

# 1/48 MITSUBISHI A6M2 ZERO FIGHTER

## ZEKE TAMIYA



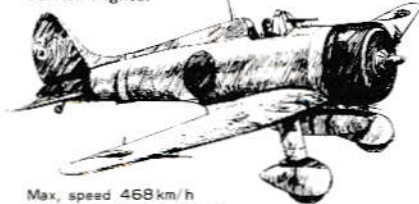
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### Birth of the ZERO FIGHTER

In the summer of 1937 Japan started action against China and threw into the front a great number of the newest planes which Japan had created with their original ideas and technique. Concerning fighters in particular, Japan had abandoned biplane type which was counted as the common sense of the then world and already employed the Type 96 Carrier Fighter (96 Kansen) that Japan had produced on the basis of many pieces of new technique and ideas such as all-metal, internally braced low wing monoplane design and the engine cowling designed to reduce air resistance. 96 Kansens always successfully engaged with I-15 and I-16 fighters and SB-2 bombers of Russian make as well as Gladiator fighters of British make. The 96 Kansen appeared as a fighter having a speed as high as 450 km/h and superior maneuverability at the time when conventional fighters of Japan and other nations of the world had a maximum speed of 350 km/h, winning admiration in Japan and abroad. This overthrew the deep-footed view that foreign planes were superior to those of Japan. After the appearance of the 96 Kansen, the modernization of Japan's aircraft industry was rapidly promoted and original planes came to be born.

The battle with China became fiercer with years and China transferred her capital from Nanking to Chungkin in the Chinese hinterland to ward off the attacks of the Japanese. The Japanese in pursuit the enemy, particularly the Japanese Naval Air Force, could not escort bombers as far as to enemy bases in the hinterland because of the 96 Kansen's limited cruising range, and was forced to fly bombers without fighter escort. The Japanese bombers were intercepted by Chinese fighters and easily suffered great losses. The fighting over China taught the Japanese Navy what air fights should be in future and how great

### Mitsubishi Type 96 Carrier Fighter



Max. speed 468 km/h  
Armament 7.7mm MG×2

would be the loss inflicted on bombers attacking without the command of the air before the air force of other countries became aware of them. The Japanese Navy came to know that fighters should be used not only in conventional interception and air defense

missions around their bases but also to escort bombers and other planes as far as to the sky over the target by beating enemy fighters and to secure the command of the air, and realized the importance of fighters capable of doing so.

### Polikarpov I-16



Max. speed 520 km/h  
Armament 20mm MG×2  
7.62mm MG×2

In October 1937 the Naval Aeronautical Establishment formed a plan for the 12-Shi Experimental Fighter (later called Zero-Sen), a new fighter to succeed the 96 Kansen which was expected to have a maximum speed of more than 500 km/h a speed well over that of the 96 Kansen; heavy armament consisting of two 20mm machine guns; maneuverability not inferior to that of the 96 Kansen; and a long cruising range corresponding to over 6-8 hours' flight at a cruising speed which was based on combat experience in China. The Naval Aeronautical Establishment made a request to Nakajima Aircraft and Mitsubishi Aircraft for competitive trial manufacture. The figures prescribed for the 12-Shi Experimental Fighter (12-Shi Kansen) were very severe and above the world level of those days. Later Nakajima gave up the plan, leaving Mitsubishi alone in the trial manufacture. Mitsubishi's design staff led by engineer Jiro Horikoshi, who had previously designed the masterpiece plane 96 Kansen, set to work. Increased cruising range and speed naturally required large horsepower, engine and fuel capacity and therefore large fuselage. In the basic design, the 12-Shi Kansen was two times as heavy as the 96 Kansen. Pilots who attached the greatest importance to maneuverability made complaints and requested that the new fighter should be made smaller. On the other hand, some people took a stand against them saying that maneuverability could be made up for by training and skill and that greater importance should be attached to speed and cruising range which could not be compensated for by training or skill. No definite conclusion could be reached on this matter and Mitsubishi designers continued to be troubled with the severe figures prescribed. Horikoshi and his designers firmly believed that they could save weight by using Extra Super-Duralumin which Sumitomo then developed through increasing

conventional duralumin in strength and by taking other drastic measures for lightening the fuselage. They proposed the view to the Naval Aeronautical Establishment and gained the approval.

Design work and trial manufacture went on smoothly after that, and the first flight was successfully made on 1st April, 1939. A number of experiments and improvements were repeated: The engine was later changed from the Mitsubishi Zuisei to the Nakajima Sakae and a constant speed 3-bladed propeller was employed in place of the 2-bladed. At the request of field units which were unable to put up with losses successively inflicted on their bombing squads, fifteen 12-Shi Kansens under the command of Lieutenants Yokoyama and Shindo were sent to the Chinese Continent in July 1940 just before the new fighter was officially accepted for production. At the end of July, the 12-Shi Kansen was named the Type O Carrier Fighter Model 11 after the last figure "0" of the 2,600th year of the Imperial reign and officially accepted for production. Zero-Sens which were sent to the Chinese Continent joined the 12th Air Fleet and played the role of escorting bombers to the hinterland that was impossible for the 96 Kansen. They made an extended shuttle flight of more than 1,300 km, proving that they were able to escort bombers satisfactorily. On 13th September, thirteen Zero-Sens staged an

