

G'day! This is Friend, Commander for Helldiver Squadron Offensive Tactical Force. If you would like more information about our organization, check out all of the links I put on the last page of this tutorial.

Bear in mind that this is my first tutorial and consequently is not the best out there. However, there are few or no tutorial dictating how to fly the A6M2-O Model Zero in carrier operations. This tutorial has screenshots, text, and messages from screens. I wish I could record with screen-recording software or load a videotape from the FlightGear interface, but for some odd reason my computer glitches and shuts FlightGear down once I try that. This really gets in the way when I am in a tight dogfight and can't afford to have the computer lag.

The Mitsubishi A6M Zero was a long-range fighter aircraft, manufactured by Mitsubishi Heavy Industries, and operated by the Imperial Japanese Navy from 1940 to 1945. The A6M was designated as the Mitsubishi Navy Type 0 Carrier Fighter (零式艦上戦闘機 rei-shiki-kanjō-sentōki?), and also designated as the Mitsubishi A6M Rei-sen and Mitsubishi Navy 12-shi Carrier Fighter. The A6M was usually referred to by its pilots as the "Zero-sen", zero being the last digit of the Imperial year 2600 (1940) when it entered service with the Imperial Navy. The official Allied reporting name was "Zeke", although the use of the name "Zero" was later commonly adopted by the Allies as well.

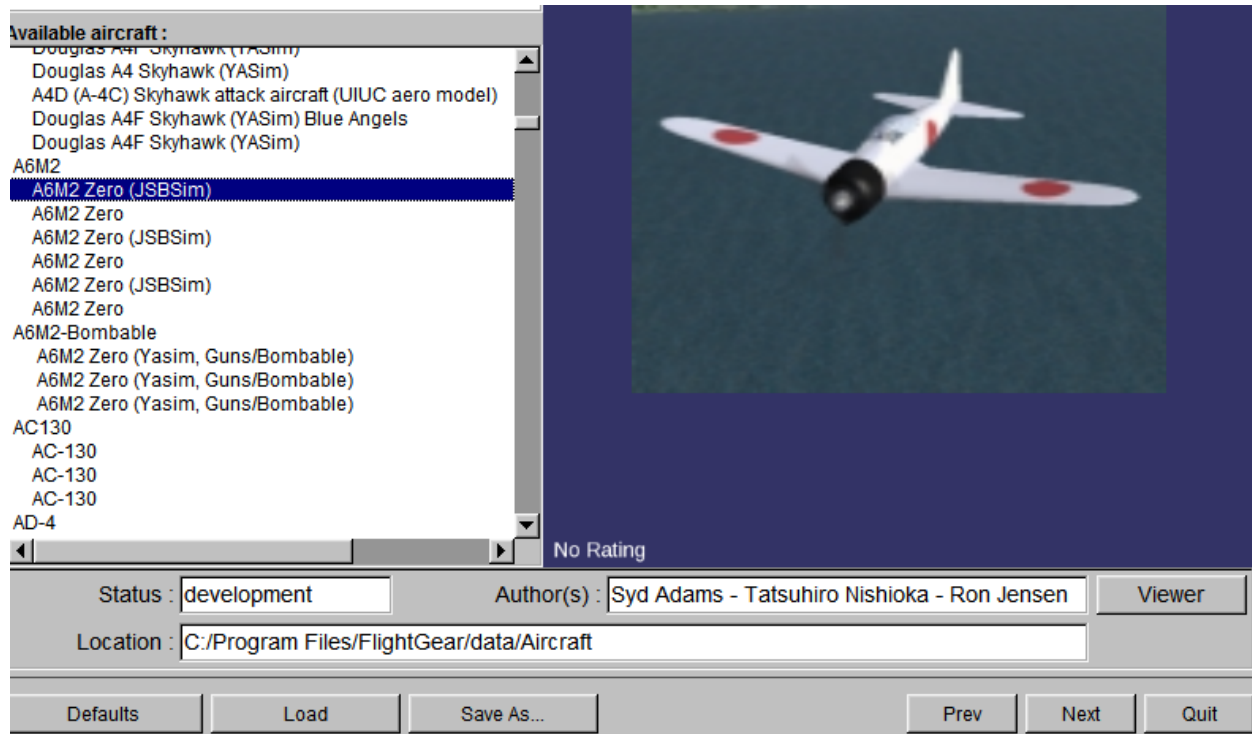
When it was introduced early in World War II, the Zero was considered the most capable carrier-based fighter in the world, combining excellent maneuverability and very long range. In early combat operations, the Zero gained a legendary reputation as a dogfighter, achieving the outstanding kill ratio of 12 to 1, but by mid-1942 a combination of new tactics and the

introduction of better equipment enabled the Allied pilots to engage the Zero on generally equal terms.

