoted extreme honor, and loyalty to the Emperor. It was also used by 22nd Sentai, 15th Direct Command Wing, and 18th Wing HQs Recon Sentai.

3. 17th Direct Command Chutai, Japan, 1944-1945. (DINAH)

The design "17," of this unit was often confused with that of the 14th Bomber Sentai, which was quite similar in design.

4. 55th Direct Command Chutai, Manchuria, 1942-1944. (DINAH)

The 55th was formed from the 3rd Chutai of the 15th Sentai; hence the similar marking.

5. 2nd Recon Sentai, Manchuria, 1943-1944. (DINAH)

The stylized swallow on the tail marking symbolized the ability to fly far and fast and return, and the two red stripes were to denote the 2nd Sentai. There were no separate Chutai markings.

6. 77th Fighter Sentai, 2nd Chutai, Burma, 1940-41. (NATE)

Chutai colors were: HQs, blue horizontal stripes; 1st, white; 2nd, red; and 3rd, yellow. This same Sentai marking also underwent several design changes during its career, but always maintained the seagull theme.

7. 204th Fighter Sentai, Burma, 1944-1945. (NATE)

Chutai colors were: 1st, white arrow; 2nd, red arrow; and 3rd, yellow arrow. This is the 3rd Chutai leader's aircraft.

8. 24th Fighter Sentai, 2nd Chutai, Dutch East Indies, 1940. (NATE)

Chutai colors were: 1st, white stripes; 2nd, red; and 3rd, yellow. The design is that of the numeral 24 (2 and 4).

9. 61st Sentai, Formosa, 1945. (PEGGY)

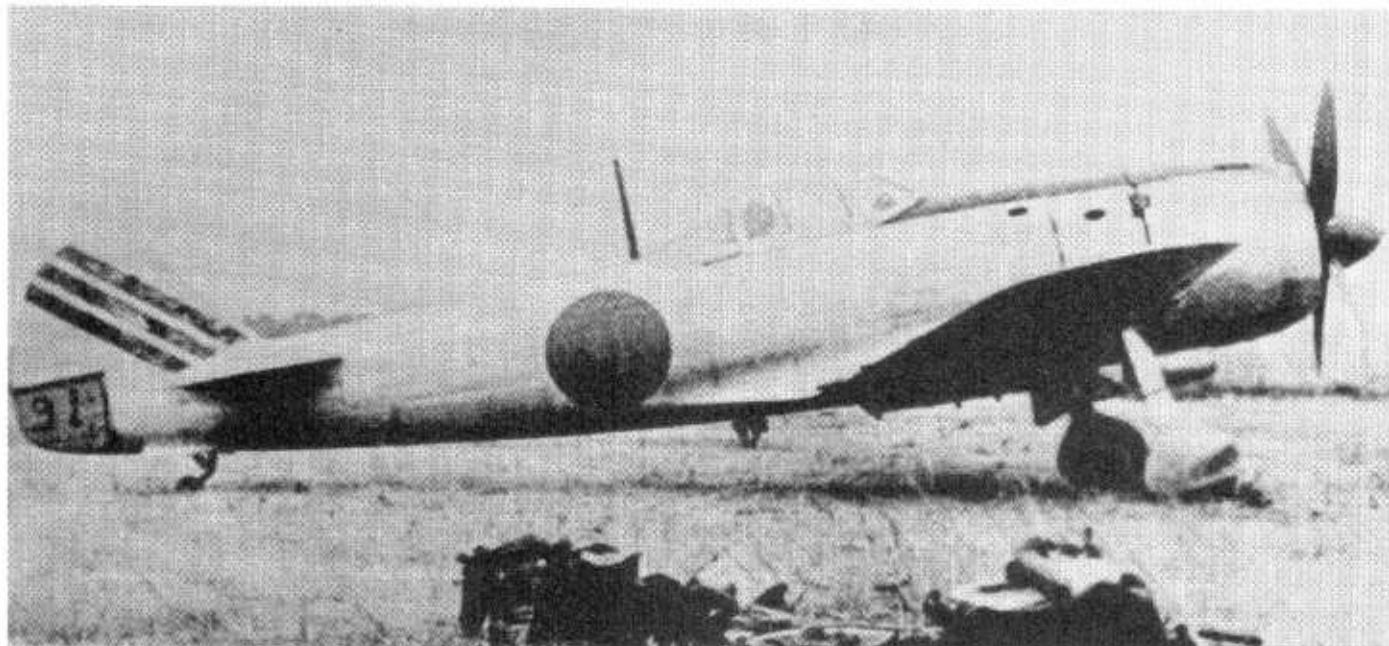
All Chutais used the same marking. This is a classic example of the use of numerals as formation identification.

10. 74th Bomber Sentai, 1st Chutai, Japan, 1945. (PEGGY)

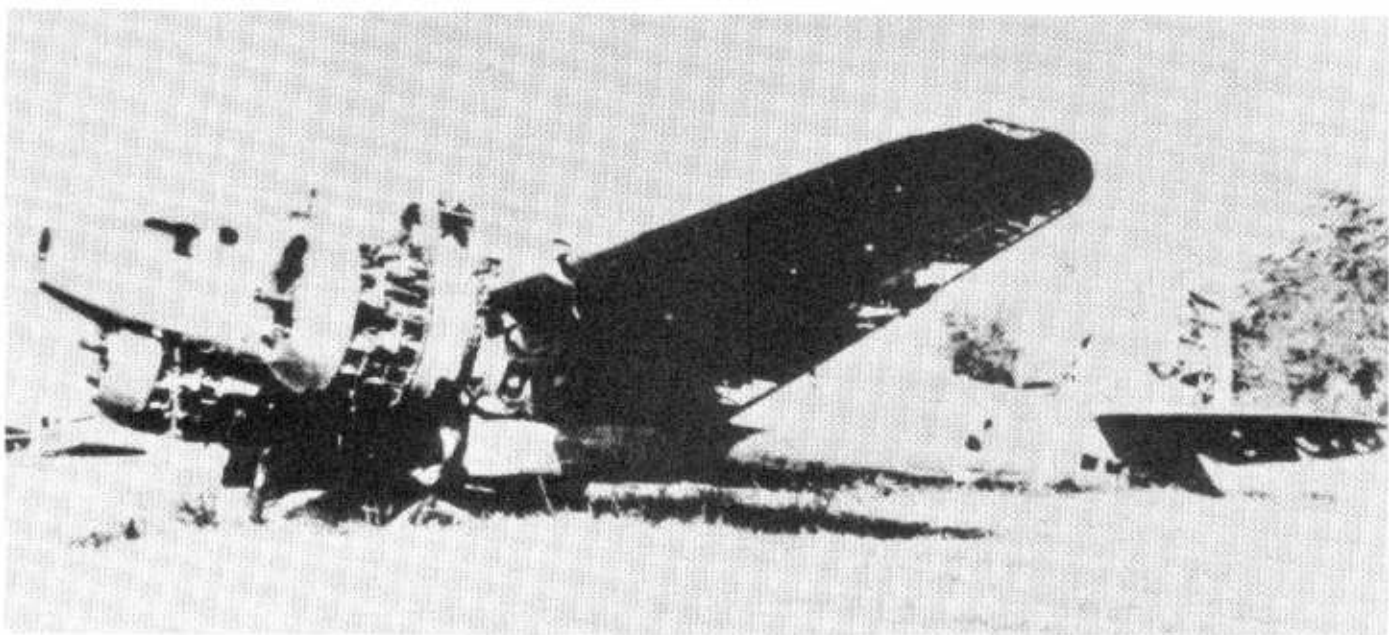
Here numerals were used to denote Chutais. 100 series were 1st Chutai, 200 series the 2nd, and 300 series the 3rd Chutai.

11. 31st Attack Sentai, 2nd Chutai, Burma, 1940-1942. (ANN, OSCAR)

Chutais were noted by the number of horizontal white stripes behind the Sentai flash. At a later period the Sentai became a fighter Sentai, and upon being equipped with OSCARS, it retained the same insignia.



FRANK, 73rd Sentai, 2nd Chutai, 1944, China. The majority of 73rd Sentai FRANKs were finished dark green upper surfaces, and usually with the individual aircraft number on a white field rather than the yellow shown here. (R. Bueschel)



NICK, 45th Sentai, Philippines, 1945.

(R. Bueschel)

12. 32nd Sentai, 2nd Chutai, Manchuria, 1939-1942. (ANN)

Chutais were noted by the color of the chevron, white, red, or yellow, for the 1st, 2nd, or 3rd Chutais.

13. 90th Attack Sentai, 1st Chutai, 1938-1940, French Indo-China. (ANN)

Chutais were identified by the color of the rudder; 1st, red; 2nd, yellow; and 3rd, plain. White or yellow horizontal stripes denoted leadership.

14. 28th Fighter Sentai, Homeland, 1944-1945. (RANDY)

15. 14th Bomber Sentai, Japan, 1944-1945. (PEGGY)

Chutai colors were; 1st, white; 2nd, red; and 3rd, yellow. The design denoted the numeral 14.

16. 9th Fighter Sentai, 2nd Chutai, China, 1938-1945. (NATE, OSCAR, TOJO)

The battleaxe of the 9th was carried in four Chutai colors; HQs, blue; 1st, white; 2nd, red; and 3rd, yellow. Also, the fuselage stripe was in the Chutai color.

17. 246th Fighter Sentai, 3rd Chutai, Japan, 1945. (TOJO)

Here, Chutais were identified by the striping on the rudder; the 1st, white striping; 2nd, no striping; and the 3rd, yellow.

18. 13th Fighter Sentai, Japan, 1938. (PERRY)

The KANA symbol on the vertical stabilizer is the formation numeral of the aircraft.

19. 95th Bomber Sentai, 3rd Chutai, Manchuria, 1944. (HELEN)

Chutais were noted by the color of the diagonal wound ribbon. 1st, white; 2nd, red; and 3rd, yellow. This Sentai was known as the Rising Dragon Sentai.

20. 74th Sentai, 2nd Chutai, Japan, 1944-1945. (HELEN)

Chutai colors were: white, red, and yellow, for the 1st, 2nd, and 3rd. The design was an involvement of four numeral sevens, or "74."

21. 34th Bomber Sentai, 2nd Chutai, Indo-China, Burma, New Guinea, 1942-1944. (LILY)

Chutai colors were: 1st, white; 2nd, yellow; and 3rd, red. The design is from the KANA for "34," (三十四).

22. 90th Light Bomber Sentai, 2nd Chutai, China, Malay, Sumatra, 1941-1945. (LILY)

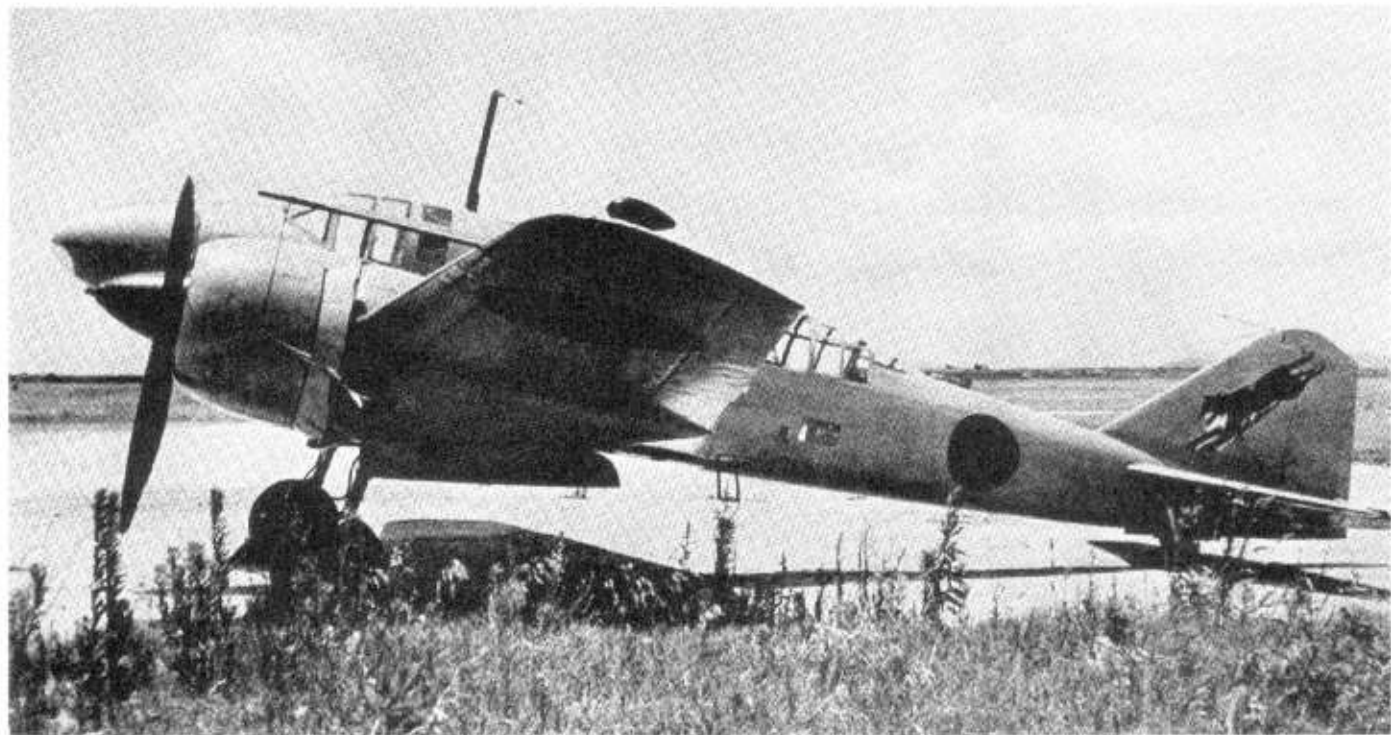
Three horizontal white stripes are individual aircraft formation markings, in this case, the 3rd aircraft of the 1st Shotai of the 2nd Chutai. Chutai colors were: 1st, white; 2nd, red; 3rd, yellow. Sentai insignia is an abstraction of the arabic numerals 90.

23. 75th Medium Bomber Sentai, 2nd Chutai, Malay, through Japan, 1942-1945. (LILY)

Chutai colors were unusual in that blue was used for other than a HQs color. Colors were: 1st, red; 2nd, blue; 3rd, yellow. Sentai design was an abstraction of the numeral 75.

24. 8th Bomber Sentai, 2nd Chutai, Burma, 1943. (LILY, DINAH)

Known as the "OCTOPUS EIGHT" to its members, the 8th was one of a few Sentais which carried a mixed complement of aircraft by de-



DINAH I, 82nd Sentai, 1944. There were no individual Chutai colors or markings in this Sentai. The use of the Tiger symbol stems from ancient Japanese folklore. (Oishi)



This often published photo of a group of AVG pilots examining the rudder of a fallen NATE of the 2nd Chutai, 77th Fighter Sentai is well worth reprint, if only to demonstrate the typical J.A.A.F. practice of hand-painting the Sentai insignias as opposed to spraying them on. (R. Bueschel)

sign rather than attrition. DINAH was used for the 1st Chutai, LILY for the 2nd and 3rd. Chutais were identified by the number of white horizontal stripes on the vertical stabilizer, one for the 1st Chutai, two for the 2nd, and three for the 3rd Chutai.

25. 17th Fighter Sentai, Formosa, Okinawa, Feb. 1944-Aug. 1945. (TONY, Ki.100)

The 17th had no separate Chutai ID scheme. From Feb. 1944 to June 1945 TONYs were used, after that, Ki.100's.

26. 68th Fighter Sentai, HQs Chutai, New Guinea, 1943-44. (TONY)

Chutai colors were: HQs, blue; 1st, white; 2nd, red; 3rd, yellow. Design was an abstraction of the numeral 68.

27. 19th Fighter Sentai, 1st Chutai, Philippines, 1944. (TONY)

Chutai colors were: 1st, white; 2nd, red; 3rd, yellow. Chutais were identified by the fuselage stripe forward of the combat stripe, in the Chutai color. The red color of the Sentai mark remained the same for all Chutais. Design is an abstract 19.

28. 59th Fighter Sentai, 1st Chutai, Japan, 1945. (TOJO, Ki.100)

The traditional fuselage lightning stripe was replaced late in 1944 by the marking shown here. Chutai colors were: 1st, blue; 2nd, red; 3rd, yellow; all white outlined, or red outlined in case of the lighter colors.

29. 7th Bomber Sentai (7th Special Attack Chutai) Indo-China, Malay, Dutch East Indies, New Guinea, Homeland. 1944-1945. (SALLY-PEGGY)

Chutai colors were; 1st, white; 2nd, red; 3rd, yellow. This unit was called the Fuji Group; the Sentai insignia represents the mountain and river Fuji, the heart of the homeland. Towards the end of the war special groups of Ki.67s were organized as special attack groups under this unit insignia.

30. 58th Bomber Sentai, 3rd Chutai, Manchuria-Formosa, 1942-1945. (SALLY)

Chutai colors were: 1st, white; 2nd, red with white outline; 3rd, yellow with white outline.

31. 12th Bomber Sentai, 1st Chutai, China, 1940-1942. (SALLY)

Chutai colors were: 1st, blue stripes; 2nd, red; 3rd, yellow. Sentai insignia was the KANA for the numerals "1" and "2" or "12" (一 =).

32. 60th Bomber Sentai, 2nd Chutai, China, 1938-1941. (SALLY)

Chutais were identified by: 1st, no special markings; 2nd, two oblique red stripes on the fuselage, with a surmounted red or yellow star of various shapes; 3rd, yellow band in the same position as the usual combat stripe.

33. 65th Light Attack Bomber Sentai, Manchuria, 1941-1942. (MARY)

The insignia shown is the second design change for the 65th, who began with a Mt. Fuji insignia similar to that of the 7th Bomber Sentai (#29). Chutai colors were: 1st, white; 2nd, red; 3rd, yellow.

34. 75th Light Bomber Sentai, 2nd Chutai, China, 1938-1941. (MARY)

Chutais were indicated by the amount of horizontal white stripes at the top of the rudder; 1, 2, and 3, for the 1st, 2nd, and 3rd. This unit underwent a design change in 1942 (#23) upon being re-equipped with LILY.



KI-43-II OSCAR, 25th Sentai, 2nd Chutai, Chutai leader's aircraft. It was not a normal practice to paint the individual aircraft number in such a large size. Note the effects of weathering around the cowling edge, also the prop spinner. (Oishi)



KI-45 NICK, 27th Fighter Sentai, late 1944, Philippines. Although the fuselage Hinomarus have the usual white surround, this has been overpainted on the upper wings. (R. Bueschel/USAF)

35. 45th Attack Sentai, 3rd Chutai, China, 1938-1939. (MARY)

This Sentai used different insignias to identify Chutais; the 1st Chutai used a "Mum" or royal flower insignia, the 2nd Chutai had no markings, and the 3rd had an eagle as shown.

36. 6th Light Bomber Sentai, Manchuria, Korea, 1941-1944. (MARY, SONIA)

Although the Sentai insignia had been in use for two years, official approval had not been given until December 1943. There were no special Chutai colors.

37. 65th Light Attack Bomber Sentai, 1938-1941, Manchuria. (MARY)

Here is shown the early Sentai design as mentioned in #33.

38. 15th Direct Operation Sentai, China-Burma, 1940-1942. (BABS)

Chutai colors were: 1st, white rays with red outline; 2nd, red rays with white outline; 3rd, yellow rays with red outline. In July 1941 the 15th Sentai was re-organized into three separate Independent companies (Chutais); the Chutais became: 1st, 50th DC; the 2nd Chutai, 51st DC; and the 3rd Chutai, 55th DC, retaining the same Chutai Insignia.

39. 47th Direct Command Chutai, Formosa, 1944-1945. (SONIA)

This unit was at one time a fighter Sentai, and underwent several acute design changes during its career.

40. 52nd Direct Command Chutai, Philippines, 1943-1945. (SONIA)

41. 45th Direct Command Chutai, Philippines, 1944-1945. (SONIA)

Chutai insignia signifies its Manchurian ancestry.

42. 49th Direct Command Chutai, Formosa, 1944-1945. (SONIA)

A rare usage of the cobalt blue overall aircraft color was a last minute color change of the 49th.

43. 89th Direct Command Chutai, Burma, 1941-1944. (SONIA)

44. 91st Direct Command Chutai, Java, 1941-1944. (SONIA)

45. KUMAGAYA Flying School, Japan, 1925-1945. (SPRUCE)

46. ARMY AIR ACADEMY, Manchuria, 1940-1945. (SONIA)

Pilot's name on the rudder.

47. HOKOTA Flying School, Japan, 1940-1945. (LILY)

48. 48th Direct Command Chutai, Formosa, Kyusu, 1944-1945. (SONIA)

49. 7th Ground Support Detachment, Homeland, 1941-1944. (IDA)

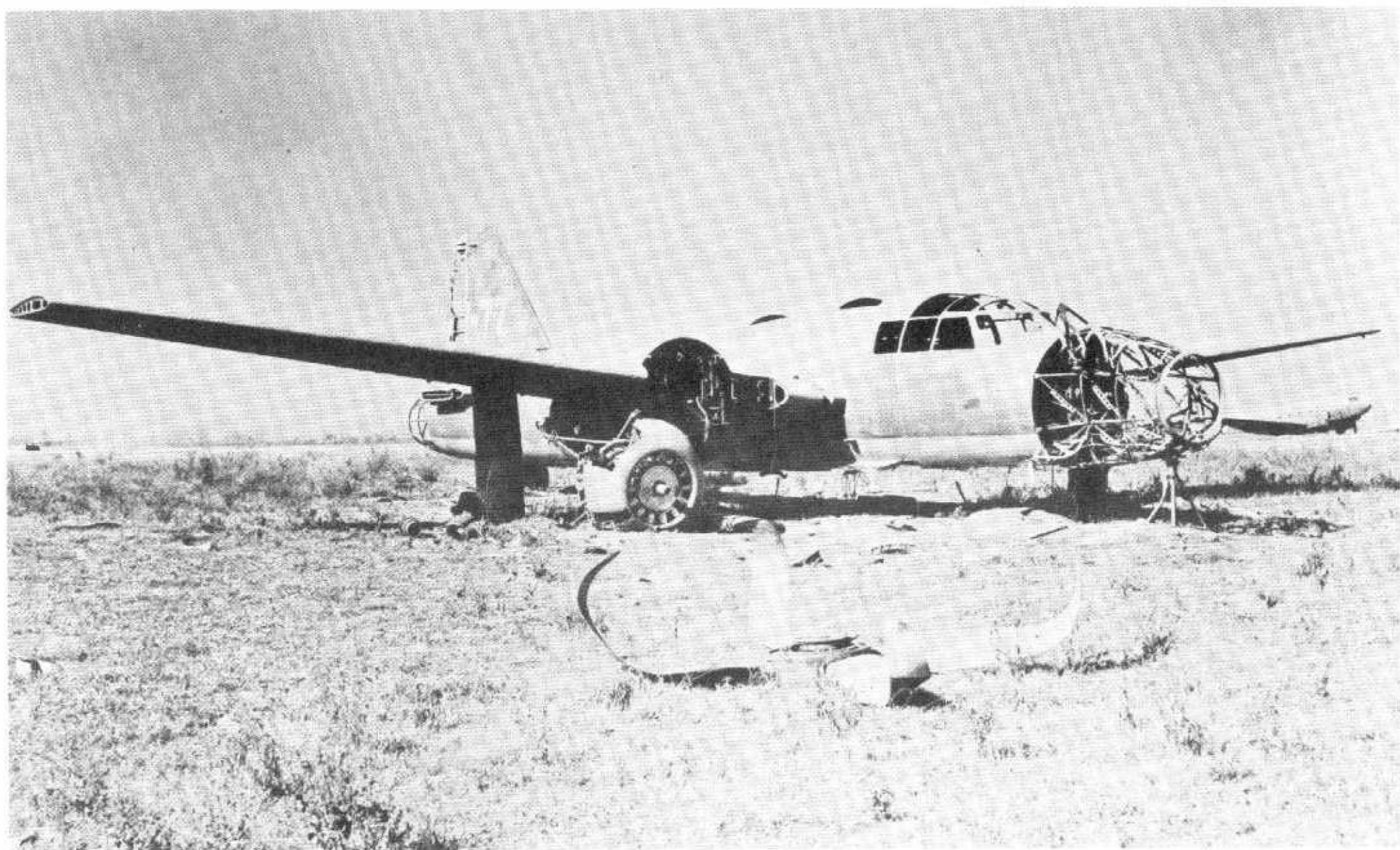
50. 66th Direct Command Chutai, China, 1941-1942. (IDA)

51. HAMAMATSU Flying School, Japan, Manchuria, 1941-1944. (SALLY)


School insignias were also encountered in yellow, and red.

52. TAICHIARI Flying School, Japan, 1940-1945. (SPRUCE)

This is a section leader's aircraft as signified by the striping.



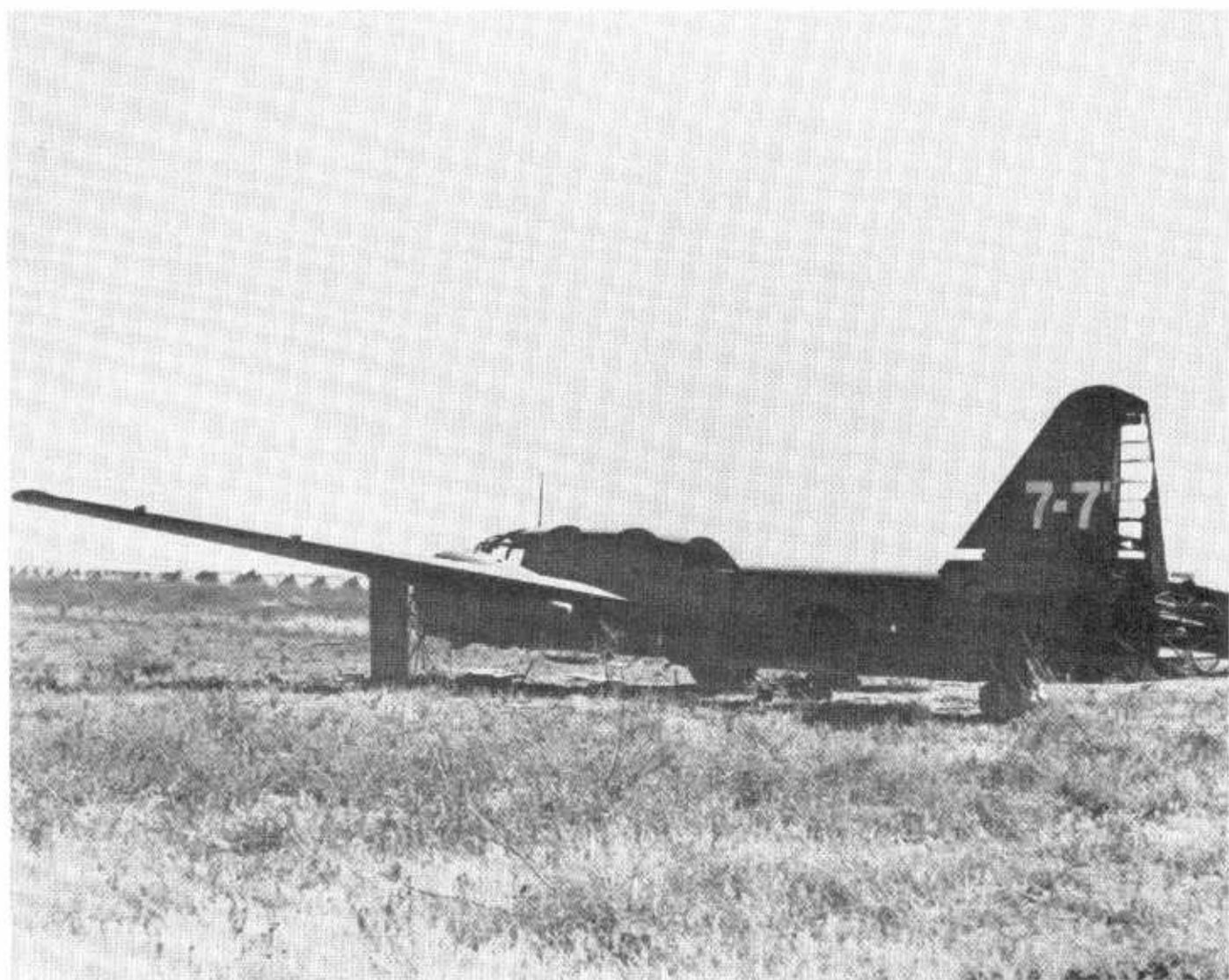
PEGGY, 98th Sentai, 3rd Chutai, Okinawa, 1944. The 98th followed more or less the J.N.A.F. practice of using numerals as unit identification symbols. The Chutais were further divided into Shotais, which were also identified by a given number. For example, the 100-to-300 series of numerals, such as "1-23, 2-34, or perhaps 3-72" signified the 1st, 2nd, and 3rd Shotai of the 1st Chutai, the 2nd Chutai used the series 400-to-600, while aircraft of the 3rd Chutai used 700-to-900. Therefore, using this system, the aircraft shown here would identify as Aircraft #77, 1st Shotai, 3rd Chutai, 98th Sentai. (US Navy/National Archives)

- 53. ARMY AIR ACADEMY, 1940-1944 Japan, Manchuria. (NATE)**
Pilot's initials on the rudder.
- 54. KUMAGAYA Flying School, Instructor's Chutai, Japan, 1942-1945. (NATE)**
- 55. UTSUNOMIA Flying School, Japan, 1940-1945. (IDA)**
- 56. ARMY AIR COMMUNICATIONS School, Japan, 1940, 1945. (HICKORY)**
The symbol immediately over the school insignia is the individual aircraft numeral/KANA.
- 57. AKENO Flying School, Instructor's Chutai, Japan, 1944-1945. (TONY)**
Pilot's initials are above the school insignia.
- 58. 85th Fighter Sentai, 3rd Chutai, China, Korea, 1944-45. (FRANK)**
Chutai colors: 1st, white; 2nd, red; 3rd, yellow. KANA symbols are the initials of the pilot.
- 59. 52nd Fighter Sentai, 3rd Chutai, Japan, Philippines, 1944-45. (FRANK)**
Chutai colors; 1st, white; 2nd, red; 3rd, yellow.
- 60. 22nd Fighter Sentai, Japan, China, Philippines, Korea, 1944-end. (FRANK)**
Chutai colors: HQs, red; 1st, white; 2nd, blue; 3rd, yellow. The Sentai insignia never changed in the Chutai, the Chutai was identified by the color of the prop spinner. The half-Mum symbol was a great badge of honor, because being allowed to wear a royal symbol meant that one had greatly distinguished oneself in combat. The 22nd was such an organization, one of four in the J.A.A.F.
- 61. 71st Fighter Sentai, Japan, Philippines, 1944-end. (FRANK)**
All Chutais were marked in the same manner; each individual aircraft carried the last three digits of the serial number as shown. The design is an abstract of the KANJI for 71.
- 62. 50th Fighter Sentai, 1st Chutai, Burma, Thailand, French Indo China, Formosa, and the Homeland, 1941-end. (OSCAR, FRANK)**
The Chutai colors were: 1st, red; 2nd, yellow; 3rd, white.
- 63. 12th Bomber Sentai, 1st Chutai, China, 1938-1939. (BR 20)**
Chutais were identified by the use of KANA symbols, with each Chutai being assigned 10 KANA symbols for use. This was not a practice later in the war.
- 64. 4th Heavy Fighter/Attack Sentai, 3rd Chutai, Kozuki, Japan, 1945. (NICK)**
This marking originated at Tachi-Arai Air Base, in Kyusu, Japan. Tachi-Arai means "Sword-Washing," and the central figure of the insignia is that of the traditional wrist guard of the sword. The curved lines represent the river where the battle-crazed warriors washed away the blood of the enemy, (From a fable). This same symbolism was also used by 4th D.C., and the 6th D.C. Chutai colors were: 1st, white; 2nd, red; and 3rd, yellow.
- 65. 5th Heavy Fighter Sentai, Gifu, Japan, 1944-1945. (NICK)**
Upon transfer to Komaki Air Base, Gifu Prefecture, the 5th again underwent a unit insignia change. The tail mark adopted is an abstraction of the KANA character for the numeral "5," (). All Chutais carried the same insignia, there were no Chutai colors.



PERRYs, 1st Fighter Sentai, Nomonhan 1938.

(J. Wood)



Another view of #7-77. Refer to page 114.

(US Navy/National Archives)

5th Heavy Fighter Sentai, New Guinea, 1943-1944. (NICK)

The situation in the Pacific was deteriorating rapidly, and many moves from lost base to lost base resulted in a great loss of morale among the 5th's pilots. In a move to restore some of the lost *esprit-de-corps*, the Sentai Commander invited designs for a new unit insignia and the resulting winner is shown. The design is an abstract of the arabic numeral "5." Additionally, to further remind the pilots that "our strength is that of the mighty mountains," each aircraft was named after a famous mountain, from all over the Japanese territories. Illustrated is the NICK; "HAKUTO," or "White-Head," for a great mountain in Korea.

67. 5th Heavy Fighter Sentai, 3rd Chutai, Kashiwa, Japan, 1942-1943. (NICK)

Prior to the design change described above, while on Home Defense in Japan, the 5th used the separate Chutai colors of: 1st, yellow; 2nd, white; and 3rd, red (shown). At this time all Hinomarus were carried within white Home Defense bandages.

68. 20th Fighter Sentai, Formosa, Japan, 1943-1945. (OSCAR)

The 20th used Chutai color coding, but only the spinner was painted in the Chutai color, with the same Sentai insignia for all aircraft. The design is an abstract "20." Chutai colors: 1st, white; 2nd, red; and 3rd, yellow.

69. 59th Fighter Sentai, 2nd Chutai, Manchuria, 1943. (OSCAR)

Chutai colors were, 1st, white; 2nd, red; and 3rd, yellow. At an earlier period NATEs of this unit carried the lightning flash along the entire fuselage (see profiles) and the Chutai colors were: HQs, green; 1st, red; 2nd, black; and 3rd, yellow. KANA characters at top are pilot's initials.

70. 64th Fighter Sentai, HQs Chutai, Homeland, China, French Indo-China, Thailand, Malay, Sumatra, Java, and Burma. (OSCAR)

Chutai colors were: HQs, blue; 1st, white; 2nd, red; 3rd, yellow.

71. 48th Fighter Sentai, China, 1945. (OSCAR)

There were no special Chutai markings for the 48th Sentai.

72. 25th Fighter Sentai, 2nd Chutai, China, 1943-1945. (OSCAR)

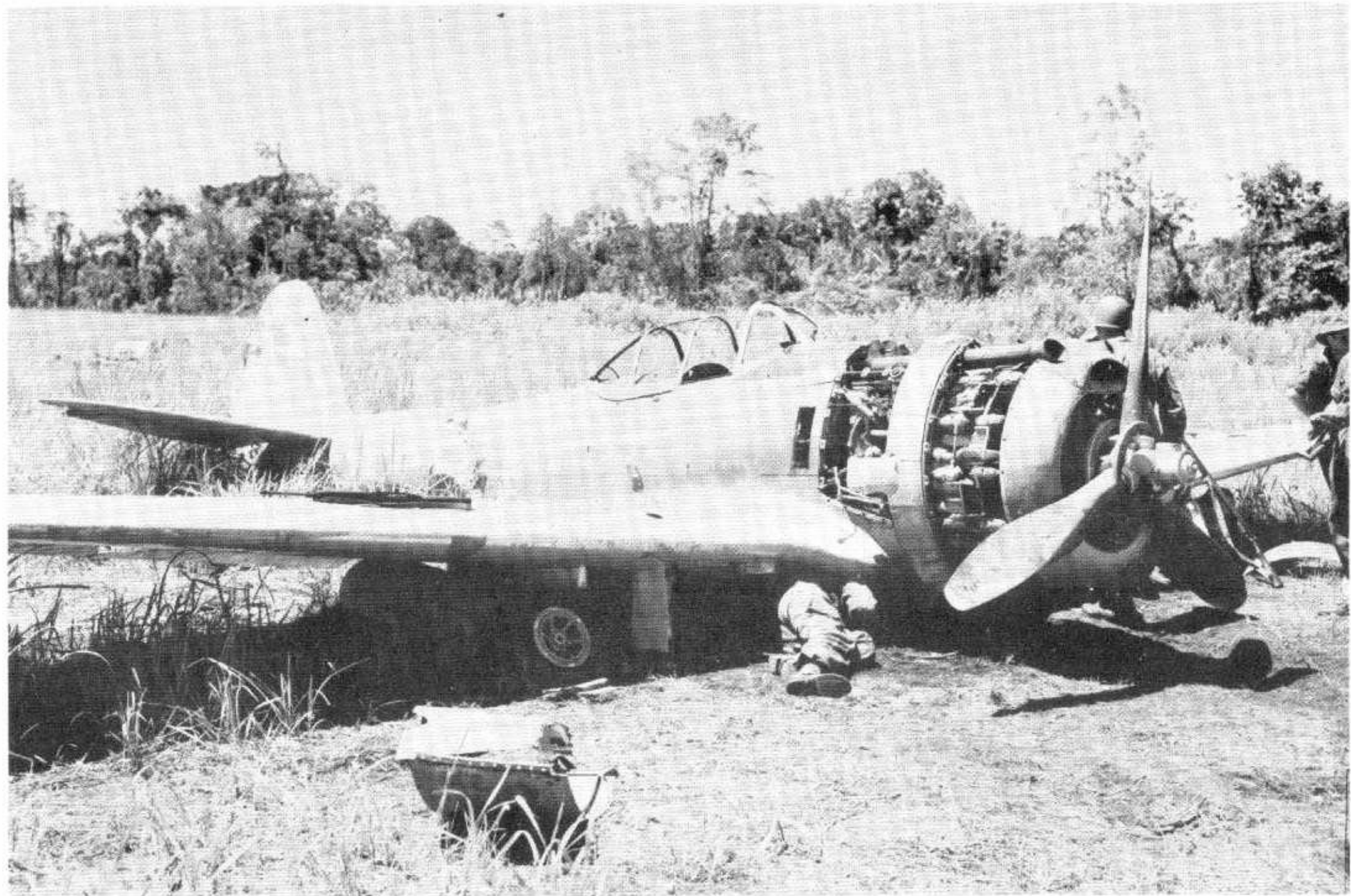
Chutai colors were: HQs, blue; 1st, white; 2nd, red; and 3rd, yellow. The 25th was one of a few who used a combat stripe of other than the normal white, it being in the Chutai color.

73. 11th Fighter Sentai, Sentai Commander's Aircraft, Dutch East Indies. 1942. (OSCAR)

Although one-of-a-kind, the leader's insignia is included here because of the many times that it has been erroneously displayed in various publications. Of course, the usual Sentai insignia was a single lightning flash, in the Chutai color, which was 1st, white; 2nd, red; and 3rd, yellow.

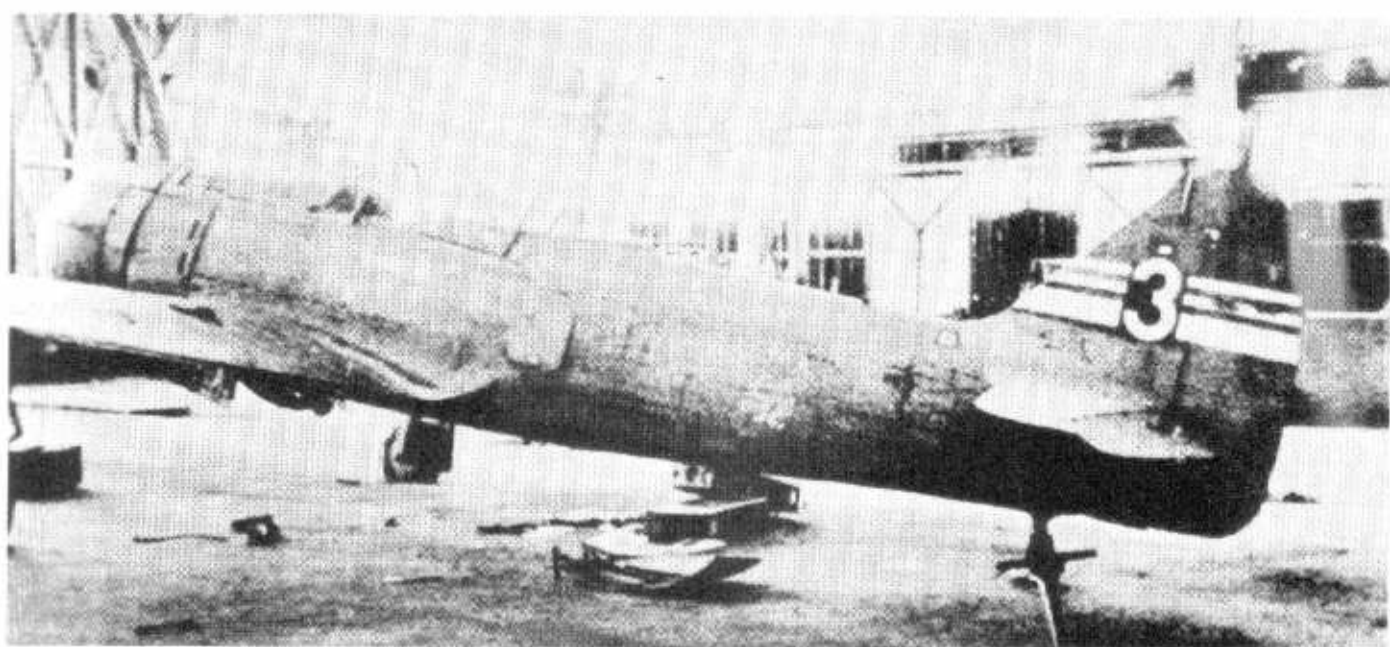
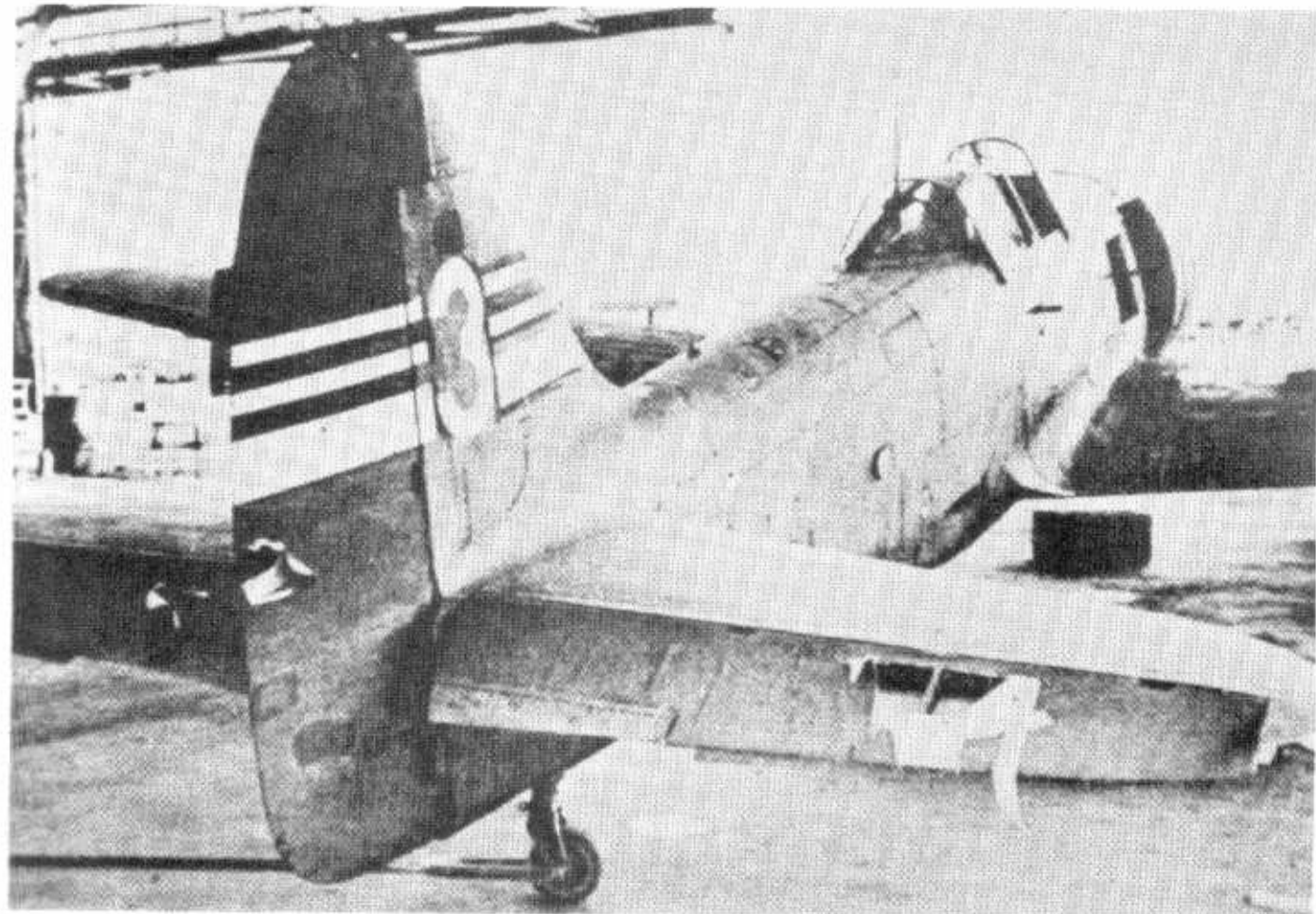
74. 13th Fighter-Attack Sentai, New Guinea, 1943, 1944. (OSCAR)

All Chutais carried the same insignia.