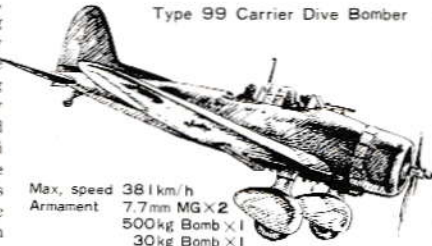
### Nakajima Type 97 Carrier Torpedo Bomber



Max. speed 377 km/h  
Armament 7.7mm MG×1  
Torpedo or 800kg Bomb×1

air battle with twenty-seven I-15 and I-16 fighters over Chungkin and shot down all the enemy fighters in an instant with no loss to the Zero-Sens. This was the first and victorious campaign of the Zero-Sen. The appearance of the Zero-Sen gave Japan the complete command of the air over the Chinese Continent.

### Type 99 Carrier Dive Bomber

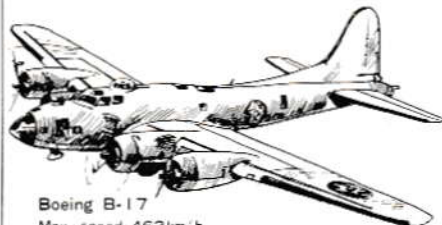


Max. speed 381 km/h  
Armament 7.7mm MG×2  
500kg Bomb×1  
30kg Bomb×1



### Outbreak of the Pacific War

On 8th December, 1941, "Type 97 Carrier Torpedo Bomber" and "Type 99 Carrier Bomber" from the aircraft carriers Akagi, Kaga, Soryu, Hiryu, Shokaku and Zuikaku themselves over Hawaii under the escort of Zero-Sen fighters. While the Zero-Sens commanded the air, the attacking units delivered attacks against the U.S. Pacific Fleet in Pearl Harbor and air bases of Hawaii. The success of the surprise attack was wired



**Boeing B-17**  
Max. speed 462km/h  
Armament 12.7mm MG×13 Bomb 4.9t

to the whole world in a code "Tra, Tra, Tra". This sparked the Pacific War. The Japanese made a brilliant drive as far as to the Aleutian Islands in the north and the Indian Ocean. The Zero-Sen fought in the van of advancing Japanese forces, gained mastery over the two oceans and raged about freely. The Allied Powers including the United States and Britain that had not been informed of the existence of the Zero-Sen were surprised at its high performance and the "Terrible Zero Fighter" made officers and men's blood run cold.

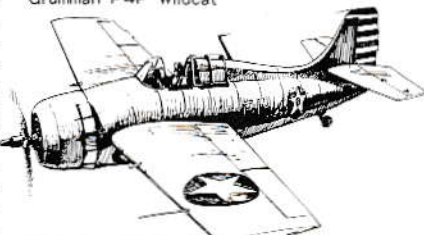


**Curtiss P-40**  
Mitsubishi Type 1 Attak Bomber



In air battles around the Philippines, Zero-Sens left the Takao base of Formosa together with "Type 1 Attak Bomber" to make an extended shuttle flight of more than 1,600 km over the ocean and had aerial fights with British Buffalos and Hurricanes as well as American P-36s and P-40's which tried to intercept the Japanese

planes. The fights resulted in a signal victory for the Zero-Sens. While the number of Zero-Sens lost was only a few, about 300 Allied planes in the Philippines including B-17 bombers, which were then called impregnable air fortresses and the Americans were proud of, were shot down in only a few days. The Allies responded to the Zero-Sen with the new Ship-Based Fighter F4F Wildcat of the United States Navy and the Spitfire of the Royal Air Force. Particularly the F4F produced contemporaneously with the Zero-Sen was much expected as the same ship-based fighter having almost the same engine horsepower. The F4F was slightly superior in diving speed but inferior in all other points of performance to the well-balanced Zero-Sen. The F4F was no match for the Zero-Sen in fighting maneuverability. In the attack of Port Darwin, Australia, from the Rabaul base, the Zero-Sen showed superior circling ability and overwhelmed the Britain's proud Spitfire in dogfights. The Spitfire was a fighter which

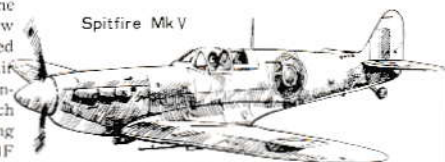


**Grumman F4F Wildcat**  
Max. speed 515km/h  
Armament 12.7mm MG×6

had beaten the Messerschmitt Bf-109 of the German Air Force in dogfights by making the most of its proud circling ability. Thus the Japanese fighter was required to be "Invincible Zero-Sen". The Zero-Sens which achieved these victories in the initial stage of the Pacific War were called Model 21, an improved version of the early Model 11 that showed activity over the Chinese Continent. The wings of the Model 21 were designed to permit 50 cm of each tip to fold upwards to facilitate carrier stowage. Zero-Sens of the Models 11 and 21 manufactured and prepared before the beginning of the Pacific War totaled only about 400.