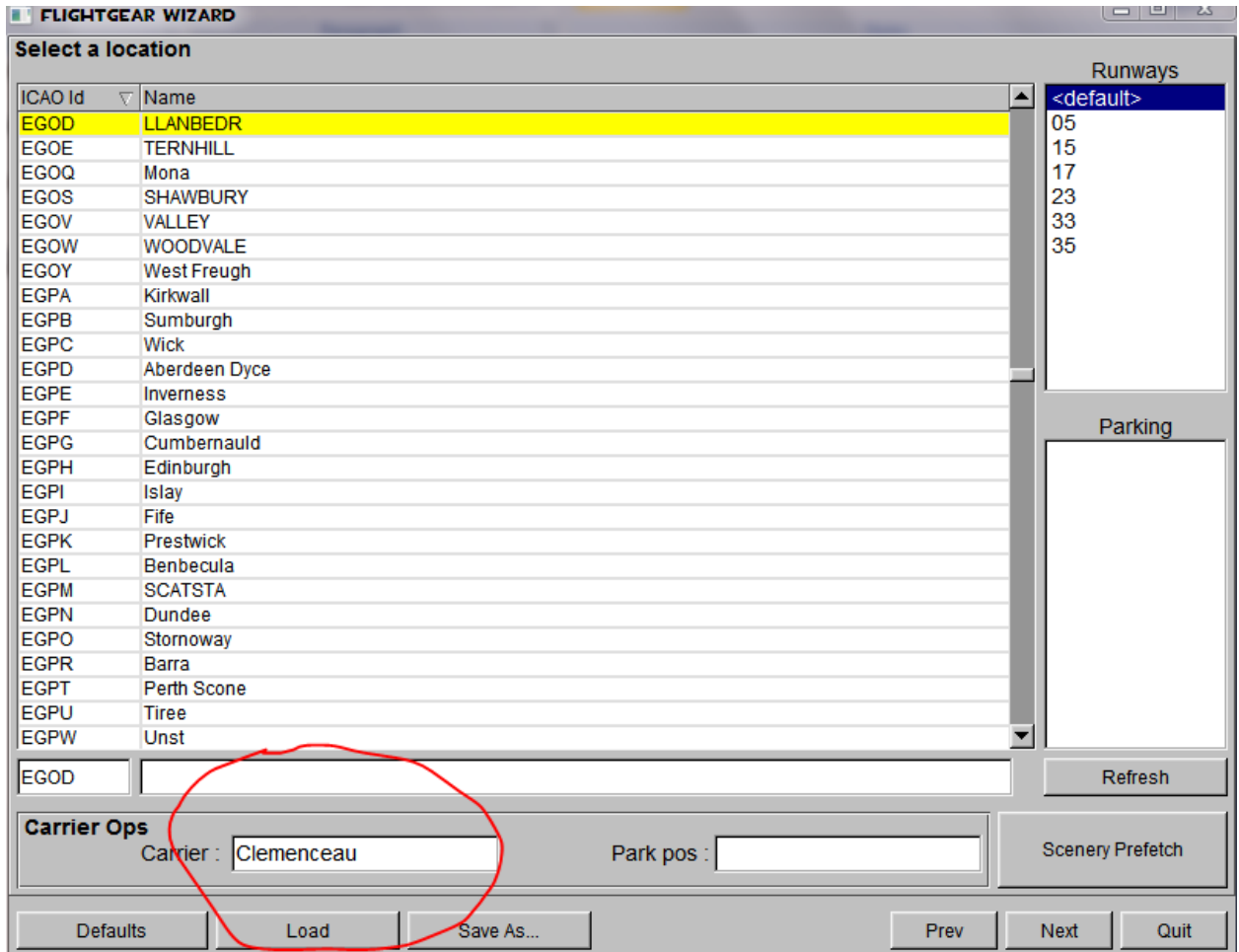
The Imperial Japanese Navy Air Service ("IJNAS") also frequently used the type as a land-based fighter. By 1943, inherent design weaknesses and the failure to develop more powerful aircraft engines meant that the Zero became less effective against newer enemy fighters, which possessed greater firepower, armor, and speed, and approached the Zero's maneuverability. Although the Mitsubishi A6M was outdated by 1944, design delays and production difficulties of newer Japanese aircraft types meant that it continued to serve in a front line role until the end of the war. During the final years of the War in the Pacific, the Zero was also adapted for use in kamikaze operations. During the course of the war, the Japanese produced more Zeros than any other model aircraft.

The Tutorial

Step 1: **Load** the A6M2 Zero, and if you like you can use the Bombable version made by Flug.