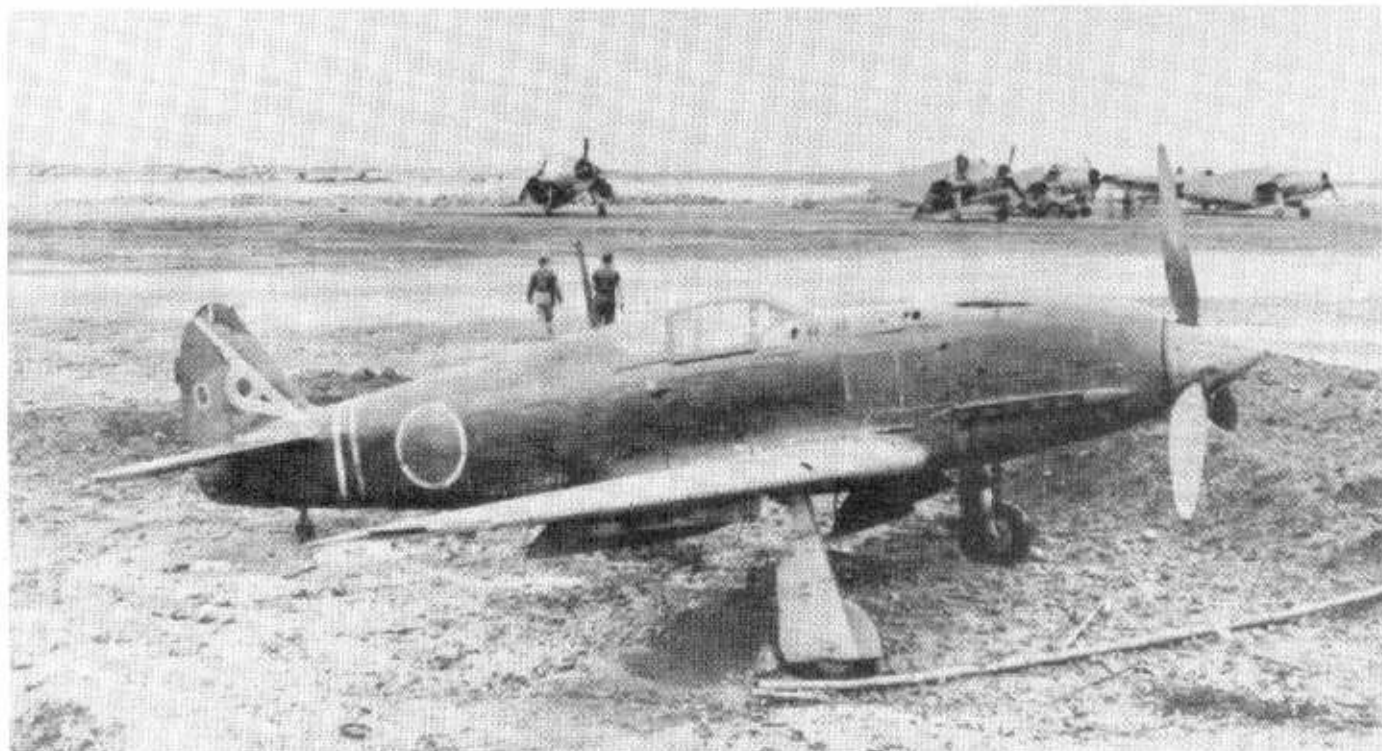
OSCAR III, 77th Fighter Sentai, Sentai leader's aircraft. Entire tail is red.

(USAF Photo)



KI-100, 3rd Operational Test Unit, at war's end. The Hinomaru is only on the starboard side, indicating the unfinished status of this aircraft.

(Oishi)



KI-61-II TONY, 19th Fighter Sentai, 3rd Chutai, late 1944. Note the overpainted 53rd Fighter Sentai marking behind the 19th insignia. The varicolored tape was applied by the intelligence evaluation teams for photo measurement purposes, each serration measuring one inch. (R. Bueschel)



A rather war-weary TONY of the 19th Fighter Sentai. Note the use of yellow wing markings, and also that the upper surfaces blotch pattern has been carried around and under the leading edge of the wing. (R. Bueschel)

4

AIRCRAFT IN PROFILE

就鳥

羽翼

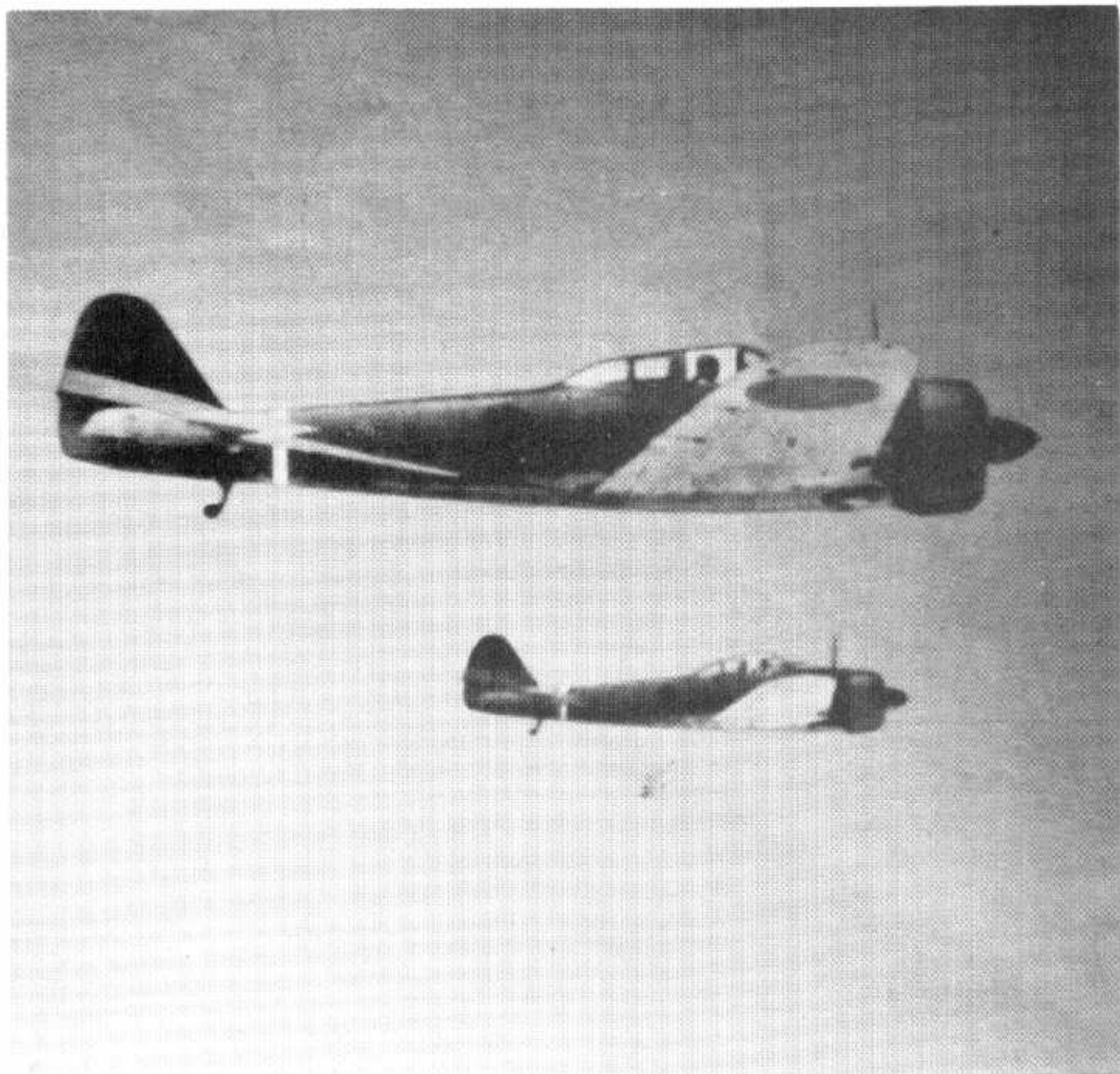
AIRCRAFT IN PROFILE

The following 16 pages of color drawings are designed to acquaint the reader with just a few of the wide range of camouflage schemes which were observed during the period 1938 through 1945.

It will be further noted that not all of the schemes shown were to be considered as "normal" schemes, but were rather unusual instances, and are included because of their differences from the norm.

The hundred-odd profiles displayed here lend themselves well in illustration of the Japanese love of color in the military, stemming from their Samurai days, resulting in a sometimes garish, sometimes ultra conservative finish, but all with a grim beauty of their own.

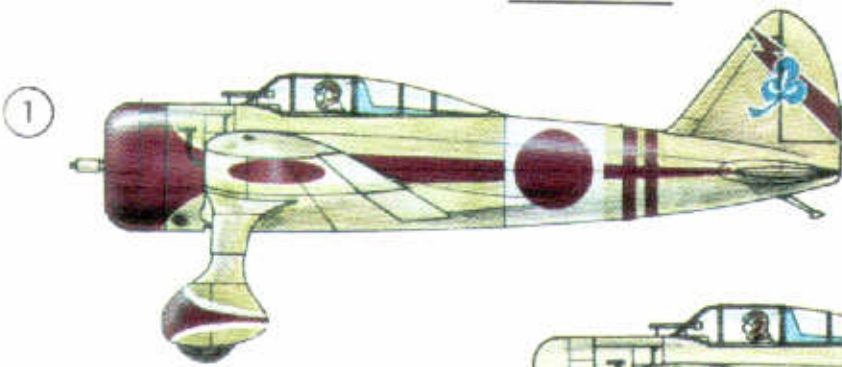
It is the hope of the author that the color pages here, coupled with the surrounding pages of data and drawings will enable each enthusiast to become his own expert on the subject.



OSCAR, 50th Fighter Sentai, Burma, 1943.

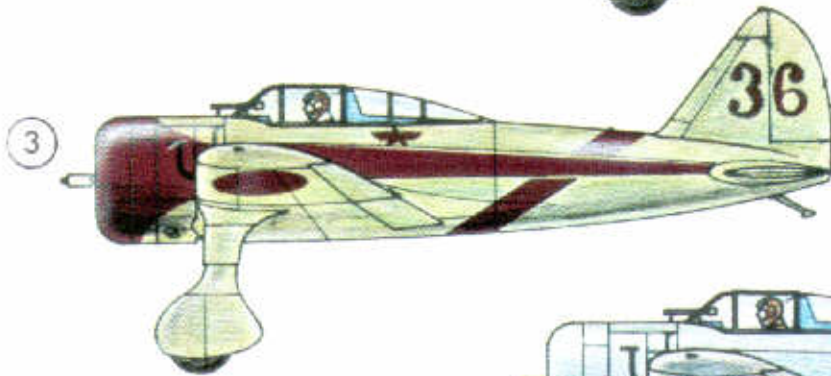
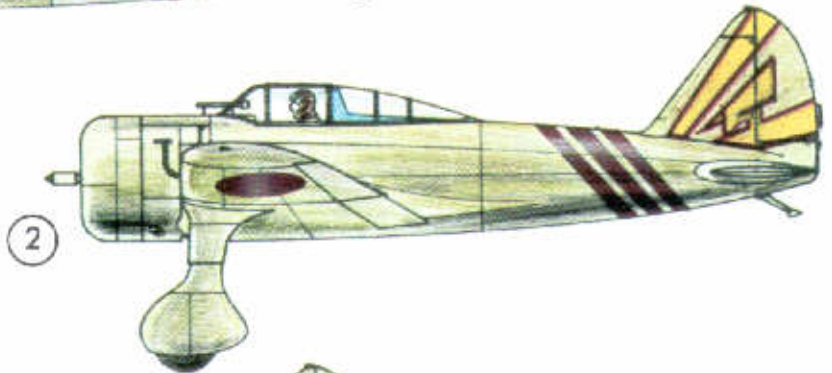
(The Author)

NATE



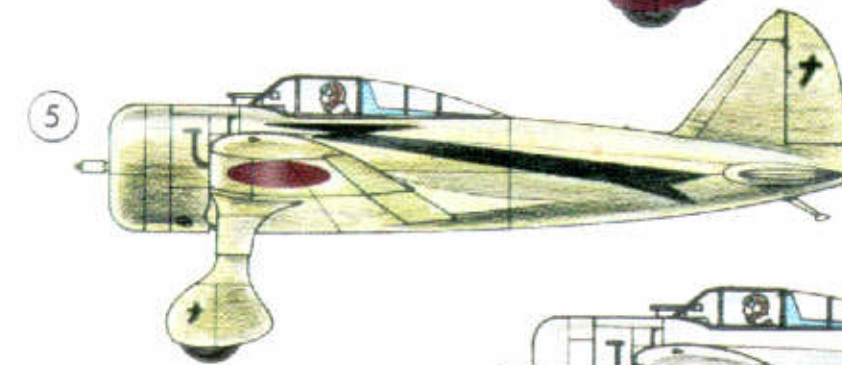
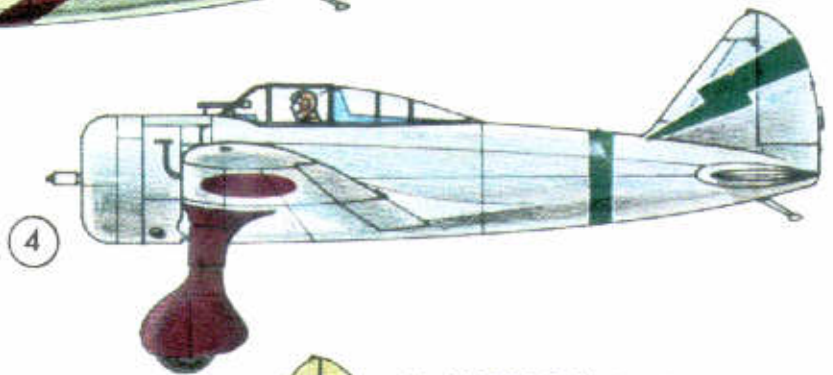
1. NATE, 246th Fighter Sentai,
2nd Chutai
Osaka, Japan, 1942

2. NATE, 85th Fighter Sentai,
3rd Chutai
Manchuria, 1941-1942



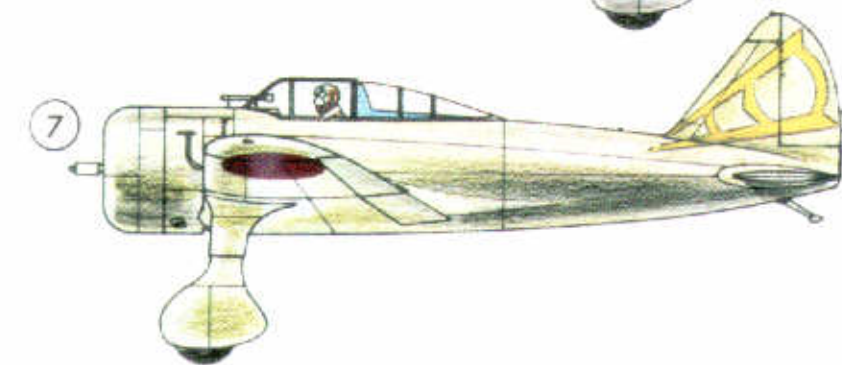
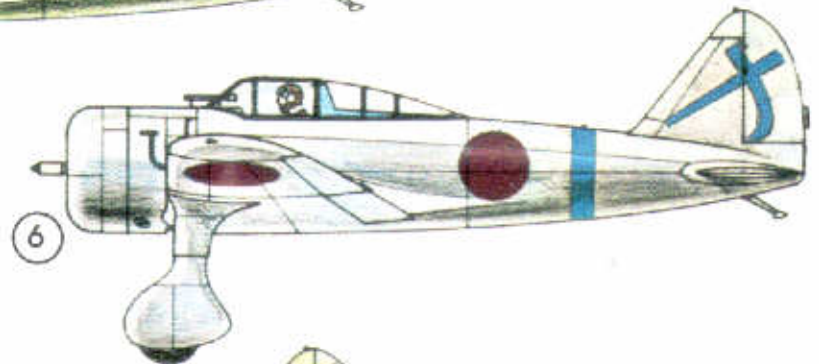
3. NATE, 84th Independent Chutai,
2nd Flight
China, 1939

4. NATE, 11th Fighter Sentai,
4th Chutai
Manchuria, 1938-1939



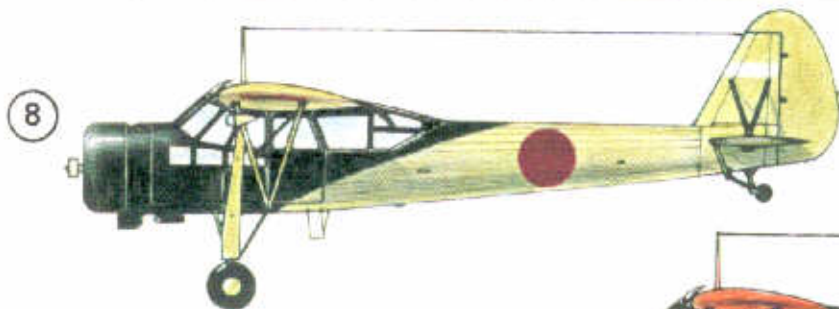
5. NATE, 59th Fighter Sentai,
2nd Chutai
Manchuria, 1939

6. NATE, 9th Fighter Sentai,
HQ Chutai
Manchuria, 1939-1941

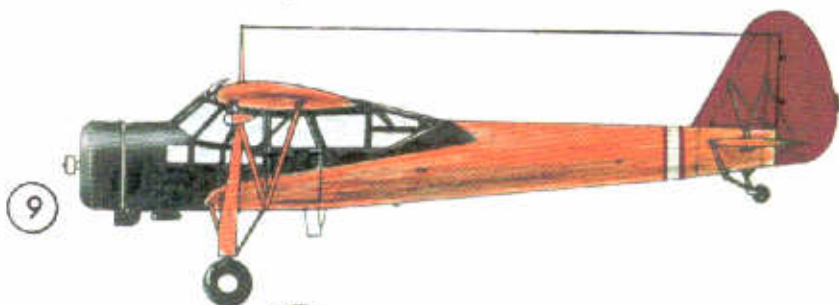


7. NATE, 68th Fighter Sentai,
3rd Chutai
Manchuria, 1942

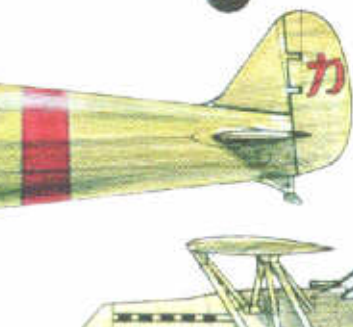
STELLA — PERRY — IDA



8. STELLA, unit unknown
Philippines, 1945



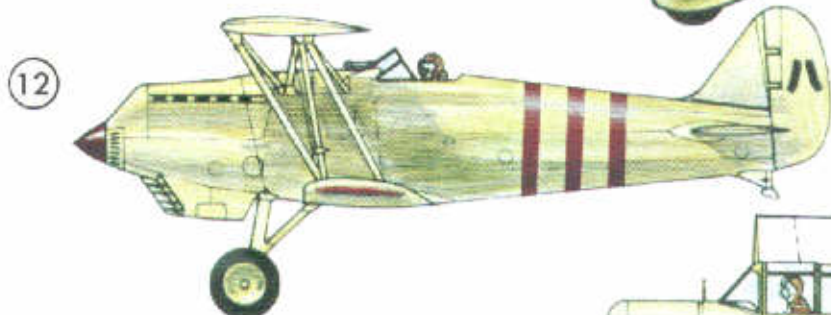
9. STELLA, unit unknown
Japan, 1944



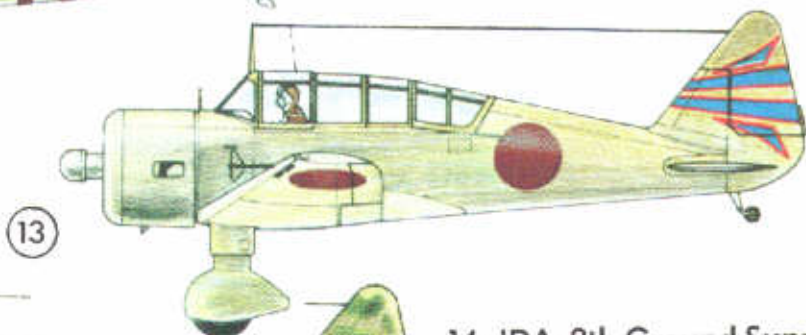
10. PERRY, 2nd Pursuit Sentai,
1st Chutai
Manchuria, 1938-1939



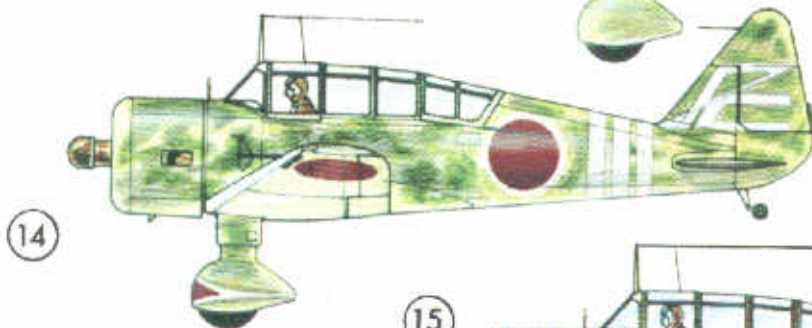
11. PERRY, 77th Fighter Sentai,
2nd Chutai
China, 1938-1939



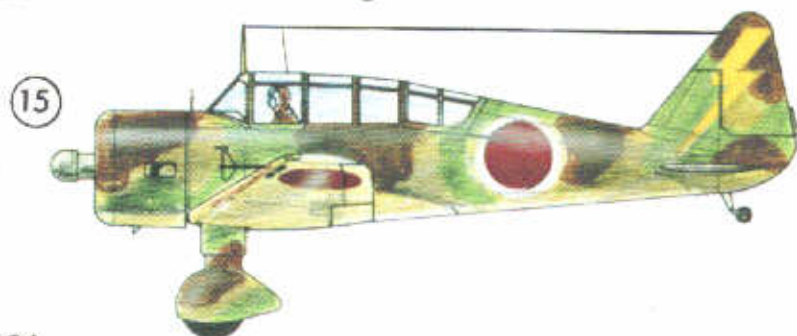
12. PERRY, Sentai unknown,
probably 2nd Chutai
Manchuria, 1939



13. IDA, 28th Support Sentai,
3rd Chutai
Manchuria, 1939



14. IDA, 8th Ground Support -
Detachment
China, 1942-1943



15. IDA, 7th Ground Support -
Detachment
China, 1942

Ki.100 - Ki.115

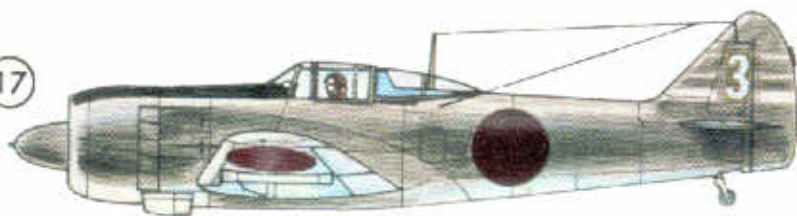
16



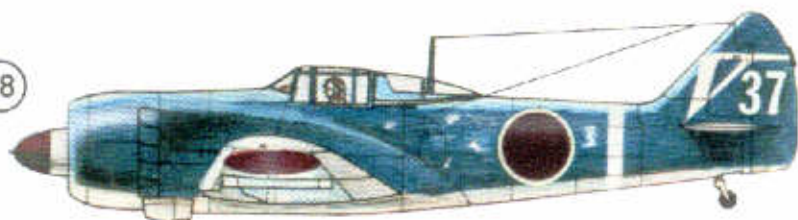
16.
KI-100, 59th Fighter Sentai,
1st Chutai
Japan, 1945

17.
KI-100, 3rd Operational
Training Chutai
Japan, 1945

17



18



18.
KI-100, 5th Fighter Sentai
Japan, 1945

19.
KI-100, 111th Fighter Sentai,
2nd Chutai
Japan, 1945

19



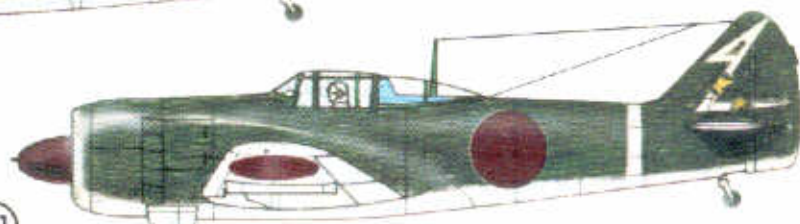
20



20.
KI-100, 17th Fighter Sentai
Japan, 1945

21.
KI-100, 244th Fighter Sentai,
1st Chutai
Chofu, Japan, 1945

21



22



22.
KI-115, unit unknown
Japan, 1945

23.
KI-115, unit unknown
Japan, 1945

23

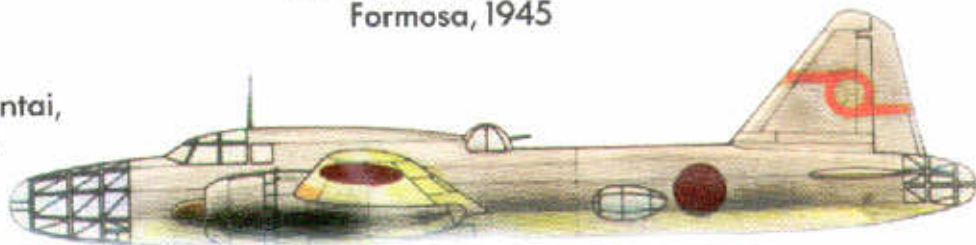




24

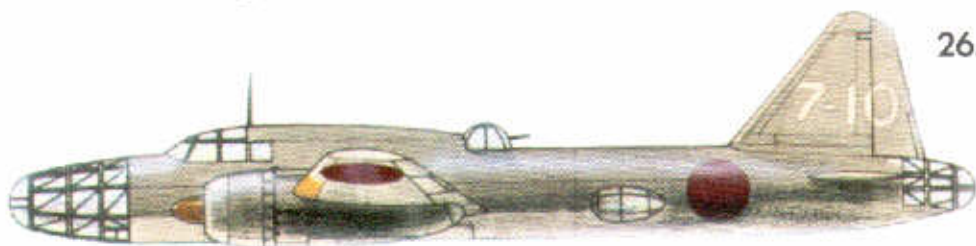
24. PEGGY, 61st Bomber Sentai
Formosa, 1945

25. PEGGY, 62nd Bomber Sentai,
3rd Chutai, Japan, 1945



25

26. PEGGY,
98th Bomber Sentai,
3rd Chutai
Okinawa, 1945



26

27. PEGGY, 7th Bomber Sentai,
Special Attack Chutai
Japan, Okinawa, 1945



27

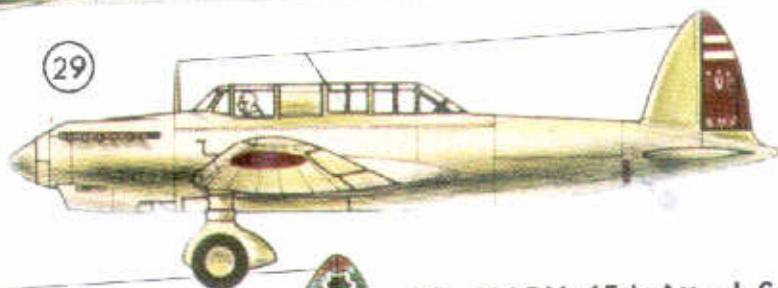
28. KI-109, 107th Bomber Sentai,
3rd Chutai, Japan, 1945

28



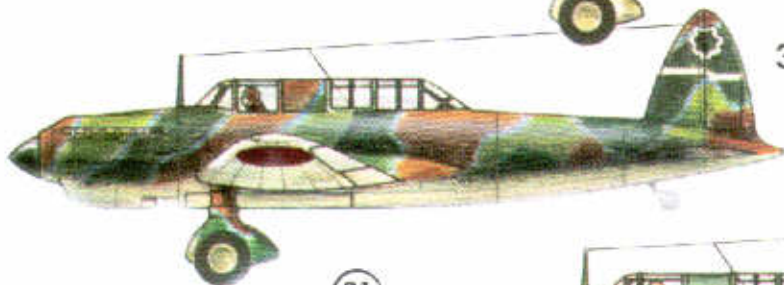
29. MARY, 75th Attack Sentai,
2nd Chutai, China, 1939

29



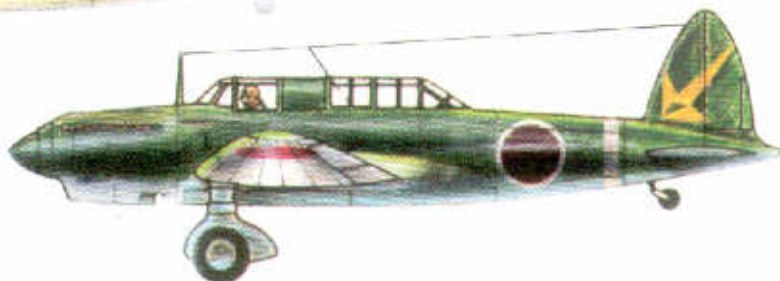
30

30. MARY, 45th Attack Sentai,
1st Chutai, China, 1939



31

31. MARY, 6th Attack Sentai
Manchuria, 1941



TOJO



32. TOJO, *Ki-44 I.A. 47 Independent*
1st Fighter Sentai, 3rd Chutai
China, 1943
flown by Ridge I
Squadron, French Indo-China
January 1943

33. TOJO, *"Sky Shadow"*
47th Special Attack Chutai
Narimasu, Japan, 1944



Yamitake Air-to-Air 2-29
Sumitomo Company Tokyo 1945

34. TOJO,
87th Fighter Sentai, 1st Chutai
Sumatra, 1943

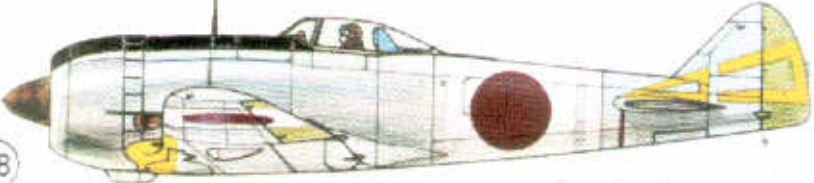
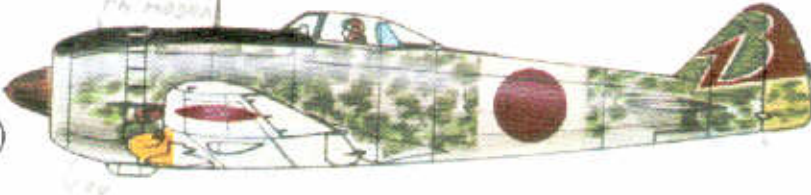


35. TOJO,
9th Fighter Sentai, 2nd Chutai
Manchuria, 1942-43
Nanking, China Summer 1945



36. TOJO, *Ki-44-11b*
85th Fighter Sentai, 3rd Chutai
Tachikawa, Japan, 1945
August

37. TOJO,
23rd Fighter Sentai
Japan, 1944
Home Island
reference: OGA Japan
August 1945



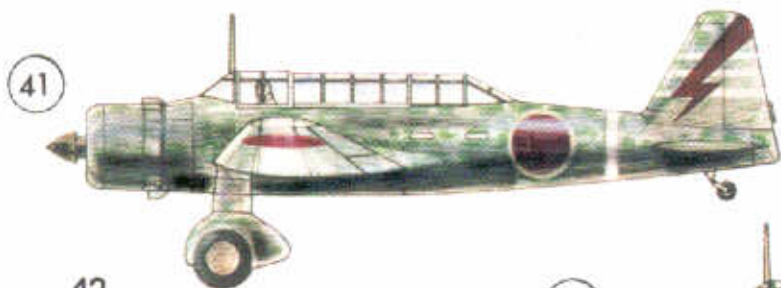
38. TOJO,
70th Fighter Sentai, 3rd Chutai
Japan, 1944
Manchoukuo Summer

39. TOJO, *Ki-44-11b*
85th Fighter Sentai,
2nd Chutai
Nanking, China, 1942
Summer 1943 - Joggli Airfield.



40. TOJO,
29th Fighter Sentai, 2nd Chutai
Formosa, 1944

ANN – SONIA – BABS



41

41.
ANN; 31st Light Bomber Sentai,
3rd Chutai, Thailand, 1941

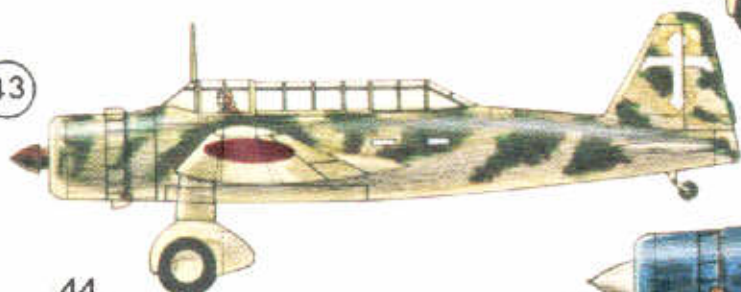
42.
ANN, 90th Light Bomber Sentai,
1st Chutai, French Indochina, 1940

42



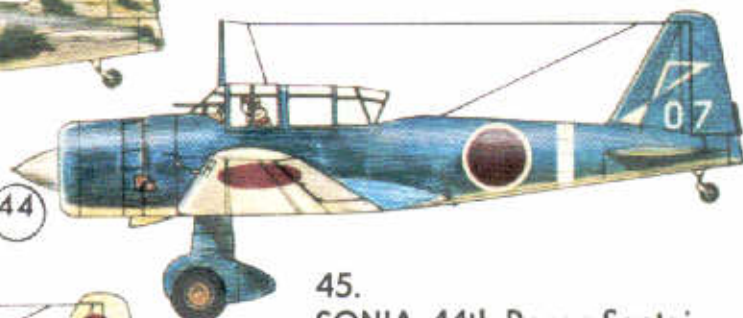
43.
ANN, 87th Light Bomber Sentai
Korea 1942

43



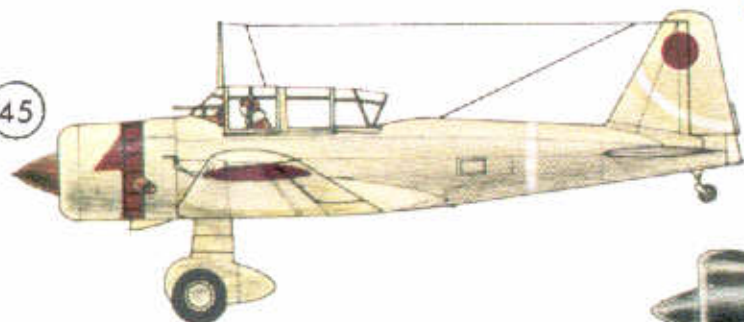
44.
SONIA, 49th Independent Chutai
Formosa, 1945

44



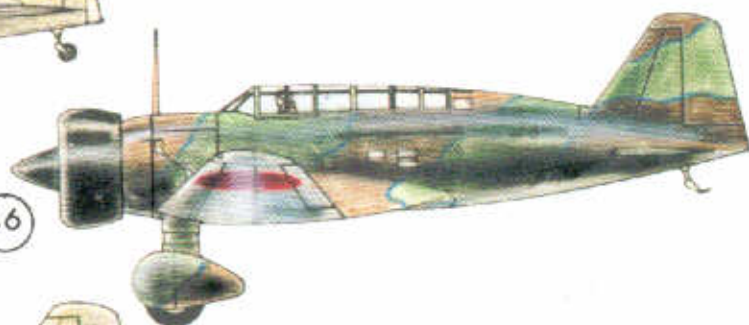
45.
SONIA, 44th Recon Sentai
1st Chutai, China, 1942

45



46.
BABS, 10th Recon Sentai
Nongko, Manchuria, 1938

46



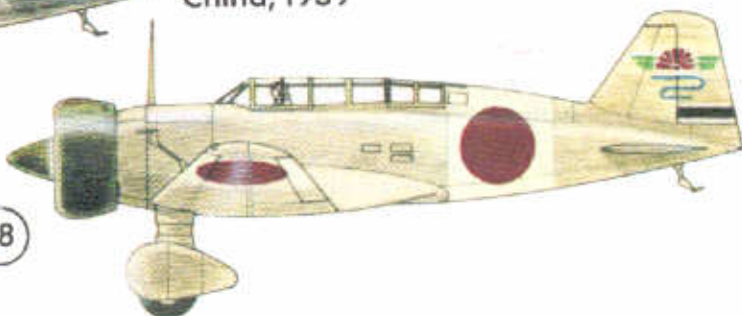
47.
BABS, 16th Independent Chutai
China, 1939

47



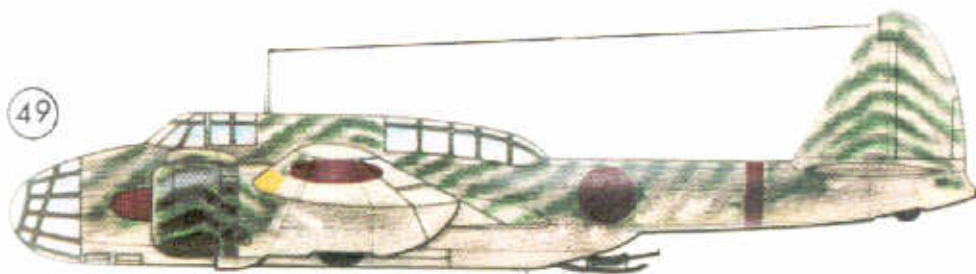
48.
BABS, 18th HQ Recon Wing
Japan, 1943

48



LILY - RANDY

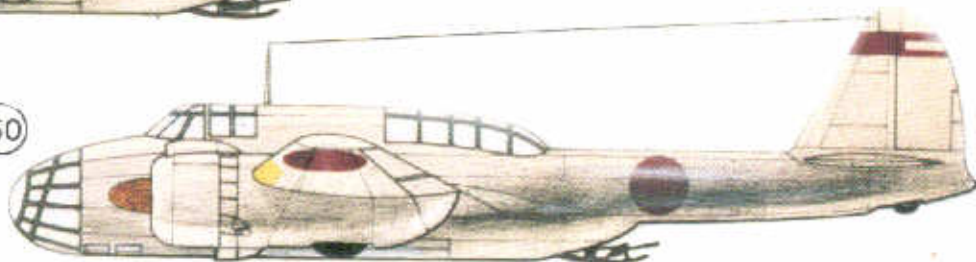
49



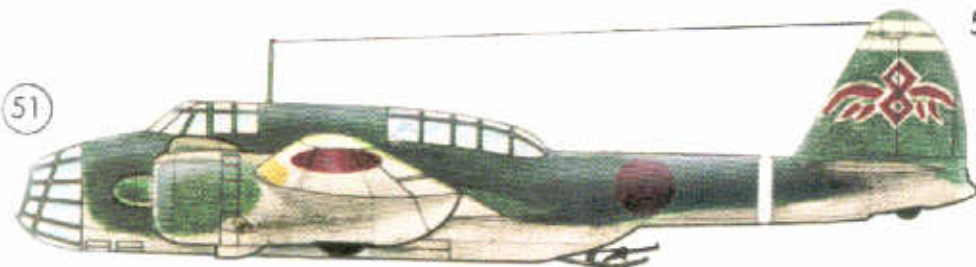
49. LILY, Unit Unknown
New Guinea, 1944

50. LILY, 3rd Attack Sentai
Philippines, 1944

50



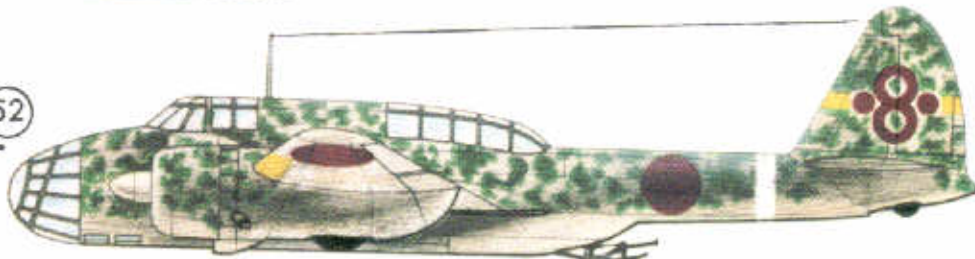
51



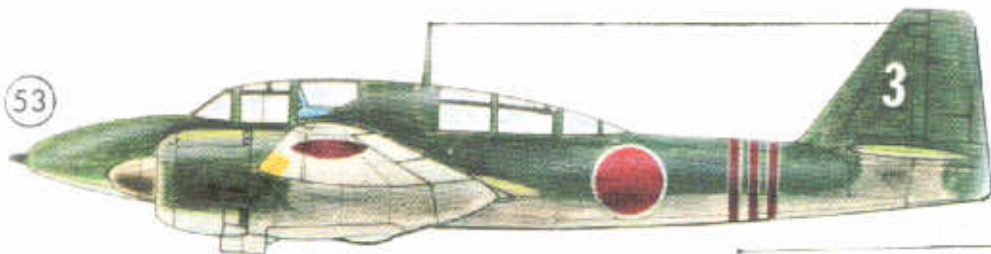
51. LILY,
8th Light Bomber Sentai,
2nd Chutai Burma, 1943

52. LILY,
208th Light Bomber-
Sentai, 3rd Chutai
Manchuria, 1943

52



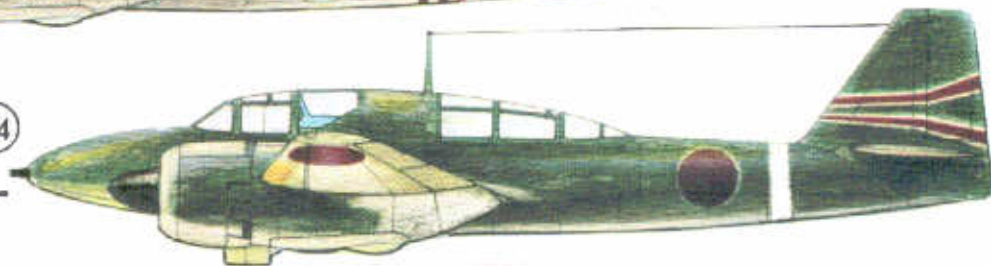
53



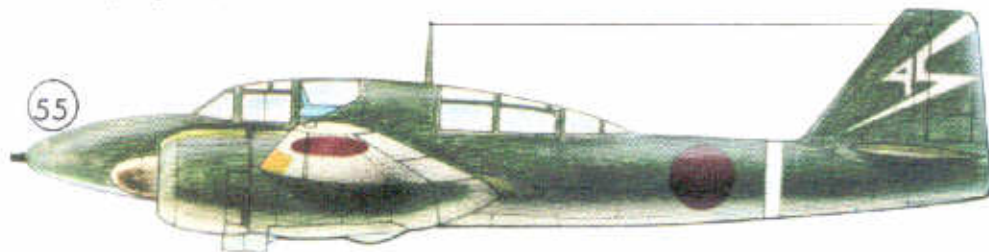
53. RANDY, 3rd Operational-
Test/training Chutai
Fussa, Japan, 1945

54. RANDY, 28th Fighter-
Sentai, 2nd Chutai
Chiba, Japan, 1945

54



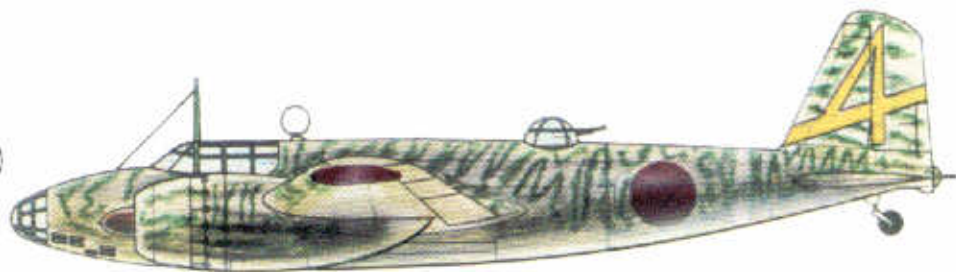
55



55. RANDY, 45th Fighter -
Sentai, 1st Chutai
Japan, 1945

SALLY

56



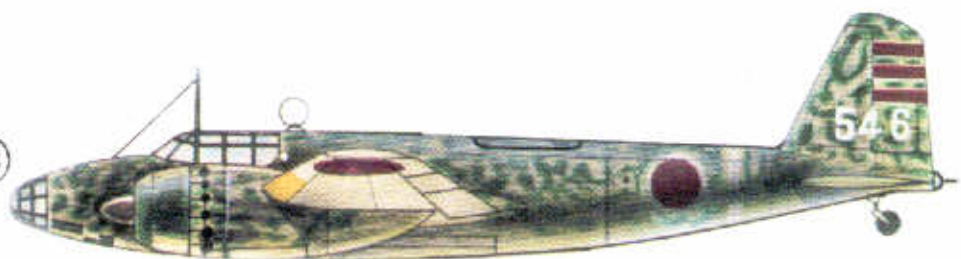
56.
SALLY, 14th Bomber -
Sentai, 3rd Chutai
Philippines, 1944

