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Merchant's warehouse, 21 Castle Street,
Castlefield, Manchester. M3 4LZ

Developer: Digital Image Design Ltd.,
Tannery Court, Tanners Lane,
Warrington, Cheshire. WA2 7NR

Data Validity

All data for TFX3 have been secured from public sources. DID stress that all simulated elements are our interpretation of the facts, and are intended for entertainment purposes only. Because the F-22 Lightning is still in development, some of the systems represented in the game may not be associated with the real plane. Any trade names or trade marks are the exclusive property of the respective manufacturers.

Caution

The CD-ROM that holds F22 ADF can be damaged by mishandling. We recommend that even if you intend to run F22 ADF directly from CD-ROM, you perform the full installation to hard disk once and make a back-up copy using back-up software.

EPILEPSY WARNING

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain light patterns of backgrounds on a television screen or while playing computer games may induce an epileptic seizure in these individuals. Certain conditions may induce undetected epileptic symptoms in persons who have no history of prior seizures of epilepsy. If you, or anyone in your family, has an epileptic condition, consult your doctor prior to playing. If you experience any of the following symptoms while playing a computer game: dizziness, altered vision, eye or muscle twitches, loss of awareness, disorientation, any involuntary movement, or convulsions, IMMEDIATELY discontinue use and consult your doctor before resuming play.

Queries

If you should find either the program or the documentation unsatisfactory in any way, don't hesitate to drop us a line detailing in full the reasons for your dissatisfaction. This will help us to avoid repeating any similar problems in the future. Opinions and complaints should be sent to:

The Project Director, F22 ADF,
Digital Image Design Ltd.,
Tannery Court, Tanners Lane,
Warrington, Cheshire.
WA2 7NR

One of the great benefits of Windows 95 is the refined system for providing context-sensitive, online help.



Based on the same information as the manual, online help adds the benefits of **hot-links** to help you navigate your way through topics, and interactive graphics that aid understanding of the way systems work. In addition, **F22 Air Dominance Fighter** offers supplementary help in the form of **Tool-tips**, simply leave the mouse pointer over a button for a few seconds and a small text explanation of the button's function will appear.

Online graphical help is a handy feature when you are learning how to use **F22 Air Dominance Fighter** for the first time. It saves reaching for the manual each time you want to learn about a feature, but offers the benefits of interactivity. Topics are linked together by 'key words', which let you explore a subject that might be explained throughout several different sections of the help file.

The Online Help Interface

The **F22 Air Dominance Fighter Online Help** uses the windowing system which has now become a de facto standard for PC software. It is fully context-sensitive, which means that whenever you access the online help from within the game you will be presented with help on that particular subject. For example, access online help from the cockpit and you will be taken to the section that explains the F22 cockpit, and avionics.

Where possible, we have included graphical elements to help increase understanding of certain subjects, such as the avionics.

Using Online Help

When you first load F22 Air Dominance Fighter Online Help, you will be presented with the **Contents** listing, represented by a series of **Books**.

By clicking the tabs at the top of the window you can access an index of all the documents in the help file, and browse a fully customizable search database with **Find**. Click on the buttons below for a complete description of their functions.



Should you decide to use the interface full-screen and you want to access the help file easily, try opening the help file full-screen and then swapping between the help file and the simulation using **ALT TAB**.

Documents

To access a document, open an appropriate book and select a document from inside. At the top of the document window you will be presented with a new set of buttons labeled **Contents**, **Find**, **Back**, **Print**, **<<** and **>>**. Click on the buttons below for a complete description of their functions.



Online Help Icons

Throughout the Online Help you will come across several icons that indicate certain courses of action that you may take. The icons are shown below along with a description:



The **Red Bullet** indicates important notes or other documents that you may find useful relating to the subject you are currently reading.



See *Dedicated Chapter*: [Chapter Name](#)

The **Book** icon followed by *See Dedicated Chapter* shows that a dedicated chapter is available relating directly to the subject you are currently reading. Click on the green, underlined text to go to that chapter.

```
{button Game Control,JI('F22HELP.HLP','keys_game_control')}{button In Flight
Communications,JI('F22HELP.HLP','keys_in_flight_communications')}{button
Avionics,JI('F22HELP.HLP','keys_avionics')}{button Aircraft Control,JI('F22HELP.HLP','keys_aircraft_control')}
{button Head Up Display,JI('F22HELP.HLP','keys_head_up_displays')}{button Cockpit
Views,JI('F22HELP.HLP','keys_in_cockpit_views')}{button Cameras And
SmartViews,JI('F22HELP.HLP','keys_cameras_and_smart_views')}{button SmartViews
Menu,JI('F22HELP.HLP','keys_smart_views_menu')}
```

Game Control



Options screen

Keypad  Jump to in-game Map



Pause the game



Shift to next event



Accelerated time on / off



Go to ACMI and back



Move between F22 and AWACS (only if you have selected an AWACS mission)



Quit

In Flight Communications



Menu for talking to Wingmen on all radio frequencies



Menu for talking to Wingmen and the Airfield on closed radio frequency 1 and switches to the ILS Landing

HUD



Menu for talking to Wingmen and the AWACS, broadcasts and help on an open channel radio frequency 2



Menu for talking to Wingmen and the AWACS on closed radio frequency 3



Menu for talking to Wingmen and the Refueler on closed radio frequency 4 and switches to the Refuel HUD



Send a user-typed message to everyone



Send a user-typed message to your wingmen



Answer Yes



Answer No



“Say again” (repeat the last thing you said)

Avionics



Autopilot on / off



EMCON Menu



Manual EMCON 1 on



Manual EMCON 2 on



Manual EMCON 3 on



Manual EMCON 4 on



Manual EMCON 5 on



Auto EMCON on



Build an auto-targeted Shoot List for the selected weapon



Cycle forwards manually through Shoot List



Cycle backwards manually through Shoot List



Cycle through firing methods of selected weapon, Air to Air - single / ripple, Air to Ground - single / ripple / salvo



Add currently padlocked target to my Shoot List



Add currently padlocked target to my wingman's Shoot List



Cycle padlocks forwards on static targets, ground based and aircraft



Cycle padlocks forwards on groups of mobile targets



Cycle between LANTIRN modes, Slaved (attack ground mobiles) / Free (attack anything you can lock onto)



Cycle forward one waypoint



Cycle back one waypoint



Night Vision on / off



ACMI recording on / off



Add display Pilot Aids to F1 view

Aircraft Control



Manual operation of the canopy open / close



Cycle left and right engines on / off



Throttle up



Throttle down



Snap throttle to full power (100% - not afterburner)



Snap throttle to flight idle (35%)



Thrust Vectoring (on while the key is depressed)



Rudders / Nose wheel steering left



Rudders / Nose wheel steering right



Toe brakes left



Toe brakes right



Airbrakes (in the air & wheel brakes on the ground) on / off



Toggle gear up / down



Manually operate main bay door open / close



Auto recover and level aircraft



Cycles through Air to Ground weapons and switches to the Air to Ground HUD



Cycles through Air to Air weapons and switches to the Air to Air HUD



Fire the selected weapon (for Sidewinder, Maverick and Freefall bombs, the first press opens the bay doors and the second press launches the weapon)



Launch a Decoy Drone



Launch Chaff manually



Launch Flare string manually (6 Flares)



or



Launch appropriate countermeasure



Refuel and re-arm



Jettison Menu



Jettison tanks



Jettison Air to Ground weapons



Jettison all stores



Eject

Head Up Displays



Cycle HUD mode



Cycle HUD colour (including HUD off)



Cycles through Air to Ground weapons and switches to the Air to Ground HUD



Cycles through Air to Air weapons and switches to the Air to Air HUD



Switches to ILS Landing HUD and allows communication with the Airfield on preset radio frequency 1



Switches to Refuel HUD and allows communication with the Refueler on preset radio frequency 4

Cockpit Views



Cycle any view between wide angle / normal lens

Keypad



View Defense MFD

Keypad



View Situation MFD

Keypad



View Attack MFD

Keypad



View Combined Communications and Warning MFD

Keypad



View Up Front MFD and Panel

Keypad



View Artificial Horizon MFD

Keypad



Return to normal F1 view of HUD

Keypad



View Systems MFD

Cameras And Smart Views



Cycle Virtual Cockpit with HUD / without HUD



Check your six view



Cycle current target padlock between normal / wide angle



Cycle external view between player to target / target to player



Cycle missile padlock between normal / wide angle



Cycle external view between player to missile / missile to player



Cycle padlock view between normal / wide angle



Cycle external view between player to object / object to player



Cycle wingman padlock between internal and external views



External view Wingman to player



Player flyby (returning to previously selected view)



Player looped flyby



Player moveable external view



Cycle player fixed external view



Moveable current selected missile / pylon view



Cycle missile fixed views



Padlock selected moveable external view



Padlock selected fixed external view



Padlock selected flyby



Padlock selected looped flyby



Padlock browse filters; Air / Ground Mobile / Ground Static

Smart Views Menu



Smart View Menu System



Toggle hold / release hold on current object



Choose object



Choose allegiance



View next object



View next groups or flight

The F22 ADF setup program will run automatically on inserting the game CD into the CD ROM drive of your computer.

To install and initially use DID's F22 Air Dominance Fighter, follow the steps below. If you have problems with the installation, or on subsequently using this product please contact us on one of the following telephone numbers.

Technical Support Telephone Numbers

France	0472655100	Contact hours, 14:00 to 20:00
Germany	06107/945145	Contact hours, 15:00 to 19:00
UK	01925 454123	Contact hours, 10:00 to 17:00 (weekdays)
USA	408 2891411	Contact hours, 08:00 to 17:00 (Pacific time).

If F22 ADF is already installed on to your computer then you will be asked if you want to run the program, alter the game configuration or reinstall the game.

In order to play F22 ADF you must already have **DirectX 5** installed on your computer. This can be installed automatically by the F22 ADF setup program.

When using the installation program, if you select an option and change your mind after progressing on to the next screen you can back track to previous screens by selecting the “**Back**” button.

Installation Steps



Place the “F22 Air Dominance Fighter” CD-Rom in to the drive in your computer. The setup program will automatically run.



After clicking “**Next**” on the copyright window you will be asked if you want to install DirectX version 5. It is recommended that you install this as F22 ADF will not run without DirectX version 5 (or above).



You will be asked what kind of installation of F22 ADF you would like:

- **Typical**
- **Compact**
- **Custom**

The **Typical** option will copy all data files on to your hard disk. This option requires the most hard disk space but has the fastest loading times.

The **Compact** option copies only the files required to run the game. If you use this option you must have the F22 ADF CD-Rom disk in your computer’s CD-Rom drive when you play the game. This installation type has much slower loading times than Typical but takes a lot less disk space for an install.

The **Custom** option is for advanced users and allows the user to specify what files are copied onto the hard disk.



Choosing The Destination

The Setup program will then ask which folder in the start menu you wish to place the program short cut. It is recommended that novice users select the default setting by clicking on the “**Next**” button.



Confirmation

You will now be shown the options on screen that you have just selected. If you are happy with your selections then push “**Next**”. If you are unhappy with your selections and you want to change them then keep pushing the “**Back**” button until you reach the option you wish to change.



Copying Files

The setup program will now copy the F22 ADF files on to the hard disk of your computer. The computer’s progress can be seen as a blue bar on the centre of the screen. When it reaches the right hand side the file copying has finished.



Input Controller

After the file copy has finished you will be asked what kind of controller you want to use to play F22 ADF. DID recommends that you play the game with a joystick to experience F22 ADF at it’s best.



Sound Options

The setup program will then ask for sound options you want while playing the game. There are three options and it is recommended that you have all three turned on:

Sound Effects



Music



Speech

If you select the music option you must have the F-22 ADF CD-ROM present to play the game. It is recommended that you have all three sound options turned on to experience F-22 ADF at its best.



Readme File

You will be asked if you wish to look at the Readme file. The readme file contains necessary last minute alterations to the manual and other useful information. We recommend you browse through it before playing the game.



And Finally

You have now installed F-22 Air Dominance Fighter. Before you can play, you will have to reset windows to ensure it operates correctly, so click on the 'Finish' button. Your machine will then restart. To run F-22 ADF follow the steps in the next section..

Running the game

To run the game from the **Start** menu select **Start - Programs - D.I.D - F22ADF - F22 Air Dominance Fighter**.

Configuration

If you wish to re-configure the game after installation place the game CD into the CD Rom drive and follow the on screen prompts.

To Uninstall F22ADF

Use **Add Remove Programs** in the **Control Panel**.

Flight Sticks and Controllers

F-22 Air Dominance Fighter has been designed to work with Win 95 flight stick support (Direct Play). All flight sticks, and controllers that support Direct Play will therefore work with this product, and must be configured in Game Controllers, in the Win 95 Control Panel.

Direct Play in this game supports two axis functions, and four buttons. More than four buttons on your flight stick will mean that it must be programmed.

If you have a programmable flight stick:



First assign functions to its buttons with the supplied flight stick utility.



Click on ADD, in Game Controllers, from the Win 95 Control Panel. Select from the list, the description which best defines your flight stick. On most flight sticks you will only be able to define two buttons, on programmable flight sticks all buttons left undefined will still send their programmed keystrokes. If your flight stick does not appear in the selection, click on ADD NEW, Win 95 may then ask if you have a standard, or game card controller port. After determining which port, Win 95 will attempt to auto detect your flight stick.



Your selection should now appear in the game controller's window, under controller. The status should be OK, if it is not, it is possible you have selected the wrong option and Win 95 has been unable to find your flight stick. Try another flight stick option, or contact your flight stick manufacturer for an update disk.



When your stick is detected, Win 95 will take you through a Calibration Wizard to set up your flight stick and buttons.

Some flight sticks will require specific support, the pace of peripheral development is high, and will fall beyond the scope of this manual. DID will provide this information where possible in electronic form.



For information relating to specific flight stick support, please see the readme file.

Once the game is installed, double-click on the F22 ADF icon on your computer desktop to start the game.

Login

You will first be presented with the **Login Screen**, where you must enter your name and preferred call sign. Once you have done this you will be taken to the **F22 ADF Main Menu**.

Main Menu

Click on the options in the Main Menu picture shown below to find out more information about each one:



Generally, from the sub-windows presented to you on picking one of the above game sections, you will be able to select a mission to play, or a campaign to take part in.

For more information on flying the F22, refer to the sections titled [Avionics](#), [In Game Speech](#), [Air To Air Combat Tactics](#) and [Weapons Training](#).

The Main Interface will enable you to run the following sections of the game:

Quick Combat

Quick Combat is the arcade module, pit yourself against all opposition.

Simulator

Simulator is the training module, learn the tricks in realistic missions.

Tour of Duty

Tour of Duty is a progressive campaign module, containing linked missions. This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

Multiplay

Multiplay is a module of head to head, and team missions for game play with people on other networked computers. This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

ACMI

View key sections of your flight by replaying the position, and orientation data in a graphical form. NOTE All ACMI recordings can be viewed from this button, and not just those missions recorded in the Simulator (ACMI in Simulator, and Tour of Duty (ACMI in Tour of Duty).

Options

Options contains a selection of user configurable options. NOTE: these options can be reached from the Main Interface, and can also be reached by pressing SHIFT O from within the game.

Credits

A team of hard working people with experience gained in award winning flight simulations made this product. Find out who we are!

Help

Online Help can be called up from here assuming you have chosen to install it as part of F-22 Air Dominance Fighter. The Online help largely reflects the contents of this manual, but with greater use of interactive graphics.

F-22 Demo

The demo mode can be engaged to show off F-22 Air Dominance Fighter.

Quit

You can leave the game and return to your desktop by pressing this button.

Generally from the sub windows presented to you on picking one of the above game sections you will be able to select a mission to play, or a campaign to take part in.

If you have no guesses on how to proceed, or any previous flight simulation experience, then please refer to the above relevant sections of the manual in as much depth as you feel necessary, and do not be afraid of trying things out!



Please refer to The F-22 section of the manual for information on flying the F-22, using the F-22 avionics, game speech, tactics, and launching weapons.

The idea that command of the air, or air superiority, leads to command of a war is almost as old as powered flight itself. If Hitler's Luftwaffe had succeeded in suppressing Britain's Royal Air Force during World War II, history would have been very different.

F22 Air Dominance Fighter is based on the latest ideas of the United States Airforce on how to dominate airspace and maintain Total Air Supremacy.



Our simulation features the [Lockheed F-22 Fifth Generation Fighter](#), the [Airborne Warning and Control Systems \(AWACS\)](#) aircraft, plus the many warplanes, assets, systems, and backup that together will make the USAF's vision of Total Air Supremacy, a powerful reality in the modern world.

F22 Air Dominance Fighter also features some of the most stunning graphics ever seen in a PC flight simulation... graphics that are finding their way into simulations designed by **DID Ltd.** for real military applications.



For the first time, DID brings the quality of multi-million dollar simulators to your PC. The Middle East theater is host to the scenarios of this product, which is based in the countries surrounding the **Red Sea**, and which plays upon those countries' real-life aspirations, tensions, and fears. Our assumed date is early in the next century, shortly after delivery of the F-22 to the USAF and other countries that were able to afford such a formidable aircraft.

F22 Air Dominance Fighter is the long-awaited sequel to the award winning simulation, **EF2000**. We have acted upon the many suggestions received regarding EF2000 and have done our best to bring you the ultimate simulation of modern air combat.



When designing this game DID created 'multiple points of presence' for the user, allowing you to fly many of the F22 fighters within the game for the USAF and two principle Arab airforces. The AWACS aircraft are also yours to

command. What's more, our unique [Smart View](#) cameras let you observe the intense action as though you were watching a movie.

Military and commercially available data on the The F22 and AWACS has been assessed in depth, and tuned to ensure the best possible game-play in our product. The sheer depth of information applied is reflected in the various modules and varied content of **F22 Air Dominance Fighter**.

Wherever possible, throughout the various aspects of the F22 and AWACS aircraft, detailed functionality has been automated to make the task of control easier for the novice pilot or commander, but without compromising the wishes of the dedicated flight sim fan for ultimate control.

Many parts of our product will look after themselves if the user wishes to concentrate on the action. However, when you are ready, the detailed functions are there for you to explore and enjoy.

Special Thanks

Our thanks go to **Lockheed-Martin**, **British Aerospace**, **Colonel John Warden III** (retired), **Colonel Rich Reynolds** (retired), and the renowned Aerospace publication '**World Airpower Journal**', who have kindly helped prepare the companion book to this product. Without their help, **F22 Air Dominance Fighter** would have been a mere flight of fancy.

One of the most remarkable developments in PC technology is the 3D graphics accelerator card, which handles many of the complex calculations normally left to the main processor.

EF2000 by DID was upgraded to support such cards, while **F22 Air Dominance Fighter** offers 3D card compatibility as standard. The results are nothing short of remarkable: for the first time, simulation on the PC rivals the graphical quality of commercial military simulators.

Benefits include smoothing of pixelation to enhance realism, stunning fog and haze effects, better animation of explosions, more realistic smoke effects and transparent cloud layers - all with a vastly improved frame rate in SVGA and 16-bit color resolution.

Of course, there's more to a true simulation than just the graphics. Which is why the AI has undergone complete revision, employing some of the techniques used in multi-million dollar air combat simulators. Together with the enhanced graphics, the new AI will give you the best impression of 'being in the thick of the action'.

True Windows 95 Design

From its very beginnings, **F22 Air Dominance Fighter** was designed for true compatibility with **Windows 95**. There are many advantages, including simple software installation and set-up with control devices and other peripherals such as sound-cards.

The interface itself offers true point-and-click control, making operation simpler and more intuitive than ever before. What's more, useful Windows features such as tool-tips and on-line help make the software easier to learn.

Within the simulation, it is possible to enter the F22 cockpit or [AWACS](#) aircraft, depending upon the mission you are flying. You will get directly into the F-22 cockpit on selection of a mission in [Quick Combat](#), [Tour of Duty](#), and all missions within [Simulation](#) except for the AWACS section.

In the latter section, you will directly enter the AWACS aircraft, which will allow you to vector aircraft around the world. If you double-click on an F-22 icon, you will be transported into the cockpit of that aircraft. If you are not engaged in combat or striking a target, pressing escape will return you to the AWACS screen.

If you are shot-down or eject, you will automatically be returned to the AWACS. In Tour Of Duty, some missions are played from the F-22 perspective, others from the AWACS and F-22 point-of-view.



See Dedicated Chapter: [Airborne Warning And Control Systems](#)

All information relating to the F22 will be found within this chapter, including [Avionics](#), [Head Up Display](#), [instruments](#), [flying the F22](#), [weapons](#), [tactics](#), and [speech](#).

Our interpretation of the F22 is intended to reflect as much realism as possible. It has been modeled with considerable attention to the functions of the avionics and flight dynamics. However, please be aware that the systems for the real F-22 are still under development, and our simulation reflects the concepts being studied rather than definitive specifications.

The constraints of military and commercial secrecy and the availability of information from the real F-22 project have defined our research.



For additional details, see the [Quick Combat](#), [Simulator](#), and [Tour of Duty](#) chapters of the help file.



See Dedicated Chapter: [The F22 Aircraft](#)



The USAF operates several training establishments where data on aircraft and weapons positions are transmitted from fighters practicing combat, and relayed to ground stations where they are recorded.

When the pilots land and gather for debriefing, the data are replayed in a simple 3D graphical form, enabling student pilots to learn from their mistakes. The dogfighting action can be slowed-down, speeded-up or frozen, to reveal every move down to the smallest detail.

After much demand from our customers, we have included an [ACMI](#) (Air Combat Maneuvers Instrumentation) facility for the player to record combat maneuvers, and compare them as an aid to learning about modern air combat.

Like the real thing, our ACMI collects data from the player's aircraft, and allows a graphical portrayal of that data to be replayed afterwards. In some cases, recorded ACMI data will be used as part of the briefing for training missions.



For additional details, see the [Simulator](#) and [Tour of Duty](#) chapters of the help file and the [Main Interface](#).



See Dedicated Chapter: [Air Combat Maneuvers Instrumentation](#)



In a simulation, internal, external and God's-eye views allow the user to see several different aspects of an object or the world.

In **F22 Air Dominance Fighter** there is plenty to look at, with hundreds of vehicles moving simultaneously, plus sites of antiquity and other tourist attractions.

In real military simulation, this function is called a 'Stealth View'. In our simulation we call the feature **Smart Views**. This technology places virtual cameras on any aircraft or ground object, and links them together in a way that is both informative about the subject, and entertaining. It is like watching a movie, except that you direct the action.



For additional details, see supplied Key Card for keyboard combinations necessary to operate all the views.



See Dedicated Chapter: [Smart Views](#)



CURRENT OBJECT HELD

SMART VIEW

EVENT: CRUISING

FOCUS: MIRAGE (CAP - ESCORT)

DIG



CURRENT OBJECT HELD

SMART VIEW

EVENT: FOLLOWING ROUTE

FOCUS: TRUCK (CONVOY)

DIG



A variety of player views can be selected both within the virtual [F22 cockpit](#), outside the aircraft, and views of the [F22 instruments](#).

Padlock views provide a more realistic view of the world, and can be locked to a desired view, or object.



For additional details, see the supplied Key Card for keyboard combinations necessary to operate all the views.



See Dedicated Chapter: [Player Views](#)



EF2000 by DID has proved one of the most successful on-line games in its genre. F22 Air Dominance Fighter seeks to carry the torch, and offers a variety of multiple player activities.

This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

Although you may choose to play this simulation by yourself, it is the greatest fun when linked to other computers, allowing your friends and colleagues to share the same mission or war in real time. Several methods of linking are available via **Direct Play** under **Windows '95**, including serial and modem connections.



For additional details about the methods of connection supported, see the **Multi-Player** section of **F22 Air Dominance Fighter** and in the [Main Interface](#)..



See Dedicated Chapter: [Multi-Player](#)



The AWACS aircraft is a fundamental part of the Command, Communications, and Control (C3) system, allowing the AWACS commander to control the localised air war with great advantage.

The AWACS aircraft is responsible for the tactical control of many aircraft within radar view. It also identifies and prioritizes air threats, organizes and monitors Combat Air Patrols (CAP), orders flight interceptions and helps organise Close Air Support (CAS) missions based on data received from ground commanders and the Joint Surveillance Targeting And Reconnaissance System (JSTARS) aircraft.

In **F22 Air Dominance Fighter** we have also given the AWACS commander responsibility for **Rescue Missions, Ferry Missions, and Re supply Missions.**

The radar of the AWACS aircraft can see ships, and monitor strikes against them, but as it is optimized against air threats cannot see ground vehicles. This job is covered by the JSTARS aircraft, based on the same Boeing 707 aircraft as the AWACS. JSTARS, AWACS, theater and ground commands are constantly in touch via the secure Link-16 data connection.



For additional details, see the [Simulator](#) chapter.



See Dedicated Chapter: [Airborne Warning And Control Systems](#)



Quick Combat is the arcade-style section of **F22 Air Dominance Fighter**, designed for instant fun. The flight and avionics models are the same as the rest of the game, but game-play elements from arcade type games are included.

For example points are awarded when you kill the enemy, and severely reduced if you shoot the wrong side! The mission is designed to be action packed from the start, and lasts approximately five hours.



For additional details, see the **Quick Combat** section of **F22 Air Dominance Fighter** in the [Main Interface](#).



See Dedicated Chapter: [Quick Combat](#)



The Simulator section of F22 Air Dominance Fighter adheres closely to real military practice and tactics, and is intended foremost as a training area in which the new user can build up his knowledge and skill before going to war in [Tour of Duty](#).

For variety, the simulator missions are written so that each contains more than the aircraft and targets necessary to learn the specific lesson.



For additional details, see the **Simulator** section of **F22 Air Dominance Fighter** in the [Main Interface](#).



See Dedicated Chapter: [Simulator](#)



This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

In Tour of Duty you will apply the skills you learned in [Simulator](#) to more complete live missions. The Tours are a collection of three scenarios, which increase in difficulty and complexity.

Each is set in a different part of the world, and involves different countries. Each tour contains ten missions that are related to each other, and also increase in difficulty.

The increasing difficulty will be supplemented by the need for air-to-air refueling and night flights in later missions.

The first time you play, you will be able to see all the missions but will be allowed to pick only the first mission in any of the Tours. When you complete the first mission in any given Tour, you will then be able to pick the next mission and so on, until all the missions in that Tour will be available for replay.



For additional details, see the **Tour of Duty** section of **F22 Air Dominance Fighter** in the [Main Interface](#).



See Dedicated Chapter: [Tour Of Duty](#)



The Lockheed F-22 Lightning is a fighter uniquely optimized for the air superiority role . It represents a quantum leap in capability over its predecessor, the McDonnell Douglas F-15 Eagle. Key to this role is the ability to see and shoot before an enemy is aware of any threat, so reducing combat losses - what Lockheed-Martin refers to as 'first-look, first kill' capability.

The F-22 uses stealth technology to remain undetected for longer, shares data between command aircraft and fighters, and merges onboard and off-board sensor information into one coherent display that allows the pilot to use stealth as a weapon. Stealthiness is partly determined by adjusting emissions from active sensors and jammers, simply by adjusting the EMCON or emission control level.



In a secondary strike role, stealth and smart weapons combine to aid undetected penetration of enemy airspace, with accurate delivery of tactically efficient weapons.

The F-22 receives target information from active and passive sensor suites on-board, and via data link from off-board sensors on other aircraft such as AWACS and friendly fighters. For the first time in a fighter aircraft, this information is fused together to build one overall picture of any given situation, instead of each detection system feeding its own dedicated display. Separate displays increase the pilot's workload, while the new 'sensor-fusion' technique reduces it dramatically.

Stealth technology has helped determine the shape of the F-22, so that the aircraft's position is not easily given away to hostile radars. Equal consideration has been given to the detection systems and avionics so that they will do little to give away the plane's position. A normal radar sends out a concentrated signal and detects return echoes, making it an inherently non-stealthy device. An opponent's radar warning receiver may detect its signal. The F-22's radar has been specially designed so that its energy is distributed over a broad spectrum, making it very hard to detect. It is known as a Low Probability of Intercept (LPI) radar and is controlled by the aircraft's EMCON (Emissions Control) setting.

To a large extent the F-22's systems think for themselves, sharing the workload in the event of threat or damage. The EMCON system automatically adjusts the F-22 sensors and defensive aids to deal with potential threats, although manual EMCON override is available should the need for different tactics arise.

F-22 Air Dominance Fighter has been modeled on these features, using information available about the F-22 and the design concepts.



See *Dedicated Chapter: [Avionics](#)* for more details on the avionics systems and how to use them, please study this chapter and look around the F-22 cockpit.

F22 onboard systems comprise Radar, IRST (Infra Red Search and Track), RHAW (Radar Homing And Warning), IFF (Identification Friend or Foe), active jammers and the MAW (Missile Approach and Warning) systems.

Of these, the radar and jammers are active devices that could give away the aircraft's position from the energy being sent out. The others are passive, or listening, systems. All aircraft systems that emit energy and could therefore alert the enemy, such as active sensors or radios, are controlled by the EMCON system.

EMCON Settings

The EMCON system is there to decide how to balance stealth against detection and jamming capability. There are five EMCON levels, controlled either automatically by the aircraft computers, or manually by the pilot.

EMCON 1 is the stealthiest, and EMCON 5 is the least stealthy, allowing the most use of radar and radio. In its auto mode the F-22 would normally travel in the stealthiest mode, EMCON 1. After a potential enemy is spotted, the aircraft systems will gradually increase the EMCON condition as the opponent gets closer, in order to provide more data for targeting, or in the worst case, jamming. It increases EMCON in non regular steps based on the evaluated range of the enemies' detection systems and weapons.

By exploiting stealth, the pilot is able to stalk his target like a cat stalking a mouse, without the target ever being aware of danger. With each increase in EMCON, the pilot has more information with which to decide on a course of action (engage or not), and with which to target his weapons. At EMCON 3 he will be within AMRAAM firing parameters, and have enough information for BVR (Beyond Visual Range) missile targeting..

By the time the systems have reached EMCON 5, detection by the enemy is irrelevant because the aircraft will be most likely be in visual range. It should be noted that Russian fighters like the Sukhoi Su-37 employ the two pronged approach of using a very powerful radar to burn through any stealth advantage, then turning its radar off and handing over to passive IRST.

The pilot is able to manually override the avionics and choose the EMCON condition best suited for chosen tactics, For example, on a strike mission where surprise is everything, the pilot may wish to remain stealthy, despite the proximity of enemy fighters.

The avionics allow the classification and display of enemy aircraft and SAM control radars. By knowing what you are up against, and by displaying the enemy's detection and weapons ranges, it is possible to sneak around the danger and keep the F-22 stealthy. In other words the F-22 pilot enjoys the rare ability to see his enemy yet not be seen, and therefore knows just how far his enemy is able to see and strike.

EMCON level is selected in one of two ways. Firstly, by an MFD button in the cockpit for both manual and automatic EMCON level. Secondly by pressing E on the keyboard, and choosing a level option; e.g. 1 for manual EMCON 1 etc., or option 6 for auto EMCON .

NOTE: EMCON is normally set to automatic.

EMCON Steps

The EMCON steps have been based on the real F-22, but due to military sensitivity and game play reasons the device's abilities have been defined as follows:

EMCON 1



The radar is off.



The AMRAAM is disabled.



The IRST is the primary on board detection system with a range of 50 miles. It can be used to target and launch the Sidewinder air-to-air missile, and the Maverick Air-to-Ground missile.



The Radar Homing And Warning is on to a range of 50 miles. (RHAW warns of enemy radar activity, tracks and classifies the source).



The Missile Approach and Warning is on. (The MAW warns of enemy missile launches).



The Communications radio is prevented from transmitting.



The secure data link is set to receive.

EMCON 2



The radar is on, and is able to ID and track air-to-air contacts only.



The AMRAAM is disabled, but the missile steering circle information is now displayed on the Air-to-Air HUD.



The IRST is on with a range of 50 miles. It can be used to target and launch the Sidewinder air-to-air missile, and the Maverick Air-to-Ground missile.



The RHAW is on to a range of 100 miles. (The RHAW warns of enemy radar activity, tracks and classifies the source).



The MAW is off. (The MAW warns of enemy missile launches).



The Communications radio is fully on.

EMCON 3



The radar is on, and is able to ID, track, and target air-to-air contacts.



The AMRAAM is now enabled.