After the middle stage of the war, the Americans came to use against the Zero-Sen a great number of new planes such as the Ship-Based Fighter F6F Hellcat mounting an engine of 2,000 hp class and the P-38, P-47 and P-51

fighters, and gradually regained their power. Meanwhile, a number of improved versions of the Zero-Sen were also produced, but the Zero-Sen was almost the only one Japanese fighter type that fought through the war. The production continued to the end of the war



**Spitfire Mk V**  
Max. speed 586km/h  
Armament 20mm MG×2 7.7mm MG×4  
and totaled to more than 10,425, which was an all-time record production in the Japanese aircraft history. More than half of them — 6,545 — were manufactured by Nakajima Aircraft between January 1941 and the end of the war. The Nakajima production included 327 Zero-Zens with float named the Type 2 Seaplane Fighter.

**Zero-Sen at the World's Highest Level**  
Some of the distinguished features of the Zero-Sen which achieved the brilliant war results mentioned before are as follows:

- ① Long cruising range. This owes much to the low fuel consumption of the reliable Nakajima Sakae engine.
- ② Good maneuverability and circling ability obtained through drastic weight reduction plus speed and acceleration well matching with them. Strong in dogfights.
- ③ Powerful 20 mm machine guns.

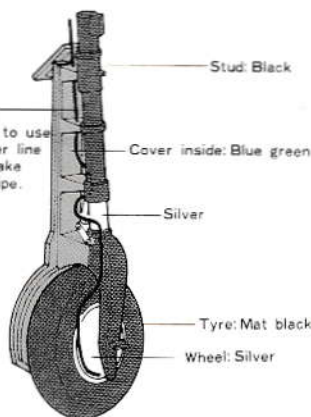
The Zero-Sen was well balanced in all these features and the performance was above the world level. The fact that Zero-Sen pilots gained battle experience in China and were very skilled also contributed to the "Invincible Zero-Sen".

### (Specifications of the Type O Carrier Fighter Model 21)

Engine: One Nakajima Sakae 12 fourteen-cylinder double row radial air-cooled engine. Take-off output of 940 hp.  
Propeller: Sumitomo Hamilton 3D constant speed metal 3-blader.  
Span: 12.00 m Length: 9.06 m Height: 3.509 m  
Weight: Loaded, 2,410 kg (Empty, 1,680 kg)  
Maximum speed: 534 km/h  
Maximum cruising range: 3,350 km (Fuel tanks dropped in flight)  
Armament: Two 7.7 mm machine guns (fuselage); two 20 mm machine guns (main wings); two 30-60 kg bombs  
Production: 740 (Mitsubishi)

### Detail Paintings

#### Undercarriage



It is better to use a fine copper line when you make the brake pipe.

Stud: Black

Cover inside: Blue green

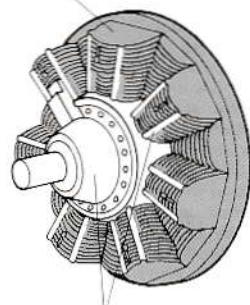
Silver

Tyre: Mat black

Wheel: Silver

#### Engine

All of engine: Iron colour (Black + Silver)



Gearcase, Push rod: Silver

#### Figure



Flight cap: Dark brown

Face: Flesh

Muffler: White

Life jacket: Dark brown

Uniform: Light brown

Pad: Dark brown

Metal fittings: Silver

Gloves: Dark Brown

Pants: Light Brown

Boots: Dark Brown

Band: Green

### (PAINTING)

For wide surface a flat brush (10—20 mm wide) is required.

When spray painting, you must apply the masking tape where the painting is not needed. Always remember paint is inflammable.

Plastic does not take paint well. It is therefore most important to remove all dust, dirt, hand stains, etc.

Before starting to paint, clean the plastic with a soft cloth to remove dust, dirt, hand

stains etc. A neutral cleaner may be used to ensure a really clean surface.

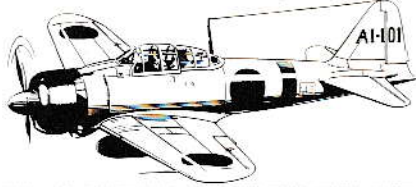
Use a fine liner brush to paint the detail.



**TAMIYA**  
TAMIYA PLASTIC MODEL CO.  
3-7 ONDWARA, SHIZUOKA-CITY, JAPAN.

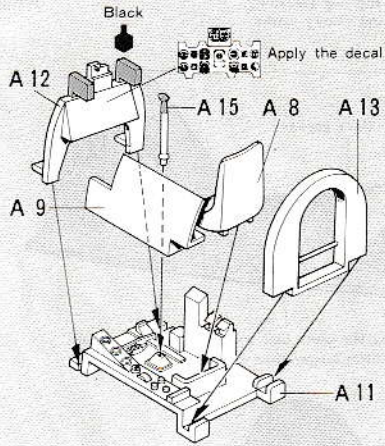


# 1/48 ZERO FIGHTER



- Please read this before connecting assembly.
- You must decide which state you are to build, landing or flying.
- Take care when removing parts from the plastic sprues. Use a hobby knife or a pair of nippers.
- Before applying glue, construct each part and section to ensure that you are fitting the parts correctly.
- In painting, read the instruction.
- After Fuselage has been painted, apply Decals with the transparent margin cut off.

