# Supercarrier Pro

# Welcome Aboard

**At Miltech Simulations, we are committed to no upgrade fees on all products from MSFS2020 to MSFS2024.** Any products bought now or in the past will be available to use in MSFS2024 at no additional cost.

**REX Real Global Airport Textures may cause CTDs when used with Supercarrier Pro.**
**More information:** Supercarrier Pro CTDs - On Spawn or when Flying to Carrier

**SIMULATION USE ONLY - DO NOT USE THIS DOCUMENTATION ON A REAL AIRCRAFT**

- Installing the freeware Top Gun Expansion is a **requirement** for this product to work correctly.
- **Crash detection** must be turned **off** at all times.
- **Flight Assistance** settings must be at **Medium or Higher**
- Pausing the sim does not pause the movement of the carriers (moving carriers only)
- This product is fully compatible with any other Carrier product in the market.

# Overview

Welcome aboard the first Studio-Level Functional Aircraft Carrier Pack for MSFS.

At Miltech Simulations, we have been developing the necessary tech for functional Aircraft Carriers for the past three years. This product is the result of extensive research and development of proprietary tech to enable all the real-life systems and operations that you may find in US and in international Aircraft Carriers.

Check our Tricks and Tips for a Successful Flight Guide for a quick introduction to the Carriers

# Get Started

We've put together some helpful guides for you to get set up with our product quickly and easily.

### Requirements 📜

- Microsoft Flight Simulator – PC or Xbox. Latest version available.
- Freeware Top Gun Expansion from the MS Marketplace
- A valid product license from ORBX or the MS Marketplace
- Joystick Controller (Recommended) or Xbox controller
- CPU: Quad-core processor or better.
- GPU: At least 6GB of dedicated memory, Nvidia 1060 or better.
- RAM: 8GB Minimum.
- Hard Disk: At least 4GB Recommended.

### Where to Buy? 💰

- Miltech Simulations Webstore: https://store.miltechsimulations.com/products/supercarrier-pro-for-msfs
- ORBX
- Microsoft Flight Simulator in-game Marketplace

### Installation - Miltech Simulations Webstore 🔽

Products distributed via Miltechsimulations.com are downloaded and updated via Contrail. Download the Contrail App here: https://cdn-

eu.29palms.de/contrail/releases/ContrailSetup.exe

1. Download and Launch Contrail
2. Click on **"Accounts"** on the bottom left corner and "Connect" Miltech Simulations Account (log-in with your Miltech Simulations credentials)
3. Click on **"Downloads"**. Your products will download and install automatically.'

## Installation - ORBX 🔽

1. Launch ORBX Central with Administrator Rights.
2. Verify ORBX Central has located your MSFS Community Folder Path
3. Search the product
4. Click “Install” and wait for the product to install successfully
5. Close ORBX and launch Microsoft Flight Simulator By default the product is installed on: (User)\AppData\Roaming\Microsoft Flight Simulator\Packages\Community\miltechsimulations-supercarrier-pro
6. Install the freeware Top Gun Expansion from the MS Marketplace

## Installation - MS Marketplace 🔽

1. Launch Microsoft Flight Simulator
2. Open the Marketplace
3. Search the product
4. Click “Install” and wait for the product to install successfully. The product is by default installed on: (User)\AppData\Roaming\Microsoft Flight Simulator\Packages\Official\miltechsimulations-supercarrier-pro
5. Install the freeware Top Gun Expansion from the MS Marketplace

### Removal ❌

The product can be removed from ORBX Central or the MS Marketplace, by clicking on the uninstall button.

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# Product Information

# Introduction

Welcome aboard the first Studio-Level Functional Aircraft Carrier Pack for MSFS.

At Miltech Simulations, we have been developing the necessary tech for functional Aircraft Carriers for the past three years. This product is the result of extensive research and development of proprietary tech to enable all the real-life systems and operations that you may find in US and in international Aircraft Carriers.

- **Beautifully Modeled Ships:** four ships included on initial release, Ford-Class CVN-78, Nimitz-Class CVN-76, Arleigh-Burke Destroyers and Ticonderoga Cruisers. Great attention of detail, both on the deck area, as well as the hangar.
- **Roadmap:** Additional ships, such as Independence-Class Ships and French Carrier Charles de Gaulle planned for free future updates. Other ship packs may be released as expansions.
- **Moving and Static Ships:** A total of 14 moving locations and 14 static (anchored) locations are included.
- **Miltech Simulations Supercarrier Pro Toolbar:** In-sim toolbar for full control of the carriers
- **Universally-compatible Arrestor Cables and Catapults:** This product was developed in in such a way that any aircraft, stock or 3rd party, can use the catapults and arrestor cables without any modification, and regardless if the aircraft has a tailhook or not.
- **Full Xbox Support:** All features are fully supported on Xbox. Carriers have been optimized for excellent performance on Xbox.
- **FLOLS and LRLS:** Functional Optical Landing Systems to safely guide your aircraft to the deck - follow “the Ball”
- **Landing Signal Officer:** Fully-functional Landing Signal Officer, with functional audio callouts to guide the aircraft on landing and feedback scoring based on real naval operations.
- **Animated Crew, Jet Blast Deflectors Flags and Elevators**
- **Fully Accessible Hangar** (moving and static ships)
- **Navaids:** ILS and TACAN are available on static carriers
- **Exclusive Discord Community** to foster group flights, events and interaction among players. Invite is available on the Toolbar

- **Carrier Comms:** UNICOM and ATIS are available on static carriers. Carrier ATC Voice channels available over Discord for all locations.
- **Full Multiplayer Support:** Both moving and static carriers are fully compatible over multiplayer.
- **Full VR Support:** The entire product is self-contained within the game.
- **Extensive Documentation** covering equipment, systems and procedures.
- **Teleport (Experimental Feature):** teleport your aircraft to the carrier hangar, approach or deck using the teleport feature. Aircraft will change state according to where is teleported to.

We hope you enjoy our product,

Miltech Simulations

# Glossary

| Acronym | Meaning |
| --- | --- |
| ILS | Instrumental Landing System |
| ICLS | Instrumental Carrier Landing System, similar to ILS |
| FLOLS | Fresnel Lens Optical Landing System, similar to PAPI Lights |
| LRLS | Long Range Line-up System |
| TACAN | Tactical Air Navigation System |
| JBD | Jet Blast Deflector |
| LSO | Landing Signal Officer |
| CATCC | Carrier Air Traffic Control Center |
| UNICOM | Universal Communications (Station) |
| Bolter | A bolter occurs when an aircraft attempting an arrested landing on the flight deck of an aircraft carrier touches down but fails to catch an arrestor cable and come to a stop. |
| CATOBAR | Catapult Assisted Take-off But Arrested Recovery |
| MIL, Military Power | *Full military power* is simply 100% throttle w/o using afterburners |

# Disclaimer and Credits

This product has no depiction of weapons as per the policies of Microsoft Flight Simulator.

This product was exclusively developed and distributed for entertainment and educational purposes. Any commercial, training, professional, or military use of this product is strictly prohibited and not endorsed by Miltech Simulations, or any other company or individual related to this project.

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This product has been developed using the available resources. The scope is limited to “As realistic as practical”, and though some systems have been accurately developed, others have been greatly simplified. For that reason, the systems, performance, operations, and procedures shall be considered purely fictional and not representative (nor intends to accurately represent) the real counterpart.

Our FRENCHCDG ship is not, nor intends to be, an accurate depiction of any real-world ship, and only intends to simulate aspects of design of French-built aircraft carriers.

> Supercarrier Pro exists as a product that intends to simulate the experience of taking off, landing, and operating on an aircraft carrier. It is in no way a “Warship Simulator”, and for that reason the depicted vehicles do not depict weapons of any kind. Any depiction of our products on a warfare environment is not endorsed by Miltech Simulations nor permitted by the terms of use of this product.

# Credits

- Programming and Development: Jayshrike, Miltech Simulations
- 3D Modeling & Texturing: Miltech Simulations
- Sounds: Miltech Simulations
- Documentation: Miltech Simulations
- Distribution: Miltech Simulations, ORBX, Microsoft
- Marketing: Miltech Simulations, ORBX
- Testing: Miltech Simulations, ORBX
- Video and Promotion Materials: AviationLads

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# Tricks and Tips for a Successful Flight

- Pausing the sim does not pause the movement of the carriers (moving carriers only)
- **Crash detection** must be turned **off** at all times.
- Installing the freeware Top Gun Expansion is a **requirement** for this product to work correctly.
- This product is fully compatible with any other Carrier product in the market.

## Selecting the Aircraft

Any aircraft, Stock or 3rd Party, from Cessnas to Fighter Jets are fully compatible with Miltech's Supercarrier Pro product. Just go for your favorite aircraft.

We recommend you practice on the Stock F/A-18 for realism.

## Selecting the Carrier

❓ Ford Class vs Nimitz Class?

It's up to you! Both are nuclear CATOBAR Supercarriers from the United States Navy, both have 4 catapults and arrestor cables, both have moving elevators, crew, accessible hangar (moving locations only), both have static and moving locations.

Both are beautifully modeled ships. However, Ford-Class may be slightly easier for a beginner to start with, as the carrier deck has more space to move around.

### ❓ Static vs Moving Locations?

The pack includes a total of 14 Static Locations (7 CVN-76 and 7 CVN-78) and 14 Moving Locations (7 CVN-76 and 7 CVN-78).

- **Static locations** are meant to simulate "anchored ships". These are spawnable on deck and feature ILS and TACAN to make your flights easier. Static locations are identified by 4-alphanumeric ICAO codes.
- **Moving locations** are arguably more fun - landings are more challenging, carrier can be aligned to the wind and hangar is fully accessible. However, no ILS or TACAN is available. Moving locations are identified by 4-alphanumeric ICAO codes.

It's up to you which one you prefer. Static carriers offer an easier landing to practice, but crossed winds may be an issue. Moving carriers offer a more immersive experience, but lack navigation equipment. If you want more information, visit: Moving vs Static Locations

### 🗺️ Worldwide Locations

A total of 28 locations are available at this time. A detailed list of locations, as well as a map, is available here: Worldwide Locations

It is recommended that you decide whether you prefer a static or moving ship, and then pick one of the locations from the list.

### 🛫 Launched the sim - now what?

1. **Locate the Miltech Supercarrier Toolbar.** For more information, visit here Miltech Supercarrier Toolbar
2. **Static Carriers**: You are now at the carrier deck, ready for Takeoff. If you prefer to start C&D, teleport to parking using the Supercarrier Toolbar, under the Controls Tab. You can also teleport to approach to start your Recovery training.
3. **Moving Carriers:** You are now at the carrier deck, ready for Takeoff. If you prefer to start C&D, teleport to parking using the Supercarrier

Toolbar, under the Controls Tab. You can also teleport to approach to start your Recovery training.

# Catapult Launch

### 🎛️ Get your Aircraft Ready

1. Follow your checklist until aircraft is "ready for taxi"
2. Configure your aircraft for takeoff - make sure Fuel is loaded, flaps are out, lights on. Do not extend your wings of launchbar just yet (if applies to your aircraft).
3. Open Miltech's Supercarrier Toolbar and select your desired catapult for takeoff. The crew will prepare the catapult for you and guide you to the correct alignment.

### 🚕 Taxi to Catapult

1. Follow the crew instructions for a correct alignment with the catapult. Once aligned and you've come to a stop, click on the yellow checkmark on your Supercarrier Toolbar
2. The crew will prepare your aircraft and raise the JBDs now. Extend your wings and catapult launchbar if it applies to your aircraft. Wait for the crew to clear you for takeoff.

For more information, follow the Launch Operations Guide

### 🚀 Launch!

1. Once aircraft is ready for takeoff, a green arrow shows up on the Supercarrier Toolbar. Click on it to prepare catapult.
2. Quickly apply full throttle. Wait for the aircraft to accelerate and vacate the catapult.

3. Now you're in the air! Retract gear and flaps as required.

# Recovery and Landing

### Locate the Ship

Understand where the ship is located, if it's moving, and which direction the ship is moving. You can find the ship with the inGame Marker (if enabled in panel settings) and with the Smart Camera (if close).