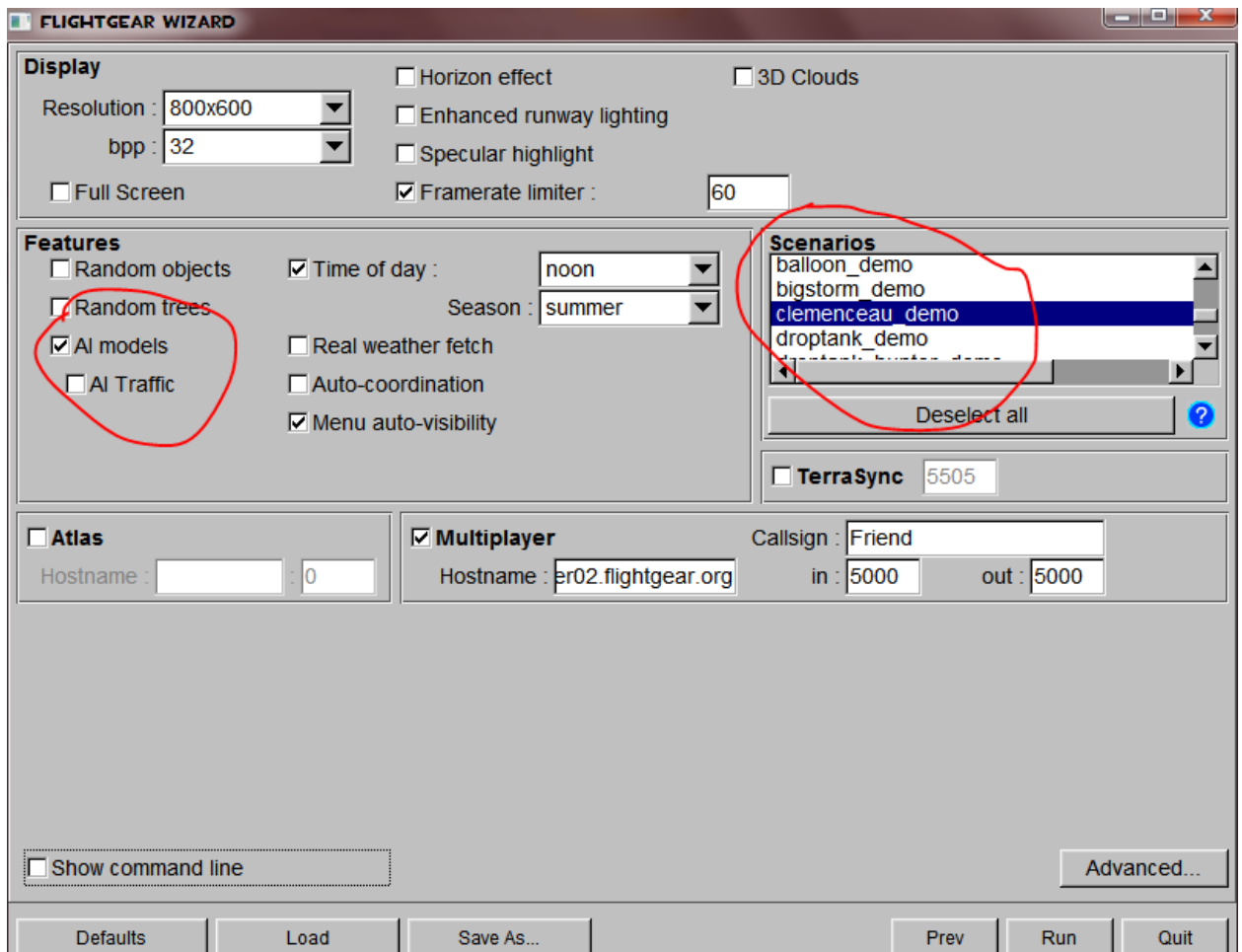


Step 2: Set "Carrier" to "Clemenceau".



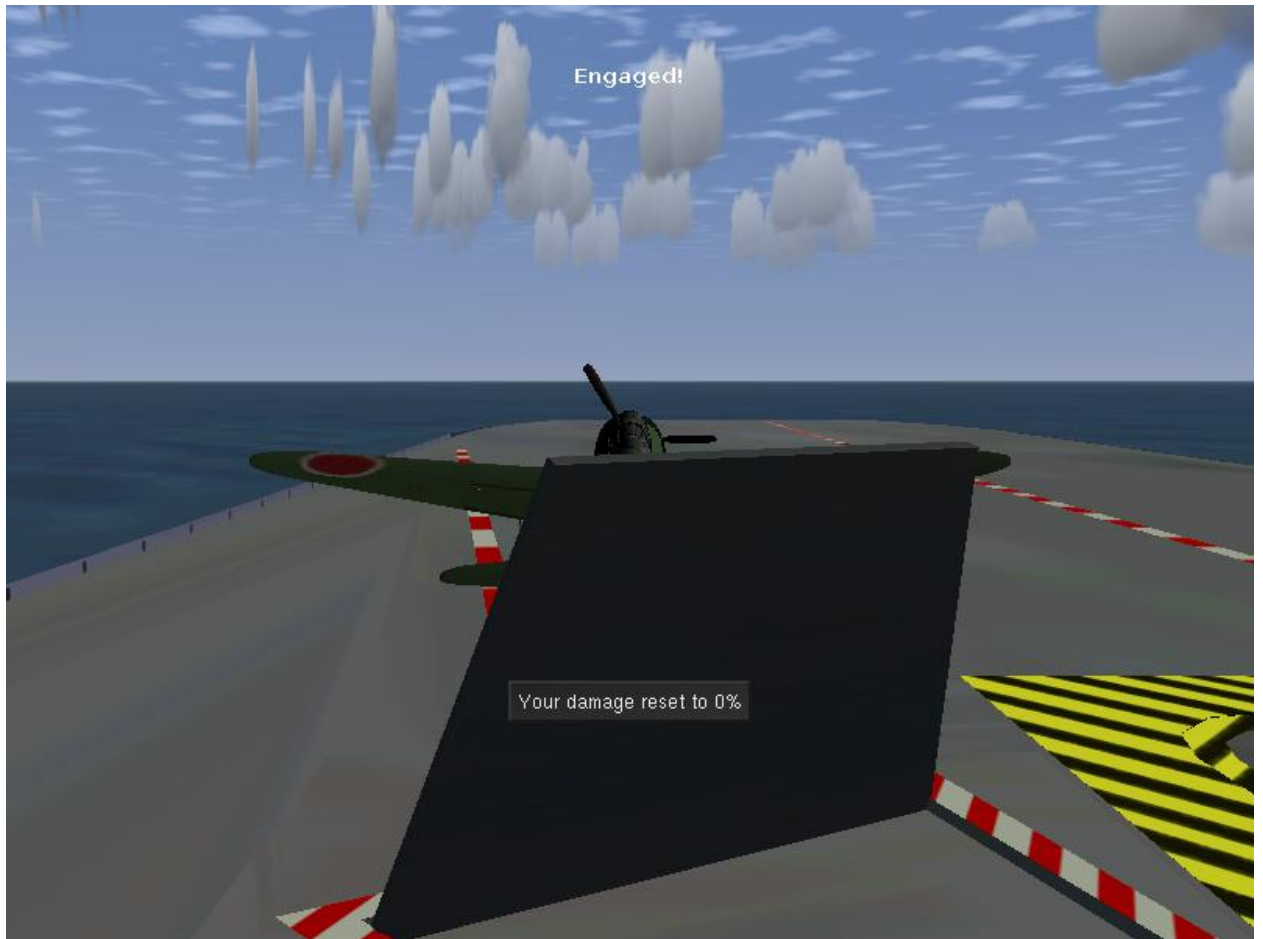
Step 3: Next, select the following VERY IMPORTANT options in the FG Wizard:

- AI Models, check
- “clemenceau_demo” in the Scenarios dialog
- Also, this is not required but it helps, check the “**menu auto-visibility**” box. This simply hides the menu when not in use.



Step 4: When FlightGear has loaded, immediately hit the keys “**Shift+L**” to engage the **launch bar**. If you don't do this, the torque from the engine when it has started will pull the aircraft **away** from the docking spot.



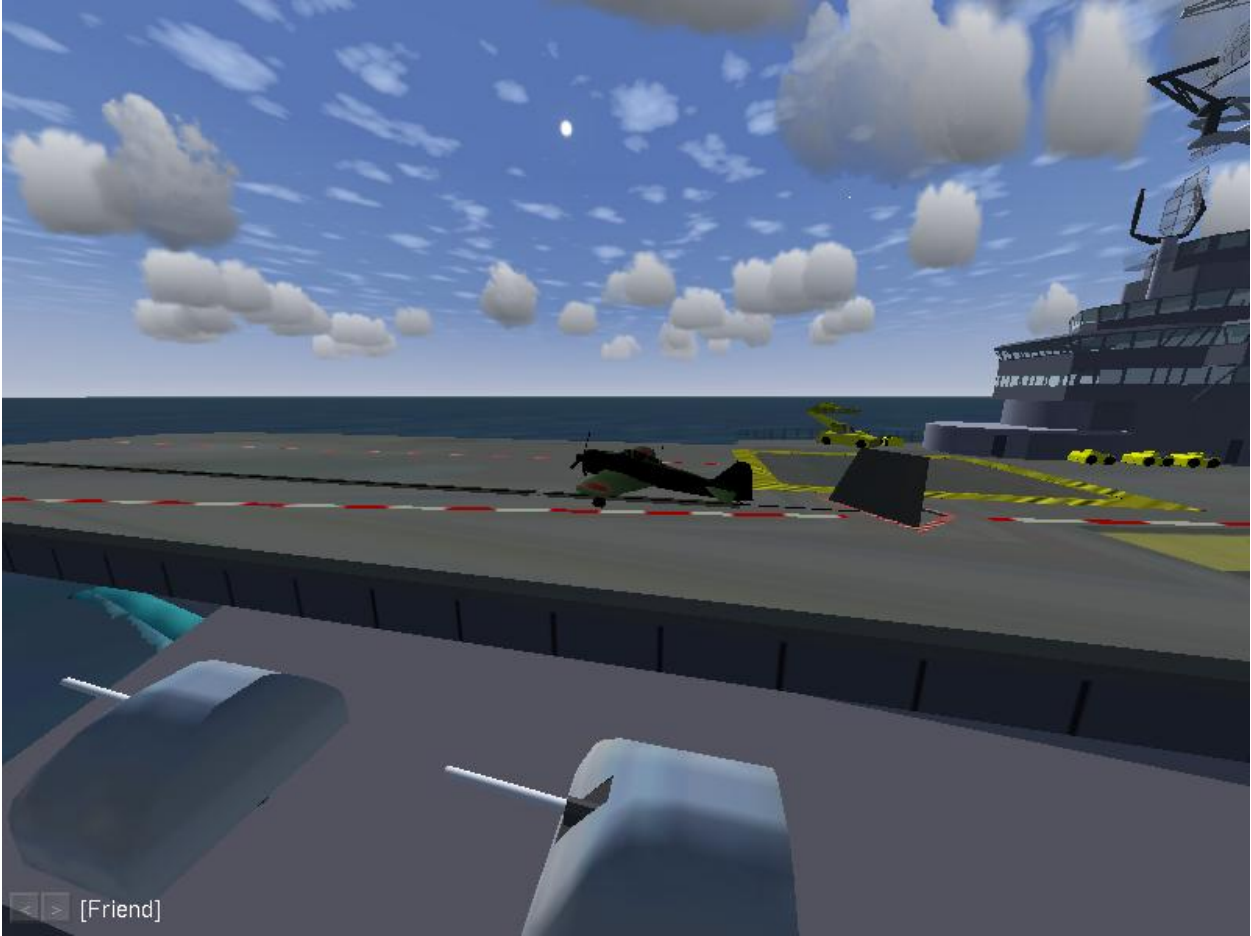


Step 5: Hit the “}” key **thrice** to enable **all** magnetos. This allows for ignition in the engine. Once you have done this, push the throttle to about **one inch**. Then, **hold down** the “s” key (**not** the capital S, but the lowercase) to start the engine. It usually takes around **five seconds** for it to start; this is entirely normal. Next, hit “**Shift+B**”. This **disables** the parking brake. The tail-wheel lock is **unlocked** at the start, so don’t worry about it. Once this is done, the aeroplane will jolt forward a tad---this is to be expected due to propeller pull. Let’s assess where we’re at. The parking brake is **OFF**, the throttle is at **ONE INCH**, the magnetos are on **BOTH**, the engine is **ON**, and the catapult is **ENGAGED**.