## 1 Construction of Seat

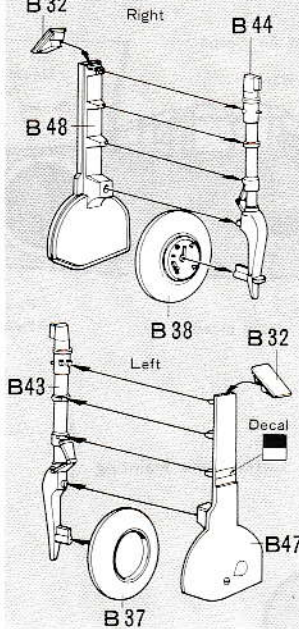


### Painting

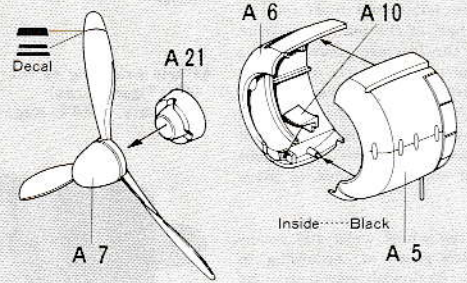
- |                                 |                      |
|---------------------------------|----------------------|
| Control lever.....Silver        | Top.....Black        |
| Seat.....Silver                 | Belt.....Green       |
| Wall.....Clear blue green       | Undercoat.....Silver |
| Instrument Panel.....Blue-green |                      |
| Gunstock.....Black              |                      |

## 2 Construction of Undercarriage

Refer to painting instruction on page 2.

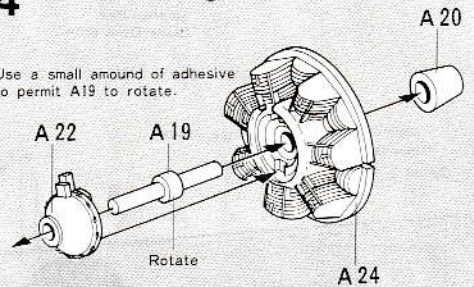


## 3 Construction of Propeller & Cowling



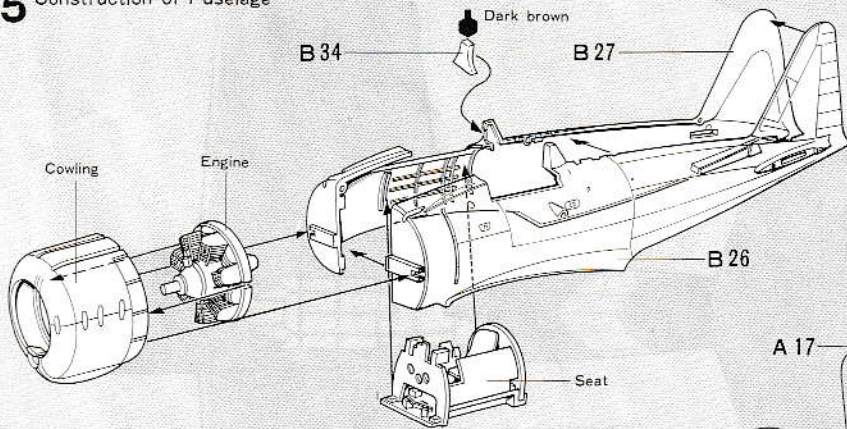
## 4 Construction of Engine

Use a small amount of adhesive to permit A19 to rotate.



• Refer to painting instruction on page 2.

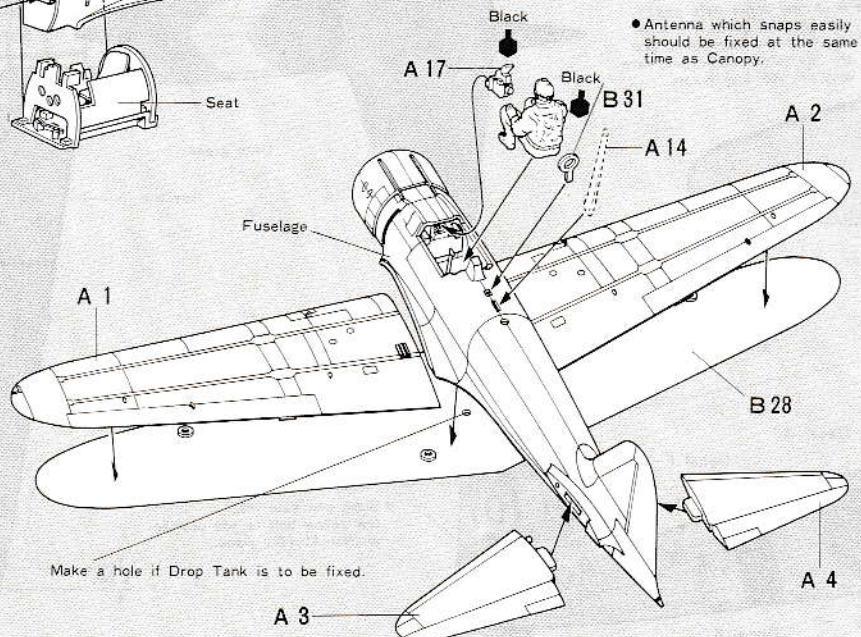
## 5 Construction of Fuselage



- Paint the inside before gluing Fuselage together.
- Install Seat after Fuselage has been glued together.
- Engine should be put into Cowling first and then fixed to Fuselage.