Begin preparing your approach by "Breaking the Deck" - within a 10nm radius of the ship, begin by flying around the ship in a Counter-clockwise direction, descending and decelerating for your approach. For more information, Approach and Landing Equipment and Operations

### Beware of the Winds

Landing on a carrier with crossed winds can be very challenging. Check wind direction and speed, and make sure it is favorable for your approach. If it's not:

1. **Moving Carriers:** Click on "Align to Wind" on the Supercarrier Toolbar, under Controls Tab. The carrier will rotate to a direction in which the runway is perfectly aligned with the winds.
2. **Static Carriers:** Either go for the landing, or simply change your weather - it's a Sim after all ;)

### Landing Pattern and Final Approach

1. Enter your final approach at less than 5nm from the ship. Align yourself visually with the runway, and identify the approach lighting - FLOLS on the Port (left) side of the ship and LRLS on the stern (back) side of the ship. These are your glideslope indicator lights and

horizontal alignment respectively. More info in Approach and Landing Operations

2. Aim for Solid Amber on the LRLLS. Red means your are far left, Green means you are far to the right.
3. Aim for the Ball (moving amber light on the FLOLS) to be aligned with the Green bar.
4. Continue flying the approach until the aircraft is "BALL". You will hear the pilot say this word to the LSO. As soon as the aircraft is "BALL", keep your eyes on 3 things: FLOLS, LRLS and AOA Indicator.
5. The FLOLS and LRLS will become available on the Miltech Supercarrier Toolbar for easier visibility as soon as the aircraft is BALL. **We highly recommend you use this one for final approach. It is also available for VR Users.**
6. Configure your aircraft. Flaps, Gear, Tailhook. **We highly recommend you use the Modern Arrestor Cables**, more information here: Arrestor Cables

### 🚨 LSO, Speed and Lights

1. Keep your eyes on the lights instead of the runway, and listen to your LSO. As long as you keep the Ball aligned with the green bar and LRLS in Amber, you will be perfectly aligned with the runway. Looking at the runway may be deceiving.
2. Keep your speed controlled. If your aircraft has an autothrottle, use it. The ideal landing speed for the F/A-18 is 135-140KIAS
3. Listen to your LSO. Act if you hear You're Low/You're High/You're Left/You're Right/You're Slow/You're Fast
    1. **Go around immediately if you hear "Waveoff"**
    2. More information on LSO here: Landing Signal Officer (LSO)

### 🥊 Catch the Cables

If you followed the LSO and Lights, you will arrive safe to the ground. Set power to Full Military Power (MIL) in case a last-minute Waveoff or Bolter occurs, and do not flare - no soft landings on aircraft carriers.

Touch the deck, catch the cables and wait for the aircraft to come to a full stop. Power to IDLE, Retract Tailhook (if used) and you're good to go.

You may hear **BOLTER** - this indicates the aircraft has not waved off (may have landed correctly), but no cables were caught. Apply full throttle and perform a go-around. Immediate action is required as the aircraft is in danger of stalling or falling off the deck.

### 🎓 Practice, Practice, Practice

Taking off from an aircraft carrier is easy, Recovery is incredibly challenging. Practice a lot until you master landing in good weather conditions. Then go for the crossed winds, bad visibility, bad weather, etc.

# Known Bugs, Updates & Product Roadmap

## Known Bugs

As with any revolutionary piece of software, there will be some bugs at the beginning. We have acknowledged and fixed the following bugs:

- **(IDENTIFIED, SOLUTION FOUND)** Supercarrier Pro CTDs - On Spawn or when Flying to Carrier
- **(IDENTIFIED, SOLUTION FOUND)** "Shaky Camera"/"Shaky Ship" Bug - Moving Ships
- **(IDENTIFIED, SOLUTION FOUND)** Multiplayer Sync freezing screen after Restart
- **(IDENTIFIED, SOLUTION FOUND)** Misplaced Crew/Teleport not functioning/Quick Taxi not functioning
- **(IDENTIFIED, SOLUTION FOUND)** Shimmering "Bounding Box" on Arrestor Cables
- **(IDENTIFIED, SOLUTION FOUND)** Shimmering Vertical Lines behind the ship/Broken Wake Effects
- **(IDENTIFIED, SOLUTION FOUND)** Osprey/Harrier Sliding on the Deck

## Product Updates

**Supercarrier Pro v1.1.0 - Released Feb 27th, 2024**

- Loading times significantly reduced by modifying animation sequences and related code.
- NEW SHIP: Nimitz-Class CVN-69 introduced (6 new static locations, 7 new moving locations)
- NEW SHIP: FrenchCDG introduced (4 new static locations, 4 new moving locations)
-

- NEW SUPPORT SHIP: Independence-Class ships introduced (4 POI locations + as escort ship on all new CVN-69 locations)
- New carrier deck vehicles added. More detailed and better textured, yet more FPS Efficient.
- When not in range of Carrier, show a list of closest carriers and their heading
- Added additional supporting ships to static vessels
- Relocated Da Nang Location to "Yankee Station"
- Relocated Whitley Bay Location due to closeness to Airbase
- Relocated Palm Beach location due to interference with Airport
- Added catapult hook sounds
- Added ambient noise and announcement sounds
- Added Catapult sounds
- New Modern Arrestor Gear system using real-life values from Nimitz carriers and energy-based equations to guarantee the aircraft stops in a reasonably length of runway using regardless of the weight of the aircraft.
- Hangar fog visibility bug fixed
- Steam effects on catapults added
- Changes to Carrier App UI and backend to support future expansions.
- Performance improvements throughout
- Texturing fixes and improvements throughout
- Hotfixes related to Navigraph compatibility
- Multiple lighting effects improved
- Various minor fixes throughout

**Supercarrier Pro v1.1.1 - Released March 19, 2024 (Latest Version)**

- FrenchCDG Lift bugs Fixed
- CVN69 Moving Locations malfunctioning in some systems fixed
- French Flag added to CDG
- FrenchCDG "holes" around the deck fixed
- CAT2 Shooter on CDG location adjusted
- Static CVN69 locations missing collisions on Independence Class support ships

- Adding CDG Moving locations: (FN05) Lorient, France, (FN06) Cote d'Azur, France
- Fixed catapult steam effects

# Supercarrier Pro CTDs - On Spawn or when Flying to Carrier

**THIS BUG IS UNDER INVESTIGATION FOR A DEFINITIVE SOLUTION.**

We have identified that **REX Real Global Airport Textures may trigger Crash to Desktops** with our Supercarrier Pro product. We have been unable to identify what is the source bug resulting on these CTDs, but we are in communication with the team at REX to provide a solution to this issue.

In the meantime, please **uninstall REX Real Global Airport Textures.**

## On AMD Graphics Cards:

We are aware of issues with AMD Graphics Cards that may result on Crash to Desktops. This issue is not unique to Supercarrier Pro, but rather a generalized MSFS Issue with stock arresting gear. This issue has been raised to Asobo for further investigation.

Luckily, we have found a workaround for those customers who own an AMD Graphics Card:

- delete ***reference_points.cfg*** on both
  - miltechsimulations-supercarrier-pro\SimObjects\Boats\Miltech CVN78
  - miltechsimulations-supercarrier-pro\SimObjects\Boats\Miltech USS76.

**Do keep in mind that if you decide to do that, you must use "Modern Arrestors" on all landings - regardless if the aircraft has a tailhook or not.**

For more information on Modern Arrestors, click here: Arrestor Cables

# TACAN/ILS Not Working

This issue seems to be related to Navigraph and similar software that replaces the stock Navigation data. It seems that Navigraph and similar apps that replace the default nav data will also override any custom TACANs and ILS for airports not in the database.

A solution/Workaround is under investigation.

# Osprey/Harrier Sliding on the Deck

This is unfortunately an MSFS limitation with VTOL aircraft. A similar situation occurs with the Harrier and possibly the F-35B as well. VTOL aircraft will only grab onto the runway at low throttle/low speeds. There is a threshold in which the gear detaches as the VTOL code takes over, and it does not account for the movement of the ship. Essentially the ship will continue moving but the aircraft does not react to inertia There are a few ways around this issue:

## MILTECH SIMULATIONS OSPREY

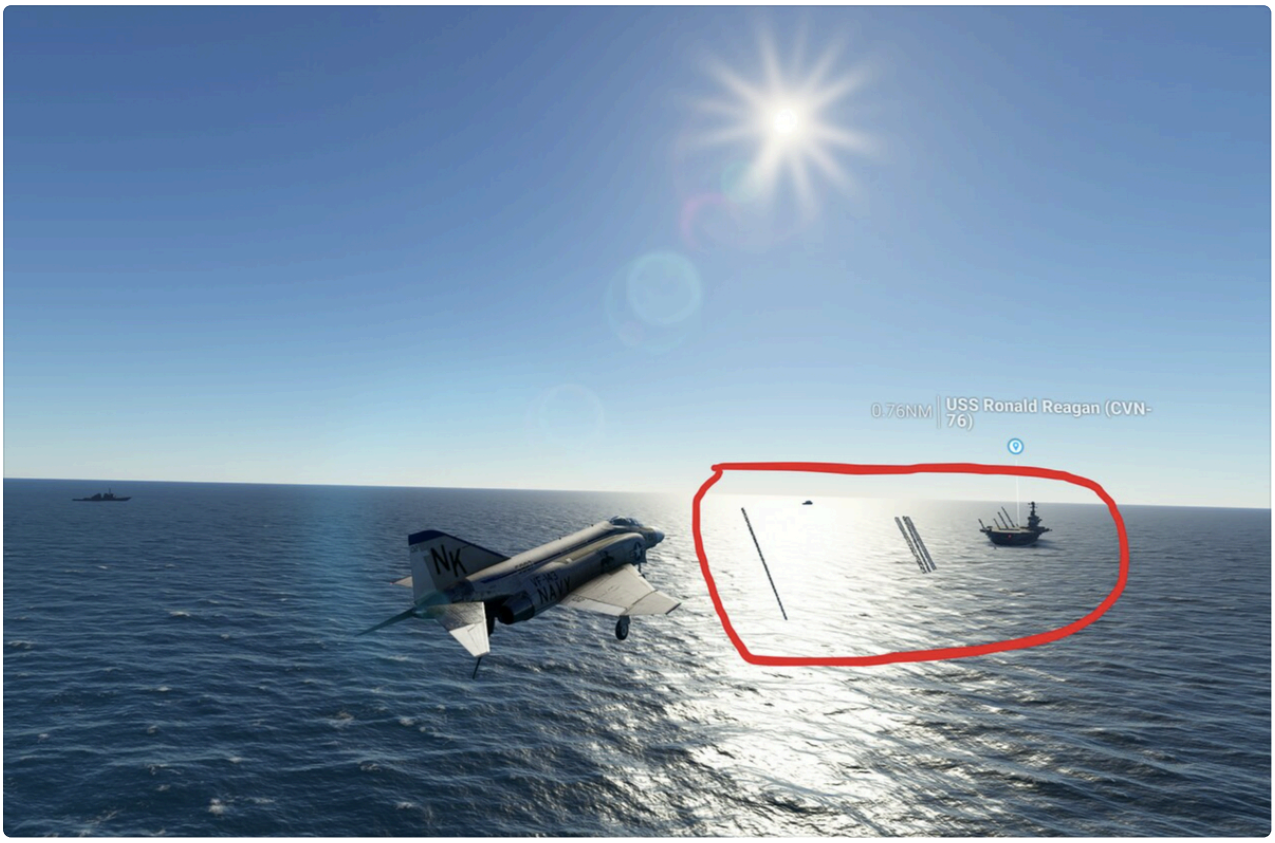
1. Land with nacelles 60-75deg instead of VTOL landings when operating on moving carriers. This will give you some more control. After landing, throttle to IDLE and apply braking
2. Use quick taxi/taxi assist when taxiing on the deck on moving ships, OR taxi at low speed/low throttle

This issue does not occur at static ship locations.

## DC DESIGNS HARRIER

Unfortunately, the Harrier Flight Model is not compatible with any moving ship at this time. We are working with DC Designs to find a solution to this issue.

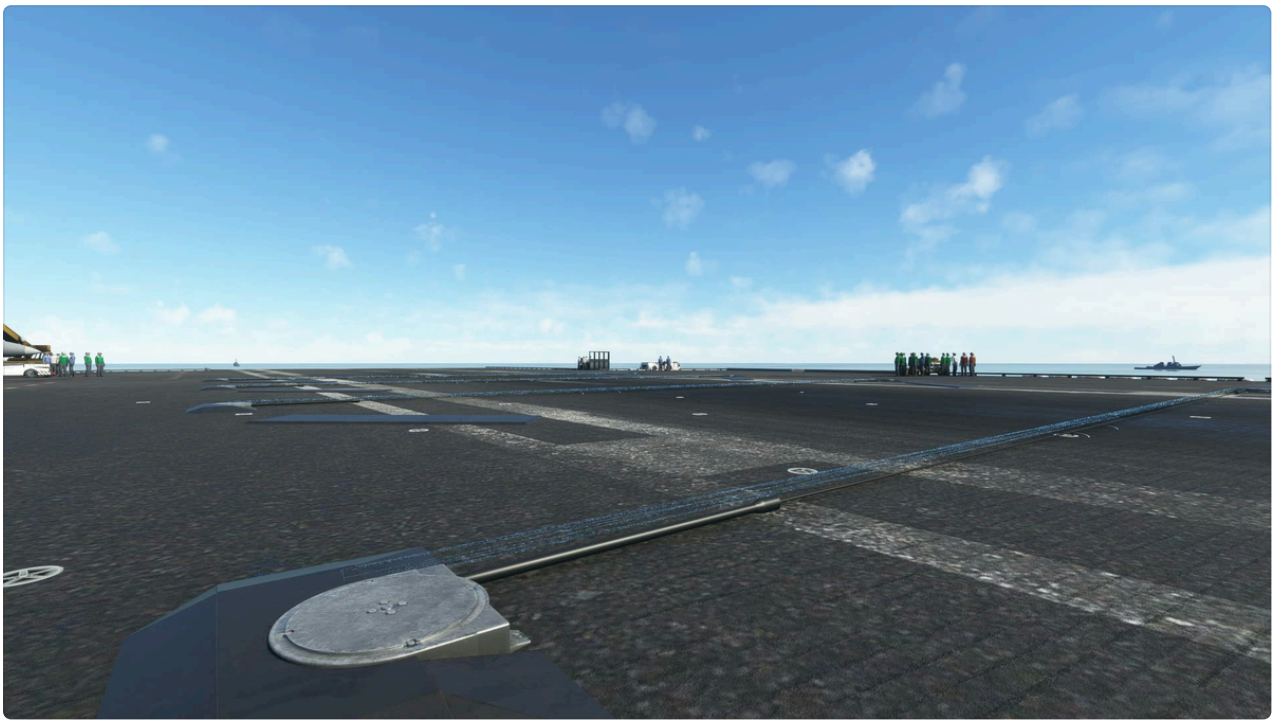
# Shimmering Vertical Lines behind the ship/Broken Wake Effects




This issue is the result of not having the freeware Top Gun expansion installed.