57.
SALLY, 60th Bomber -
Sentai, 2nd Chutai
China, 1940

57



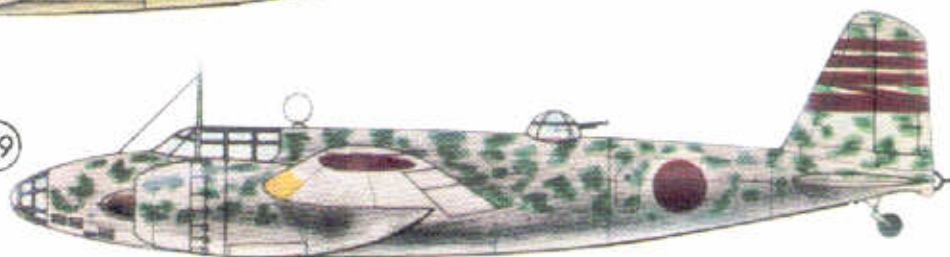
58



58.
SALLY,
3rd Independent Chutai
Okinawa, 1945

59.
SALLY, 8th Air Division,
HQ Chutai
Formosa, 1944

59



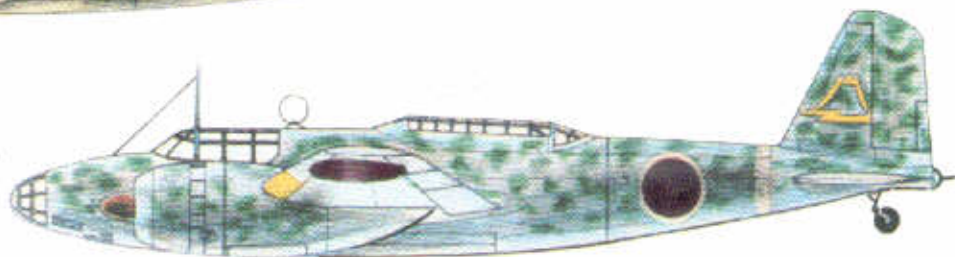
60



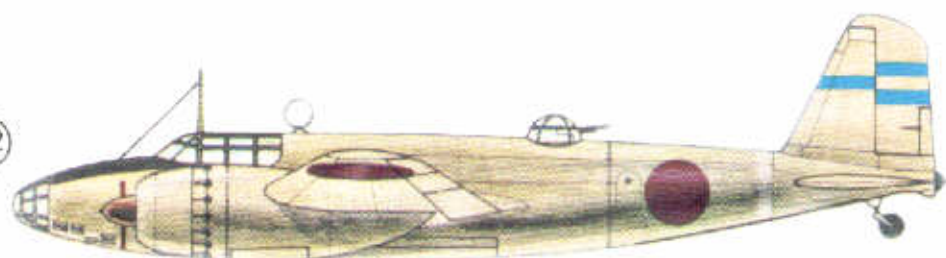
60.
SALLY,
98th Bomber Sentai,
3rd Chutai
Sumatra, 1945

61.
SALLY,
7th Bomber Sentai,
3rd Chutai
French Indo China, 1944

61



62



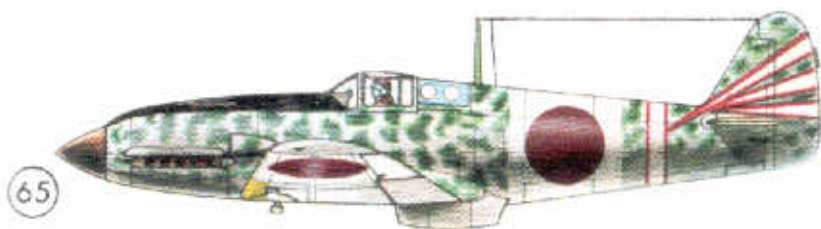
62.
SALLY,
12th Bomber Sentai,
1st Chutai,
China, 1943

TONY



63.
TONY, 244th Fighter AD Sentai,
HQ Chutai Chofu, Japan, 1945

64.
TONY, 55th Fighter Sentai
Gifu, Japan, 1944



65.
TONY, 18th Fighter Sentai, 1st Chutai
Chiba, Japan, 1945

66.
TONY, 37th Fighter Sentai
Taipei, Formosa, 1945



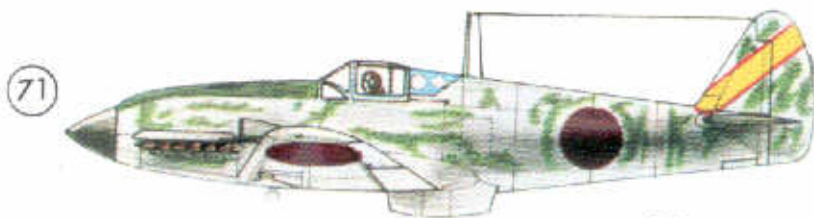
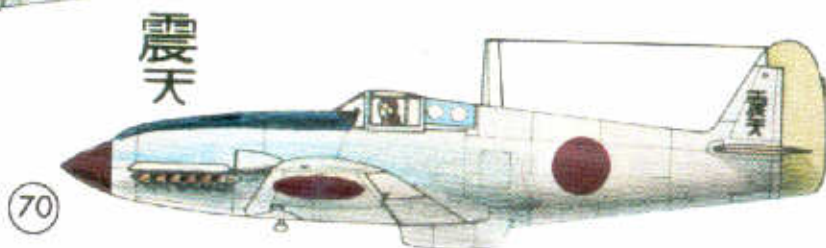
67.
TONY, 68th Fighter Sentai, HQ Chutai
New Guinea, 1945

68.
TONY, 56th Fighter Sentai, 3rd Chutai
Osaka, Japan, 1945



69.
TONY, Unit Unknown,
previously 53rd Fighter Sentai, 1945

70.
TONY, 244th Fighter Sentai
Japan, 1944



71.
TONY, 59th Fighter Sentai, 3rd Chutai
Japan, 1945

SCHOOL COLORS

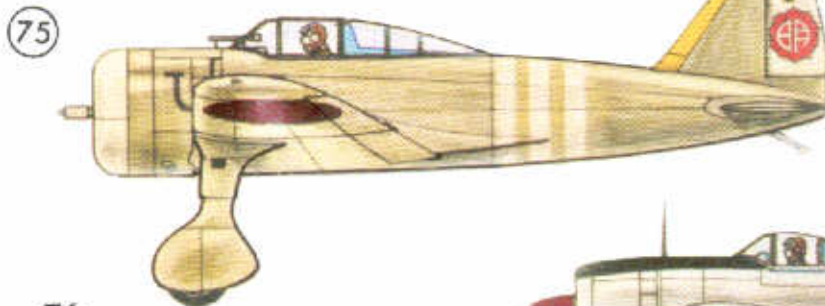
72. PEGGY, Hamamatsu Army Flying School
1944



73. DINAH,
Shimoshizu Army Flying School
1943



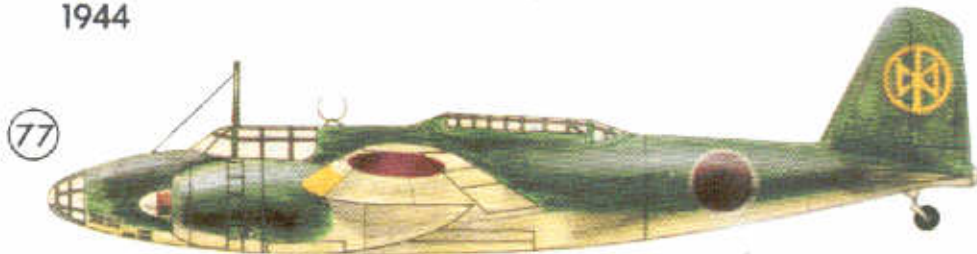
75. NATE, Akeno Army Flying School
1942



74. OSCAR,
Kumagaya Army Flying School
1942-1944



76. OSCAR,
Kumagaya Army Flying School
1944

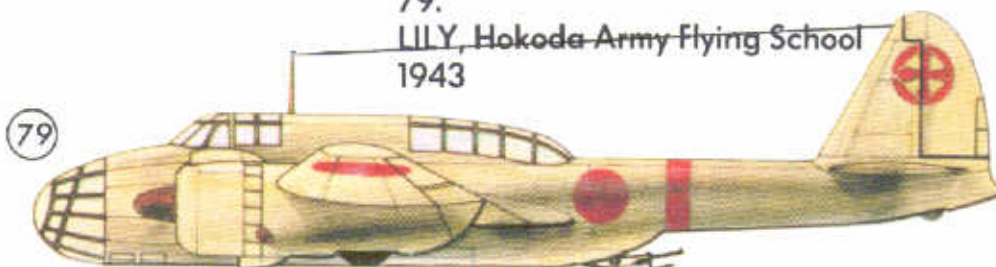


77. SALLY, Army Aviation
Communications School
1942

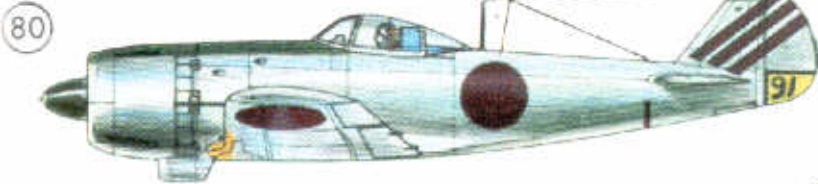
78. TOJO, Hitachi Army Flying School
1944-1945



79. LILY, Hokoda Army Flying School
1943



FRANK



80

80.
FRANK, 73rd Fighter Sentai,
2nd Chutai, Philippines, 1944

81.
FRANK, 11th Fighter Sentai,
2nd Chutai, Philippines, 1944



81



82

82.
FRANK, 24th Independent Chutai
Sumatra, 1945

83.
FRANK, 1st Fighter Sentai, 1st Chutai
Philippines, 1944



83



84

84.
FRANK, 29th Fighter Sentai,
HQ Chutai, Formosa, 1945

85.
FRANK, 52nd Fighter Sentai,
3rd Chutai
Philippines, 1944



85



86

86.
FRANK, 71st Fighter Sentai
Japan, 1945

87.
FRANK, 72nd Fighter Sentai,
3rd Chutai, Japan, 1945



87



88

88.
FRANK, 57th Special Attack Sentai
Japan, 1945

89.
FRANK, 85th Fighter Sentai,
HQ Chutai, Korea, 1945



89

NICK

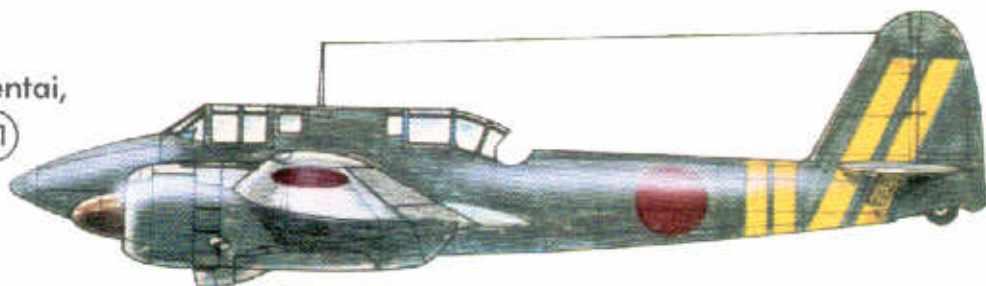
90



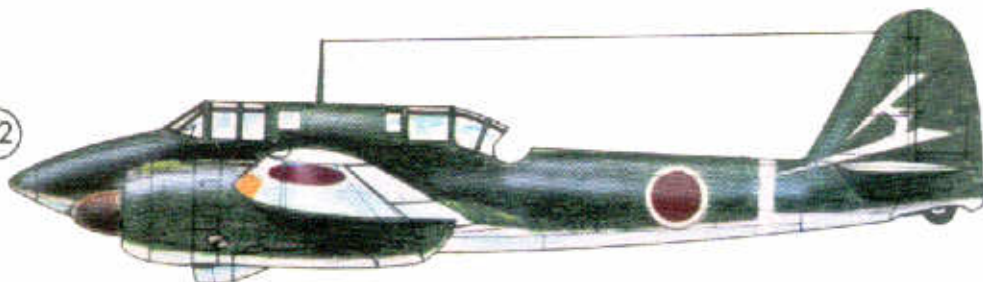
90.
NICK, 4th Fighter Sentai,
2nd Chutai
Kozuki, Japan, 1945

91.
NICK, 5th Fighter Sentai,
1st Chutai
Kashiwa, Japan,
1943

91



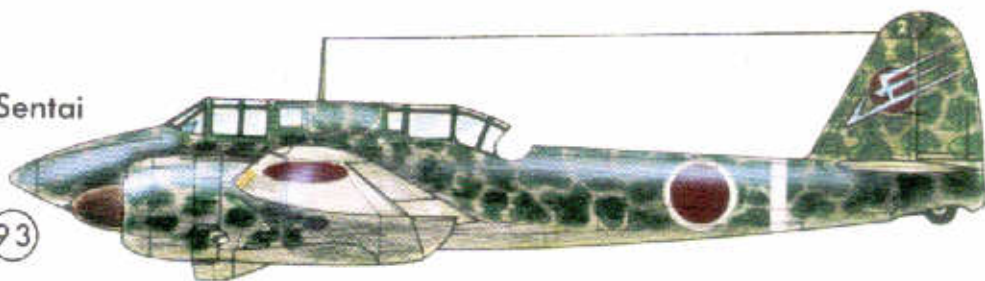
92



92.
NICK, 5th Fighter Sentai
Kimoki & Kiyosu,
Japan, 1944-1945

93.
NICK, 27th Fighter Sentai
Philippines, 1944

93

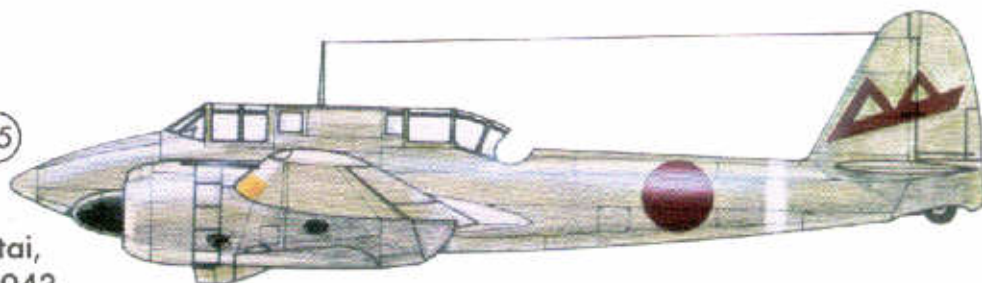


94



94.
NICK, 53rd Fighter Sentai,
3rd Chutai
Matsudo, Japan, 1945

95



95.
NICK, 13th Fighter Sentai,
2nd Chutai Rabaul, 1943

DINAH – TOPSY

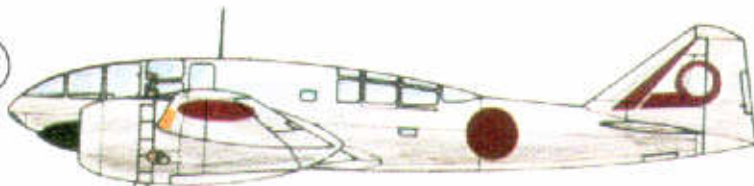
96



96.
DINAH, 82nd HQs Recon Sentai
Manchuria, 1944

97

97.
DINAH, 19th Independent Chutai
Japan, 1944



98



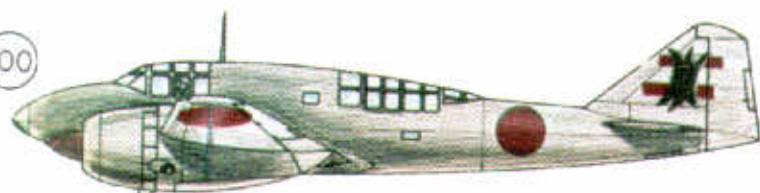
98.
DINAH, Unit Unknown
New Guinea, 1944-1945

99

99.
DINAH, 81st HQs Recon Sentai,
3rd Chutai Java, 1943-1944



100



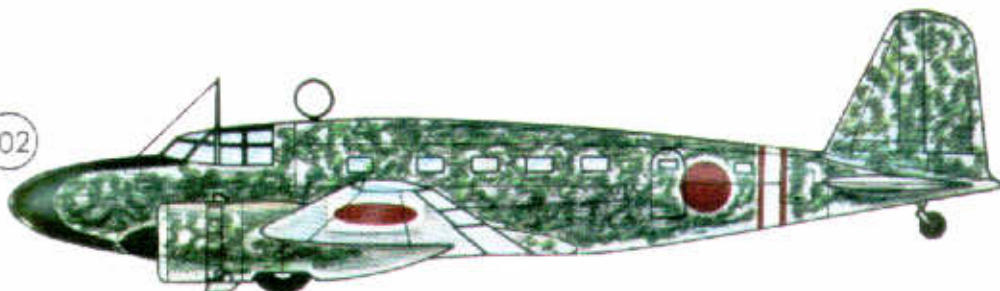
100.
DINAH, 2nd Recon Sentai
Philippines, 1944

101.
DINAH, 10th HQs Recon Sentai
New Guinea, 1944

101



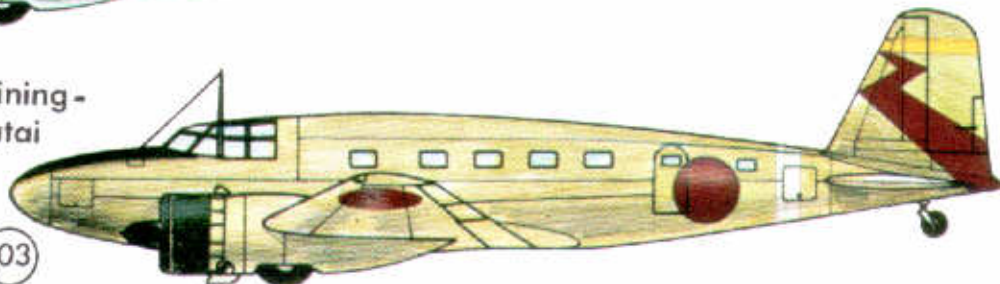
102



102.
TOPSY, ex-civil transport-
in military service
Okinawa, 1945

103.
TOPSY, 51st Air Training-
Command, HQ Chutai
Japan, 1943

103

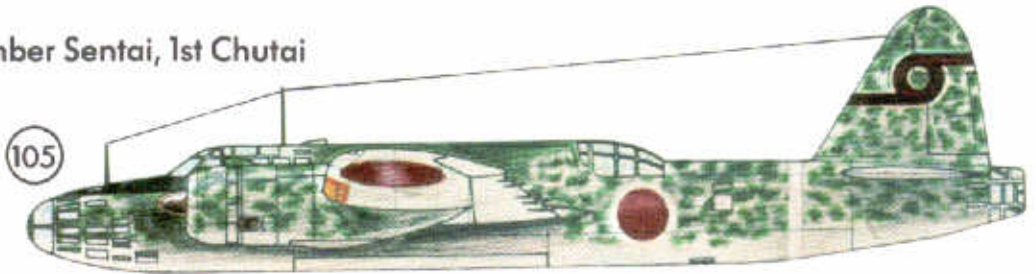


HELEN – THALIA

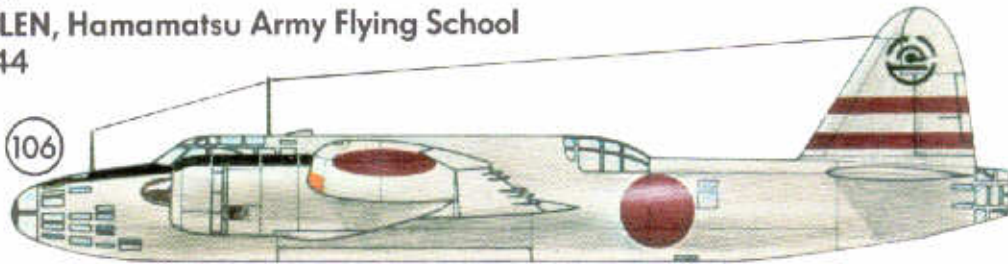
104.
HELEN, 95th Bomber Sentai, 3rd Chutai
Manchuria, 1944-1945



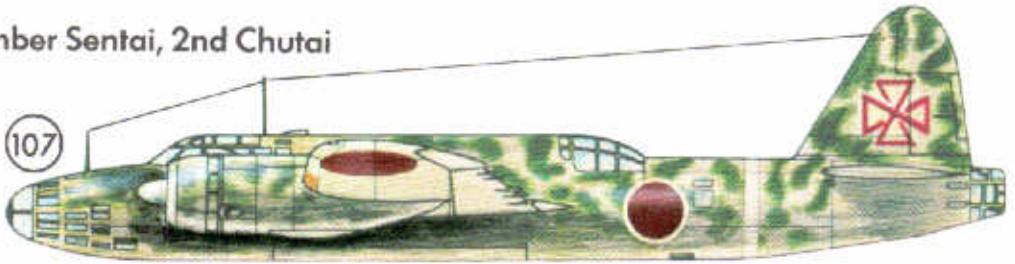
105.
HELEN, 62nd Bomber Sentai, 1st Chutai
Japan, 1945



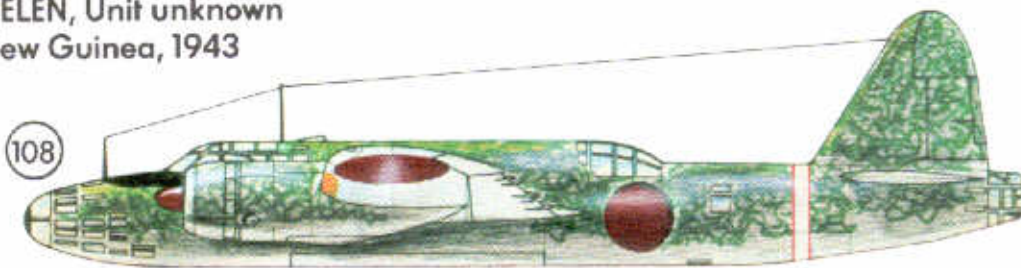
106.
HELEN, Hamamatsu Army Flying School
1944



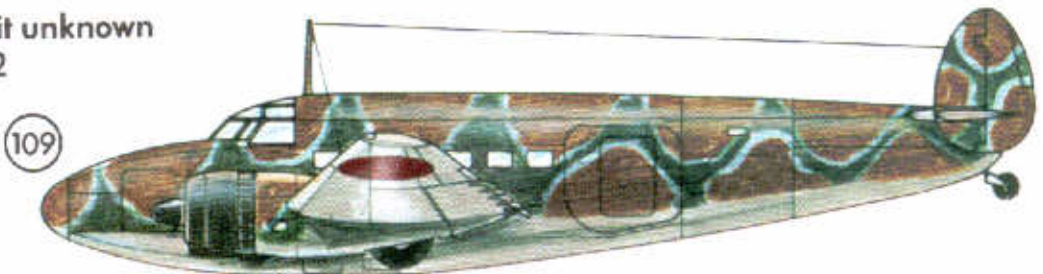
107.
HELEN, 74th Bomber Sentai, 2nd Chutai
Formosa, 1944



108.
HELEN, Unit unknown
New Guinea, 1943

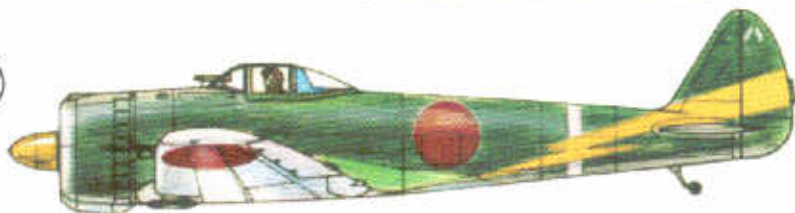


109.
THALIA, Unit unknown
Burma, 1942



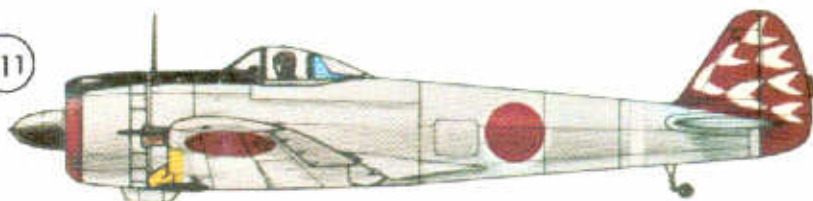
OSCAR

110



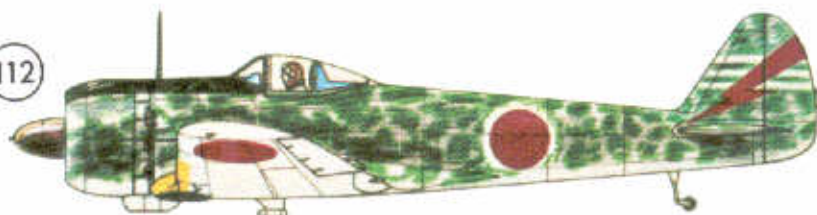
110.
OSCAR, 50th Fighter Sentai,
2nd Chutai Burma, 1942

111



111.
OSCAR, 77th Fighter Sentai
New Guinea, 1944

112

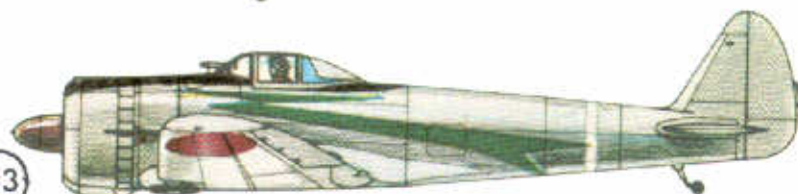


112.
OSCAR, 31st Fighter Sentai,
3rd Chutai
China-Burma, 1944

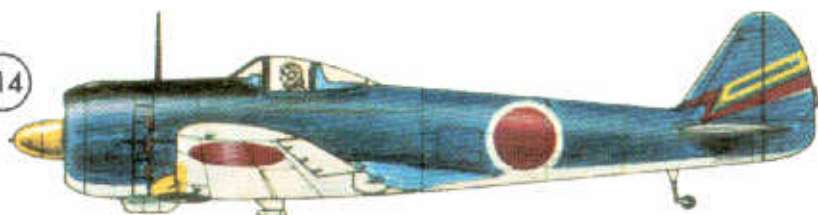
113

113.
OSCAR, 59th Fighter Sentai,
HQ Chutai Malaya, 1941

113



114



114.
OSCAR, 20th Fighter Sentai,
3rd Chutai
Formosa, 1944-1945

115

115.
OSCAR, 204th Fighter Sentai
Burma, 1945

115



116



116.
OSCAR, 25th Fighter Sentai,
HQ Chutai China, 1943-1945

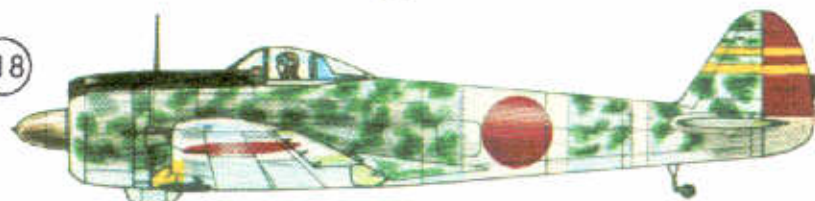
117

117.
OSCAR, 11th Fighter Sentai
Dutch East Indies, 1942

117



118

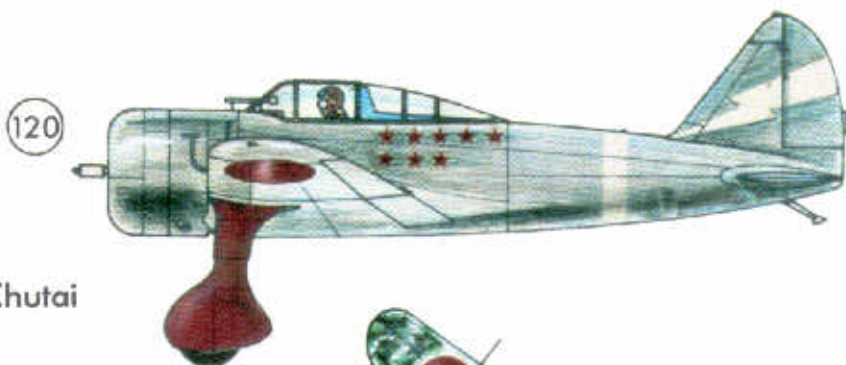
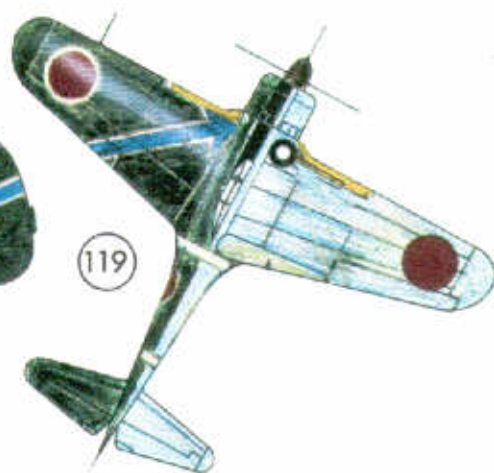


118.
OSCAR, 1st Fighter Sentai,
1st Chutai
Shimodate, Japan, 1943

FOUR ACES



119. OSCAR, 64th Fighter Sentai
Rangoon, 1942



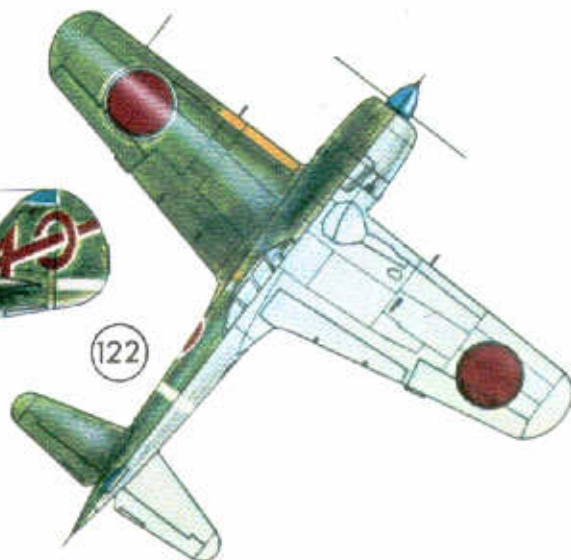
120. NATE, 11th Fighter Sentai, 1st Chutai
Harbin, Manchuria, 1939



121. TONY, 244th Fighter Sentai
Chofu, Japan, 1945



122. FRANK, 104th Fighter Sentai, 3rd Chutai
Anzan, Manchuria, 1945



PROFILES

1. 246th Fighter Sentai, 2nd Chutai. The NATE shown is a fine example of the use of obsolete types within the modern Sentai.

The NATE during this time period was used as an advanced trainer, or as a Sentai secondary aircraft, serving as Base-Defense, or as a Special Attack aircraft. This aircraft's Home-Defense role is indicated by the white fuselage and wing bandages, while the two red fuselage stripes show the special usage of the aircraft within an operational unit. *Scheme 02.*


2. 85th Fighter Sentai, 3rd Chutai. The aircraft illustrated would be the third aircraft within the second Shotai of the third Chutai. It was a characteristic of this Sentai, at this period in history, that each Shotai was identified by the diagonal colored stripes on the fuselage, white for the first, red for the second, and yellow for the third. The first aircraft within the Shotai would carry one stripe, the second two, etc., all in the Shotai color. The chutai was indicated by the color of the Sentai insignia on the tail, the colors in the same order as for the Shotai, as given above.

The foregoing marking system was not a usual practice within the J.A.A.F. *Scheme 02.*

3. 84th Independent Chutai, 2nd Flight. Called the "NAGANO BUTAI," this unit was formed from the 3rd Chutai of the 64th Sentai, hence the display of the red hawk on the fuselage. These were painted on both sides, nose forward. The hawk, of course, was a symbol of the unit's beginnings under the great ace Kato. The Chutai colors for the 84th were white, red, yellow, and cobalt, or blue, for the first, second, third, or fourth. These were indicated on the diagonal fuselage stripe, and the individual aircraft number on the tail. *Scheme 02.*

4. 11th Fighter Sentai, 4th Chutai. The 11th, at this time, had adopted the trademark of the red undercarriage, and during the days of the Nomonhan incident, were referred to as the "Red-Legged-Hawks." The Chutai colors were white, red, yellow, and green, for the first, second, third, and fourth, and were displayed on the fuselage band and the Sentai insignia. *Scheme 01.*

5. 59th Fighter Sentai, 2nd Chutai. The lightning flash of the 59th was carried on a variety of aircraft during the war, and did not change its basic design or format of display until the very last days of the war. (See profile #113, and #71)

The aircraft shown carries one of the rare uses of the color black as a Chutai color code. The Kana symbol () "NA" is the initial symbol of the assigned pilot, or ranking assigned pilot. *Scheme 02.*

6. 9th Fighter Sentai, Headquarters Chutai. One of the "old ones," the 9th had a long tradition behind it, being formed from the 3rd Air Regiment in 1935. The 9th was committed in the Nomonhan incident on 1 July 1938, and remained in Manchuria for the first years of the war. Both NATE and PERRY used the basic scheme and markings system shown, from Sept. 1939 on. Prior to this all Sentai aircraft were unmarked. Chutai colors were blue, white, red, and yellow, for HQ, 1st, 2nd, and 3rd, and were painted on in two positions shown. Fuselage Hinomarus were not carried prior to 1939. *Scheme 01.*

7. 68th Fighter Sentai, 3rd Chutai. The 68th used NATEs until March 1943, when it was re-equipped with the TONY. See profile #67. Except for its later period, the 68th saw almost exclusive service in the Manchurian theater, from its inception at Harbin in 1941. Chutai colors were same as for Profile #6 *Scheme 02.*

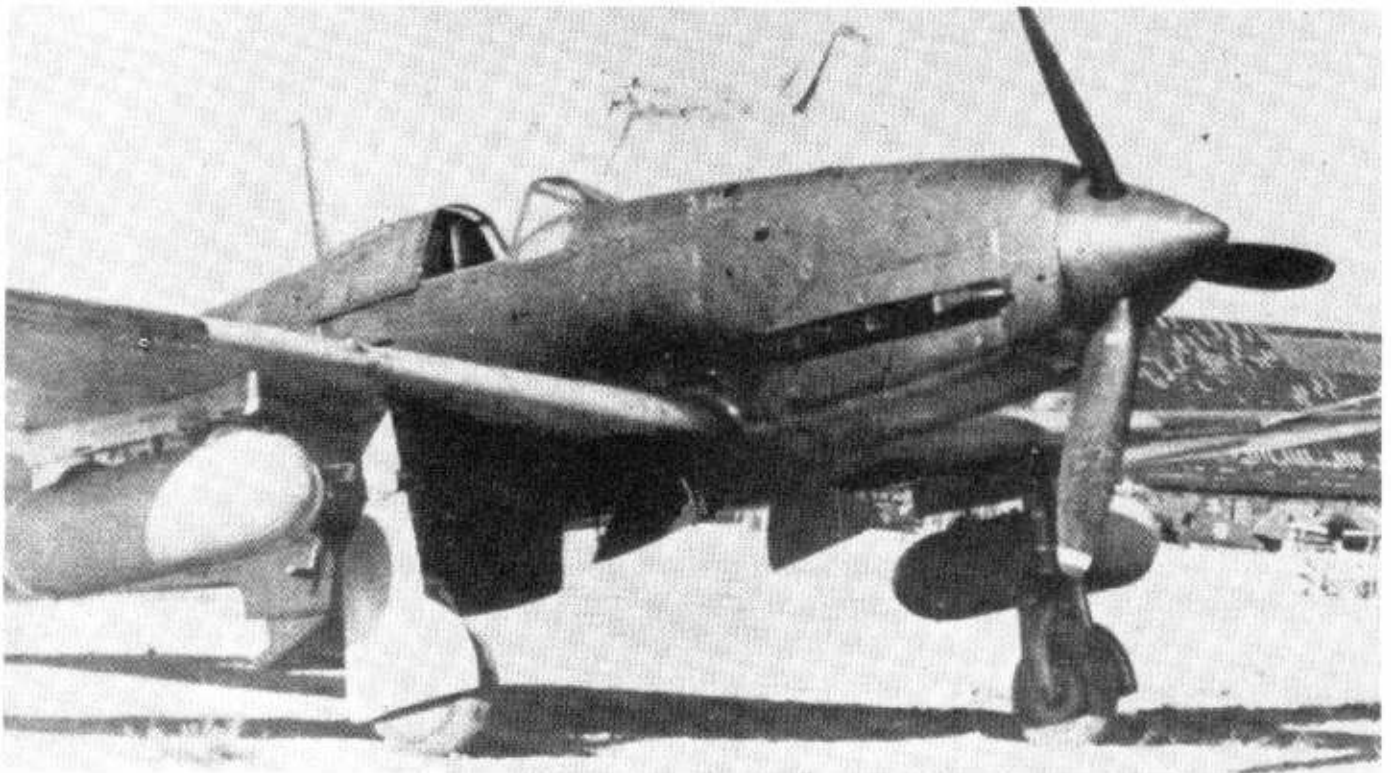
8. **STELLA, Unit Unknown.** Little is known of the operational history of the STELLA. The aircraft indicated here was used operationally, probably in either a HQs Recon detachment or within a HQs flight attached to a HQs Air Division, based upon the fuselage Hinomaru and the horizontal fin stripe. The aircraft was finished in semi-gloss paint, black and light grey green.

9. **STELLA, unit unknown.** The aircraft shown either was a prototype or in a training status, as indicated by the orange finish, and the non-combatant fuselage striping. It is the author's opinion that the aircraft was encountered during its principle flight evaluation tests, hence the visual aid painting.

10. **2nd Pursuit Sentai, 1st Chutai.** Shown is the personal aircraft of Takeo Kato, one of the greatest of the J. A. A. F. aces, during his early days in the Nomonhan campaign. Note the red hawk, referred to in profile #3, and the very rare application of kill markings. The Kana symbol (力) on the tail stands for "KA," or the first syllable of Kato. Kill marks were on the port side only, and were white and red. On his earlier PERRY, all kill marks were white outlined in red. *Scheme 02.*

11. **77th Fighter Sentai, 2nd Chutai.** The seagulls of the 77th were well-known during the early days of the war in China, as displayed on PERRY, and later against the pilots of the AVG, painted on the rudders of NATE, and the first OSCARS. Except for special adaptations of the marking, it remained basically unchanged during the course of the war. (See profile #111) Chutai colors were: 1st, blue on white band; 2nd, white on red band; and 3rd, blue on yellow band. *Scheme 02.*

12. **Sentai Unknown, 2nd Chutai.** Here is one of the first uses of colored spinners as identification in conjunction with fuselage coding. Although the Sentai is unidentified, one can make a probable identification as to the Chutai, by the color of the Chutai bands, based upon the standard coloring practices at that time period. Again, the Kana (ハ) for "HA" on the tail is the initial of the assigned pilot. *Scheme 02.*



TONY, in the early blue-grey finish. The yellow wing ID panels can easily be seen. Also, note the manufacturer's plate near the propeller hub. (R. Bueschel)

13. 28th Support Sentai, 3rd Chutai. This unit used three different aircraft types at the same time, but keeping each type in a separate Chutai. The 1st Chutai used BABS, the 2nd used SONIA, while the 3rd used IDA. The Sentai insignia was coded white, red, or blue, for the 1st, 2nd, or 3rd.

In 1941, a portion of this unit was re-organized into the 28th Independent Chutai, which became the 28th Fighter Sentai in 1944 (see Profile #54). *Scheme 02.*

14. 8th Ground Support Detachment. On this aircraft can be seen a remnant of the earlier "Esprit-De-Corps" markings, the flashes on the wheel covers. The blotch pattern is a locally applied scheme, but applied where good facilities were available, as witnessed by the finely applied individual aircraft markings. This is the third aircraft of a four aircraft detachment, the others marked with one stripe, two stripes, three stripes, and the fourth aircraft unmarked. *Scheme B4.*

15. 7th Ground Support Detachment. Wearing a locally applied version of segment camouflage, the IDA is dressed in what was considered the epitome of concealment during the period 1940-1942 in China. The 6th, 7th, and 8th Ground Support Detachments were organized in 1941, and were deactivated in October 1944 due to decimation and change of combat requirements. *Scheme C3.*

16. 59th Fighter Sentai, 1st Chutai. This is one of the rare examples of the individual aircraft number being painted on the side of an operational aircraft, a practice which was almost non-existent within fighter and attack units. It is interesting to note that no two aircraft had their numbers painted on exactly alike, due, it is supposed, to the various degrees of skill of the artists who painted them. Although this was a Home Defense unit, by late 1945 the use of the white bandage had been dropped in favor of more complete camouflage.

Schemes S1, S2, S12.

17. 3rd Operational Training Chutai. The KI-100 shown here carries the dark grey paint which was usually found on support aircraft, again indicating the shortage of paint in late 1945. Also, the Hinomaru was not outlined, contrary to usual practices. This is the 2nd variation of the tail marking of this unit, shown in another profile. *Natural metal undersurfaces.*

18. 5th Fighter Sentai, Kiyosu Japan, 1945. Here is one of the more rarely finished aircraft encountered in numbers during the war. The dark blue has weathered to a chalky blue appearance quite lighter than in its original application. Other aircraft of this same Home Defense unit wore the more frequently encountered finishes, such as S1, rather than the S14 scheme shown. The "V" insignia on the tail was the final evolution of the markings of the 5th Sentai. The individual aircraft number was incorporated into the design.

19. 111th Fighter Sentai, 2nd Chutai. This aircraft is marked in what is perhaps the simplest form of unit identification encountered during the entire war, that of a simple colored fin flash or panel, in this case red for the 2nd Chutai, white for the first. This Sentai was rather loosely formed into Air Battalions, although for clarity we have referred to them as Chutais here. Two only were formed, each being about one-half larger than a single, normally structured Chutai. *Scheme S1, S2, S12*

20. 17th Fighter Sentai. For more practical reasons, the white bandages of Home Defense were dropped in favor of greater longevity. The 17th saw much combat, the majority while equipped with KI-61s. There were no individual Chutai identifications within the 17th. This aircraft is painted in a standard factory scheme, S1, dark green over natural metal.

21. 244th Interceptor Sentai, 1st Chutai. During the last days of the war, after being supplemented with KI-100s, the gaudy schemes of the earlier KI-61s were a thing of the past. Instead of the solid colored tails which were used previously as Chutai identification, the unit reverted to the usual practice of painting the Sentai insignia in different colors for each Chutai; white, red, and yellow, for the 1st, 2nd, and 3rd *Scheme S1, S2.*

22. and 23. The KI-115 TSURIGI (Sword). Never really had an operational chance . . . the war ended before production and training had reached the required level. However, many of these were constructed, and encountered after the cessation of hostilities, so because of the uniqueness of purpose, it is included here. There were three usually encountered schemes for the KI-115; the first as in Profile #22, the second similar to #22, but with black anti-glare panelling, and the third as in Profile #23, natural metal with anti-glare panelling as shown. It is interesting to note the green surround to the Hinomaru, which was merely a painted area upon which the Hinomaru was to be masked and applied. Some historical sources have assumed that this area was painted in the same shade of red as the Hinomaru, making a sort of cockade effect, but this was not so. However, some of these aircraft could possibly have had the brown primer coat first applied instead of the exterior green shown here.

24. 61st Bomber Sentai. The mid-fuselage color separation line was a trade mark of PEGGY, and a great many of the PEGGY-equipped units used the scheme shown here. There were no identifying marks for Chutais here, all aircraft carried the same red insignia, which was a stylized "61". Rarely did the PEGGYs carry a white surround to the Hinomarus. *Scheme S13.*

25. 62nd Bomber Sentai, 3rd Chutai. The 62nd used one of the rare departures in Chutai colors; maroon (or brown), blue, and yellow for the first, second, or third Chutais. Again, note the "hard" separation line between the top and bottom colors. This Sentai used both Schemes S3 and S7

26. 98th Bomber Sentai, 3rd Chutai. On rare occasions, Sentais used numbers as identification, and the 98th was one of these. All aircraft carried the prefix "7", with the last numbers signifying Chutai and individual aircraft. Thus, 7-100 (100-300 series) would be first Chutai, 7-400 (400-600 series) would be second Chutai, and 7-700 (700-900 series) the third Chutai. *Scheme S7.*

27. 7th Bomber Sentai, Special Attack Chutai. The KI-67 KAI was equipped with an impact fuse in the nose, and was a specific modification of the standard PEGGY for strictly suicidal purposes. One Chutai of volunteers was organized to perform these duties and designated a Special Attack Unit, with accompanying honors. The Sentai insignia is Mt. Fuji, with the river Fuji flowing below, one of the proudest symbols of the old guard Air Force. This aircraft still carries a 1st Chutai identification number, 1-281. *Scheme S2.*

28. 107th Bomber Sentai, 3rd Chutai. Although originally classified as a bomber unit, the 107th when equipped with the KI-109 modification of PEGGY actually was a high-altitude area defense interceptor unit, specifically designed to intercept and destroy B-29s. There were two frequently encountered schemes, the one shown here, with the light grey green blotches applied over a dark green color, and the other, not shown, of dark green blotches applied over a light grey green base color. Oddly enough, the standard PEGGY was also used in that role. The Chutai colors were white, red, and yellow, for the 1st, 2nd, and 3rd.