## 6 Construction of Wing

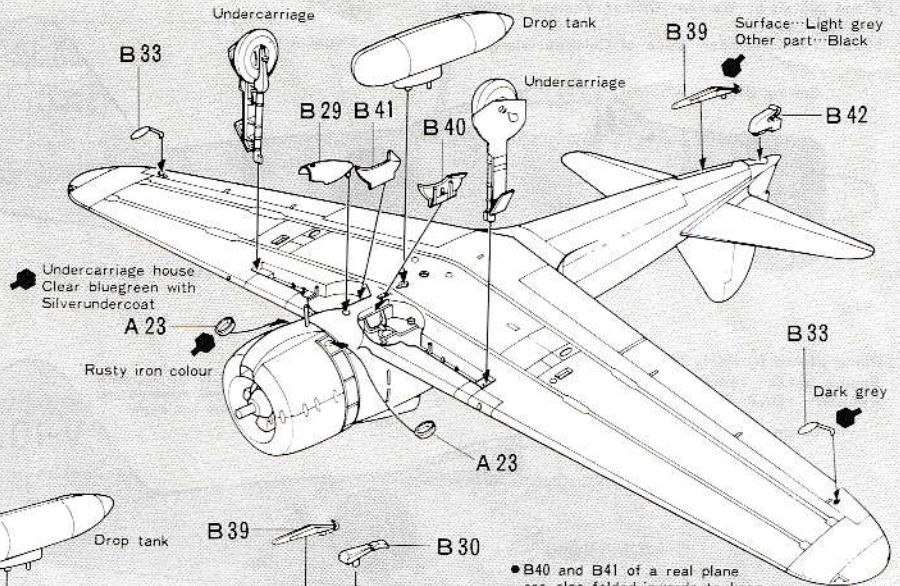
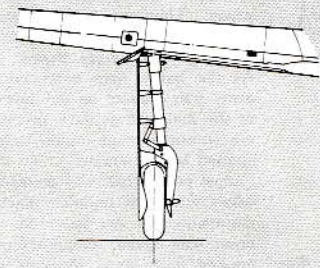
- Main Wings and Fuselage should be put together tentatively for adjusting joints before they are fixed together.
- Fixing of figure can be done in last stage.
- Fix the antenna A14 in last stage.



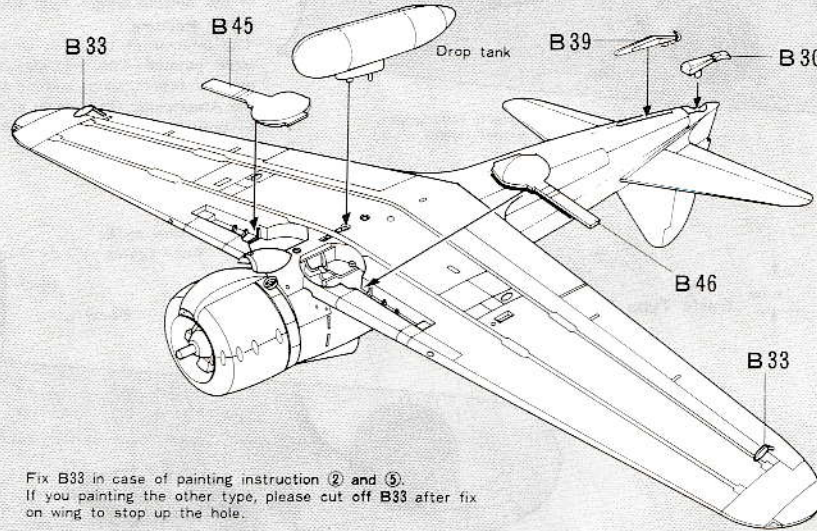


## 7 Construction of Landing State

- For the fixing angle of Main Gear (inclined inwards), see the figure below.

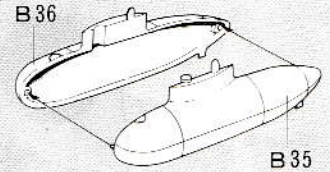


## 8 Construction of Flying State



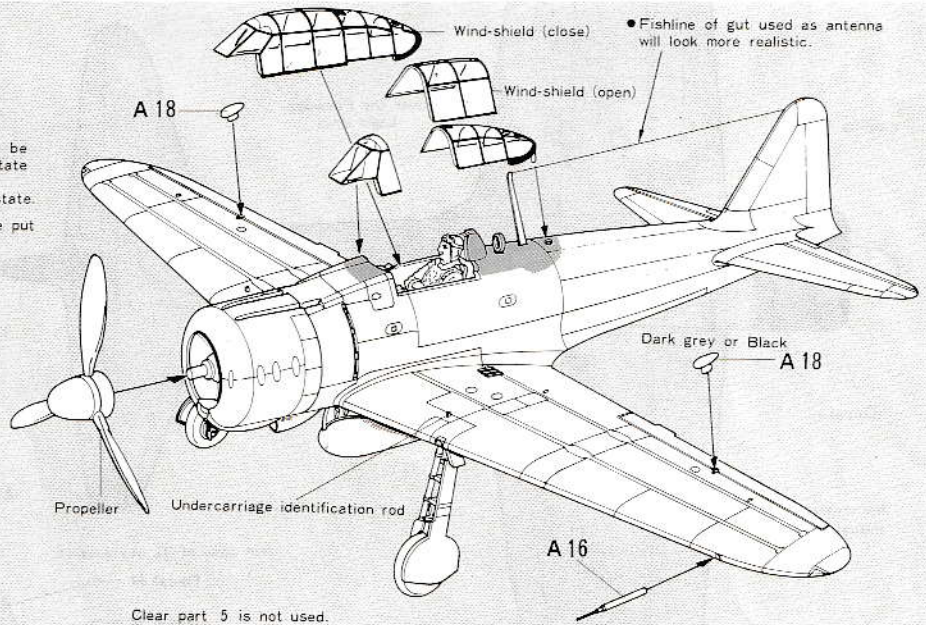
- B40 and B41 of a real plane are also folded inwards to keep clear of Drop Tank.
- B33 Mass Balance should be fixed only in case of painting illustrations ② and ⑤.