The IRST is on with a range of 50 miles. It can be used to target and launch the Sidewinder air-to-air missile, and the Maverick Air-to-Ground missile.



The RHAW is on to a range of 150 miles. (The RHAW warns of enemy radar activity, tracks and classifies the source).



The MAW is off. (The MAW warns of enemy missile launches).



The Communications radio is fully on.

EMCON 4



The radar is on, and is able to ID, track, and target air-to-air contacts.



The AMRAAM is enabled.



The radar is also able to ID track and target large ground mobile, and ship targets.



The IRST is on with a range of 50 miles. It can be used to target and launch the Sidewinder air-to-air missile, and the Maverick Air-to-Ground missile.



The RHAW is on to a range of 200 miles. (The RHAW warns of enemy radar activity, tracks and classifies the source).



The MAW is on. (The MAW warns of enemy missile launches).



The ability to manually launch drones, and chaff is enabled.



The Communications radio is fully on.

EMCON 5



The radar is on, and is able to ID, track, and target air-to-air contacts.



The AMRAAM is enabled



The radar is able to ID track and target all ground mobile, and ship targets. Air-to-Ground missiles requiring radar for targeting (Harpoon) are enabled for launch.



The IRST is on with a range of 50 miles. It can be used to target and launch the Sidewinder air-to-air missile, and the Maverick Air-to-Ground missile.



The RHAW is on to a range of 250 miles. (The RHAW warns of enemy radar activity, tracks and classifies the source).



The MAW is fully on. (The MAW warns of enemy missile launches). The defensive suite of drones, ECM chaff, and flares is fully enabled.



The Communications radio is fully on.

Shoot lists

Detected targets are put into a 'Shoot List' in the sorted order of engagement, either automatically via a key press or manually via the MFD's. Priority of threat is assessed from enemy bearing, type and speed. A shoot list for the currently selected weapon type is built by pressing T on the keyboard, or by pressing RETURN SHOOT LIST TO AUTO on the Attack MFD.

Note: the shoot list is normally built automatically. Targets can be put into the shoot list manually by padlocking the target using F2 or F3 on the keyboard, and then pressing S. This is particularly relevant for targeting the AIM-9X Sidewinder, and AGM-65 Maverick..

Targets can also be added manually by looking at the Situation or Attack MFD's and placing the cursor over a target and clicking. Each new click over a marked target will add it to the shoot list . Your weapons on being fired will engage the targets in the same order that you picked them.

The number of shoot list entries is directly related to the number of weapons carried, a separate list being built for each weapon on board.

NOTE: an automatic shoot list can be added to manually until all weapons carried have a target, and hence a position in the list. Information about targets is displayed in the bottom left corner of each MFD if you place the cursor over a target on that MFD.

Cycling targets

There are 2 methods for cycling targets: automatic and manual.

The Shoot lists are normally set to cycle a target manually, i.e. you will have to cycle your aim to the next target after firing at it by pressing the C key to cycle through the list forwards, or the X key to cycle through the list backwards.

Automatic cycling is available as on the real F-22, by going to the Attack MFD and pressing the 'Cycle Targets Automatically' button. Each time you fire a selected weapon, the target for your next weapon will be shifted to the next target in the SHOOT list. This means that you can quickly engage a number of targets in rapid succession, just by firing each time the SHOOT cue appears. When you only have one pass at the enemy, you might want to

set the selected weapon to launch as a salvo fire, or ripple fire. In salvo fire, all selected weapons will launch. In ripple fire, each weapon will launch when it has all the information it needs, and is in range.

This is done by pressing the relevant button on the Systems MFD. The number of weapons to be launched as a salvo or ripple is set in the Systems MFD, before you engage. One press of the trigger will start the sequence.

Sharing targets with your wingman

Information on targets is shared through the IFDL (Intra Flight Data Link), enabling you to target and prioritize the weapons of your wingman by either pressing F2 or F3 on the keyboard. Then you simply ask your wingman to engage by pressing TAB to talk to Wingmen, option 3 Combat, next option 1 "ENGAGE MY TARGET". A quicker method is to press F2 (or F3) on the keyboard, and then press M .

Infra Red Search and Track (IRST)

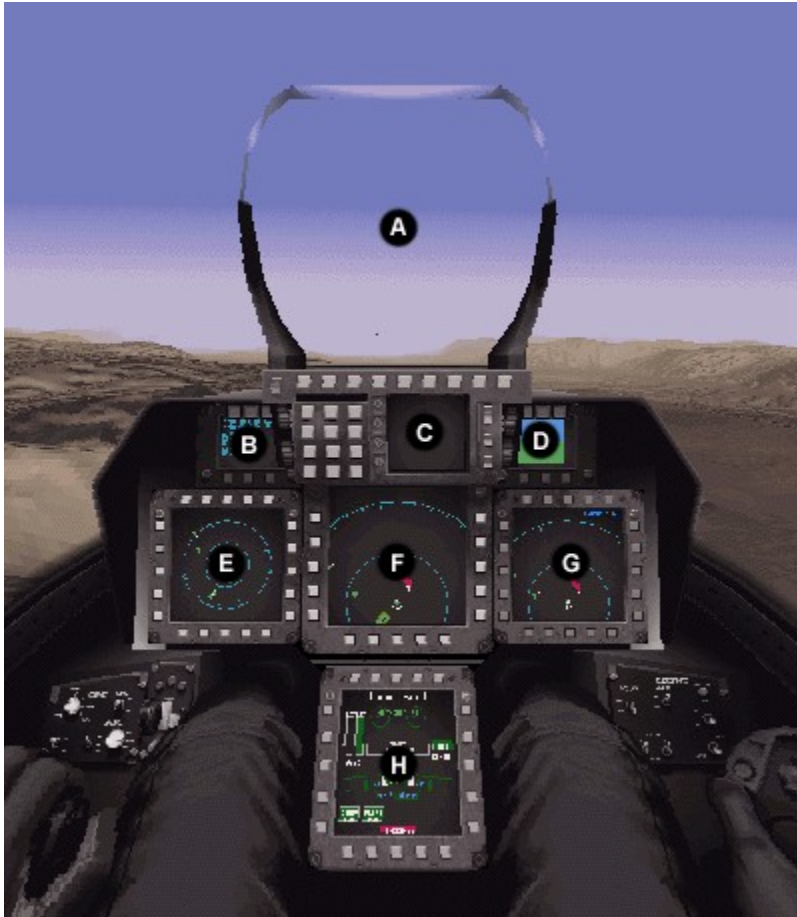
The IRST is a highly sensitive infrared camera that has the ability to magnify a target for display on the Upfront MFD. This allows the pilot to visually identify targets at well beyond visual (eyeball) range. The IRST scans around a frontal arc, and several degrees up and down. It operates in tandem with the radar in Emcon's 2 and higher, being cued (pointed to) the currently selected target in the SHOOT list. The IRST will be slaved to the pilot's view if a padlock view is used (F2).

In EMCON 1 the IRST becomes the primary on-board search and track device, cued to a potential target by its heat emissions. As such it is a very stealthy means of acquiring targets. Target information gained by the IRST is pooled with all other sensor information allowing all air-to-air, and Air-to-Ground guided weapons to be cued to their targets.

For additional information please refer to 'Shoot Lists', and 'Cycling Targets' above, together with entries on AMRAAM, Sidewinder and Maverick missiles.

Cockpit Layout

- A** Head Up Display
- B** Combined Communication and Warnings MFD
- C** Up-Front MFD
- D** Artificial Horizon MFD
- E** Defense MFD
- F** Situation MFD
- G** Attack MFD
- H** Systems MFD

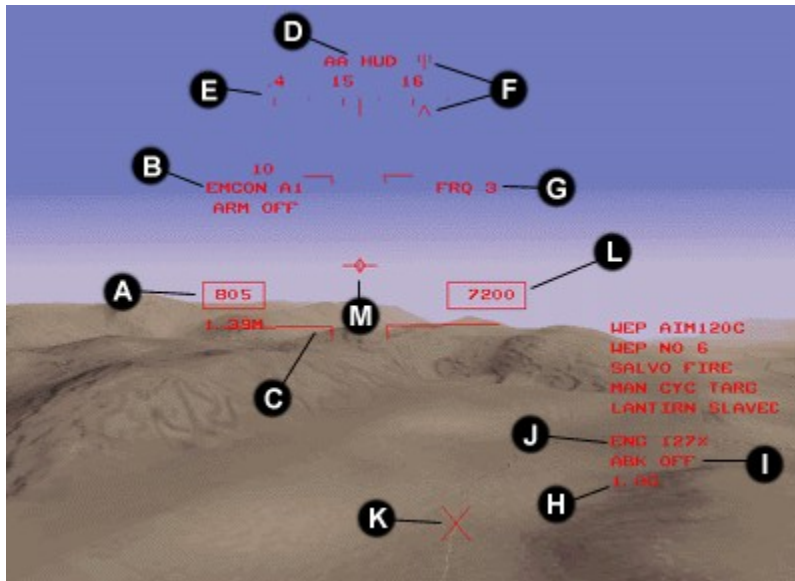


The F-22 has a full 'glass' cockpit.

The HUD is positioned in the pilots line of sight and inside the front of his canopy.

The HUD can be displayed in bright red, dark green, bright green, or dark red and can be cycled through those colours by pressing the keyboard SHIFT H keys.

Information useful to the pilot not wishing to look down into his cockpit displays is shown on the HUD in 5 selectable modes, all of which can be selected by cycling through H on the keyboard.

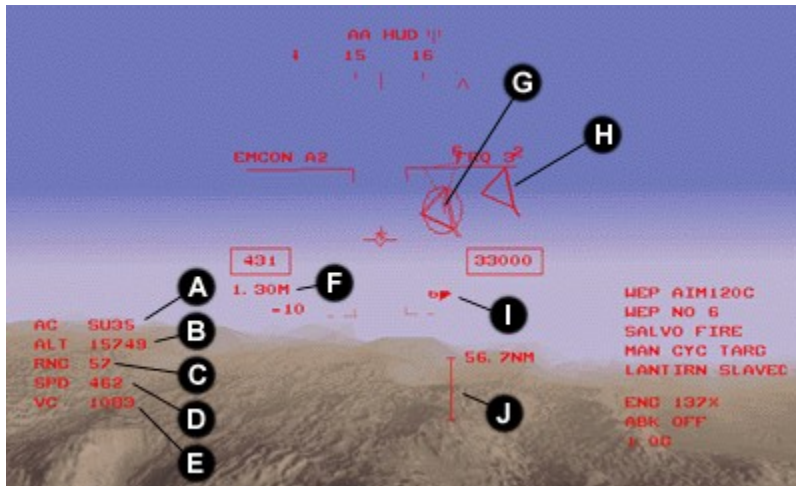


KEY:

- A** Airspeed in Knots
- B** Current EMCON status
- C** Pitch ladder
- D** Current HUD mode
- E** Compass ribbon
- F** Waypoint caret
- G** Current radio frequency
- H** G-Force readout
- I** Airbrake status
- J** Engine power
- K** Next waypoint
- L** Altitude in feet
- M** Velocity vector

Air to Air weapons HUD

The Air-to-Air weapons HUD is selected by pressing RETURN on the keyboard, or by pressing H to cycle through the HUD modes. The Air-to-Air HUD shows all useful information for fighting aircraft.

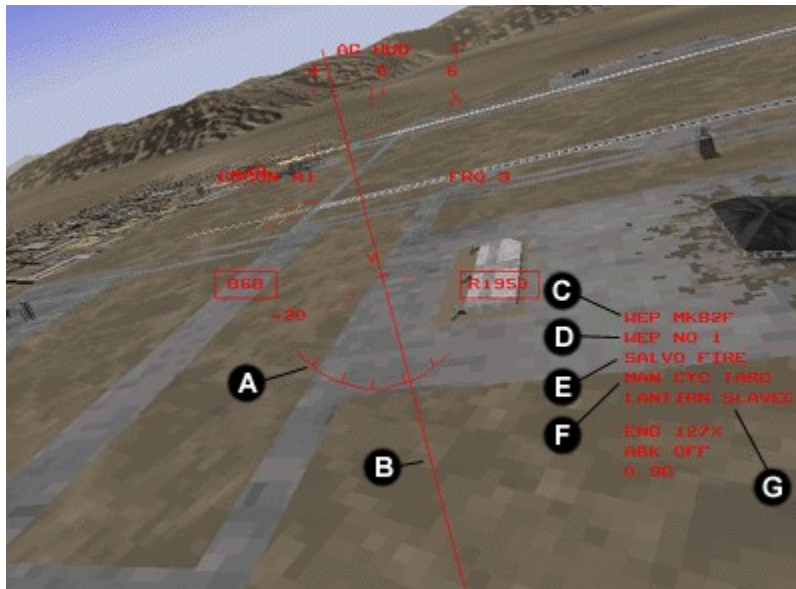


KEY:

- A First A/C in shoot list type
- B Target altitude
- C Target range (Nm)
- D Target speed
- E Closing velocity
- F Ground speed (Mach)
- G Enemy A/C tracked and first in shoot list
- H Enemy A/C tracked and in shoot list
- I Target range and priority
- J Currently selected weapon range bar

Air to Ground weapons HUD

The Air-to-Ground weapons HUD is selected by pressing BACKSPACE on the keyboard, or by pressing H to cycle through the HUD modes. The Air-to-Ground HUD shows all useful information for targeting mobile or static ground targets.



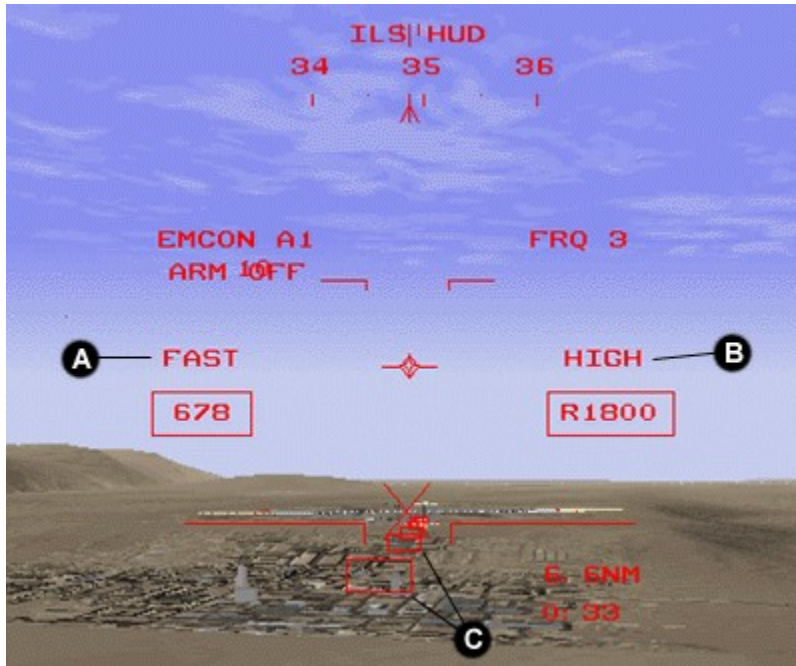
KEY:

- A Bomb fall angle
- B Bomb fall line
- C Currently selected weapon

- D Number of weapons available
- E Selected firing method
- F Selected target cycling
- G Current LANTIRN mode

Instrument Landing System HUD

The Instrument Landing HUD is selected by cycling through H on the keyboard, and displays information to aid landing.

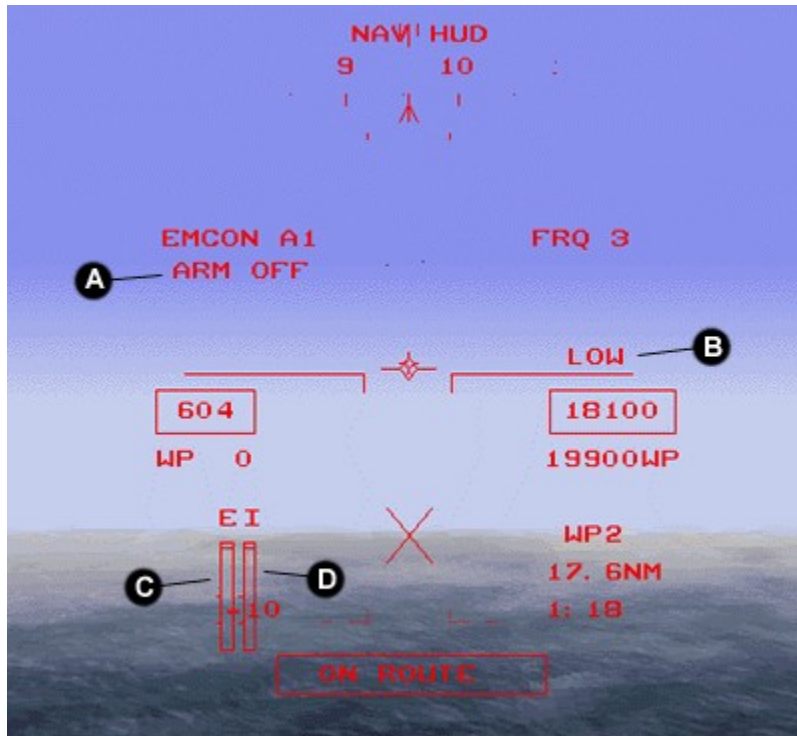


KEY:

- A Landing approach speed warning
- B Landing approach altitude warning
- C Instrument landing system markers

Navigation HUD

The air navigation HUD is selected by cycling through H on the keyboard, and displays useful information for navigation around the world.

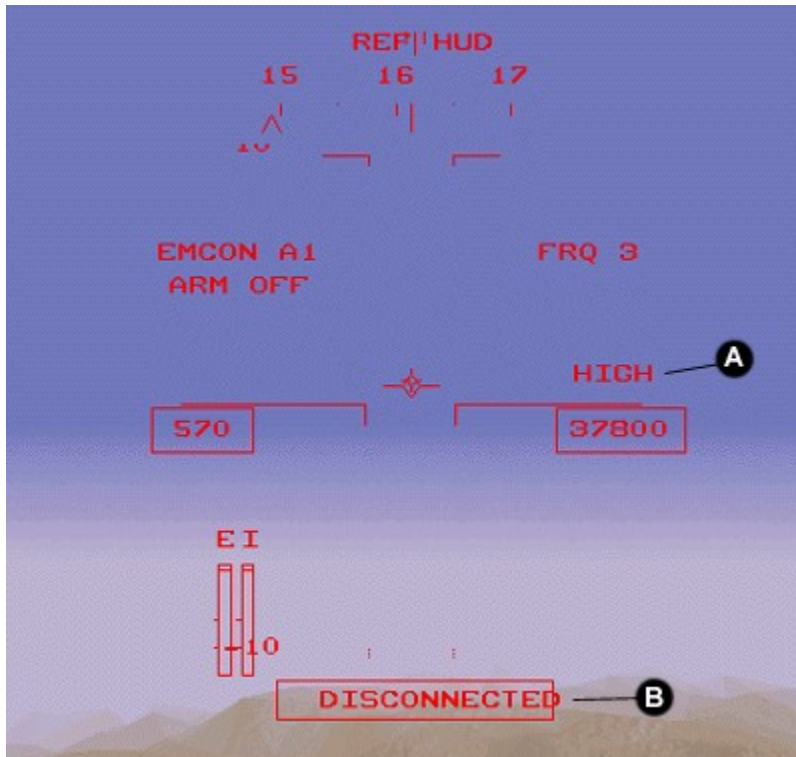


KEY:

- A** Weapons deactivated
- B** Status to planned altitude
- C** External fuel stores
- D** Internal fuel stores

Air Refueling HUD

The air refueling HUD is selected by cycling through H on the keyboard, and displays all useful information for inflight refueling.













KEY:









- A** Altitude warning
- B** Refueling status

Target marking

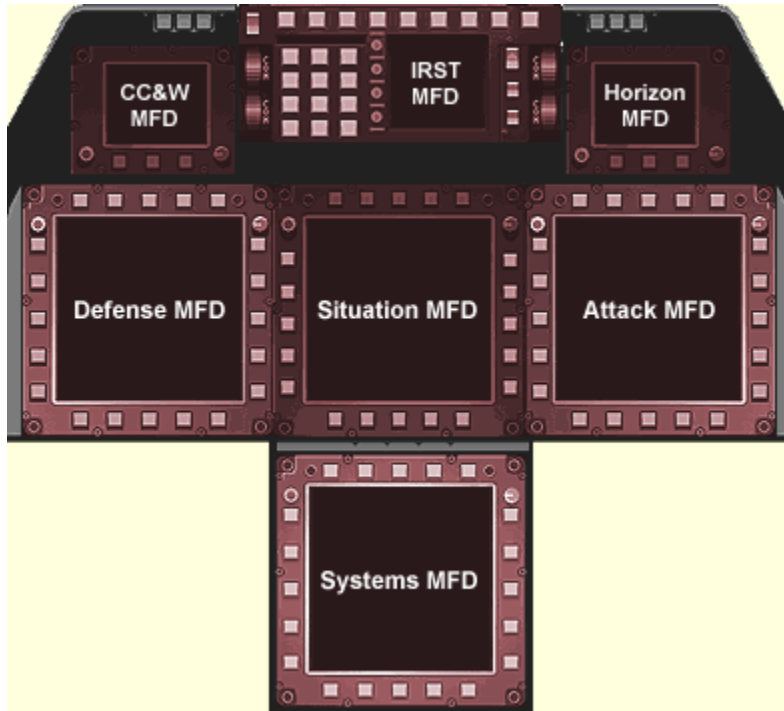
Targets are marked as shown in the accompanying diagram:

HUD	MFD	
		Enemy Aircraft (Subsonic)
		Enemy Aircraft (Supersonic)
		Enemy Aircraft Radar Coverage
		Friendly Aircraft
		Unknown Aircraft
		Enemy Ship
		Friendly Ship
		Unknown Ship
		Enemy Ground Mobile
		Friendly Ground Mobile

		Unknown Ground Mobile
		Enemy Missile
		Friendly Missile
		Enemy Static Target
		Enemy SAM or Radar Site (Circle shows radar coverage)

HUD	MFD	
		The target is being tracked
		The target is locked and in the shoot list
		The next target in the shoot list
		Weapon launched at individual target

Click on any one of the 7 MFDs below to find out more information



This MFD has 2 modes:

1. To display aircraft target images detected by theIRST when the HUD mode is Air-to-Air.
2. To display ground target images detected by theIRST when the HUD mode is Air-to-Ground.

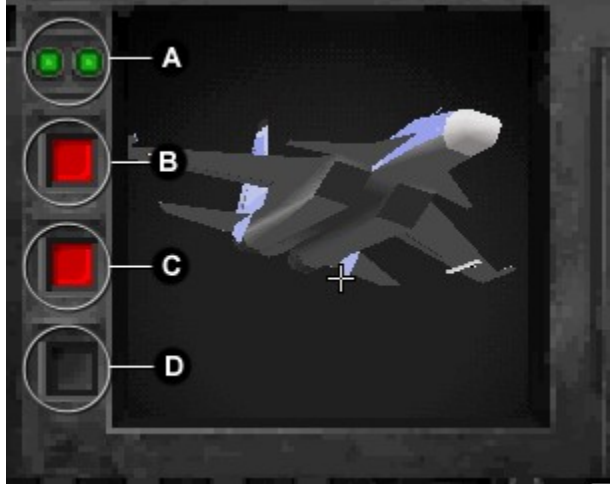


IRST - Stealthy passive detection and imaging.

MFD BUTTONS:

- A** Radio frequency 1
- B** Radio frequency 2
- C** Radio frequency 3
- D** Radio frequency 4
- E** LANTIRN image
- F** Weapon image
- G** Cycle image
- H** Lock image to selected weapon
- I** Zoom image

- 1** EMCON 1
- 2** EMCON 2
- 3** EMCON 3
- 4** EMCON 4
- 5** EMCON 5
- 6** Auto EMCON
- 7** Cycle HUD modes
- 8** Gear Up/Down
- 9** Main bay doors Open/Close
- 10** Manual ACMI recording



Warning Lights:

- A Engine status, Left/Right
- B Radar lock warning
- C Incoming radar guided missile
- D Incoming infrared missile

This MFD displays the Artificial Horizon only.



Artificial horizon - useful for instrument approaches.

MFD BUTTONS:

- A** Artificial Horizon
- B** Pitch Ladder
- C** Display Autopilot

This MFD has 2 display modes:

1. Sensor information with the addition of enemy radar and weapons ranges.
2. Display the interactive Auto-pilot



Sensor-Fusion - these displays integrate all incoming data for the pilot.

MFD BUTTONS:

- A** Auto EMCON
- B** Cycle EMCON backwards
- C** Cycle EMCON forwards
- D** Increase sensor range
- E** Decrease sensor range
- F** Display artificial horizon
- G** Launch a string of six flares
- H** Launch chaff
- I** Launch decoy drone
- J** Display autopilot
- K** Display ground threats
- L** Display enemy weapon range
- M** Display enemy radar range
- N** Display attack MFD

This MFD has 2 display modes:

1. Sensor information of the overall situation.
2. Interactive Auto-pilot



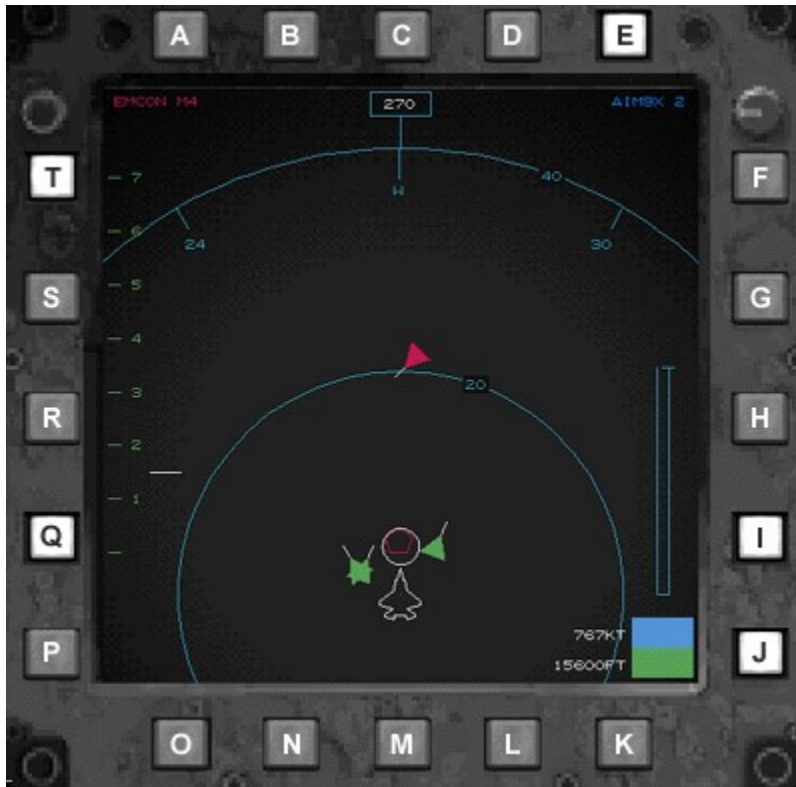
The moving map display - the basis of good navigation.

MFD BUTTONS:

- A** Auto EMCON
- B** Cycle EMCON backwards
- C** Cycle EMCON forwards
- D** Increase sensor range
- E** Decrease sensor range
- F** Display artificial horizon
- G** Filter air targets only
- H** Filter ground targets only
- I** Filter own sensors only
- J** Waypoint editor
- K** Display autopilot
- L** Display waypoints
- M** Display place names
- N** Display map
- O** Display attack MFD

This MFD has 4 display modes:

1. Display sensor information with the emphasis on ranges and heights.
2. Display LANTIRN TV image from the under-fuselage 'eyes' for targeting laser guided weapons.
3. Display interactive Auto-pilot
4. Display images sent back by a camera equipped weapon (such as a Maverick Air-to-Ground missile).



The attack MFD - everything you need to know about your enemy.

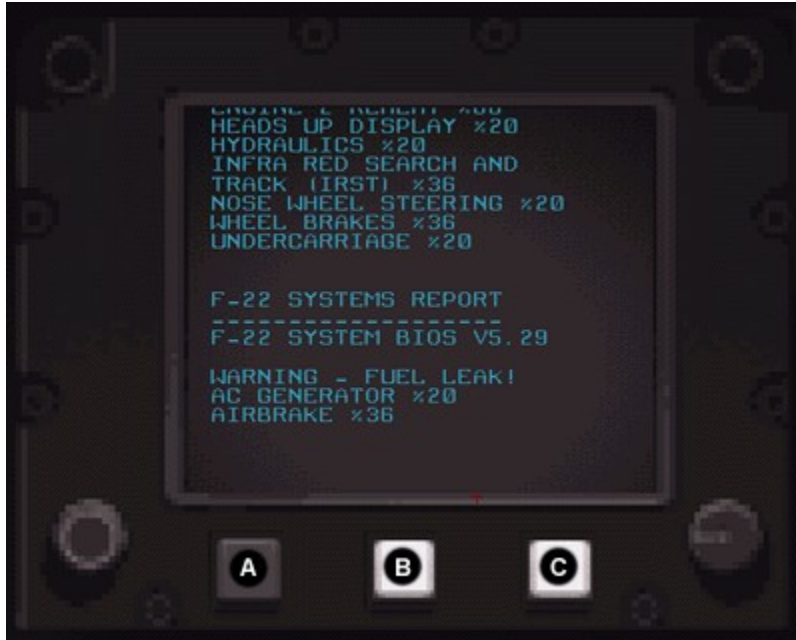
MFD BUTTONS:

- A** Auto EMCON
- B** Cycle EMCON backwards
- C** Cycle EMCON forwards
- D** Auto cycle targets
- E** Manual cycle targets
- F** Increase sensor range
- G** Decrease sensor range
- H** Generate shoot list for selected weapon
- I** Display range data
- J** Display artificial horizon
- K** LANTIRN mode
- L** LANTIRN track
- M** Zoom LANTIRN
- N** LANTIRN reset
- O** Display LANTRIN image
- P** Display autopilot
- Q** Display altitude data
- R** Cycle images
- S** Display weapons image
- T** Display attack MFD



LANTIRN - for precision attacks with guided weapons.

This MFD has 1 mode: Display text transcriptions of messages sent to you audibly, together with the communications radio frequency. Interspersed with the messages will be system malfunctions and warning text



Text messages corresponding to audio and warning messages are displayed on this MFD.

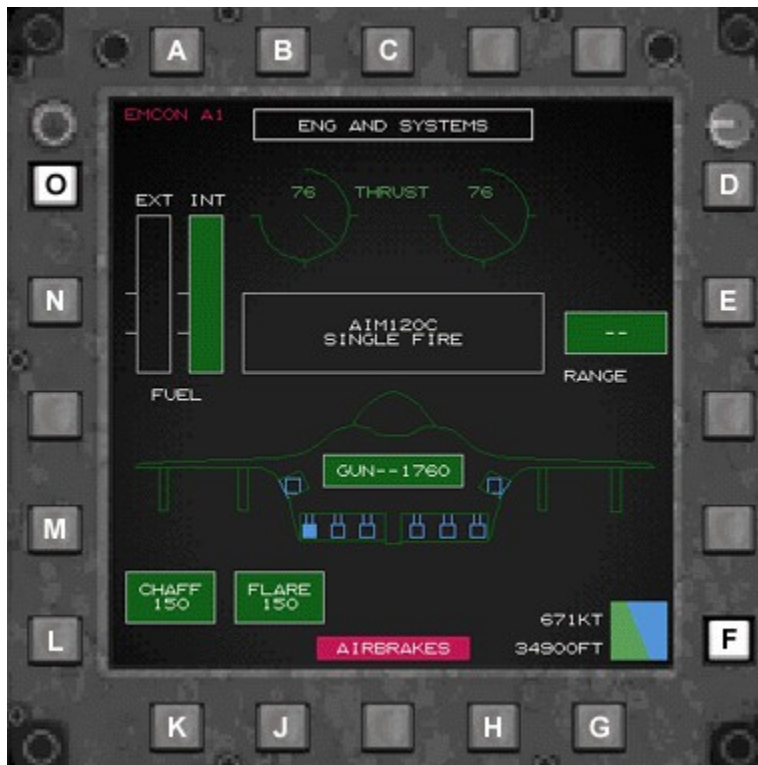
MFD BUTTONS:

- A** Cycle Radio Frequency
- B** Data Text
- C** Damage report

This MFD has display modes:

1. Display general systems of immediate importance to the pilot.
2. Display the fuel systems.
3. Display systems status
4. Display interactive Auto-pilot

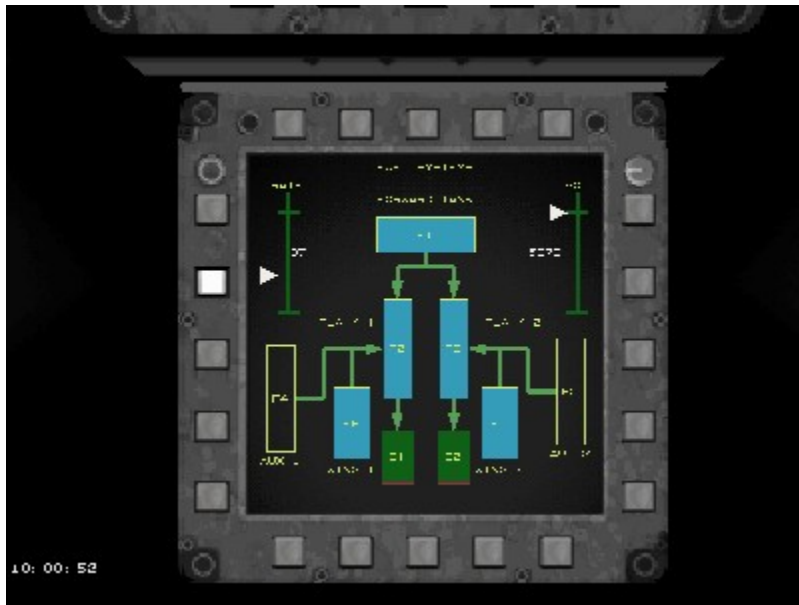
NOTE: on the systems MFD are buttons that alter the firing of weapons. The options are: single, ripple, and salvo fire.