29. 75th Attack Sentai, 2nd Chutai. Here MARY is shown as she appeared over China during the early days of the AVG. The need for greater concealment had not arisen at this time, as witnessed by the overall light grey green and the vivid tail markings. Chutais were identified by the horizontal stripes on the tail, in white, but not to be confused with colored horizontal stripes which were a mark of command. *Scheme 02.*

30. 45th Attack Sentai, 1st Chutai. This Sentai is rather unique in that each Chutai utilized an entirely different insignia from the others, the 1st used a stylized Mum, the 2nd none, and the 3rd a eagle-like bird in gold. This unit was later equipped with NICKs. Shown in the locally applied air-to-ground cover, this unit has already begun to feel the effects of a growing opposition from the enemy, hence the additional defensive camouflage measures. *Scheme C5.*

31. 6th Attack Sentai. The 5th used three different schemes in conjunction with one another, S3, (shown), B4, and 01, with the solid dark green (S3) running a close first over grey overall (01). Here is one of the first instances of a combat stripe on MARY.

32. 1st Fighter Sentai, 3rd Chutai. TOJO is shown here in its early inception into operational use, in the early days of the China/US confrontations. Note the absence of the fuselage Hinomaru, which was not usual with the KI-44. Chutais were identified by the color of the tail stripes, red, white, or yellow, for the 1st, 2nd, or 3rd. The stripes of the 1st Chutai were outlined in white or yellow, just the reverse of the scheme shown here for the 3rd. *Scheme S2.*

33. 47th Special Attack Chutai. Volunteers from the 47th Fighter Sentai were reformed as the 47th Shinten Seikutai, or Air Dominating Unit, with the initial purpose of air-to-air Kamikaze, by official sanction. Based at Narimasu, Japan, this unit was solely missioned to collide with and bring down B-29s. This particular unit adopted one of the most garish schemes found during the war, and further utilized the "sky-shadow" symbol of guardianship over Japan. *Scheme N.*

34. 87th Fighter Sentai, 1st Chutai. Shown here is the original application of the "Divine Wind" theme, the tail marking symbolizing the blowing of the divine wind across the seas in protection of the homeland. Some aircraft of this unit were painted in gloss or matte black, some were in the standard S2 finish, while others were, as shown here, dark brown overall. Not all aircraft used the white bands of Home Defense. This also was one of the few recorded cases of blue being used to identify other than a HQ unit; blue, red, and yellow, for 1st, 2nd, and 3rd Chutais.

35. 9th Fighter Sentai, 2nd Chutai. One of the older Sentais, having served from the days of the Nomonhan Incident, the 9th saw much service. No individual Chutai colors or marks were used. Most aircraft wore a blotch finish as shown. *Scheme B2.*

36. 85th Fighter Sentai, 3rd Chutai. TOJO at the war's end . . . rare indeed is the use of Roman numerals within the J.A.A.F. This aircraft was the lead aircraft of the third Chutai, a very war-weary TOJO. Note the greatly weathered condition of the S2 scheme, giving almost an open blotch appearance.

37. 23rd Fighter Sentai. This Sentai used no distinctive Chutai markings. Note the anti-glare panelling. The blotch finish on this aircraft was hand applied, and ranged from heavy to light in application. The Sentai symbol is an abstraction on the numeral 23, and is white outlined on dark painted aircraft. Home Defense role is again indicated by the white bandages. *Scheme B3.*

38. 70th Fighter Sentai, 3rd Chutai. All Chutais used the same general camouflage scheme, while the tail marking was in the individual colors, white, red, or yellow for the 1st, 2nd, or 3rd. Note that all fabric flying surfaces were painted in light grey green or silver. *Scheme N.*

39. 85th Fighter Sentai, 2nd Chutai. Shown is a Chutai leader's aircraft, as indicated by the white-red-white fuselage marking, which was quite prevalent in the China theater. Also note the absence of the white surround to the Hinomaru. Of special note is the use of dark grey as a blotch over light grey green, quite rare on this type. The absence of wing identification panels is also worthy of note.

40. 29th Fighter Sentai, 2nd Chutai. Although the 29th Fighter Sentai was more widely associated with the KI-84 FRANK, the KI-44 TOJO did also serve well. The Sentai marking represents the power of the raging seas, with blue, white, red, and yellow being used for the HQ, 1st, 2nd, and 3rd respectively. Again note the lack of wing ID panels. *Scheme S1.*

41. 31st Light Bomber Sentai, 3rd Chutai. The 31st Light Bomber Sentai was transferred to a fighter Sentai in February 1944, and re-equipped with OSCARs. The new unit kept the old Sentai markings. Chutais were identified by the number of horizontal stripes which ran behind the lightning flash. ANN enjoyed a wide variety of finishes during the war, possibly the most common being that shown here, Scheme B4, while others were encountered in a segment type scheme, or overall light grey green.

42. 90th Light Bomber Sentai, 1st Chutai. The 90th used a tail marking in the old school manner, bright red, and never worried whether detection by the enemy was expected or not. The 1st Chutai used a bright red rudder, the 2nd used a bright yellow rudder, and the 3rd was unmarked. The horizontal stripes in the Chutai color signify the position of the aircraft in the Shotai, or flight. *Scheme 02.*

43. 87th Light Bomber Sentai. Formerly the 87th Independent Chutai. Here is another variation on the blotch patterns, a "tiger" striping application of dark green over light grey. All Chutais were in the same markings. *Scheme B9 with light grey.*

44. 49th Independent CHUTAI) Here is the dark blue finish, overpainted on light grey green, which was the original finish of the aircraft. Note the use of numerals on the tail. In this case, rather than to just indicate the numeral "1", "01" has been used instead, to maintain the two-number increment. SONIA was a close cooperation aircraft, and was actually used in more operational roles than any other light aircraft during the later war period. *Scheme S6.*

45. 44th Reconnaissance Sentai, 1st Chutai. Here is a very rare use of the Hinomaru as a unit marking. This insignia style was also worn on BABS and IDA at various times. The amount of stripes on the tail denoted the Chutai. The red on the motor cowling was a personal adornment, and not a Chutai marking. *Scheme 02.*

46. 10th Reconnaissance Sentai. Completely unmarked, except for the wing Hinomarus, the recon aircraft of the Sino/Japanese period were more interested in evading the enemy than antagonizing him, especially after the advent of the AVG and the P-40. Classic in application is the segment camouflage, with the ribbons of blue, simulating the many rivers and canals of the Manchurian countryside. *Scheme C5.*

47. 16th Independent Chutai. Esprit-De-Corps is strongly evident in the garish fuselage color flashes and the propeller backs. In the beginning of the China period, the BABS was used in a ground attack role, and, as with all operational units, unit morale ran high, as did the markings of the aircraft. *Scheme 02.*

48. 18th HQ Reconnaissance Wing. Wearing the symbols of the Imperial guard, the 18th Wing was responsible for Home Defense activities in central Japan, and this command aircraft was so marked. Rarely were Home Defense bandages found on secondary aircraft as shown here. Dark green and black cowls were a trademark of BABs throughout its career. *Scheme 02.*

49. Unit Unknown. The aircraft of this unit utilized a "tiger" striping type of camouflage, which again, is a locally applied defensive finish. It is interesting to note, however, that the national insignia and "combat" stripe has been carefully applied over the tiger striping, somewhat defeating its purpose.

50. 3rd Attack Sentai. Except when used in a training capacity, LILY rarely used the overall light finishes, one of which is shown here. The light finished aircraft were too easily spotted when operating over jungle, being better suited for China/Burma operations. The 3rd, however, originated in the China area, dating back to the Nomohan incident. *Scheme 01.*

51. 8th Light Bomber Sentai, 2nd Chutai. This Sentai was one of those using more than one type of aircraft simultaneously, DINAHs were used by the 1st Chutai, which carried one white stripe above the Sentai Insignia, and LILYs were used by the 2nd and 3rd Chutais. Shown is a standard factory finish for the period, *Scheme S2 or S15.*

52. 208th Light Bomber Sentai, 3rd Chutai. The LILYs of the 208th used a partial color change on the Sentai insignia to denote the various Chutais, the horizontal stripe behind the "8" on the vertical stabilizer was painted in the Chutai color, white, red and yellow, for 1st, 2nd, and 3rd. *Scheme B2.*

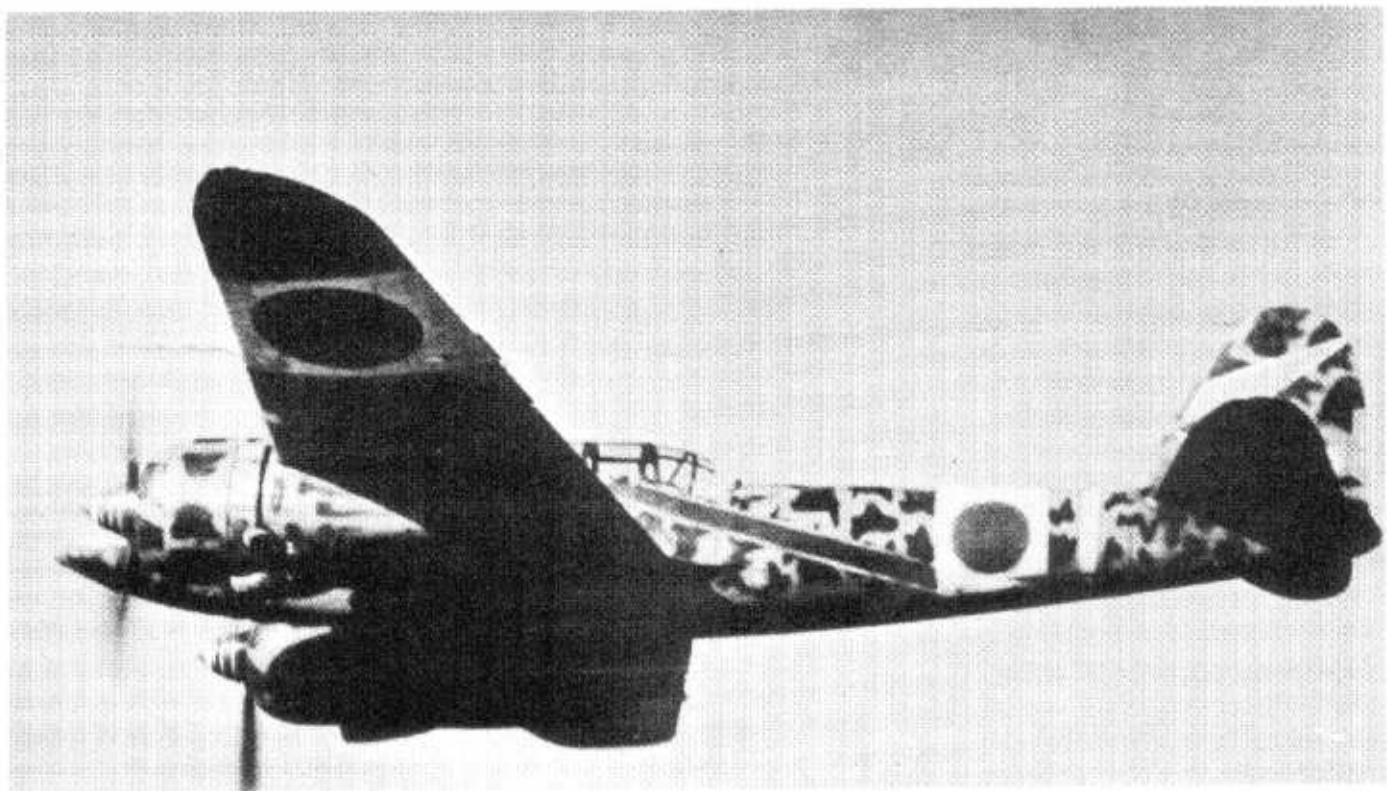
53. 3rd Operational Test/Training Chutai. The 3rd was a loosely formed unit composed of pilots drawn from all throughout the J.A.A.F. with the mission of combat test and evaluation of new aircraft. The unit insignia took several forms, one of which is shown here. Note the "special purpose" stripes on the rear fuselage. This is a standard factory finish, fresh off the line. *Scheme S1.*

54. 28th Fighter Sentai, 2nd Chutai. RANDY was assigned to this unit, which had its origin in China in 1938 as a light attack Sentai, and which was incorporated with the remnants of the 28th Independent Fighter Chutai in mid 1944. The Chutai colors were white, red, and blue, for the 1st, 2nd, and 3rd, used in the Sentai insignia. *Scheme S3*

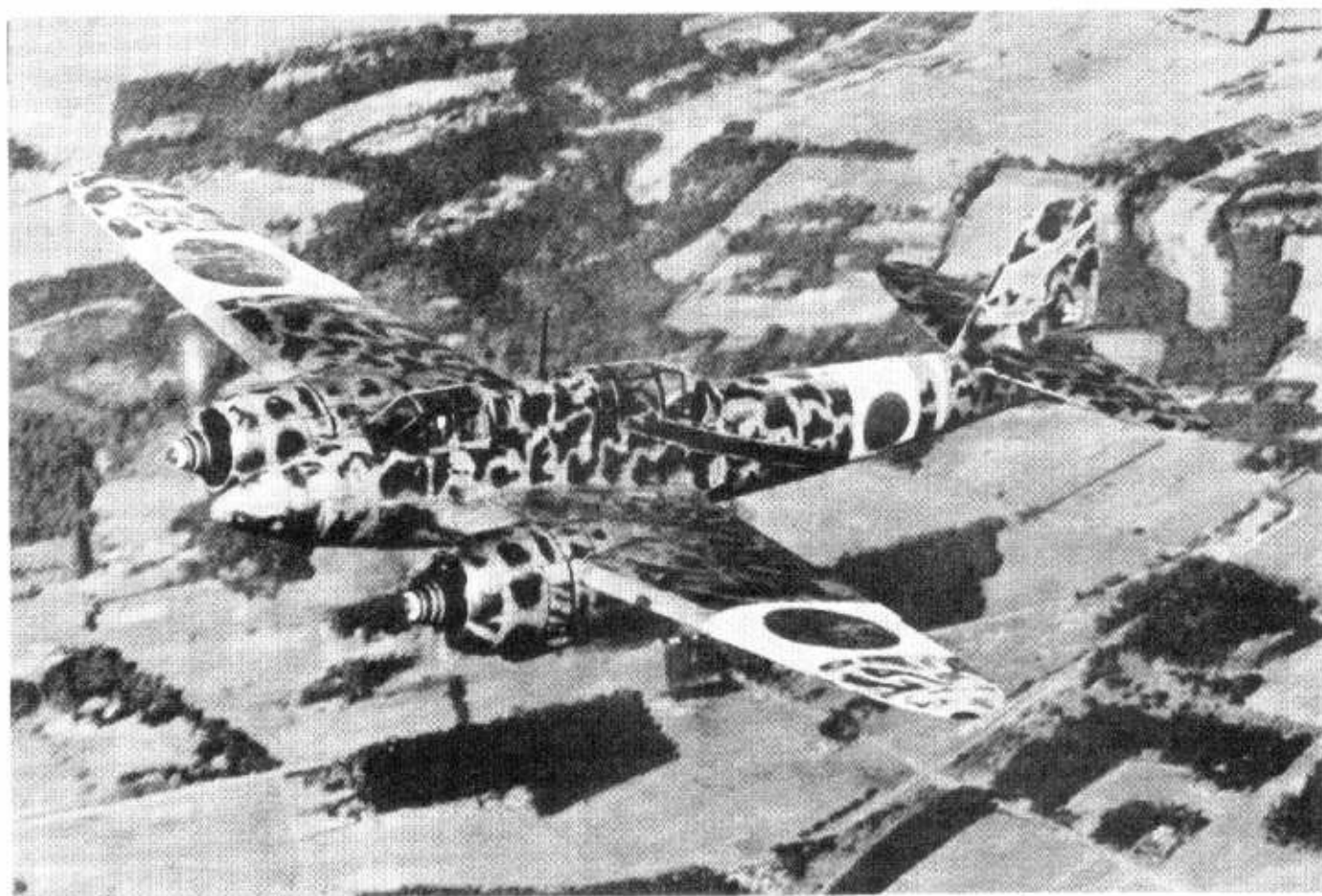
55. 45th Fighter Sentai, 1st Chutai. RANDY was used in conjunction with NICK during the last days of the war. Again, the Chutais were identified by the color of the Sentai marking, white, red, and yellow, for 1st, 2nd, and 3rd. The Sentai insignia was a stylized number "45." *Scheme S3*

56. 14th Bomber Sentai, 3rd Chutai. Here is another version of the palm leaf pattern described earlier. It is perhaps worth noting that even though great pains were taken to make the aircraft hard to detect, the crews insisted on retaining the bright yellow tail marking, thus in a sense defeating the primary purpose of the camouflage pattern applied. *Scheme B9, B9a.*

57. 60th Bomber Sentai, 2nd Chutai. Here we have a fine example of an early segment camouflage system, which was so common over the China countryside. The 60th used a rather complicated identification system for its Chutais; no markings for the 1st; as shown for the second, two oblique red stripes with a superimposed star of various colors; and the 3rd, with a bright yellow horizontal band on the rudder. The white stripes identify aircraft position within the Chutai. *Scheme C5.*



KI-45 Kai NICK of the 53rd Sentai, on Home Defense duties late 1944-early 1945. Although much publicized, there are many usual aspects to this aircraft in relation to its markings, such as the unusual spinners, which are painted similar to the Luftwaffe, with alternating bands of red and white, the Sentai Leader's command stripe, painted diagonally across the fuselage in red and white, and the very carefully sprayed blotch pattern, all touched off by the Home Defense bands.
(Oishi/Bueschel/Anda)



58. 3rd Independent Chutai. The highly modified SALLY shown here was one of several which attempted a suicide attack on an Allied field in Okinawa in 1945. The three red stripes were the Chutai identification, while the three-digit number was the individual aircraft identification number. Note that the cowlings of the port engine was "borrowed" from another solidly painted aircraft. *Scheme B9.*

59. 8th Air Division, HQ Chutai. This form of tail marking was typical of most of the Air Division HQ units, this one being a form of the Roman numeral VIII, on its side. The "open" blotch pattern was typical of hand applied patterns over SALLYS. *Scheme B1.*

60. 98th Bomber Sentai, 3rd Chutai. Here is a fine example of in-the-field overpainting. Most SALLYS belonging to this unit were originally supplied in light grey green, and were either blotched over or overpainted in a solid upper color as shown. The Chutai colors, painted on the Sentai insignia, were white, red, and yellow, for the 1st, 2nd, and 3rd. *Scheme S3*

61. 7th Bomber Sentai, 3rd Chutai. SALLY probably wore more varied camouflage schemes during its operational career than any other multi-engined aircraft. This particular unit was re-equipped with KI-109s during the last days of the war, and served as a special attack Unit. The Mt. Fuji insignia was finished in either white, red, or yellow, for the 1st, 2nd, or 3rd Chutai. *Scheme B2.*

62. 12th Bomber Sentai, 1st Chutai. Very few SALLYS were used operationally in the light grey green finish shown here. Usually, though, in a training configuration the solid light color was common. The 12th used blue, red, and yellow for the 1st, 2nd, and 3rd Chutai colors. *Scheme 02.*

63. 244th Air-Dominating Sentai, HQ Chutai. The "Shinten Air-Dominating" groups were designed as air-to-air Kamikazes, and this unit, the 244th, served almost from inception as a special attack Sentai, both with KI-61s and with KI-100s. The 244th probably enjoyed a greater variety of garish finishes during its career, due to its being greatly exploited by the Japanese press during the defense of Japan. A staff aircraft is shown here, as indicated by the solid blue tail, fuselage and spinner. The yellow lightning flash is a personal adornment. The other Chutais were colored white, red, and yellow, for the 1st, 2nd, and 3rd. *Scheme B3, B3a, or variations of these.*

64. 55th Fighter Sentai. The most notable thing one can say about the 55th Sentai is that it is one of the most singularly unmarked units in the J.A.A.F. With the exception of the red spinner, there is nothing to identify the unit. The medium blue grey scheme shown was an early factory finish for TONY, which was soon dropped for the natural metal or blotch patterns. *Scheme S8.*

65. 18th Fighter Sentai, 1st Chutai. This was a Home Defense unit. Chutais were indicated by the color of the insignia and the combat stripe: white, with red outline for the 1st, red with white outline for the 2nd, and when used, yellow with red outline for the 3rd. Although most aircraft within this Sentai were finished in natural metal, some were marked as shown here while in Japan on home defense. When the unit served in the Philippines, all aircraft were in a blotch pattern without the white bandages, and with un-outlined Hinomarus, with some of the aircraft done in a black blotch. *Scheme B3, B3a, or variations of these.*

66. 37th Fighter Sentai. There were no special Chutai markings used. Note the yellow combat stripe, denoting the primary purpose of the Sentai, that of operational training. Individual aircraft numbers were carried on the landing gear covers. *Scheme N.*

67. 68th Fighter Sentai, HQ Chutai. Note the unusual positioning of the command stripe, in the Chutai color. In this color, the stripe would indicate the Sentai leader's aircraft. Blue, white, red, and yellow were the colors of the HQ, 1st, 2nd, and 3rd Chutais. The "ribbon" or "wave mirror" pattern on the aircraft is also worthy of note.

Scheme B9.

68. 56th Fighter Sentai, 3rd Chutai. Activated as a Home Defense unit, the 56th saw service in Japan through all of the final days of the war, its aircraft finally ending up on the burial piles at Tachikawa at the war's end. This unit used no Chutai markings. Aircraft which were unpainted carried the insignia in red. Individual aircraft numbers were carried on the rudder immediately behind the insignia.

Scheme S8.

69. Unit unknown. This aircraft was previously attached to the 53rd heavy fighter Sentai, as can be seen by the overpainted insignia on the tail. The rare use of numerals on the fuselage is worthy of note, as is the painted-over combat stripe and the blotched out tail numbers.

Scheme N.

70. 244th Fighter Sentai. Before the heyday of garish schemes, the 244th wore only the Kanji symbols shown here, but still continued in a special attack role. *Scheme N.*

71. 59th Fighter Sentai, 3rd Chutai. During the closing days of the war the early lightning bolt so famous to the 59th was dropped in favor of a simple stripe, as shown. Blue with white outline, red with white outline, and yellow with red outline were used for the three Chutais. Shown is an extremely weathered blotch finish. *Scheme B9.*

72. HAMAMATSU Army Flying School. Every Major bomber type at one time or another was assigned to training duties with training units, and PEGGY was no exception. The two usually-encountered schemes for this aircraft were as shown and in natural metal. The school insignia was painted in both yellow and white on dark finished aircraft and in black on natural metal. *Scheme S2.*

73. SHIMOSHIZU Army Flying School. The Kana symbol for "NA" on the rudder is indication of the assigned pilot. Natural metal scheme, with the light grey green fabric flying surfaces which are not readily discernable on other finishes. *Scheme N.*

74. KUMAGAYA Flying School. Instructors within training divisions were also required to perform yeoman duties as area defense, as indicated by the Home Defense bandages. The Kana symbol for "RA" is the initial of the assigned pilot. See also profile #76. *Scheme S1.*

75. AKENO Flying School. A "showcase" finished NATE, this aircraft reflects the immaculate finishes of the early days of the war, and before, the fine attention to detail and aesthetic appeal to the eyes. This aircraft would be a section leader, as indicated by the yellow fin flash, and also the third aircraft of the "white" Chutai, as shown by the white painted areas, and the three white stripes on the fuselage. *Scheme 02.*

76. KUMAGAYA Flying School, Instructor's Division Here we see the dual purpose of the aircraft reflected in the yellow Home Defense bandages, showing the primary training mission of the aircraft. Also, note the different color of the school insignia as compared to that in profile #74. *Scheme N.*

77. Army Aviation Communications School SALLY I in a standard factory finish, which was not too common in training units. Most bomber aircraft in training roles were finished in light colors. *Scheme S3*

78. HITACHI Army Flying School Some of the school instructor squadrons painted wings surrounding the school insignia, two who followed this practice were Hitachi, and Akeno. The scheme is standard for most TOJOs, in school or out. *Scheme B1.*

79. HOKODA Army Flying School LILY is shown in the light finished configuration discussed above. Notice the red fuselage stripe, denoting a special status of this aircraft, assumably for operational training purposes. *Scheme 02.*

80. 73rd Fighter Sentai, 2nd Chutai. Both natural metal and dark green painted FRANKs were used by the 73rd. Individual aircraft numbers were displayed as shown. The stripes were painted in the respective Chutai colors, white, red, and yellow, for the 1st, 2nd, and 3rd. Anti-glare panelling here is in olive green. *Scheme N.*

81. 11th Fighter Sentai, 2nd Chutai. Illustrated is a factory-fresh KI-84 with its dark green upper surfaces and light grey undersurfaces, with the factory-applied brown primed spinner. Note also the black anti-glare panel which was often painted out through maintenance. It was not a common practice within the 11th to paint combat stripes on the aircraft. *Scheme S2, S2a.*

82. 24th Independent Chutai. Here is a fine example of the dark brown upper surface scheme which has been the topic of several controversies, having been described as maroon, or "grape," by some historians. It is believed that this scheme evolved through lack of proper exterior colors, paint shortages, during the last days of the war, when many different colors were substituted at the factories. *Scheme 12.*

83. 1st Fighter Sentai, 1st Chutai. The 1st Sentai used a solidly colored tail surface to distinguish Chutais, red, white, or yellow for the 1st, 2nd, or 3rd Chutai. Frequently the area immediately below the colored area on the rudder was utilized to identify individual aircraft, various numbers being painted on. Shown is a well-weathered blotch pattern. *Scheme B3, B3a.*

84. 29th Fighter Sentai, HQ Chutai. FRANKs served with the 29th Sentai during the period November 1944 through August 1945. Some aircraft within the Sentai were finished in Scheme S1a as well as the natural metal finishes so prevalent during the last days of the war. The design symbolizes the terrific attack powers of the 29th, being a stylized wave crashing down on their enemies. Other Chutai colors were: white, red, and yellow, for the 1st, 2nd, and 3rd. *Scheme N.*

85. 52nd Fighter Sentai, 3rd Chutai. FRANK is shown here in one of the more unusual schemes which appeared at various times during the war, but not frequently enough to warrant inclusion in the camouflage section of this book. This aircraft was finished in olive green with brown blotches over natural metal undersurfaces. There were also several variations of the Sentai mark, which was painted white, red, or yellow, for the 1st, 2nd, or 3rd Chutai. This is a fine example of a locally applied scheme.

86. 71st Fighter Sentai. With Home Defense responsibilities, the 71st used no separate Chutai identification, all aircraft carrying the same red tail symbol. It is possible that there may have been command indication through the use of colored spinners, but this has not been confirmed. *Scheme S1, S1a, S2, S2a.*

87. 72nd Fighter Sentai, 3rd Chutai. Chutais were indicated by the color of the broad band across the tail, which contained the individual aircraft number, white with black numbers, red with white numbers, and yellow with black numbers, for the 1st, 2nd, and 3rd Chutais. Not all aircraft used colored spinners, some being in primer or natural metal. Aircraft serial numbers were carried in the lower area of the rudder as shown. *Scheme B2.*

88. 57th Special Attack Sentai. This was one of few regularly assigned air-to-air Kamikaze units, with the specific mission of colliding with B-29s. Although the majority of J.A.A.F. units used an abstract or stylized version of their designation as a unit symbol, the 57th was one of the very few who used straight numerical codings as part of the symbol. There were no definite Chutai marks or symbols or formations, and the area behind the "57" was often colored in many different shades, and with many variations on the wings. *Scheme S1.*

89. 85th Fighter Sentai, HQ Chutai. The Symbol "KU" on the tail is the initial of the assigned pilot. The Chutai colors are blue, red, white, and yellow, for the HQ, 1st, 2nd, and 3rd Chutais. All pilot initials were in white, all Sentai insignias were outlined in white with the exception of the 2nd Chutai, which was outlined in a dark contrasting color, such as red, blue, or black. Of further interest is the un-outlined Hinomaru. *Scheme S2, S2a.*

90. 4th Fighter Sentai, 2nd Chutai. The "Veined" camouflage pattern was almost exclusively the property of NICK. Very seldom would any other aircraft type be found in this scheme. With almost aesthetic application, NICKs were masterpieces of appearance, and this NICK was no exception. The tail marking is the symbol of the TACHIARAI air base in Kyushu, and is a graphic representation of the name, which means "Sword-Washing." This was derived from history when battle-crazed Samurais washed the blood from their swords in a river in that area. The central portion of the symbol is that of a sword guard, while the red stream signifies the bloodied river. This same symbol was used by the 4th Sentai, and also the 6th and 4th Independent Chutais. *Scheme B4.*

91. 5th Fighter Sentai, 1st Chutai. Chutai colors were carried on both the fuselage and tail striping, yellow, white, and red for the 1st, 2nd, and 3rd. Hinomarus were un-outlined as shown, and as a direct contrast to the aircraft of the 4th Sentai, the entire aircraft was finished in *Scheme 03.*

92. 5th Fighter Sentai. Chutais were not identified at this time, and Home Defense markings were also avoided. All aircraft were painted in much the same manner as shown here. *Scheme S1.*

93. 27th Fighter Sentai. Again note the veined camouflage so prevalent with NICK. Originally a light bomber Sentai, the 27th changed to the fighter role in September 1944. *Scheme B2.*

94. 53rd Fighter Interceptor Sentai, 3rd Chutai. The 53rd Sentai ranked along with the 244th Sentai in public acclaim, and the exploitation by the press is evidenced by the officially sanctioned personal emblems found on some of their NICKs. Each aircraft of this Sentai seemed to vie with one another in achieving the ultimate in aesthetic appeal. This one, based at MATSUDO Air Base in the spring of 1945 sported a fancy arrow on both sides of the fuselage. Also, note the varicolored spinner, which was found more on NICK than any other type in the J.A.A.F. *Scheme B1.*

95. 13th Fighter Sentai, 2nd Chutai. This Sentai used various types at the same time, among them NICK, OSCAR, FRANK, NATE and PERRY. The Chutai colors here were, white, red, and yellow, for the 1st, 2nd, and 3rd, during the period 1942-1944. The NICK here is just as received from the factory, finished in light grey green. *Scheme 02.*

96. 82nd HQ Reconnaissance Sentai. The tiger insignia of DINAH was also used by the 18th Independent Chutai. The symbol stems from an old fable concerning the tiger's ability to run 1000 miles, fight a battle, and return still untired. The segment camouflage is a carryover from the earlier days in Manchuria. Note that the surround to the Hinomaru is rather creamish instead of white. *Scheme C5.*

97. 19th Independent Chutai. Another unusual finish not often encountered was the all white shown here. Most aircraft of the 19th used the standard dark green/light grey schemes, usually found on DINAHs. The unit insignia was painted in white on dark finished aircraft. *Scheme 04.*

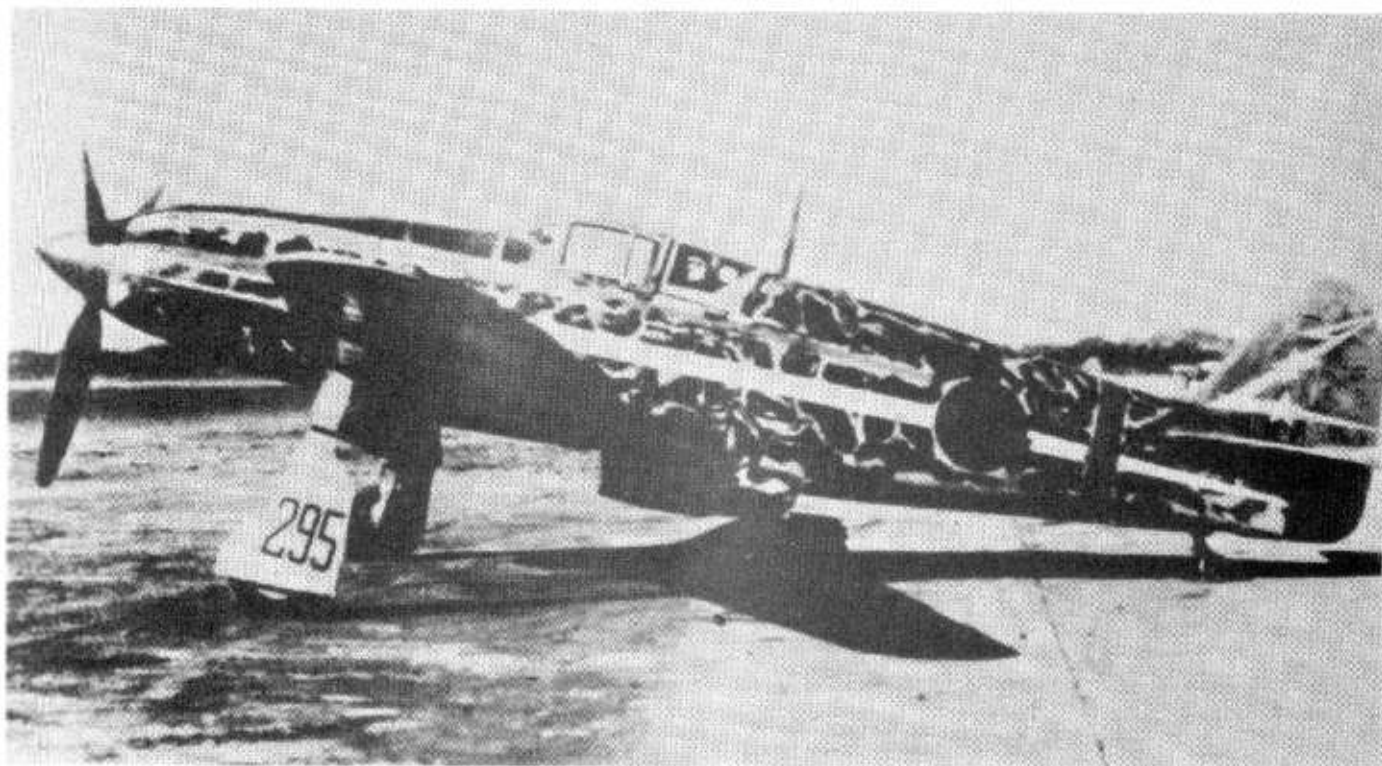
98. Unit Unknown. Encountered in New Guinea, this DINAH is worthy of note for two reasons, the first of which is the overall dark blue finish; and second, the yellow identification striping which is carried on the leading edge of all flying surfaces. *Scheme S14.*

99. 81st HQ Reconnaissance Sentai, 3rd Chutai. Medium brown primer was occasionally used as an exterior finish as shown here, with light grey undersurfaces. Usually this occurred because of lack of paint at the operational level, or the pressing need for the aircraft prevented its lay-up for painting. Chutais were identified by the colors white with red outline, red with white outline, and yellow with red outline, for the 1st, 2nd, and 3rd. *Scheme 12.*

100. 2nd Reconnaissance Sentai. The 2nd used no individual Chutai markings, all aircraft carried the same standard finish, just as received from the factory. *Scheme 01.*

101. 10th HQ Reconnaissance Sentai. Wearing a protective blue grey finish for over the water service, this DINAH was a member of a group of Sentais which originated in the TACHIARAI area, as signified by the river symbol on the tail. There were no separate Chutai identification practices in the 10th Sentai. *Scheme 03.*

102. Unit Unknown. During the closing days of the war, many civil aircraft were pressed into service as troop transports, and still wearing its civil markings, this TOPSY was a good example. The gloss black nose was a trademark of the Nippon Airways, and the red outlined white fuselage stripe was a customary sign of the non-combatant aircraft. *Scheme B1.*



TONY, 244th Sentai, HQ Chutai, 1945. The individual numbers carried on the landing gear covers show careful attention to application. Here the Chutai identification is indicated by the additional fuselage stripe, carried above the Sentai "esprit-de-corps" stripe, which took many colors, in this case yellow. The Chutai identification stripe is in blue, as is the entire vertical tail. (Larry Crawford)

103. 51st Air Training Command, HQ Chutai. TOPSY often served in yeoman duties with most of the higher echelon units, and here is a good example. The tail marking as shown has occasionally been mistakenly applied to fighter aircraft as a Kamikaze symbol. *Scheme 01 or 02.*

104. 95th Bomber Sentai, 3rd Chutai. Here is one of the few examples of the use of a fuselage symbol on a bomber late in the war. The Chutais were identified by the color of the oblique stripe just aft of the combat stripe, white, red, and yellow, for the 1st, 2nd, and 3rd. There were no tail marks carried. The oblique stripe signified the rising dragon of Japanese folklore. *Scheme B4, S2, or S3.*

105. 62nd Bomber Sentai, 1st Chutai. HELENS of the 62nd Sentai were unique in the choice of Chutai coloring, and one of the few Sentais using very non-standard coloring. Maroon (brown), blue, and yellow were used for the 1st, 2nd, and 3rd Chutais. Although the aircraft shown here is in a blotch finish, the usual practice was a dark green and light grey, or light grey overall finish. *Scheme S2, S3, B1, B4.*

106. HAMAMATSU Army Flying School, Instructor's Sentai. The aircraft of the section or Chutai leader of the 2nd Chutai. The school insignia was also found in red and yellow. Note the use of anti-glare panelling. *Scheme N.*

107. 74th Bomber Sentai, 2nd Chutai. Here we have the traditional approach again to Chutai identification; white, red and yellow are the Chutai colors for the 1st, 2nd, and 3rd Chutais. The mottle scheme is not really standard, but rather a type of "tiger" striping, which is found on many HELENS. Although this aircraft has its blotch over light grey green, many used light grey and natural metal as a base. Note that the Hinomaru has been carefully re-painted over the blotch pattern. *Scheme B1, B4, B3.*

108. Unit Unknown. Although the unit is unknown, this HELEN deserves inclusion here because of the finely executed ribbon camouflage system, and the unorthodox combat stripe. Note also that the green of the ribbon has also been overpainted over the edges of the Hinomaru. *Scheme B2.*

109. Unit Unknown. This THALIA sports a very unusual finish which occasionally cropped up on both Army and Navy aircraft of the period 1941-1942 in the China/Burma area. As THALIA was used as a paratroop transport at this time and operated at relatively low altitudes, this scheme was designed to render the aircraft invisible from above. *Scheme modified C5.*

110. 50th Fighter Sentai, 2nd Chutai. Some aircraft within this Sentai were reported to have used colors for the lightning flash which were not related to the Chutai, such as pink, blue, or orange. Although most pilots carried a Kana or Kanji symbol on the tail, sometimes this Kana was painted on the cowl or fuselage. Note the un-outlined Hinomaru. *Scheme S2.*

111. 77th Fighter Sentai, Sentai Leader's aircraft. During its career, the 77th underwent many insignia changes, but it always kept within the "seagull" motif. Some aircraft used a bare metal seagull symbol, with the tail being painted in the overall finish, but the seagulls remaining unpainted. The red cowl and tail denotes command responsibility. *Scheme N.*

112. 31st Fighter Sentai, 3rd Chutai. This particular Sentai insignia will also be found on some ANNs, as the unit was converted to a fighter role in March 1944, and the Sentai insignia was retained. Chutais were identified by the number of white horizontal stripes on the tail. *Scheme B3, B3a*

113. 59th Fighter Sentai, HQ Chutai. Although the OSCARs of the 59th have been much illustrated, it is included here because of the radical usage of green as a Chutai identification color, and especially as a HQ Chutai identification color, green, red, and black, for the HQ, 1st, and 2nd Chutais. Note unusual use of anti-glare panelling. *Scheme N.*

114. 20th Fighter Sentai, 3rd Chutai. The use of dark blue as an exterior color was not very widespread in the JAAF, and was usually only used by night flying or over-the-water missioned aircraft. The 20th used colored spinners as the only Chutai identification, white, red and yellow for the 1st, 2nd, and 3rd, none for HQ. *Scheme S14.*

115. 204th Fighter Sentai, Sentai Leader. The tail mark is the Sentai identification symbol, while the three yellow stripes denote Sentai command. Chutai leaders aircraft would be identified by two stripes in the Chutai color ahead of the combat stripe, while the Chutai is identified by *one* stripe in the Chutai color, white, red, or yellow, for the 1st, 2nd, or 3rd. *Scheme S1.*

116. 25th Fighter Sentai, HQ Chutai. During the last days of the war several Sentais used a similar identification symbol to this one, but the 25th Sentai used this symbol from its inception in 1942 to the end of the war, all of its service in China. Chutais were identified by the color of the tail stripe, blue, with white outline, white with red outline, red with white outline, and yellow with red outline for HQ, 1st, 2nd, and 3rd Chutais. All aircraft were further identified by a number on the tail, which was painted on as large as was possible. Note the very badly deteriorated finish on this aircraft, denoting hard service. *Scheme B3.*

117. 11th Fighter Sentai, Sentai Leader. Usually this Sentai carried a single lightning flash on the tail in the Chutai color, but the Sentai leader's theme was a composite of all the Chutais under his command. The individual aircraft number was usually carried on the lower portion of the rudder. *Scheme B3.*

118. 1st Fighter Sentai, 1st Chutai. During the last days of the war, the 1st Sentai was pressed into Home Defense duties with FRANKs and OSCARs serving side by side. The tail marks for each Chutai were the same as for FRANK, red, white, or yellow, for the 1st, 2nd, or 3rd Chutai. The horizontal stripes denote the section or Shotai within the Chutai, in this case the 2nd Shotai. *Scheme B1.*

119. 64th Fighter Sentai. This is the personal aircraft of Colonel Takeo Kato, while serving as Sentai Commander of the 64th Sentai, during operations in Rangoon, 1942. At a later period, the forward fuselage stripe was painted in blue with white outline, and the wing arrows were reversed as shown. *Scheme S1.*

120. 11th Fighter Sentai, 1st Chutai. Personal aircraft of Captain Shimada, Chutai leader of the 1st Chutai, during the Nomonhan Incident. Known as the "Red-legged-Hawk," Capt. Shimada shot down 8 aircraft in a single engagement during a dogfight on 27th May 1939 near Harbin Manchuria. *Scheme 01.*

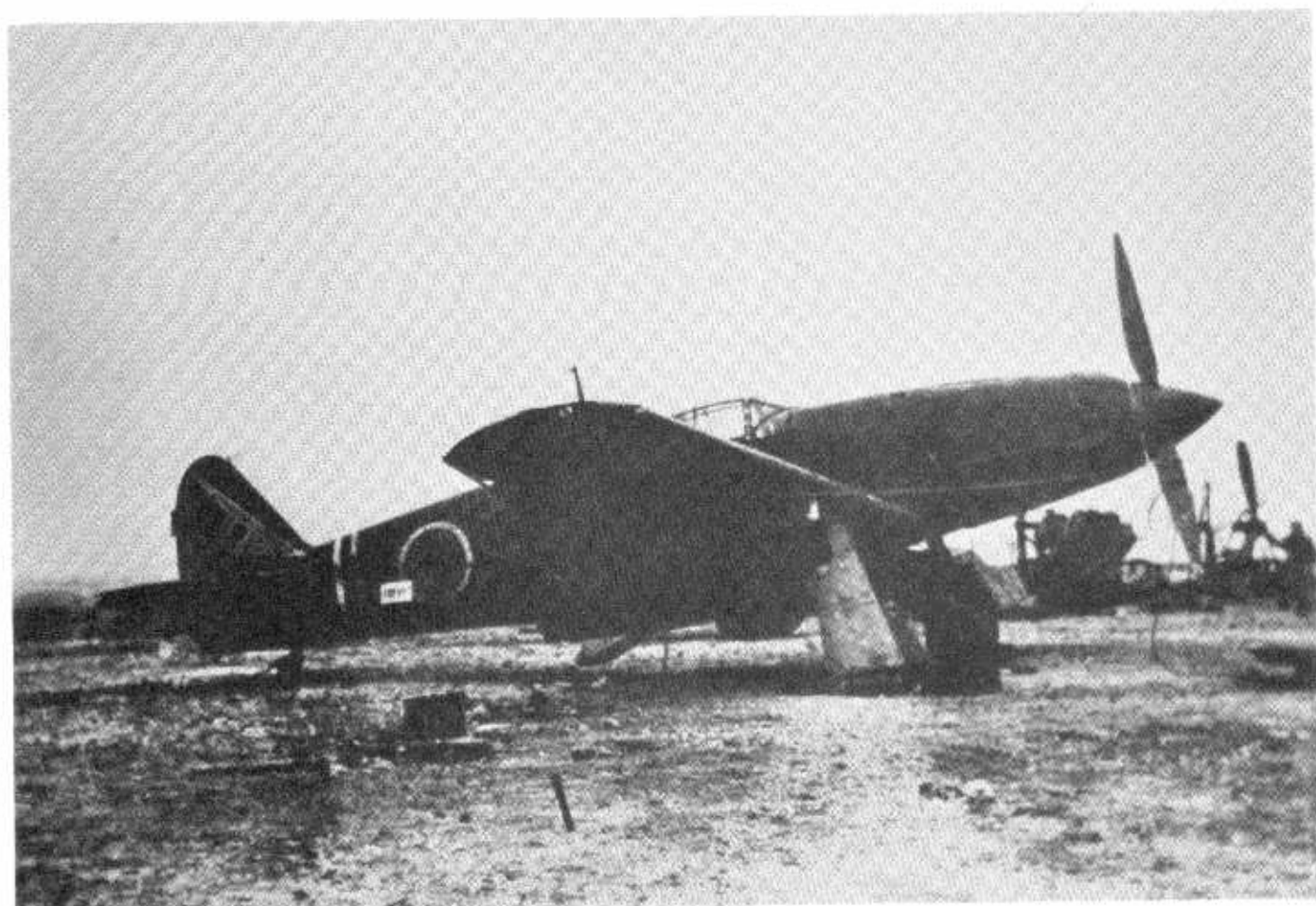
121. 244th Fighter Sentai. The much publicized TONY of Major Kobayashi is shown here in an unpublished version, in that the wing command stripes have never been shown to date. The aircraft is shown as it was during the 244th's heyday as the darling of the Japanese public. *Scheme B3.*

122. 104th Fighter Sentai, 3rd Chutai. Lt. Tomiya, the Chutai leader of the 3rd Chutai, served with the 104th at Anzan, Manchuria, and was one of very few pilots who were allowed to place personal kill marks on his aircraft. These kills were listed on the port side only. The Kanji symbol is the signature of the Lt. *Scheme S2a.*



19th Sentai, 1945.