Construction of Drop tank



## 9 Last stage Assembling

- Carefully fix the Clear parts.
- Landing Gear Indicator Bar should be shaved off if your plane is to be in a state of flying.
- Canopy (open) may be fixed in an open state.
- Figure in a standing posture should be put near the plane.

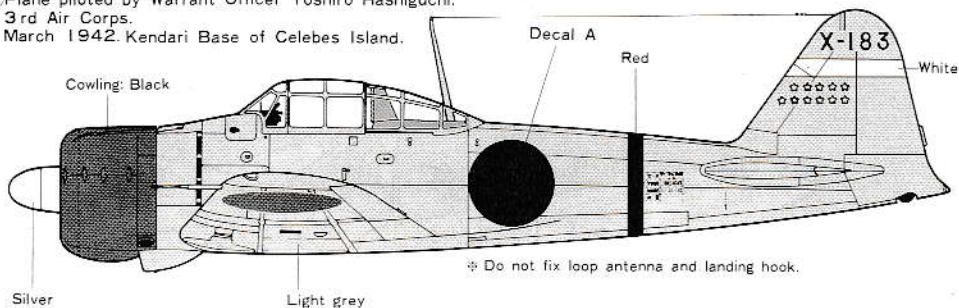


### Parts List

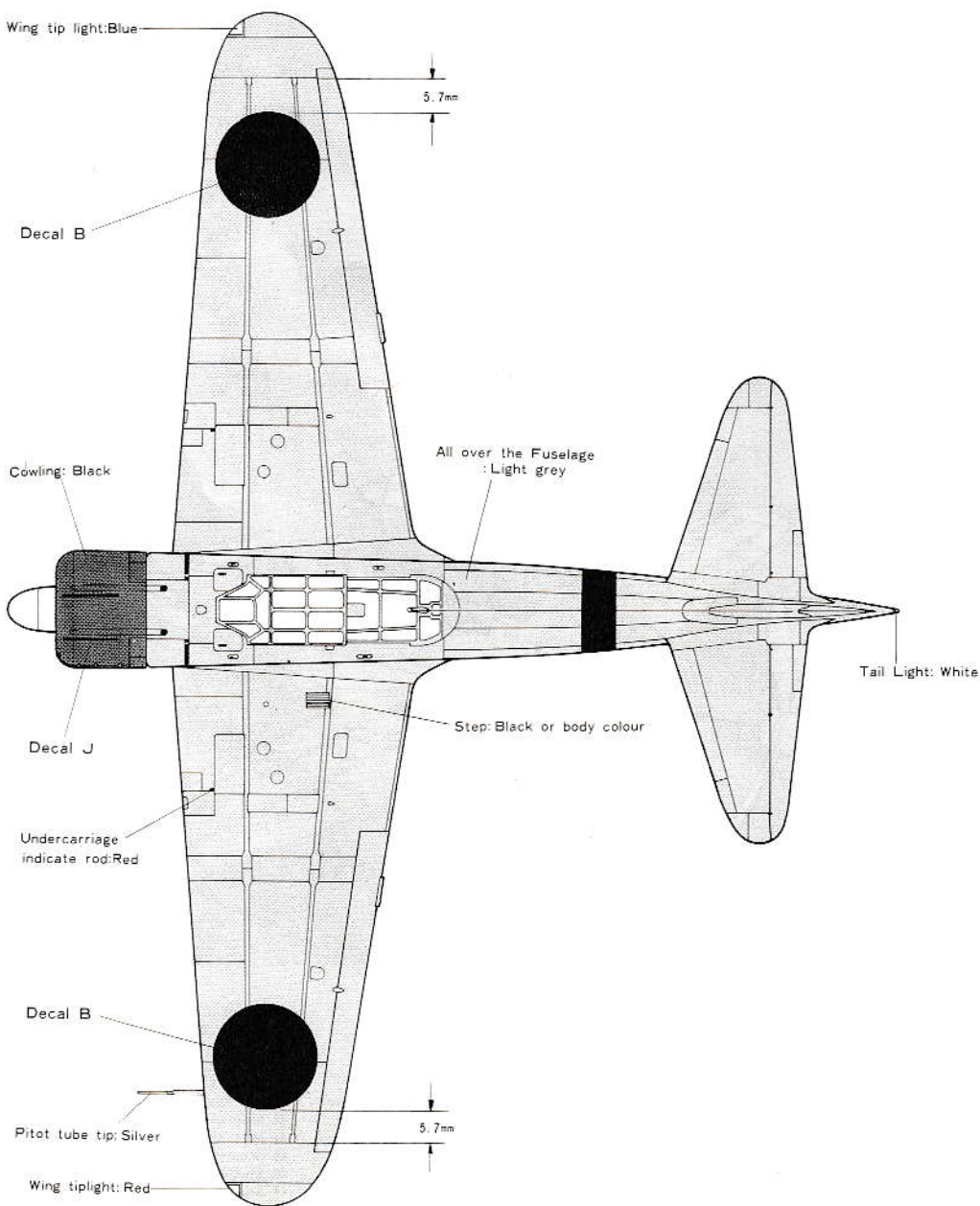
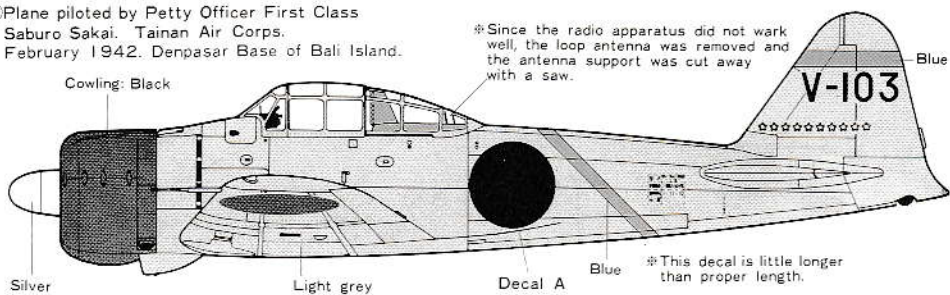
- |                                  |                             |                                       |                                     |
|----------------------------------|-----------------------------|---------------------------------------|-------------------------------------|
| 1. Upper Wing (Left)             | 13. Back Plate              | 25. Foot Plate for Figure             | 37. Wheel (Left)                    |
| 2. Upper Wing (Right)            | 14. Antenna Support         | B26. Fuselage (Left)                  | 38. Wheel (Right)                   |
| 3. Horizontal Stabilizer (Left)  | 15. Control Lever           | 27. Fuselage (Right)                  | 39. Landing Hook                    |
| 4. Horizontal Stabilizer (Right) | 16. Pitot Tube              | 28. Lower Wing                        | 40. Wheel Cover (Open, Right)       |
