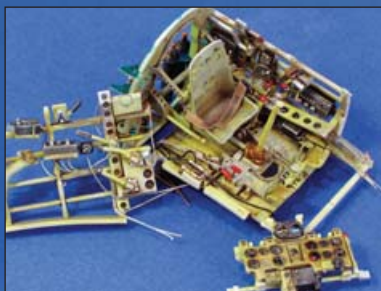


Modelling the Mitsubishi A6M Zero

Brian Criner

Consultant editor Robert Oehler



Modelling the Mitsubishi A6M Zero



Brian Criner

Consultant editor Robert Oehler • *Series editors* Marcus Cowper and Nikolai Bogdanovic

Contents

Introduction	4
Historical overview of the A6M Zero-sen	
Tools of the modeller	7
A6M2-N Rufe (1/48)	8
Cockpit and engine • Assembly • Paint preparations • Painting layers • Weathering	
Kamikaze A6M5c (1/72)	18
Cockpit • Engine • Flaps • Painting • Landing gear • Conclusion	
A6M2 model 21, Pearl Harbor (1/48)	27
Cockpit painting and construction • Engine detailing • Wing detailing • Ailerons, elevators and rudder Cowl flaps and Moskit exhaust stubs • Fuselage finishing and painting • Decals • Weathering	
Captured A6M5b, TAIC No.7 (1/32)	40
Cockpit • Forward firewall, engine mount and oil tank • Wings and control surfaces • Preparing the fuselage Creating the scalloping effect • Painting with Metalizer • Decaling • Weathering	
Zero gallery	59
A6M3-22, Tainan Air Group (1/48) • A6M5b Zero (1/32) • A6M2 Zero (1/72) A6M2b Zero (1/144) • Cockpit detailing for an A6M3 Zero (1/48)	
References and further reading	67
Zero colour matrix chart	68
Zero walkaround	71
Kits and accessories available	77
Zero kits • Zero parts and accessories	
Index	80
Colour reference chart	