The Top Gun Expansion is required as this product inherits multiple assets from it, including the wake effects.

# Shimmering "Bounding Box" on Arrestor Cables



If you look closely at the arresting gear, you may see these "shimmering bounding boxes" around them. This has unfortunately been a long-time MSFS bug, and has been reported to Asobo many times by us and other developers.

These are the **stock Asobo arrestor cables.** Any carrier ships using the stock arrestor cables have these bounding boxes that represent where the cables should be located. If you catch one of the cables (when using an aircraft with tailhook) you will see how these “bounding boxes” attach to the tailhook as the cables should.

Unfortunately, this bug has been around since the Top Gun expansion was released, and was never fixed. In general, Stock arrestors are a hit-or-miss - not only the visible texture issues, but also they can be more or less effective depending on the carrier location. **For that reason we have developed the “modern arrestors”, that replace and improve upon the functionality of stock arresting gear**, but decided to also keep the stock arrestors for those who prefer using them.

Luckily there is a (partial) solution to this issue - you can easily remove the stock arrestors, and get rid of the “bounding box shimmering effect”:

- delete ***reference_points.cfg*** on both
  - miltechsimulations-supercarrier-pro\SimObjects\Boats\Miltech CVN78
  - miltechsimulations-supercarrier-pro\SimObjects\Boats\Miltech USS76.

**However, if you decide to do that, you must use “Modern Arrestors” on all landings - regardless if the aircraft has a tailhook or not.**

# Multiplayer Sync freezing screen after Restart

Multiplayer Sync may freeze your simulator if the flight has been restarted. This is because restarting a flight does not reload all the objects again, instead, it just teleports the aircraft to the runway.

Do not restart your flight using the "Restart" button to avoid this issue. Instead, exit the flight, return to the WorldMap, select the carrier, and start a new flight.

# "Shaky Camera"/"Shaky Ship" Bug - Moving Ships

If you have experienced a bug on moving ships in which the carrier/camera "shakes" (moving ships only) - Congrats, you have a very powerful PC.

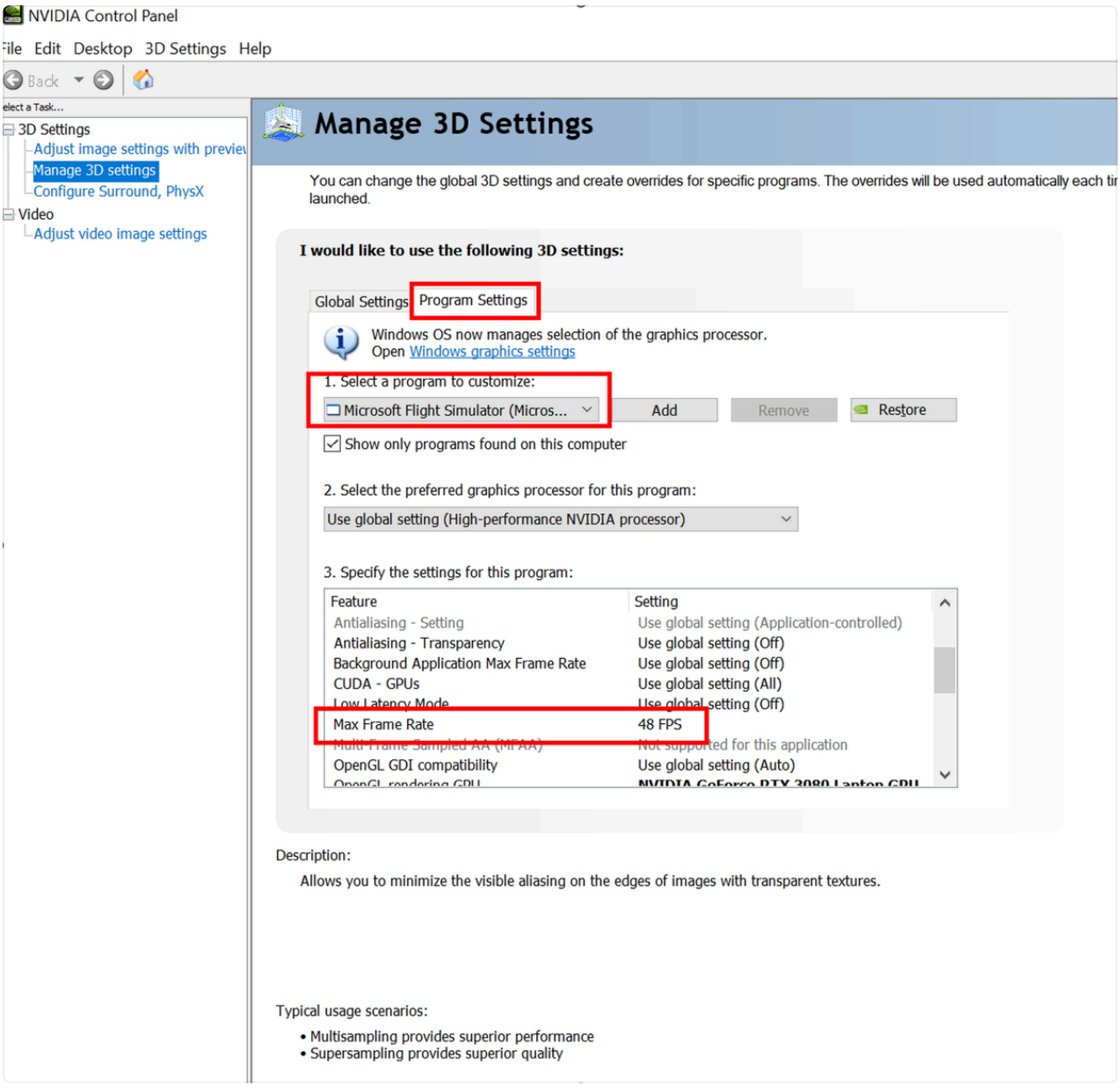
This issue occurs when the simulator runs at a very high framerate - higher than the rate of update of the ship's movement. To solve this issue, you must set a limit to the framerate:

## Solution 1: VSync

1. Make sure you don't have a GSync-enabled monitor. If you do, disable GSync.
2. On the Simulator Graphic Settings, enable VSync. Set VSync to 33% or 50% of the refresh rate of your monitor.
3. Launch the carrier. Change the settings until you find the carriers are functioning well and the simulator runs smoothly.

## Solution 2: Limit your FPS

1. Close the Simulator
2. Launch Nvidia Control Panel or AMD Equivalent
3. Under "program settings", select Microsoft Flight Simulator
4. Under "Max Frame Rate", set it to **exactly 48 FPS**
5. Relaunch the Simulator. Problem should now be fixed


NVIDIA Control Panel
File Edit Desktop 3D Settings Help
Back
Select a Task...
3D Settings
Adjust image settings with previe
Manage 3D settings
Configure Surround, PhysX
Video
Adjust video image settings
Manage 3D Settings
You can change the global 3D settings and create overrides for specific programs. The overrides will be used automatically each ti
launched.
I would like to use the following 3D settings:
Global Settings
Program Settings
Windows OS now manages selection of the graphics processor.
Open Windows graphics settings
1. Select a program to customize:
Microsoft Flight Simulator (Micros...
Add
Remove
Restore
Show only programs found on this computer
2. Select the preferred graphics processor for this program:
Use global setting (High-performance NVIDIA processor)
3. Specify the settings for this program:
Feature
Setting
Antialiasing - Setting
Use global setting (Application-controlled)
Antialiasing - Transparency
Use global setting (Off)
Background Application Max Frame Rate
Use global setting (Off)
CUDA - GPUs
Use global setting (All)
Low Latency Mode
Use global setting (Off)
Max Frame Rate
48 FPS
Multi-Frame Sampled AA (MFAA)
Not supported for this application
OpenGL GDI compatibility
Use global setting (Auto)
OpenGL rendering GPU
NVIDIA GeForce RTX 3080 Laptop GPU
Description:
Allows you to minimize the visible aliasing on the edges of images with transparent textures.
Typical usage scenarios:
• Multisampling provides superior performance
• Supersampling provides superior quality

# Misplaced Crew/Teleport not functioning/Quick Taxi not functioning

You may see misplaced crew, teleport may fail or quick taxi may fail if the flight has been restarted.

Do not restart your flight using the "Restart" button to avoid this issue. Instead, exit the flight, return to the WorldMap, select the carrier, and start a new flight.

We are still investigating what is the root cause of this issue.



# Product Support

All support for this product will be handled initially by Miltech Simulations. Support is available via our support forum: https://miltechsimulations.talkyard.net/latest

Our support is also offered via email in a 1-to-1 manner, through our Email Address: contact@miltechsimulations.com

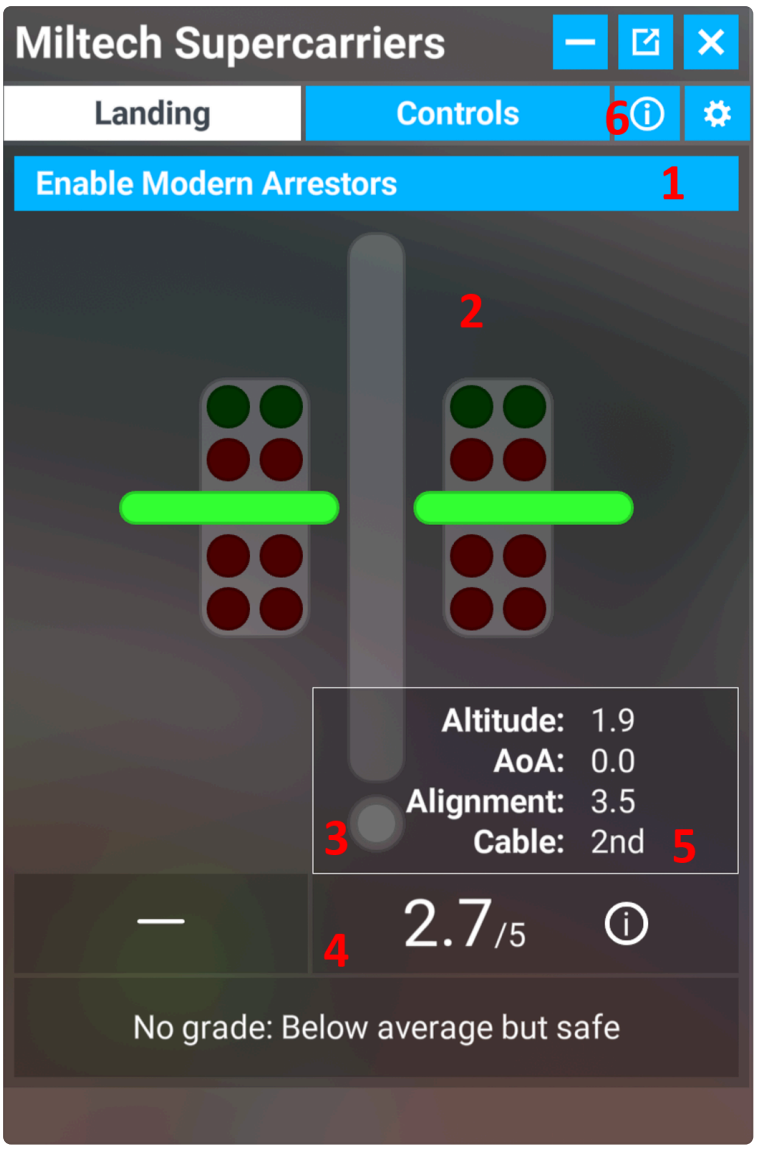
Emails are typically replied to in under 24hrs. Please check our FAQs before emailing:

For company/business inquiries, please contact hello@vantech.dev

# Supercarriers

# Miltech Supercarrier Toolbar

# Landing Tab




Supercarrier Toolbar -Landing Tab

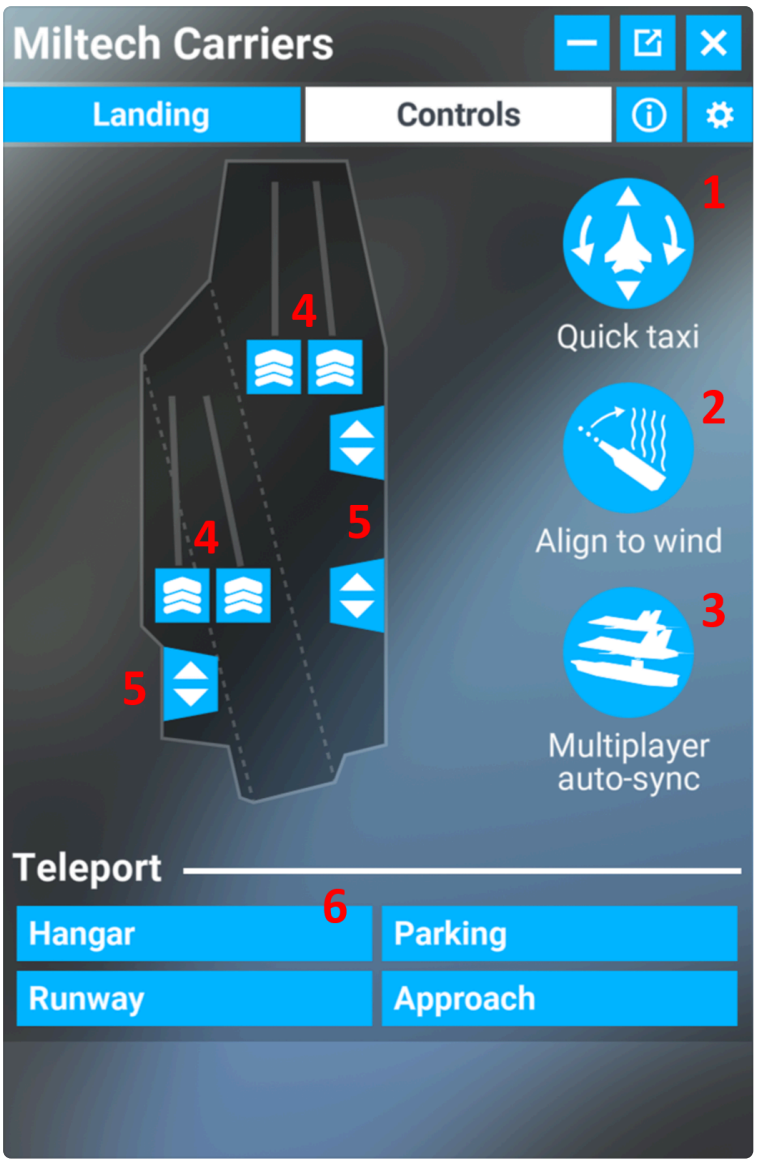
1. **Enable Modern Arrestors:** Modern Arrestors enable arrestor cable functionality to any aircraft, regardless of whether the aircraft has a tailhook or not. It is recommended to use Modern arrestors, even with aircraft that do feature a tailhook, as the stock MSFS tailhook may not be effective at certain locations. For more information, check Arrestor Cables
    1. To enable modern arrestors, click the button in the Approach tab on approach. The arrestors will engage upon contact with the flight deck. Modern arrestors remain active until manually deactivated.
    2. Modern arrestors can be toggled "always on" on the settings tab. The "enable modern arrestors" button on the Landing page will disappear if

"Modern arrestors always on" is enabled on the settings tab.

2. **Fresnel Lens Optical Landing System (FLOLS):** Type of Optical Landing System (also commonly referred as "ball") used to give glidepath information to pilots in the terminal phase of landing. This information can also be visible on the FLOLS lights on the port side of the carrier. For more information, check Fresnel Lens Optical Landing System (FLOLS)
3. **Long Range Laser Lineup System (LRLLS):** Uses color-coded lasers to provide horizontal lineup information of approaching aircraft. The color and flashing rate of the laser indicates the angle with respect of the centreline. For more information, check Long Range Lineup System (LRLS)
4. **Scoring:** Provides a score from 0-5 (EASY MODE from 0-10), as well as LSO Feedback, based on the accuracy of the landing. There are two modes available: Regular and Easy, configurable on the Config Tab. For more information, check Landing Signal Officer (LSO)
5. **Scoring Details:** Opens on click of the (i) Icon. Provides details on the scoring, such as Altitude, AoA and Alignment scoring, as well as cable caught.
6. **Information:** Provides brief information on the functionality of the Toolbar.-

> A warning message will display if not in range of any Carriers

# Controls Tab




Controls Tab

1. **Quick Taxi:** With Quick Taxi, you can easily reposition the plane with the joystick. Move the stick up or down to move forward or backward. Move the stick left or right to rotate left or right. Particularly useful when moving inside the Hangar, when pushback is required, or with VTOL aircraft, such as the Osprey and Harrier.
2. **Align to Wind:** Only available on moving carriers. Aligns the carrier with the current wind direction. Doesn't work with multiplayer auto-sync. Align to Wind should be used when the aircraft is not on deck or in the hangar. If the aircraft happens to be on the deck or hangar, it's best to immediately teleport - otherwise the aircraft will fall in the water.

3. **Multiplayer Auto-sync:** Only available on moving carriers. Syncs the position of your local carrier with the multiplayer server. Required for multiplayer flight on moving carriers, as otherwise the location would be different across different players. More information on Multiplayer Operations
4. **Catapults:** Selects, activates, and executes the catapult launch sequence on the selected catapult. First click selects the catapult. Second Click (yellow checkmark, only available when aircraft has been positioned on the catapult correctly) activates the launching sequence and JBD. Third click (green arrow) executes the catapult launch. For more information, Launch Operations
5. **Elevators:** Moves selected elevator up/down. Ford-class features 3 elevators, while Nimitz Class has four. Hangar is only accessible on moving carriers.
6. **Teleport (Experimental)**: Teleports aircraft to selected location - Runway, Parking, Hangar or Approach. Sets the state of the aircraft according to selected Teleport. Experimental feature. For more information, Teleporting (Experimental Feature)

A warning message will display if not in range of any Carriers

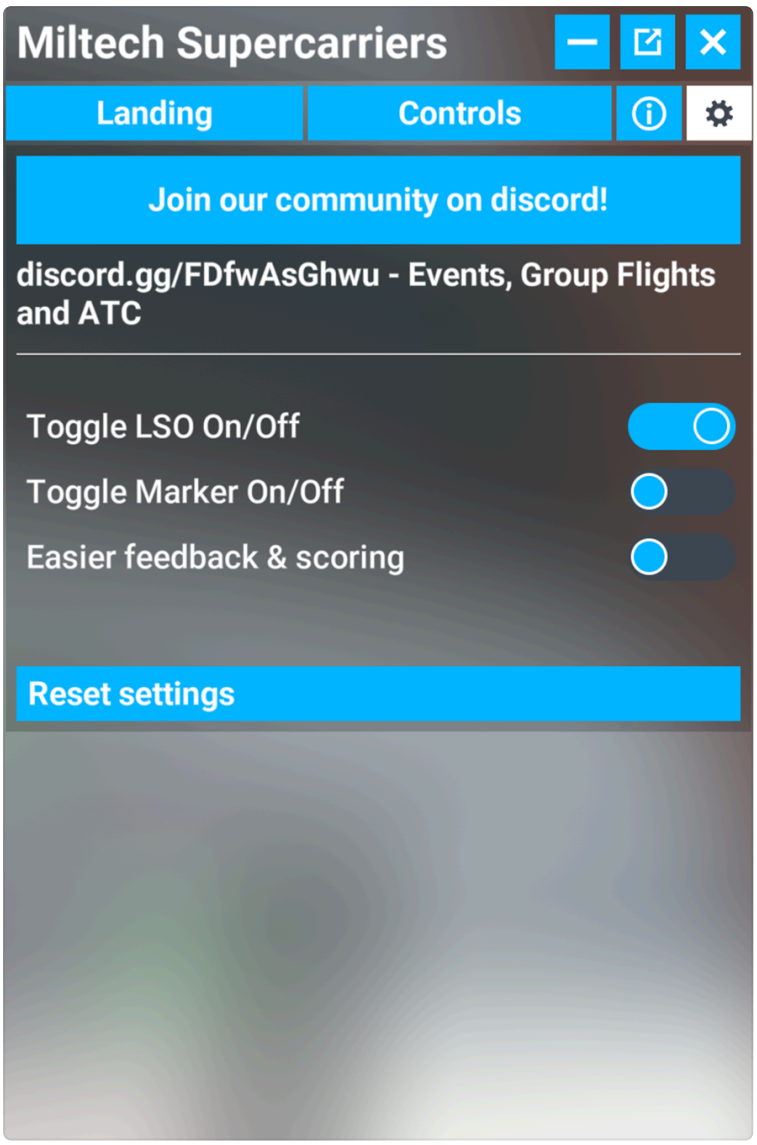
# Teleporting (Experimental Feature)

> Teleporting is an experimental, in-development feature. It is fully compatible with the stock F/A-18, and most stock aircraft included with MSFS.
>
> However, Teleport can be problematic with some 3rd party aircraft, and some functions of the aircraft can become broken, such as parking brake, gear, systems, and engine. The teleport instructs the plane to revert to a spawn-at-parking state, but it seems in some cases not all systems properly update.

Teleporting can be used on moving ships to quickly spawn on the carrier's deck after starting a flight in the air. Teleport is currently possible to:

| Teleport | Aircraft State |
| --- | --- |
| Hangar | Cold&Dark. Only available on moving ships. Quick Taxi is recommended to navigate around the hangar. |
| Parking | Cold&Dark. |
| Runway | Ready to Fly. |
| Approach | On approach, aligned with centreline and on glideslope. Aircraft configured for landing (eg. landing speed, flaps out, gear out, tailhook deployed) |

# Settings Tab




Settings Tab

1. **Discord:** Launches invite to the exclusive Discord server. For more information, Discord
2. **Toggle LSO On/Off:** Toggles Landing Signal Officer callouts and feedback on/off
3. **Toggle Marker On/Off:** Toggles visible and fixed POI Marker on/off. Can be used to easily locate the carrier.
4. **Toggle Modern Arrestors always on:** Modern Arrestors will remain always on. No need to re-enable modern arrestors every time the sim is loaded.
5. **Easier Feedback and Scoring**: Reduces the difficulty of the LSO feedback and scoring. For more information, Landing Signal Officer (LSO). Easier Feedback and Scoring also makes FLOLFs slightly easier by still showing a dot if you're

below or above the glideslope. LSO Feedback on Easy mode is given as score out of 10 instead of out of 5. This is to differentiate easy scores from normal scores.

6. **Reset Settings:** Resets all settings to default values.

# Included Ships

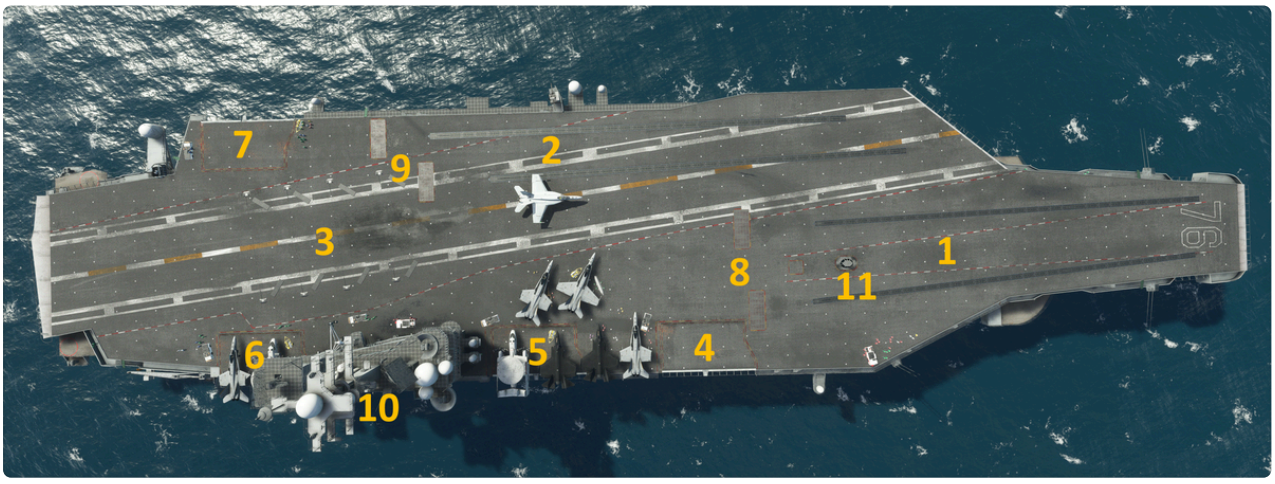
# Nimitz-Class Aircraft Carrier (CVN-76, CVN-69)

## Description

The Nimitz-class aircraft carrier represents the pinnacle of naval power projection. These colossal vessels, measuring over 1,000 feet in length and displacing over 100,000 tons, serve as mobile airfields capable of launching and recovering a formidable array of aircraft, including fighter jets, reconnaissance planes, and helicopters. With their nuclear propulsion systems, they offer virtually unlimited operational range and endurance, enabling them to project American airpower to any corner of the globe.