General systems MFD - engine and weapons status at-a-glance.

MFD BUTTONS:

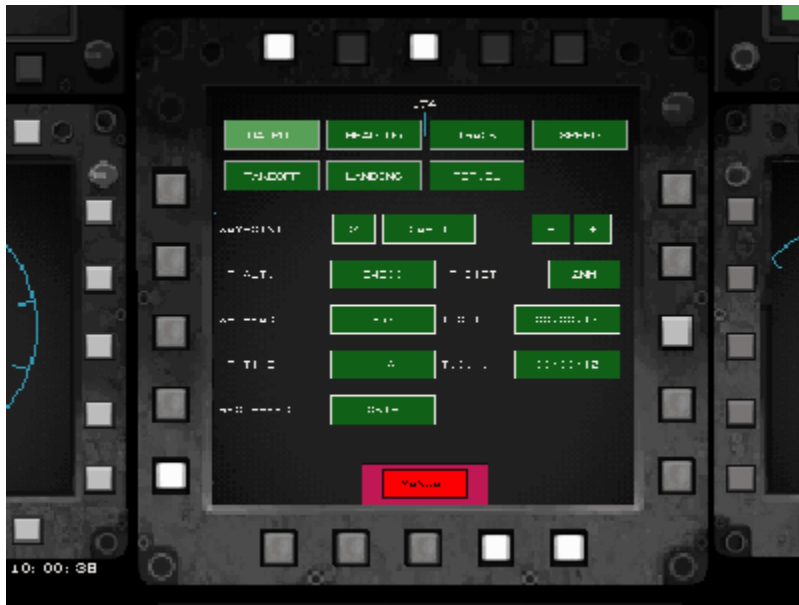
- A** Auto EMCON
- B** Cycle EMCON backwards
- C** Cycle EMCON forwards
- D** Vocal warnings on
- E** Display ILS markers
- F** Display artificial horizon
- G** Increase fire delay
- H** Decrease fire delay
- I** Increase firing number
- J** Decrease firing number
- K** Cycle firing mode
- L** Display autopilot
- M** Display systems check
- N** Display fuel systems
- O** Display attack MFD



Fuel systems MFD - check the load-out and tank levels.



Start-up MFD - an automatic pilot's checklist.



Autopilot - Alter the Autopilot's instructions

Indicated Targets

Targets are marked on the HUD, and MFD's as shown in the accompanying diagram:

HUD	MFD
	Enemy Aircraft (Subsonic)
	Enemy Aircraft (Supersonic)
	Enemy Aircraft Radar Coverage
	Friendly Aircraft
	Unknown Aircraft
	Enemy Ship
	Friendly Ship
	Unknown Ship
	Enemy Ground Mobile
	Friendly Ground Mobile
	Unknown Ground Mobile
	Enemy Missile
	Friendly Missile
	Enemy Static Target



Enemy SAM or Radar Site
(Circle shows radar coverage)

HUD

MFD



The target is being tracked



The target is locked and in the shoot list



The next target in the shoot list



Weapon launched at individual target

Target symbology in the HUD and MFDs.

The auto pilot when engaged engines running, will automatically control the F22 throughout all the phases of a mission.

It will taxi the aircraft to the runway and automatically takeoff, follow a waypoint route and a predetermined heading, track targets, maintain a constant speed, aid air-to-air refuelling and assist in landing and taxiing back to a parking apron. It can be engaged or disengaged at any time in flight, or on the ground.








When used for **take off**, you must have been given permission to taxi, and replied by pressing Y on the keyboard, the autopilot must be in take off mode.

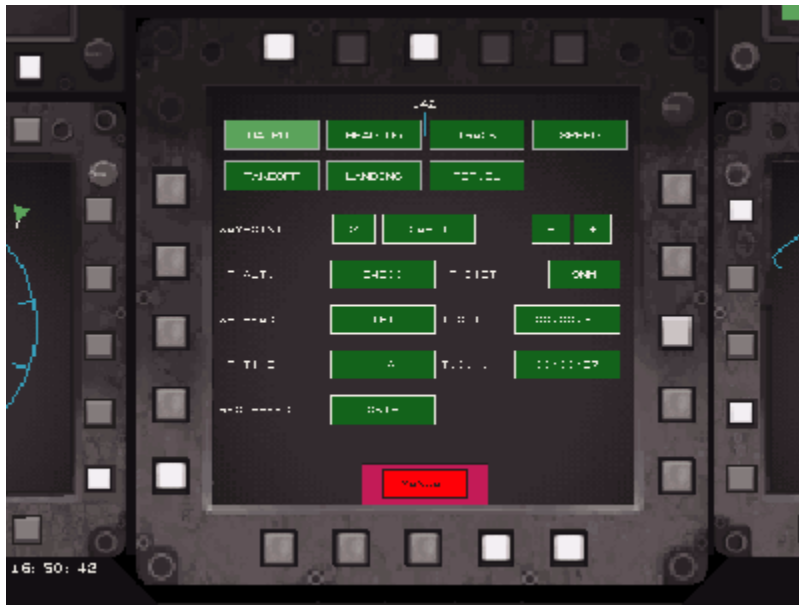
For **landing** you must have sought, and been granted permission to land, and replied by pressing Y on the keyboard, the autopilot must be in landing mode.

To **refuel** with the autopilot you must have sought permission to refuel, and replied Y on the keyboard to the *AFFIRM WEAPONS AND NOSE COLD* message.

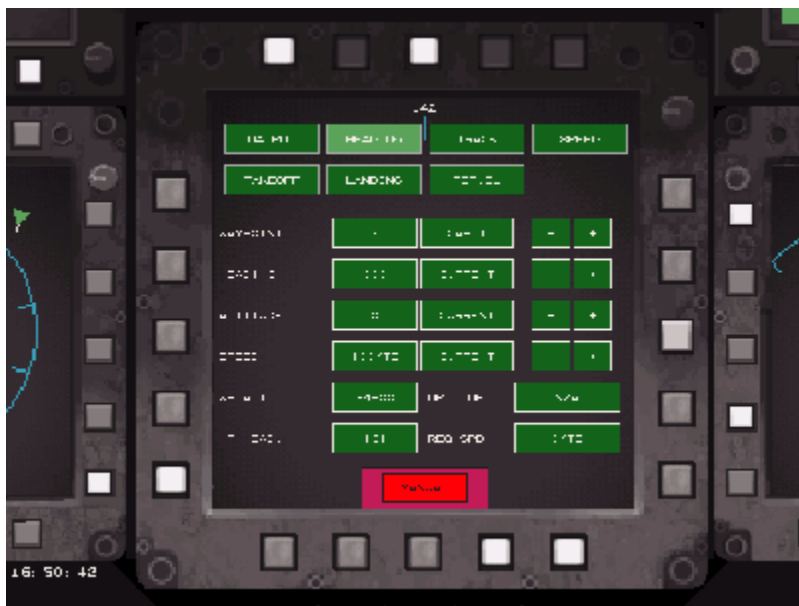
Select refuel on the autopilot, noting that the HUD should now be in refuel mode, and formate behind, and to the left of the tanker. When the refueler gives you *CLEARED PRECONTACT* permission, you can engage the autopilot by pressing A on the keyboard.

The auto pilot can be displayed on any one of the main MFD's (see MFD's above), and can be configured for the following:

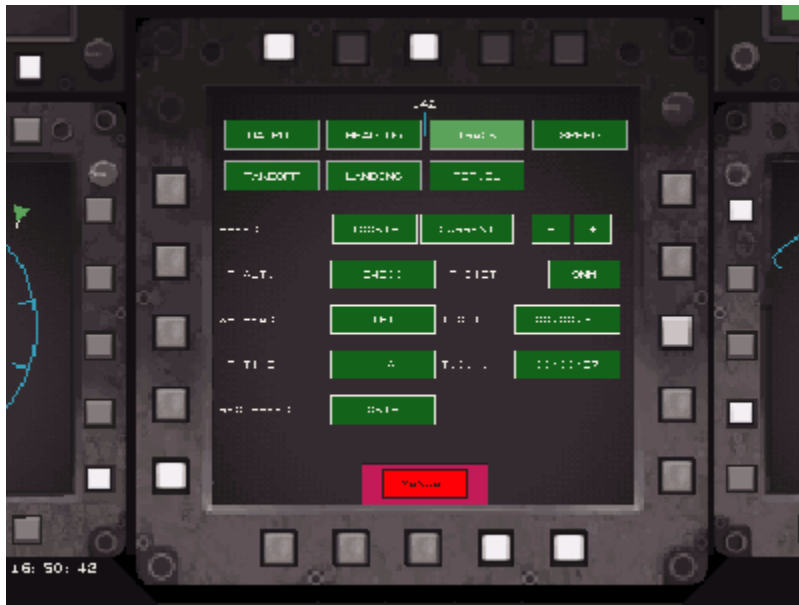
-  Follow way point route
-  Follow heading
-  Follow first target in shoot list
-  Follow a set speed
-  Take off mode
-  Landing mode
-  Refuelling mode



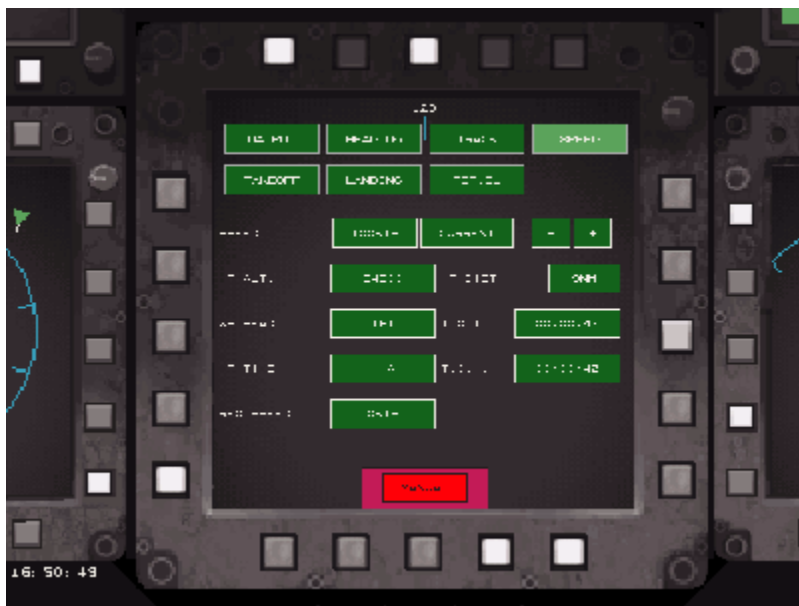
Follow waypoint - one of the autopilot's many useful functions.



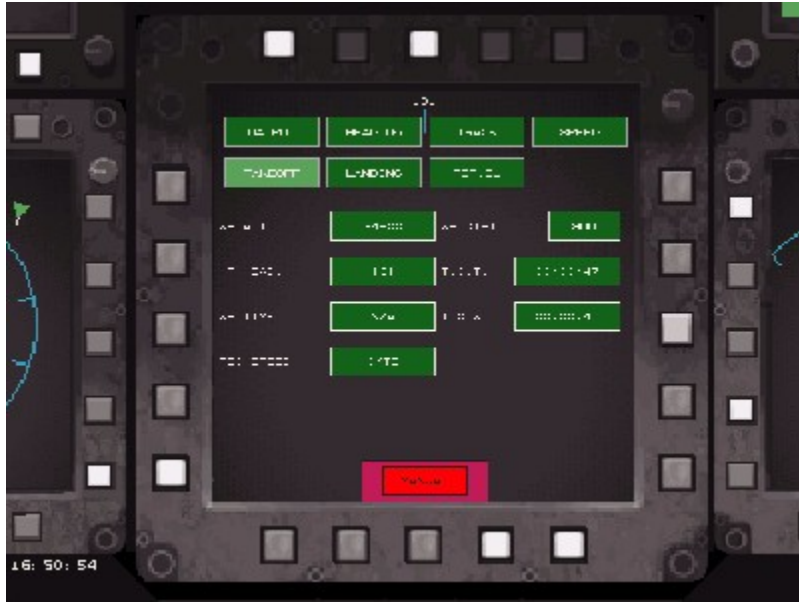
Follow heading - when you need to wander off-route.



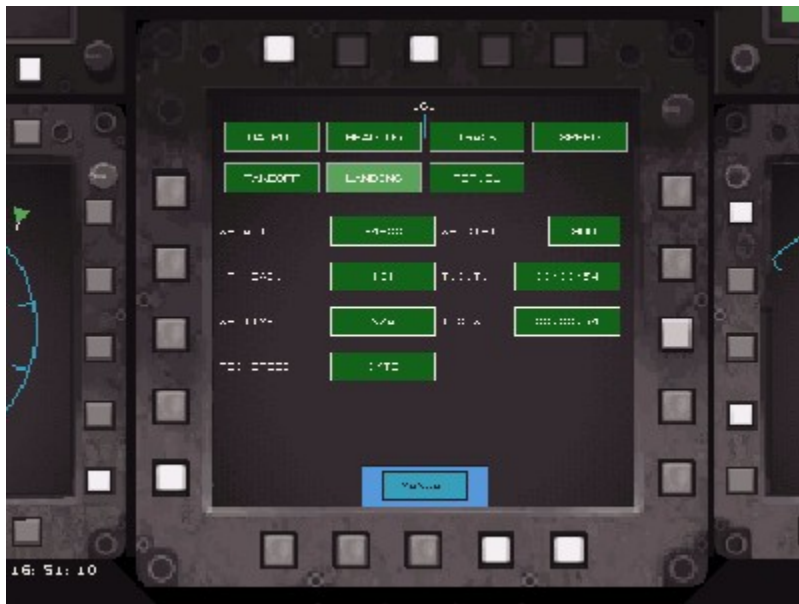
Follow target - attack maneuvering under computer control.



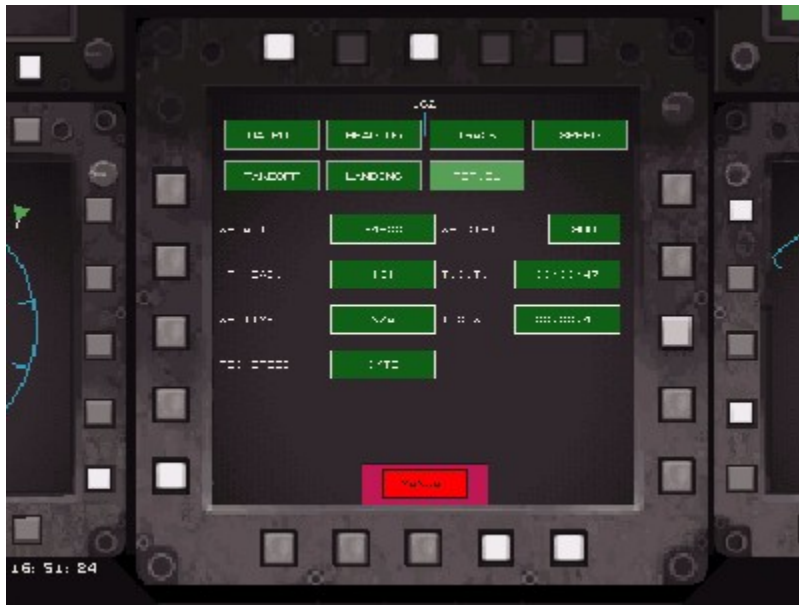
Follow speed - adjust to arrive at targets on time.



Take-off mode - when you have better things to do.



Landing mode - automated, like modern civil aircraft.



Refueling mode - reduce risk in this tricky maneuver.

Please refer to the F22 cockpit, Systems MFD for more information regarding the autopilot.

```
{button Engine Start,JI('F22HELP.HLP','Engine_start')}{button Taxi-ing,JI('F22HELP.HLP','Taxi_ing')}{button Take Off,JI('F22HELP.HLP','Take_off')}{button Navigation,JI('F22HELP.HLP','Navigation')}{button Landing,JI('F22HELP.HLP','Landing')}{button Air Refuelling,JI('F22HELP.HLP','Air_Refuelling')}{button Thrust Vectored Manoeuvres,JI('F22HELP.HLP','Thrust_vectored_manoeuvres')}
```

Training is essential if you are to understand the avionics and their application to real missions.

In the Simulator section of F22 Air Dominance Fighter, are missions which should be viewed initially as training.

Please study the following Information, note the reference in corresponding order to the Simulator section of F22 Air Dominance Fighter and the Key Card.

Engine start

For those in a hurry, start the engines directly by pressing the [, (left engine) and], (right engine) symbols on the keyboard. All aircraft systems will power up automatically.

When you start a new mission on the ground you will find the F22 Auxiliary Power Unit running and all systems ready for start.

The tower will call you for a communications check, "*COMMS CHECK, GO TO NOISECON 5*". Set your F22 to (manual) EMCON 5, by pressing E on the keyboard and then option 5, or by pressing the relevant button on the Up Front MFD panel.

NOTE the engines will be off, and the brakes will be on. The radio frequency will already be set to PUSH 1 for communication with the tower. To select the radio frequency PUSH 1 by pressing 1 on the normal keyboard numbers. To change radio frequencies at any time press the number of the frequency required: 1, 2, 3 and 4 from the normal keyboard numbers.



Ready for take-off.

Go to the Systems MFD by pressing 0 on your extended keypad. The MFD will already be displaying the start up screen, press the indicated red start button, when it is green all systems are live and the engines have been started.

For take off select either the ILS, or NAV HUD mode by pressing the H key repeatedly until those HUD modes are displayed.

The canopy will close automatically when you exceed 5 knots, and can be closed / opened below that speed by

pressing I on the keyboard.

Taxi-ing the F22

The easy way, you must have been given permission to taxi, and replied by pressing Y on the keyboard, go to the Systems MFD by pressing 0 on the extended keyboard, press the relevant MFD button to select the Auto pilot mode on that MFD, and then select Take off on the Auto pilot list of buttons, then engage the Auto pilot by pressing A on the keyboard.

The autopilot will now complete all taxi-ing and take off.

Once your take off time has passed the tower will determine a safe time slot for you to begin taxi-ing, if there is no safe slot, then permission will be delayed.

When the tower clears you to taxi, reply by pressing Y on the keyboard, you can now move from your parked position.

If permission to taxi has not been granted after the communication's check, request your take off time by picking option 2 Airfield, and then choosing option 1, "SAY MY TAKE OFF" from the menu on the top left of your Helmet Mounted Display. The tower will respond with your take off time.

Take the brakes off by pressing B on the keyboard, and increase engine power by repeatedly pressing the extended keyboard + symbol, (or pushing forwards on your throttle).

Power will have to be increased to 80% to get the F22 moving, and shortly after throttled back to 74% to maintain a taxi speed of 20 knots. When cornering slow down to around 10 knots.

NOTE exceeding this taxi speed may result in you crashing before you are even off the ground!



From a standing start, push throttles to 80% momentarily, then pull-back to 70%

The aircraft can be steered on the ground by use of the <, (to the left) and >, (to the right) symbol keys, or by the appropriate use of your joystick. The toe brakes can be actuated to slow one side of the aircraft by pressing SHIFT <, or SHIFT >.

Unsure where to taxi? then use the way point direction carets (an inverted arrow, and triple vertical line on the HUD compass ribbon), please see Navigation.

The way point direction carets are also of use for getting around the airfield. You can also go to the nearest taxi way and observe the airfield runway markers.

When you arrive at the runway hold area, (the area of taxi way just before the runway), stop by applying the brakes, B on the keyboard, and throttle the engines back to ground idle.

You will let the tower know you are at the hold automatically, you should place your F22 nose just short of the runway edge.

Permission to proceed onto the runway "LINE UP", will be given when the runway is clear of other traffic. When you have the got the F22 lined up pointing straight down the runway, then stop.

Remember , do not assume it is always clear, keep a good look out around you.

When you are lined up on the runway stop and declare your readiness to take off, by pressing Y on the keyboard.

Take off

For those in a hurry, ignore any permissions take the brakes off, increase the throttle to full, and pull the F22 nose off the deck at a speed of 180 knots by pressing the DOWN CURSOR key gently, (or by pulling back on your joystick).

For those in a hurry, and who are just plain impatient, use the DID time skip by pressing SHIFT S to move from your parked position, until you find yourself on the runway. Then follow To take off below.

NOTE at any time in flight, or on the ground you can stop the action by pressing P to pause the game, (press again to un-pause).

The easy way, go to the Systems MFD by pressing 0 on the extended keyboard, press the relevant MFD button to select the Auto pilot mode on that MFD, and then select Take off on the Auto pilot list of buttons, then switch on the Auto pilot by pressing A on the keyboard.

NOTE so long as your engines are running, when you select take off, the Auto pilot will taxi the aircraft to the runway, and take off.

The tower will give you final take off permission "YOU ARE CLEARED TO TAKE OFF", Note the altitude you are to climb to and the bearing for airfield departure. Acknowledge the tower and order your flight to take off by pressing Y on the keyboard.



Throttle your engines up to full military power, an indicated 100% on your HUD (the throttles can be snapped to military power by pressing SHIFT + on the keyboard), immediately on reaching that value take the brakes off. When you reach 180 knots pull the nose up by pressing the DOWN CURSOR key gently, (or by pulling back on your joystick).

Shortly after leaving the ground bring the gear up by pressing G on the keyboard, keep the aircraft straight, (no rolling) and in a steady 15 degree climb.

Climb to the altitude indicated by the tower , and steer the aircraft onto the pre-planned route by referring to Navigation.

The tower will contact you once more *"PUSH 2 FOR MAGIC, GOOD DAY"*, contact the AWACS on radio frequency PUSH 2 (open channel) by pressing 2 on the keyboard, or PUSH VICTOR 3 by pressing 3 on the keyboard, and picking option 2 AWACS, then choosing option 7 *"FLIGHT IS AVAILABLE"*, if you intend to fly away from the airfield.

NOTE from the menu choices now placed in AWACS on your Helmet Mounted Display you will have a choice of requests, and reports for the AWACS who will handle all aspects of your flight until you need to contact the tower for landing. If you do not inform the AWACS of your flight you may be interrogated for identification. Please see The AWACS chapter for more information.



Departure from the airfield, looking aft.

NOTE once you get airborne, turn the aircraft slowly left or right by use of the rudder, press symbol <, >. Or bank for example left, and turn by slowly pressing the LEFT CURSOR key, (or pushing the joystick to the left gently. A much sharper turn can then be executed by pulling the nose up with the DOWN CURSOR key, (or pulling back with the joystick).

Navigation

Way point direction carets, will enable you to follow a planned route by looking at the compass ribbon at the top of the HUD, the Figure in the centre of the box, is the compass heading you are currently at. The inverted arrow below the compass ribbon shows where you must steer the box , (and therefore you) in order to line up with the first Way point on your route.

The triple vertical line symbol above the compass ribbon shows where you must steer in order to intersect the line between the last way point, and the next.

NOTE these navigation symbols are displayed in all HUD modes.

NOTE the symbols will also indicate a direction to follow for the right taxi way to reach the correct end of the runway as indicated by the tower.



Navigation - half the battle is getting there in one piece.

The navigation HUD can be selected by pressing the H key repeatedly until NAV HUD appears.

The NAV HUD will tell you if you are high / low, or early / late on your intended route, and so will help you to judge what you should do in order to follow your mission correctly.

Please see the Navigation HUD illustration in Head Up Display.

Preparing to Land

For those in a hurry, use the DID time skip by pressing SHIFT S until you find yourself in a parking position.

For those in a desperate hurry, just end the game!

For **landing** you must have sought, and been granted permission to land, and replied by pressing Y on the keyboard, the autopilot must be in landing mode.

The easy way, you must be within 15 miles of the airfield and gain permission to land by selecting radio frequency PUSH 1, select it by pressing 1 on the keyboard.

Request permission for recovery from the tower by picking option 2 Airfield, and then choosing option 2, "**FOR RECOVERY**" (or options 3, 4, 5 depending on your urgency!) from the menu on the top left of your Helmet Mounted Display, when the tower grants permission reply by pressing Y on the keyboard.

Go to the Systems MFD by pressing 0 on the extended keyboard, press the relevant MFD button to select the Auto pilot mode on that MFD, and then select landing on the Auto pilot list of buttons, then engage the Auto pilot by pressing A on the keyboard.

NOTE the Auto pilot will land the F22, and taxi it back to a parking slot, all necessary messages, and steps will be handled automatically. You will only be responsible for engine shut down once parked.

When you need to return to an airfield it will be for one of four reasons: either



You are following your pre planned route.



You have requested a vector for recovery at your mission start base.



You have requested a divert airfield from the AWACS.



You intend to land at an airfield of your choice.

NOTE at 15 miles from the base you will be able to see the landing light pattern, and the ILS hoops on your ILS HUD only if you are within a few degrees of the glide slope at the end of the runway. Only the runway to be used will display open ILS hoops, (the runway that should not be used will display hoops with crosses in them).



Heading for home!

Pre planned landing

As you get to 15 miles of your destination airfield on your way point route select the ILS HUD mode, and radio frequency PUSH 1 by pressing 1 on the keyboard.

Request permission for recovery from the tower by picking option 2 Airfield, then choosing option 2, "*FOR RECOVERY*" (or options 3, 4, 5 depending on your urgency!) from the menu on the top left of your Helmet Mounted Display, then refer to Landing below.

Vector for recovery

At around 15 miles of your destination airfield select the ILS HUD mode, and radio frequency PUSH 1, then request a vector for recovery from the tower by picking option 2 Airfield, then choosing option 2, "*FOR RECOVERY*" from the menu on the top left of your Helmet Mounted Display. You will be given a direction to the airfield.

Requesting a divert airfield

To request a divert airfield from the AWACS who is controlling your flight first ensure you are in radio frequency PUSH 2, or PUSH VICTOR 3 by pressing 2 or 3 on your keyboard.

From the menu on the top left of your Helmet Mounted Display, pick option 2 AWACS, then choose option 1 "*REQUEST DIVERT AIRBASE*". The AWACS will name the nearest available airfield, give you a direction to it, and its range from you. Then refer to Land at an airfield of choice below.

NOTE: Requesting any information from the AWACS when the AWACS is not present, will obviously meet with silence!

Land at an airfield of your choice

When you are within 15 miles of any airfield you can land there by selecting the ILS HUD mode, and radio frequency PUSH 1, then request permission for recovery from the tower by picking option 2 Airfield, then choosing option 2, "*FOR RECOVERY*" (or options 3, 4, 5 depending on your urgency!) from the menu on the top left of your Helmet Mounted Display, then refer to Landing below.

Landing

The ILS HUD is necessary for landing information and can be selected by pressing the H key repeatedly until the ILS HUD appears.

This HUD mode indicates a series of boxes visible from the approach path to the runway, which indicate the correct glide path for touchdown.

The ILS hoops can be turned on / off while in the ILS HUD mode by pressing the appropriate button on the Systems MFD.

Please see the Instrument Landing System HUD illustration in Head Up Display, and the Systems MFD illustration in Multi Function Displays.

NOTE to talk to the tower and hear instructions you will need to be on radio frequency PUSH 1, select it by pressing 1 on the normal keyboard numbers.

NOTE the way point, and way point path markers mentioned in Navigation are of great use in all kinds of approaches to indicate where you should fly to next.

NOTE the ILS hoops will appear as open boxes if you have permission to land on the runway the ILS hoops are projecting from. If you do not have permission each ILS hoop will have a cross on it.

Your airfield approach will be one of the following three.



Circuit approach



Teardrop approach



Direct approach

The normal approach is Circuit which the tower will advise you of with the message: *"JOIN THE LEFT CIRCUIT, FOR RECOVERY ON RUNWAY"*, plus the runways number, when you are within 15 miles of the runway.

If you specifically request a teardrop, or straight in approach you will receive clearance for that kind of approach, or you may be refused due to traffic considerations.

NOTE: you can acknowledge the towers orders by pressing Y on the keyboard.

Circuit approach

This is the normal fighter approach to a military airfield. It is performed by making an approach directly for the runway to be landed on and descending to an altitude of 3000 feet by the time you are directly over the runway. You must fly down the length of the runway maintaining that altitude and follow the left hand circuit.

The circuit will be indicated on your Situation MFD as an extension of your way point route, and will further be indicated by way point direction carets, please see Navigation.

The circuit is approximately 2.5 miles across. At 3 miles along the runway side, turn left onto leg 2, and at the next indicated waypoint, turn onto leg 3 which is the back leg, descending to 1500 feet, lower your undercarriage by pressing G on the keyboard. Continue to the next turn and onto leg 4, here you should be able to see the ILS hoops as you are about to intercept the glide path.

Turn onto leg 5 for final approach, notify the tower by selecting radio frequency PUSH 1, then notify the tower that you are on finals by picking option 2 Airfield, and then choosing option 6 *"FINALS"* from the airfield menu, then descend on the glide slope.

The tower will respond by saying *"CLEAR TO LAND"* if the runway is clear or *"LANDING NEGATIVE, GO AROUND"* if another flight is taking off or is ahead of you on the ILS.

Refer to Glide slope in Direct approach below.



Leg 3, next - Gear down for finals.

Teardrop approach

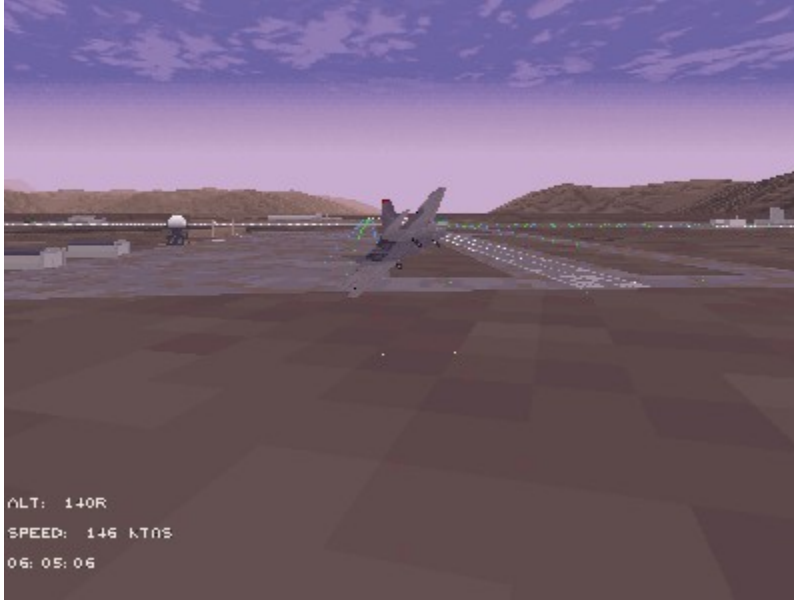
The Teardrop approach is used specifically at front line airfields that might come under attack at short notice, and is essentially a much shorter and tighter version of the Circuit approach.