Introduction

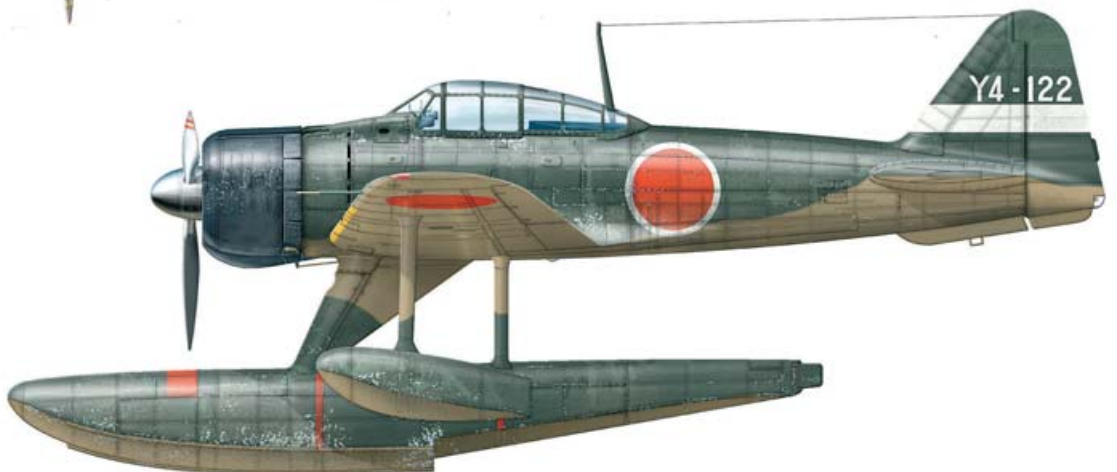
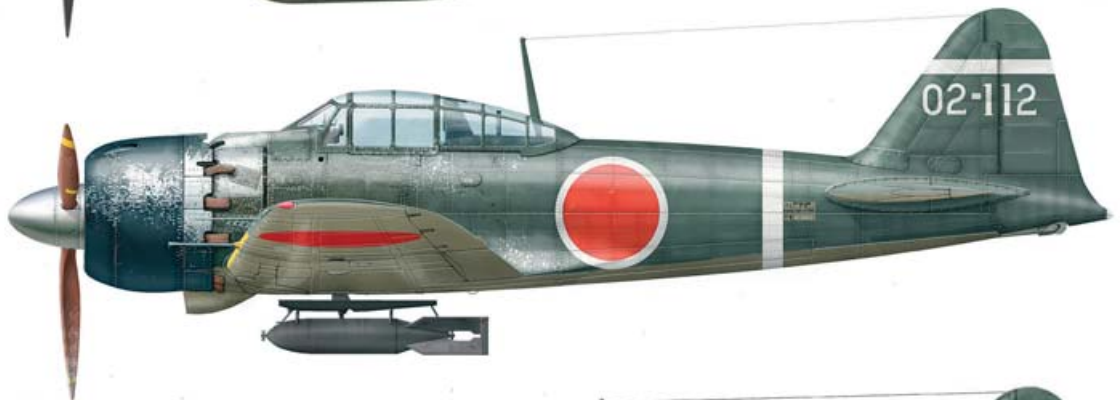
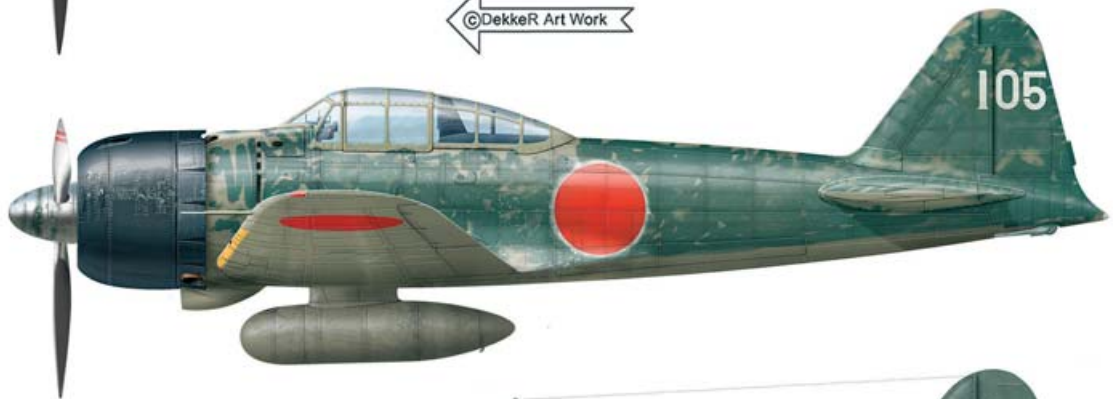
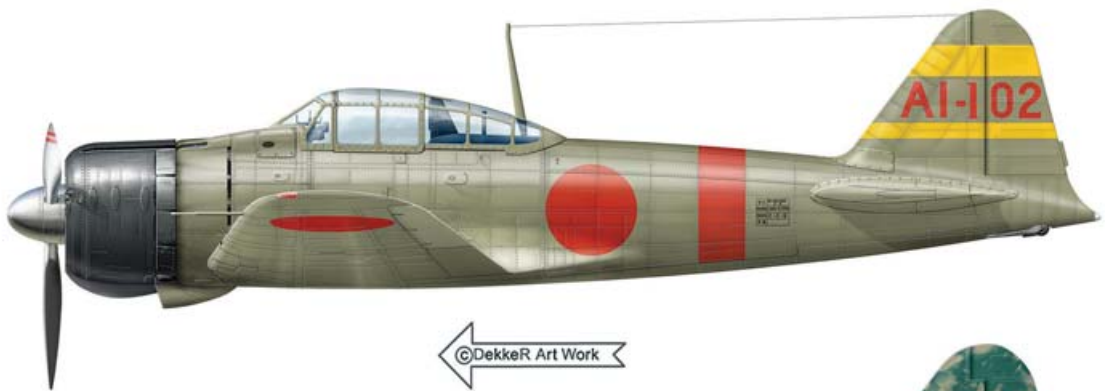
The goal or objective of this book is to demonstrate a variety of techniques intended to enhance your Zero modelling. It is not intended as an authoritative resource on the Zero. For anyone interested in historical accuracy when building the Zero (or any other Japanese aircraft type), I recommend the www.J-aircraft.com web site. Ryan Toews, Greg Springer, James Lansdale, Jim Long and David Aiken, among others, are all much more knowledgeable concerning Zero accuracy than I could ever hope to be. They can easily be contacted through the message boards, and most will respond promptly to any question you might have. There will be, no doubt, many mistakes of accuracy in this book – for which I apologize in advance. Unfortunately, some subjects, such as the Zero, remain enigmatic to modellers and history enthusiasts. Almost all examples of this beautiful, elegant aircraft were destroyed at the end of the war, as were most references, engineering diagrams and plans. Much of the information available on this plane has been only recently uncovered.