Step 6: Hit the key “]” twice. This applies a mid-degree flap order to the flaps on the wings. The flaps provide lift, but also slow down the aircraft a great deal, so when we take off it is absolutely imperative that we retract the flaps fully once we reach about 1,700 feet above sea level. Next, push the throttle up to about one inch **away** from the highest point. This revs the engine up to a very high RPM, so make sure that you don’t tarry around too long, as this will overheat the air-cooled engine (I think it’s air-cooled, although I could be wrong. Couldn’t find much on the 950 hp Nakajima Sakae 12). Now that the engine is on and everything is going, you will notice that the aeroplane has pulled to the right. This is torque in action, and will provide a scary moment when you take off—the aircraft will yank over to the left and swerve. That’s OK, as long as you make adjustments due with the rudder. Now, make sure you have followed the steps above and prepare for T/O!

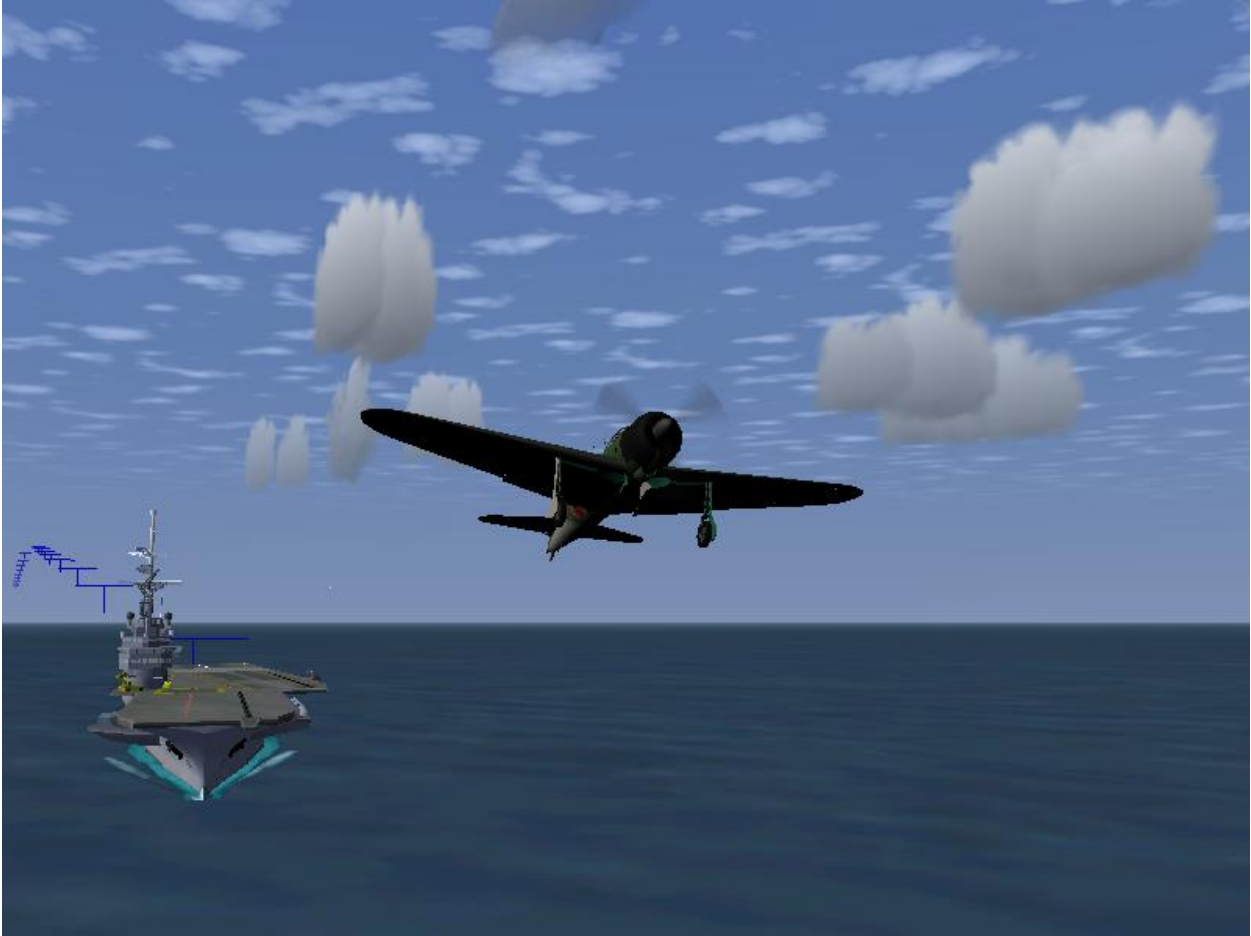
Step 7: Pull back on the stick a little so that you don’t pitch forward when you take off, and then you are ready.