(USAF)



19th Sentai, 1945.

(USAF)

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AIRCRAFT OF THE J.A.A.F.

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PRINCIPAL AIRCRAFT OF THE J.A.A.F.

Kawasaki Ki.10 Fighter (PERRY)

Although PERRY was mainly considered a pre-war aircraft, because of its overlapping services it is included here. PERRY was quite active against the Russians during the Nomonhan incidents, and although outclassed by the superior performing I-15's of the Soviets, the Ki.10 served as an able gun platform for many of the early aces of the J.A.A.F. As with many other fine types, in time PERRY was relegated to the role of advanced trainer with the fighter schools.

Mitsubishi Ki.15 Command Reconnaissance (BABS)

BABS was one of very few aircraft which could boast multiple service usage, being used in the J.N.A.F. as the C5M Land Reconnaissance aircraft, and also in a civil role. Although chiefly a recon aircraft, BABS was sometimes used as a close-support aircraft, and lastly, as a Kamikaze.

Mitsubishi Ki.21 Heavy Bomber (SALLY)

SALLY was the backbone of the J.A.A.F. Bomber forces, and continued to hold this status in spite of the encroachment of more sophisticated types, until late 1944. SALLY saw service through all of the early Sino-Japanese hostilities until the bitter end, and was probably the most well-known aircraft of the bomber service.

Nakajima Ki.27 Fighter (NATE)

NATE was the standard J.A.A.F. fighter at the onset of WW 2, and was in fact already a combat veteran, having participated in much fighting prior to hostilities between the United States and Japan. NATE was finally replaced by OSCAR in early 1942, ending up its days as both a trainer and a Home-Defense aircraft.

Mitsubishi Ki.30 Light Bomber (ANN)

Although ANN was employed extensively in China during the period 1938-1941, she was withdrawn from active service immediately after December 1941, where her last operation was in the attack on the Philippines.

Kawasaki Ki.32 Light Bomber (MARY)

MARY had been withdrawn from service before the United States' involvement in the war, but was very active in China during the early days of that conflict. A close-cooperation bomber aircraft, during the early days MARY was the workhorse of the J.A.A.F., and was a common target of the A.V.G.

Tachikawa Ki.36 Direct Cooperation Aircraft (IDA)

IDA's main role during the China operations was mainly that of a ground-attack aircraft, but after Pearl Harbor, more IDA's were used in a trainer or courier role than that originally intended.

Nakajima Ki.43 Fighter (OSCAR)

Named HAYABUSA (Peregrine Falcon), OSCAR was the first modern fighter of the J.A.A.F., and was the Army's counterpart of the J.N.A.F. Zero. There were only 40 operational OSCARs at the war's onset, but the aircraft went on to become the mainstay of the fighter wings, serving with virtually all the fighter units of the army.

Nakajima Ki.44 Fighter/Interceptor (TOJO)

The SHOKI (Demon) was designed basically as a heavy fighter/interceptor, and was used mostly in a defensive role, especially in the homeland, and Manchuria. Because of its vicious characteristics in landing, SHOKI was at first rather unpopular with the pilots, but later proved to be just the opposite, because of the high speed in intercept in its final role.

Kawasaki Ki.45 Heavy Fighter (NICK)

Called TORYU (Dragon Killer) by the Army, NICK was originally intended as a long range escort fighter, but was used more exclusively as a day and night interceptor. NICK also had the dubious distinction of engaging in the first Kamikaze attack of the war, sinking several vessels off the coast of New Guinea.

Mitsubishi Ki.46 HQ Reconnaissance (DINAH)

DINAH was used very extensively over the entire war areas, in both recon and defense fighter roles, and was more than a match for any Allied aircraft in a speed dash until the very end of the war.

Kawanishi Ki.48 Light Bomber (LILY)

LILY was first used in China in 1940, and served throughout the entire war period. Later versions were modified to carry guided missiles, although surprisingly enough the performance capabilities of LILY were rather on the negative side. LILY was the first Japanese bomber to mount a ventral turret, which was a trap-door sort of mount.

Nakajima Ki.49 Heavy Bomber (HELEN)

The DONRYU (Dragon Swallow) was used also as a transport and anti-submarine aircraft, and towards war's end was the most commonly encountered J.A.A.F. bomber aircraft. HELEN began her operational career with attacks against Australian targets in February 1942, and ended it with Kamikaze attacks in the Philippines in 1945.

Mitsubishi Ki.51 Attack/Recon (SONIA)

An exceptionally agile aircraft, SONIA was often capable of evading enemy fighter attacks, but because of its relatively slow speed was not immediately suited for the late war period Kamikaze attacks against Allied ships.

Mitsubishi Ki.57 Transport (TOPSY)

The civil version of TOPSY was known as the MC-20, and was widely used among the Japanese airlines, with many of these being pressed into military service, retaining their civil markings along with new military markings. Besides cargo, TOPSY was a troop carrier, was used in such airborne operations as the Sumatra campaign.

Kawasaki Ki.61 Fighter (TONY)

HEIN, or Swallow, was the only inline fighter aircraft of the Japanese forces, and was at first thought to be a derivative of the Bf 109. Making its debut in 1943, TONY caused much trouble for the Allies at first, both for its configuration and performance, and, in the hands of competent pilots, proved to be a formidable weapon indeed.

Mitsubishi Ki.67 Heavy Bomber (PEGGY)

Named HIRYU (Flying Dragon), oddly enough PEGGY's first mission was that of torpedo bomber alongside the J.N.A.F. in late 1944. PEGGY was a very capable weapon, and proved a match for any contemporary

Allied craft. A version of this aircraft was used for special attack (Kamikaze).

Kokusai Ki.76 Command Liaison (STELLA)

STELLA was the Army's only carrier-based aircraft, operating from the *Army* aircraft carrier, 9,997 ton AKITSU-MARU, as an anti-submarine aircraft. In this version, STELLA carried two depth charges under the wings.

Nakajima Ki.84 Fighter (FRANK)

The HAYATE (Gale) could out-perform both the Mustang and the Thunderbolt, but was less maneuverable than the F6F. With its long range, it was able to fly long distances on escort missions and still maintain a greater actual combat time than its Allied counterparts. With the increasing lack of maintenance and parts the numbers of operational FRANKS became less and less.

Kawasaki Ki.100 Fighter

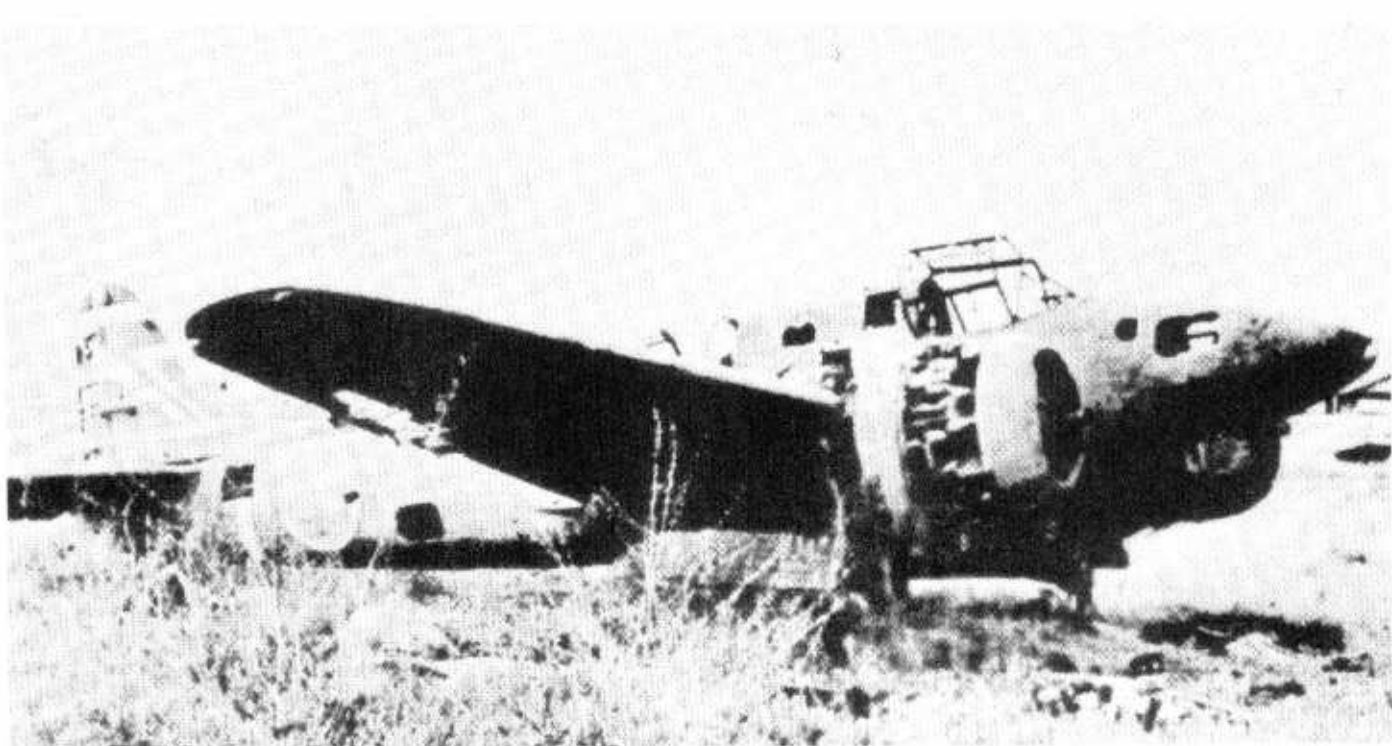
The result of expediency, the Ki.100 came about purely by the shortage of inline engines for existing Ki.61 airframes, for which the radial Ha-112 was substituted. The result was a truly outstanding aircraft which demonstrated superior performance capabilities during its short-lived days as a defense force fighter during the final days of the war.

Kawasaki Ki.102 High Altitude Fighter (RANDY)

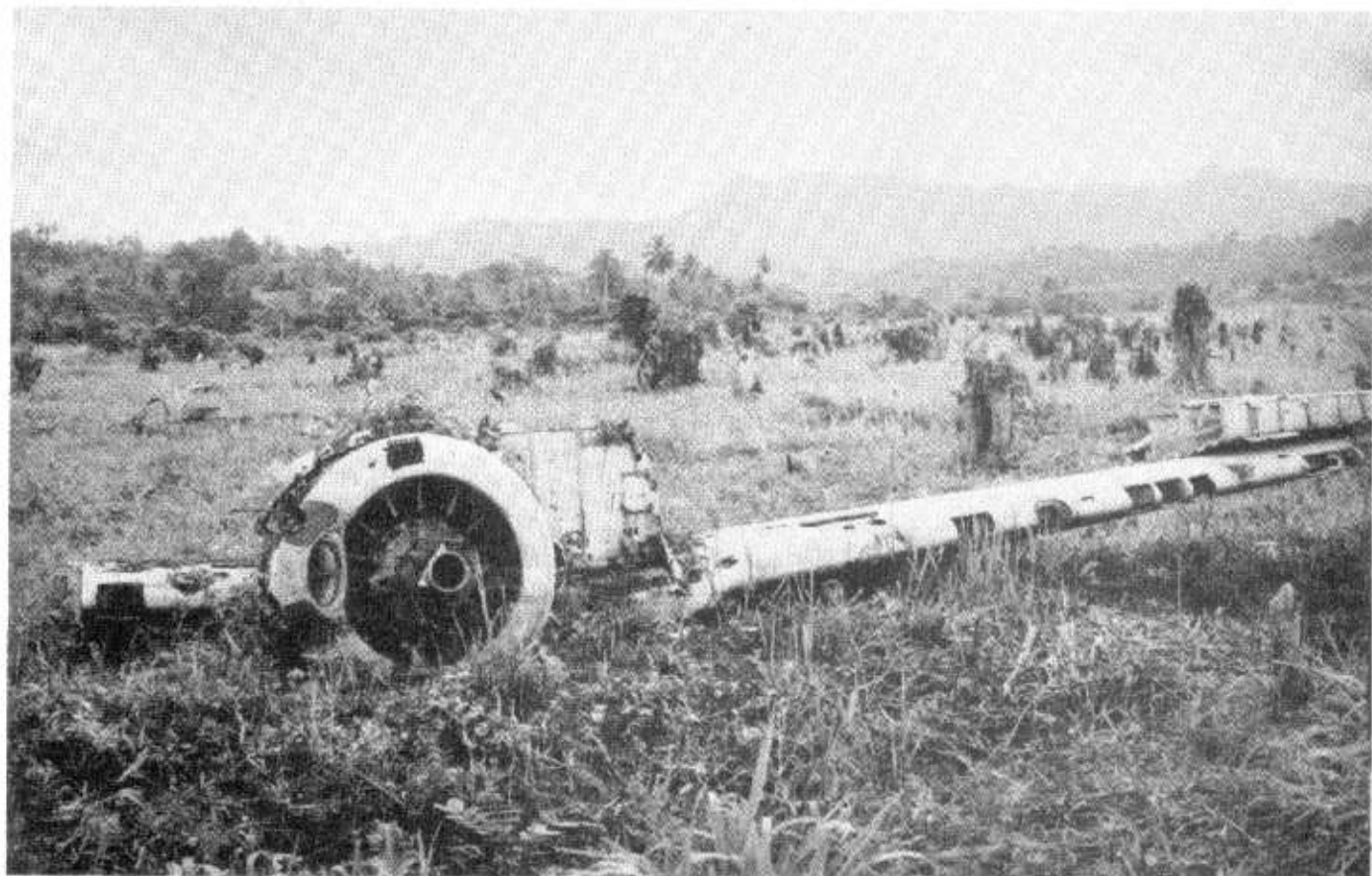
RANDY was used as an assault fighter during the closing days of the war, and was in limited use at the war's end. Those who flew RANDY stated that it was a fine platform and performed quite well in combat.

Kawasaki LO Transport (THELMA), (THALIA)

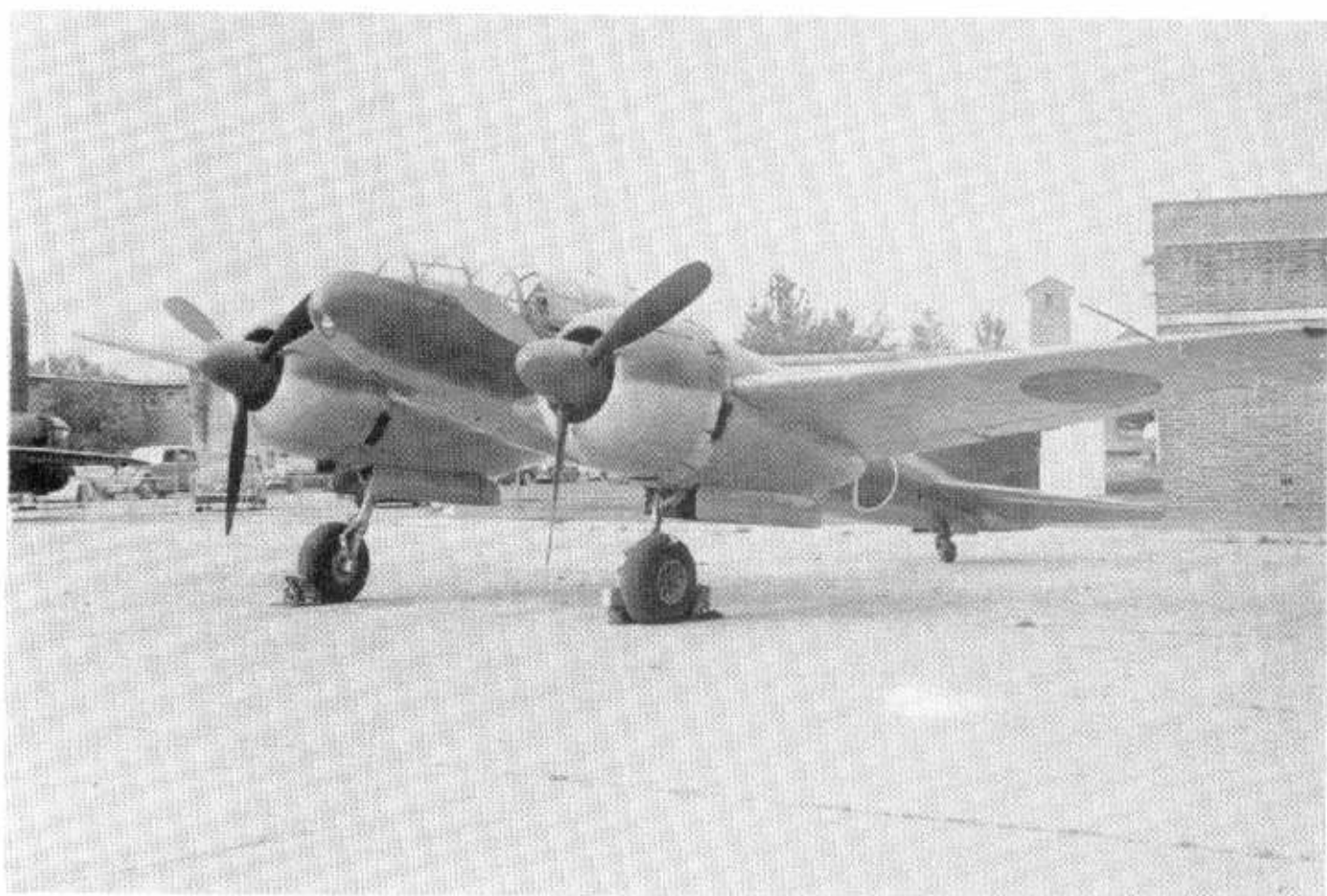
This was a license-built version of the Lockheed Super Electra, and was used by the J.A.A.F. as both a cargo and troop transport.



KI-45 NICK, Sentai unknown, the Philippines, 1945. The overall medium blue grey finish was occasionally encountered on both NICKs and TONYs. The KI-45 here is typical of the junked aircraft which surrounded airfields of any nation, relegated to the role of spare parts supply. (R. Bueschel)

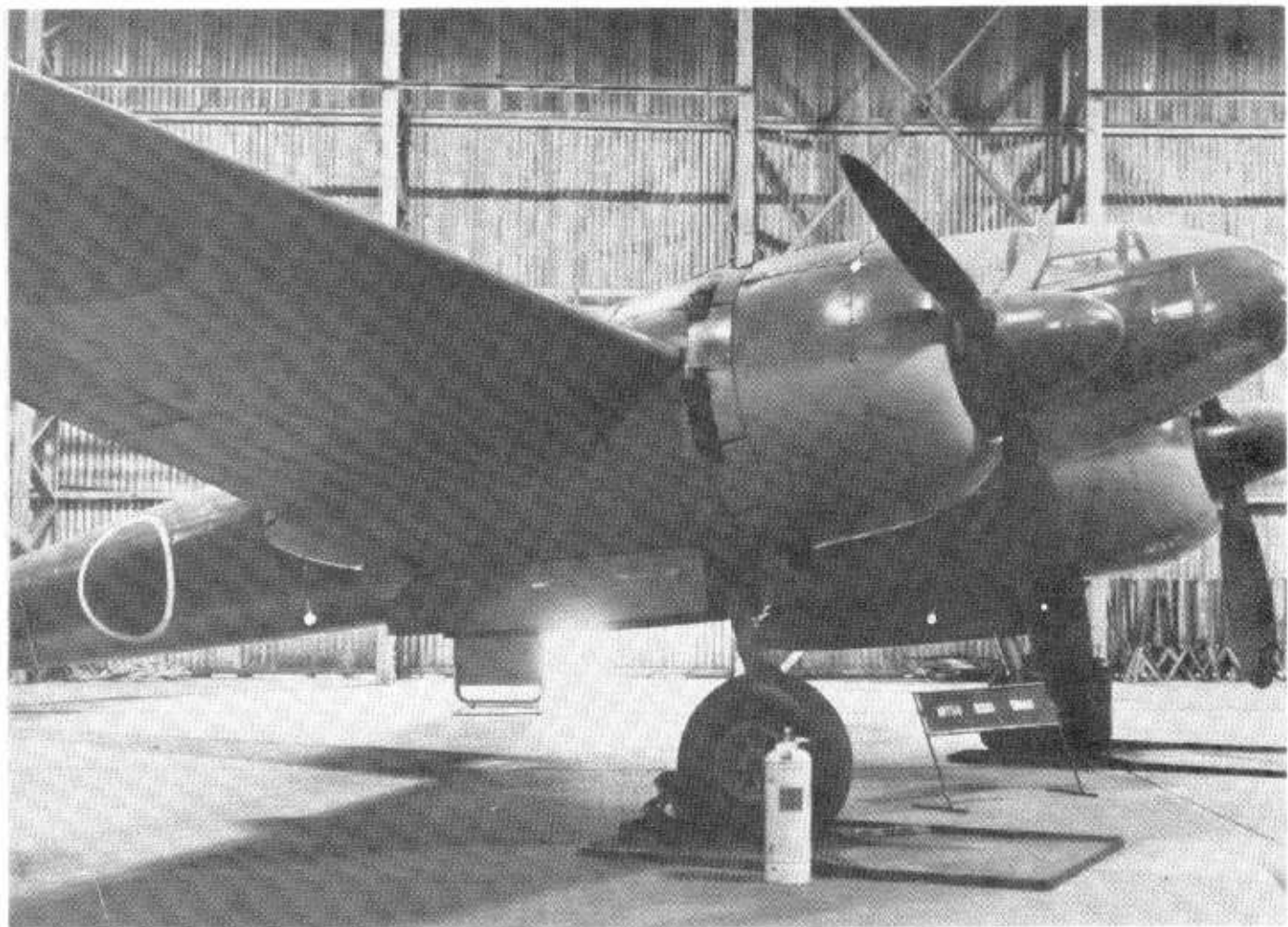


(B. Darby)



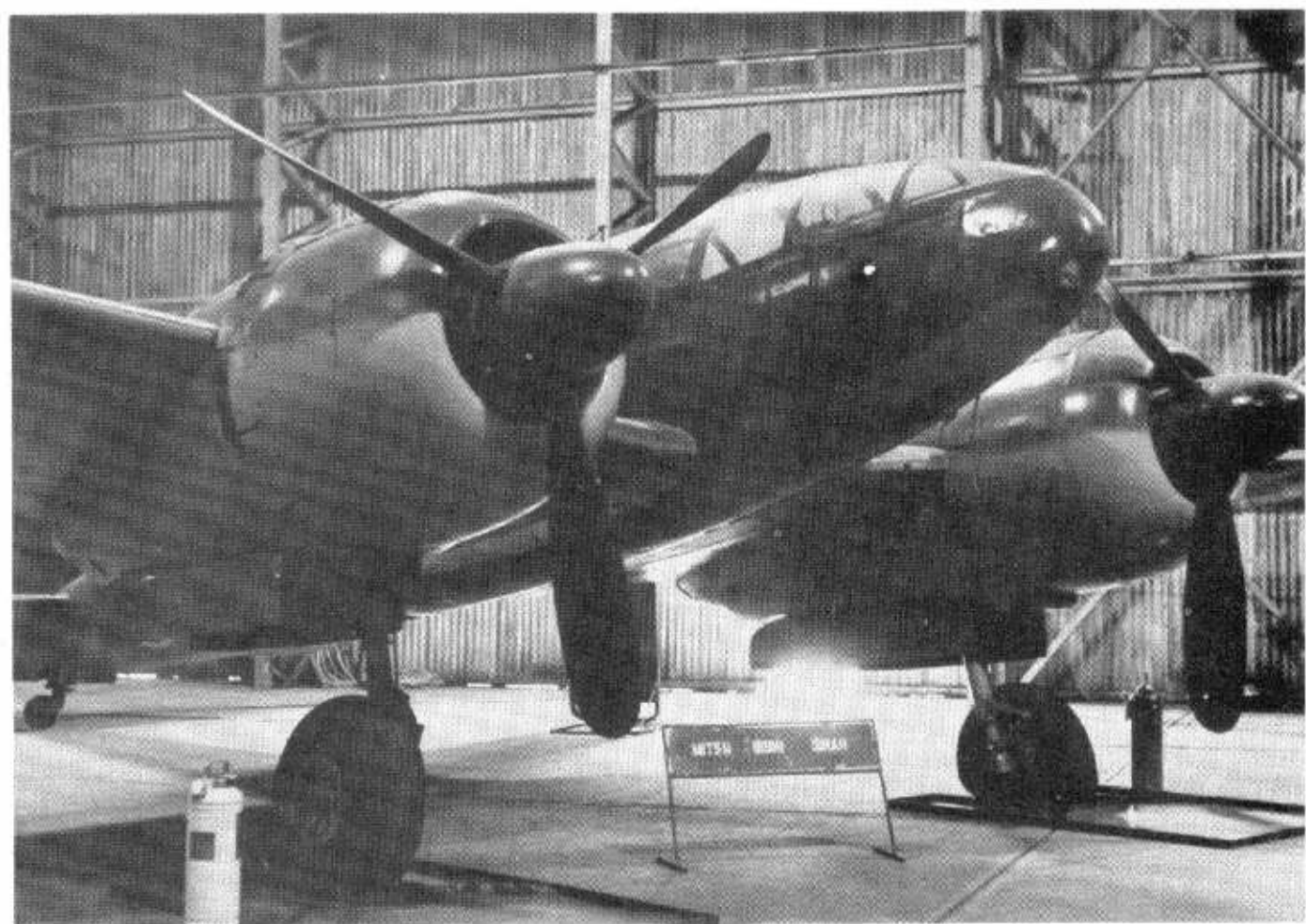
DINAH on display today at RAF Biggen Hill, England.

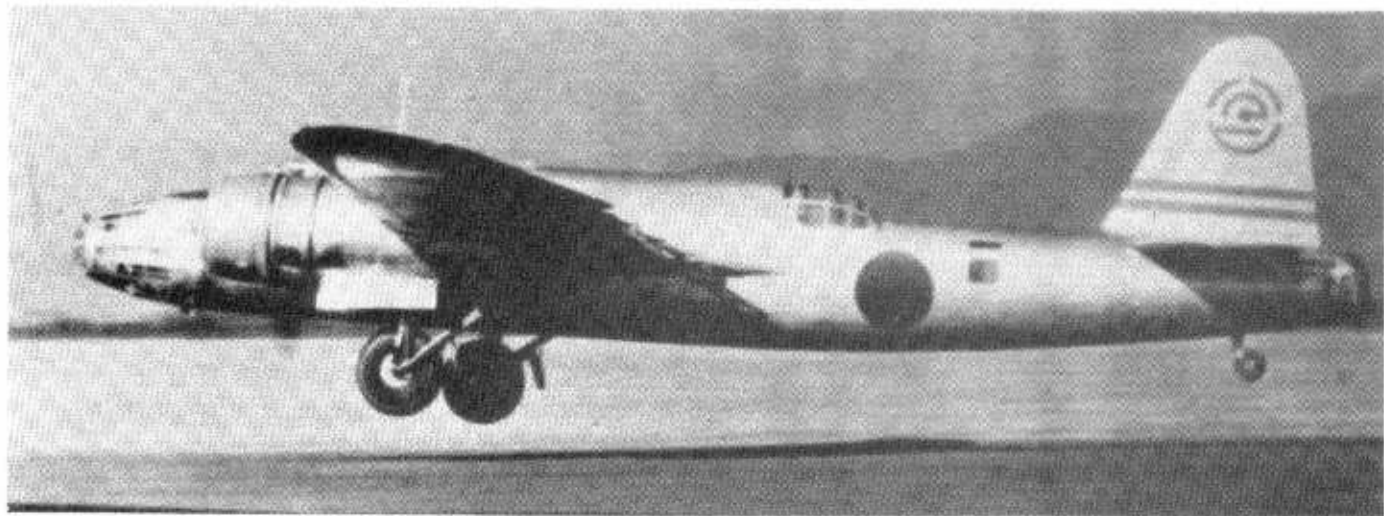
(Harrison)



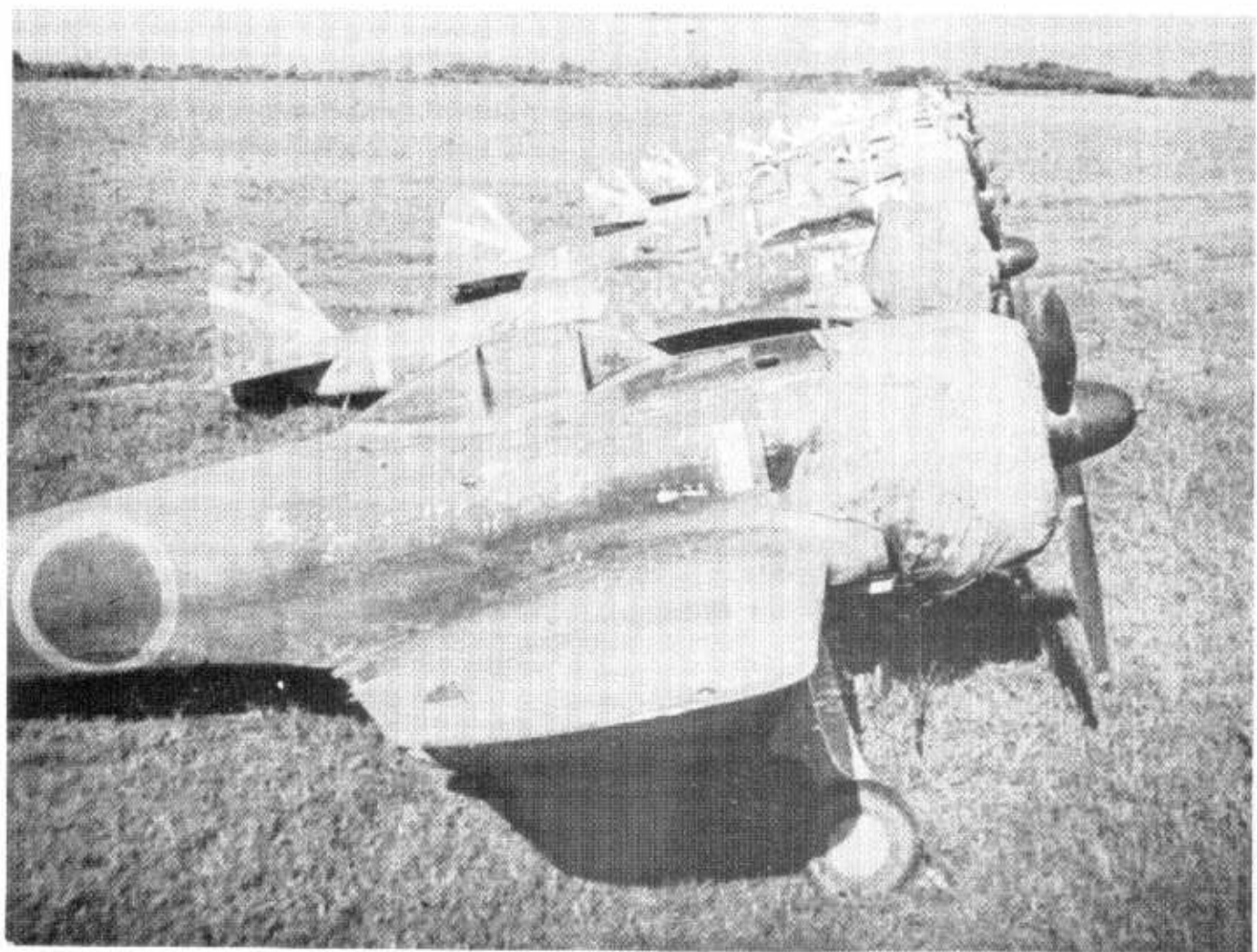
DINAH, RAF Biggen Hill, England.

(RAF)

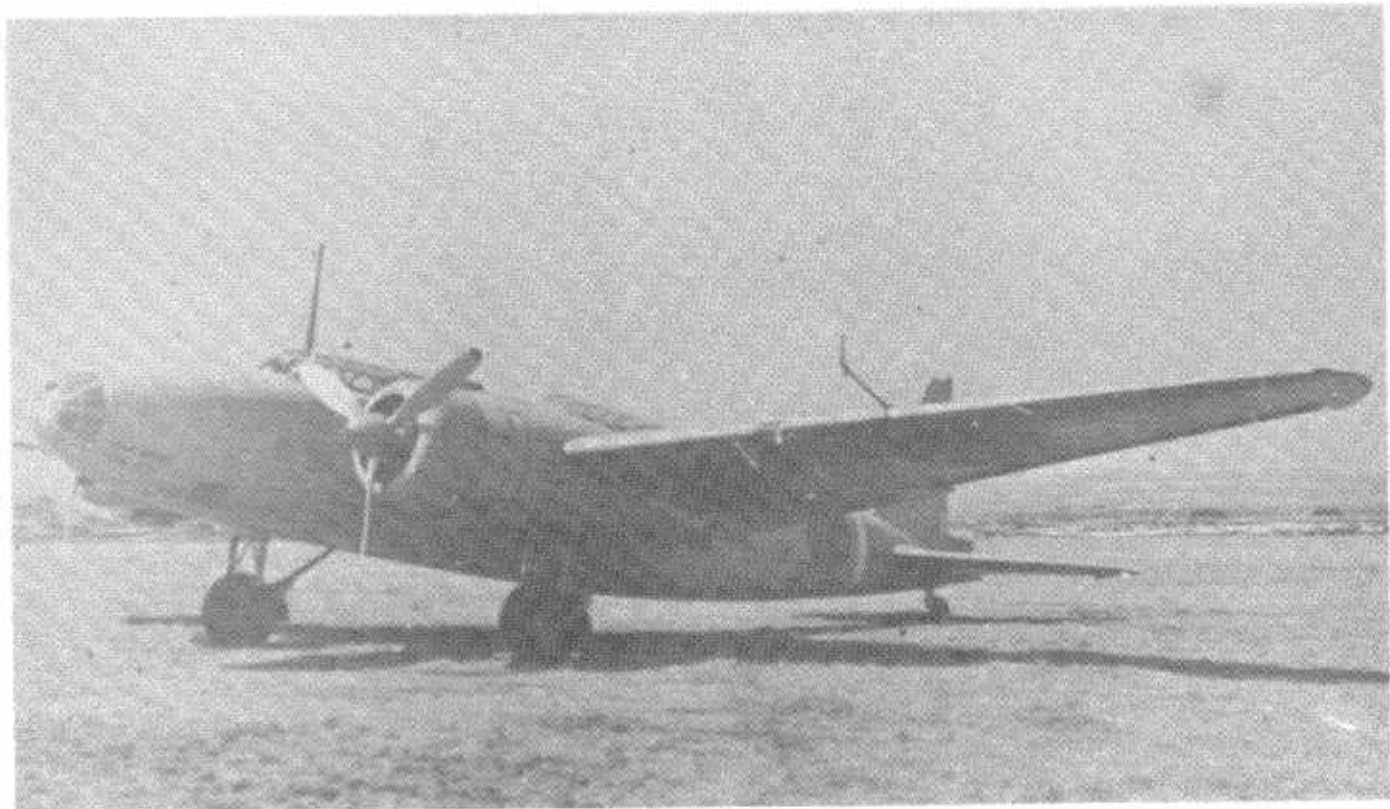




HELEN, HAMAMATSU Flying School, 1944. Natural metal overall, with yellow school insignia, and stripes, which signify the 2nd training squadron. (Oishi)

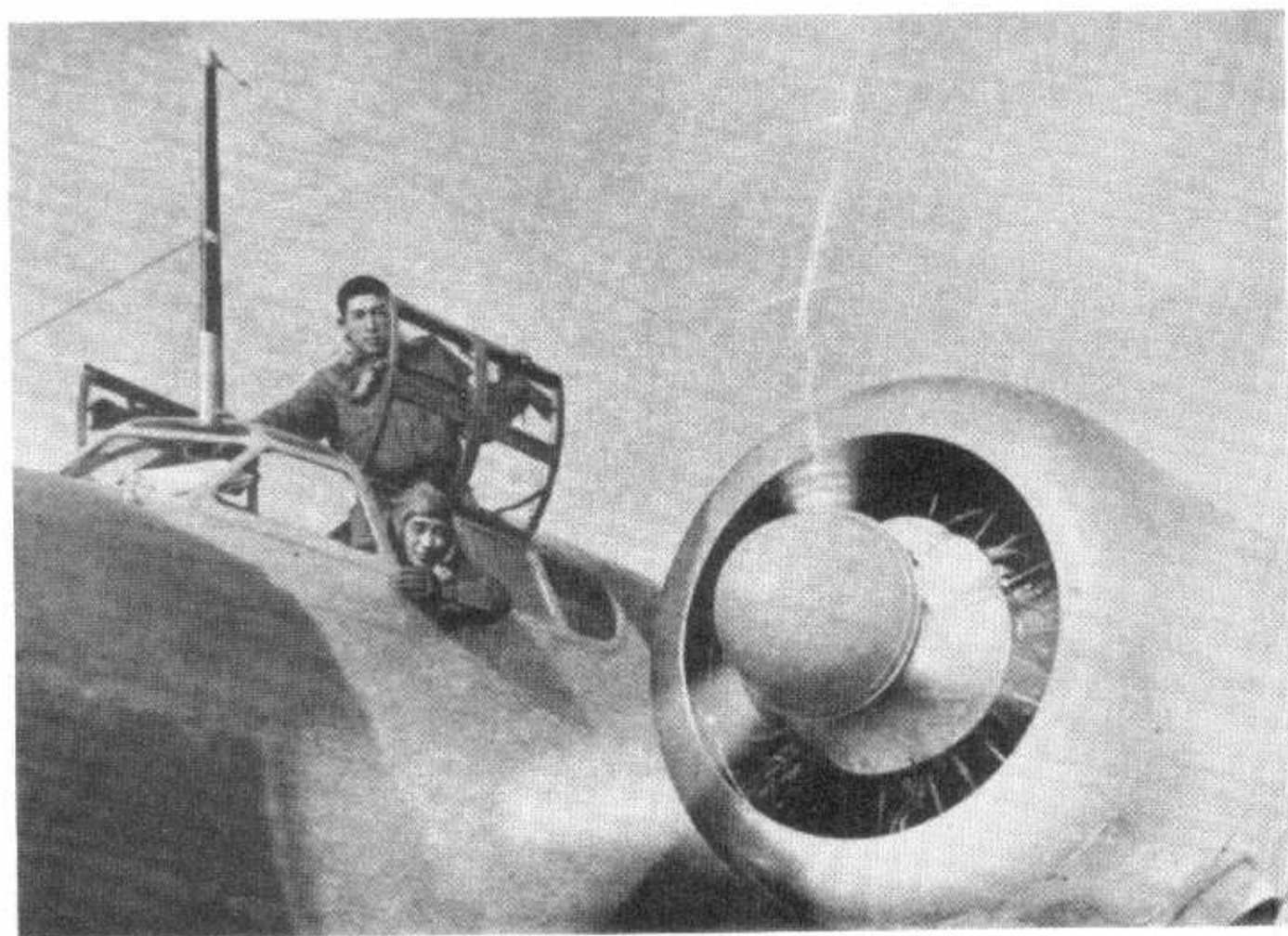


OSCARs of the 64th Sentai, 1st Chutai, 1942-43. The 64th, popularly called the "KATO" Group, was one of the more often observed units, especially in the China-Burma area. Here several different applications of camouflage are discernible; note the un-outlined Hinomaru on the upper wing of the foreground machine, and the yellow ID paneling on the landing gear covers. On the other aircraft note the various effects of weathering, on both solid and blotch type finishes. (Oishi)



SALLY I, unit unknown. Note the unpainted propeller blades.

(R. Bueschel)



SALLY I, Manchuria, probably 60th Bomber Sentai, 1938-39.