Both a love for history and a love of art brought me to this hobby. But the love of art came first. So, I try to make sure I have satisfactorily investigated my subject before starting to build. I have seen people fuss over the details of a single build for years; I respect the love of detail and the skill of these people. However, I encourage all model junkies out there to occasionally do a quick, out of the box build. You will be amazed at how satisfying it can be to simply build and paint a model without re-engineering the thing. I see this as a hobby; when it becomes a burden due to the need to satisfy the expectations of others, then it is time to sell off the stockpile of kits and find something new to do.

Modelling is an art form. Like any form of art, motivation comes from inspiration. Art is not regulated by rules; that is, the objective of art is to please the artist, not necessarily the observer. Unfortunately, because of a plethora of 'experts' some modellers today feel the need to model to a particular standard. Many modellers feel bound to the consensus opinion on accuracy or painting or weathering. Personally, I don't think people should feel compelled to make their model 100 per cent authentic. I think most people are satisfied with a model that looks and sits right. Out of the box building, or 'assembling' as some modellers have called it, is often condescended to. Realistically, not all modellers have the time, patience or interest necessary to 'scratchbuild' their subject. Ultimately what keeps an artist interested in their subject is how the subject looks to them. Of course, our hobby does have the obvious connection to history and there ought to be some constraint between ones whims and reality. In the end, an artist must be able to look at their artwork and find some intrinsic beauty in what they have created. I believe the two goals, accuracy and appeal, can and do intersect.

Historical overview of the A6M Zero-sen

The A6M *Rei Shiki Sento Ki*, or *Rei-sen* (meaning Type Zero fighter, or, Zero) was an aircraft that, according to some accounts, had near mythical performance qualities. The aircraft was a result of a request by the Imperial Japanese Navy for a low-wing monoplane with superior speed, range, climb and manoeuvrability. The aircraft performed so well, the military leadership in Japan insisted on its use in combat before performance trials had been completed. The aircraft thus began its long and distinguished career as fighter cover for bombers attacking Chungking in August of 1940. Though the aircraft met no enemy in the skies that day, the pilots of the fighter were ecstatic about their new mount. Not until the fourth mission was the aircraft truly tested though. On September 13,



during another bomber escort mission to Chungking, the Zero finally met the enemy. In the end, the Zero, without a single loss, shot down 27 Russian-made I-16s. Further embellishment of the Zero legend came from an American observer in China, Claire Chenault, leader of the famous 'Flying Tigers'. He was so impressed with the new type that he sent off urgent messages to Washington, warning them of the abilities of the new fighter. Washington largely wrote off Chenault's warnings as hysteria and exaggeration, but was proven wrong in a most embarrassing way on December 7, 1941, when the Japanese Navy sent waves of bombers and torpedo planes escorted by Zeros to attack Pearl Harbor. Interestingly, it is likely that the superior performance of the Zero heavily influenced Japan's decision to go ahead with the attack on Pearl Harbor.