It is a dynamic manoeuvre which rapidly reduces a high approach speed, and altitude by pulling a high G spiralling turn to quickly land, and reduces the risk of attack by enemy surface to air missiles, if the airbase is close to enemy forces.

To request a Teardrop approach you should already be in radio frequency PUSH 1, pick option 2 Airfield, then choose option 4, "*TEARDROP APPROACH*" while you are within 15 miles of the runway. Approach the glide slope approximately half way along its length as indicated on the ILS HUD by the ILS hoops.

As you intercept the glide slope you need to be at 1500 feet, notify the tower by selecting radio frequency PUSH 1, pick option 2 Airfield, then choose option 6 "*FINAL*S" from the airfield menu, spiral sharply round 360 degrees so that you lose height rapidly to approximately 500 feet and pointing towards the runway.

Refer to Glide slope in Direct approach below.



Teardrop approaches for airfields under threat.

Direct approach

The traditional straight in approach to a runway.

To request a Direct approach you should already be in radio frequency PUSH 1, pick option 2 Airfield, then choose option 3 *"DIRECT APPROACH"* from the menu on the top left of your Helmet Mounted Display while you are within 15 miles of the runway. When permission is granted work your F22 around to the in use runway so that you can make the most direct approach, and see the runway lighting and ILS hoops as soon as possible.

As you intercept the glide slope notify the tower by selecting radio frequency PUSH 1, pick option 2 Airfield, then choose option 6 *"FINALS"* from the airfield menu.

Glide slope

The ILS hoops projecting out of the end of the runway indicate the glide slope. You must intercept the glide slope allowing yourself enough room to line up with the runway.

Steadily reduce your airfield approach speed to 230 knots by repeatedly pressing the extended keyboard - key, (or by pulling back on your throttle) by the time you have intercepted the glide path, your glide slope speed should be 170 knots, power setting 80%. You must get the F-22 pointed straight down the approach and runway, and level the wings. It may help to deploy the air-brakes by pressing B on the keyboard. If your undercarriage is not already down, lower it by pressing G on your keyboard.

While on the final approach it is important to notify the tower by selecting radio frequency PUSH 1, Pick option 2 Airfield, then choose option 6 *"FINALS"* from the airfield menu. This action will allow the tower to free up the runway once you have landed, and will give them a final chance to grant permission or direct you to go around the circuit.

Keep the velocity vector in the HUD just beyond the touchdown 3, 2, 1 markers on the runway, when your altitude is 50 feet, pull the nose up slightly so that the velocity vector is approximately half way down the runway. Reducing the power to 35% (flight idle), at this point may help your touchdown.

NOTE on touch down the wheel brakes will be applied already if you have deployed the airbrakes, to take the brakes off press the B key on the keyboard. You will get the shortest possible landing if you leave the brakes on.

NOTE the F22 is not equipped with a braking chute, or thrust reversing.



No parachute! Air-brake rudders and wheel brakes slow you down.

Once you have achieved taxiing speed of 20 knots or less, the tower will notify you where to park your F22. You will be able to find your way back to your allotted parking space by use of direction caretts at the top of all HUD displays. Please see Navigation above.

NOTE once back on the ground, the F22 can be **rearmed / refueled** automatically

Permission to land is refused!

When the airfield is busy or out of action you may be given other instructions.

If the airfield is out of action, you will be told that the "*THE AIRBASE IS BLACK, DIVERT TO* ", plus the divert airfield name. Your way point route will be automatically extended to the new airfield, as portrayed on the Situation MFD.

At a busy airfield you may be directed to turn to a new heading, or to "*JOIN THE STACK*" at an indicated altitude. The Stack is a circuit for aircraft to orbit within, where the aircraft start at the top and spiral slowly down until they are given permission to land, the position will be the same as the landing circuit in this game, the rotation is left hand (anti clockwise seen from above) like the landing circuit.

When the player is on final approach, (i.e. on the glide slope) final permission may be refused by the message: "*LANDING NEGATIVE, GO AROUND*". In this case you must follow the landing circuit at 1500 feet altitude one more time, and attempt a landing when you are on leg 5, descending on the glide slope as in Direct Approach.

Air Refuelling

The United States Airforce is alone in using the flying boom method of aerial refuelling, as opposed to the basket method favoured by all other air forces.

When an aerial refueling has been planned into your route, the refueling point will be marked on your Situation MFD, and the patrol route of the tanker you must refuel from will also be seen.

The Refueling HUD can be selected by pressing the H key repeatedly until the REF HUD appears. The Refuel HUD indicates information vital for refueling correctly. Please see the Refueling HUD illustration in Head Up Display.

NOTE your tanker will display white anti collision strobe lights at the tip of its fin and underneath the center fuselage, plus flashing red / white beacon lights above and below the fuselage.

NOTE you should acknowledge the refuelers messages by pressing Y on the keyboard.

The easy way, refer to 'vector to the nearest refueling aircraft' below.

You must approach the tanker at an altitude 10'000 feet above the tanker. When you are within 15 miles of the tanker change your radio frequency to PUSH VICTOR 4 by pressing 4 on the keyboard, then you must request permission to refuel from the tanker by picking option 2 Refueler, and then choosing option 2" *REFUEL PERMISSION*" from the menu on the top left of your Helmet Mounted Display.

The tanker will tell you to "*SKIP IT*" if refueling is not currently possible, or will give you permission by replying "*AFFIRMATIVE, WEAPONS AND NOSE COLD*". **You must reply by pressing Y** on the keyboard, in order for the autopilot to work.

Ensure that your radar out put is reduced by going to manual EMCON 2.

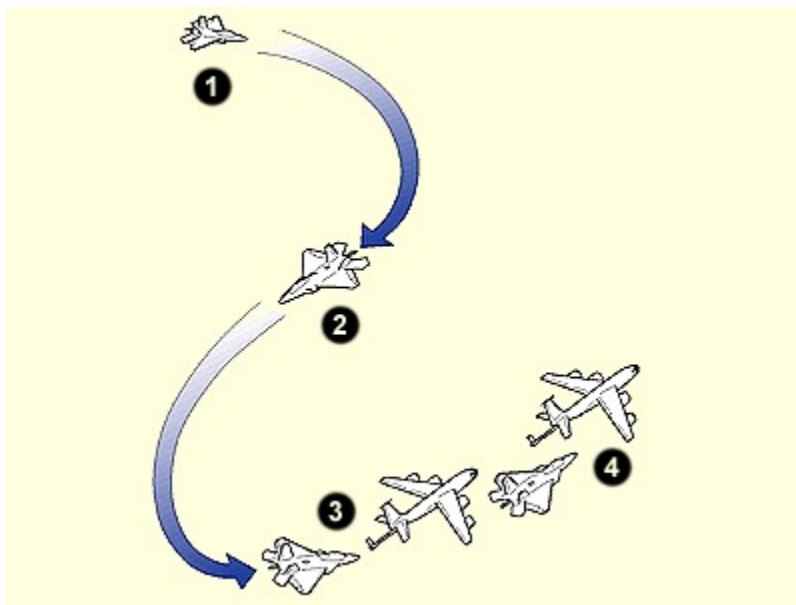
When the refueler says *CLEARED, PRE CONTACT*" , you can engage the autopilot.

Go to the Systems MFD by pressing 0 on the extended keyboard, press the relevant MFD button to select Auto pilot mode on that MFD, and then select refuelling on the Auto pilot list of buttons, then engage the Auto pilot by pressing A on the keyboard.

The autopilot will handle the refueling from now on, and will switch off automatically once the refuel boom is connected. Refer to 'refueling is complete'.

Manual refuel, should you need to refuel when no refueling has been scheduled you can request a **vector to the nearest refueling aircraft** by selecting radio frequency PUSH 2 or PUSH VICTOR 3, (2 or 3 on your keyboard), pick option 2 AWACS, and then choose option 2 "*VECTOR TO TANKER*" from the menu on the top left of your Helmet Mounted Display.

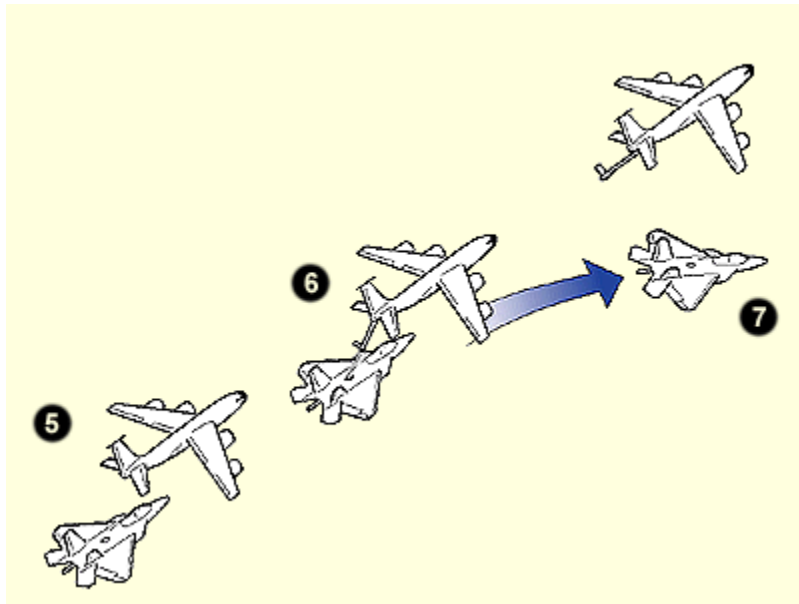
You will be given the necessary vector and told to contact the indicated tanker on radio frequency PUSH VICTOR 4, (4 on your keyboard).



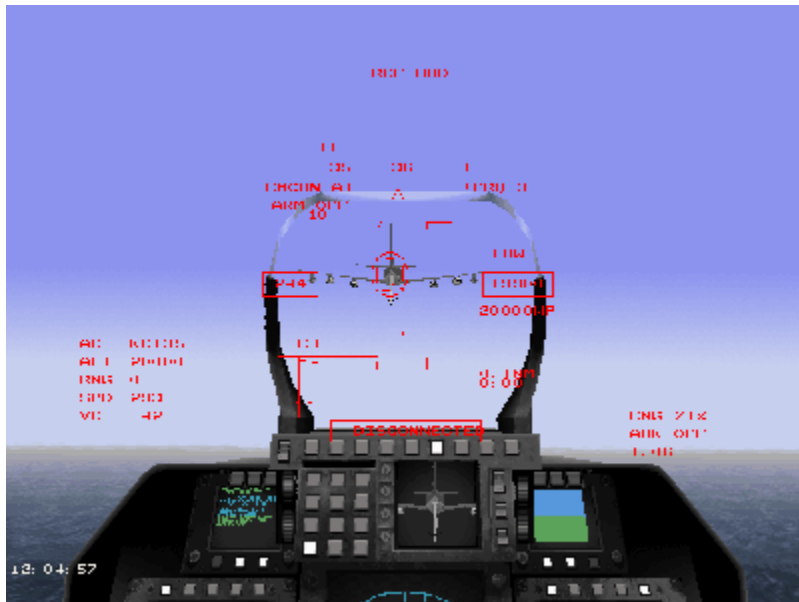
Easy steps to successful refueling.

Refueling diagram

1. The fighter has a vector to the tanker aircraft
2. The fighter requests permission to refuel from the tanker. Once permission is granted, the approach is made from above the tanker's altitude
3. The fighter approaches the tanker from a position one quarter mile astern to the pre-contact position.
4. The fighter is on the pre-contact position at the correct height and 50 feet astern. The refueler will grant permission to move forward to the contact position.



5. The fighter is now in the contact position. The boom will be “flown” into the fighter by the refuel boom operator.
6. The boom has made contact and fuel flows
7. The boom is disconnected and the fighter backs away before peeling off below tanker.



Easy does it. At this stage apply only small stick movements.

You must approach the tanker at an altitude 10,000 feet above the tanker. When you are within 15 miles of the tanker change your radio frequency to PUSH VICTOR 4 by pressing 4 on the keyboard, then you must request permission to refuel from the tanker by picking option 2 Refueler, and then choosing option 2 "REFUEL PERMISSION" from the menu on the top left of your Helmet Mounted Display.

The tanker will tell you to "SKIP IT" if refuelling is not currently possible, or will give you permission by replying "AFFIRMATIVE, WEAPONS AND NOSE COLD". Reply by pressing Y on the keyboard.

You must ensure that your radar out put is reduced by going to manual EMCON 2. (Or manual EMCON 1, if your mission requires stealth). Close the refueler to approximately one quarter of a mile, and slightly below his altitude.

NOTE if you are in manual EMCON 1 you will be able to do a stealthy refuel. The refueler will not speak to you if

you are in EMCON 1 you must use your judgement, and the Receiver Director Lights for position information. When the boom is connected a wired voice link will be made enabling you to hear the boom operator's "CONTACT", and "DISCONNECT" messages.

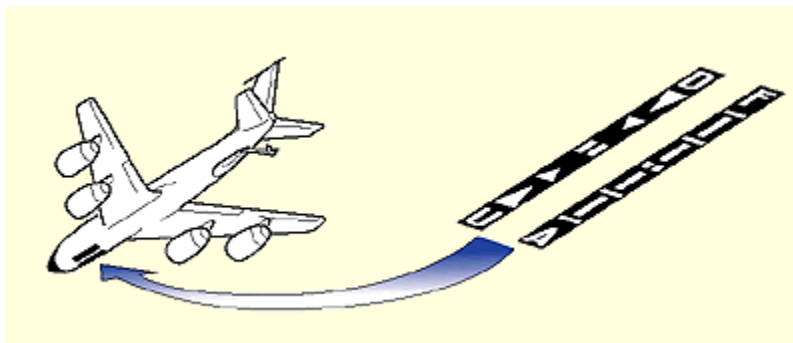
Work your F22 in behind the refueler, approximately 20 feet below his altitude.

When you are within 100 feet behind, the refueler will give the message "CLEARED, PRE CONTACT", which means you must go to the pre-contact position 50 feet behind the tanker refuel position.



When you are at the pre-contact position the refueler will give the message "CLEARED CONTACT". This means that you are at the right level below the refueler, and 50 feet behind the tanker refuel position, the tanker will turn off his lower strobe light and both upper and lower beacons will flash red only, to indicate he is now 'engaged'.

You must now go slowly forward to the contact position. To help you achieve this the refueler displays two patterns of lights called the Receiver Director lights under its forward fuselage.



The receiver director lights

Left Strip:

D – Too high

U – Too low

Central mark indicates correct height

Right Strip:

F – Move forward

A – Move aft

Central marker indicates correct Fore/Aft position

From your position the lights on the left indicate if you are high or low of the contact position, Up and Down letter cues will also display at the apparent top or bottom of the left director lights.

The right hand lights indicate the your current forward / aft location of the contact position. Forward and Aft letter cues also display at the apparent top or bottom of the right director lights.

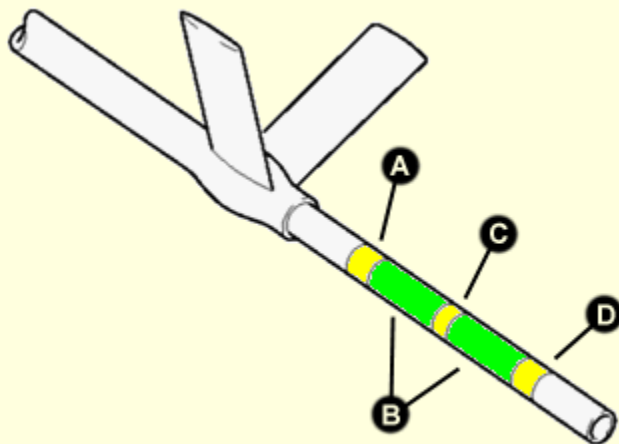


About to receive the boom.

When you are in the correct position the refueler will give the message "STABILISE". You must now hold station with the refueler, he will fly the refuelling boom into the receptacle on the upper fuselage of your F22. When the boom makes contact he will give the message "CONTACT", you will automatically acknowledge the boom operator by saying "AFFIRM".

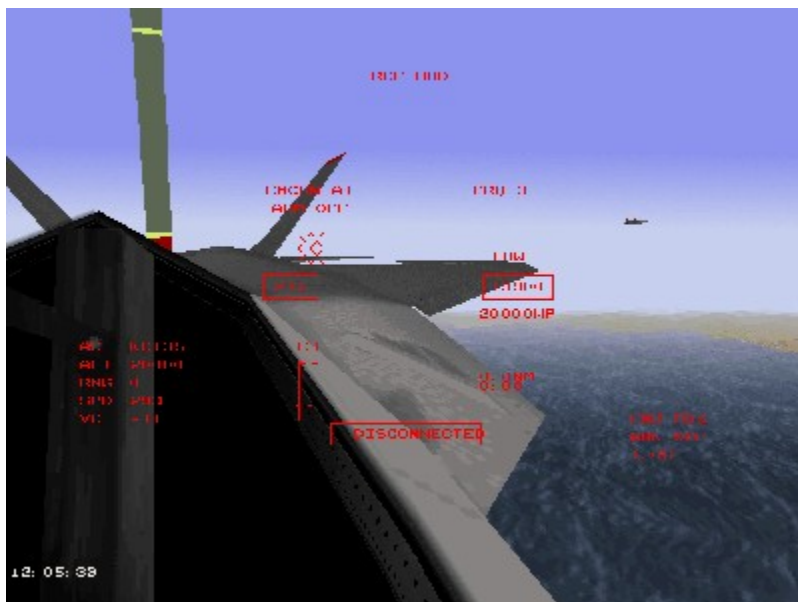
The Receiver Director Lights will now be controlled by the boom position, and will help you to maintain your position within the bounds of permissible movement of the refuelling boom.

The extending part of the boom has a series of coloured bands on it, when the narrow yellow stripe of the extending part of the boom is against the lowering part of the boom you are in the right forward / aft location of the contact position.



The refuelling boom is telescopic, with colored band marking how far it is extended

- A. Too extended. Marked by wide yellow band
- B. "Green" zone
- C. Optimum position. Marked by narrow yellow band
- D. Too compressed. Marked by wide yellow band



The boom connects behind you.

Refueling is complete

When your refueling is complete the refueler will give you the message *"DISCONNECT AND PUSH 2"*, he will then disconnect the boom from your aircraft, **you must break the connection by throttling back** your engines slightly, by pressing the - (minus) key on the keyboard.

You can acknowledge the message by pressing Y on the keyboard. If you are refuelling on your own you are now clear to recommence your mission.

As the boom moves clear, slowly back your F22 away. It is customary to leave the refueler after first backing well clear by reducing altitude, and pulling away towards the right before returning to your mission heading 5'000 feet

below the refueler so as to reduce possible collisions with other aircraft waiting to refuel.

If you are refuelling with your wingman pressing the Y key will automatically generate a slightly different message. After backing slowly away you must wait for your wingman by swinging out to trail the starboard (right) wing tip of the refueler.

Once the refuelling is complete you must follow the refuelers request and change your radio frequency to PUSH 2, or PUSH VICTOR 3, by pressing 2, or 3 on the keyboard. contact the AWACS and let them know that you are now available again by choosing option 2 AWACS, and then option 7 "*FLIGHT IS AVAILABLE*".

Thrust vectored manoeuvres

The F22 enjoys the extra manoeuvrability of thrust vectored engines which apart from giving quicker responses for dog fighting, also allows very high angles of attack, (nose up angle, towards the direction of flight).

This control is of particular relevance at speeds where aerodynamic lift and influence are low, the F22 (Sukhoi Su 37 and Mikoyan MiG 35) are all able to use thrust vectoring to aim the fighter towards an enemy briefly while flying in another direction.

Within the F22 Air Dominance Fighter game the F22 has not been modelled with thrust vectoring engaged all the time as in the real F22, for reasons of playability DID has opted to allow the user the ability to pick when he wants thrust vectoring by pressing and holding the KEY ABOVE TAB, to disengage simply let go of the key. By not having thrust vectoring engaged permanently the user will be able to make greater use of both the expanded, and normal flight envelope.



It's not only the Russians who pull high-alpha stunts like these!

Please refer to the Simulator section of F22 Air Dominance Fighter, and of course try it out in one of your early missions.

{button Air To Air Combat,JI('F22HELP.HLP','Air_to_Air_combat')}{button Air To Ground Combat,JI('F22HELP.HLP','Air_to_Ground_combat')}

In the Simulator section of F22 Air Dominance Fighter are a series of missions which should be viewed initially as training missions.






The Missions are written so that each contains more than the aircraft, and targets necessary to learn the specific lesson.

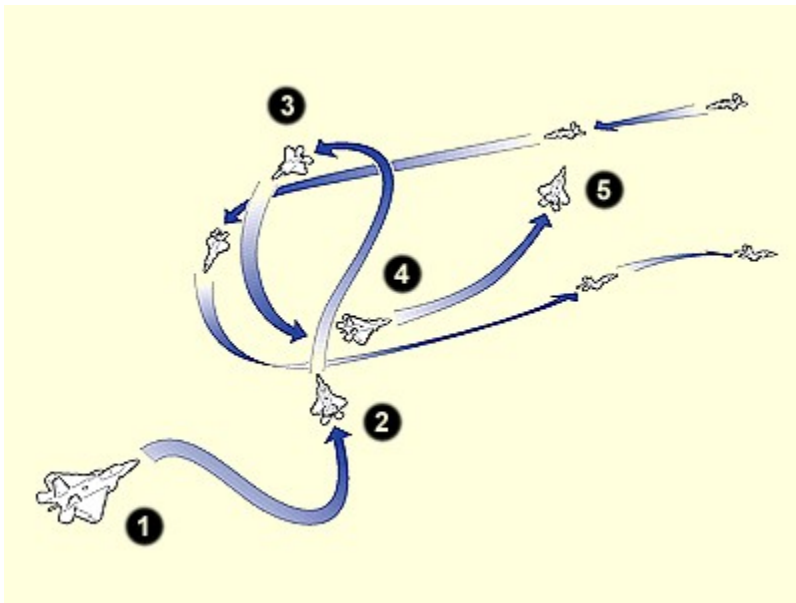
Please refer to the Simulator section of F22 Air Dominance Fighter.

NOTE once back on the ground, the F22 can be **rearmed / refuelled** (engines running) by : pressing ALT D on the keyboard.

Air to Air combat

Air to air combat is made up of five components:

-  Detection
-  Beyond Visual Range combat
-  Closing
-  Manoeuvring or Dogfight
-  Disengagement



The Five Phases of Air-to-Air Combat

1. **Detection** – It is essential to see the enemy first and then maneuver to a firing position
2. **Beyond visual range combat** – Four out of five air-to-air victories are achieved in BVR combat
3. **Closing** – When the odds are favorable, close the enemy for a short range missile shot or cannon pass
4. **Maneuvering** – The glamorous dogfight is dangerous and responsible for one in five victories
5. **Disengagement** – Short of fuel, weapons, or the odds have become too great. Time for “Bugging out”.

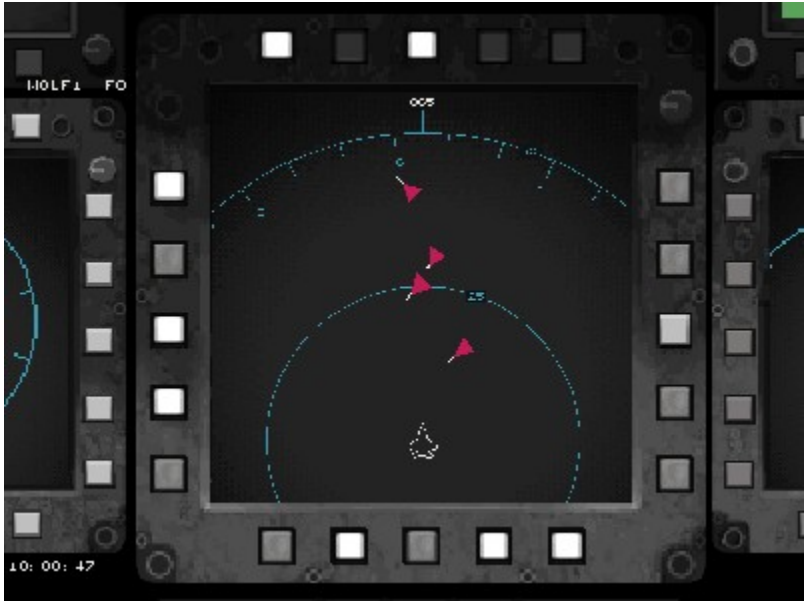
The F-22 is designed to detect the enemy first by use of its stealth and avionics design. AMRAAMs can be launched while the enemy is still unaware that it is under attack. These abilities make the F-22 ideal for surprise attack or use of the “grinder”. Once in a dogfight, thrust vectoring and an advanced helmet display give the F-22 pilot an “edge”.

Detection

In detection it is often the case that he who sees first wins, be this by electronic, or visual means. As you will have seen from the Avionics section the F22 is able to get information about potential enemies from great ranges, and can operate completely stealthily while receiving data from an AWACS or another F22.



Cued for the kill. Four enemy aircraft in AWACS.



Cued for the kill. The same four enemy aircraft in the F-22 cockpit.

Missile range

Missiles in general will have a greater range when launched at a higher altitude, or a higher flight speed. For the purposes of this manual a benchmark 'best range' has been quoted, which represents an optimum launch

range. In some circumstances this may not be achieved, or may be exceeded, depending on the individual circumstances.

NOTE: Weapon performance has in some cases been tuned for playability.

BVR combat

From combat experience many fighter pilots will be able to tell you that four out of five victories are achieved in BVR combat. Achieving an attacking position undetected and then launching a surprise attack while being vigilant of enemy surprises is of great importance.

Please refer to the Introduction of this F22 aircraft chapter to see how the F22 has been made particularly suited to the BVR air combat role.

The United States Air Force uses a tactic called the 'Grinder', a technique that maximises the chances of success in attacking an opposing force, especially if that force is superior in numbers.

Please refer to Air to Air Combat Tactics below.



Please refer to the Simulator section of F22 Air Dominance Fighter, the Weapons Training BVR AMRAAM mission teaches you about detection of targets, and engaging those targets in BVR combat.

The **AIM120R AMRAAM** is a long range radar guided ram jet powered version of the standard AMRAAM missile, it has a best range of 44 miles and uses its ramjet power to close a target very rapidly, thereby reducing the chances of a target manoeuvring out of its way.

The **AIM120C AMRAAM** has a best range of 31 miles and is powered by a slower solid rocket motor.

To launch an AMRAAM you must have the Air to Air HUD selected by pressing RETURN on the keyboard, this will also select air to air weapons. Keep pressing RETURN until the HUD weapon indicator shows you have selected the AMRAAM of your choice.

Both versions of the AMRAAM missile are cued to their target by the F22's avionics, at half distance to the target the missiles own radar takes over and acquires the target making the AMRAAM a 'fire and forget missile'.

AMRAAMs can be cued by radar, IRST, or off board information.

NOTE that if the user launches an AMRAAM at manual EMCON 1 no radar cueing will be possible.

If an AWACS, or other F22s sharing data are not present no cueing from off board sensors is possible.

However because a target can potentially cover a lot of sky between launch and half distance it is possible,

especially if the target realises it is under attack and manoeuvres hard, that the missile may arrive at half distance and not be able to find the target in the position that the F22's avionics had predicted at launch.

The F22 pilot can ensure a higher probability of a kill against a target that he suspects may manoeuvre by keeping his nose pointed towards the target. At half distance his avionics will then update the missile in flight and give it a higher chance of finding its prey.

Potential targets must be entered into the SHOOT list, (one Shoot list is made for each kind of weapon). Please see Shoot lists, in the Avionics section.

The targets will be marked in the HUD, Attack, Situation, and Defence MFD's, by a ring, the first to be fired at is marked in a special way, please see the Head Up Display, and Multi Function Display sections and refer to the Target Marking diagrams in each of those sections.

NOTE both the HUD and Attack MFD's display data on missile range. Please refer to the Head Up Display, and Multi Function Display sections.

On the Air to Air HUD, and on the Attack display you will find the missile steering circle and steering dot.

The missile steering circle simply put reflects the probability of kill, (also expressed on the HUD as a 00% pk value), i.e. the bigger the circle is portrayed the greater the chances of killing the target if the missile is launched at that moment.

The missile steering dot indicates where you ought to be aiming your nose in order to close the target.

The word "SHOOT" will appear on the HUD, and Attack displays if the AMRAAM is within range (parameters), of the target.

Pressing the SPACE bar will launch an external weapon, or open the main bay doors briefly and launch an internally carried weapon.

Closing

As the range continues to reduce you may not have destroyed all the targets, or be out of AMRAAMs, your next task will be to rapidly close the distance between you while setting up your ideal Sidewinder firing solution.



One versus many is now an unfair fight with the F-22 on your side.

Manoeuvring

Manoeuvring, or dog fighting has long been the most glamorous part of air combat but is in fact responsible for only one fifth of all air combat victories. This part of combat is highly dangerous and has a sky high combat loss

rate, like BVR combat he who can get his short range missiles will usually gain the advantage, but if you fail to hit the target in the opening part of the dogfight, the victory will go to the most experienced pilot making best use of the most manoeuvrable fighter.

Please refer to the Simulator section of F22 Air Dominance Fighter. The Weapons Training DOGFIGHT SIDEWINDER mission continues on from the BVR mission, and teaches you to first close and then engage the enemy with firstly the Sidewinder missile, and then your gun in dog fighting combat.

The **AIM9x Sidewinder** is a short range Infra Red (heat) guided missile with a best range of 10 miles. As the missile is only cued in the direction of the target, and once launched relies on it's IR. seeker, it is truly a fire and forget weapon.

The F22 gun is the **M61A2 20 mm rotating 6 barrel Gatling gun**, which has an ammunition drum containing 1760 rounds.



AIM-9X is an extremely dangerous, off-boresite missile.

To launch a Sidewinder you must have the Air to Air HUD selected by pressing RETURN on the keyboard, this will also select air to air weapons. Keep pressing RETURN until the HUD weapon indicator shows you have selected the Sidewinder.

The Sidewinder is cued to its target by the F22's IRST primarily, or by data available to the avionics. It can also acquire a target by being put into the airstream and pointed in the general direction of the target by pointing the F22 at it!

The Sidewinder can have targets designated in the same way as the AMRAAM, i.e. automatic or MFD manual entry in a SHOOT list.

Potential targets must be entered into the SHOOT list, (one Shoot list is made for each kind of weapon). Please see Shoot lists, in the Avionics section.

The targets will be marked in the HUD, Attack, Situation, and Defence MFD's, by a ring, the first to be fired at is marked in a special way, please see the Head Up Display, and Multi Function Display sections and refer to the Target Marking diagrams in each of those sections.

Manual SHOOT list entries can also be made for the Sidewinder by visual designation. This is done by padlocking a target with the F2 key on the keyboard, then adding that target to the currently selected missile (Sidewinder) shoot list by pressing the S key on the keyboard.

NOTE you can add a padlocked target to your wingmans SHOOT list by pressing M on the keyboard.

When the weapon is in range (parameters) the SHOOT cue will appear in the HUD and Attack MFD. The missile is carried internally, and one trigger press is needed to place the missile outside ready for launch. When it has acquired its target, the growling tone you can hear will have risen to a much higher pitch, and the

word "SHOOT" will appear on the HUD and Attack displays if the Sidewinder is within range of the target. Pressing the trigger again will fire the missile.



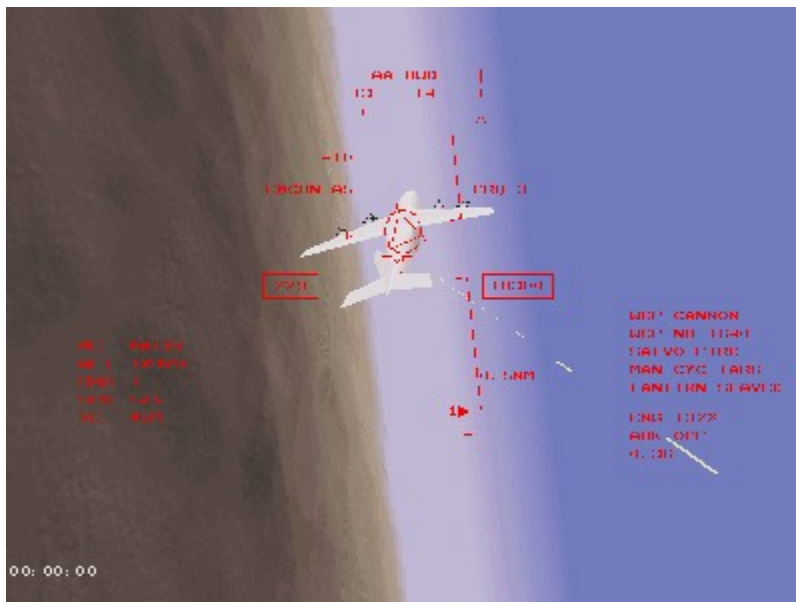
Short-range kill with advanced Sidewinder.