(J. Wood)

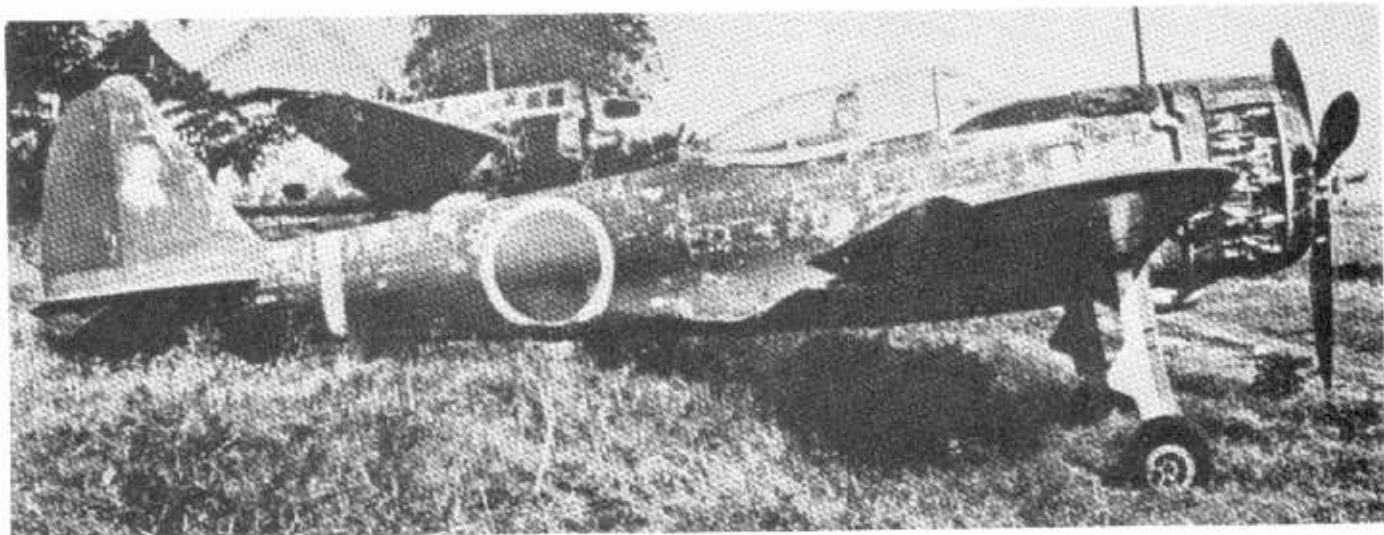
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APPENDICES

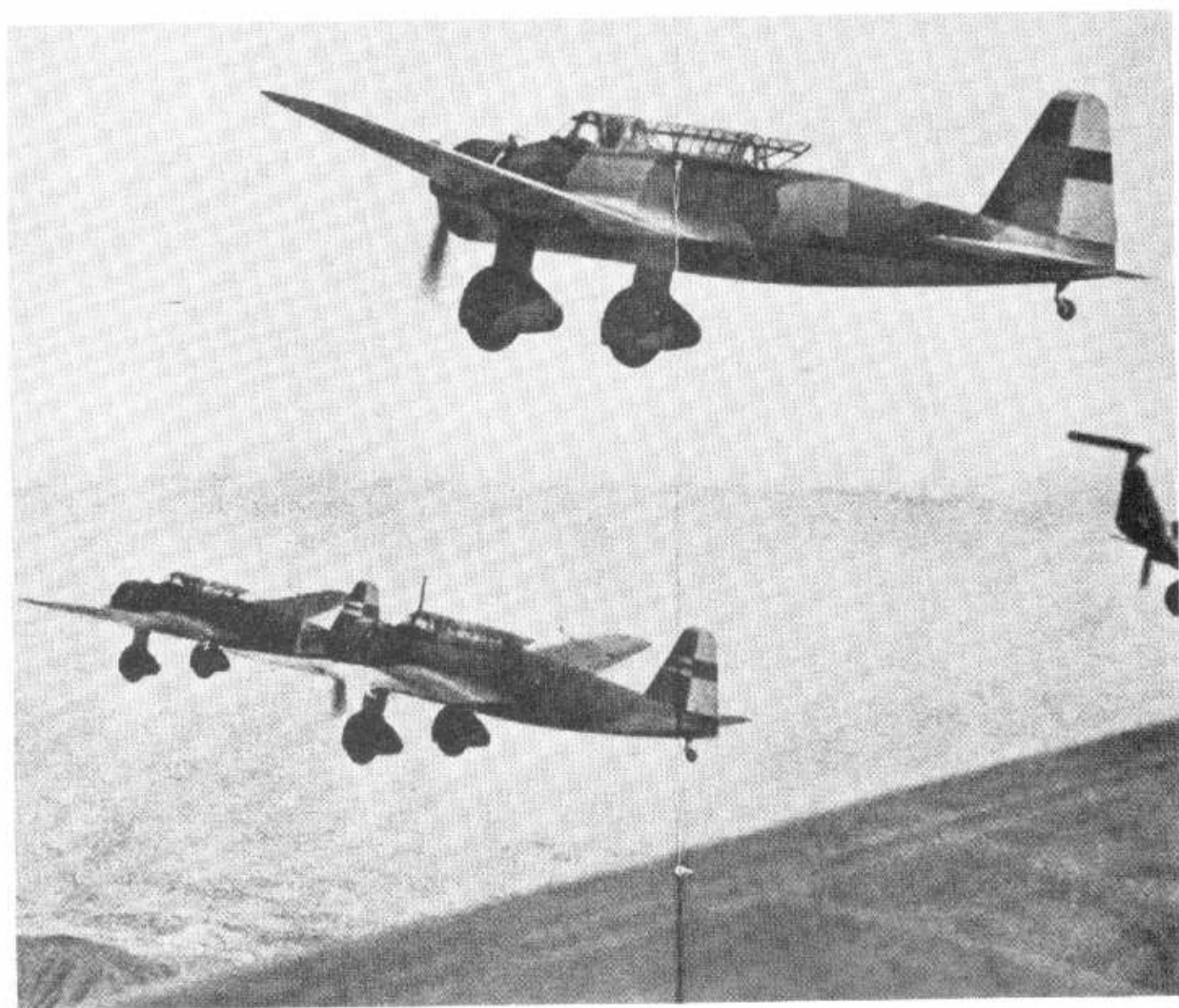
Camouflage Schemes, by Aircraft Type – Aircraft, by Camouflage Scheme – Principal Aircraft of the J.A.A.F. and Units in Which They Served – Principle Units of the J.A.A.F. – Photo Addenda

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KI-43-II OSCAR, 1st Fighter Sentai, 1st Chutai. This photo demonstrates perfectly the effects of the tropics on aircraft finishes, which have caused many photos of WW II aircraft to be labeled that of a blotch type camouflage scheme, rather than simply that of a very weathered aircraft finish. Note that only the yellow of the ID wing panels show signs of freshness. (Oishi)

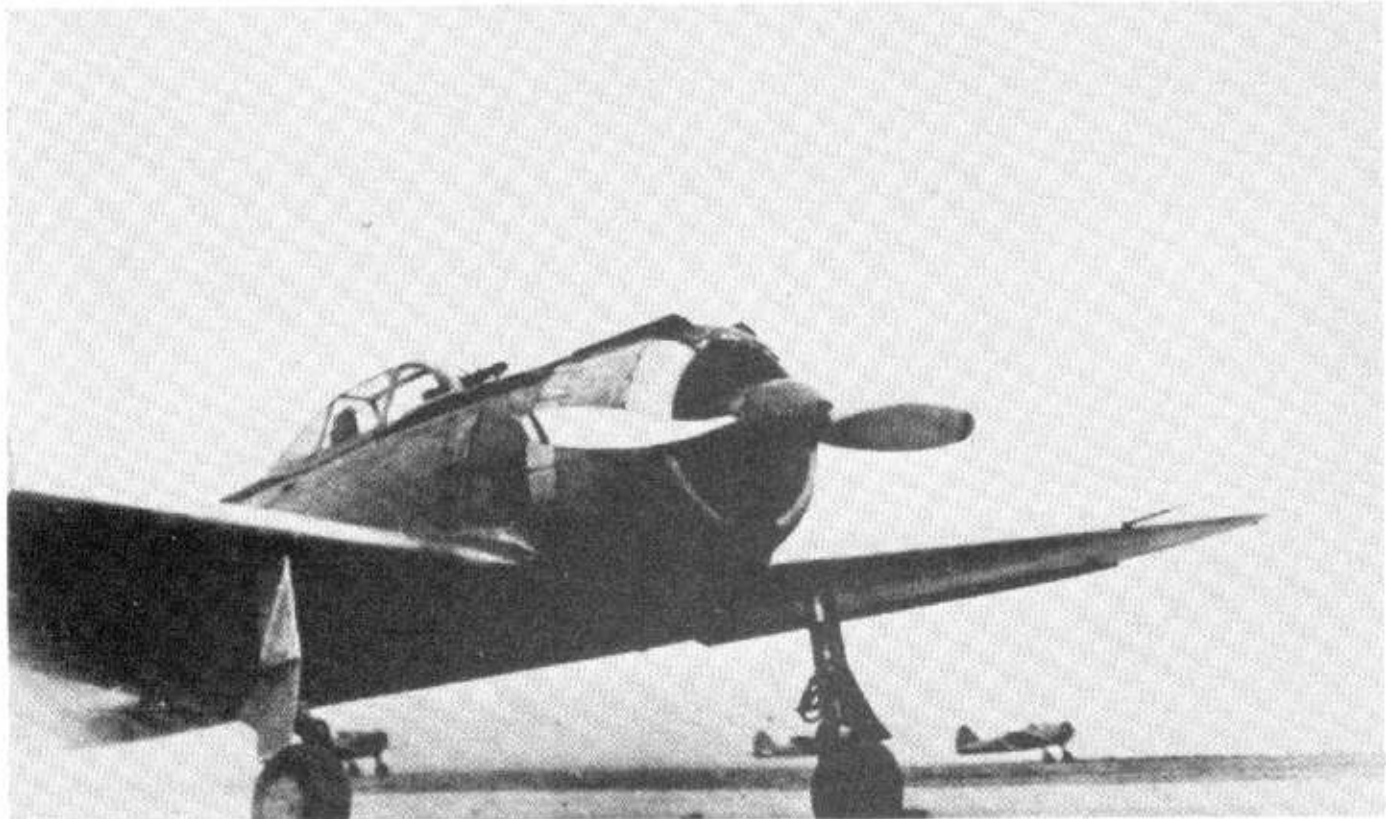


ANNs of the 90th Attack Sentai, Manchuria, 1938-1939.

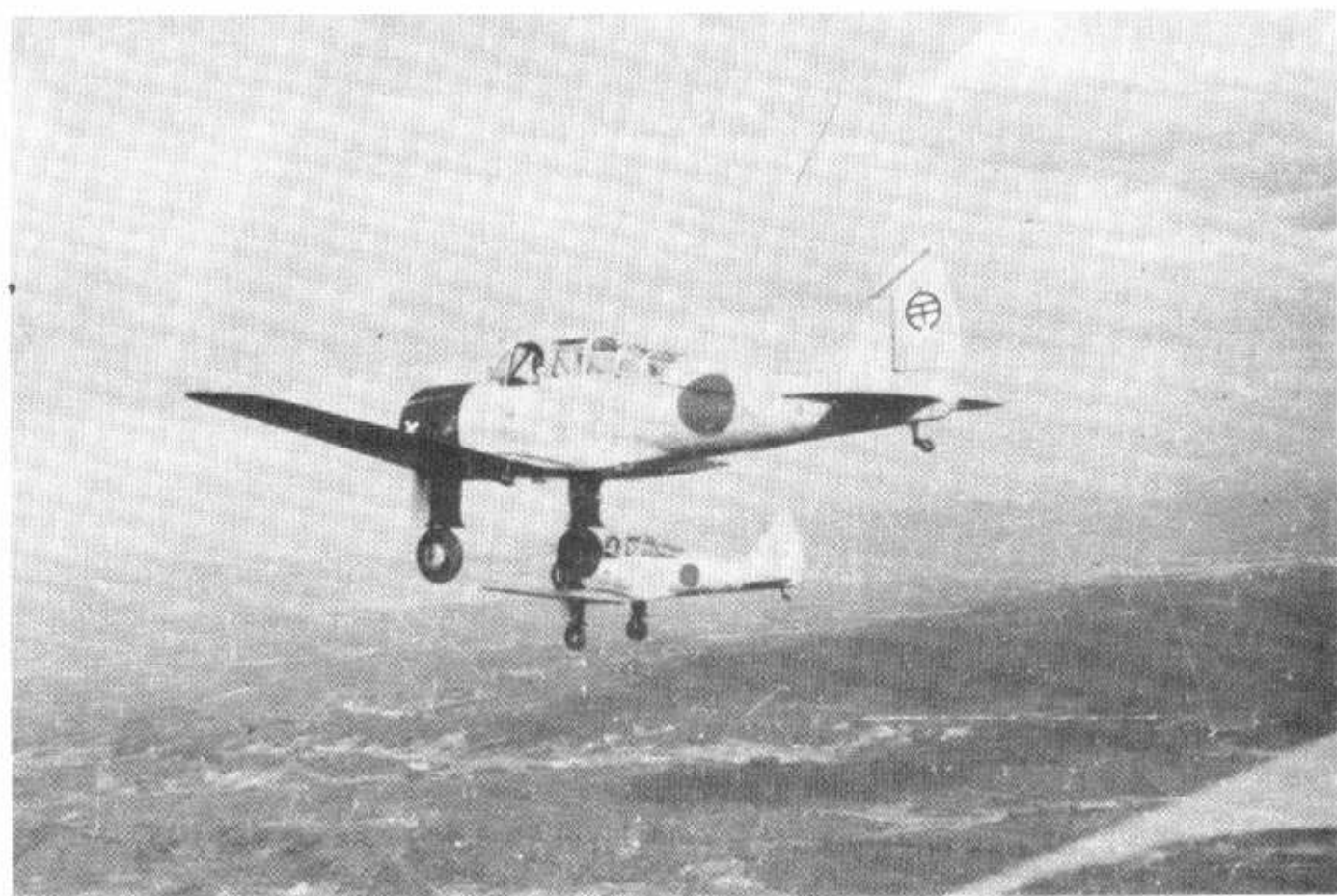
(Oishi/J. Wood)

AIRCRAFT, BY CAMOUFLAGE SCHEMES

SCHEME NO.	AIRCRAFT
N	DINAH TONY TOJO OSCAR TOPSY NICK FRANK SONIA HELEN
01	TOPSY SONIA HELEN THORA HICKORY DINAH LILY SALLY NATE TONY IDA BABS ANN PEGGY MARY
02	NATE DINAH PERRY NICK LILY SONIA IDA ANN SALLY
03	NICK DINAH
04	DINAH
05	OSCAR TONY SALLY
05 _a	FRANK TOJO OSCAR TONY
06	PEGGY
07	TOJO
08	IDA SPRUCE
B1	TOPSY SONIA IDA HICKORY THORA ANN NICK LILY OSCAR TONY HELEN PEGGY
B1 _a	OSCAR TONY TOJO FRANK
B2	NICK SALLY OSCAR
B3	TOPSY TOJO OSCAR TONY SALLY NICK FRANK
B3 _a	TOJO OSCAR NICK FRANK TONY
B4	NICK LILY SALLY PERRY BR-20
B5	OSCAR
B6	SALLY
B7	SONIA
B8	NICK
B9	SALLY LILY TONY OSCAR FRANK
B9 _a	FRANK TONY
B10	TOJO
S1, S1 _a	FRANK OSCAR TONY NICK KI-100 LILY DINAH TOJO
S2	THORA DINAH SONIA FRANK PEGGY TONY OSCAR SALLY ANN LILY HICKORY KI-100 TOJO
S3	RANDY IDA LILY PERRY HELEN SALLY
S4	SPRUCE
S5	TOJO NICK OSCAR
S6	SONIA
S7	PEGGY
S8	TOPSY
S9	TONY
S10	FRANK
S11 ¹ / ₂	TOPSY
S12	DINAH
S13	PEGGY
S14	TONY KI-100 OSCAR DINAH
S15	MARY DINAH LILY
C1	BR-20
C2	KI-4
C3	ANN MARY DINAH
C4	DINAH MARY HELEN
C5	BR-20 SALLY MARY ANN



OSCAR I showing to good advantage the earlier method of propeller marking . . . the natural metal forward sides of the blades, the dark brown primed rear, and warning stripes near the tips. (R. Bueschel)



KI-55 IDAs, UTSUNOMIA Flying School, 2nd Flight. Orange overall, with gloss black cowls. Note that the individual aircraft KANA symbol is carried on the port side of the cowling rather than the tail. (Hideyu Anda)

CAMOUFLAGE SCHEMES, BY AIRCRAFT TYPES

ANN	01, 02, B1, S2, C4, C5
BABS	01, 02, C4
BR-20	B4, C1, C5
DINAH	N, 01, 02, 03, 04, S1, S2, S12, S15, C3, C4
FRANK	N, B3, S1, S2, S10
HELEN	N, 01, B1, S3, C3
HICKORY	01, B1, S2
IDA	01, 02, 08, B1, B4, S3
KI-4	C2
KI-100	S1, S2, S14
KI-109	B4, S3
KI-115	N, S1
KI-200	08
LILY	01, 02, B1, B4, B9, S1, S3, S15
MARY	01, S15, C3, C4, C5
NATE	01, 02
NICK	N, 02, 03, B1, B2, B3, B4, B8, S1, C4
OSCAR	N, 05, B1, B2, B3, B5, S1, S2, S14
PEGGY	01, 06, B1, S2, S7, S13
PERRY	02, B4, S3
RANDY	S3, N
SALLY	01, 02, 05, B1, B2, B3, B4, B6, B9, S2, S3, S4, C4, C5
SONIA	N, 01, 02, B1, B3, B7, S2, S6
SPRUCE	08, S3, S4
STELLA	N, S1
THORA	N, 01, B1, S2
TOJO	N, 07, B3, B10, B11, S1, S2, S5
TONY	N, 01, 05, B1, B3, B9, S1, S2, S9
TOPSY	N, 01, B1, B3, S8, S11

PRINCIPAL AIRCRAFT OF THE J.A.A.F. AND UNITS IN WHICH THEY SERVED

AIRCRAFT	UNITS
BR-20	12, 98
KI-10	4, 6, 9, 13, 33, 77, (9, 10)
KI-21	Sally 7, 12, 14, 58, 60, 61, 62, 92, 94, 98, (3rd Wing) 21
KI-27	Nate 1, 4, 5, 9, 11, 13, 21, 24, 33, 50, 59, 63, 64, 68, 19, 77, 85, 87, 204, 246, (9, 10, 84)
KI-4	Perry 4, 10, 15, (4, 6) Hickory
KI-30	Ann 6, 16, 31, 32, 35, 90, (82, 87)
KI-36	Ida 8, 28, 29, (17, 43, 44, 45, 46, 47, 48, 49, 66, 75, 76)
KI-32	Mary 3, 6, 10, 35, 44, 45, 65, 75
KI-15	Babs 6, 8, 10, 15, 28, 29, 81, (16, 18, 50, 51, 74, 76)
KI-43	Oscar 1, 11, 13, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 31, 33, 48, 50, 54, 59, 63, 64, 65, 71, 72, 73, 77, 100, 101, 102, 103, 104, 112, 203, 204, 248, (24, 71, 7th flying forces) (47)
KI-44	Tojo 9, 22, 23, 29, 47, 70, 72, 85, 87, 246 (47)
KI-45	Nick 4, 5, 10, 12, 13, 16, 21, 27, 45, 53, 65, 70, (4, 6, 25)
KI-46	Dinah 2, 8, 15, 28, 38, 81, 82, 88, 106, (4, 16, 17, 18, 19) (50, 51, 55, 70, 74, 81, 85, 16th wing, 38th wing) (76, 10)
KI-48	Lily 3, 8, 12, 16, 27, 34, 35, 45, 75, 90, 208, (82)
KI-49	Helen 58, 61, 62, 74, 95, (3)
KI-61	Tony 17, 18, 19, 23, 26, 28, 37, 55, 56, 59, 68, 78, 105, 224, 244, (23)

KI-100	Tony	5, 17, 25, 59, 111, 244, (81)
KI-67	Peggy	7, 14, 16, 60, 62, 74, 98, 107, 110
KI-109	Peggy	7, 107
KI-51	Sonia	107, 27, 28, 32, 39, 44, 65, 66, 67, 83, (1, 41, 45, 47) (48, 49, 52, 53, 66, 71, 73, 83, 89, 90, 91)
KI-84	Frank	1, 11, 13, 16, 20, 21, 22, 25, 29, 47, 50, 51, 52, 55, 64, 71, 72, 73, 85, 100, 101, 102, 103, 104, 111, 112, 200, 246, 14, (24, 57th spec. attck)
KI-102	Randy	3, 75, 45, 81, (27th Combat fly. Tng Unit)
KI-57	Thora	108, 109, (20)
KI-54	Topsy	108, 109, (20)
KI-76	Stella	(1)

NOTE:

Units shown in Parentheses are Direct Command units, unless otherwise indicated.

PRINCIPAL UNITS OF THE J.A.A.F.

SENTAI	MISSION	SERVICE	AIRCRAFT USED/REMARKS
1st	fighter	Aug 1938-July 1945	Ki.27, 43, 84
2nd	recon.	Aug 1938-July 1945	Ki.27, 43, 84
3rd	attack	Aug 1938- ?	KDA-2, Ki.32
4th	fighter	Aug 1938-	Ki.4, 10, 27, 45
5th	fighter	Aug 1938-	Ki.27, 45, 100
6th	attack	Aug 1938-	Ki.10, 30, 51
7th	bomber	Aug 1938-	Ki.21, 67
8th	bomber	Aug 1938-	Ki.15, 46, 48
9th	fighter	Aug 1938-	Ki.10, 27, 44
10th	recon.	Aug 1938-	Ki.4, 15, 32, 46
11th	fighter	Aug 1938-	Ki.27, 43, 84
12th	bomber	Aug 1938-	Ki.21, 48
13th	fighter	Aug 1938-	Ki.27, 43, 45, 84
14th	bomber	Aug 1938-	Ki.21, 67
15th	recon.	Aug 1938-	Ki.4, 46
16th	bomber	Aug 1938-	Ki.30, 45, 48, 67
17th	fighter	Feb 1944-	Ki.61
18th	fighter	Feb 1944-	Ki.61
19th	fighter	Feb 1944	Ki.61
20th	fighter	Feb 1944	Ki.43, 84
21st	fighter	Oct 1942	Ki.27, 43, 45
22nd	fighter	Mar 1944-	Ki.44, 84
23rd	fighter	Apr 1944-	Ki.43, 61
24th	fighter	1938	Ki.27, 43
25th	fighter	1938	Ki.43, 84, 100
26th	fighter	Jul 1941-	Ki.43, 61
27th	bomber	Jul 1938-Jul 1945	Ki.51
28th	fighter	Jul 1938-	Ki.61, 46 Kai
29th	fighter	Jul 1941-	Ki.44
30th	fighter	Jun 1943-May 1945	Ki.43
31st	fighter/bomber	Jul 1938	Ki.30, 43
32nd	attack/bomber	1938-	Ki.30, 51
33rd	fighter	Aug 1938-May 1945	Ki.10, 27, 43
34th	bomber	Oct 1942-	Ki.48
35th	bomber	Oct 1942-	Ki.30, 32, 48
36th	unknown		
37th	unknown		
38th	recon.	Apr 1941-Jul 1945	Ki.46
39th	bomber	Apr 1941	Ki.51

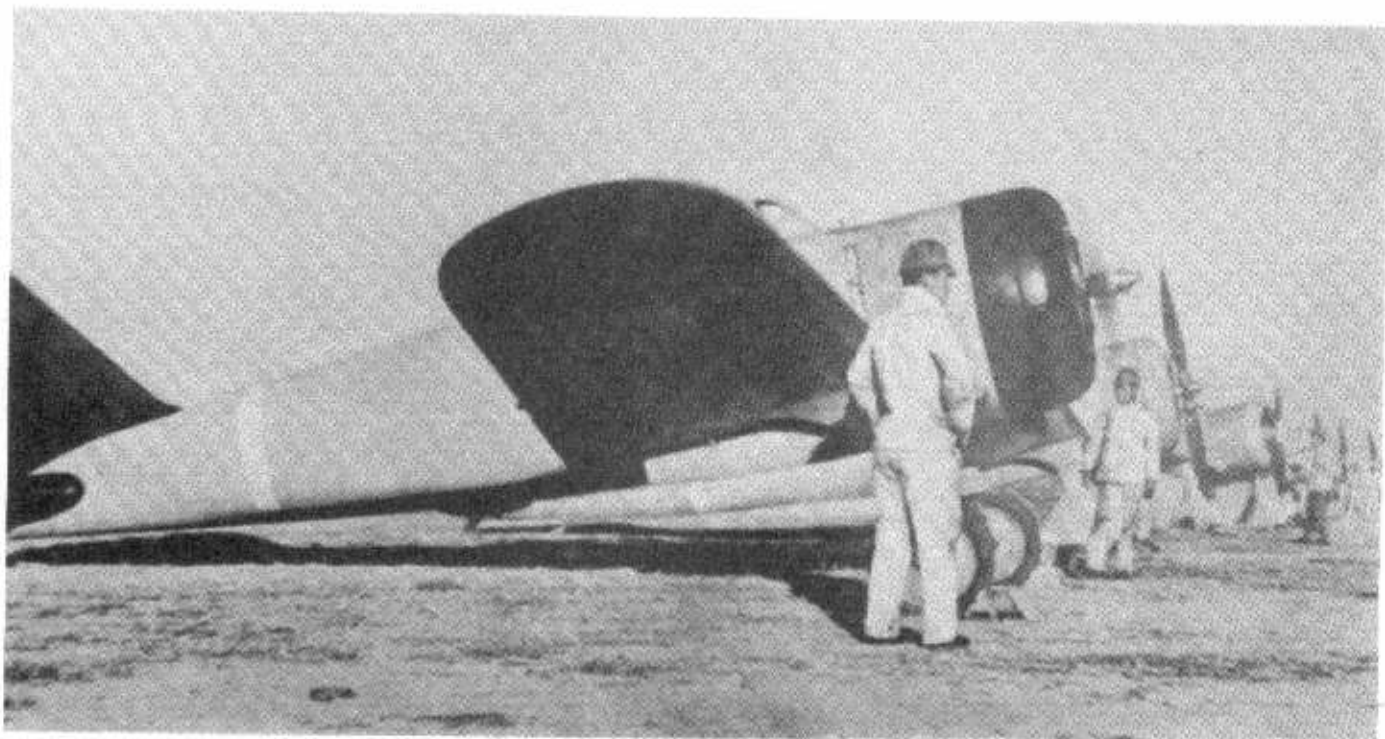
40th-43rd	unknown		
44th	recon.	Jul 1941	Ki.36, 51
45th	attack	Aug 1938-	Ki.32, 48, 45, 102
47th	fighter	May 1942-	Ki.44, 84
48th	fighter	Jul 1943	Ki.43
49th	unknown		
50th	fighter	Aug 1941	Ki.27, 43, 84
51st	fighter	Apr 1944	Ki.84
52nd	fighter	Apr 1944	Ki.84
53rd	fighter	May 1944	Ki.45
54th	fighter	Dec 1941	Ki.43
55th	fighter	May 1944	Ki.61
56th	fighter	May 1944	Ki.61
57th	unknown		
58th	bomber	1938	Ki.21
59th	fighter	Aug 1938	Ki.27, 43, 61, 100
60th	bomber	Aug 1938	Ki.21, 67
61st	bomber	Aug 1938	Ki.21, 49
62nd	bomber	Aug 1938	Ki.21, 49, 67
63rd	fighter	1942-1945	Ki.27, 43
64th	fighter	1938	Ki.27, 43, 84
65th	attack	Jul 1941	Ki.51, 45, 43
66th	attack	1938	Ki.51
67th	attack	Apr 1938-May 1945	Ki.51, 45
68th	fighter	Jul 1941-Aug 1944	Ki.61
69th	unknown		
70th	fighter	1938	Ki.44, 45
71st	fighter	Jun 1944	Ki.43, 84
72nd	fighter	May 1944-May 1945	Ki.43, 84
73rd	fighter	Jun 1944-May 1945	Ki.43, 84
74th	bomber	Jul 1941	Ki.49, 67
75th	attack	1939	Ki.32, 48, 102
76th	unknown		
77th	fighter	Jul 1938-Aug 1944	Ki.10, 27, 43
78th	fighter	Jul 1938-Aug 1945	Ki.61
79th	unknown		
80th	unknown		
81st	recon.	Jul 1941	Ki.15, 46, 102
82nd	recon.	Oct 1944	Ki.46
83rd	recon.	1938-1945	Ki.51
84th	unknown		
85th	fighter	1938	Ki.44
86th	unknown		
87th	fighter	1938	Ki.27, 44
88th	recon.	1938	Ki.46
89th	unknown		
90th	bomber	Sept 1938	Ki.30, 48
91st	unknown		
92nd	bomber	1938	Ki.21
93rd	unknown		
94th	bomber	1938-	Ki.21
95th	bomber	Dec 1942	Ki.49
96th-97th	unknown		
98th	bomber	1938	Ki.21, 67
99th	unknown		
100th	unknown		
101st	fighter	Nov 1944	Ki.43, 84
102nd	fighter	Nov 1944	Ki.43, 84

103rd	fighter	Nov 1944-1945	Ki.43, 84
104th	fighter	Nov 1944	Ki.43, 84
105th	fighter	Nov 1944	Ki.61
106th	fighter	Nov 1944	Ki.46 kai
107th	fighter	Nov 1944	Ki.67 kai
108th	transportation	1944	Ki.54, 57
109th	transportation	1944	Ki.57
110th	bomber	Oct 1944	Ki.67
111th	fighter	Jul 1945	Ki.84, 100
112th	fighter	Jul 1945	Ki.43, 84
113th-199th	unknown		
200th	fighter	Oct 1944	Ki.85
201st-202nd	unknown		
203rd	fighter	Apr 1942	Ki.43
204th	fighter	Apr 1942	Ki.43
205th-207th	unknown		
208th	bomber	Nov 1941-May 1945	Ki.48
209th-243rd	unknown		
244th	fighter	Nov 1944	Ki.61, 100
245th	unknown		
246th	fighter	Oct 1942	Ki.27, 44, 84
247th	unknown		
248th	fighter	Oct 1942	Ki.43

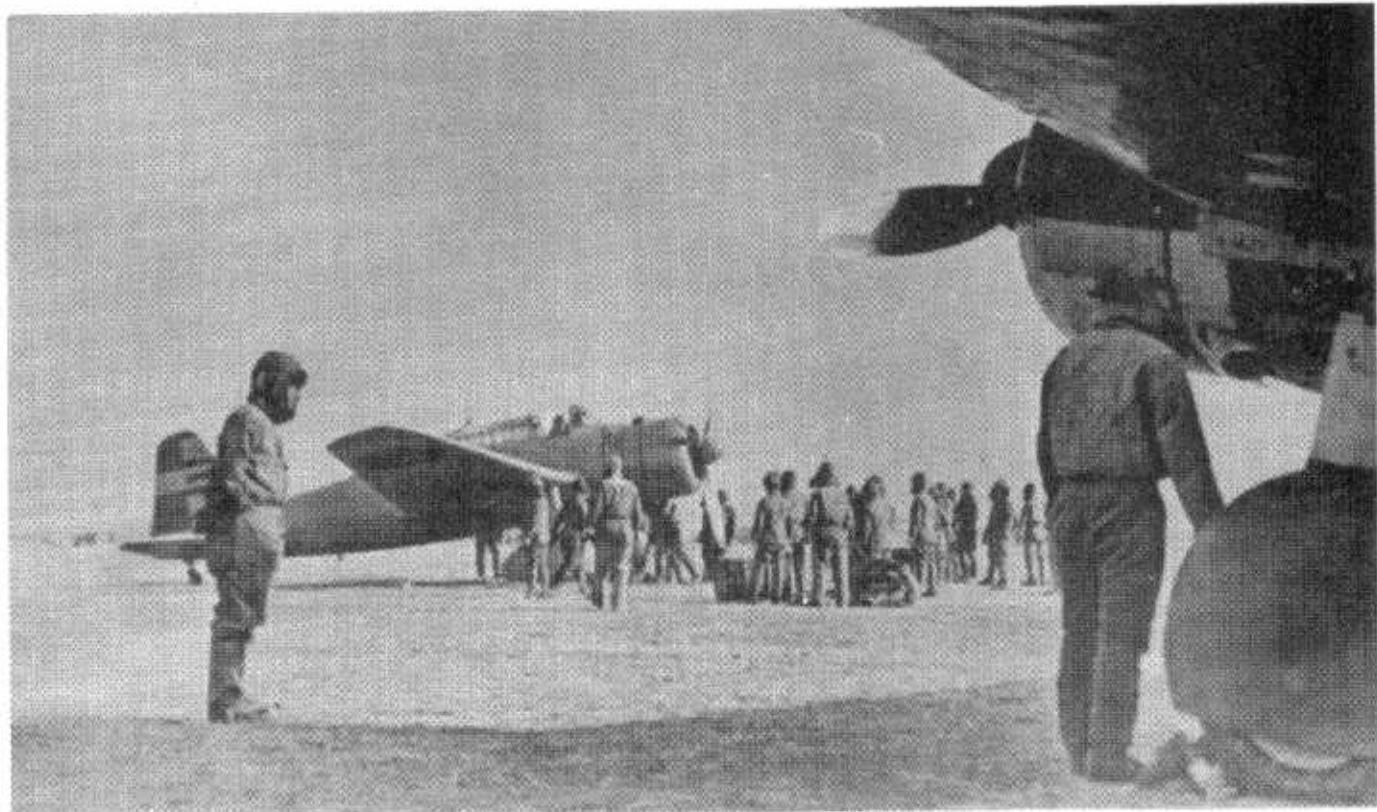
PRINCIPAL INDEPENDENT CHUTAI_s

SENTAI	MISSION	SERVICE	AIRCRAFT/REMARKS
1st DC	anti-sub	Jul 1944	Ki.51, 76
3rd DC	heavy bomber	Jul 1937	reorganized into the 98th Sentai
4th DC	recon.		Ki.46, became the 25th Sentai
5th-6th DC	unknown		
7th DC	heavy bomber	Jul 1937	became the 98th Sentai
8th DC	recon.		
9th DC	fighter		Ki.10, 27
10th DC	fighter		Ki.10, 27
11th-15th DC	unknown		
16th DC	recon.	Jul 1944	Ki.46
17th DC	recon.	Jul 1938	2MR8, Ki.36 became the 44th Sentai
17th DC	recon.	re-established May 1944	Ki.46
18th DC	recon.	1938-Oct 1944	Ki.15, 46
19th DC	recon.	1944-1945	Ki.46
20th DC	transportation	Apr 1943	
21st-22nd DC	unknown		
23rd DC	fighter	Jan 1944	
24th DC	fighter	May 1941-Oct 1944	
25th DC	fighter	Aug 1944	Ki.45
26th-30th DC	unknown		
31st DC	heavy bomber	Jun 1944-Oct 1944	
32nd-40th DC	unknown		
41st DC	attack	Aug 1944	Ki.51
42nd DC	unknown		
43rd DC	anti-sub	Oct 1944	Ki.36
44th DC	anti-sub	Oct 1944	Ki.36
45th DC	anti-sub	Oct 1944	Ki.36
46th DC	anti-sub	Oct 1944	Ki.36
47th DC	anti-sub	Oct 1944	Ki.36
48th DC	anti-sub	Oct 1944	Ki.36

49th DC	anti-sub	Oct 1944	Ki.36
50th DC	recon.	Oct 1944	Ki.15, 46
51st DC	recon.		Ki.15, 46
52nd DC	recon.	Jul 1941	Ki.51
53rd DC	recon.	Jul 1941-Oct 44	Ki.51
54th DC	transportation	Jul 1941	
55th DC	recon.		Ki.46
56th-62nd DC	unknown		
63rd DC	recon.		
64th-65th DC	unknown		
66th DC	recon.	Jul 1941	Ki.51
67th-70th DC	unknown		
71st DC	fighter	Jul 1941	
72nd DC	unknown		
73rd DC	recon.		Ki.51
74th DC	recon.		Ki.15, 46, 36
75th DC	unknown		
76th DC	recon.		Ki.15, 46
77th-80th DC	unknown		
81st DC	recon.	1941-1943	Ki.46
81st DC	(reorg.) fighter	1944	
82nd DC	light bomber		Ki.30, 48
82nd DC	(reorg.) fighter	Feb 1945-Jul 1945	Ki.46 kai
83rd DC	recon.	Aug 1939-1944	Ki.51
83rd DC	(reorg.) fighter	Feb 1945-Jul 1945	Ki.46 kai
84th DC	fighter	1938	Ki.27
85th DC	recon.		Ki.46
86th-88th DC	unknown		
89th DC	recon.	Jul 1941-Mar 1944	Ki.46
90th DC	recon.	-Nov 1943	Ki.51

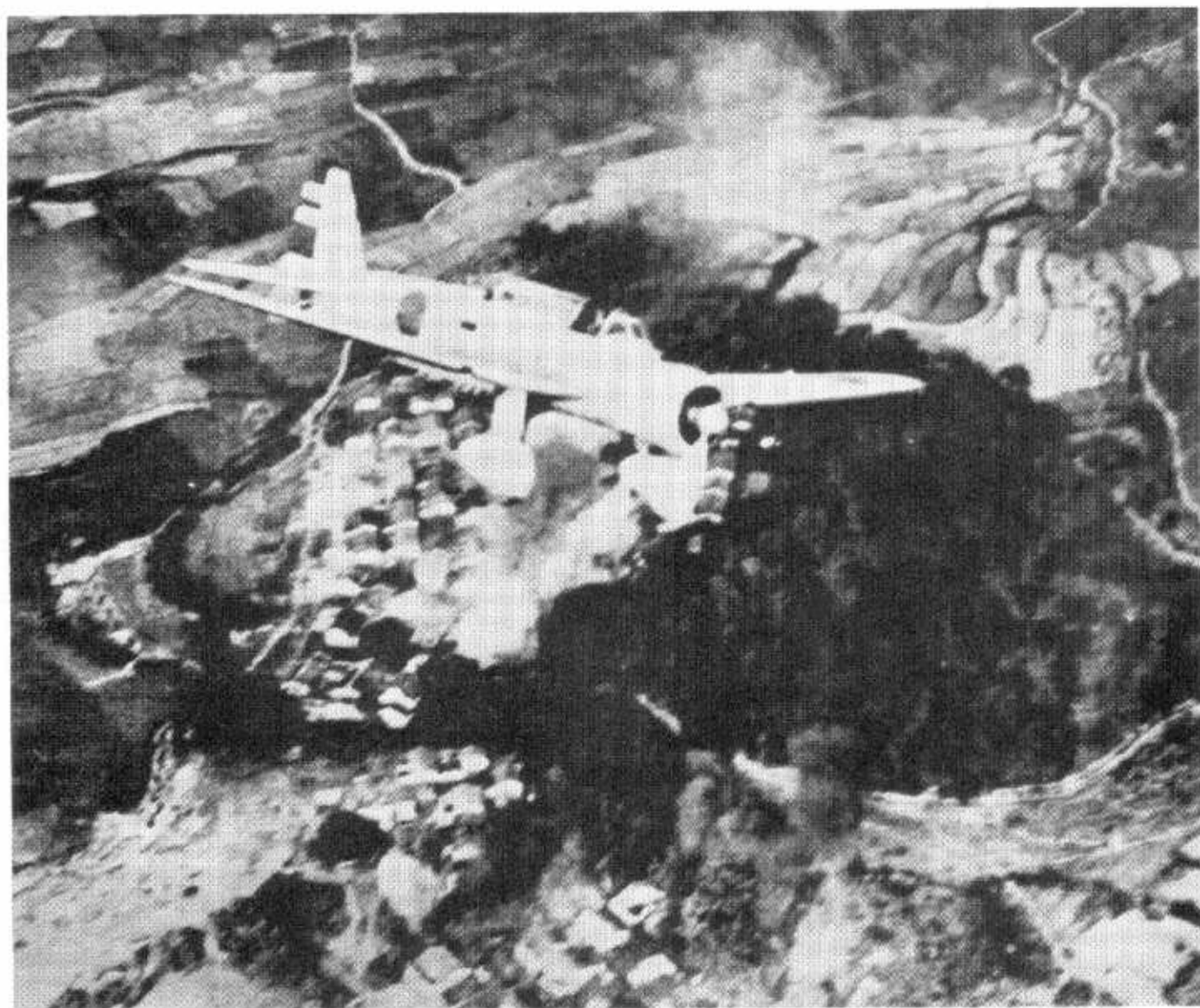


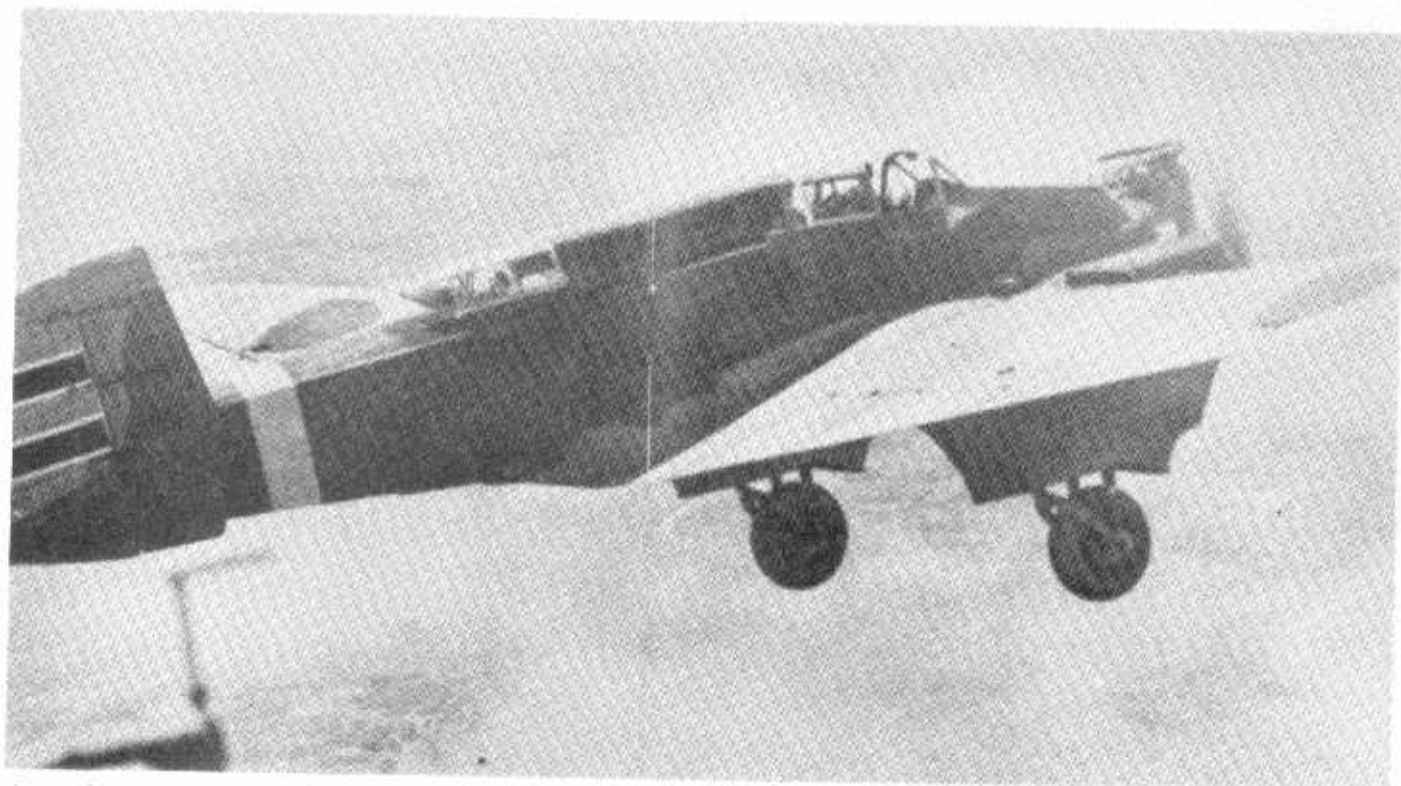
NATEs, 10th Direct-Command Chutai, Manchuria, 1938. Chutai leader's aircraft is denoted by the black cowling.
(J. Wood)



ANNs of the 90th attack Sentai, Manchuria, 1939.

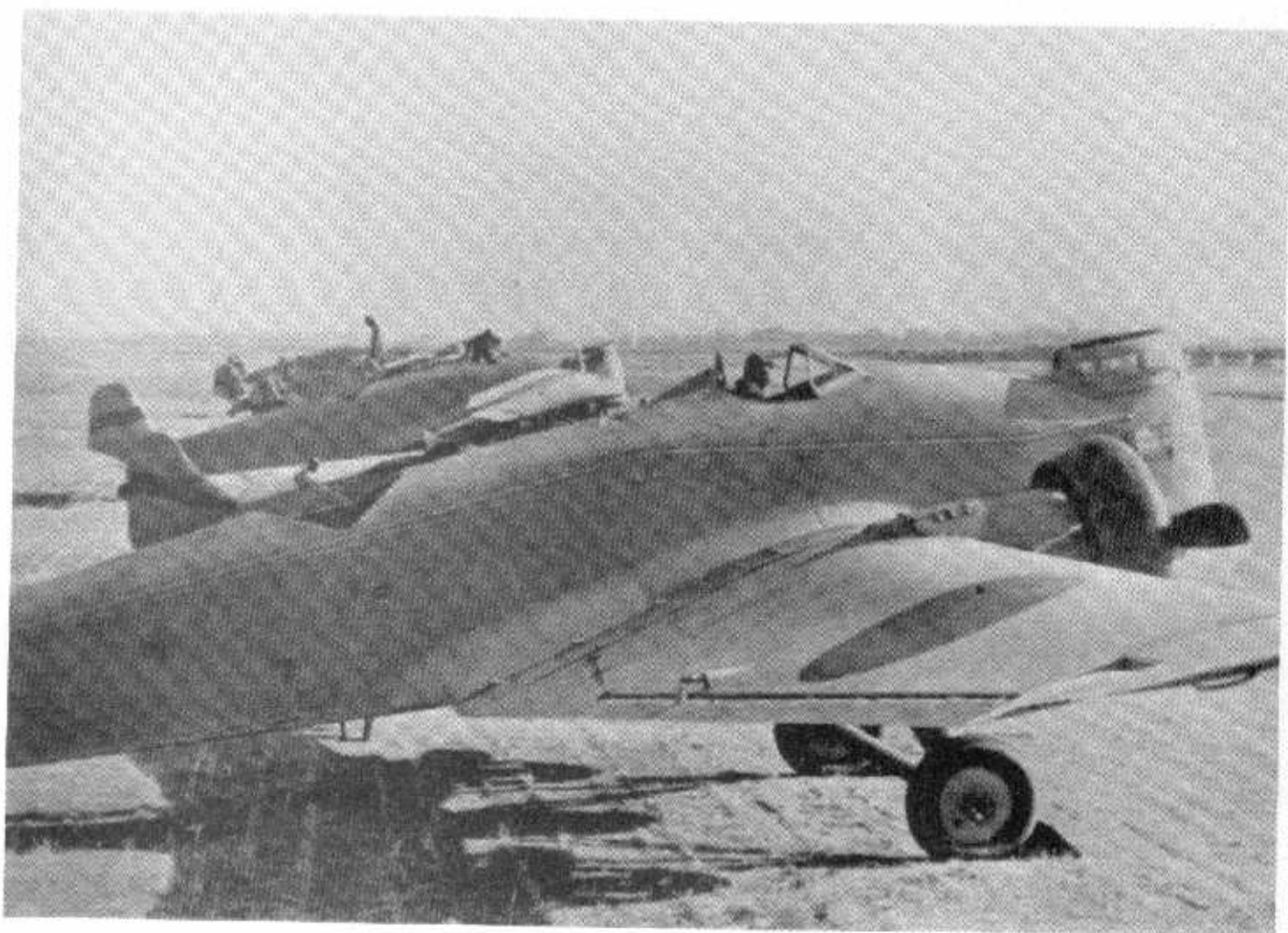
(J. Wood)

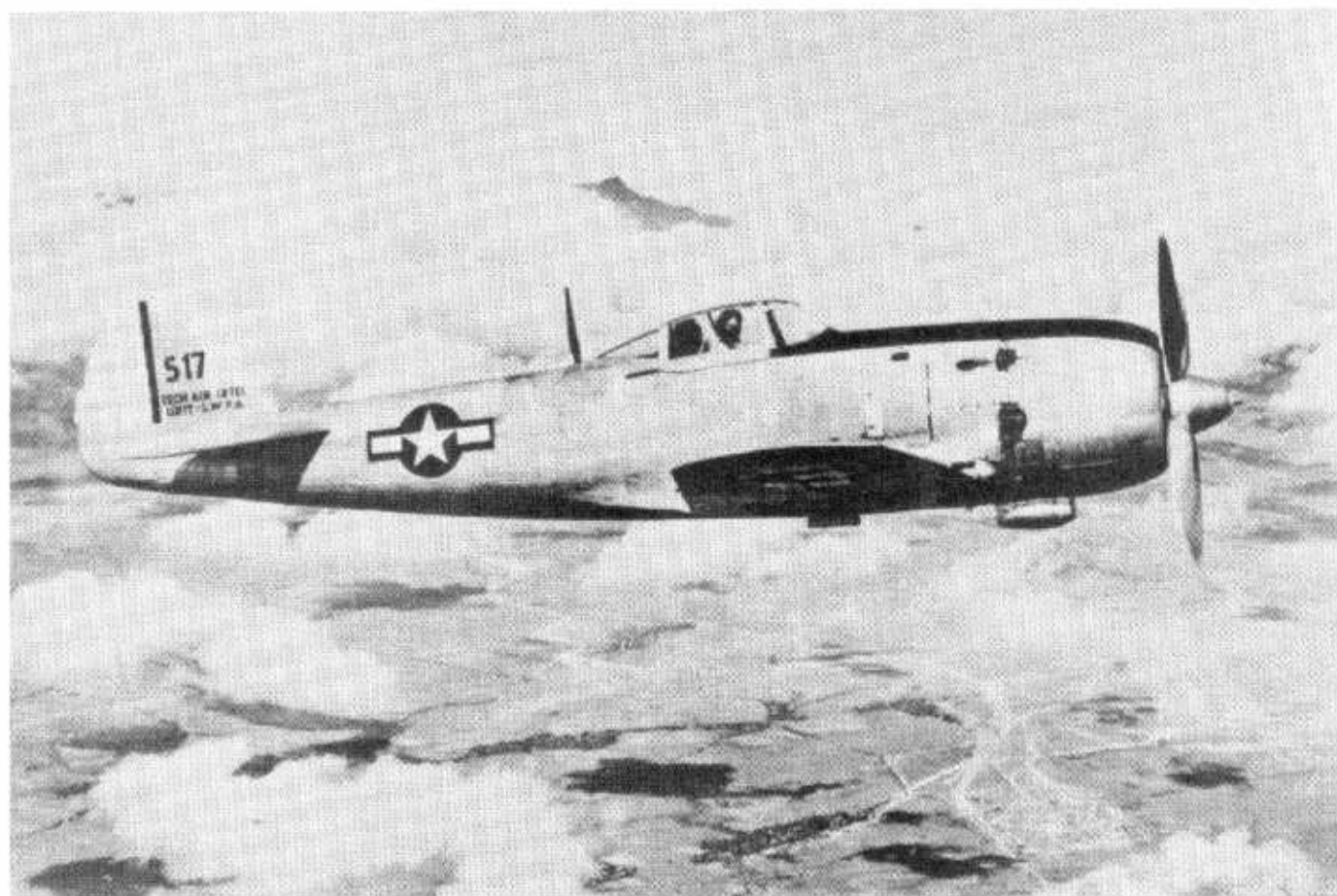




An early example of command indication is shown on the Type 95 bomber of the early Nomonhan period.