| 5. Cowling (Left)                | 17. Sight Scope             | 29. Oil Cooler                        | 41. Wheel Cover (Open, Left)        |
| 6. Cowling (Right)               | 18. Hinge Cover             | 30. Tail Undercarriage (Flying State) | 42. Tail Undercarriage              |
| 7. Propeller                     | 19. Propeller Shaft         | 31. Loop Antenna                      | 43. Main Undercarriage Stud (Left)  |
| 8. Seat                          | 20. Propeller Shaft Stopper | 32. Undercarriage Stud Cover (Open) A | 44. Main Undercarriage Stud (Right) |
| 9. Side Instrument Panel         | 21. Spinner (Rear)          | 33. Mass-balance                      | 45. Stud (Cover) (Closed, Left)     |
| 10. Air-intake part              | 22. Gear Case               | 34. Head Rod                          | 46. Stud Cover (Closed, Right)      |
| 11. Floor                        | 23. Exhaust Pipe            | 35. Drop Tank (Left)                  | 47. Stud Cover (Open, Left) B       |
| 12. Instrument Panel             | 24. Engine                  | 36. Drop Tank (Right)                 | 48. Stud Cover (Open, Right) B      |



- ① Plane piloted by Warrant Officer Yoshiro Hashiguchi,  
3rd Air Corps,  
March 1942. Kendari Base of Celebes Island.



- ② Plane piloted by Petty Officer First Class  
Saburo Sakai. Tainan Air Corps.  
February 1942. Denpasar Base of Bali Island.