To fire the gun you must have the Air to Air HUD selected by pressing RETURN on the keyboard, this will also select air to air weapons. Keep pressing RETURN until the HUD weapon indicator shows you have selected the gun. Place the gun pipper over the target. Note that the pipper trails a predictor snake which you can get to pass through the target by manoeuvring your F22.

The word "SHOOT" will appear on the HUD, and Attack displays if you are within gun range of the target.

Immediately that the target is in the pipper and the SHOOT cue is lit, fire your gun by pressing the trigger, and holding it down so long as you wish to fire.

NOTE that you only have a limited number of cannon rounds, so do not spray bullets all over the place!



Guns, guns, guns! Get the enemy in your pipper and fire.

Disengagement

Modern fighters are always short of fuel when it comes to finally doing some fighting, this combined with an inevitable short supply of weapons makes for a quick fight.

When the time comes to break off the engagement your main task is to preserve your own life first, and return a very valuable aircraft home second.



If you can't win, survive and retreat to fight another day.

Please refer to the Simulator section of F22 Air Dominance Fighter, the Weapons Training DOGFIGHT SIDEWINDER mission when you have run out of weapons, and before your fuel gets too low you must break off the mission in a clear cut way that avoids the danger of further enemy action.

Air to Ground combat

The F22 has a secondary air to ground role, particularly in the delivery of smart weapons like the JDAM, and the growing generation of cruise sub-munitions dispensers, like the European Apache, and US JSOW.

Though it is unlikely that the F22 would ever be employed to deliver 'Iron bombs', its 4 wing hard points with a rating of 5,000 LB, and designed initially to carry one 600 gal drop tank and two air to air missiles each, means that the F22 has the capacity to carry a huge amount of ordnance.

It should be remembered that the F22's predecessor, the F15 was designed with the immortal words "not a pound for air to ground," and yet the F15E developed from that air superiority fighter is probably the most capable all weather strike aircraft possessed by any airforce in the world today.

For the purposes of game play DID has given the player the option of using many weapons that the real F22 is unlikely to carry.

The air to ground weapons fall into 5 main types:



Smart self guided missiles



Sub munitions dispensers



Smart gliding bombs



Unguided rockets



Free fall, and Retarded bombs

Smart self guided missiles

The **AGM65G Maverick**, is an IIR guided medium range weapon with a best range of 15 miles.

It is mainly used for destroying mobile ground targets, but can also be used against bridges, field HQ's, and even against small ships, and helicopters!

The on board LANTIRN system provides the data for display on the HUD, the Helmet Mounted Display, and MFD's. LANTIRN is used further to provide a TV image in the Attack MFD. Once a target has been marked the missile on launch will find its own way there.

Once a target has been marked the missile on launch will find its own way there.

To launch a Maverick you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the Maverick.

The Maverick is cued to its target by the F22's IRST primarily, or by data available to the avionics.

The Maverick can have targets designated in the same way as an AMRAAM, i.e. automatic or MFD manual entry in a SHOOT list.

Potential targets must be entered into the SHOOT list, (one Shoot list is made for each kind of weapon).

Please see Shoot lists, in the Avionics section above.

The targets will be marked in the HUD, Attack, Situation, and Defence MFD's, the first to be fired at is marked in a special way, please see the Head Up Display, and Multi Function Display sections and refer to the Target Marking diagrams in each of those sections.

Manual SHOOT list entries can also be made for the Maverick by visual designation. This is done by padlocking a target with the F2 key on the keyboard, then adding that target to the currently selected missile (Maverick) shoot list by pressing the S key on the keyboard.

NOTE you can add a padlocked target to your wingman's SHOOT list by pressing M on the keyboard.

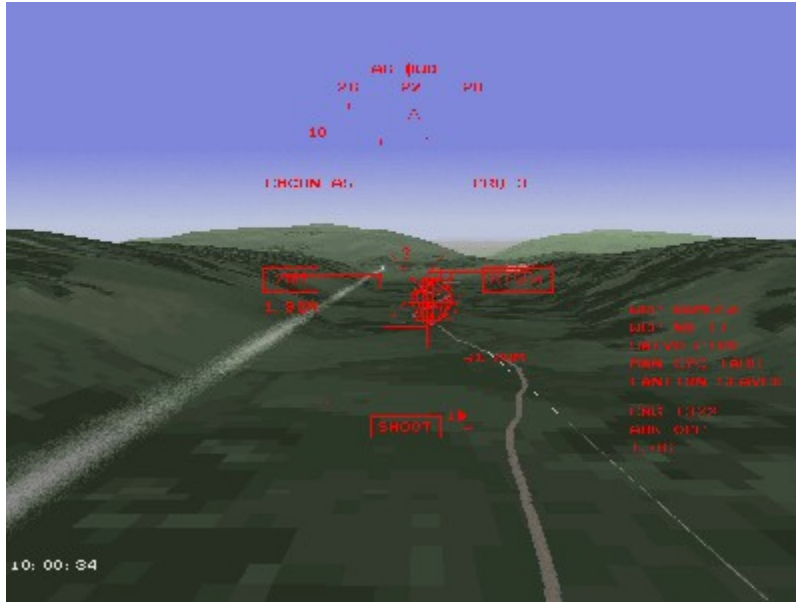
Typically a target to be attacked using Maverick will be attacked at maximum range from medium altitude, or more likely the aircraft will approach the area known to contain targets at low altitude, and will pop up when in range for "a good look," launching weapons in a medium dive, before dropping to the deck and turning away sharply.

When the weapon is in range (parameters) the SHOOT cue will appear in the HUD and Attack MFD. Pressing the SPACE bar once will normally launch the weapon. However salvo, or ripple drops can be initiated on pressing the SPACE bar if the relevant Salvo, or Ripple buttons have been previously selected on the Systems MFD surround.

Note that the number of bombs to be released as part of the salvo, or ripple can also be set on the Systems MFD surround.

The picture that the Maverick is homing on to can be displayed on the Up Front MFD by pressing the appropriate button on the Up front MFD surround. When a number of weapons are in flight you can cycle through the images by pressing C on the keyboard.

NOTE: The weapon can also be seen by pressing F8 on the keyboard.



Maverick on its way to a kill.

The **AGM84A Harpoon**, is an active radar guided long range weapon with a best range of 74 miles. It is a dedicated anti ship weapon. Once a target has been marked the missile on launch will find the ship and attack it at low altitude.

To launch a Harpoon you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the Harpoon.

The Harpoon is cued to its target by the avionics.

The Harpoon can have targets designated in the same way as an AMRAAM, i.e. automatic or MFD manual entry in a SHOOT list. Potential targets must be entered into the SHOOT list, (one Shoot list is made for each kind of weapon).

Please see Shoot lists, in the Avionics section.

The targets will be marked in the HUD, Attack, Situation, and Defence MFD's, the first to be fired at is marked in a special way, please see the Head Up Display, and Multi Function Display sections and refer to the Target Marking diagrams in each of those sections above.

Typically a target to be attacked using Harpoon will be attacked at maximum range from low to medium altitude in level flight.

When the weapon is in range (parameters) the SHOOT cue will appear in the HUD and Attack MFD. Pressing the SPACE bar once will launch the externally carried weapon.



Harpoon attacks against heavily defended ships are always a high-risk.

One of the greatest threats to modern aircraft are the ever increasing number of SAMs. Even a poor nation can purchase significant numbers of lightweight but effective weapons, to counter this the F22 uses stealth technology and can carry anti radar missiles.

The **AGM88 HARM**, homes onto the emissions from an air defense radar, and is used principally to knock out SAMs. It has a best range of 15 miles.

When a radar starts up and has been detected by the F22, AWACS, or JSTAR aircraft it becomes marked, even if the radar is immediately turned off its position will be remembered!

Once launched the weapon homes onto the radar emissions, or the remembered position and finishes its attack in a near vertical dive.

To launch a HARM you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the HARM. The HARM is cued to its target by the F22's avionics.

The HARM can have targets designated in the same way as an AMRAAM, i.e. automatic or MFD manual entry in a SHOOT list.

Potential targets must be entered into the SHOOT list, (one Shoot list is made for each kind of weapon). Please see Shoot lists, in the Avionics section.

The targets will be marked in the HUD, and Defense MFD, by a pentagon, the first to be fired at is marked in a special way, please see the Head Up Display, and Multi Function Display sections and refer to the Target Marking diagrams in each of those sections.

NOTE: Any ground target that has a radar signature, (ships, Early Warning radar, and SAMs) can be fired at with the HARM.

Manual SHOOT list entries can also be made for the HARM by visual designation. This is done by padlocking a target with the F2 key on the keyboard, then adding that target to the currently selected missile (HARM) shoot list by pressing the S key on the keyboard.

NOTE you can add a padlocked target to your wingman's SHOOT list by pressing M on the keyboard.

Aircraft flying the SEAD (Suppression of Enemy Air Defense) role normally fly at medium to high altitude, and will

fly above and behind any aircraft that they are providing cover for. Any target will be attacked as soon as data is available and in range, being launched in level flight, or a shallow dive.

When the weapon is in range (parameters) the SHOOT cue will appear in the HUD and Attack MFD. Pressing the trigger once will launch the weapon.

Smart gliding bombs

The **JDAM**, is a freefall bomb modified by having a special tail cone containing GPS guidance. The bomb has its target pre-programmed at the mission planning stage, so long as the launch aircraft releases the bomb within the parameters indicated on the HUD, and Attack MFDs the bomb will hit regardless of weather, daylight, launch altitude, or attitude!

To drop a JDAM you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the JDAM.

The JDAM guides itself to the target but must be dropped within a cone that will allow sufficient speed and height for it to reach its target. This is worked out automatically by the avionics, the area that the JDAM can possibly reach its target at the aircraft's current speed, altitude, and attitude is marked by an ellipse on the Attack MFD. So long as the target is within the ellipse, then the bomb if released at that moment will hit the target.

On the HUD the target will be marked, but no ellipse will be displayed. When the target is within the bombs parameters, the SHOOT cue will be displayed on both the HUD, and the Attack MFD.

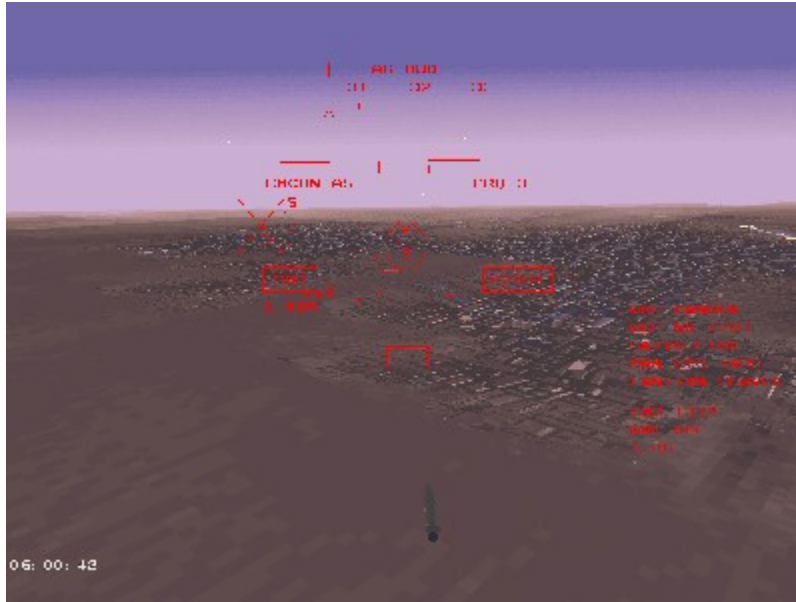
When you are principally using the HUD, head towards the target, so long as you are higher than 500 feet, 1 mile from the target for a last minute release, or higher than 10'000 feet 10 miles from the target for an early release the SHOOT cue should come on.

Because of the great flexibility of the JDAM delivery there is no typical release suggestion. The greater the height and speed, then the greater the stand off range.

When the weapon is in range the SHOOT cue will appear in the HUD and Attack MFD. Pressing the SPACE bar once will open the main bay doors briefly and release one weapon, if the weapon is carried internally, or will release an externally carried weapon.

However salvo, or ripple drops can be initiated on pressing the trigger if the relevant Salvo, or Ripple buttons have been previously selected on the Systems MFD surround.

Note that the number of bombs to be released as part of the salvo, or ripple can also be set on the Systems MFD surround.



Bombs away. Note the marked target within the HUD.

The **GBU24**, is a freefall bomb which has been modified with extending wings at the tail, and a seeker on the nose which looks for laser light reflected off a target.

The target is "marked" by a laser carried by the launch aircraft, or another accompanying aircraft. Like the JDAM it must be launched from within a certain altitude / speed envelope, however a TV system is used to aim, and lock the laser.

To drop a GBU24 you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the GBU24.

When you are at least 10 miles of the target, go to the Attack MFD (preferably while the auto pilot flies the F22), by pressing 3 on the extended keyboard. The view through the LANTIRN camera is now selected by pressing the LANTIRN IMAGE button on the MFD surround.

The camera will be pointing forwards in the direction of flight, as it is in slave mode normally, to move the LANTIRN camera press CHANGE LANTIRN MODE on the MFD surround. The camera can be moved by pressing the right SHIFT and the CURSOR keys in the desired direction.

Once you have found the general target area, the camera can be zoomed by pressing the TOGGLE ZOOM button on the MFD surround. Adjust the camera so that the cross hairs lie over the desired target and then press LANTIRN TRACK on the MFD surround, this will bring up a lock box over the target, the laser is now firing at that target, and the camera will attempt to maintain lock while the aircraft manoeuvres within certain limits.

Once the target has been locked in this way, the SHOOT cue will be displayed on both the HUD, and the Attack MFD, when the bomb, (or bombs) are in firing parameters and can be dropped, at the same time an indicator caret will have progressed up the right edge of the Attack MFD to the uppermost line, this is a good indication of progress and range to release.

NOTE the LANTIRN RESET button will return the camera to slaved straight ahead mode, as will the CHANGE LANTIRN MODE button.

The GBU series of bombs can be dropped day or night, but bad visibility will hamper both the camera and the laser designator. The bomb is best dropped from medium altitudes (10'000 to 40'000 feet) in level flight, or a shallow dive.

When the SHOOT cue appears in the HUD and Attack MFD, pressing the trigger once will normally drop one externally carried weapon. However salvo, or ripple drops can be initiated on pressing the SPACE bar if the

relevant Salvo, or Ripple buttons have been previously selected on the Systems MFD surround.

Note that the number of bombs to be released as part of the salvo, or ripple can also be set on the Systems MFD surround.

Unguided rockets

Unguided rockets have been used against ground targets since WW2, each rocket packs a big punch, and can be fired singly, or as rippled groups, making them much more destructive in a strafe type attack than using the gun.

To fire the LA68 rocket you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the LAU68. Place the rocket pipper over the target by manoeuvring your F22.

When you are aiming at a fast moving ground target, provide a little lead to your target by aiming slightly ahead of it.

The unguided rocket attack is best made in a shallow to steep dive from 10'000 feet or lower.

The word "SHOOT" will appear on the HUD, and Attack displays if you are within rocket range of the target. Immediately that the target is in the pipper and the SHOOT cue is lit, fire your rockets by pressing the SPACEBAR, once for single rounds, or more if the relevant Salvo, or Ripple buttons have been previously selected on the Systems MFD surround.

Free fall, Retarded, and Cluster bombs

There are three main techniques to be used to deliver a freefall bomb:

From a shallow dive, usually below 20,000 feet and above 2,000 feet.

Toss bomb (where the aircraft pulls up and releases the bomb, imparting a ballistic trajectory and greater range to the bomb), the manoeuvre is usually carried out up to altitudes of 20,000 feet.

Level flight and release, from any altitude down to 1,000 feet.

Retarded bombs are designed to be dropped in very low level attacks where the extra drag created by their retarding mechanism literally pulls them clear of the bombing aircraft, saving it from blast effects.

The Cluster bomb is delivered in a shallow dive, or from level flight at altitudes below 10,000 and above 1,000 feet. Shortly after release the bomb breaks into 247 bomblets which scatter over a wide area.

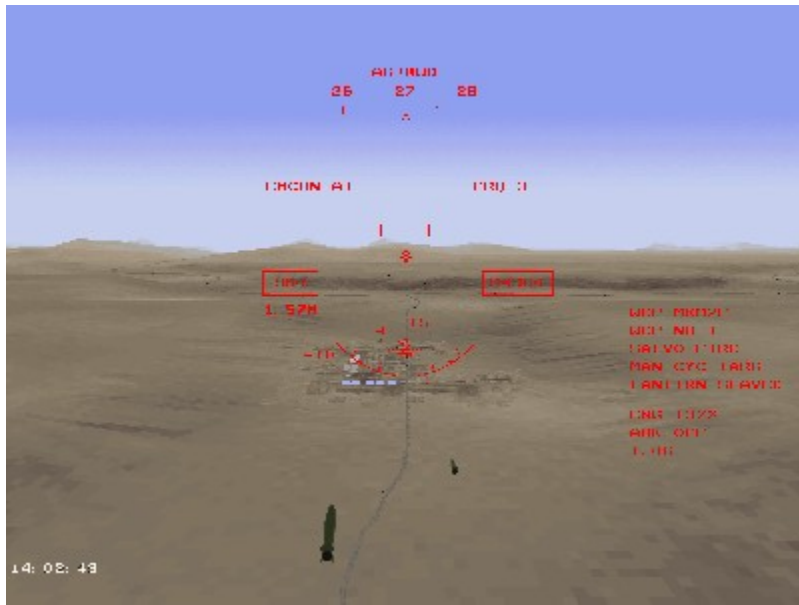
All three types of bombs, regardless of delivery method are targeted in the same way.

To drop a Freefall, Retarded, or Cluster bomb you must have the Air to Ground HUD selected by pressing the BACKSPACE key on the keyboard, this will also select air to ground weapons. Keep pressing BACKSPACE until the HUD weapon indicator shows you have selected the MK82F / MK83F, MK82R, or the MK20 respectively.

A bomb fall line will be displayed on the HUD, the target will be marked, and a small caret will progress up the bomb fall line as you near the target. When the caret and target are together the SHOOT cue will be displayed on both the HUD, and the Attack MFD.

The bomb or bombs must be immediately released by pressing the trigger.

Once will normally release a single externally carried weapon at a time, however salvo, or ripple drops can be initiated on pressing the trigger if the relevant Salvo, or Ripple buttons have been previously selected on the Systems MFD surround.



When the CCIP crosses the target, 'pickle' (release) the weapon.

In the Simulator section of F22 Air Dominance Fighter are a series of missions which should be viewed initially as training missions.

The Missions are written so that each contains more than the aircraft, and targets necessary to learn the specific lesson.

Please refer to the Simulator section of F22 Air Dominance Fighter for more information on air to air combat tactics.

Using Emcon

Either the pilot (in manual Emcon), or the F22 avionics (in auto Emcon) can decide which of 5 Emcon states to be in.

Emcon 1 is the stealthiest, and Emcon 5 is the least stealthy, allowing the most use of radar and radio. The Emcon system is there to decide how stealthy the F22 should be, In its auto mode the F22 would normally travel in Emcon 1. When a potential enemy is spotted by the aircraft systems it will gradually increase the Emcon condition as the opponent gets closer in non regular steps based on the range of the F22's, and the potential enemies detection systems and weapons. Please refer to Emcon in Avionics.

Using the IRST

The IRST is a highly sensitive Infrared camera that has the ability to zoom onto a distant target magnifying the image for display on the Upfront MFD, this allows the pilot to visually identify targets at well beyond visual (eyeball) range.

In EMCON 1 the IRST becomes the primary on board search and track device, and can also be cued to a potential target by avionics received emissions. As such it is a very stealthy means of acquiring targets.

Target information gained by the IRST is pooled with all other sensor information allowing all air to air, and air to ground guided weapons to be cued to their targets. Please refer to IRST in Avionics.

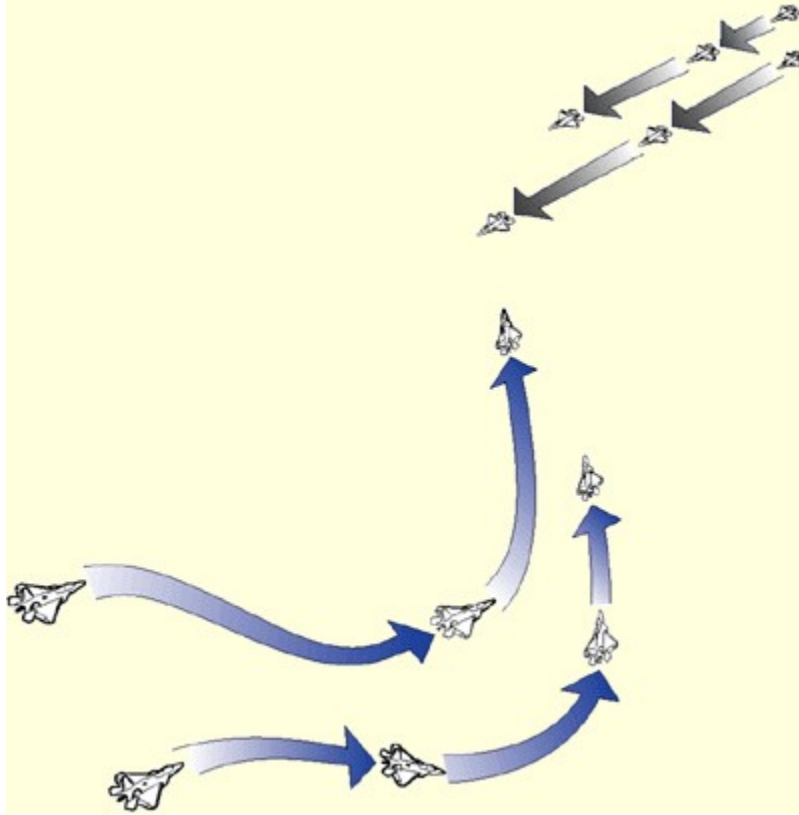
Eyeball and Shooter

The eyeball shooter method of attack is used when a visual confirmation of a hostile aircraft is needed, which may occur when the nations involved are not at war but may be involved in a military stand off, or show of force.

Typically your fighters would be involved in a head on approach to intruding aircraft, they will have been alerted to the presence of these aircraft by one sensor source or another and will attempt to offset their flight paths by several miles allowing them to close the unknown contacts from a front quarter.

Your two fighters will be separated by over a mile, the lead will be able to visually ID the bogey's as bandits, while the number two is ready to fire immediately on command at the trailing contacts.

Only the lead fighter will come within the unidentified contacts visual range and will turn to engage the enemy lead immediately if he has given the command for his wingman to launch. This tactic will hopefully quickly turn a 2 on 4 attack to a 2 on 1.

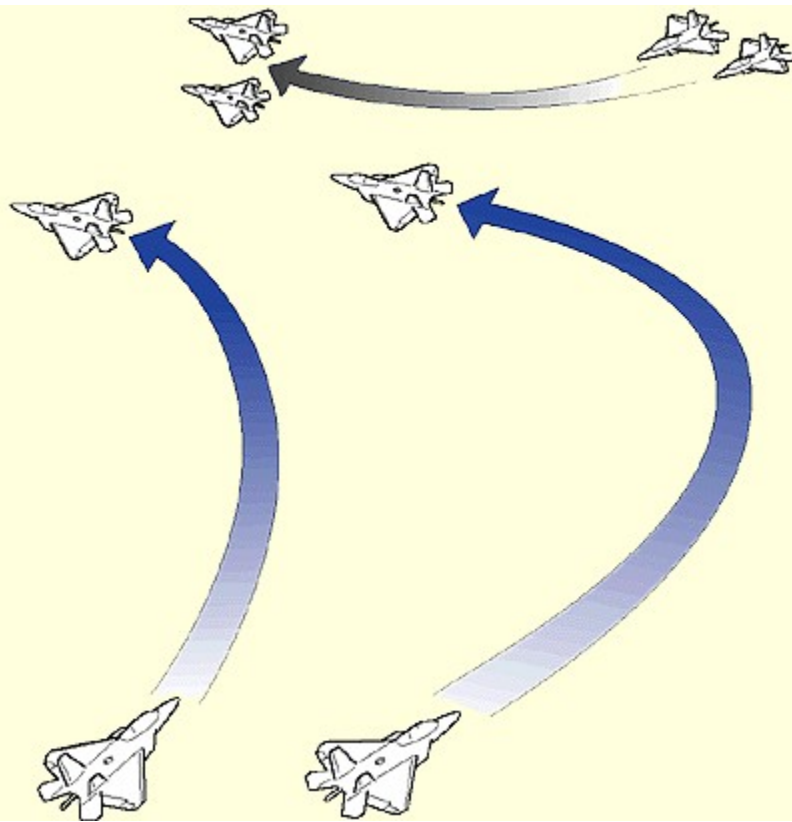


The number two gets ready to fire while the lead 'eyeballs' (takes a close look).

Drag Left

Dragging left, or right is a tactic where one fighter of a pair becomes the bait for enemy aircraft and flies to the left, or right. Once the opposing aircraft have followed the bait the other fighter of the pair swings in behind them and launches an attack.

In some BVR situations the lure can first go one way and then be switched to the other direction. The tactic has been described best as: "Hold them by the nose, and then kick them in the pants!"

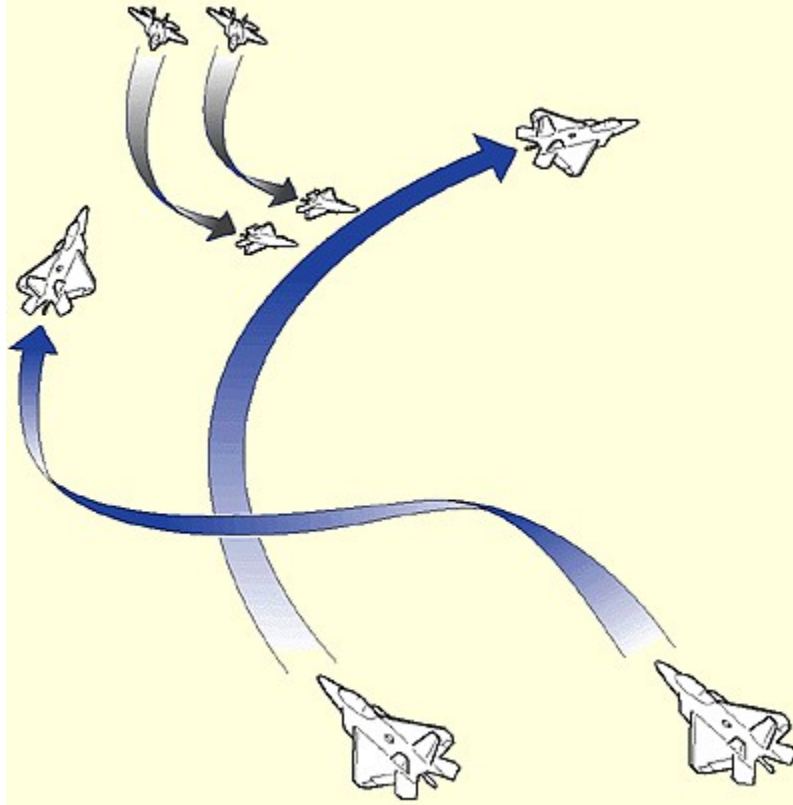


"Hold them by the nose, and then kick them in the pants!"

Offensive Split

A pair of fighters can carry out this tactic while in a combat spread, one fighter draws the attention of the enemy while the other (hopefully unobserved) sneaks around the back.

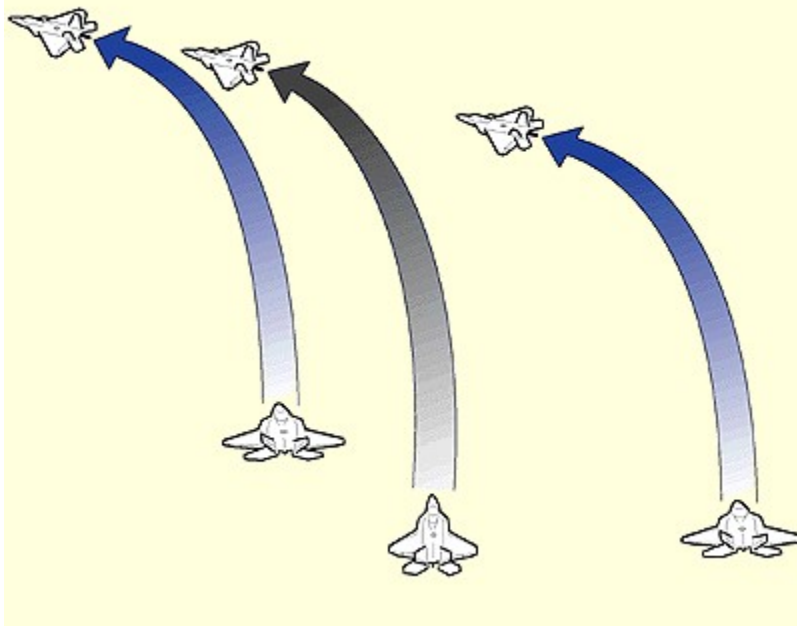
It could be a follow on to the Eyeball and Shooter method, when the lead gains visual contact and gives the order for his wingman to fire, the lead is observed by the enemy who will certainly turn towards him. The wingman who is the shooter goes low and undetected turns hard in a climbing turn behind the enemy.



Before he knows it, the enemy is in a tight spot.

Sandwich Left (bracket left)

Still the oldest trick in the book for a pair of fighters, when one aircraft is attacked from his rear quarter he turns to the opposite side to which his wingman is on thereby drawing the attacker further while his wingman swings neatly in behind ready to dispatch the attacker with a heat seeking Sidewinder once the first fighter breaks out of the danger area.

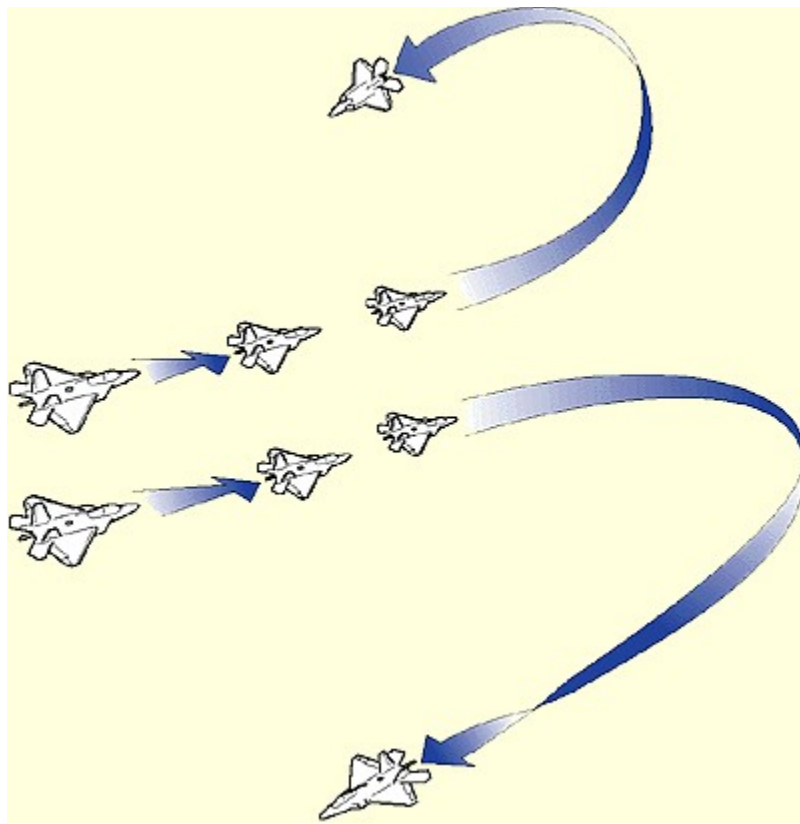


Sandwich of death.