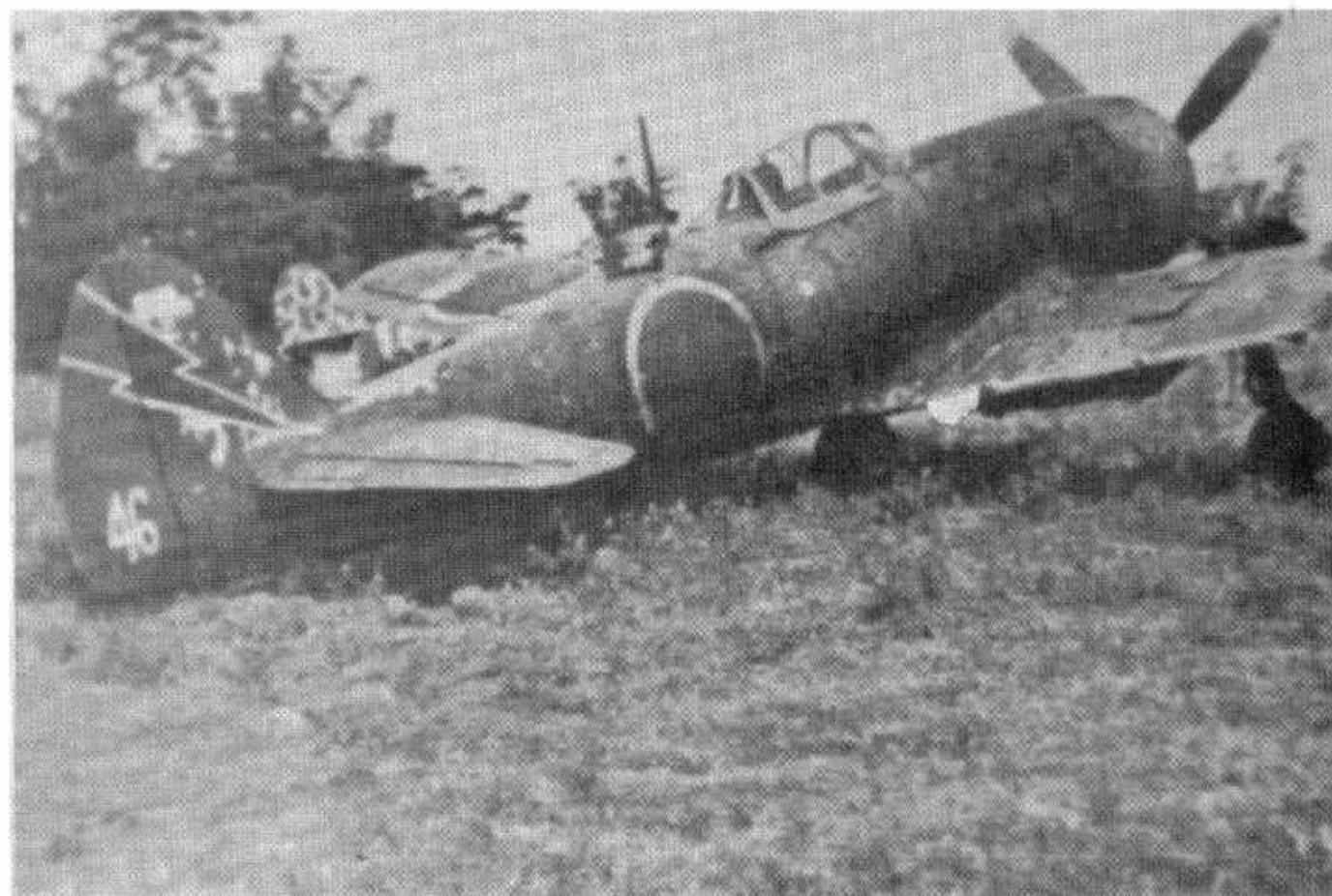
(J. Wood)





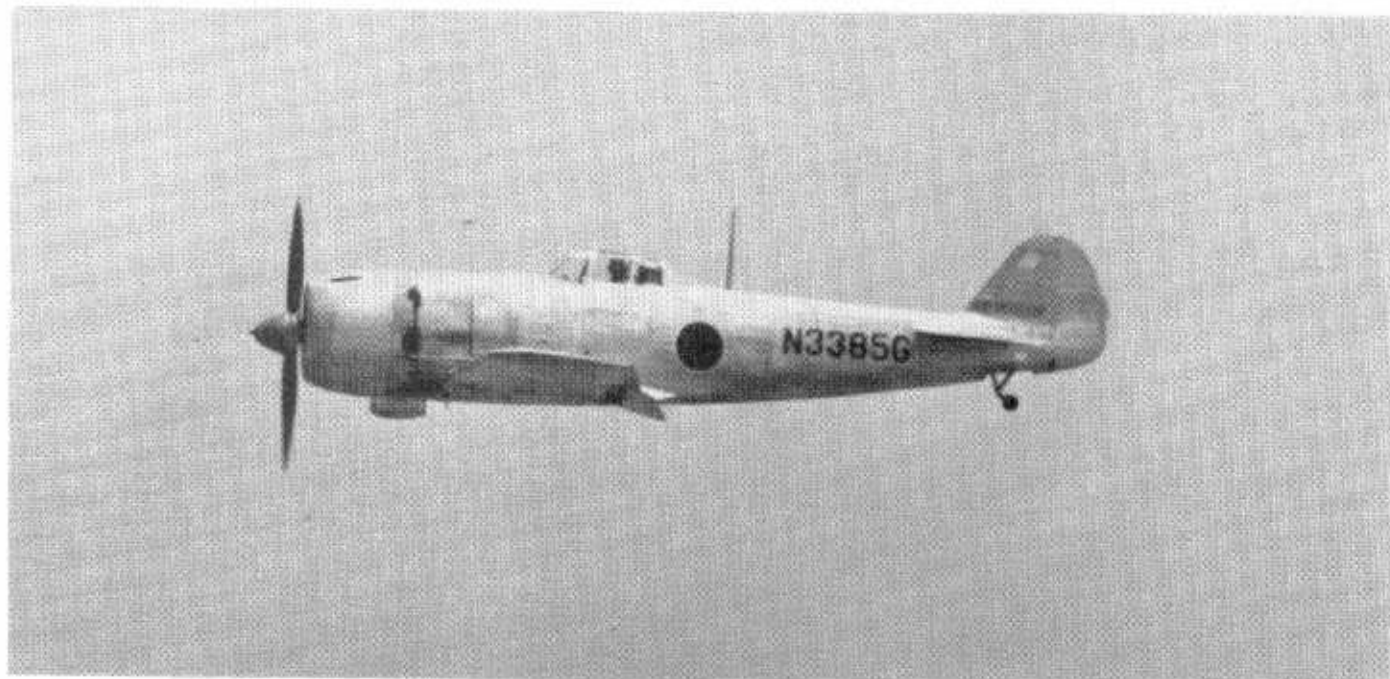
KI-89 in USAF markings under test by Allies, 1944.

(USAF Photo)



A Hayate (FRANK) KI-84 of the 11th Sentai, showing signs of extreme weathering. Note the numeral on the tail.

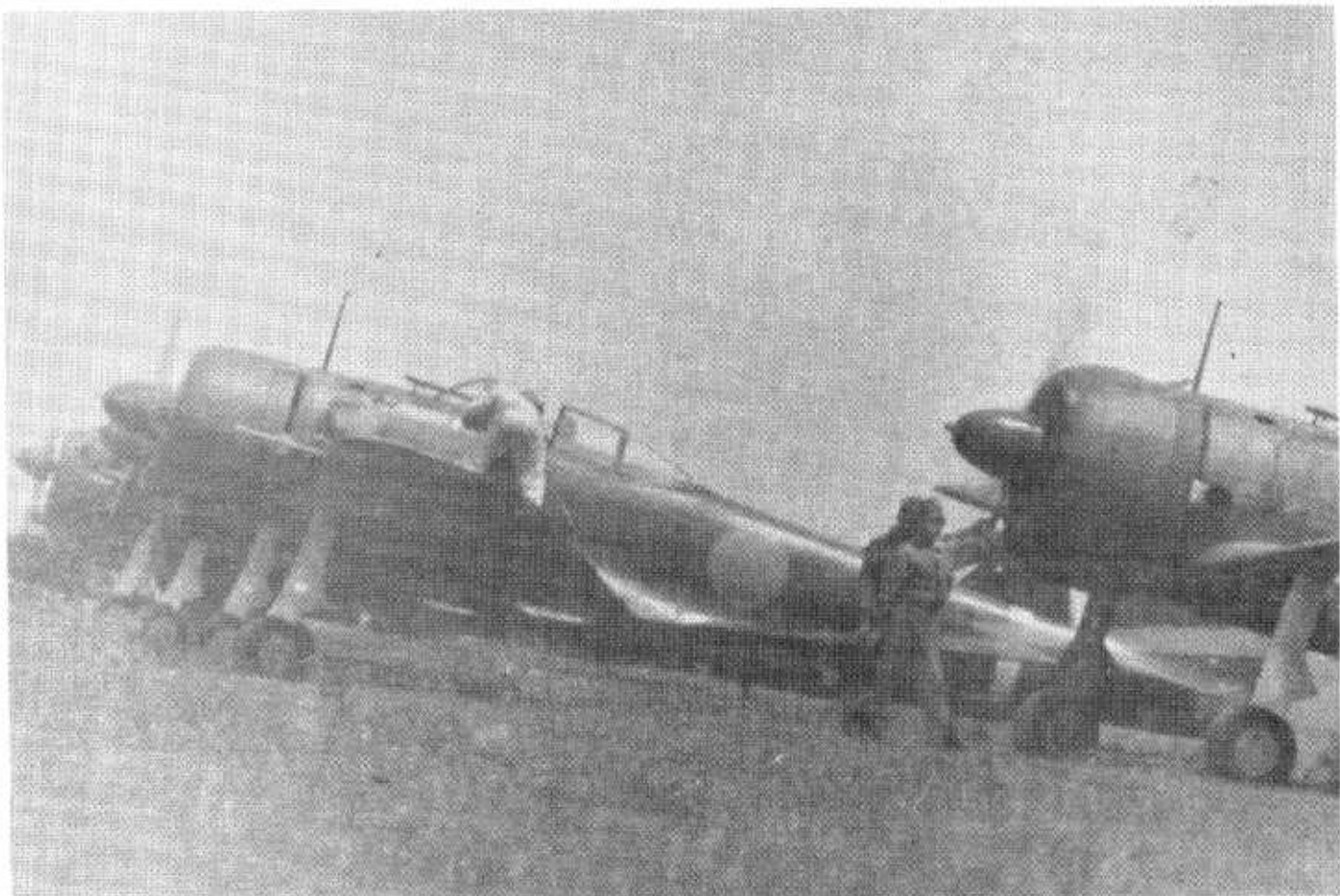
(USAF Photo)



1st flight of rebuilt HAYATE by W. Mahurin, for the Air Museum, Ontario, California. It is of interest to note that this is the same aircraft which is shown at the bottom of page 188, as it was captured. (Ed Maloney)

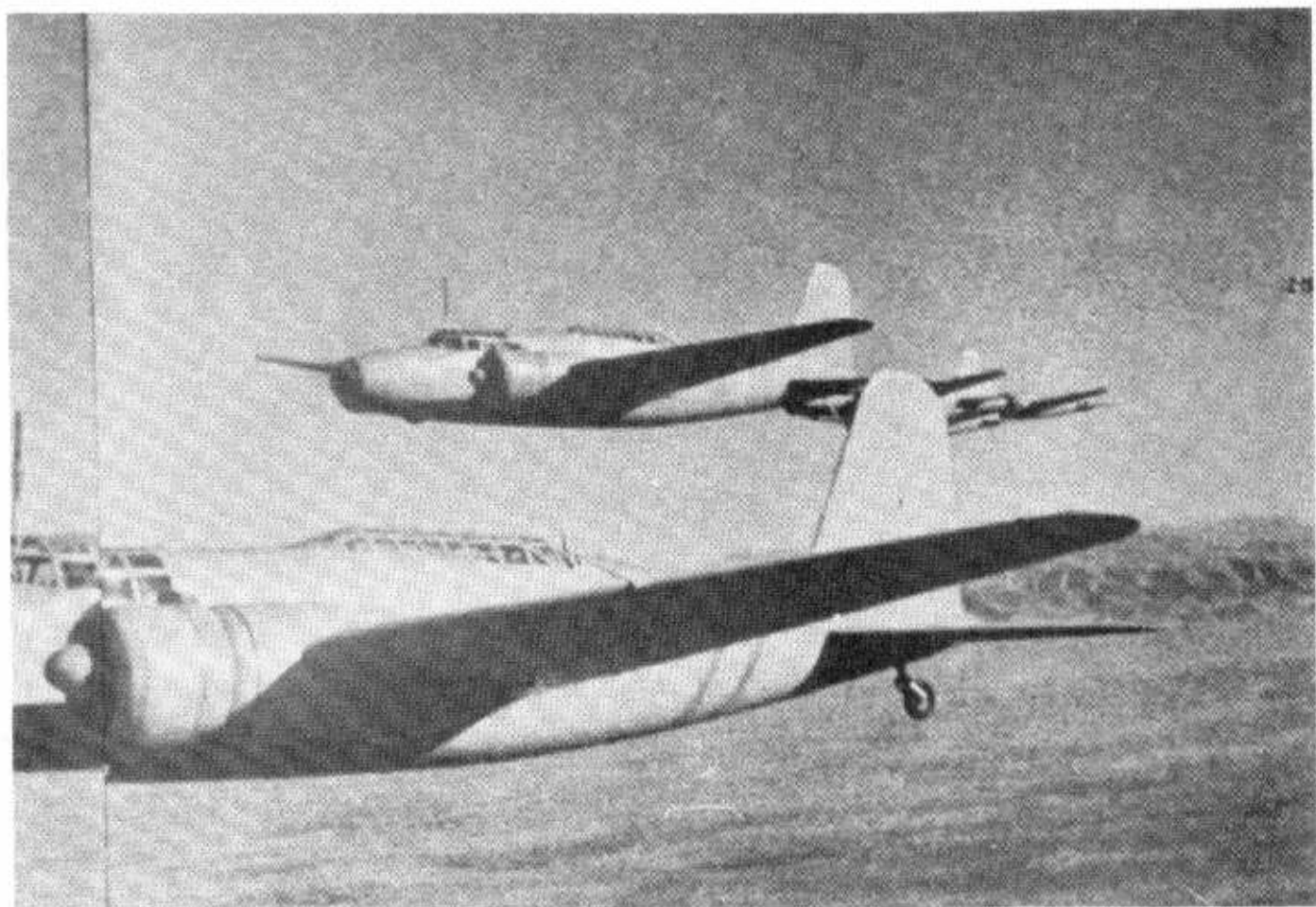


NATEs, AKENO Flying School, 1939, the 1st section. Each section was identified by the amount of diagonal stripes on the fuselage, each set in the Chutai color. The symbol on the rudder is the KANA for various numerals, or aircraft serial. (Witold Liss)



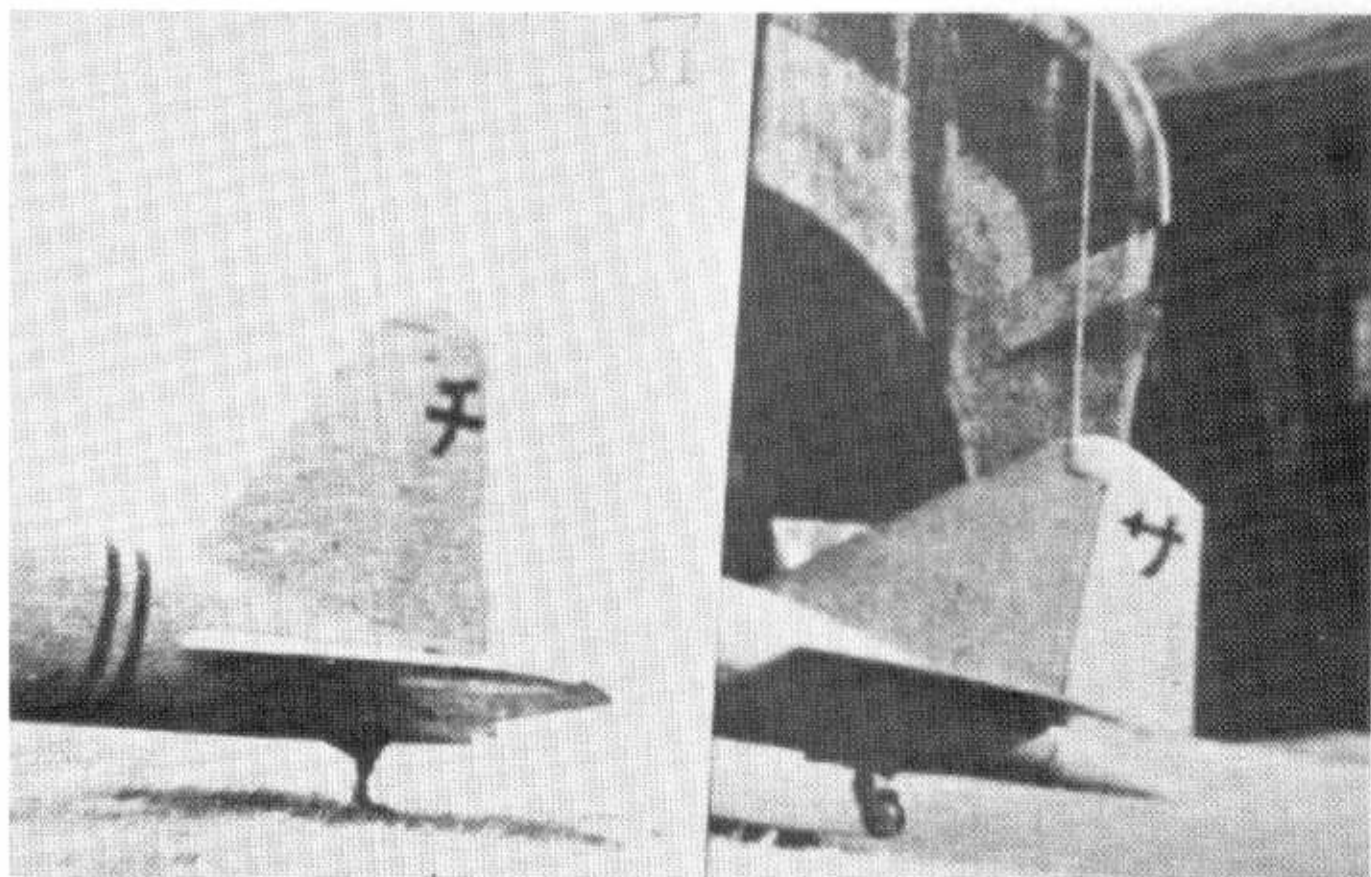
OSCAR, 50th Fighter Sentai, Burma, 1943.

(R. Bueschel)



SALLY, 60th Bomber Sentai, 2nd Chutai, Manchuria, 1939.

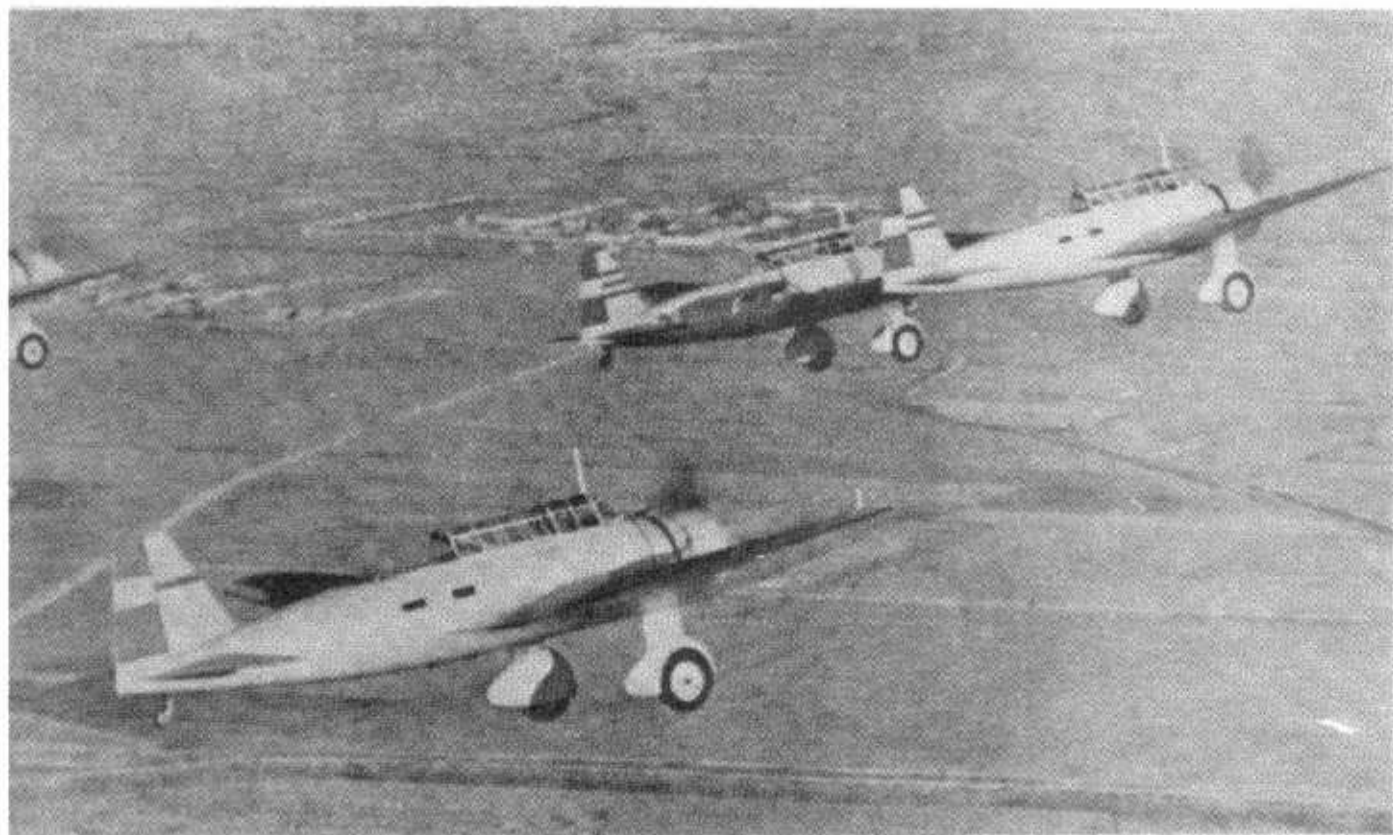
(J. Wood)



Two examples of the use of KANA tail symbols, these are the western equivalent of letters. (l to r, KI-51, KI-46)
 (USAF Photo)

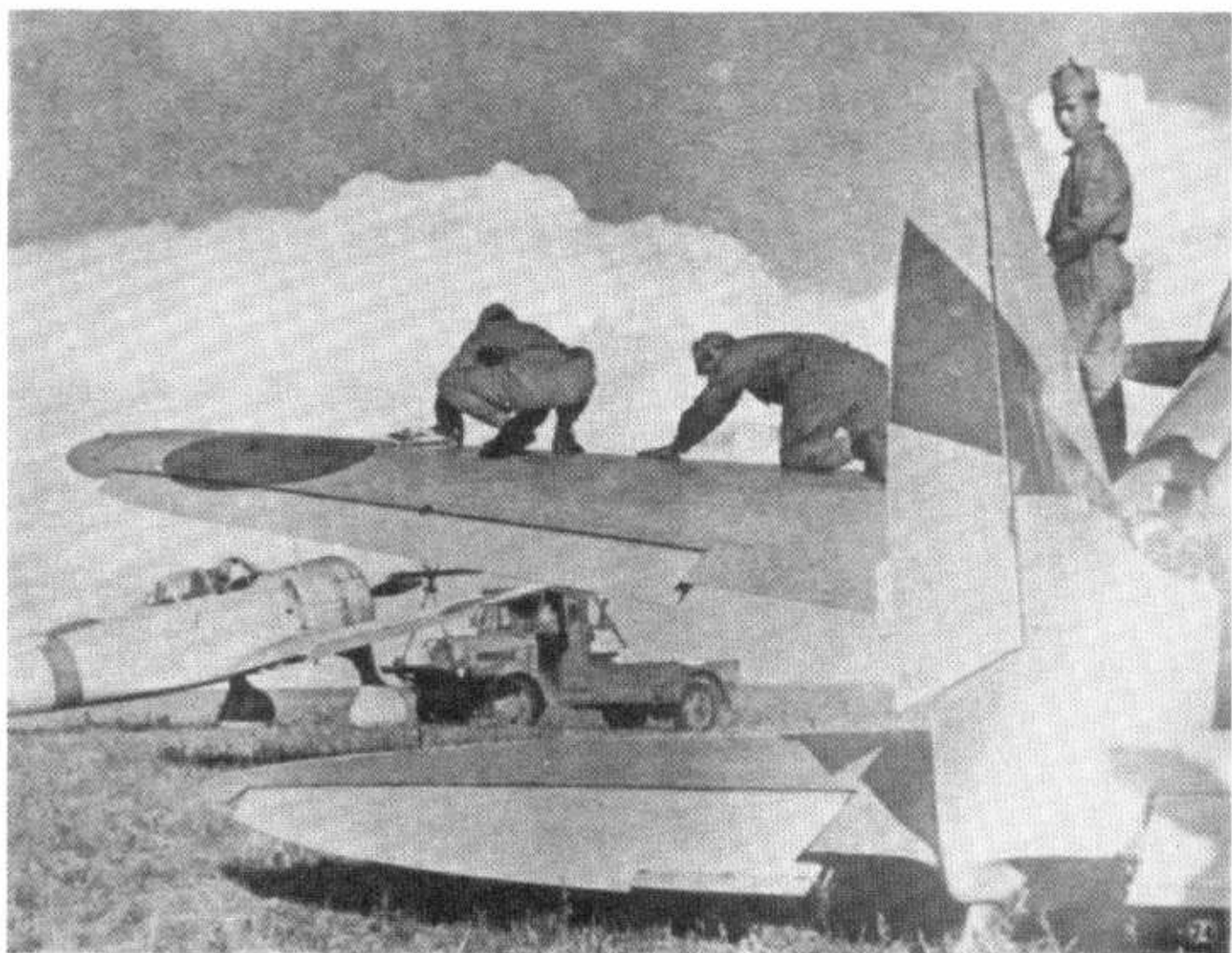


KI-21-I SALLY of the 2nd Chutai, 60th Bomber Sentai, China, 1938-1941. Of interest is the use of tail striping to denote individual aircraft, in this case aircraft #23, as indicated by the "2" stripes in the vertical stabilizer, and "3" stripes on the rudder, or "23". Barely visible on the fuselage is the unusual diagonal stripes and star of the 2nd Chutai of the 60th.
 (The Author)



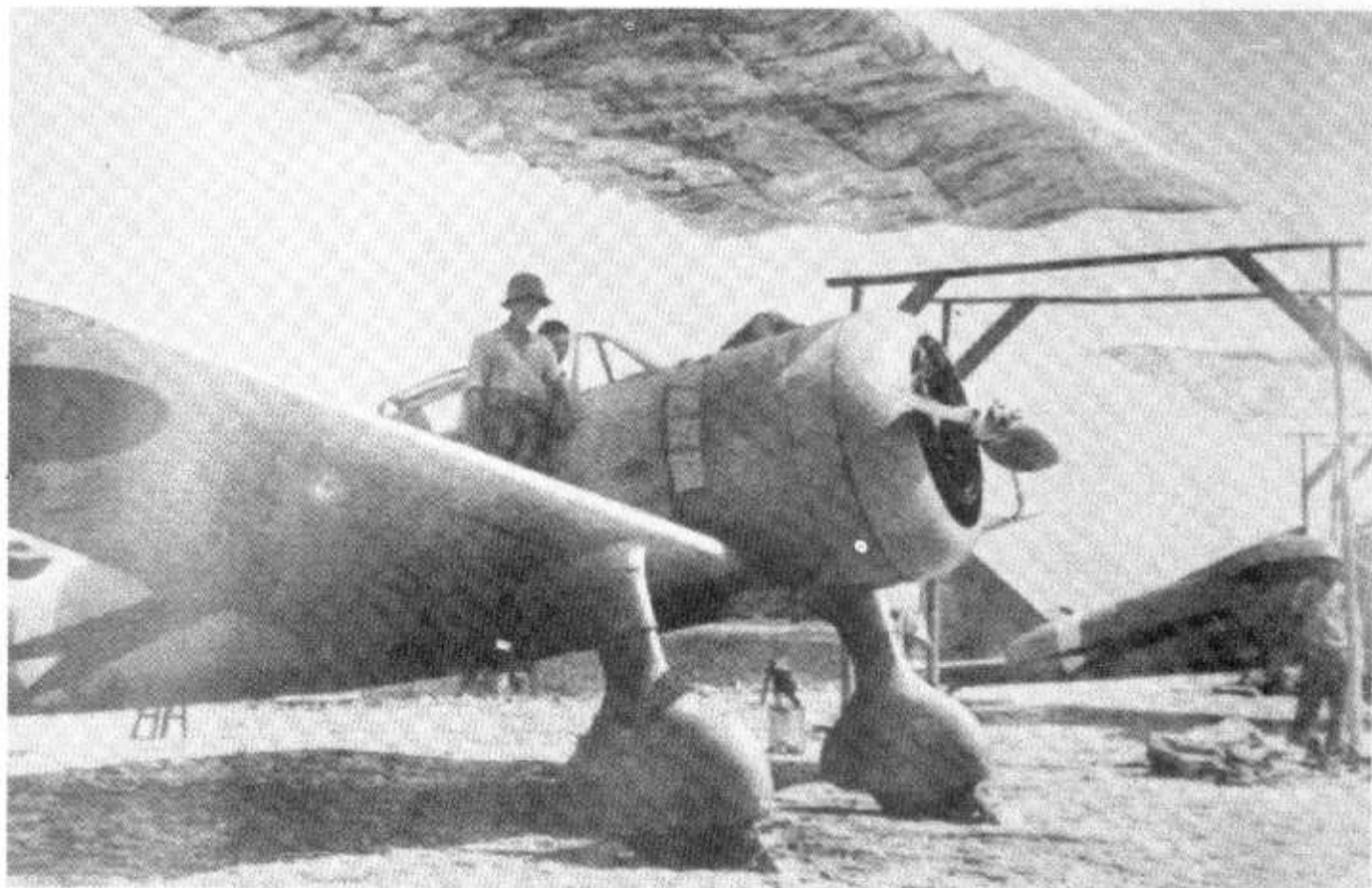
ANNs of the 90th Attack Sentai, Manchuria, 1939. Other views may be found on page 186.

(USAF)



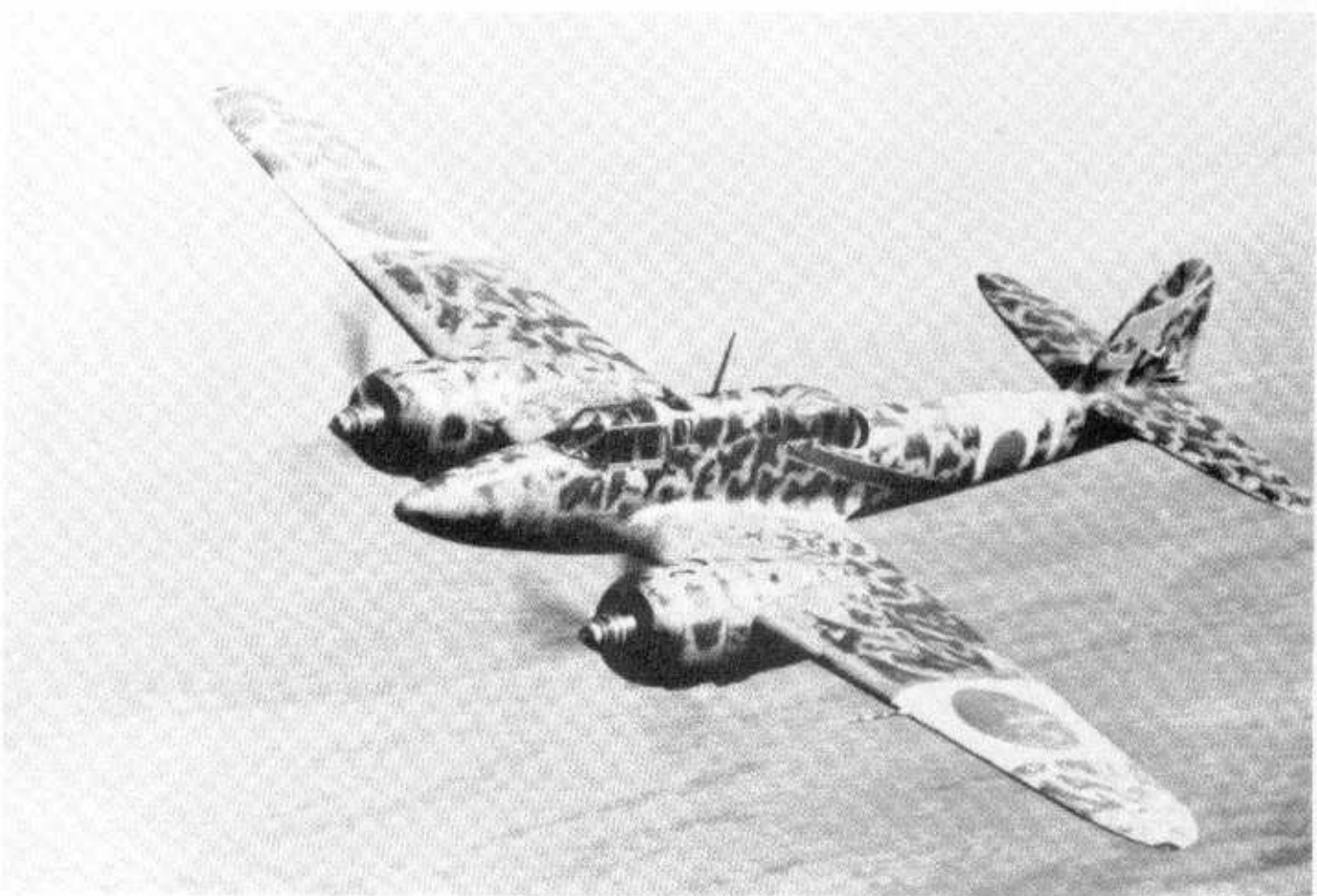
NATE, 11th Fighter Sentai, Nomonhan, 1938.

(J. Wood)



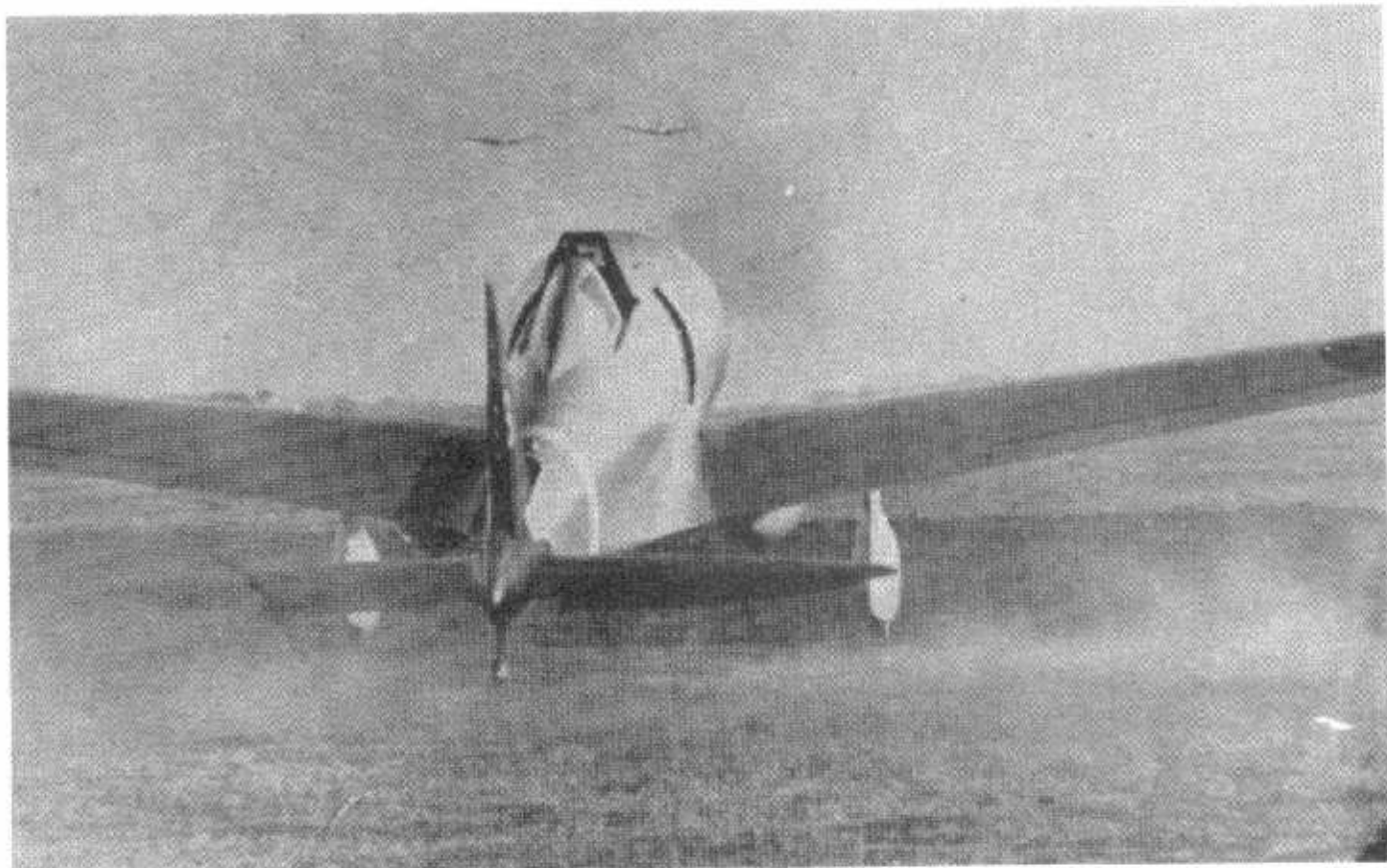
59th Fighter Sentai, China, 1939.

(J. Wood)

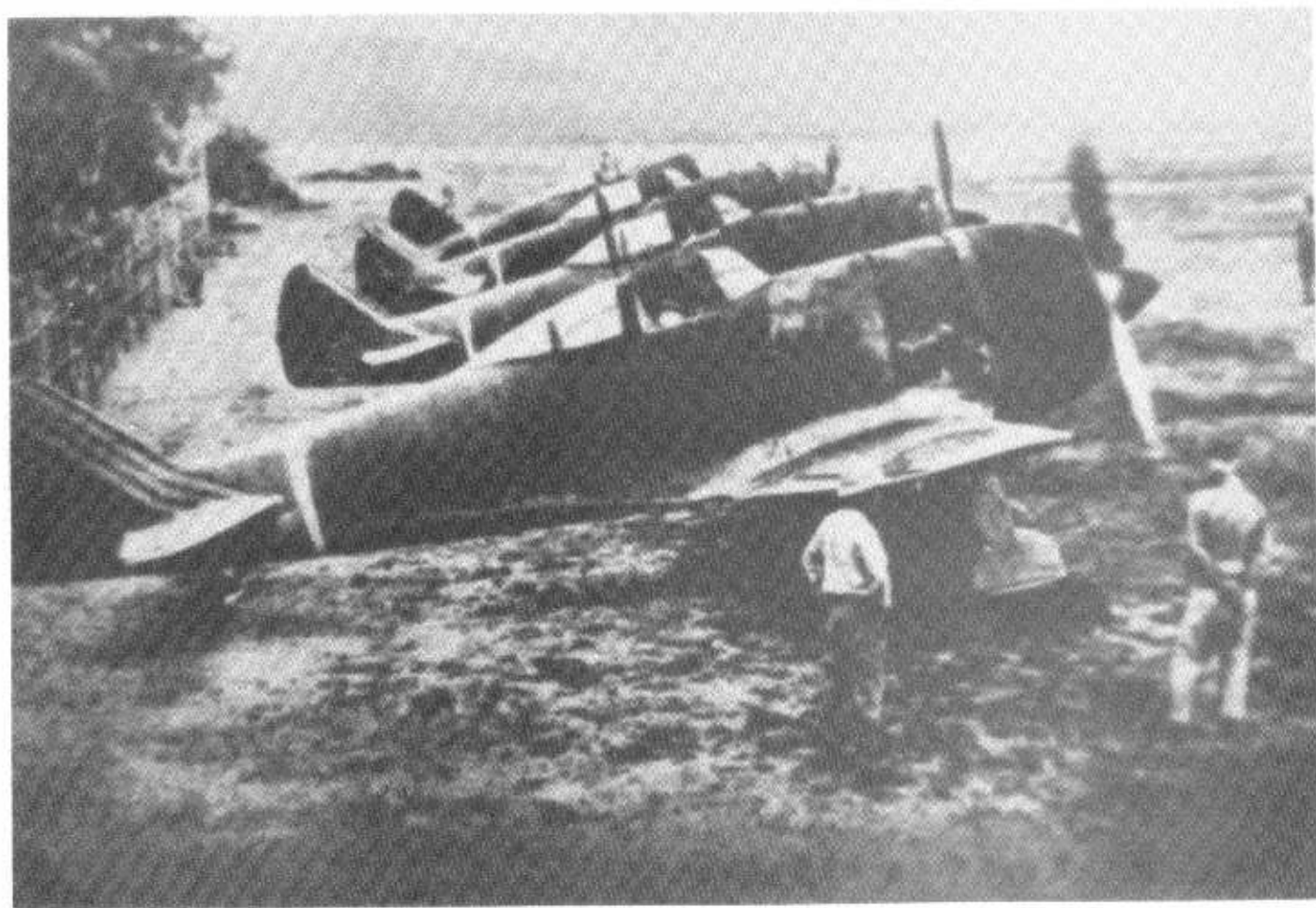


NICK, 53rd Sentai, Home Defense, 1945.