Compared to the Ford Class, the Nimitz has a smaller deck and hangar. However, it has 4 elevators and 4 arrestor cables instead of 3.

## Layout




Nimitz-Class Aircraft Carrier

1. **Catapults 1 (down) and 2 (up)**
2. **Catapults 3 (down) and 4 (up)**
3. **Arrestor cables (4 wires)**

4. **Elevator 1**
5. **Elevator 2**
6. **Elevator 3**
7. **Elevator 4**
8. **Jet Blast Deflectors 1 (down) and 2 (up)**
9. **Jet Blast Deflectors 3 (down) and 4 (up)**
10. **Bridge**
11. **Bubble**
12. **(Not Pictured) Aircraft Hangar**

# Locations

Worldwide Locations

# Flight Deck Equipment

Flight Deck Equipment

# Approach and Landing Equipment and Operations

Approach and Landing Equipment and Operations

# TACAN and ILS Frequencies

Instrument Approach & Communications Equipment

# Launch Operations

Launch Operations

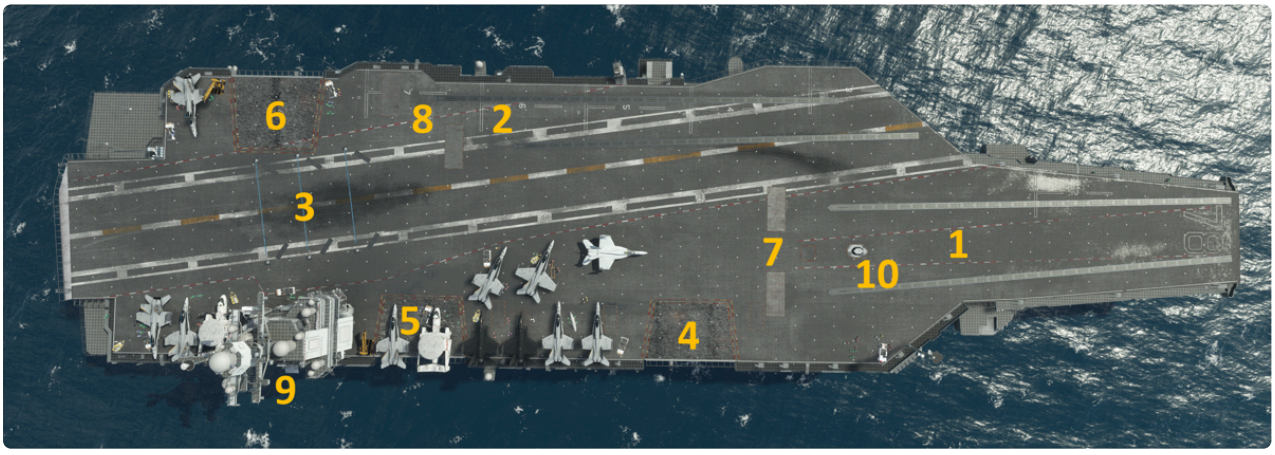
# Ford-Class Aircraft Carrier (CVN-78)

## Description

The Ford-class aircraft carriers are the newest and most advanced class of aircraft carriers in the United States Navy. They are designed to be more efficient, capable, and powerful than any other carrier in service. The Ford-class carriers have a number of new features, including an electromagnetic aircraft launch system (EMALS), a new arresting gear system, and a new weapons handling system. They are also larger and more capable than the Nimitz-class carriers that they are replacing.

Compared to the Nimitz Class, the Ford has a larger deck and hangar. However, it has 3 elevators and 3 arrestor ables instead of 4.

## Layout




Ford-Class Aircraft Carrier

1. **Electromagnetic (EMALS) Catapults 1 (down) and 2 (up)**
2. **Electromagnetic (EMALS) Catapults 3 (down) and 4 (up)**
3. **Arrestor cables (3 wires)**
4. **Elevator 1**
5. **Elevator 2**

6. **Elevator 3**
7. **Jet Blast Deflectors 1 (down) and 2 (up)**
8. **Jet Blast Deflectors 3 (down) and 4 (up)**
9. **Bridge**
10. **Bubble**
11. **(Not Pictured) Aircraft Hangar**

# Locations

Worldwide Locations

# Flight Deck Equipment

Flight Deck Equipment

# Approach and Landing Equipment and Operations

Approach and Landing Equipment and Operations

# TACAN and ILS Frequencies

Instrument Approach & Communications Equipment

# Launch Operations

Launch Operations

# Arleigh Burke-class destroyer

## Description

The Arleigh Burke-class destroyers are a formidable class of warships in the U.S. Navy. These vessels, measuring approximately 500 feet in length and weighing thousands of tons, play a crucial role in protecting larger ships like aircraft carriers and conducting a wide range of missions. They are equipped with advanced missile systems and guns for defense, making them a formidable force in naval combat. Additionally, they excel in anti-submarine warfare and air defense, thanks to their cutting-edge technology. With their high speed and versatility, Arleigh Burke-class destroyers are vital assets for the Navy's global operations, ensuring maritime security and deterrence.

# Ticonderoga-class cruiser

## Description

The Ticonderoga-class cruisers are a formidable class of warships in the U.S. Navy. These cruisers are about 567 feet long and displace thousands of tons, making them significant assets in naval operations. They are equipped with advanced missile systems and artillery, providing formidable firepower for both offensive and defensive missions. Their versatile Aegis combat system enables them to engage threats from the air, surface, and subsurface. These cruisers play a vital role in fleet protection, command and control, and anti-air and anti-missile operations. Known for their adaptability and advanced technology, Ticonderoga-class cruisers are essential components of the U.S. Navy's modern naval strategy.

# FrenchCDG Carrier

> Our FRENCHCDG ship is not, nor intends to be, an accurate depiction of any real-world ship, and only intends to simulate aspects of design of French-built aircraft carriers.

## Description

The FrenchCDG is a carrier based on France's Nuclear Carrier Designs. As the only nuclear-powered aircraft carrier outside of the United States Navy, nuclear carriers are a key asset for France, providing it with a powerful and flexible tool for national defense, power projection, and as a deterrent in international waters.

## Locations

Worldwide Locations

## Flight Deck Equipment

Flight Deck Equipment

## Approach and Landing Equipment and Operations

Approach and Landing Equipment and Operations

## TACAN and ILS Frequencies

Instrument Approach & Communications Equipment

# Launch Operations

Launch Operations

# Independence-Class Litoral Combat Ship

## Description

The Independence-class littoral combat ships (LCS) are a class of small surface vessels operated by the United States Navy. Designed for operations near shore (littorals), these ships are part of the Navy's strategy to have more versatile, modular, and nimble vessels for missions including mine countermeasures, anti-submarine warfare, and surface warfare. The Independence class is noted for its distinctive trimaran hull design, which provides exceptional stability and speed, and allows for the operation of small boats and unmanned vehicles in various conditions.

## Locations

Worldwide Locations

# Worldwide Locations

> At this time, we are not offering custom locations on an individual case-by-case. However, you can create a ticket on the Support Discord with the desired locations and we will consider adding them in a future update.

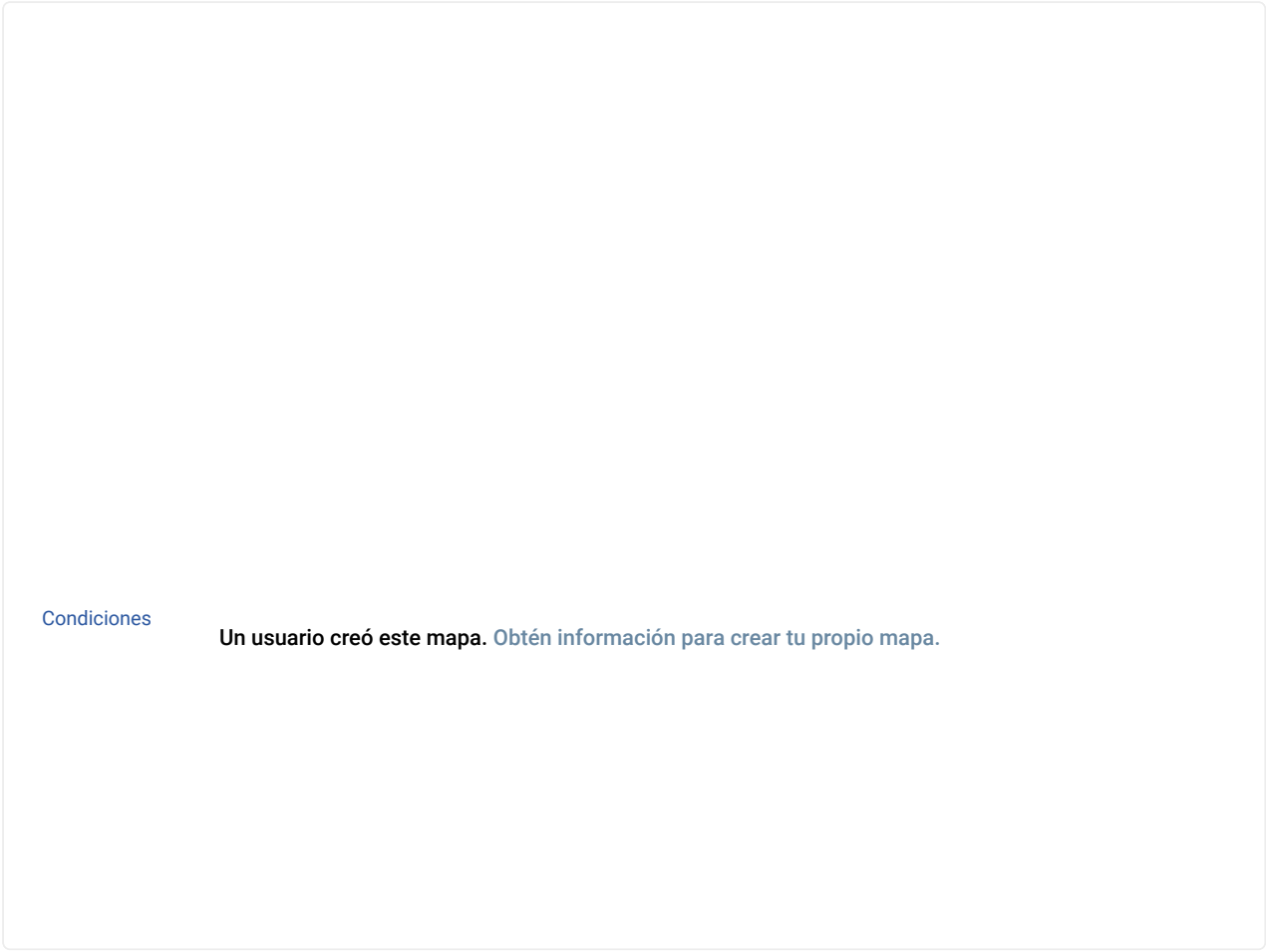
## Moving vs Static Locations

The pack features both moving and static carrier locations. For more information on the differences: Moving vs Static Locations

## Location Frequencies (UNICOM, ILS, TACAN)

Instrument Approach & Communications Equipment

## Locations Map




# Nimitz-Class CVN76

Static Locations

- (ZC01) Whidbey Island, WA
- (ZC02) Yankee Station, Vietnam
- (ZC03) Panama Canal, Panama
- (ZC04) West Palm Beach, FL
- (ZC05) San Juan, PR
- (ZC06) Long Island, NY
- (ZC07) San Diego, CA (CVN-76 Homeport)

Moving Locations

- (ZM01) Oceana, VA
- (ZM02) Gulf of Alaska, AK
- (ZM03) Phillipine Sea
- (ZM04) Baltic Sea
- (ZM05) Sea of Japan
- (ZM06) Balearic Sea
- (ZM07) Key West, FL

# Ford-Class CVN78

Static Locations

- (FC01) San Diego, CA
- (FC02) Antalya, Türkiye
- (FC03) Sydney, Australia
- (FC04) Gulf of Guinea, Africa
- (FC05) Haifa, Israel
- (FC06) Singapore, Singapore
- (FC07) Norfolk, VA (CVN-78 Homeport)

Moving Locations

- (FM01) Pensacola, FL
- (FM02) Ionian Sea
- (FM03) Hawaii, HI
- (FM04) Gulf of Oman
- (FM05) English Channel
-

- (FM06) Eastern Caribbean
- (FM07) Kingsville, TX

# Nimitz-Class CVN69

Static Locations

- (EC01) Los Angeles (Point Mugu), CA
- (EC02) Gulf of Mexico, Caribbean
- (EC03) Diego Garcia, Indian Ocean
- (EC04) Near MCAS New River, NC
- (EC05) Perth, Australia
- (EC06) Near Gran Roque, Venezuela

Moving Locations

- (EM01) North Atlantic Ocean
- (EM02) Cape Cod Bay, MA
- (EM03) Red Sea (south of Suez Canal)
- (EM04) Norway Sea
- (EM05) Pacific Ocean (near Guam)
- (EM06) Kuwait
- (EM07) Iceland