Defensive Split

This a manoeuvre to either foil, or deal effectively with an attack from behind by an equal number of fighters.

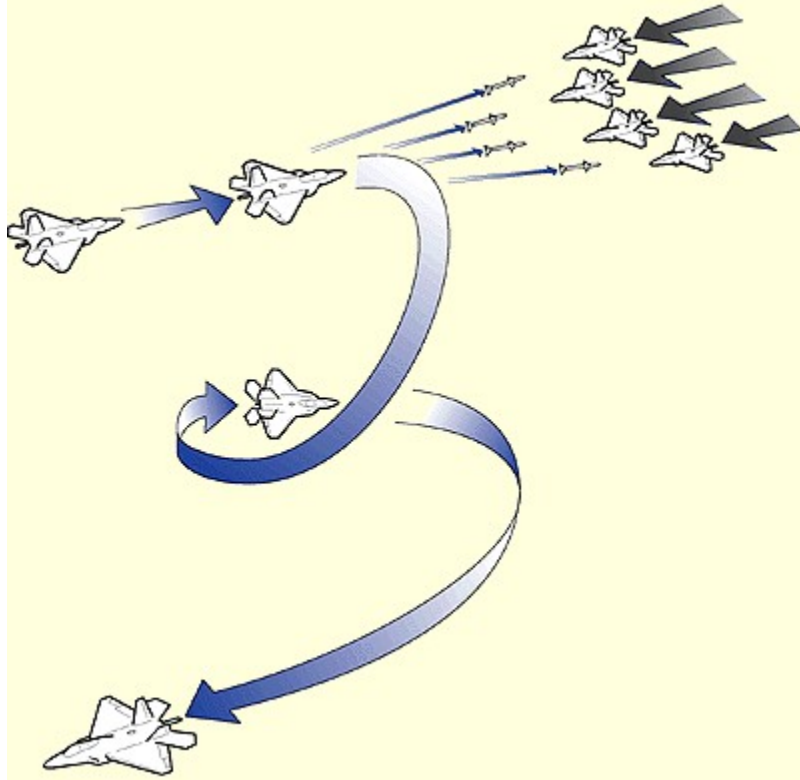
One of the attacked pair will go high, and attempt to loop behind the attackers, drawing their attention as a potential victim as he will lose energy faster than his wingman who has gone low by rolling over and pulling a rapid dive and loop up to deal with the attackers rejoining the fight that the first fighter is now drawing down to meet his wingman.



One goes high, the other goes low. Luck and skill may lead to survival.

The Grinder

The United States Air Force uses a tactic called the 'Grinder', a technique that involves a flight of fighters manoeuvring to launch a salvo of long range missiles against an opposing force, and then rapidly spiralling to a lower altitude and either escaping, or regrouping. This technique maximises their chance of success and reduces the risk of losses. The manoeuvre can be repeated over until all the opposing force is destroyed. Please refer to BVR combat in Air to Air Combat.



A barrage of missiles will make any enemy think twice.

Stealth Attack

Stealth is a huge asset to have if your mission involves a sneak attack. It can be especially useful if your government wishes to take out certain undesirables while maintaining a plausible denial!

Decoys, ECM, Chaff, and Flares

Decoys, ECM, Chaff, and Flares all have the job of preventing or confusing an attack on you by missiles, but achieve this objective in different ways.

Decoys come in two types, both look like the launch aircraft to a radar or IR. sensor :

One is similar to a cruise missile flying a preset route away from the launch aircraft, and the other is a drogue device towed on a cable, being played out when attack is imminent.

Electronic Counter Measures take many forms but basically prevent enemy radars from seeing a clear picture of the area that the aircraft emitting the ECM is in.

Chaff is a last ditch attempt to thwart a missile attack by dumping large amounts of aluminium strips which temporarily blinds the radar of a missile, fighter, or ground station.

Flares are also a last ditch attempt to foil a missile attack but, being a high intensity heat source, are aimed at heat seeking missiles and used for blindingIRST sensors.

Press TAB on the keyboard, this will present a menu on the top left of your Helmet Mounted Display . Selecting one of these (with the exceptions of options 1 and 9, which are context sensitive), will lead into a further set of options.

Formations

Under option 2 FORMATION, is a list of formations to apply to your flight. Some of these formations can be close (wingtip to wingtip), while others are combat spread formations with a large horizontal separation between aircraft.

Card

Card is the most useful formation for a four aircraft flight, providing mutual cross cover. The four aircraft are horizontally spaced at the four corners of a playing card.

Deuce

Deuce is specifically a formation for two aircraft on a SEAD mission. The first aircraft is usually the bait, while the second flying above and behind watches for any radar that tries to track the first and launches a HARM at the radar source.

Sweep

Sweep is a line abreast formation used for fighter sweeps, and by all aircraft to cross an obstacle such as a coastline, (all aircraft in the formation will cross at the same time dividing potential ground fire between them, and thereby reducing the risk to individual aircraft).

Strike

Strike is a line astern formation used to launch, or drop weapons on a ground target. Separation must be adequate to prevent aircraft flying into the explosions created by the aircraft ahead.

Fingertips

Fingertips can apply to two or four aircraft. The aircraft form one half of a arrow forming up on the leader.

Vic

Vic is the V formation loved by airshow spectators the world over, and included here for fun!

For additional information, please refer to the Simulator section of F-22 Air Dominance Fighter and Look at the Key Card

Please refer to [In Game Speech](#).

The F22 Air Dominance Fighter has 4 pre-set radio frequencies for communication with other aircraft and the ground.

You can communicate with your Wingmen on all 4 frequencies, each frequency also enables you to talk to one other group as outlined below:

NOTE whenever you can talk to a group on a specific radio frequency you will be able to hear what that group is saying to you.

NOTE you can gain quick access to wingmen commands by pressing TAB on the keyboard. Please see Wingmen Commands above.

Please refer to the Simulator section of F22 Air Dominance Fighter, look at the Key Card and In Flight Communications, for more information on In game speech. Please go to the Avionics section for reference to Bitchin Betty.

Radio Frequencies

Frequency **PUSH 1** is for talking to the airfield tower and local airfield air traffic control. To select press 1 on the keyboard, or the relevant button on the up front MFD panel.

Frequency **PUSH 2** is an open channel for aircraft allowing you to broadcast messages, warnings, and orders, and also enables you to talk specifically to the AWACS. as this channel is open you will be able to hear radio traffic between other aircraft. To select press 2 on the keyboard, or the relevant button on the up front MFD panel.

Frequency **PUSH VICTOR 3** is also for talking to the AWACS but is a closed channel for talk between you and the AWACS handling your flight. To select press 3 on the keyboard, or the relevant button on the up front MFD panel.

Frequency **PUSH VICTOR 4** allows you to talk to an air refuelling aircraft. To select press 4 on the keyboard, or the relevant button on the up front MFD panel.

Talking to other groups

NOTE that when starting a new mission the radio frequency will be set to PUSH 1.

NOTE that care has been taken to present the "enthusiastic user" with speech relevant to each situation, this will be particularly apparent when seeking instructions to take off, or refuel. For the less experienced user, do not let the depth of speech get to you!

When you wish to talk to your Wingmen **Remember** this can be done in any radio frequency by picking option 1 Wingmen, and choosing the relevant option.

Or press TAB on the keyboard, this will present a menu on the top left of your Helmet Mounted Display . Selecting one of these will lead into a further set of options. Once key phrases are learned you will be able to short cut them as in this example, to give the order "*ENGAGE MY TARGET*", press TAB, 3, 1. A full list of all player selectable phrases appears below:

When you wish to talk to the airfield both before, or during flight ,first select radio frequency PUSH 1, pick option 2 Airfield, and choose what you wish to say from the options presented on the top left of your Helmet Mounted Display.

NOTE **Remember** that any replies from the airfield can only be heard on this frequency!

When you wish to talk to the AWACS, first select radio frequency PUSH VICTOR 3, (or PUSH 2), pick option 2 AWACS, and choose what you wish to say from the options presented on the top left of your Helmet Mounted Display.

Remember that any replies from the AWACS can only be heard on this frequency!

When you wish to talk to the refueler, first select radio frequency PUSH VICTOR 4, pick option 2 Refueler, and choose what you wish to say from the options presented on the top left of your Helmet Mounted Display.

Remember that any replies from the refueler can only be heard on this frequency!

Communications Diagram

FRQ 1

1. *Wingmen*
2. *Airfield*

FRQ 2

1. *Wingmen*
2. *AWACS*
3. *Broadcast*
4. *Help*

FRQ 3

1. *Wingmen*
2. *AWACS*

FRQ 4

1. *Wingmen*
2. *Refueler*

Wingmen

1. Engage
2. *Formation*
 1. Card
 2. Deuce
 3. Sweep
 4. Strike
 5. Fingertips
 6. Vic
3. *Combat*
 1. Engage my target
 2. Engage bandit
 3. Engage hostile
 4. Engage threat
 5. Drag left
 6. Drag right
 7. Bracket left
 8. Bracket right
 9. Complete
4. *Maneuver*
 1. Break left
 2. Break right
 3. Break high
 4. Break low
5. *Abandon*
 1. Bugging out
 2. Skip it
 3. Abandon mission
6. *Radio*
 1. Change to frequency 1
 2. Change to frequency 2
 3. Change to frequency 3
 4. Change to frequency 4
 5. Stand by
 6. Say again
 7. What am I doing

7. Disengage

Airfield

1. Say my take off time
2. Vector for recovery
3. Direct approach
4. Teardrop approach
5. Circuit Approach
6. Finals

Broadcast

1. Leave the area
2. Leave or be shot down

AWACS

1. Request divert airbase
2. Where is the tanker
3. Not used
4. Clearance to base
5. Have you any work
6. Request instructions
7. Flight is available

Refueler

1. Where is the tanker
2. Refuel permission

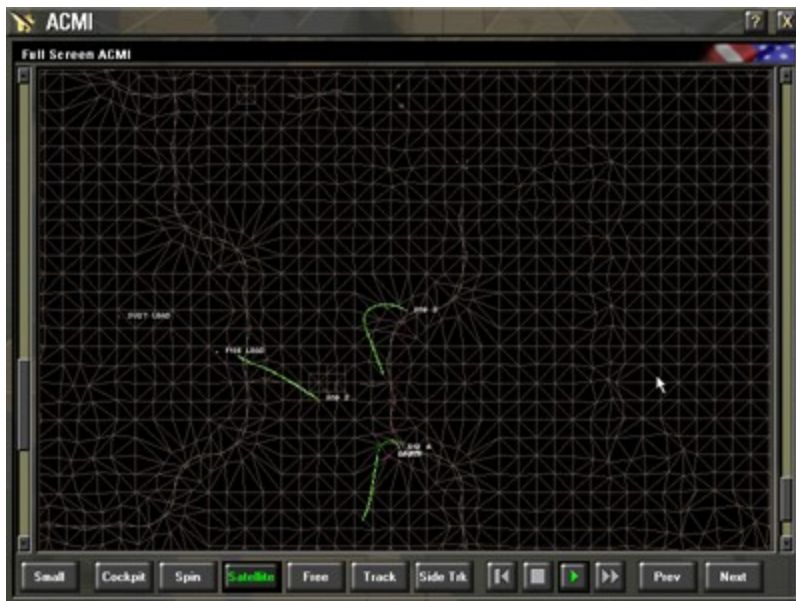
ACMI (Air Combat Maneuvers Instrumentation) is a highly cost effective tool for training pilots.

It features an under-wing data pod which relays the aircraft's position in 3D space to a ground station, and calculates the path of virtual weapons once a lock has been obtained and the trigger pulled.

Instructors on the ground assess which students have scored kills, and call the defeated pilots out of the fight. Later, in the debriefing room, a 3D reconstruction of combat is replayed from the collected data using simple, graphical representations of aircraft, weapons and the landscape. Mistakes are easily pointed out, and the lessons learned.

In **F22 Air Dominance Fighter**, ACMI is one of the best tools for learning the skills of modern air combat. For customers of **DID** products, ACMI has always been one of the most requested features, which is why F22 ADF has probably the best system of its kind. Now the player is able to record, analyze and compare performance in combat.

Like the real ACMI, data is collected from the player's aircraft, allowing a graphical portrayal to be replayed afterwards. In some cases the ACMI data from a previous flight is the ideal way to brief new pilots.



The ACMI system can run in one of four modes, each mode has a different screen layout:

In-Cockpit Recorder Mode

ALT R starts a recording, and red on-screen text warns you that a recording is being made. Pressing **ALT R** again stops the recording. When the mission is over, go to the **ACMI Debrief Screen** to view the ACMI recording and save it for future use. The system has been designed so that each minute of ACMI data takes only a few kilobytes of space on your hard disk, making ACMI files ideal for sending over the Internet.

In-Cockpit ACMI Mode

The ACMI module is started from the cockpit while you are flying a mission by pressing **SHIFT A**. The full ACMI interface will be displayed, showing what is going on around you in real time. An indicator will show whether or not you are recording at that time. See [ACMI Interface](#) for a complete description.

Debrief Player Mode

This screen is accessed at the end of a mission to view the recording you have made during the mission, and to save that mission data if required.

Playback Mode

This is started from the **F22 Air Dominance Fighter Main Menu**, and is used to load and view previously recorded missions. These can be your recordings, or ones copied from other pilots.

The ACMI module screen contains the main view screen, the view controls, and the video controls. The ACMI consists of the following panels:

Recording Data

This displays information and game data about the current recording. These are: Game Type, Mission Type, Flight Role, Take-off Base, and Mission Target. This information is stored when the player starts the recording.

3D View/Recording Log

If the ACMI is started while flying a mission, this panel will display a scaled-down 3D game view. All key presses, and joystick movements will work within this view, which means that you continue flying your mission while in the ACMI.

If the ACMI is in a playback mode, this area will contain a scrolling message log. The log shows colour coded text details about what happened in the recording, such as plane hits and deaths. User recorded messages are also displayed here.

ACMI Display Controls

This area contains the following buttons:

Targets

Shows who is targeting whom by drawing a moving dotted line between an aircraft and its target. The line colour is that of the targeting plane, and the line moves towards its target.

Height

Draws a gray line from each plane down to the ground, this gives a better indication of how high each plane is flying.

Weapon ID

Identifies weapons by overlaying a text description at the head of the weapon trails.

Object ID

Identifies objects by overlaying a text description at the head of each object trail.

Next Plane

Moves the view focus to the next plane in the recording.

Last Plane

Moves the view focus to the previous plane in the recording.



The viewer contains the main viewer screen, the viewer controls, and the video controls. The selectable views are:

Cockpit

Puts you in the [cockpit](#) of the currently focused aircraft, which means you have a pilot's eye view of the recording.

Spin

Continuously spins around the currently focused aircraft.

Satellite

A top down view of the currently focused aircraft.

Free

A user moveable camera. Hold down the left mouse button in the view area, and then drag the mouse around to move the camera around the currently focused aircraft.

Track

Places the camera so that it points towards the currently focused aircraft's target.

Side Track

Places the camera at 90 degrees to the current aircraft and its target.

The main viewing window contains two scroll bars, these are:

Zoom Scroll Bar

Located on the left of the main view, this zooms the view distance of the current view. This has no effect in cockpit view.

Aircraft Trail Length Scroll Bar

Located on the right of the main view, this scroll bar changes the trail lengths of the objects in the view. Changing the trail lengths can avoid clutter or help to increase the frame rate if there are a lot of objects in view.

Below the main view area are the video controls. From left to right these are:



Rewind To Start

Takes you back to the start of the currently loaded recording.



Stop

Stops, or pauses the recording or playback of ACMI.



Play / Record

In playback mode there is a playback button, e.g. for use during debrief. In record mode there is a record button, e.g. for use during a mission.



Fast Forward

Speeds the recording forward at four times normal speed.

Timer

Next to the video controls is a timer, which shows the current play or record time in seconds.

Full

When the ACMI is in one of the playback modes, a **Full** button will appear that lets you expand the view area to full screen mode.

Small

Pressing the **Small** button after using the **Full** button will take you back to a smaller window.

One of the biggest problems of air combat is getting an understanding of the complex spatial relationships that occur in a dogfight.

ACMI offers a whole new way to view the action, and obtain a better understanding of how different maneuvers and weapons should be employed.

It is possible to initiate an ACMI recording during flight and view it afterwards. Or it is possible to enter the ACMI interface while you are flying, for real-time analysis of actual flight through an abstraction in simple graphics.

During a mission you can start and stop a recording by pressing **ALT-R**. This will toggle the recording on and off. If the ACMI is recording you will see a red **REC** symbol on the bottom right corner of the screen.

Alternatively, during a mission, it is possible to start the ACMI screen by pressing **SHIFT-A** on the keyboard. In this case you will be able to watch what is happening in real time. Pressing **SHIFT-A** again, or clicking on **Confirm** within the ACMI window, will take you out of ACMI again.

When an aircraft is hit, you will see a small star shaped graphic that represents an explosion. Weapons tracks are shown as dotted lines, and aircraft or weapons identification is made easy by labels on screen. A colored line will also reveal who is tracking who with radar, while trails of adjustable length paint a track in the sky that reveals maneuvers in complete detail.

ACMI is especially useful for learning about aircraft handling during thrust-vectoring maneuvering. Select the ACMI interface during flight, set up a spinning view on ACMI, and then try some high angle-of attack and nose-point maneuvers. Soon you will be able to predict your flight path by timing the maneuvers while watching your speed and altitude. In knife-edge dogfights, skills learned with the help of ACMI may well prove decisive.

User Recorded Messages

Events which occur during the length of the ACMI recording will be reproduced on playback at the correct times. Messages will automatically be placed in the **3D View / Recording Log** describing events such as missile hits, deaths, aircraft entering, and leaving the ACMI recording area etc.

While flying the F22 and making a recording, any messages sent by you will be recorded in the **3D View / Recording Log**. A typed message can be sent to everyone by pressing **5** on the keyboard, and then typing your message, ending it with one press of the **RETURN** key. Similarly a typed message can be sent to your [wingmen](#) by pressing **6** on the keyboard, type your message, and then press the **RETURN** key.

You can index an event of importance by sending a message to everyone as above, type an index message while making a recording in flight. For example "*sensor contact made*" will give you a suitable event index within a recording of **BVR** combat.



See Dedicated Chapter: [Key Controls](#)



F22 Air Dominance Fighter, like its predecessor EF2000, is packed with action. To let you appreciate the enormous attention to detail, we developed Smart Views, a special set of camera views which open up the world for all to see.

Special filters allow you to select the type of action or objects that you view. Smart Views behaves like a virtual movie director, selecting the most interesting action and camera views and displaying them automatically.



For additional details see the supplied Key Card for keyboard combinations necessary to operate the Smart Views.



See Dedicated Chapter: [Key Controls](#)

When you press the F12 key, Smart Views mode will start and the interface will be displayed over the camera view briefly.

The display is split into upper and lower panels, each containing several filters that can be changed. The **F10** key will cycle through the types of object filter in the upper panel, while the **F11** key will cycle through the allegiance filters in the lower panel.

In Smart Views mode the **F9** key will lock your camera to whatever object you were viewing, through smart views at the time you press it.



See Dedicated Chapter: [Key Controls](#)

The Smart Views cameras allow you to watch a mission separately from whatever role you were supposed to be playing.

The cameras will move between views of interest according to the filters you have set and allow you to see the 'movie' of your mission in real time.



See Dedicated Chapter: [Key Controls](#)

The following keys control the Smart views system:



Smart Views Menu System. A temporary screen overlay will be shown for a few seconds.



After pressing **F12** toggle hold/unhold on current object



Choose object



Choose allegiance



View next object



View next groups or flight



It is advisable to engage your [autopilot](#) when using Smart Views during a mission. If you are killed, the Smart Views cameras will engage and continue showing the mission until it is 'timed out'.



See Dedicated Chapter: [Key Controls](#)

In F22 Air Dominance Fighter, there is a very wide choice of player views. Each view has its own merits, and choice depends very much on the player's preference.

For example, looped fly-by is an excellent way to enjoy aerobatic maneuvers from an external view – especially when using thrust vectoring. Padlock view adds a realistic head movement to the cockpit view, enhancing the feeling of flight. Some players, on the other hand, prefer the straightforward HUD only view, with its uncluttered display.



For additional details see the supplied Key Card for keyboard combinations necessary to operate the views.



See Dedicated Chapter: [Key Controls](#)



To find your favorite combination of views will take practise and experimentation.

Once you have found the best combination, programming the views onto a programmable joystick will make life easier.



See Dedicated Chapter: [Key Controls](#)

In F22 Air Dominance Fighter there are a number of padlock views. A padlock view is an internal tracking view that simulates the pilot looking around the cockpit towards a given object.

For example, the **F2** view is a current target padlock, which means that the pilot's head will turn to keep that object in view.

Padlock views are more realistic than external views, and more flexible than the normal forward-looking view. However they may be confusing to start with; practice helps a lot.

Padlock views are on **F2**, **F3**, and **F4**, these work as follows:



Current weapon target padlock - This view will padlock to the currently locked target. This is obviously useful for lining up missile shots etc.



Current threat padlock - This padlocks to any missile that has been fired at you. If there are no missiles the view will padlock to the closest plane that is targeting you.



View padlock - This gives you the flexibility to padlock to any object in the local area, e.g. planes, ground vehicles and buildings. It is independent of weapons, and is equivalent to scanning with your eyes. However, if you 'View Padlock' onto a potential target, simply press **S** to put a weapons lock on that target.

There are a number of keys that control the View Padlock.



View Padlock filter - Cycles around Air, Ground and Static objects: Air being aircraft, Ground being ground vehicles, and Static meaning buildings and structures.

To change the current View Padlock object you use the following keys.



View next object in flight or group



View previous object in flight or group



Skip view to next flight or group



Skip view to previous flight or group

The keys above work slightly differently for static objects, because static objects do not fit into well-defined groups or flights. When the filter is in static mode, and an object is not currently padlocked, you can pan the view around the cockpit and look at building or structure.

If you then press **Z**, the view will padlock to the building nearest to the center of the screen. In this way it is possible to lock to any given building just by looking at it.

When you have a View Padlock you can use **F4**, **Shift F4**, **F9**, **Shift F9**, **F10** and **Shift F10** to view that object in different ways (See the [Views Keys](#) section).

If you have a View Padlock on an object there are two other useful functions you can perform. The first is to add that object to your shoot list by pressing **S** on the keyboard. The second is to add the current padlock object to your [wingman's](#) shoot list by pressing **M** on the keyboard, this is very useful if you are out of weapons and still want to designate targets.



The View Padlock filter and object are automatically set to the '*objects*' view using **F2**.



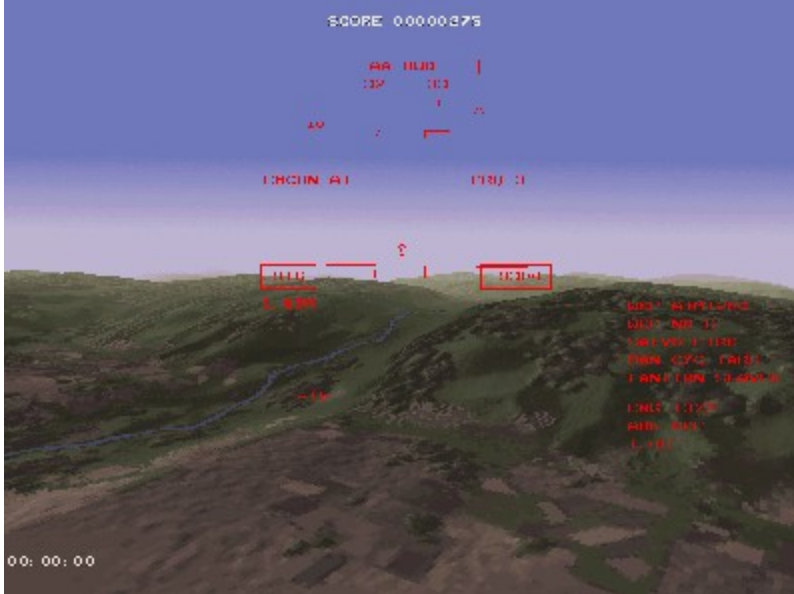
See Dedicated Chapter: [Key Controls](#)

The "F" keys from F1, to F11 provide a range of views around the F22, and other mobiles in the world.

Many of these keys will padlock a mobile, cycle between related views and can be modified by pressing **SHIFT** on your keyboard.



Toggle virtual cockpit on / off



Check your six



Current weapon target padlock. Toggles between internal view, and external view



External target to player



Toggle threat padlock between internal view, and external view



External view threat to player



Toggle View Padlock between internal view, and external view



External View Padlock object to player



Cycle wingman padlock between internal and external views



External view Wingman to player



Player fly-by



Player looping fly-by



Player moveable external view, (using right **SHIFT** and **CURSOR** keys to alter the viewing position)



Cycle player fixed external view



Cycle missile view / pylon view



View Padlock selected moveable external view



View Padlock selected fixed external view



View Padlock selected flyby



View Padlock selected looped flyby



View Padlock browse filters Air, Ground Mobile target, or Ground Static targets

The Wide Angle Camera

The internal views selected on the **F1**, **F2**, **F3**, and **F4** keys can be individually modified from normal narrow angle cameras to wide angle cameras by pressing **K** on the keyboard while in each view.



See Dedicated Chapter: [Key Controls](#)

The extended keyboard numbers each provide a particular view of your MFD's.

Keypad  View [Systems MFD](#)

Keypad  View [Defense MFD](#)


Keypad  View [Situation MFD](#)


Keypad  View [Attack MFD](#)

Keypad  View [Combined Communications And Warnings MFD](#)

Keypad  View [Up Front MFD, and Panel](#)

Keypad  View [Artificial Horizon MFD](#)

Keypad  Return to normal F1 view of [HUD](#)

 See Dedicated Chapter: [Key Controls](#)

You don't just have to play this simulation by yourself. It can be linked to other computers, allowing your friends and colleagues to share the excitement of missions or entire wars in real time.

This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

Thanks to **Windows 95**, it is easy to link the computers by a variety of methods. Multi-Player gaming in F22 is a great deal of fun, and there is already a huge on-line community of virtual pilots waiting to do battle on the Internet. Check our website - [DID Online](#) for hot links to virtual squadrons.

On initial release several special multi-player missions will be available in **F22 Air Dominance Fighter**.



For additional details about the methods of connection supported, please see the **Multi-Player** section of **F22 Air Dominance Fighter**.

Only one person in the game is nominated as the game server. It is the job of the server to provide the mission choice for the game.

Mission details are set-up by the server from one of the menus at game set-up time, or by using a previously saved mission file. The server also chooses the weapons that each player's plane will carry.

When a player leaves a game, all other players are notified and the game continues. If the player is the server then 'server' status is passed on to another player.

When all players agree to end a mission, they will be returned to the [Join Game Panel](#), except the server player, who will be presented with the [New Game Panel](#) from which new missions are selected.

The Multi-Player Main interface is divided into a [Left Panel](#) and [Right Panel](#).



The left and right panels of the Multi-Player interface.

The Left Panel contains the following areas:

Multiplay Client

The Multiplay Client area displays the available connection methods. Click on a connection method, and you will be able to see any games in progress using that connection method.

Games in Progress

The Games in Progress area displays any games that are currently available for you to join. Click on a game if you wish to join it. You will be able to see the players in the selected game, and you will now be able to chat to the other players in the [Chat Area](#).

Current Players

The Current Players area displays the players already in the selected game. Clicking on a player, and pressing the **Reject Player** button in the **New Game** panel will remove that player from the game!



Set-up in the left panel of the Multi-Player interface.

Three buttons will be displayed at the bottom of the left panel, as they are needed in the context of what has been selected in the above areas. The **Join Game** button, the **Cancel** button, and the **New Game** button.

Cancel Button

Pressing the Cancel button will return you to the [F-22 Air Dominance Fighter Main Interface](#).



Pressing the **Join Game**, and **New Game** buttons will alter the **Left Panel**. Please refer to [Join Game](#), and [New Game](#).

Pressing the Join Game button will add you to the list of players in the currently selected game. The Left Panel will now change to the Join Game panel, which contains the following areas:

Waiting to Join

The Waiting to Join area contains the names of players in the "lobby area" who have not joined the selected game.

Game Status

The Game Status area displays the current status of the selected game.

Current Players

The Current Players area displays the players already in the selected game. Clicking on a player, and pressing the **Reject Player** button in the **New Game** panel will remove that player from the game!

The buttons at the bottom of the left panel will now be **Cancel** and **Enter**.

Cancel

Pressing the Cancel button will return you to the previous panel.

Enter

Pressing the Enter button will change the [Left Panel](#) to the [Player Parameters Panel](#).



The 'Join Game' left panel interface

Pressing the **New Game** button will create a new game, connected by the selected connection method. The **Left Panel** will now change to the **New Game Panel**, which contains the following areas:

Scenarios

The Scenarios area lists the available missions.

Current Players

The Current Players area displays the players already in the selected game. Clicking on a player, and pressing the **Reject Player** button in the **New Game Panel** will remove that player from the game!

Three buttons will now be displayed at the bottom of the left panel. The **Reject Player** button, the **Cancel** button, and the **Enter** button.

Reject player

Pressing the **Reject player** button removes the selected player from the list.

Cancel

Pressing the **Cancel** button returns you to the previous panel.

Enter

Pressing the **Enter** button will change the [Left Panel](#) to the [Player Parameters Panel](#).



The New Game left panel interface.

The Player Parameters Panel, will on joining or starting a new game, place the following areas in the Left Panel:

Weapon Selection

This area enables you to select the [weapons](#) you wish to be armed with.

Team Selection

The Team Selection area allows you to select the team you wish to join.

Current Players

The Current Players area displays the players already in the selected game. Clicking on a player, and pressing the **Reject Player** button in the [New Game Panel](#) will remove that player from the game!

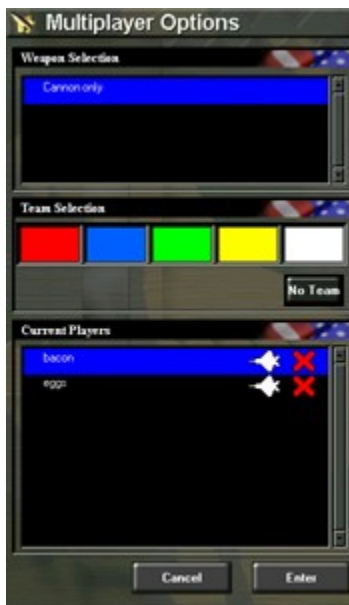
Two buttons will now be displayed at the bottom of the [Left Panel](#). The **Cancel** button, and the **Enter** button.

Cancel

Pressing the Cancel button returns you to the previous panel.

Enter

Pressing the Enter button starts the selected mission.



The Player Parameters interface.

The Right Panel contains the following areas:

Game Details

The Game Details area displays a mission briefing for a currently selected game.

Chat Area

The Chat Area displays chat that is taking place in the currently selected game.



The right Multi-Player interface panel.

There are currently four services that are provided by Direct Play on DirectX 5: Winsock IPX, Winsock TCP, Modem and Serial. All players must select the same service in order to play a multi-player game.

Winsock IPX

Winsock IPX is used for Local Area Networks (LANs) only.

Winsock TCP

Winsock TCP may be selected to play on both **LANs** and **Wide Area Networks** (WANs). In order to play using this method you must know the internet address of the player's machine who is the server for the game (e.g.192.154.100.123).

This address can be found by clicking on the **Network** icon in the **Control Panel** and selecting the **IP Address** tab in the properties window of the **TCP/IP** option. If TCP/IP is not listed then it is not installed and you must install it to play using this option.

Modem

Modem represents a connection between two computers using modem devices.

Serial

After pressing **Start-up** the user will see a serial connection window, which contains port, baud rate, stop bits, parity and flow. Enter the appropriate settings and click on **OK**.

After the connection type is selected, and all the players names are listed in the [Join Game Panel](#), the server can select the mission.

The E3 Sentry AWACS aircraft is a fundamental part of the Command, Communications, and Control (C3) system allowing the AWACS commander to control the localised air war in a way favourable to him.

The AWACS looks after the flight control of all aircraft within his radar view, identifies, and prioritises air threats, organises and monitors **Combat Air Patrols (CAP)**, and flight Interceptions.