During the course of the war, the Zero proved itself to be a versatile and deadly adversary. None of the early Allied fighters could match the combat performance of the Zero. There is even a story of some Spitfire pilots that had been transferred from the ETO being given the warning 'never attempt to turn with a Zero'. The pilots, over-confident in regard to the abilities of their aircraft, chose to ignore this advice and were decimated. Eventually, the Allies learned their lesson. With the development of newer, more powerful fighter types by the US and Britain, as well as new tactics that negated the Zero's strengths, the Zero began to show its age. Engineers tried to improve the speed and performance of the Zero by redesigning the wings and fuselage, and by selecting newer, more powerful engines. Designers also recognized the importance of improving the Zero's and the pilot's survivability by adding armour to the plane. However, the increased weight reduced its overall performance. In the end, the Zero was fodder for the waves of American fighter planes swarming over Japan, though in the hands of a skilled, experienced pilot (which was rare by war's end) it was still lethal. Ultimately, with Japan facing certain defeat, the final solution selected by the Japanese military leadership to defend their honour and stave off final defeat involved the use of suicide tactics. Throughout the kamikaze campaign at the end of the war, the Zero was the most common aircraft type used.

Only a few airworthy examples of the Zero remain, and of these only the A6M5 owned by the Planes of Fame museum in Chino, California possesses an authentic Sakai radial engine.¹

¹ This will change with the completion of the A6M3 being built by Vintage Aircraft Ltd./Evergreen Aviation Museum in Ft Collins, Colorado.

Tools of the modeller

Having the right tools can instantly make your models better, and the ones that I consider essential are listed below.

Airbrush choice will make a dramatic difference in the quality of a paint job. More important, though, is the painter's willingness to practise. Learning how to use your airbrush, knowing its strengths and weak points, will help you avoid time-consuming mistakes. I prefer double-action airbrushes because I like to be able to instantly control the mixture of air and paint. I know a number of outstanding modellers that prefer single-action airbrushes. The Paasche VL is what I have always used for my airbrushing. Iwata, Badger, Testors and Tamiya all make excellent airbrushes, though the differences in price can be wide. Consider your purchase of this tool carefully. You may save money buying a cheaper airbrush, but your final result can be dramatically different depending on the kind selected.

You can spend a lot or a little on a **compressor**. Simple household compressors (I call them 'bike tyre compressors') are easily found at local hardware stores; they are relatively inexpensive and are fairly durable. They are also loud. Choose your compressor carefully. If you get one without a tank, not only will you eventually go deaf, you will probably burn it out from overuse in a relatively short time. I use an Iwata compressor purchased from a friend. They are expensive, but when they click on, they won't disturb your concentration or interrupt conversation.

I avoided buying an **Etchmate** for years – what a mistake! There are several different types available on the market. I use the one from Mission Models. These tools are irreplaceable when it comes to manipulating photoetch.

I have seen a few discussions related to the value of a **Dremel tool with Flexi-shaft extension**. They are handy little tools and I am amazed that some people fail to find them useful. I use this tool for cutting tubing, for grinding down pieces I want to modify, for drilling, and for polishing. I consider it a must-have tool.

A **magnifier** is essential for looking at tiny pieces. This tool will help you keep your eyesight and your sanity. I use a magnifying lamp mounted on a moveable arm. These are common items at stores with a large lighting section.

Other essential tools for the modeller include **hemostats/fine scissors**, **files**, **sticky labels** (for staying organized), and a **pin vice** (with spare drill bits).

A6M2-N Rufe (1/48)

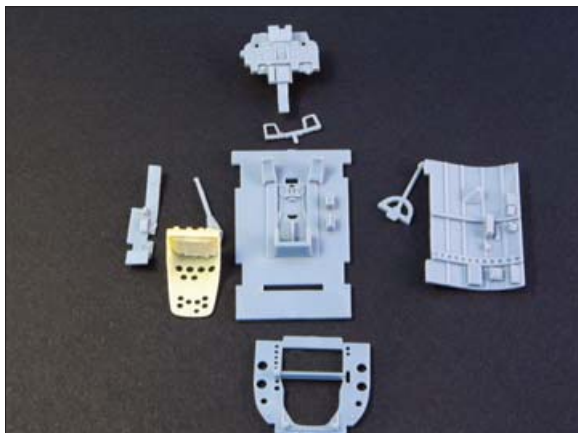
<i>Subject:</i>	<i>A6M2-N Rufe</i>
<i>Modeller/photos:</i>	<i>Brian Criner</i>
<i>Skill level</i>	<i>Intermediate</i>
<i>Base kit:</i>	<i>Hasegawa</i>
<i>Scale:</i>	<i>1/48</i>
<i>Additional detailing sets used:</i>	<i>Eduard Coloured seat belts</i>
<i>Decals:</i>	<i>From kit</i>
<i>Paints:</i>	<i>White Ensign's Nakajima Interior Green, Mitsubishi Navy Green</i> <i>Testors Model Master Rust, Italian Red, Buffable Aluminum</i> <i>Grumbacher Burnt Umber</i>