Step 8: Hit “Shift+C” to engage the catapult! You will fly forward at more than 60 kilometers per hour, and the aeroplane will swerve to the left. Keep it straight and pull back to send the Zero soaring! You **MUST** retract the flaps fully at 1,700 ft (key “[“ will do the trick, but go to Chase View to make sure you pulled them in or look at the flap degree gauge in the cockpit). Climb at a rate of 15.7 m/s (3100 ft/min). Essential!





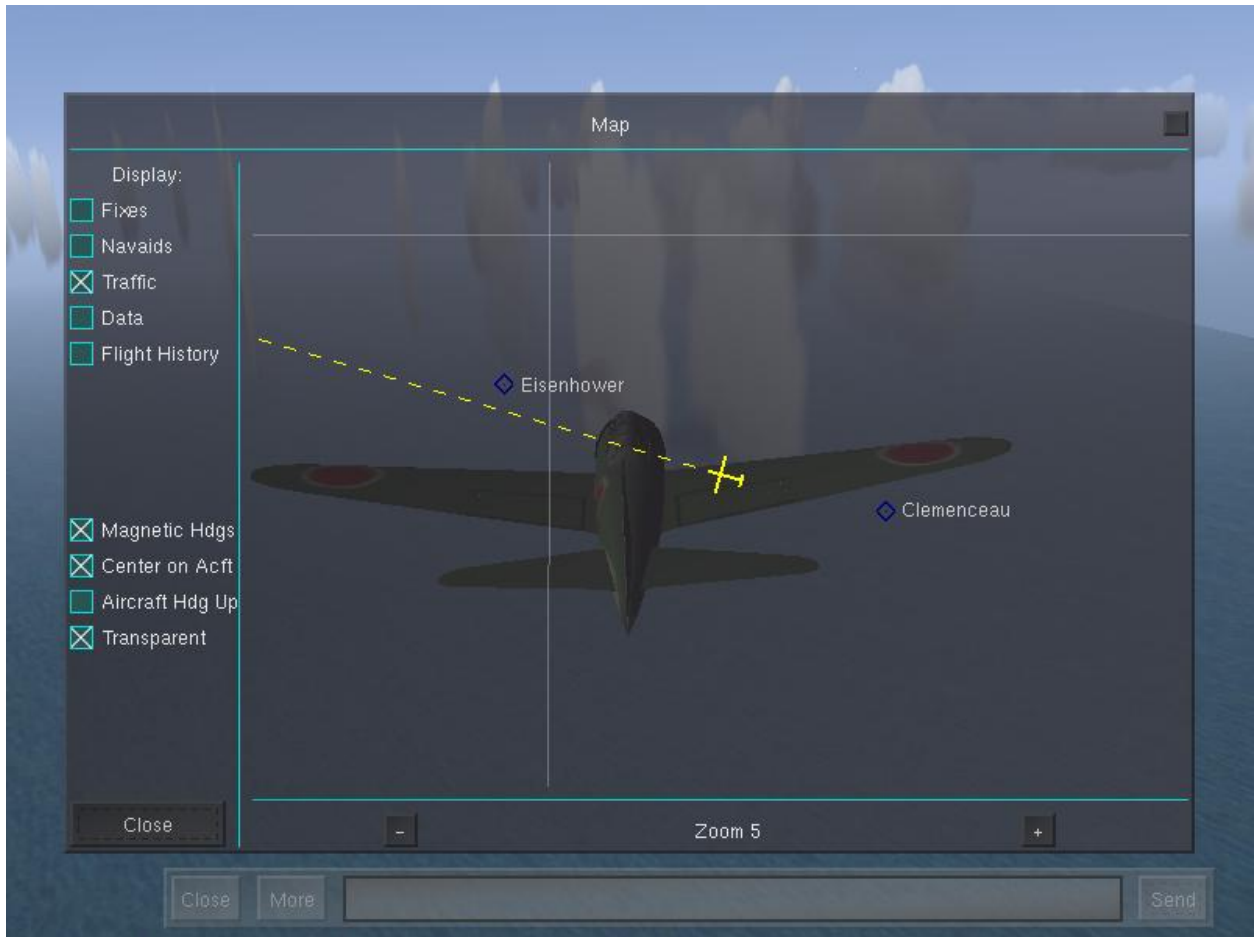






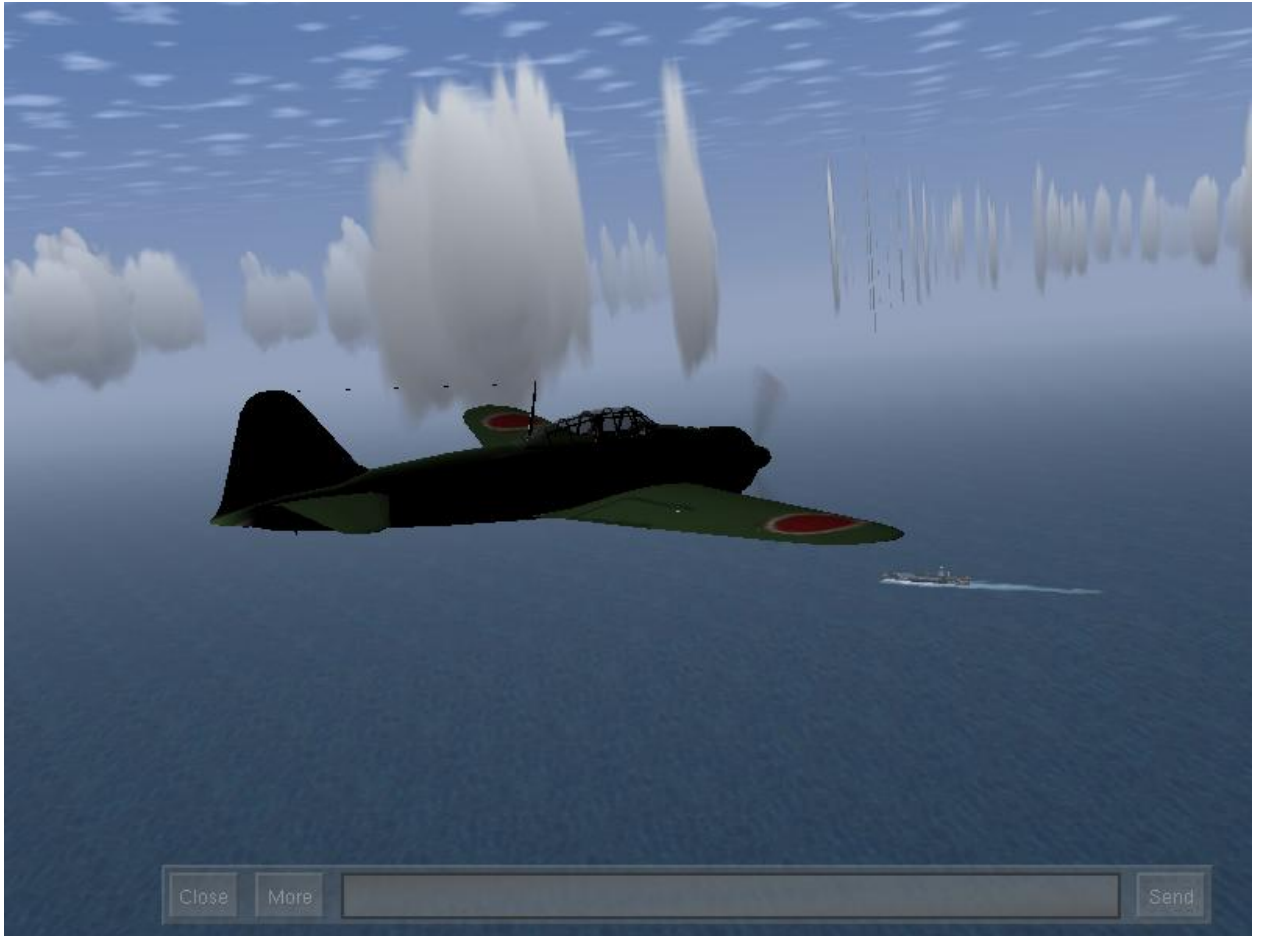
Step 9: Retract gear. Hit “g”. Assure that the canopy is closed. If you are in a dogfight, open it for full visibility.

Step 10: Open the Map dialog to locate the Eisenhower, which is a modern-era carrier that has no business being near the Clemenceau. Regardless, find it by checking the “Traffic” box on the Map and fly in that direction. Check the “Data” box on the Map to see the heading and speed of the carrier(s).



Step 11: Once within six nautical miles of the carrier Eisenhower, close the Map and go visual. This means that you use the View mode a lot with your cursor (the cursor with a two-way arrow). Stay in Cockpit View; it's more fun to be real, even if we are doing unrealistic stuff.