Within this game the AWACS can redirect **Close Air Support (CAS)** missions based on data received from ground commanders and the **E8 Joint Surveillance Targeting And Reconnaissance System (JSTARS)** aircraft.

We have also given the AWACS commander responsibility for **Rescue, Ferry, and Re supply** missions.

The AWACS radar is optimised against air threats and can detect the presence of flights at ranges of up to 250 miles depending on the altitude and radar cross-section of that flight. Stealthy flights may remain undetected or unidentified until they are much closer.

At the edge of radar's range, a flight will appear as an unknown contact, the type and number of planes cannot be detected at ranges greater than 200 miles. At ranges less than 200 miles the AWACS radar will be able to produce basic information about the type and number of planes in the flight and will be able to identify the flight as hostile, friendly, or neutral.

Using a combination of **ELINT** (electronic Intelligence), **Link-16**, radar and visual identification methods the AWACS can produce detailed information such as weapons loads on flights within ranges of 150 miles.

The radar can also see ships and to a lesser extent ground vehicles, although to get full ground coverage a JSTARS aircraft will need to be available to data-link with the AWACS.

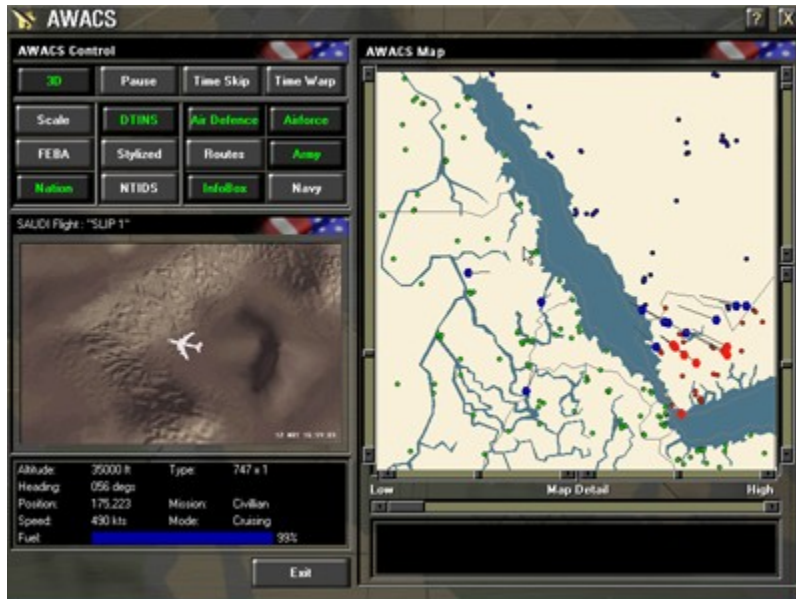
The AWACS is available in relevant missions of the **Simulation**, and **Tour Of Duty** sections of **F-22 Air Dominance Fighter**.



For additional details, please see the [Simulation](#), and [Tour Of Duty](#) sections of **F-22 Air Dominance Fighter**.

The AWACS interface is divided into 5 components:

The [Control Panel](#); [The Map Window](#); [The Message Window](#); [The Flight Information Window](#); [The 3D World Window](#).



The AWACS Command Interface consists of sixteen buttons. These control the style and content of information displayed in the [AWACS Map Window](#) and allow the player to accelerate or suspend the game.



3D

Toggle the 3D map display in the AWACS Map Window.

Pause

Suspend the game. When Pause is selected, the text 'Paused' will appear in the [AWACS 3D World Window](#).

Time Skip

Advance the game time by 30 minutes.

Time Warp

Increase the speed at which the game runs. When Time Warp is selected, the text 'Time Warp' will appear in the AWACS 3D World Window.

Scale

Display a scale in nautical miles at the bottom of the [AWACS Map Window](#).

FEBA

Display the Forward Edge of Battle (FEBA).

Nations

Display the colored map and nation names in the [AWACS Map Window](#) (On by default).

DTINS

Displays the **DID Target Interaction Symbology** (DTINS) icons and text (On by default).

Stylized

Toggle between Point (default) and Stylized symbology. This button is disconnected when NTIDS are selected.

NTIDS

Toggle [NATO Target Identification Symbology](#) (NTIDS). This button will override your choice of Point / Stylized symbology.

Air Defence

Display **Surface to Air Missile** launchers (SAMs), **Early Warning Radar** (EWR), Radar and Communications sites and radar ranges. When the [3D AWACS Map](#) is selected, this displays SAM umbrellas.

Airbases

Display all Airbases and Airfields (On by default).

Routes

Display Allied aircraft flight paths and waypoint routes.

Army

Display all Military bases and any known or Allied ground-based forces. An E8 JSTARs aircraft must be airborne to display detailed ground-based force information.

Navy

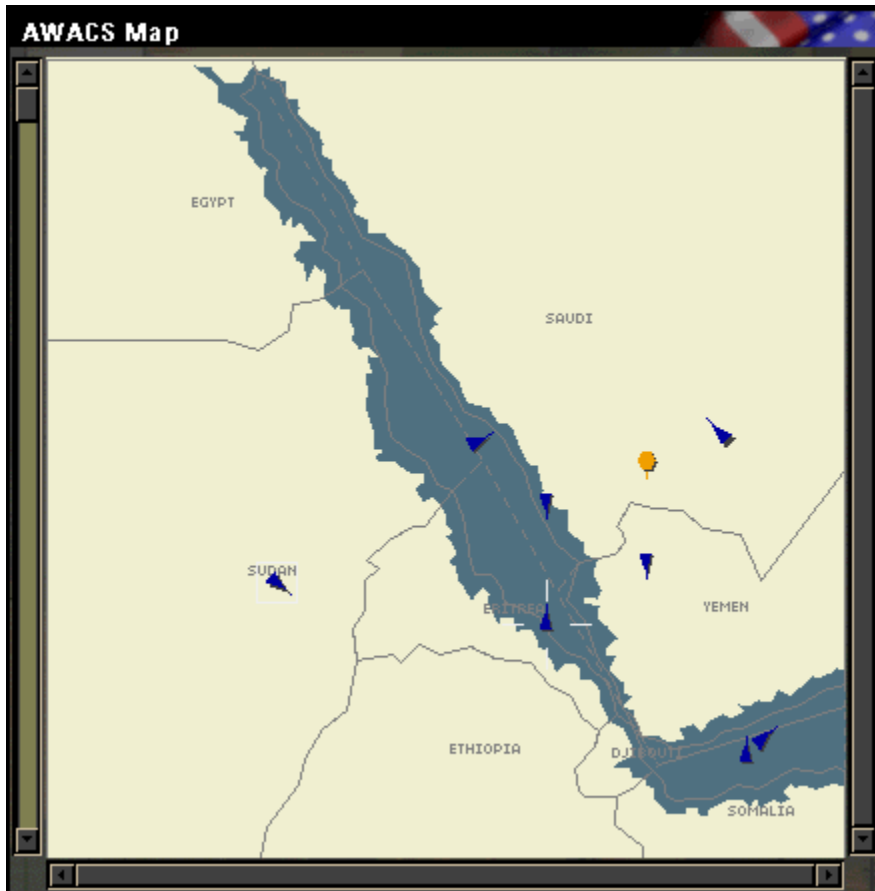
Display all Naval bases and any known or Allied naval forces.

Information Box

Display the **Flight Information Box** alongside the Flight currently under the mouse cursor in the [AWACS Map Window](#). This information is also presented in the [AWACS Flight Information Window](#).

The **AWACS Map Window** displays the area of the world currently within AWACS radar range. It displays the components of the battle that the Player has selected with the filters available in the [AWACS Control Panel](#).

These can include all of the Allied air, land and sea forces, all the Enemy and Neutral forces within range of the AWACS and all the Airbases, Military and Naval bases in Theatre. Additional information for allied aircraft can be visualised, including CAP and CAS patrol areas, flight paths and waypoint routes.



Viewing Flights And Objects

Any item displayed on the map can be viewed by moving the mouse cursor over the icon in the AWACS Map Window and clicking with the left mouse button. These objects include aircraft flights, ground-based vehicles, ships, airbases, army bases, ports, SAM installations and radar sites.

If the object is part of the Allied force, it will appear clearly in the [AWACS 3D World Window](#). However, if the object forms part of the Enemy or Neutral forces, and the Player is yet to perform reconnaissance in that region, the image in the **AWACS 3D World Window** will appear distorted and noisy.

2D Map Slider Bars

When the AWACS map is in 2D mode the map can be controlled by use of the keyboard SHIFT key, plus the left and right mouse buttons.

Selecting Items

The left mouse button is used to select items on the map.

Zooming the map

To zoom into the map the mouse cursor must be on the AWACS map. Place the mouse cursor above and to the left of the area which you want to zoom into, hold the SHIFT key and press the left mouse button and while continuing to hold it down pull out a zoom box encompassing the area that you want to zoom the map to. Then while keeping the SHIFT down, release the left mouse button to carry out the zoom.

The left mouse button can now be used to move the zoomed map by pressing and holding SHIFT on the keyboard, move the mouse cursor to the center of the area which you desire to move towards and then press the left mouse button.

To zoom back out of the map, press SHIFT on the keyboard, and the right mouse button while the mouse cursor is anywhere on the map, to zoom out one stage. To zoom fully out to the full size map, continue to hold the right mouse button until the zoom has taken place.

3D Map Slider Bars

When the AWACS map is in 3D mode the map can be controlled by use of the keyboard SHIFT key, plus the left and right mouse buttons.

Selecting Items

The left mouse button is used to select items on the map.

Zooming the map

To zoom into the map place the mouse cursor on the AWACS map, hold the SHIFT key and press the left mouse button . Moving the Mouse forwards and backwards will alter the zoom.

Rotating the map

To rotate the map press and hold SHIFT on the keyboard, then hold the right mouse button down and move the mouse cursor to the right to achieve a clockwise rotation, or move the cursor to the left side for a counter clockwise rotation.

Changing the map zoom focus

To change the focus of the zoom. Press and hold SHIFT on the keyboard, hold down both mouse buttons, and move the mouse cursor from one side to the other, or from top to bottom.

- Allied
- Enemy
- Neutral
- Unknown

NTIDS SYMBOLOGY

Aircraft



Flight



Ship



Ship Group



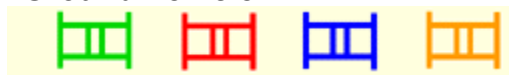
Helicopter



SAM Site



Ground Vehicle



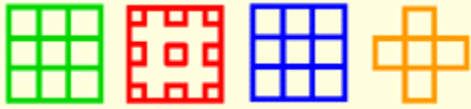
Ground Vehicle Group



Air Base



Army Base



Comms Site



Port



STYLIZED SYMBOLOGY

Aircraft



Flight



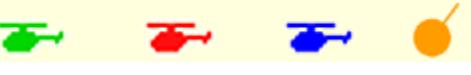
Ship



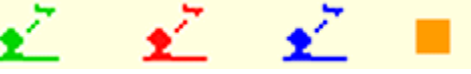
Ship Group



Helicopter



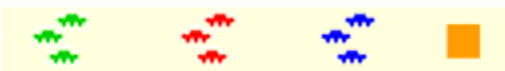
SAM Site



Ground Vehicle



Ground Vehicle Group



Air Base



Army Base



Comms Site



Port

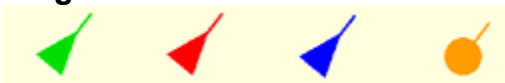


POINT SYMBOLOGY

Aircraft



Flight



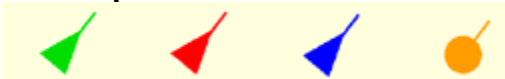
Ship



Ship Group



Helicopter



SAM Site



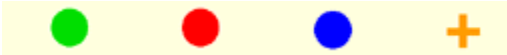
Ground Vehicle



Ground Vehicle Group



Air Base



Army Base



Comms Site



Port



The **AWACS Commander** has the power to control and direct the tactical Air War. With its simple mouse driven interface, the **AWACS** gives you the ability to perform a wide variety of tasks:



Identify and prioritise air threats



Organise and monitor Combat Air Patrols (CAP)



Assign and update flight Interceptions including visual identification, shadow and engage to kill tasks



Vector flights to refuelers or to land



Assign allied flights to aid other allied flights in distress



With assistance from the E8 JSTARs aircraft, vector Close Air Support (CAS) flights to kill mobile ground targets such as SAMs, SCUDs, and enemy tanks

The command generation system is context sensitive, only allowing the **Commander** to send valid commands to Allied flights. Commands that are valid but are not currently available will either produce a negative response from the command generation system or from the flight itself.



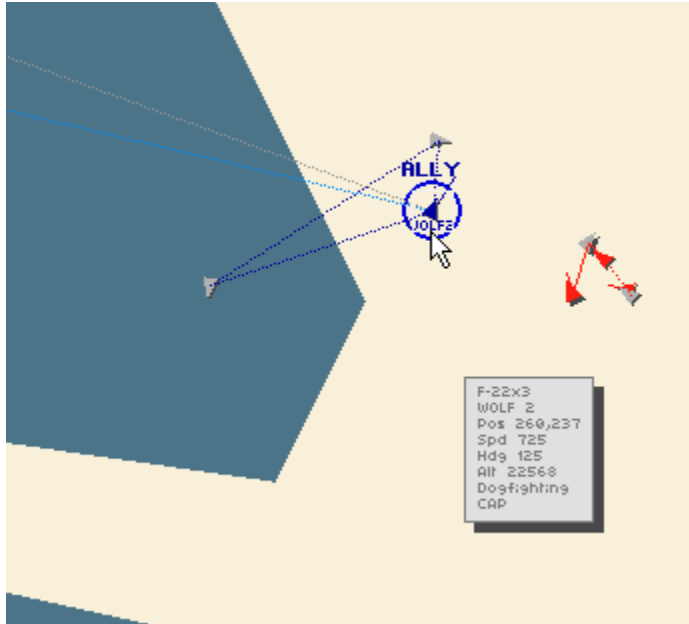
In order to make it clear which flights are being controlled and targetted in the [AWACS Map Window](#), the **DTINS** button must be selected.

{button Commands To Allied Flights,JI('F22HELP.HLP>(w95sec)',`commands_to_allied_flights')} {button
Commands To Neutral Flights,JI('F22HELP.HLP>(w95sec)',`commands_to_neutral_flights')}
{button Commands To Enemy Flights,JI('F22HELP.HLP>(w95sec)',`commands_to_enemy_flights')} {button
Commands To Unknown Flights,JI('F22HELP.HLP>(w95sec)',`commands_to_unknown_flights')}

Commands are generated by the following procedure :



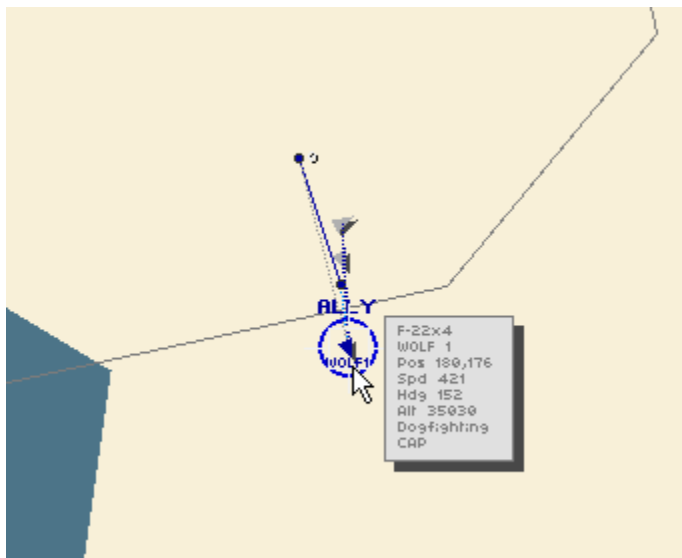
Select an allied flight by moving the mouse over the flights until a suitable flight is highlighted.



In the example above an Allied CAP flight is being chosen for a task.



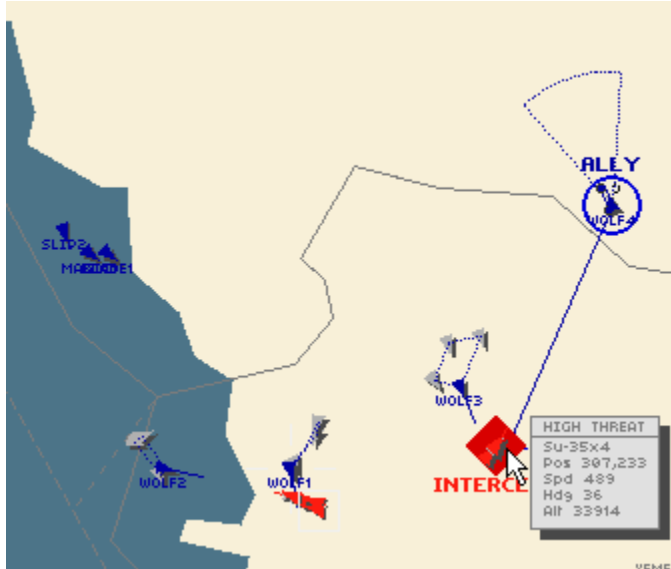
Use the left mouse button to select that flight for a task.



You may notice that the CAP flight is armed with [Air-to-Air weapons](#) making it suitable for Intercept tasks. This information can be seen in the flight information box below the 3D window.



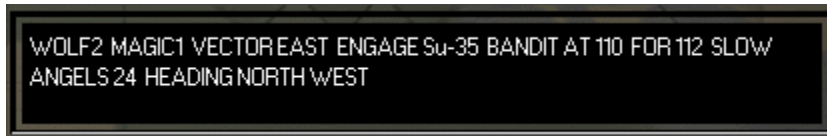
Move the mouse to either a new map location (in the case of relocating patrol missions) or onto another flight. This action will produce an icon and text over the new flight describing the command that will be generated if the left mouse button is released. (For details of commands and icons see table below)



Here the CAP flight is being dragged to an Enemy flight producing a red diamond DTINS icon to indicate that an Intercept-to-Kill task will be sent to the Allied flight if the mouse is released.



To Send the command, release the left mouse button. To Cancel the command, return the mouse cursor to the original flight location and release the left mouse button.



The command has been sent to the Allied CAP flight to intercept and kill the enemy flight. The Allied flight responds to the AWACS and sets up its intercept vector to the enemy flight. This is illustrated as a dashed line modifying the current flight waypoint route.

The intercept vector is the point in space where the two flights will meet if they maintain their current headings and speeds. The intercept vector is updated as these change.

A successful command will produce a text confirmation displayed in the AWACS Message Window, and if speech is activated, an audible message. The Allied flight response will also be displayed and presented audibly.

● **ESCORT**

As AWACS Commander, you can tell any Allied flight armed with [Air to Air weapons](#) to escort any other Allied flight. When the escort command is available a solid blue circle will appear over the current flight.

◐ **REFUEL**

If an Allied flight requests fuel, the AWACS Commander can drag and drop that flight to any patrolling allied refueler within range. If the refuel command is available a semi-filled circle will appear over the refueler.

▽ **LAND**

If a flight requests landing or you simply want to force a flight to land, then as AWACS Commander you can drag and drop the flight to any Allied airbase. If the Land command is available, then an inverted triangle will appear over the airbase.

▲ **MOVE PATROL**

The move-patrol command is only available to flights that are in patrol mode (check the flight information box to see what mode the flight is in). The flights that will go into patrol mode are CAP, CAS, AWACS, JSTARS, REFUELER's and some ELINT.

To move a patrol position simply drag and drop the mouse to the new patrol position. While the patrol flight is being dragged and dropped to its new location, a small circle with crosshairs will appear attached to the mouse.

SHADOW

As AWACS Commander you can tell any Allied flight to shadow any Neutral flight. As Neutral flights should normally be of little danger to our alliance, the shadow command will merely make the Allied flight follow the Neutral flight closely.

If the Neutral flight becomes aggressive or if it violates Allied airspace, the Allied flight may then take action to destroy it. If the shadow command is available, a green DTINS diamond-with shadow symbol will appear over the Neutral flight.

INTERCEPT

Any enemy flight can be intercepted by dragging and dropping any Allied flight armed with [Air to Air weapons](#) onto it. The intercept command will force the Allied flight to engage in combat with the enemy flight. If the intercept command is available a red DTINS solid diamond will appear over the enemy flight to be intercepted.

VIS-IDENT

Flights that are on the extremes of the AWACS radar's coverage will appear on the [AWACS map](#) display as unknown contacts. These flights are too far away to be positively identified by the AWACS but an Allied flight can be dragged and dropped onto them and forced to visually identify the flight for the AWACS.

If the vis-ident command is available an orange DTINS diamond will appear over the unknown flight to be identified.

Situated beneath the [AWACS Map Window](#), the AWACS Message Window displays messages sent between the AWACS Commander and Allied flights in Theatre.

These messages can be both read and heard.

Below the [AWACS 3D World Window](#) is the flight information window.

This will list relevant information about the flight or object currently being viewed in the 3D window. For flights that are unknown or out-of-range of the AWACS no information will be available.

A 3D view of the world from the point of view of the currently selected F22.

This is displayed below the buttons, together with a data window relating to the currently selected aircraft.



F22 Air Dominance Fighter is probably the most sophisticated simulation of its kind on the PC. Yet there will be times when all you want to do is get airborne and blast other aircraft or ground targets.

Quick Combat lets you do just that. Select Quick Combat and you're in the cockpit and in the fight. It's instant gratification, with tough yet fun challenges to test your mettle, and a system of points to measure your skill.

Quick Combat is an intense and lengthy mission lasting five hours. You must follow the waypoint route destroying targets as you find them, and then renewing your weapons. At each waypoint you will find a target on the ground which must be destroyed, while ever more dangerous waves of enemy aircraft and SAM's will rise to attack you along the route.



For additional details, see the **Quick Combat** section of **F22 Air Dominance Fighter** in the [Main Interface](#).

Pressing the **Confirm** button on the bottom left of the interface will start the mission, while pressing the **Cancel** button will return you to the [Main menu](#).

The game feature options can be selected once in the mission, by pressing **SHIFT O** on the keyboard.



Below the Interface window on the right are three buttons that will display information in the window.

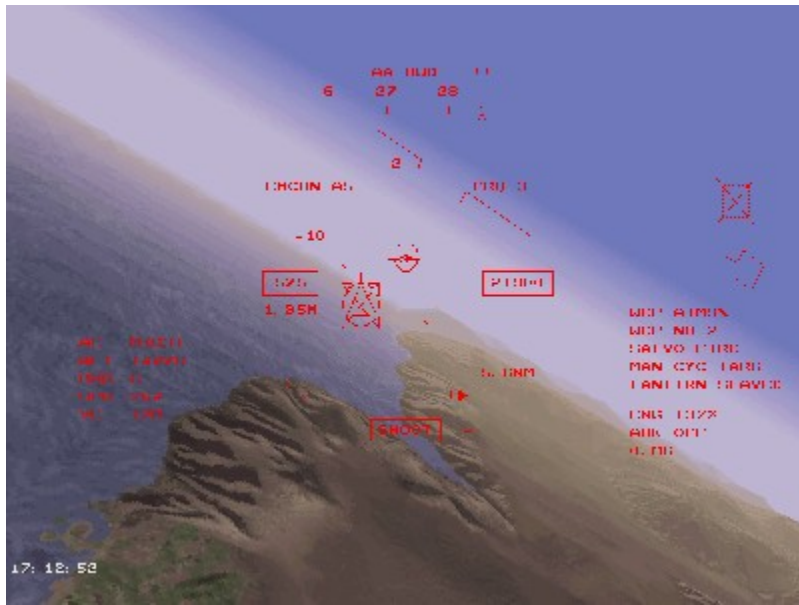
Briefing

Displays the text briefing for the Quick Combat mission.

Map

Shows your route in the world, and the positions of your waypoints.

The points awarded will be displayed at the top of the screen during the mission, and will be displayed in the window after pressing the **Hi Score** button when you have finished the mission.



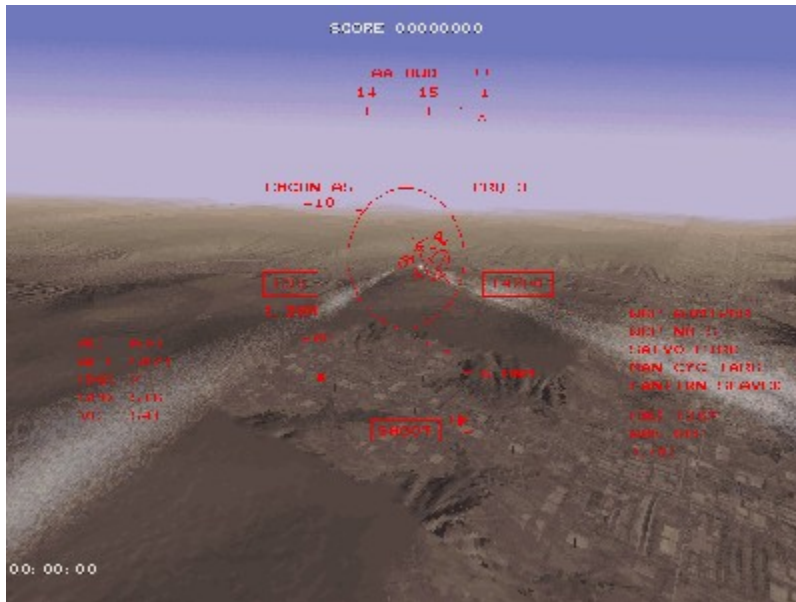
The briefing displayed to you in the interface window will also be displayed on the Combined Communications And Warnings MFD in the top left of the cockpit.

As you follow the waypoint route you will meet increasingly more aggressive aircraft and SAM's. At each waypoint, you will find a ground target that carries a high points score for destruction.

Points are awarded by a points multiplier system; i.e. the more points you earn the more the points multiply. However, should you hit your own side there will be a corresponding loss of points.

In general, higher points will be given for higher score targets; e.g. a tank is worth more than a truck, but a greater score will be given for a specified ground target within the mission. The highest scores will be displayed in the **Quick Combat Hi Score** table.

Fuel will be limited to what you can carry externally, and a refueler will stand-by before the last waypoint - just in case. One weapon of each type carried will be automatically replaced every thirty seconds.



F22 Air Dominance Fighter is based on the same simulation software that DID sell to military customers for real training applications.

In the Simulator section, you will find a host of missions designed to familiarize you with the F22 and [AWACS](#) aircraft, helping you to become proficient in the techniques of modern air combat.

The Simulator screen contains six training areas displayed on the top left of the interface, each containing pre-written missions. [Flight Training](#) deals with the basics like take-off and landing, while **Weapons Training** teaches how to target and launch your weapons. **Free Flight** is a set of missions that will take you on an anticlockwise peacetime tour of the world, starting in the Yemeni mountains in the South.

The [Air to Air Tactics](#) section deals with training for combat, while [Wingmen](#) teaches you hoe to make the most of your buddies. The **AWACS Missions** is an area specifically to teach use of the AWACS commander.



From the AWACS you will be able to enter and fly any F22 on the AWACS display.



For additional details, see the **Simulator** section of **F22 Air Dominance Fighter** in the [Main Interface](#).

As you select each training area, the missions within it are displayed underneath in a scrolling window, from where you will be able to select the individual missions by clicking on them.



The selected mission is highlighted in colour.



Confirm

Pressing this button on the bottom left of the interface will start the selected mission.

Cancel

Pressing this button will return you to the [Main Menu](#).

Game Feature Options

To access game feature options from within the mission, press **SHIFT O** on the keyboard.

Information

Below the Interface window on the right are six buttons that will display information in the window.

Personal Log

Displays your history and awards.

Map

Displays the world with your route overlaid.

Briefing

Gives a text description of the selected mission.

View Target

Displays information for the selected air to ground mission.

ACMI

Selects the ACMI module to review DID pre-written missions, where the ACMI recording is used as part of the briefing.

The briefing displayed to you on mission selection will also be displayed on the [Combined Communications And Warnings MFD](#) in the top left of the cockpit.

For variety, each of the missions contains objects and activities of interest other than those related to the basic training mission.

The skills that you as the game user learn within the Simulator section are imparted to each of your F22 squadrons on entering the [Tour of Duty](#). Though it is not necessary to complete this section before Tour of Duty, it will certainly help.

Missions are measured against a pre-set requirement for mission success, and will be displayed to you as a percentage of success

This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

Tour of Duty is your introduction to real warfare in F22 Air Dominance Fighter. The Tours are based upon three scenarios that increase in difficulty and complexity.

Each is set in a different part of the world, and involves different countries. Success or failure in each of the missions will affect progress through the Tour.

On first use of the game you will be able to see all the missions but will only be able to pick the first mission in any of the Tours. When you complete the first mission in any given Tour, then you will be able to pick the next mission and so on until all the missions in that Tour will be available for replay.

Some of the final missions start in the [AWACS](#) aircraft allowing you to direct the overall battle, and fly any F22 on the AWACS display.



For additional details, see the **Tour of Duty** section of **F22 Air Dominance Fighter** in the [Main Interface](#).

As you select each Tour of Duty in the top left of the display, the missions within it are displayed underneath in a scrolling window, from where you will be able to select the individual missions by clicking on them.



The selected mission is highlighted in color.



Confirm

Pressing this button on the bottom left of the interface will start the selected mission.

Cancel

Pressing this button will return you to the [Main Menu](#).

Game Feature Options

To access game feature options from within the mission, press **SHIFT O** on the keyboard.

Information

Below the Interface window on the right are six buttons that will display information in the window.

Personal Log

Displays your history and awards.

Map

Displays the world with your route overlaid.

Briefing

Gives a text description of the selected mission.

View Target

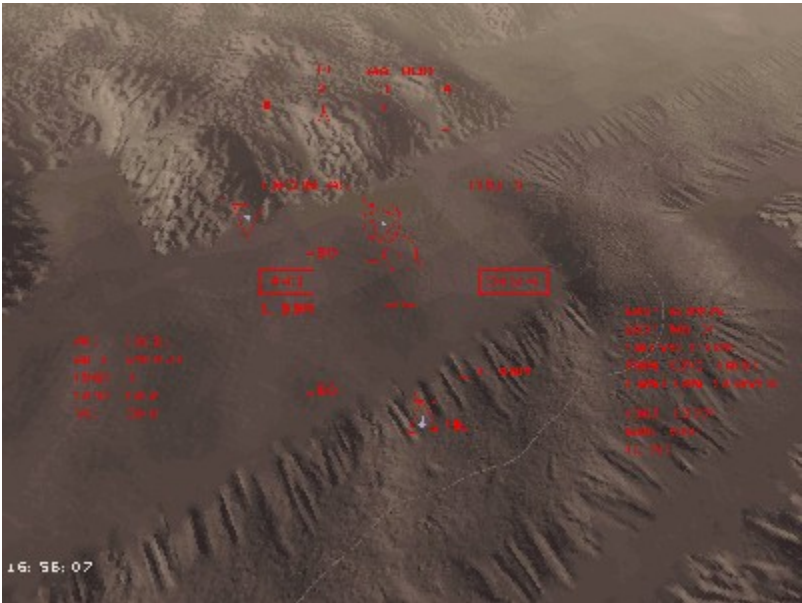
Displays information for the selected air to ground mission.

Attack Pattern

Displays the paths taken by your flight over the target for the selected air to ground mission.

[ACMI](#)

Selects the ACMI module to review DID pre-written missions, where the ACMI recording is used as part of the briefing.



The briefing displayed to you on mission selection will also be displayed on the Combined Communications And Warnings MFD in the top left of the cockpit.

The Tour of Duty missions will pit you against many of the enemies to be found in this area of the world, and unusually may involve you fighting against other F22s in some scenarios. Missions are measured against a pre-set requirement for mission success, and will be displayed to you as a percentage of success.