The A6M2-N Rufe was a formidable foe for Allied fighters early in the war. It was an aircraft with excellent performance despite its bulky floats. Surprisingly, there is relatively little in the way of photo references showing Rufes in frontline service. Most photos are grainy, and fail to satisfactorily show the type of wear pattern characteristic of a plane subjected to the weathering of the sea. I was able to piece together enough information about typical wear by looking at the photos available and basically inferring what I couldn't see.

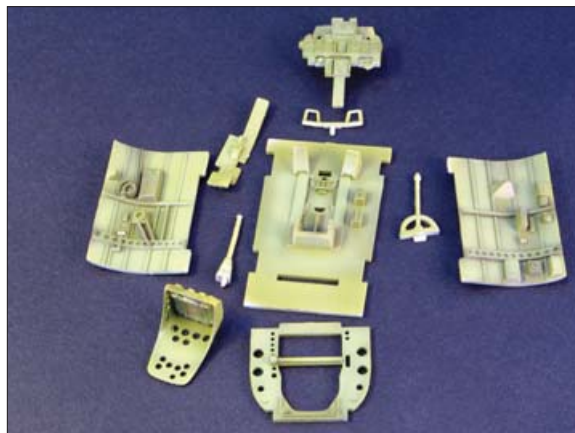
One particularly interesting characteristic of Rufes was that they were initially painted in the offensive *Tsuchi-Iro* scheme. Later, in the field, Rufes were over-coated in the defensive 'topside' green. In addition, all or almost all Zeros were primed with a red-oxide primer right up to the end of the war. First, this means the existence of a 'chipped up' Zero with large sections of natural metal showing would have been unusual to say the least. Exposure of natural metal, if present, would more likely have been in the form of scuffmarks, not peeled paint. My goal was to keep 'chipping' to a minimum, yet still show the intense wear these aircraft experienced. So I needed to figure out how to wear away the paint in a subtle manner that gradually exposed all the layers of colour, from natural metal through the primer and *Tsuchi-Iro* to the topside green defensive paint. The final model shows more 'chipping' than I had planned due to a masking error, of which more later. Since the focus of this project was the exterior finish, little was done to modify the kit other than the addition of a resin seat from CMK, coloured seatbelts from Eduard, and some other bits and pieces.

Cockpit and engine

The cockpit was painted in White Ensign Models (WEM) Nakajima Interior Green. The sidewalls from Hasegawa, quite basic in detail, were brought to life with dry-brushing and highlight painting. A wash of artist oils finished off the interior. For the instrument panel, I used the kit-provided decals for the instrument faces. After numerous applications of MicroSol, the dial faces, cut out with a Squadron Punch and Die set, sank down into their recesses. To accentuate the glass dial, each face received a drop of Future Floor Wax.



For this project the kit cockpit was used. Only the seat was replaced (using the excellent CMK example).



The cockpit was sprayed with White Ensign's Nakajima Interior Green. The colour cup was lightened with a drop each of Beige and White and then highlighted. The purpose is to create the feel of depth.

Since this build was primarily 'out of the box', I decided to restrict the engine detailing to painting. Cylinders and crankcase were painted silver and a wash of Burnt Umber artist oil tinted with black was added.

Assembly

One of my concerns building this model was to add enough weight to the float of the Rufe to get it to sit correctly in its docking cradle. I used lead pellets (from a pellet gun) and a lead fishing sinker hammered to shape. All this was held in place with superglue (cyanoacrylate, or CA). After the fuselage was mated and wings attached I added the float, making sure to align it longitudinally with the axis of the fuselage. All seams were filled with superglue, sanded with 320- through 800-grit wet-dry sandpaper. When using the more coarse grits, I masked panel lines and any other surface features I wanted to protect with Tamiya tape.

The cockpit components after painting. Despite lacking aftermarket offerings, the cockpit looks great when put together.