# FrenchCDG

Static Locations

-

- (FR01) Brest, France
- (FR02) Djibouti
- (FR03) Toulon, France
- (FR04) St Pierre et Miquelon

Moving Locations

- (FN01) Gibraltar Straight
- (FN02) French Polynesia
- (FN03) French Guyana
- (FN04) Coast of India
- (FN05) Lorient, France
- (FN06) Cote d'Azur, France

# Independence Class LCS

Static Locations

Can only be located by WorldMap POI

- Gulf of Aden
- Near Seoul
- Marine Corps Base Hawaii
- San Francisco Bay

# Moving vs Static Locations

| Equipment and Functions | Static | Moving |
|---|---|---|
| Functional Elevators, JBDs, Catapults, Arrestors Cables and Animated Crew | ✅ | ✅ |
| Spawnable on Runway | ✅, airport with ICAO Code | ✅, airport with ICAO Code (V1.0.1) |
| Teleport to Runway/Parking/Approach* | ✅ | ✅ |
| Searchable by ICAO Code | ✅ | ✅ (V1.0.1) |
| Hangar is accessible and Teleportable | ✅ | ✅ |
| Multiplayer Compatibility | ✅, does not require syncing | ✅, requires syncing |
| Align to Wind | ❌ | ✅ |
| TACAN, ILS (ICLS), UNICOM, ATIS | ✅ | ❌ |
| FLOLS, LRLLS | ✅ | ✅ |
| LSO Sound Calls | ✅ | ✅ |
| Automated Carrier Landing System (ACLS) | ❌ | ❌ |

*Teleporting is an experimental feature. For more information, Teleporting (Experimental Feature)

# Flight Deck Equipment

## Catapults

All CATOBAR carriers are equipped with catapults for assisted take-off. CATOBAR is a system used for the launch and recovery of aircraft from the deck of an aircraft carrier. Under this technique, aircraft launch using a catapult-assisted take-off and land on the ship (the recovery phase) using arrestor wires.

Nimitz-class carriers are equipped with four steam catapults. Similarly, Ford-class carriers are equipped 4 more modern EMALS catapults.

For more details on launch operations, read Launch Operations

## Jet Blast Deflectors (JBDs)

Aircraft carriers use jet blast deflectors at the rear of aircraft catapults, positioned to protect other aircraft from exhaust blast damage. The jet blast deflector lies flush with and serves as a portion of the flight deck until the aircraft to be launched rolls over it on the way to the catapult. When the aircraft is clear of the deflector, the heavy panel is raised into position to redirect the hot jet blast.

JBDs are operated automatically by the carrier crew during launch operations. For more information, read Launch Operations

## Elevators

Elevators provide movement of aircraft, vehicles, and equipment from the hangar bay and the flight deck. Elevators are typically located near the Bridge of the carrier. In the case of the Nimitz-class, 4 elevators are available. On the Ford-class, 3 elevators.

Elevators are operated through the Miltech Supercarrier Toolbar under the Controls tab.

# Arrestor Cables

An arresting gear, or arrestor gear, is a mechanical system used to rapidly decelerate an aircraft as it lands. Arresting gear on aircraft carriers is an essential component of naval aviation. During a normal arrestment, the tailhook engages the wire and the aircraft's kinetic energy is transferred to hydraulic damping systems attached below the carrier deck.

The Supercarrier Pro product is equipped with two methods of simulating arresting gear. For more information, read Arrestor Cables

# Hangar Bay

The hangar bay is located below the flight deck and spawns two-thirds of the total length of the carrier. It is used to store aircraft, supplies, ammunition, and cargo. It is accessible through the elevators.

# Approach and Landing Equipment and Operations

## Approach and Recovery Equipment

Fresnel Lens Optical Landing System (FLOLS)

Long Range Lineup System (LRLS)

Instrument Approach & Communications Equipment

Landing Signal Officer (LSO)

## Approach and Recovery Operations

In real-life navy operations, there are multiple cases of recovery operations depending on weather conditions, time of day, formation and traffic. In this guide, we will only go over a "Case I" Recovery Operation.

Detailed explanations on Case II and Case III are available here: https://en.wikipedia.org/wiki/Modern_United_States_Navy_carrier_air_operations

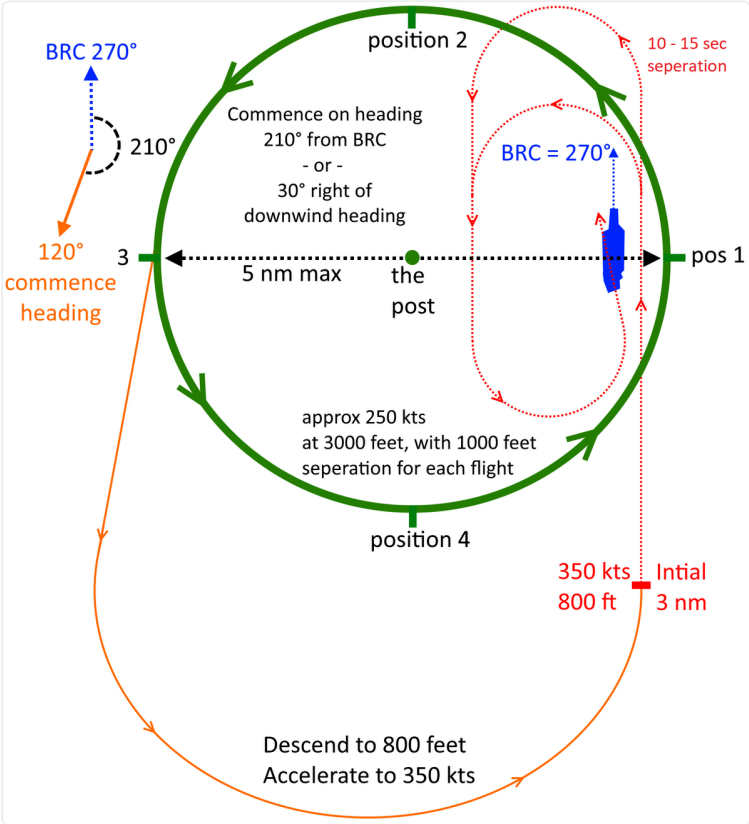
### NATOPS Recovery Operations (Ford Class and Nimitz Class)

As the Aircraft enters the carrier control area, a 50-nautical-mile radius around the carrier, the aircraft begins preparing for the recovery operation. At 10nm, the aircraft will begin flying the approach as follows:

1. **Prepare for Approach:** Check the weather conditions around you. If you are landing on a static carrier, check the ATIS for wind conditions. If you are landing

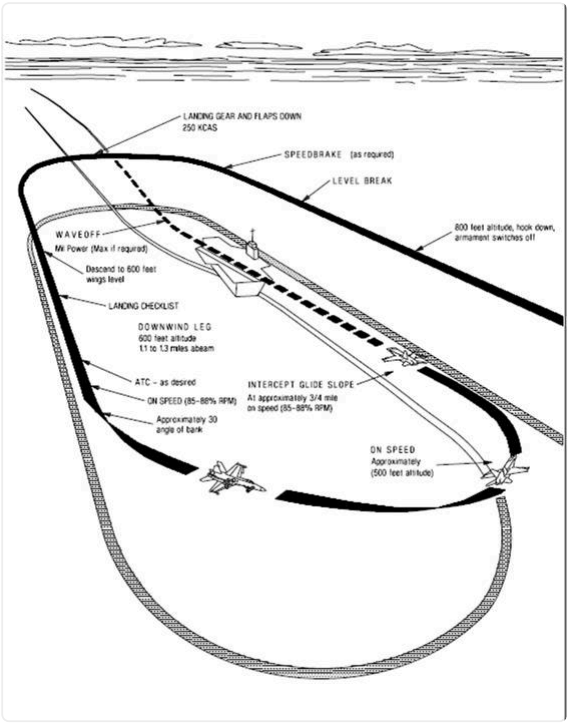
on a moving carrier, we recommend you align the carrier with the wind using the Miltech Supercarrier Toolbar

2. **Hold for Traffic on Approach:** form a left-hand circle tangent to the ship's course with the ship in the 3-o'clock position (Green Circle), and a maximum diameter of 5 nautical miles. Minimum holding altitude is 2,000 feet (610 m), with a minimum of 1,000 feet (300 m) vertical separation between holding altitudes.




Case 1 Approach - https://wiki.hoggitworld.com/view/File:Case_1_stack_pattern.png

2. **Break the Deck:** Leave the holding pattern from position 3 (at 9-o'clock from the Carrier). Descend to 800 feet and 350kts before you arrive at the "initial" which is 3 nautical miles (5.6 km; 3.5 mi) astern the ship, paralleling the ship's course. Establish a 60-second separation between other aircraft.
3. **Prepare for Recovery:** Configure the aircraft for landing. Armament switches off, hook down, gear down, flaps and speedbrake as required. Open the Miltech Supercarrier Toolbar and wait for contact with the LSO. Activate Modern Arrestors (recommended). Turn 180 degrees and position the aircraft flying opposite to the Carrier, along the Port side (downwind Leg).




Case II Approach (Wikipedia)

4. **Prepare for "the Final 90":** The final checkpoint for the pilot is crossing the ship's wake, at which time the aircraft should be approaching final landing heading. Begin turning at approximately 500ft. You must be at roughly 370ft at the end of the turn, and aligned with the centreline.
5. **Follow the Lights:** Your attention must now be focused on keeping proper glideslope, lineup, angle of attack and speed until touchdown. Use the FLOLS and LRLS (we recommend using those on the Supercarrier Toolbar for better visibility) to keep the aircraft aligned.
    1. FLOLS: Keep the Ball aligned with green bar.
    2. LRLS: Keep solid amber.
    3. Angle of Attack: Use your aircraft indicators.
    4. Speed: Keep final approach speed (135-140kts on the F/A-18).
6. **Listen to your LSO:** At 0.75nm behind the ship, you enter the "groove". The pilot will automatically report with the LSO with the "BALL" Radiocall. LSO radio calls are automatic and will be heard regardless of which frequency are you on or whether the Supercarrier Toolbar is open or not (unless LSO and Feedback has been deactivated).
    1. If at any time the LSO calls for a **Waveoff**, perform a go-around.
7. **Fly the Glideslope:** You will now fly the rest of the approach using the visual indications on the FLOLS and LRLS, and verbal instructions given by the LSO.

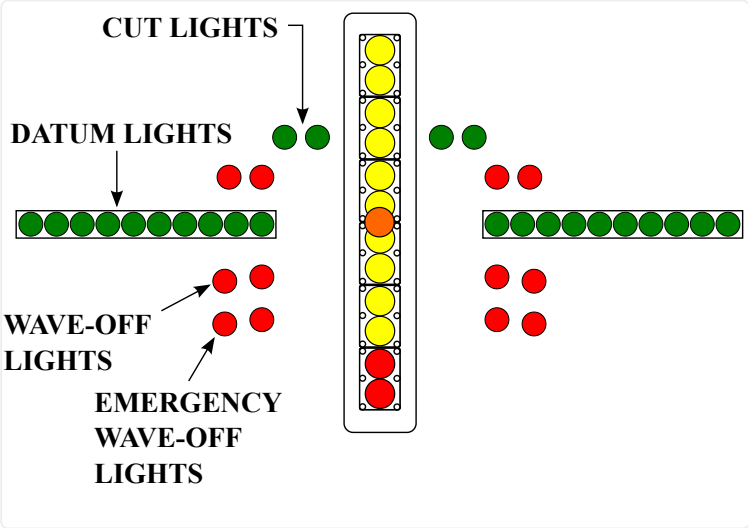
    1. Line up on landing area centerline is critical because it is only 120 feet in width, and aircraft are often parked within a few feet of either side.
    2. Glideslope is also critical as you may miss the cables.
    3. Speed is critical as you may come in too fast and the arrestor cables won't brake you in time.
    4. And finally, AOA is critical as you may impact the runway with the tailhook first.
    5. We recommend you don't look at the runway and instead focus on the other aids. For more information on LSO callouts, Landing Signal Officer (LSO)

8. **Touchdown:** Set power to Full Military Power (MIL) in case a last-minute Waveoff or Bolter occurs, and do not flare - no soft landings on aircraft carriers. If everything goes well, you will catch the wires with the tailhook and the aircraft will come to a full stop. If not, you will either abort the approach and go around (Waveoff) or you will touch down and miss the cables (Bolter).
    1. In any of the latter cases, you will re-enter the landing pattern and retry the approach.
    2. Time of reaction is critical, especially on a **Bolter -** occurs when the aircraft has not waved off (may have landed correctly) but no cables were caught. Requires that the pilot quickly applies full throttle and performs a go-around.

# Fresnel Lens Optical Landing System (FLOLS)

The Fresnel Lens Optical Landing System, often referred to as the "FLOLS," is a crucial technology used for aircraft carrier operations. The primary purpose of the FLOLS is to aid pilots during the critical phase of landing on an aircraft carrier. This system provides visual cues to approaching aircraft, helping them maintain the correct glide path for a safe and precise landing. The system is typically set for a 3.5-degree glideslope targeting the wires.