(R. Bueschel)

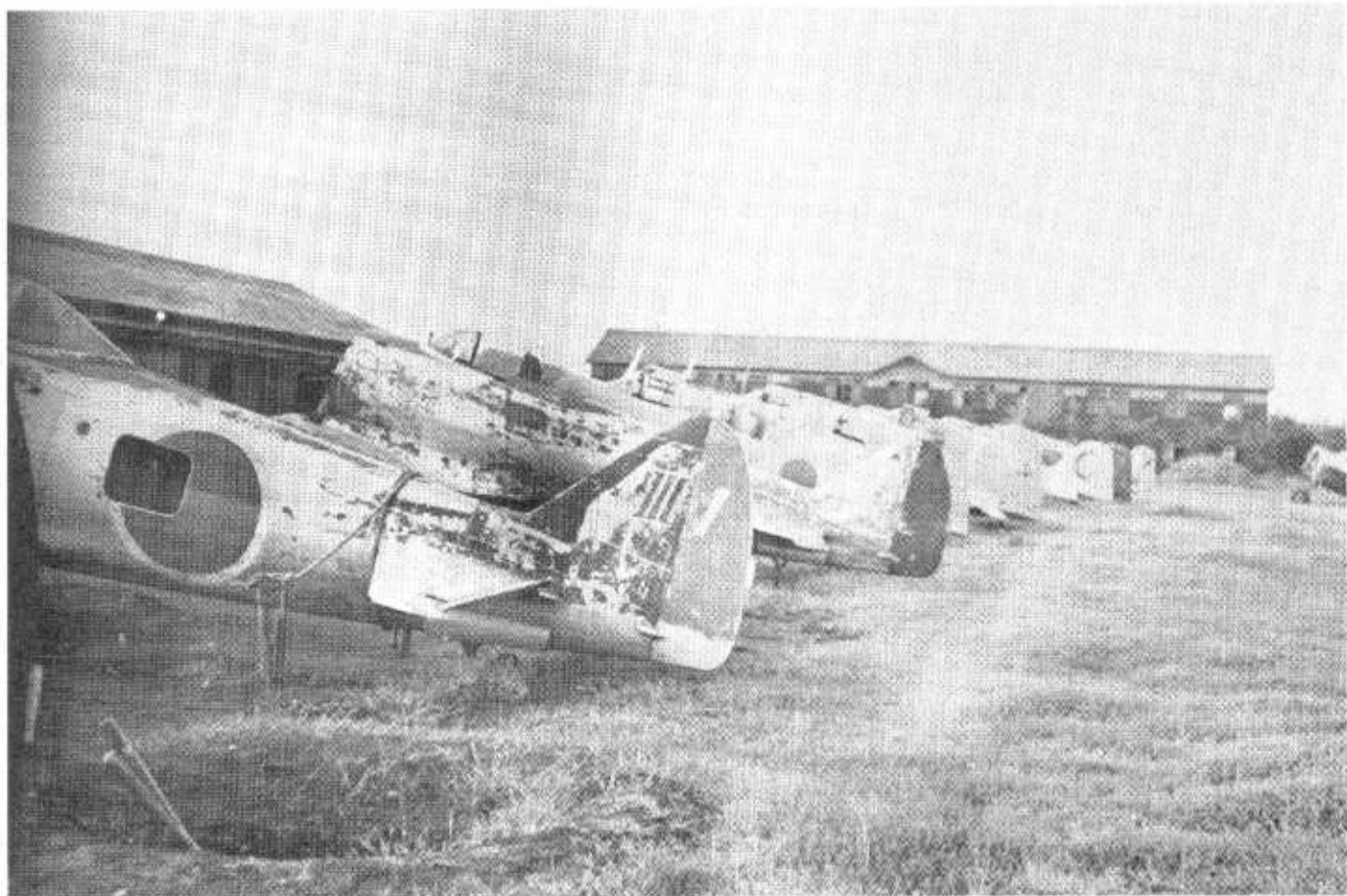


NATE, 10th Direct Command Chutai, 1939.



TOJOS, 47th direct command Chutai, 1943. Here the use of diagonal stripes to identify aircraft within the Chutai is very evident. Note the absence of the Hinomaru on the fuselage, a common practice within the China-based Sentais during the first years of the war. Here is seen a complete Shotai, with the fourth aircraft unmarked.

(USAF Photo)

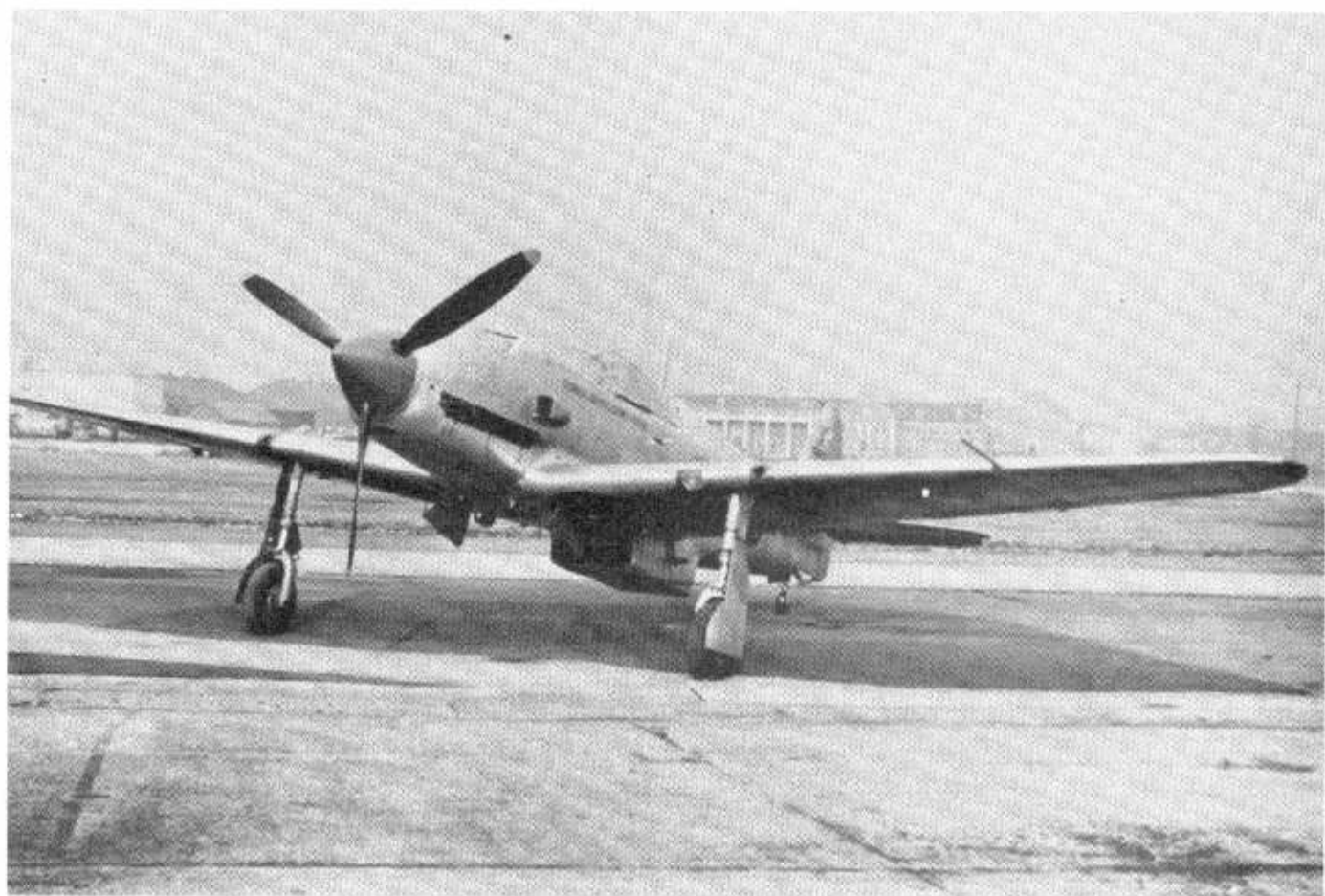


The remains after the war. Here at Tachikawa can be seen several types of aircraft showing a random selection of tail markings. The foremost aircraft, a TOJO, bears the marks of the 85th Sentai, 3rd Chutai, the 1st aircraft, followed by a TOJO of the 1st Sentai, 1st Chutai.
(B. Calvin Jones)



NATE, 11th Fighter Sentai, Nomonhan, 1938.

(J. Wood)



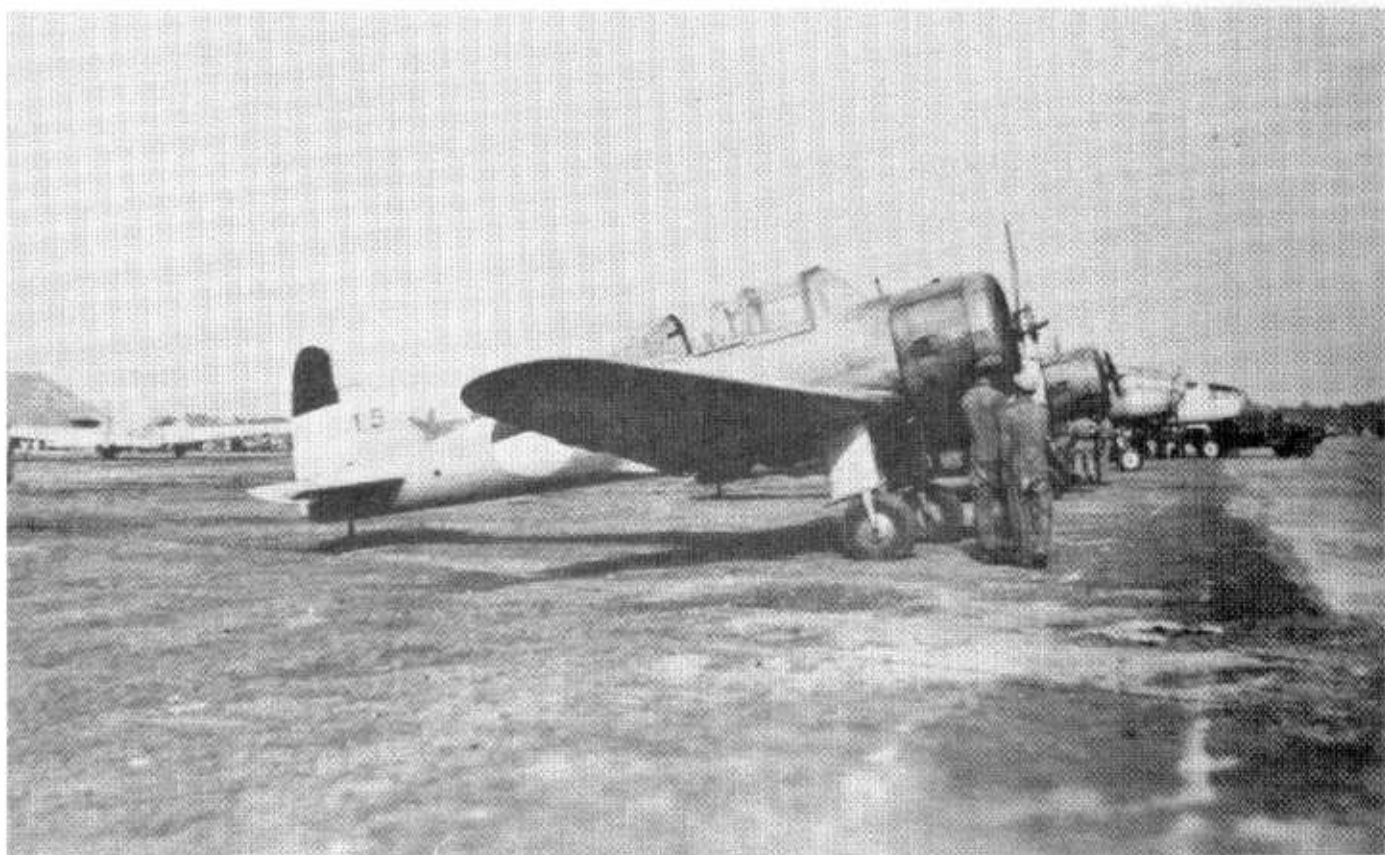
TONY, after capture, but in original factory N finish.

(USAF)



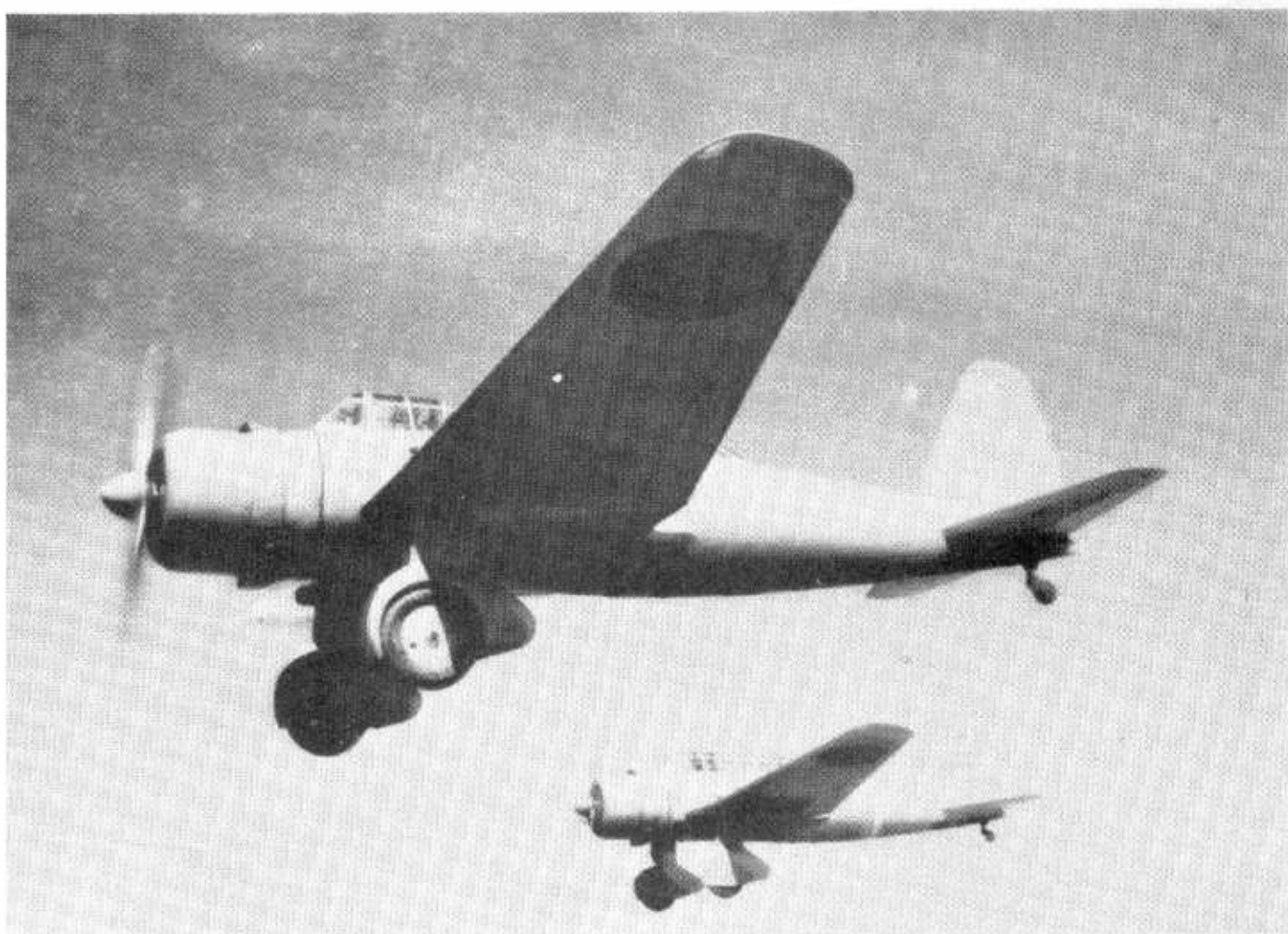
59th Fighter Sentai, China, 1939.

(J. Wood)

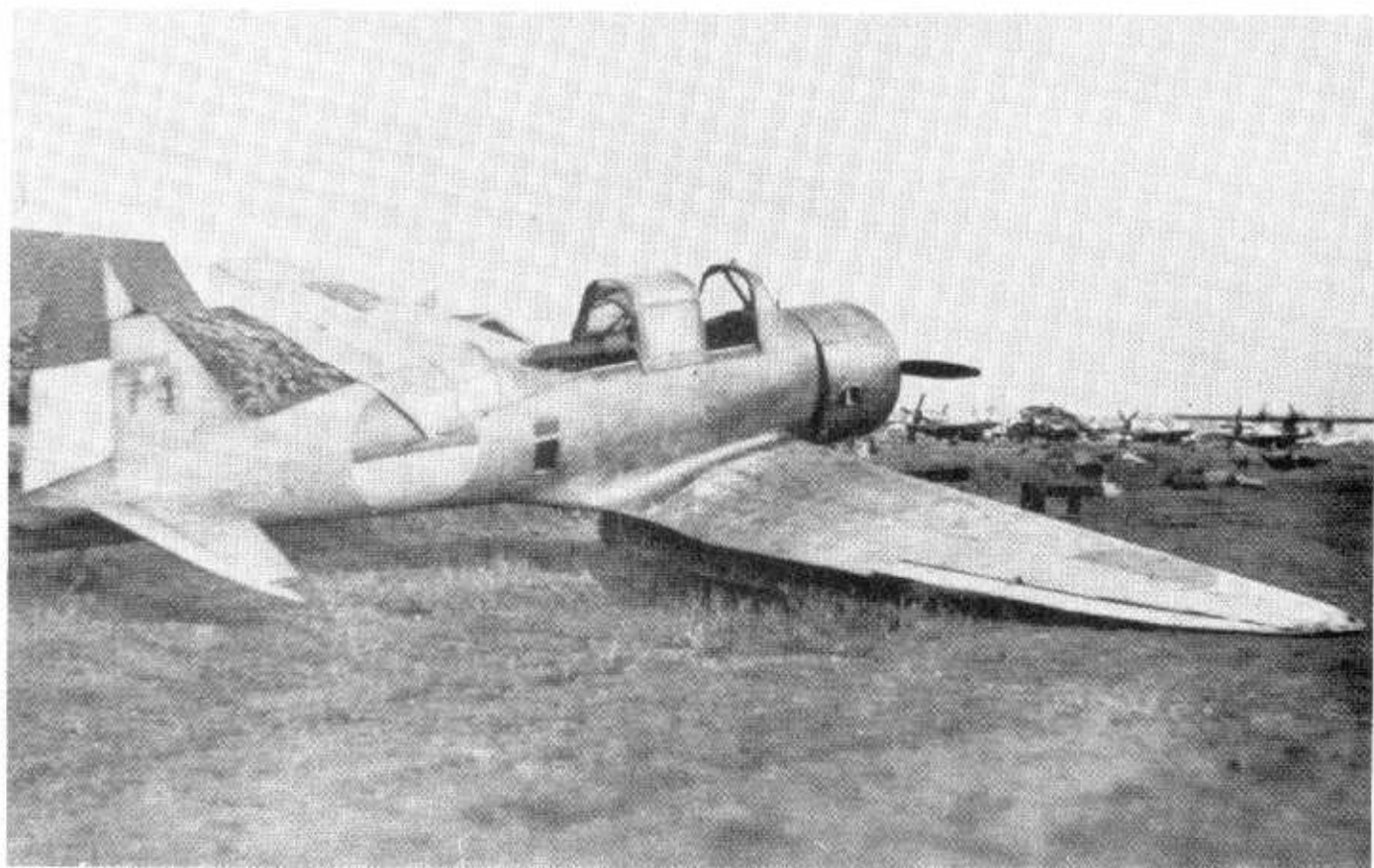


IDAs of the Indonesian Air Force at the war's end.

(R. Jones)



KI-30 ANNs of the 31st Sentai, 1st Chutai, China, 1942. The aircraft in the foreground is that of the Chutai leader, as signified by the additional red stripe under the horizontal white stripe (Chutai ID). (USAF Photo)



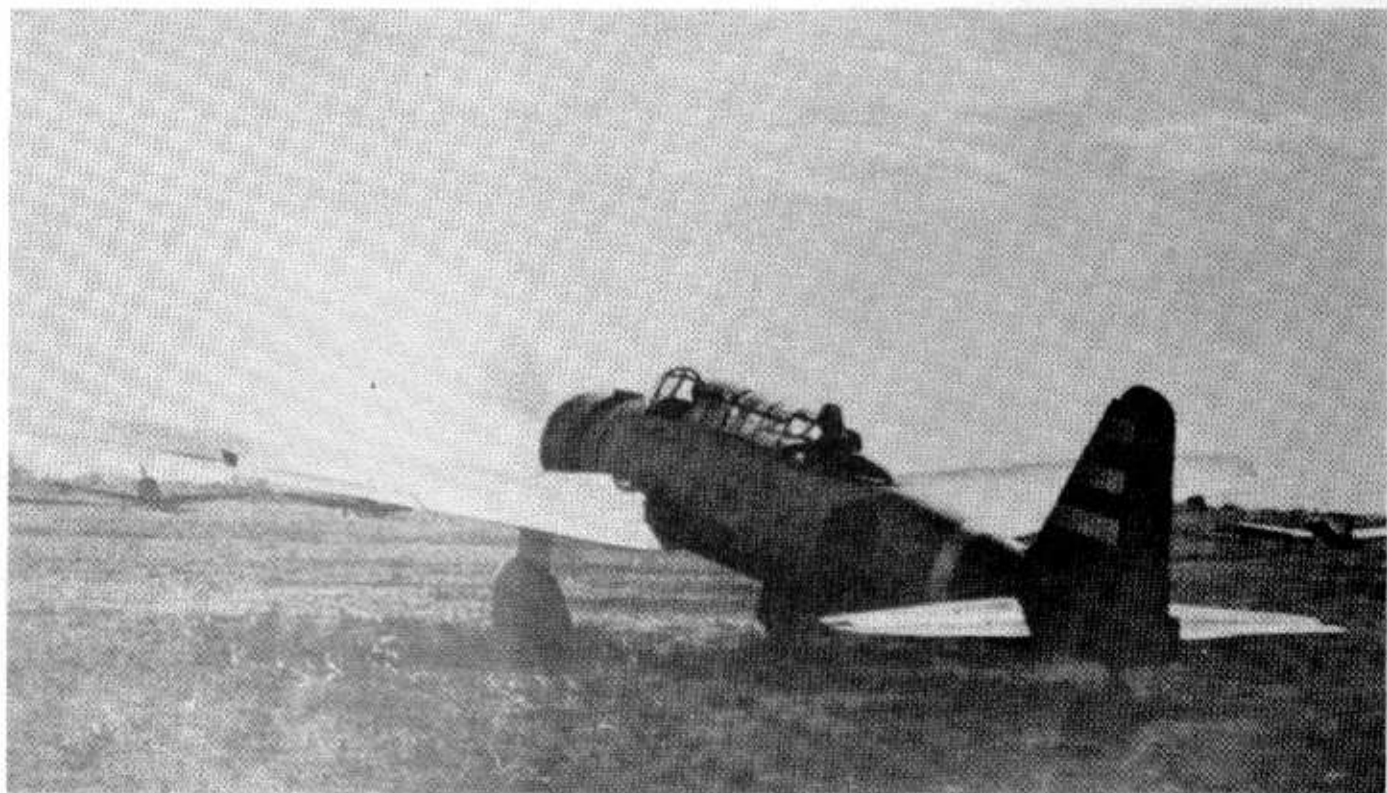
Another IDA under Indonesian colors, late 1945.

(R. Jones)



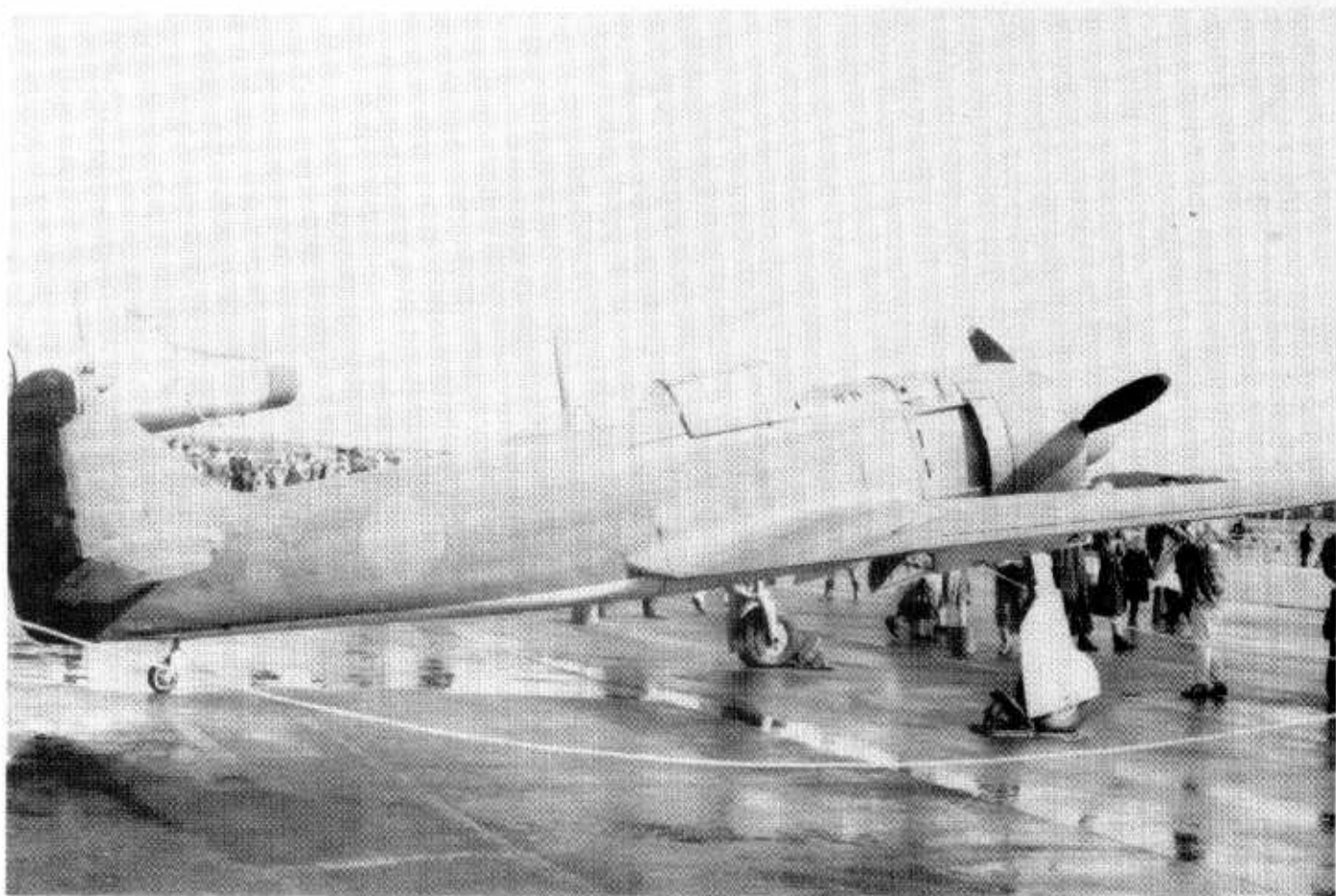
PEGGY, enroute to U.S.A., 1945.

(USAF Photo)



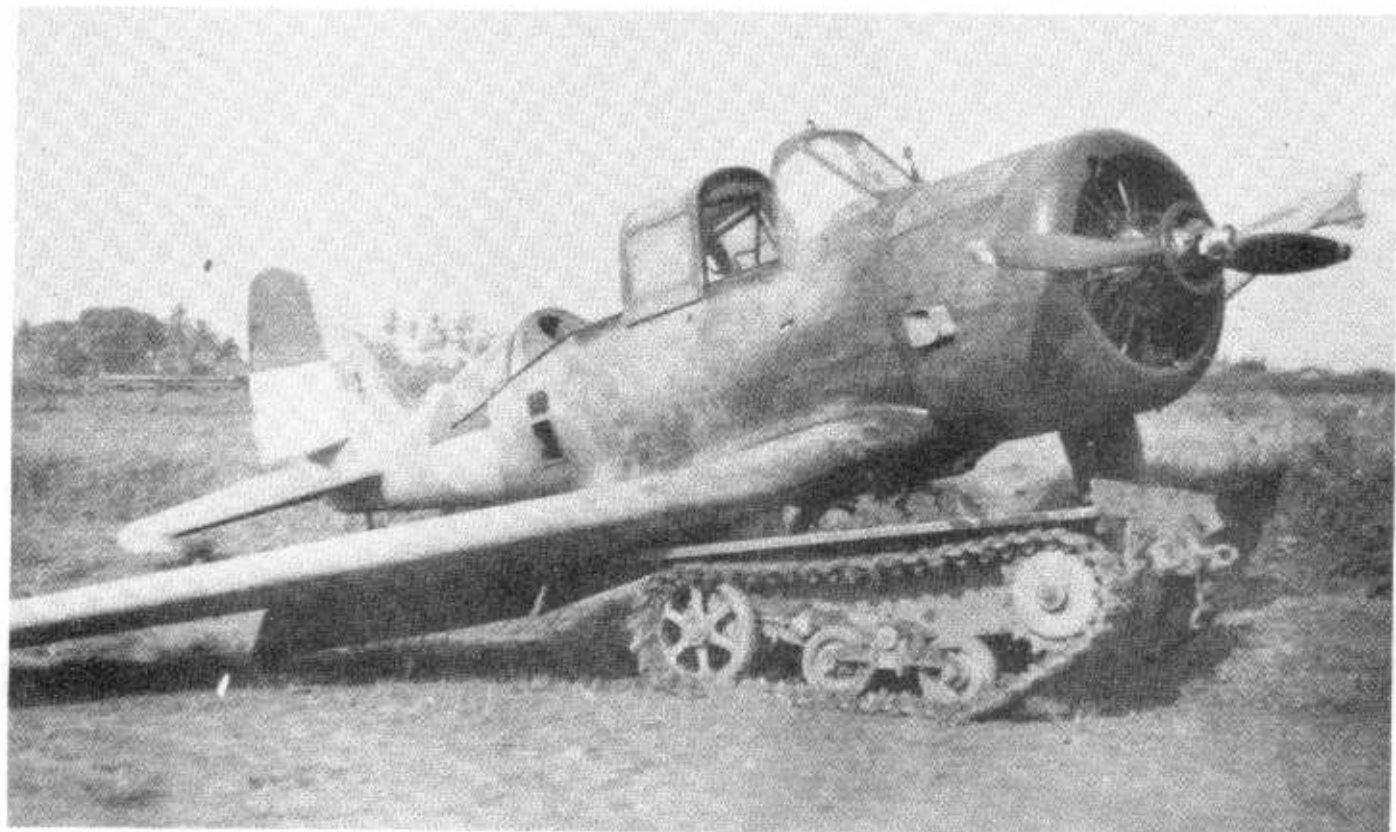
ANN, 90th Sentai, Manchuria, 1939.

(J. Wood)



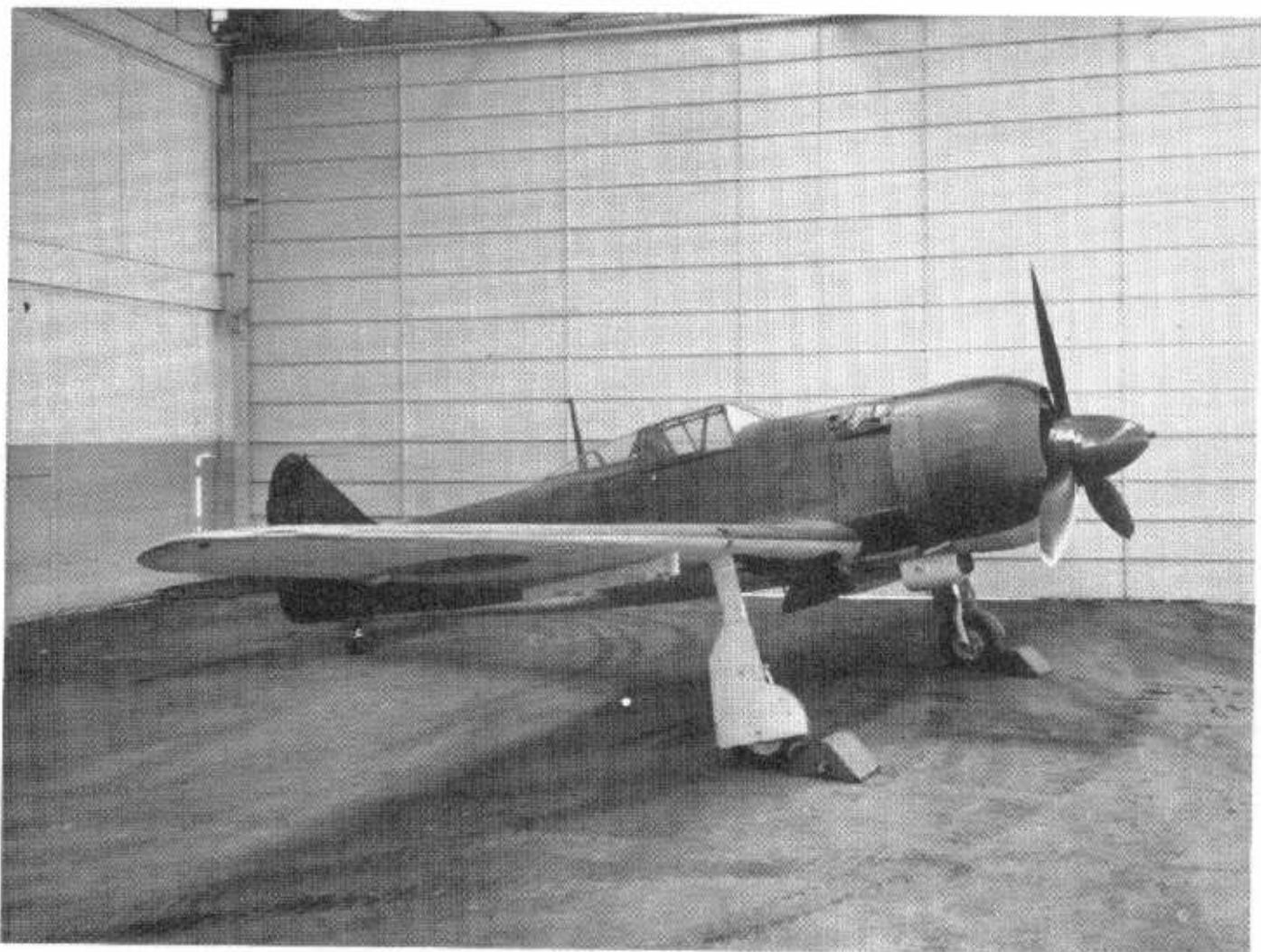
KI-100, RAF, Cosford, England.

(Harrison)



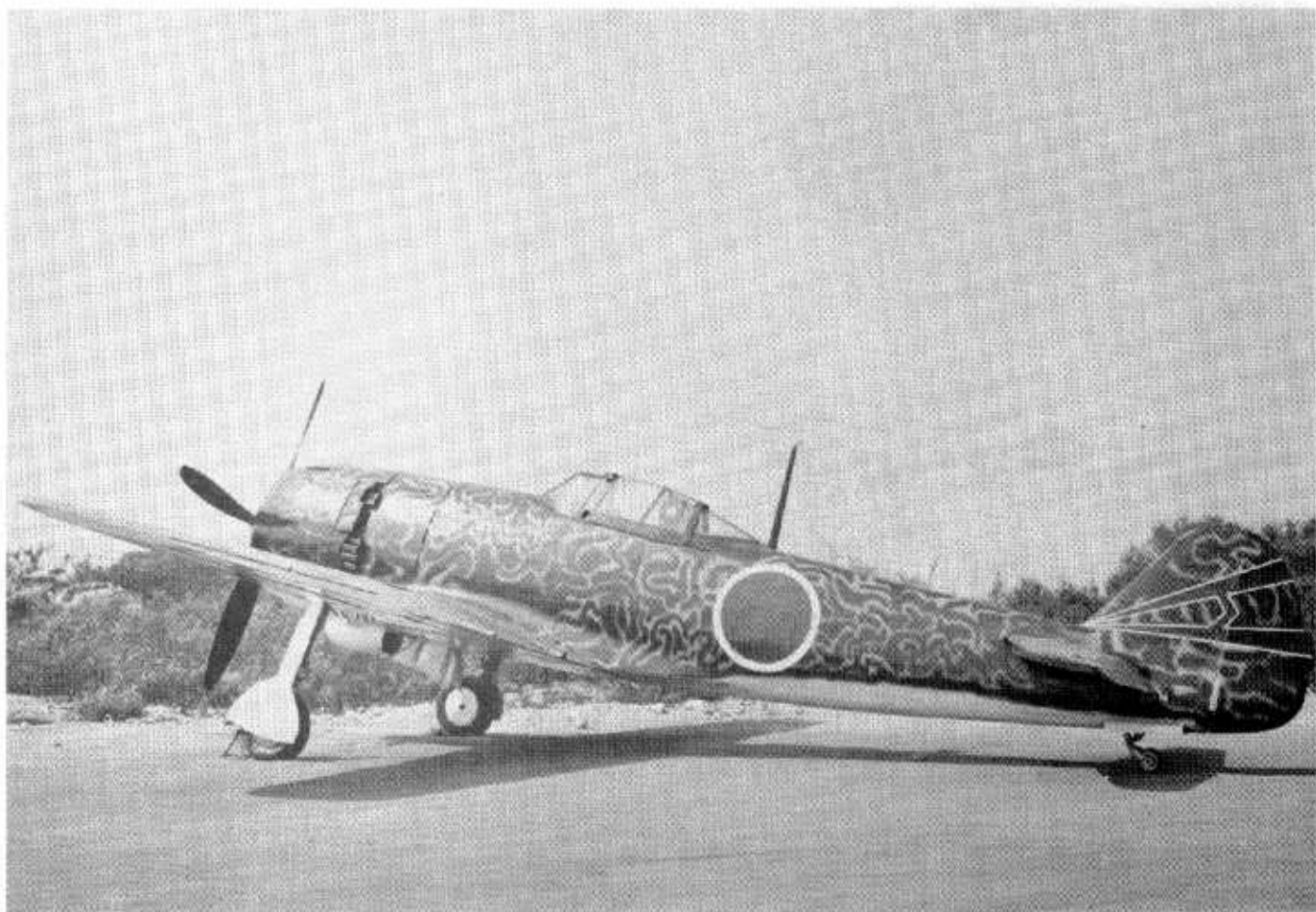
A rather unusual means of ground locomotion. (See also page 198)

(R. Jones)



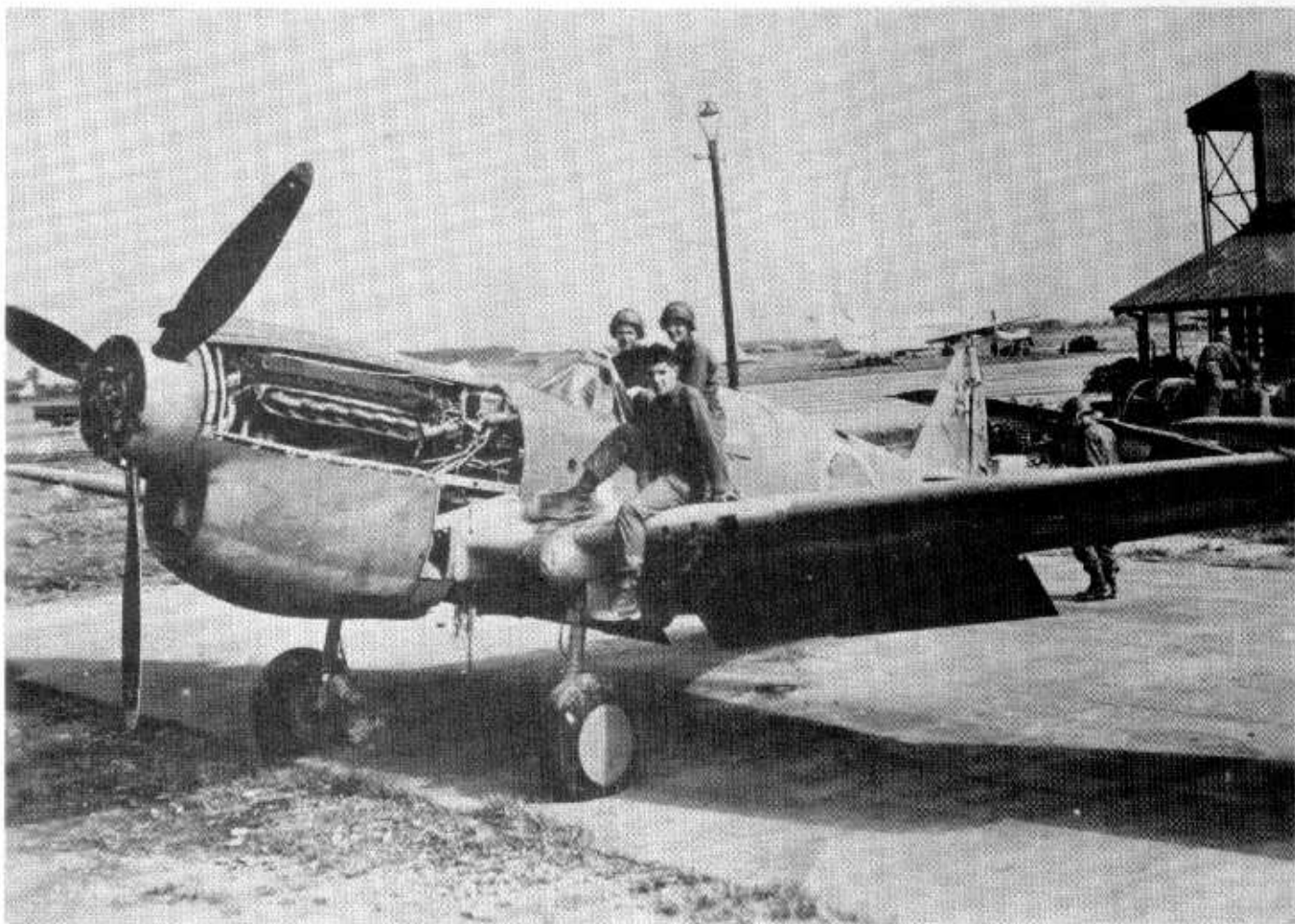
Kl-100, RAF, Cosford, England.

(RAF)



HAYATE, the Air Museum, Ontario, California.

(Ed Maloney)



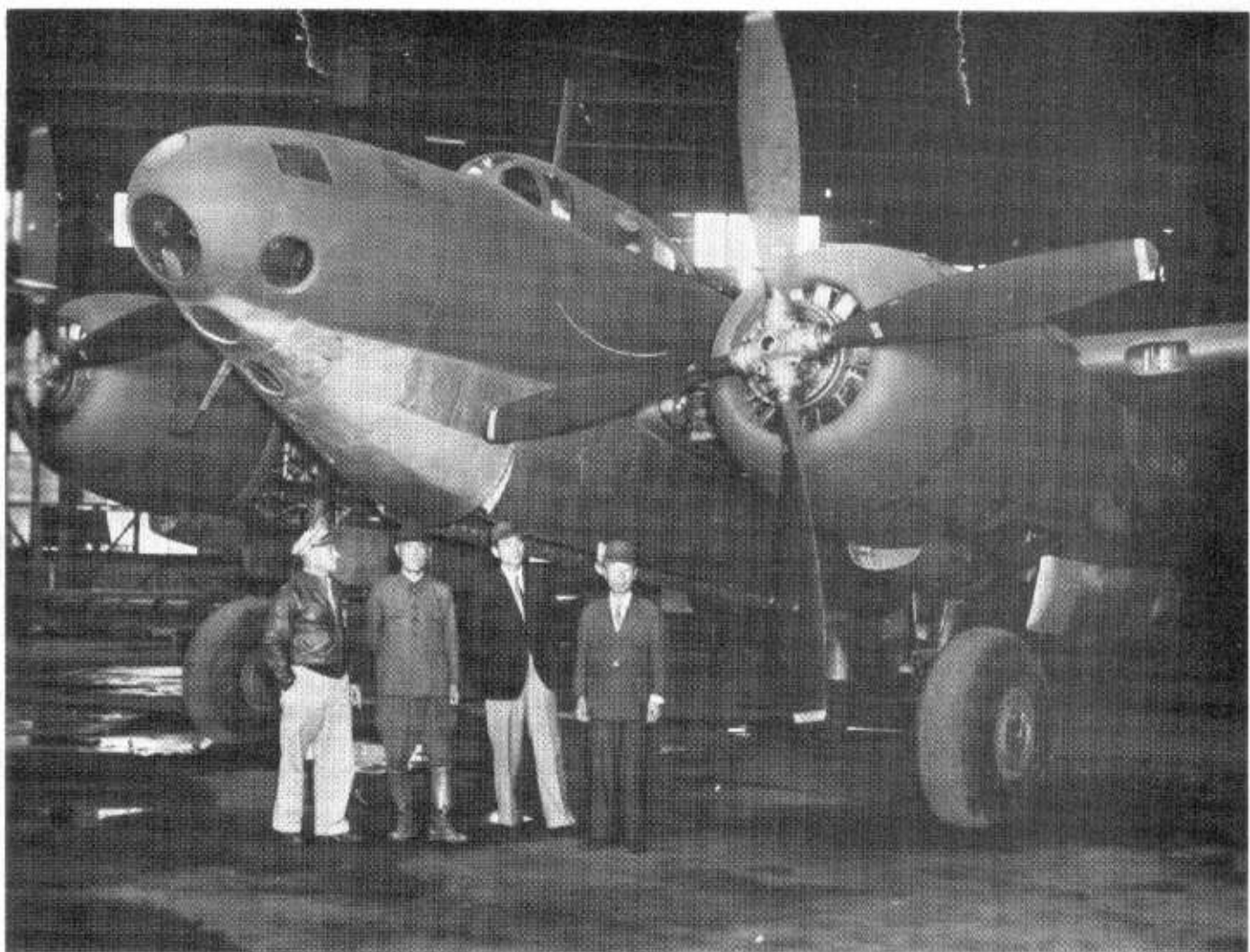
A Japanese war trophy, liberated at war's end, Tachikawa, 1945.

(B. Calvin Jones)



KI-43, Alexshafen, New Guinea, 1962.

(B. Darby)



KI-74 PATSY experimental bomber at war's end. One can see here a perfect example of factory markings of propellers. Also, the "hard" separation line between the aircraft undersurfaces, and the upper color, so typical of most factory paint jobs.

(B. Calvin Jones)