## Painting and Marking of the Zero Fighter type 21

### Painting in the Early Stage

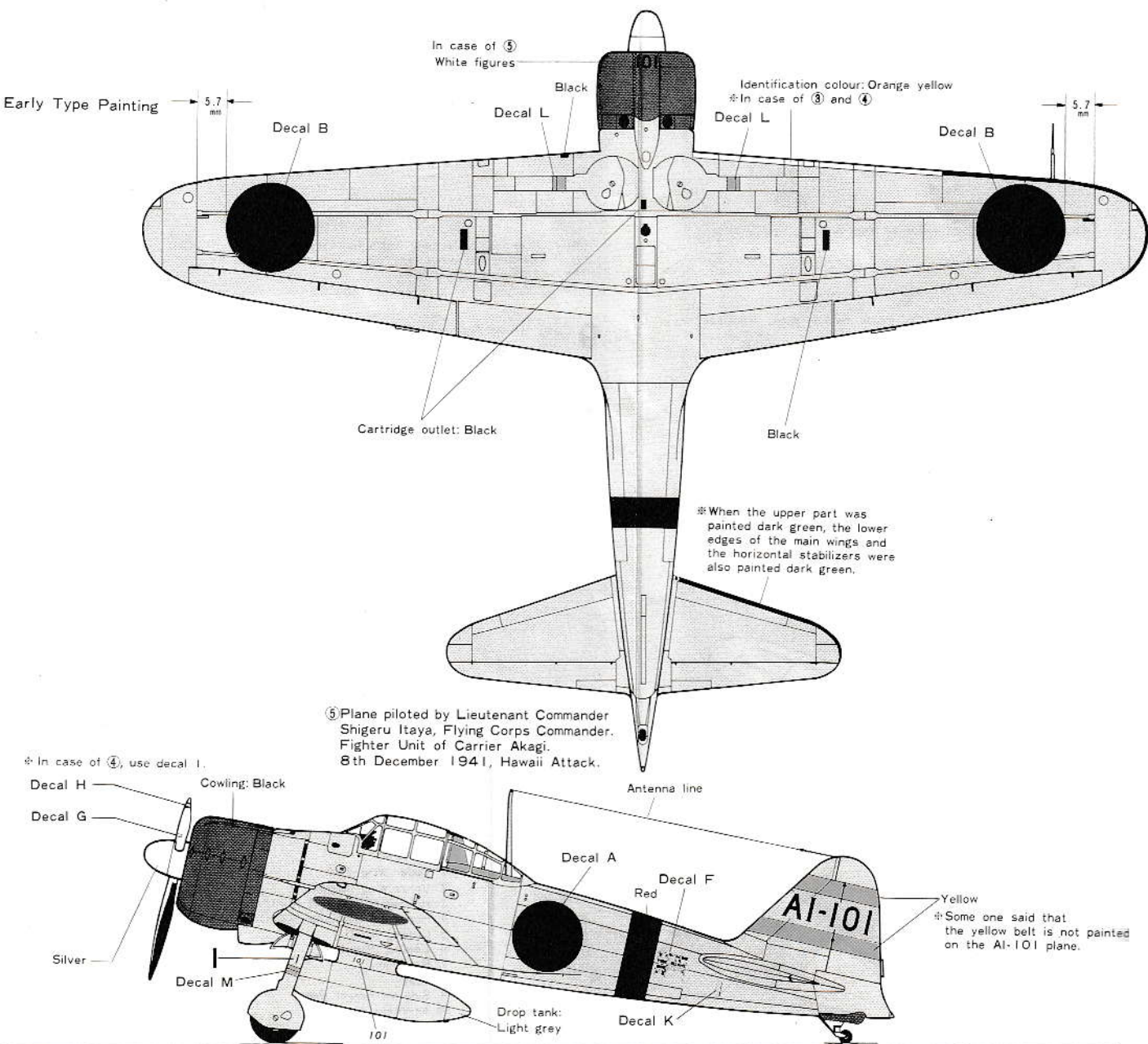
The engine cowling was painted black and the fuselage and wings were light grey. The front side of the propeller blades and the spinner were silver. The rear side of the propeller blades was black or dark brown. Each propeller blade had two red lines on the end. The national mark "Sundisk" was painted on both sides of the fuselage and of the main wings. This was the basic painting for the Zero Fighter type 21 and used until around the summer of 1943.

### Painting in the Late Stage

As the battle lines extended and the battle became fiercer, the whole army was ordered on 3rd July 1943 to repaint the top of the fuselage and of the main wings dark green so that planes flying over the jungles on the southern front might blend into the jungle green and not be easily spotted by the enemy. To make it easier to tell friend from foe, an orange yellow belt was painted on the inside half of the main-wing front edges and each national mark "Sundisk" on the fuselage sides and the main-wing top was bordered white. About the time when the repainting order was issued, temporary camouflage painting of green dots, etc. was applied with spray guns or the like onto the light-grey fuselage and main-wing top. Towards the end of the war, due to the shortage of paint the bottom of many planes is said to have been painted with light green, a mixture of the top colour dark green and white paint, in place of the bottom colour light grey.

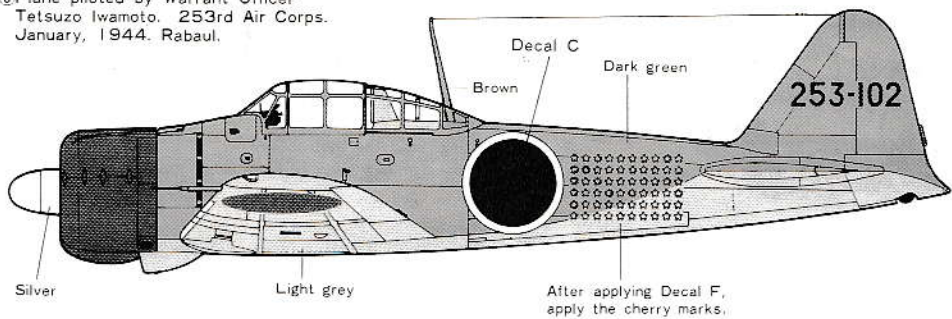
### Other Painting

The interior of the body and the inside of the wheel wells and covers were painted with transparent paint of bluish green or, according to another report, paint similar to Zinc Chromate (yellowish green) used by the Americans. The inside of the canopy was painted dark grey or black to prevent reflection. For the colours of small parts, see construction figures or colour illustrations.





③ Plane piloted by Warrant Officer  
Tetsuzo Iwamoto. 253rd Air Corps.  
January, 1944. Rabaul.



④ Plane belonging to the 261st Air Corps.  
(虎=Tiger Corps)  
February, 1944. Kagoshima Base.