> The FLOLS lighting system is located at the port side of both aircraft carriers, and is also available on the Miltech Supercarrier Toolbar under the "Landing Tab". More information here: Landing Tab

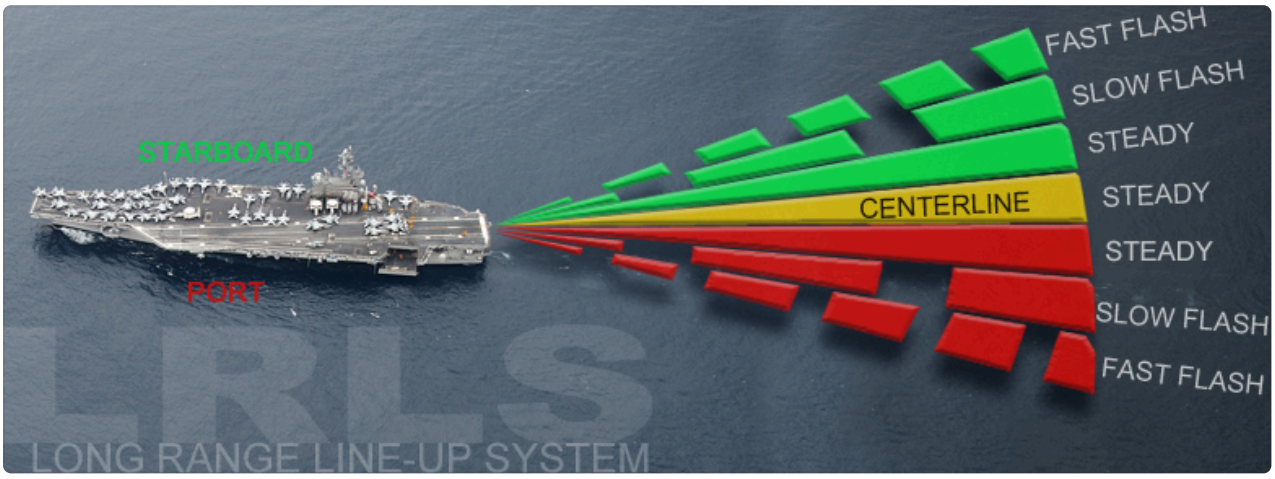



FLOLS

1. **Datum Lights:** a horizontal row of green lamps used to give the pilot a reference against which they may judge their position relative to the glide slope.
2. **Ball:** Orange light that moves up/down relative to the datum. Indicates the position of the aircraft in reference to the glideslope. Must be kept aligned with the datum for a precise landing.
3. **Wave-Off Lights:** Red flashing lamps which, when lit, indicate that the pilot must add full power and go around – a mandatory command. The LSO will initiate a wave off any time the aircraft is not within safe parameters for the approach.

# Long Range Lineup System (LRLS)

Uses color-coded lasers to provide horizontal lineup information of approaching aircraft. The color and flashing rate of the laser indicate the angle with respect of the centreline.




LRLS (Source: https://vfa-41blackaces.jimdofree.com/training/case-1-approach/)

- Steady amber indicates aligned with the centerline
- An increasing rate of flashing indicates that the aircraft is deviating away from the centerline.
- Green indicates an angle of deviation towards the Starboard side
- Red indicates an angle of deviation towards the Port side

# Instrument Approach & Communications Equipment

Navigraph and similar apps that replace stock navigation data seem to be incompatible with Carrier TACANs. These apps seem to exclude any TACANs and Navaids not in the database. We are currently investigating this issue.

## Tactical Air Navigation System (TACAN)

Navigation system used by military aircraft. It provides the user with bearing and distance to a ship-borne station. A TACAN typically has a range of 200 miles. TACAN is only available on static ship locations.

### Nimitz-Class CVN-69 TACAN

All Static Locations: 78X (NMZ)

### Nimitz-Class CVN-76 TACAN

All Static Locations: 78X (NMZ)

### Ford-Class CVN-78 TACAN

All Static Locations: 79X (FRD)

### FrenchCDG TACAN

All Static Locations: 79X (CDG)

# Instrument Landing System (ILS/ICLS)

This operates much like a traditional ILS system, but it is only operational for US aircraft carriers. Precision radio navigation system that provides short-range guidance to aircraft to allow them to approach a runway at night or in bad weather. ILS is only available on static ship locations.

### Nimitz-Class CVN-69 ILS

All Static Locations: 110.95

Heading depends on location.

### Nimitz-Class CVN-76 ILS

All Static Locations: 110.95, 265°

### Ford-Class CVN-78 ILS

All Static Locations: 109.95, 350°

### FrenchCDG ILS

All Static Locations: 109.95

Heading depends on location.

# Automated Carrier Landing System (ACLS)

ACLS is not available at static or moving locations, as this is currently not supported by MSFS.

# Carrier Air Traffic Control Center (CATCC) & Communications

Static carriers are equipped with a UNICOM frequency for AI and multiplayer traffic communications using the stock MSFS ATC. Moving carriers are not equipped with UNICOM frequencies.

Static carriers are also equipped with ATIS for weather reports.

<details>
<summary>Nimitz-Class CVN-69 UNICOM</summary>

All Static Locations: 122.700
ATIS: 118.25
</details>

<details>
<summary>Nimitz-Class CVN-76 UNICOM</summary>

All Static Locations: 122.700
ATIS: 118.25
</details>

<details>
<summary>Ford-Class CVN-78 UNICOM</summary>

All Static Locations: 122.800
ATIS: 118.30
</details>

<details>
<summary>FrenchCDG UNICOM</summary>

All Static Locations: 122.800
ATIS: 118.30
</details>

Additionally, both static and moving carriers (all locations) have dedicated Discord Voice channels for CATCC Communications over multiplayer flight. For more

information on the Discord channel, read here: Discord

# Landing Signal Officer (LSO)

Miltech's Supercarrier Pro package features a full LSO. The Landing Signal Officer is a naval aviator trained to facilitate the safe and expeditious recovery of aircraft aboard aircraft carriers. The LSO assists the pilots by giving information via radio handsets.

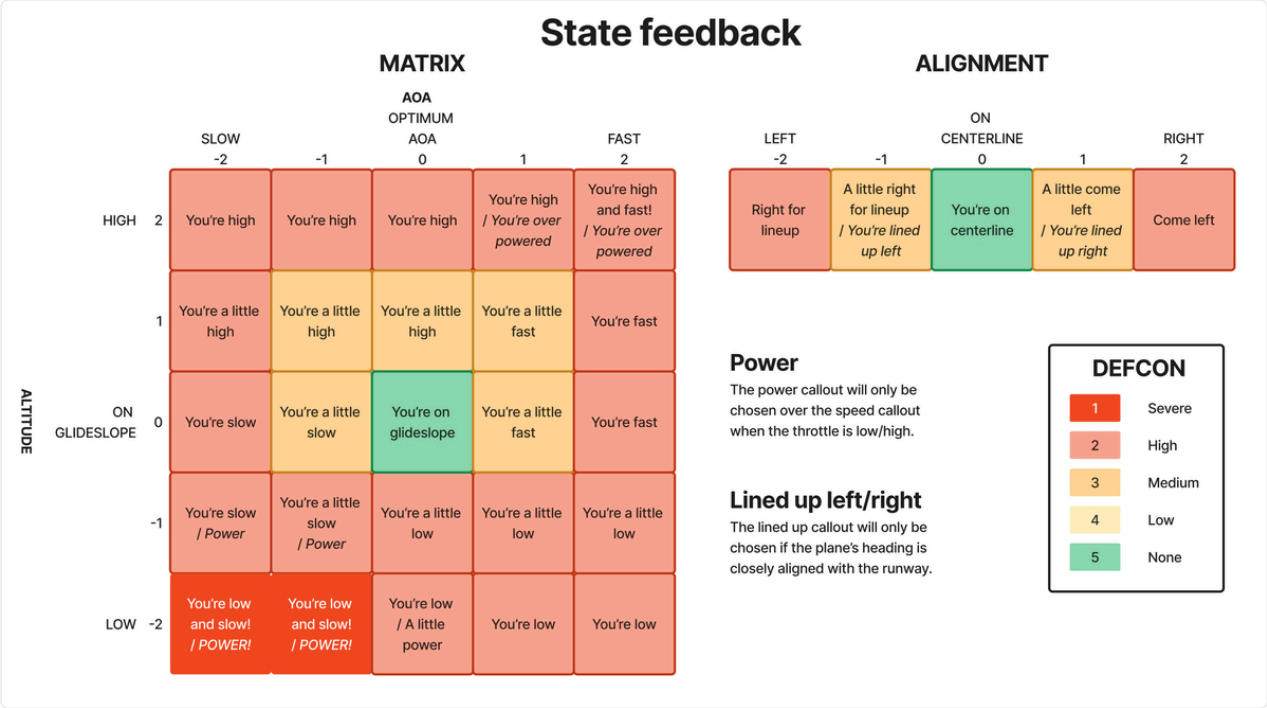
LSO is always active on Miltech Supercarriers except if "LSO And Feedback" is turned off on the Supercarrier Toolbar Settings Tab

- The LSO will become active regardless if Supercarrier Toolbar is open or not, and regardless of which radio frequency the aircraft is set to.
- LSO activates at a distance of 0.75nm of the Carrier. The pilot automatically makes a call to the LSO when in final approach - either "BALL" or "CLARA"
  - BALL indicates aircraft is on track for landing and has the FLOLS Ball in sight. Typically followed by "Roger Ball" from the LSO.
  - CLARA indicates the aircraft is off track or FLOLS ball is not on sight. Usually followed by instructions on which way to align, and soon after either "BALL" or "Waveoff"

# Approach Guidance

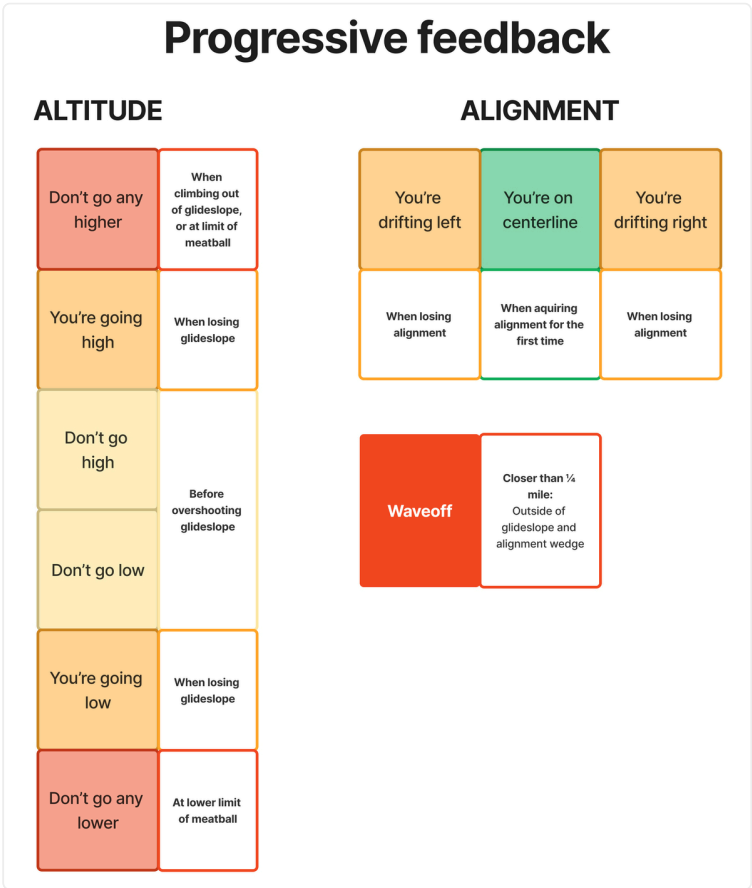
The LSO will guide your approach with callouts and begin judging your performance.

First, a "State Feedback" is given on your initial situation on approach following this matrix. The following Matrix also indicates how many points are deducted given the different callouts. Points are deducted based on how much time you spend in each of the color levels.




State Feedback

Following the State Feedback Matrix, the LSO will continue giving progressive feedback until the aircraft is on the ground OR Bolters OR Waveoffs, following this matrix:



# Immediate Action Callouts

- **BOLTER:** Indicates the aircraft has not waved off (may have landed correctly) but no cables were caught. Requires that the pilot quickly applies full throttle and performs a go-around. Immediate action is required as the aircraft is in danger of stalling or falling off the deck.
- **WAVEOFF:** Indicates that either the approach has been unstable, or aircraft is beyond the parameters for a safe landing. Requires the pilot to apply throttle and perform a go-around.

# Feedback

Feedback is given after Recovery has been successful, the aircraft Bolters or a Wave-off is triggered. Feedback is based on the two matrices above, and whether the aircraft has had a stable and correct approach.

Specific Feedback is provided clicking on the (i) Icon. Final scoring and feedback is based on three main categories: Alignment, AoA and Altitude. Final scoring is given from 0-5 Points on Regular mode and 0-10 Points on Easy mode.