Step 12: Have fun. Do a flyby and knock those sailors' hats off. Pause while flying over to notice the length of this carrier. The Eisenhower is in fact a Nimitz-class aircraft carrier, the largest operable ones to date. However, the modelers who made this carrier for FlightGear have some of the dimensions off, and it's easy to see if you look from the right angle. A screenshot here will show you what I mean.



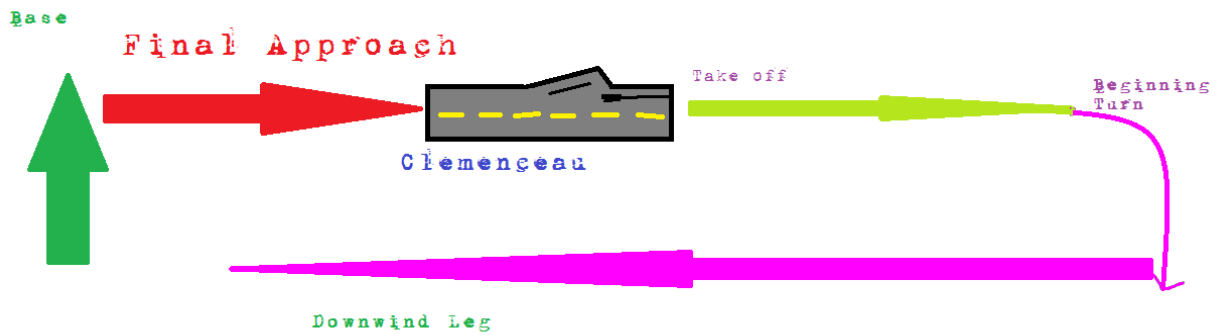




OK, so you've gotten this far without quitting on me. Now comes the fun part.

Step 13: After flying back (the not-so-fun part), you will want to line up with the Map again to begin the final approach to the Clemenceau. However, there are three basic "legs" to a carrier landing.

- Downwind
- Base
- Final Approach



Carrier Operations in Basic

You have already performed the Take Off, Beginning Turn, and Downwind Leg. You are in the middle of completing the Base. Next, after lining up, comes the Final Approach—the one you've been waiting for.

Step 14: After lining up with the correct heading, you will want to lower the RPMs, extend flaps one flap-degree, and wait until you see the speed drop to around 190 KTS. This is pretty close to stalling speed so the key is to keep the altitude (should be 5,000ft) by using throttle, not the stick. The flaps pull hard, too. Keep the speed around 200 KTS.















Step 15: Alright, here's the beginning of the hardest part about carrier operations. You will have the convenience of a glideslope indicator shown in blue that the Clemenceau provides by default. This helps a lot in lining up. This is all for training, so realism isn't quite yet a factor. Line up! Make sure to remain around 100 ft **above** the marker platforms. If you see the markers, you will see the ship.

Step 16: You've gotten far. Now, make sure the speed is under 185 KTS and go ahead and lower the gear, which is "Shift+G". Once you are within **really** close range of the carrier, lower flaps 100% and drop the throttle. Lower the hook ("Shift+O"). Get ready.

Step 17: The biggest killer here is panic. By now your heart is beating with higher RPMs than your Zero's engine. Keep calm as you can. Fight the urge to swerve. The aeroplane will swerve because it nears the stalling speed. Once within 200 ft of the carrier, slam the throttle. All the way, 100% military power. This is in case you don't catch the wire and have to go around. Aim for the FIRST wire. This is to basically aim for the third or fourth. Try to get all three wheels on the deck at the same time. The rear goes first, oddly enough, as this has a hook. Normally, taildraggers need the front gear first, and then the rear wheel.

Step 18: Hit! You made it! If not, retract flaps, slam throttle, retract gear and hook, and loop around to try again. It takes a lot of practice to land on a moving, swaying object like an aircraft carrier, let alone a smaller one like this ship. If you made it alive, you can "taxi" over to the elevators (after retracting hook—key "o", and engaging parking brake ("Shift+B")) and pull in the flaps. The throttle should by now be at one inch to one-half inch above the lowest point. Now, the Zero taxis terribly. There is little to no steering and it is really hard to maneuver into a small confine like the deck elevator. Go to Menu>AI>Carrier Options and check the "Operate Deck Elevators" box. Lo and behold, the yellow-striped platform lowers (hopefully with you on it) and you see the uninteresting inside of this ship.











Congratulations! Shut down the engine (key “{“ thrice) and engage parking brake and tail wheel lock (Ctrl+L). Make a cup of green tea. Relax.

The Zero never landed on the Clemenceau. It is a French carrier made for jets, mostly.

It’s fun to land on, though.

CORRECTIONS: Hello. Minor correction. The Clemenceau is not from WWII. It was introduced in 1961 by the French Navy. I wrote something like that in the screenshot. My bad.

Many thanks and send feedback!

--Friend

Links:

Helldiversquadron.wordpress.com

Wiki.flightgear.org/helldiver_squadron

Fgukmedia.co.uk

Flightgear.org

Wiki.flightgear.org/user:jayvs

Wiki.flightgear.org/A6M2

Wiki.flightgear.org/bombable

Wiki.flightgear.org/aircraft_carrier

AI Scenario Directory: [FlightGear>data>AI>...](#)