Grading goes according to the following table:

| Grade | Score | Rating |
|---|---|---|
| _ OK | OK  Underline | Perfect Pass! - Rarely Awarded |
| OK | OK Pass | Good pass: Deviations with good corrections |
| (OK) | OK | Fair pass: Reasonable deviations |
| B | Bolter | Safe pass where aircraft fails to hook a wire |
| -- | No Grade | No grade: Below average<br>but safe. Fail to listen to LSO |

| Grade | Score | Rating |
| --- | --- | --- |
| C | Cut Pass | Cut pass: Unsafe deviations, unacceptable |
| OW | Own Waveoff | Pilot decided to Waveoff (go Around) |
| WO | Waveoff | Waveoff, LSO decided to Go Around |

# Difficulty

The "Regular" mode is representative of the real challenges and difficulty of landing on an aircraft carrier in real life. However, an "Easy mode" was developed for training of unexperienced pilots, as well as entertainment purposes.

- Regular scores are given from 0-5 Points
- Easy Mode scores are given from 0-10 Points

Easy mode is available on the Miltech Supercarrier Toolbar, on the Settings Tab

# Arrestor Cables

## Stock MSFS Arrestor Cables

The Miltech Supercarrier Pro features both Stock MSFS Arrestor Cables at all locations (Static and Moving).

Stock MSFS Arrestor Cables are compatible with aircraft with tailhooks (eg. the Stock F/A-18 included with the Top Gun Expansion). Stock Cables are unfortunately more or less effective depending on the location of the carrier due to a bug with the arrestors and the MSFS earth model.

For that reason, and for universal compatibility with all aircraft products (Stock and 3rd Party) **we highly recommend you use "Modern Arrestors"** regardless of aircraft and location.

## Modern Arrestor Cables

Modern Arrestors have been developed as an alternative due to the limitations of the Stock MSFS Arrestor Cables. Modern Arrestors **work universally with any aircraft**, regardless of carrier location and whether the aircraft has a tailhook or not.

To engage Modern Arrestors, the Miltech Supercarrier Toolbar must be open on the Landing tab and "Enable Modern Arrestors" must be active. For more information: Landing Tab

- Take in mind that the Modern Arrestors deactivate automatically if the toolbar menu is closed. Toolbar must be open at all times when the arrestors are being used.
- Modern Arrestors engage automatically when the aircraft contacts the ground. As the aircraft comes to a full stop, the cables disengage. Modern arrestors remains activated for another landing unless manually disactivated.
-

Modern Arrestors can be "enabled always on" through the Settings tab. This means that Modern Arrestors will be used on all carrier landings by default, and it won't require the user to manually activate them every time.

- For an effective recovery, it is recommended that you touch down at a speed no greater than 160 KIAS
- Modern Arrestors will also work for landings at any hard surface - Airports, other vessels, etc.

# Launch Operations

Both the Nimitz-Class and Ford-Class carriers are equipped with four catapults - Catapults 1 and 2 are on the bow and catapults 3 and 4 are on the waist.

Select the desired catapult for takeoff using the Miltech Supercarrier Toolbar under the Controls tab.




Catapult Selectors

Once the catapult has been selected, it will become active and the crew will guide you to the selected catapult.

# Catapult Launch Operations

## Prelaunch

1. **Taxi to Catapult:** Apply little throttle and move carefully on the deck at low speed. Keep your wings folded (if applicable) and Nose Wheel Steering to HIGH. Use Quick Taxi if required.
2. **Align yourself with the Catapult:** A taxi director will guide you to the selected catapult. Follow the hand signals to turn left/right or continue forward until the Taxi Director indicates you to stop. Brake until full stop and set power to IDLE.



Move Forward (Waving Hands)



Stop and Set Parking Brake

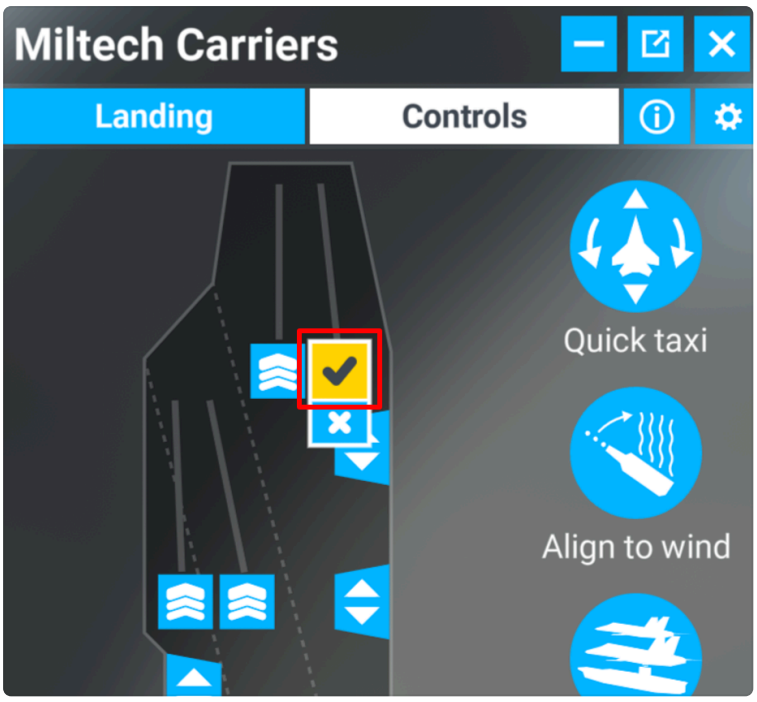
3. **Configure Aircraft:** Lower launchbar and unfold wings (if applicable). Set takeoff flaps and perform takeoff checklists. Deactivate Nose Wheel Steering. Click on the yellow checkmark to arm the catapult.



Lower Launchbar



Unfold Wings




Yellow Arrow indicates catapult is ready to arm

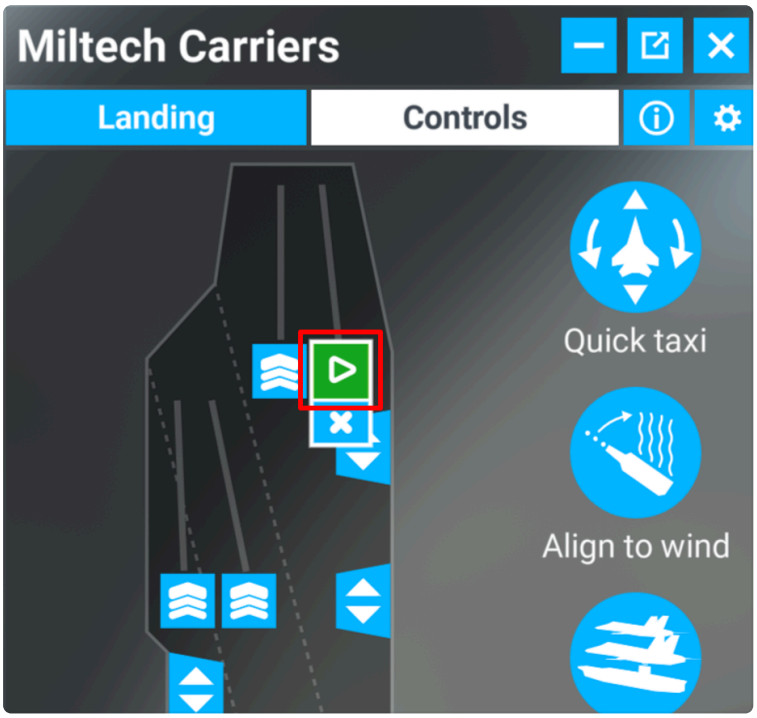
## Arm the Catapult

4. **Crew Checks:** Green vests (catapult crew) will now secure the launchbar and set the catapult for launch. The aircraft may move slightly as its being aligned with the catapult. Jet Blast Deflectors will rise automatically. Green vests will then signal the aircraft is ready for launch.



Green Vest signaling ready for launch

5. **Salute the Catapult Crew:** Salute the catapult crew by clicking the green arrow on the Supercarrier Toolbar. This signals that you're all set for launch. Apply full throttle now. The aircraft will not move until catapulted.




"Salute" Button indicating aircraft is ready to launch

## Launch

6. **Shooter Checks:** The shooter will perform final checks and indicate the launch. Aircraft will accelerate along the catapult and reach takeoff speed in less than 3 seconds - do not move the ailerons, elevators, or rudder until the aircraft has vacated the deck.



Shooter Checks



Ready for Launch

6. **Rotate:** Rotate the nose and establish a positive rate of climb. Retract gear and flaps as required.  Fly parallel to the carrier until you have reached 500ft and proceed to the desired course.

# Multiplayer Operations

Miltech's Supercarrier Pro is fully compatible with Multiplayer. However, there are a few thigs you must consider when flying on multiplayer

Restarting a flight after Multiplayer Sync may freeze the simulator. Launch a new flight from the WorldMap every time you wish to restart a flight. For more information, Multiplayer Sync freezing screen after Restart

## Static vs Moving

Static Carriers are inherently compatible with multiplayer as there are no "moving parts". This means that the carrier is static at that location on all systems on the network.

On the contrary, Moving carriers can be located at slightly different locations due to their moving nature. For that reason, moving carriers must be "synced for multiplayer" through the Miltech Supercarrier Toolbar under the Controls tab.

- After syncing for multiplayer, the aircraft will spawn on the carrier deck automatically.
- Align to Wind cannot be used over multiplayer. All other functions are available.
- Multiplayer syncing resets every hour. A countdown is visible on the Supercarrier Toolbar. After the counter reaches 0, Multiplayer Sync will deactivate. To continue flying over multiplayer and synced with other players, click on "Multiplayer sync" again.
- It is recommended that if little time is left before the counter reaches zero, you wait until the syncing restarts so it doesn't interrupt your flight.

## Limitations over Multiplayer

Unfortunately, Multiplayer on MSFS is still quite limited. We are engineering ways around these limitations, but these will only come at a future update. As of initial release, the limitations are the following:

- Multiplayer on moving carriers require syncing. Syncing restarts every hour.
- Animations do not sync over multiplayer. Eg. if an aircraft goes down on the elevator or JBDs are actioned, you will not see the animation, only the aircraft. This is planned to be fixed, see #future-of-multiplayer
- It is possible that you may see aircraft floating beyond the bounds of the aircraft carrier flight deck. This is due to inaccuracies in the aircraft position synced over Multiplayer.

# Communications over Multiplayer

Depending on location, communications over multiplayer can be performed through the Simulator ATC or externally through Discord.

All Static carriers are equipped with a UNICOM Frequency. Instrument Approach & Communications Equipment for more information. UNICOM is fully compatible with Multiplayer, but limited in features for Carrier flight.

We highly recommend using Discord for carrier communications over Multiplayer. We have created dedicated voice channels for each of the carrier locations that can be used as UNICOM/ATC on multiplayer sessions. For more information, Discord

# Future of Multiplayer

We are very proud of the product we have developed so far. However, we believe we can continue improving and building to make Miltech's Supercarrier Pro the most comprehensive carrier product ever developed for a flight simulation platform. Our ambitious plans are well explained here: Known Bugs, Updates & Product Roadmap, however, here we will dive deeper into the future of Multiplayer Flight:

-

**Server-based functions:** We are working on the tech required to allow server-based syncing on carriers for multiplayer flight. This would allow the syncing of animations over multiplayer, as well as new features not yet supported by MSFS.

- **Improving the experience:** we understand syncing and teleporting can be annoying, and in some cases, can break the experience. We are exploring other solutions to this problem to enhance the player experience.
- **MSFS 2024:** With the introduction of missions and new features, a new world of possibilities open up. Collaborative, multiplayer missions to bring supplies and Carrier Onboard Delivery to the carriers, reconnaissance flights, Medvacs, etc.

# Discord

**Access to the Discord server is restricted to individuals who have legally purchased a copy of the product.** Any attempt to access this server without a valid license will be considered copyright infringement and will be prosecuted to the fullest extent of the law. Unauthorized reproduction or distribution of the product is strictly prohibited. If you believe that someone is using this server without a valid license, please contact us immediately.

**If you have a valid copy of the product,** the server can be accessed here: https://discord.gg/FDfwAsGhwu

## Community and Events

The core idea of having an exclusive discord is engagement. Foster social interaction and provide users with opportunities to collaborate, compete, or simply enjoy the virtual skies together.

The Discord community was born with this purpose in mind - hosting organized events, multiplayer sessions, fly-ins, and providing a voice channel to communicate when flying multiplayer. A place for you to flex your landing score, or reach out for tips and help. A place to build your squadron or make new friends while practicing Recovery.

The Discord community is exclusive for those who have legally bought a copy a copy of Miltech Simulations Supercarrier Pro - this will be strictly enforced.

## Communications (Control Areas)

Voice channels for all static and multiplayer locations are available under the "Ford Control Area" and "Nimitz Control Area". These voice channels are to be used in Multiplayer Operations to ease communications between players.

These voice channels are exclusively for use within their corresponding Control Areas. For general voice chatting, use the General-Voice channel.