{button A,JI('F22HELP.HLP','gloss_a')}{button B,JI('F22HELP.HLP','gloss_b')}{button C,JI('F22HELP.HLP','gloss_c')}{button D,JI('F22HELP.HLP','gloss_d')}{button E,JI('F22HELP.HLP','gloss_e')}{button F,JI('F22HELP.HLP','gloss_f')}{button G,JI('F22HELP.HLP','gloss_g')}{button H,JI('F22HELP.HLP','gloss_h')}{button I,JI('F22HELP.HLP','gloss_i')}{button J,JI('F22HELP.HLP','gloss_j')}{button K,JI('F22HELP.HLP','gloss_k')}{button L,JI('F22HELP.HLP','gloss_l')}{button M,JI('F22HELP.HLP','gloss_m')}{button N,JI('F22HELP.HLP','gloss_n')}{button O,JI('F22HELP.HLP','gloss_o')}{button P,JI('F22HELP.HLP','gloss_p')}{button Q,JI('F22HELP.HLP','gloss_q')}{button R,JI('F22HELP.HLP','gloss_r')}{button S,JI('F22HELP.HLP','gloss_s')}{button T,JI('F22HELP.HLP','gloss_t')}{button U,JI('F22HELP.HLP','gloss_u')}{button V,JI('F22HELP.HLP','gloss_v')}{button W,JI('F22HELP.HLP','gloss_w')}{button X,JI('F22HELP.HLP','gloss_x')}{button Y,JI('F22HELP.HLP','gloss_y')}{button Z,JI('F22HELP.HLP','gloss_z')}

A

AA

Anti-Aircraft

AA or A-A

Air to Air

AAA or Triple A

Anti Aircraft Artillery

AAM

Air to Air Missile

AA-10 Alamo

NATO designation for the R-27

AA-11 Archer

NATO designation for the R-73 IR missile

AA-12 Adder

NATO designation for the R-77 IR Missile

AAR

Air to Air Refueling

AAV

Armored Amphibious Assault Vehicle

AB

AfterBurner

ACA

Agile Combat Aircraft

ACM

Air Combat Manoeuvres - Dogfighting tactics involving two or more aircraft

ACRV

Armored Command and Reconnaissance Vehicle

AD

Air Defence

ADAM

Area Denial Artillery Munitions

ADATS

Air Defense Anti-Tank System

ADI

Attitude Director Indicator - Cockpit instrument which displays an aircraft's pitch and bank angles relative to an artificial horizon

AEW

Airborne Early Warning

Afterburner

Part of a jet engine that increases the power of the engine by mixing fuel with the jet exhaust

AG or A-G

Air to Ground

AGL

Altitude above Ground Level

AGM

Air to Ground Missile

Aileron

Control surface on an aircraft wing that produces aircraft roll

AIM

Air Intercept Missile

All Aspect

Weapons that are effective at any angle to the target

ALT

Altitude above sea level

AMRAAM

Advanced Medium Range Air to Air Missile

AOA

Angle Of Attack - The angle between an aircraft's velocity vector and a reference line pointing straight ahead of the fuselage

AP

Armor Piercing

Approach

Line-up prior to landing

APC

Armored Personnel Carrier

APHE

Armor Piercing High Explosive

ARM

Anti-Radiation Missile

ASARS

Advanced Synthetic Aperture Radar

Aspect Angle

The angle formed by a line running through the aircraft and a line parallel to the other aircraft's longitudinal axis

ASW

Anti-Submarine Warfare

ASRAAM

Advanced Short Range Air to Air Missile

Attitude

The state of an aircraft in terms of Pitch, Yaw and Roll

ATC

Air Traffic Control

ATF

Advanced Tactical Fighter

ATGW

Anti Tank Guided Weapon

ATM

Air Tasking Message

Autopilot

A mode in which the flight control computer takes control of the aircraft

Avionics

Electronic systems in the aircraft

AWACS

Airborne Warning And Control System

B**BAI**

Battlefield Air Interdiction

Bandit

A known hostile aircraft

Bank

The angle of the wings about the longitudinal axis, referenced to the horizontal

Bank

To roll the aircraft to one side and induce a turn

BCOM

Base COMmander

Beaming

Flying perpendicular to the emissions from a threat radar

BDA

Bomb Damage Assessment

BMEWS

Ballistic Missile Early Warning System

BFM

Basic Flight Manoeuvres

Bingo

“Bingo fuel” is the amount of fuel needed to return to base

Blackout

Loss of consciousness due to excessive forces on the pilot

Blast-Fragmentation Warhead

An explosive charge which creates a large amount of shrapnel

BLU

Bomb Live Unit

Bogey

An unknown aircraft. A bogey become a bandit when identified as hostile

Bracket

An ACM tactic in which two (or more) aircraft fly opposite sides of a threat formation

Break

To suddenly turn in the hope that any enemy following will lose his tactical advantage

Break-through pressure

Pressure needed to overcome the G-Limiter on the joystick

Bug-out

Leave a dogfight

BVR

Beyond Visual Range

C**Callsign**

A pilot's or controller's code name

CAP

Combat Air Patrol

CAS

Close Air Support

CBU

Cluster Bomb Unit

CEP

Circular Error Probability (A measure of bombing performance)

CFPD

Commands Flight Path Display System

Chaff

Packets of foil used to decoy or obscure radar systems

Compass tape

Heading indicator at the top of the HUD

Concussive

With Violent, if not explosive, force

Continuous Wave Radar

A system which emits radio waves continuously as opposed to pulses (see Pulse Doppler Radar)

Corner Velocity

The velocity at which an aircraft achieves it's best turn performance

Court Martial

A military trial held when breaches of conduct codes occur

CTOL

Conventional Take Off and Landing

D

DEFCON

DEFense CONdition. A series of alert conditions set which cause world-wide forces to establish escalating levels of readiness and security

DLIR

Downward Looking InfraRed

Dogfight

Engaging enemy aircraft

Doppler Radar

Airborne radar which makes use of the Doppler effect (frequency shift) in signals reflected back from ahead and behind aircraft to give measure of speed over the ground and to distinguish moving targets

Drogue Chute

A parachute released to slow an aircraft, usually when landing

Drag Factor

A number which indicates how unaerodynamic external stores on an aircraft are

Durandal

Runway cratering missile

E

ECCM

Electronic Counter Counter Measures

ECM

Electronic Counter Measures

Element

Two aircraft working together as a team, possibly as an element of a larger team

Elevators

Aircraft control surfaces, located at the back of the horizontal stabilizers, which provide pitching movement

EO

Electro-Optical

EMCON

EMission CONtrol level

ERA

Explosive Reactive Armor

ESM

Electronic Support Measures

EW

Electronic Warfare

EW Radar

Early Warning Radar

F

FAB

Fugasnaya Aviatsyonna Bomba. Russian designation for “General Purpose Bomb”

FAC

Forward Air Controller

FARP

Forward Air Refueling Point

FBW

Fly By Wire. A flight control system which transmits flight commands via wires to servo actuators which drive the ailerons, rudders or other control surfaces. In most FBW systems, pilot input is processed and possibly negated before being sent to the control actuators

FCC

Fire Command Center

FCS

Fire Control System

FEBA

Forward Edge of Battle Area

Fire and Forget

A missile that, once fired, will guide itself to its target

Flak

Shrapnel produced by AAA shells exploding

Flame-out

Stalling of aircraft engine due to adverse circumstances: e.g. Bird-strike

Flaps

Control surfaces on aircraft wings which increase lift for a given flight condition and allow a lower airspeed than is normal in flight

Flaperons

A useful control surface which is a cross between ailerons and flaps

Flares

Pyrotechnic packages which burn with intense heat designed to confuse infrared missiles

Flashpoint

A trouble zone, be it economical, military or otherwise

FLIR

Forward looking InfraRed

FOD

Foreign Object Damage

Fuze

An adjustable triggering device in a missile, bomb or other weapon

G**G or G-Force**

A force acting upon the aircraft and pilot when manoeuvring, expressed in terms of the earth's gravitational force

GBU

Guided Bomb Unit

GLCM

Ground Launched Cruise Missile

GLLD

Ground Laser Locator Designator

G-LOC

Gravity Induced Loss of Consciousness

GPS

Global Positioning System

G-Suit

A suit worn by pilots which reduces the effects of high G forces

H**HARM**

High Speed Anti Radiation Missile

Hard Target

A target which is armored

Hard Points

Weapons pylons for carrying anything except fuel (see Wet Points)

HAS

Hardened Aircraft Shelter

HE

High Explosive

HEAT

High Explosive Anti-Tank

HE-Frag

High Explosive Fragmentation

HOTAS

Hands On Throttle And Stick, which puts all the controls at the pilot's fingertips

HSI

Horizontal Situation Indicator. A cockpit indicator which combines a compass with information from an inertial reference system or navigation beacons to indicate the relationship of the aircraft with the planned course

HUD

Head-Up Display

I

IFDL

In Flight Data Link

IFF

Identification Friend or Foe

IIR

Imaging Infra Red

ILS

Instrument Landing System

Indicated Airspeed

The airspeed shown by an airspeed indicator and not corrected for error due to air density variations caused by altitude and temperature

INS

Inertial Navigation System

IR

Infra Red

IRI

Intermittent Radar Imaging

IRD

InfraRed Decoy

IRSTS

Infra Red Search and Track System

J

Jamming

Confusing the enemy radar by using high-energy bursts of a certain frequency

JDAM

Joint Direct Attack Munition

JSOW

Joint Stand Off Weapon

JSTARS

Joint Services TActical Radar System

JTACMS

Joint TACTical Missile System

JTIDS

Joint Tactical Information Distribution System

K**KC-35**

Mid-air refueling tanker

KIA

Killed In Action

Knock it off

Slang for “end the mission”

Knots

Nautical miles per hour

KTS

Abbreviation for Knots

L**LANTIRN**

Low Altitude Navigation and Target attack system for Night

LGB

Laser Guided Bomb

Lizard

A term often used to describe the enemy leader

Load Factor

The force acting on an aircraft as a multiple of the force of gravity

Lock

Acquire a target and fix weapons aiming systems on it

Loose Cannon

A renegade pilot

LRMTS

Laser Ranger and Marked Target Seeker

LZ

Landing Zone

M

Mach

Unit of speed equal to the speed of sound at your altitude

MAS

Manoeuvring Attack System

MAW

Missile Approach Warning

MBT

Main Battle Tank

MFD

Multi Function Display

MEWS

Mobile Electronic Warfare System

MFD

Multi Function Display unit

MIA

Missing In Action

MiG

Mikoyan-Gurevich. The founders of one of the main Russian aircraft design bureaus.

MMD

Moving Map Display used for navigation

MMS

Missile Management System

MP

Maritime Patrol

MRM

Medium Range Missile

N**NATO**

North Atlantic Treaty Organization

NM

Nautical Mile - 6,076 feet

Nav.

Navigation

NBC

Nuclear, Biological, Chemical

Negative G's

G-force that forces you out of your seat

NOE

Nap Of the Earth, Very low altitude

NV or NVE

Night Vision Equipment

O**Ordnance**

Bombs, missiles, bullets and other offensive hardware

OS

Offensive Support

OTR

Operational Turn-Round. Rapid Re-arming and refueling of combat aircraft

OTH-B

Over The Horizon Backscatter (Radar)

P**Padlock**

Direct the pilot's view to a selected object

Pave Tack

Targeting system for laser guided bombs

PGB

Precision Guided Bomb

Pincer

As Bracket manoeuver

PIO

Pilot Induced Oscillation. Oscillation on an aircraft's flight path or attitude caused by a pilot failing to compensate for the lag in time between pilot input and aircraft reaction

Pipper

A small dot at the center of the aiming reticule

Pitch

The angle of the aircraft's nose above or below the horizon

Pitch ladder

Pitch indicator in the HUD

PK

Probability of Kill

Positive G's

G-force that forces you into your seat

Predictor Sight

A computerized gun sight that predicts the flight of cannon shells

Pressure Breathing

Forced breathing to help cope with high-G manoeuvres

Pulse Doppler Radar

Radar that emits short bursts of radio waves and detects objects by the returning echo

Push 1

(Also known as STUD) Frequency setting on an aircraft Radio (similar to presets in a car radio)

Q

R

RADAR

RAdio Detection And Ranging

RCS

Radar Cross Section

Recce

Reconnaissance

Redout

Effect felt by pilot when pulling negative G's for too long. Caused by blood rushing to the head

RHWR

Radar Homing Warning Receiver

RHAW

Radar Homing And Warning

RI

Radar Imaging

RMG

Ranging Machine Gun

ROE

Rules Of Engagement. Rules governing the conditions under which a fighter can engage or fire upon an enemy

Roll

Rotation around an aircraft's longitudinal axis

Rookie

Inexperienced pilot

RP

Rocket Propelled

RPM

Revolutions Per Minute

RSBN

A radio navigation beacon

RTB

Return To Base

Rudder

Control surface on the tail of an aircraft which affects the yaw of an aircraft

RV

Rendezvous

RWR

Radar Warning Receiver

R-27

An advanced Russian AA radar guided missile

R-60

A second-generation Russian heat seeking missile

R-73

A third-generation Russian heat seeking missile

S**SA**

Strike/Attack

SA

Semi-Active. Refers to radar guided missiles which require the aircraft's radar to illuminate the target all the way to impact

SA

Situational Awareness. The amount of awareness a pilot has about the local tactical environment

Sandwich Manoeuvre

(Also Drag manoeuvre) Decoy manoeuvre to distract enemy fighters away from their targets

SAM

Surface to Air Missile

SAR

Search And Rescue

SARH

Semi-Active Radar Homing

SEAD

Suppression of Enemy Air Defenses

Semi Active

Used to describe a missile which must be guided until its own radar can take over

Sideslip

Motion of an aircraft to the right or left perpendicular to its longitudinal axis

Six O'clock

Directly behind an aircraft, where it is most vulnerable

SLAM

Stand-off Land Attack Missile

SLAR

Side-Looking Airborne Radar

Slats

Extendible leading edge high-lift devices

SLIR

Sideways-Looking InfraRed

Soft Target

Target without any armor

SRAM

Short Range Attack Missile

Stall

Loss of control due to low airspeed or excessive manoeuvres at high altitude

Statute Mile

5,280 feet

Stealth

Ability to avoid detection

T

TADS

Target Acquisition And Designator

TCOM

Theater COMmander

Terprom

Terrain following system

Terrain Hugging

Flying at 500 feet or below, following the contours of the land

TFR

Terrain Following Radar

Threat

Any enemy in your vicinity

Thrust

Power produced by your engines, usually referred to as a percentage

Thrust Vectoring

The ability to adjust the direction of thrust via moveable nozzles

TOT

Time On Target

TOW

Time On Waypoint

Trim

Setting aircraft controls or trim devices so that the aircraft maintains a desired altitude

Trim Tab

A small control surface attached to an aileron or other larger control surface for the purpose of making small trim

corrections to that surface's position

True Airspeed

Indicated airspeed corrected for installation, compressibility and air density errors

TWS

Track While Scan radar mode

U

V

VASI

Visual Approach Slope Indicator system of lights for landing assistance

Velocity Vector

An indicator in the HUD which shows the predicted path of travel

Vertical Velocity

The sink or climb rate of an aircraft

Virtual Cockpit

True 3D scrolling and panning cockpit

VSI

Vertical Speed Indicator

V/STOL

Vertical/Short Take Off and Landing

W

Waypoint

A position in the world to which you have to fly

WCS

Weapon Control System

Wet Points

Places on the plane where external fuel tanks can be mounted

Wild Weasel

Anti SAM Radar Mission, specifically against enemy air defenses

Wingman

A flying partner

Wire

The correct flight path for weapon delivery

WP

WayPoint

X

Y

Yaw

Rotation of the aircraft about it's vertical axis

Z

Zero-Zero ejection

Ejection at zero altitude and zero speed

The Following is a list of literature used to collect information used in F22 ADF
Format: Book , Author (If named), Publisher, Published Date

Air International

Fine Scroll Ltd. Monthly

Air Show Guide

Delta Publishing, 1996

Air Forces Monthly

Key Publishing Ltd. Monthly

USAF

Key Publishing Ltd. 1997

Air Power International

Aviation Publishing, Monthly

Aviation Week And Space Technology

Mc Graw-Hill, Monthly

Avionic Systems

D. H. Middleton, Longman Ltd. 1990

Atlas Of Ancient Egypt

John Baines, Facts on File Publishing. 1980

Arabia, Sand Sea Sky

Michael Mkinnon, BBC. Publishing, 1990

Arabia, The Gulf And The West

J. B. Kelly, Tiger Books International PLC, 1980

Berlitz Pocket Guide, Saudi Arabia

Berlitz Publishing Co. Ltd. 1995

Collins Atlas Of The World

Harper Collins, 1993

Combat Aircraft F16

Doug Richardson, Salamander Books Ltd. 1992

Desert Warpaint

Peter R March, Osprey Publishing Ltd. 1992

Electronic Warfare

D. Richardson, Salamander Books Ltd. 1985

Egypt

Simonetta Crescimbene, Tiger Books International PLC, 1994

Egypt

Denise Basdevant, Times Bartholomew Guides, 1987

Fighter Missions

Bill Gunston, Salamander Books Ltd. 1988

Flight International

Reed Business Information, Weekly

Gulf Air War Debrief

S. Morse, Aerospace Publishing Ltd. 1994

High Tech Weapons Of The Gulf War

T. Smart, Salamander Books Ltd. 1992

In The Footsteps Of The Camel

Eleanor Nicholson, Stacey International, 1984

Janes All The Worlds Aircraft

Janes Information Group, 1994

Janes Defence Weekly

Janes Information Group, Weekly

Janes International Defense Review

Janes Information Group, Monthly

Janes Aerospace Dictionary

Bill Gunston, Janes Publishing Company Ltd. 1980

Lonely Planet, Egypt

Lonely Planet Publications, 1996

Lonely Planet, Middle East

Lonely Planet Publications, 1994

Modern Soviet Navy

John Jordan, Salamander Books Ltd. 1982

Modern U.S. Navy

John Jordan, Salamander Books Ltd. 1982

Modern Air Combat

Bill Gunston, Salamander Books Ltd. 1983

Modern Airborne Missiles

Bill Gunston, Salamander Books Ltd. 1983

Modern Fighters And Attack Aircraft

Bill Gunston, Salamander Books Ltd. 1980

Modern Land Combat

D. Miller And C. F. Foss, Salamander Books Ltd. 1983

Modern Fighting Aircraft F14

Salamander Books Ltd. 1985

Modern Aircraft Markings

M. Spick And B. Wheeler, Salamander Books Ltd. 1985

National Geographic

National Geographic Society, Monthly

ONC Maps

The Ministry Of Defence, Various

Riyadh

Stacey International, 1984

Skunk Works

Ben R. Rich, Little Brown And Company, 1995

Skunk Works

Jay Miller, Midland Publishing Ltd. 1995

Thunder In The Desert

J Blackwell, Bantam Ltd. 1994

The Arabian Desert

John Carter, Inmel Publishing, 1983

The Soviet War Machine

Salamander Books Ltd. 1976

US Aircrew Combat Flight And Survival Gear

Hans And Mike Halberstadt, Motorbooks International, 1996

USAF Colors And Markings In The 1990s

Dana Bell, Greenhill Books, 1992

World Air Power Journal

Aerospace Publishing Ltd. Quarterly

The F22ADF Team

Directors

Martin Kenwright - DID Managing Director - Creative Direction, Publisher Relations

Don Whiteford - DID Projects Director - Project Management

Shaun Hollywood - DID Creative Director

Colin Bell - DID Development Director - Project Planning and Game Integration

Chris Orton - DID Head of R&D - 3D Techniques and Effects

Russell Payne - DID Software Developments Director - 3D Engine Design

Producer

Simon Kershaw - F22 ADF/TAW Producer - Project Direction, World/Game Research, Avionics Concepts and Systems, Soundscape Concept, Speech Content, Mission design, Manual concept and copy.

Associate Producers

Roger Godfrey - Technical Producer - avionics code specification, project planning, F22 damage code, F22 ADF versions liaison.

Tim Johnson - EF2000 V2 and EBT Producer - help files and localization when we needed it most.

Programming

Stephen Powell - Lead Programmer - game visual effects code, game logic, head to head networking, and avionics.

Derek Johnson - Programmer - mission logic, game logic, game data files, and avionics.

David Ewing - Aero Engineer - airfield handling, landing, and take off code, F22 flight model.

Gareth Clough - Programmer - GUI code and implementation, windows, and fonts insertion.

John Williams - Programmer - network communications system.

Mark Lomas - Programmer - interface, and localization support code.

Jeremy O'Brien - Aero Engineer - flight logic, aircraft messaging, aircraft and weapons models, dogfight code, aircraft dynamics, and F22 flight models.

Steve Monks - Senior Programmer - interactive virtual cockpit technology, instrumentation language, code purge design and structure.

AI Programming

Michael Hocking - DID Head of AI - AA/AG combat AI design and coding, interface modules specification, AWACS, and BCOM design and code.

Steve Hunt - Programmer - AI code, mission planner design and coding, ACMI, visual effects code, Smart views, and campaign extensions.

Tim Preece - Programmer - AWACS implementation, ground war code and campaign modules.

Manual Art

Bill Bird - Graphic Designer - manual design, and production, keyboard insert, game typography, research, & development.

Interface Art

Stephen White - Interface Art Director, online Help, and DID web site.

Donna Jennett - Senior Artist - 3D rendering.

Damian Edwards - Interface Artist - interface art and implementation.

Game Art

Ian Boardman - Head of Art & Design - art team management, and 3D object building.

Paul Hollywood - Head of Art & Design - art team management, and world building.

Andy Bate - Senior Artist - object, texture, target data and environment management - the F22 shape, and manual screen shots.

Andy Gahan - Senior Artist - object, texture, target data and airfield management.

Martin Carter - Senior Artist - creation and management of environment shapes, textures, palettes, and manual screen shots.

David Ambler - Artist - object, data creation, and manual screen shots.

Neil Ambler - Artist - object, data creation, and manual screen shots.

Matt Green - Artist - environment, target and aircraft texture creation.

Craig Houston - Artist - environment shape and texture creation.

Andy Manns - Artist - additional object creation.

Ian Tasker - Artist - object and data creation.

Chantelle Thacker - Artist - object, data creation, and manual screen shots.

R&D

Mike Burrows - Head of R&D - Win95 research, initial Direct X support, force feedback, and special effects.

Richard Taylor - Programmer - sound, speech, and music.

Robin Anderson - Head of Audio - sound and music integration.

Scott Kirkland - Windows GUI API, 3D hardware acceleration, and special effects.

Quality Assurance

Tony Buckley - DID Quality Control Manager - quality control, publisher relations, quality evaluation.

Simon Livesey - Lead Game Tester for F22 ADF, mission building, and testing liaison.

Jon Spencer - Head tester, technical support.

John Knight - Game testing, technical support.

Carl Jackson - Game testing, mission building, online support, and manual screen shots.

Phil Owen - Game testing, mission building, mission completion events.

Matt Pearson - Game testing, mission building, joystick support, online support..

Phil Mervik - Game testing, mission building, technical support.

Dave Armsby - Game testing, mission building, Customer Feedback.

Jonathan Radcliffe - Game testing, mission building, technical support.

Robert Lunt - Game testing, mission building, technical support.

David Moore - Game testing, technical support.

Military

Nevil Plura - DID Head of Military Projects.

Paul Chaffe - DID Military Liaisons - assistance with military research, trade show organization.

Press

Nick Clarkson - Publisher liaison, press relations, and advertising.

Gordon MacKay - Corporate, and media relations.

Administration

Lynda Whitby, vital support for the production teams.

Dawn Ashworth.

Jodie Grant.

Melanie Rutter.

Network

Nev Cook - Network Supervisor - somehow you kept the network going.

Raymon Merrell - Network Support.

With thanks to. . .

World Air Power, Total Air Supremacy introduction, All text for aircraft and weapons, and an invaluable source of help and information.

Anders Borgvall, The fighter pilots perspective, even though it was in Swedish.

ATI - **Ian Bullard**, **Jason Mitchell**, **John Pallett-Plowright**, **Mei Ang**, **Ted Doig**, thanks for your help

Beta Testers: Daniel Crenshaw, **Len Hjlmanson**, **Edward G. Kinateder**, **Jeffery Babineau**,

Steven Chmura, **Mark Doran**, **Gary Ward**. Thanks for your help and advice.

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Colonel Rich Reynolds, USAF. (retired), much enthusiasm, direction, and clarity.

Elsie and Reg, an invaluable insight to life in Saudi Arabia, sorry I kept your reference for so long.

Gerry Grzyb, sounds of Oshkosh.
IBM Computers, hardware development.
Ian Jones, air combat advice.
Intel Corp. Special thanks to Intel Corp.
Ivan Davies, Ocean External Development, thanks for your help and patience.
Jerome Zimmermann, information from around the world, and knows his wines too.
Lockheed Publicity Dept. Information much studied.
Major General Bud Breckner USAF. (retired), real fighter pilots stories from Vietnam and beyond.
Ocean Software, Our publishers and much more.
Orinoco, thanks to **Ray**, and **Tom** for sound effects and music.
Pete Birch, RAF advisor.
Polylang Ltd. Localization.
Robert Lynch, DID military consultant, and contacts.
SimTech. Great missions, and a whole lot of well meant criticism.
Tom Lecky-Thomson, air combat advice.
ThrustMaster, flight peripherals supply and help.
3DFX - Andrew Hanson, Brian Bruning, Charles A Brown, thanks for your help
Plus anyone else who we may have forgotten.

To the partners and children of team members,
without your patience this project would not have been possible.

Special thanks to everyone around the world who bought or commented on DID products, your criticism, enthusiasm, and suggestions have been noted!

DID/Ocean Copyright 1996-97.

Introduction

Digital Image Design was founded by Martin Kenwright in 1989 and is currently based in Warrington, UK. It employs around eighty developers who specialize in all areas of software and simulation, including Artificial Intelligence, Aeronautics and 3D graphical design. Part of the success of the company hails from the fact that individual members of DID have been involved in more than half of all home computer combat flight simulations ever made.

Some of DID's previous products have been leaders in their field. F-29 retaliator established DID as a serious contender in flight simulation. Then came TFX, which brought Flight simulation to a wider range of gamers than any preceding simulations had. The ground-breaking EF2000 followed. Hailed as the best fast jet sim ever, it has now become a firm favorite amongst home and network players alike. With the release of DID's F22 Air Dominance Fighter, the DID philosophy remains *Innovate, not Imitate*.

Principal Activities

The main area of DID's expertise is that of real-time 3D entertainment technology. With one of the most powerful and evolved 3D engines, DID products have led the field in terms of visual and technological content. Due to the advent of Processor and 3D graphics card technologies, DID are now working more closely with hardware companies in order to maintain a lead in the market. With new systems being developed in-house, it is certain that future releases will maintain the highest of standards available in the field of real-time simulation. This is coupled with close ties to military and civilian advisors who enable DID to ensure accuracy within all products.

Commercial Military Simulations

Digital Image Design's commitment to excellence within the field of combat simulation has led the company into the military arena. Following interest from all three armed services, DID worked towards and attained BS EN ISO 9001 TickIT accreditation in 1997. DID are the first (and currently only) entertainment software company to achieve this qualification. As a result, DID has since developed a range of military training systems, including TIALD laser designator trainers, Cockpit, Night vision and gunnery training systems. Knowledge from all these systems has been declassified and used to improve the quality and realism of subsequent DID releases.

DID Softography

Below is a list of previously released DID products:

F29 Retaliator	(PC, Amiga, ST) - 1990
Robocop 3	(PC, Amiga, ST) - 1991
Epic	(PC, Amiga, ST) - 1992
TFX	(PC) - 1993
Inferno	(PC) - 1994
EF2000	(PC) - 1995
Tactcom	(PC European release) -1996
Super EF2000	(Win 95 European release) -1996
EF2000 V2.0	(Win 95 & DOS U.S. release) - 1997
F22 ADF	(Win 95)

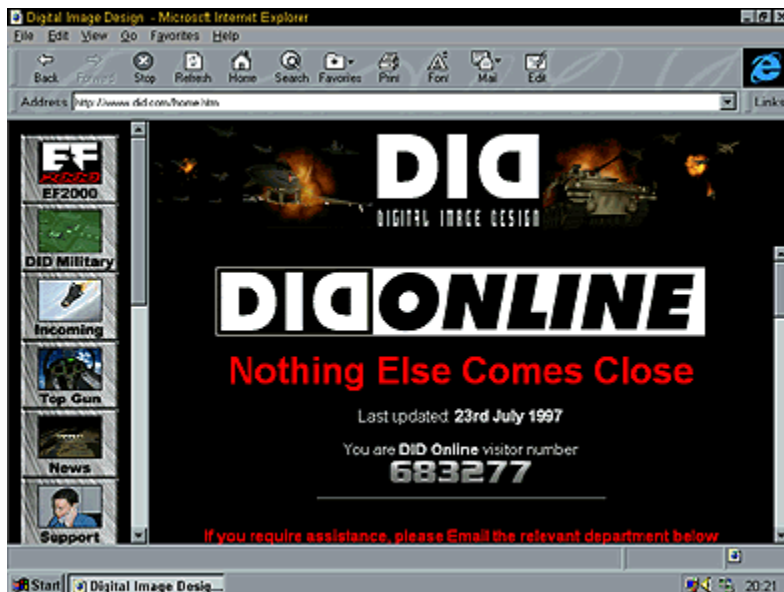
Coming soon!
F22 Total Air War
EBT

{button Connect To DID Online,EF('http://www.did.com','1,1')}










Digital Image Design Ltd. has maintained a presence on the World Wide Web for approximately two years. During that time, the Web site has clocked almost 1 million visits due to its regular updates, free gifts, patches and upgrades.

DID Online (www.did.com), as it is now called, contains many areas of interest for DID product users and has been so well received it was awarded the **Reader's Digest LookSmart Award** for innovation, ease of use and excellent content.

As well as patches and upgrades, DID Online also features some highly popular free downloads including **Windows 95 Desktop Themes, Desktop Wallpaper and Screensavers.**



The list of features that DID Online offers is extensive and includes:

-  **News** - DID related news articles
-  **Incoming** - Previews of the latest products
-  **EF2000** - A completely dedicated section covering what was hailed as the World's No.1 flight simulator
-  **F22** - In-depth information covering DID's latest and greatest flight simulator
-  **Military** - Previews of military simulation involving DID
-  **Support** - An excellent technical center for those users having difficulty
-  **Patches** - All the latest software patches and upgrades
-  **Top Gun** - The one-stop for those players who want to become ACE
-  **Gallery** - quality screenshots of up-and-coming products



Goodies - A highly popular area offering free Desktop Themes and Screensavers



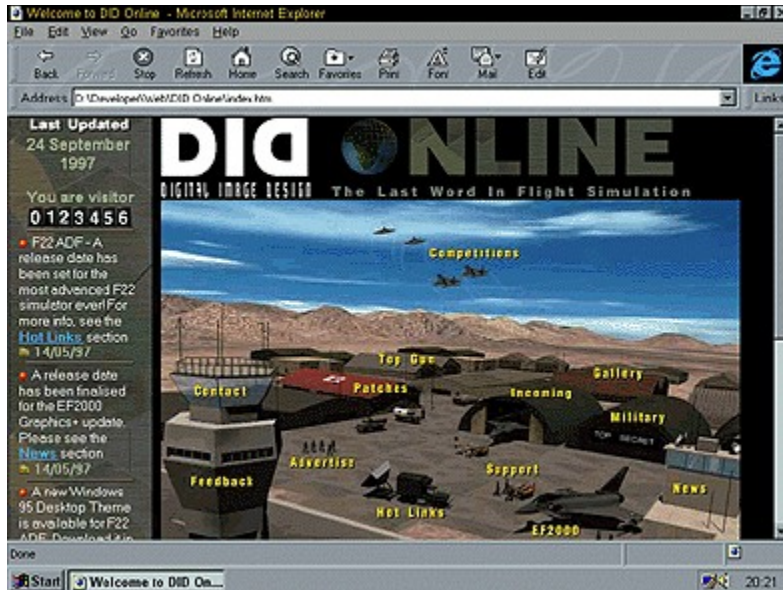
Hot Links - A unique facility that offers users the ability to jump to other DID product-related Web sites



Feedback - An excellent method for users to tell us how they feel about DID and what they want

Coming Soon!

In order to celebrate the release of F22, DID has decided to improve the look and feel of DID Online. Not only that, we are also creating a new **F22 Desktop Theme** with **Wallpaper** and associated **Screensaver** for users to download - for FREE!



The focus of the new Web site is the **DID Online Airfield**, a virtual airbase which the user can click to access sections of the site. The sections are now organized as 'drop-down' options making navigation of the site quicker and easier. A **Competitions** section has also been added and will contain challenging competitions with some amazing and rare DID gifts up for grabs.

Certainly, one of the most welcome additions to DID Online will be the **Online Chat System** which will allow users to converse with one another live, as well as communicate directly with DID employees. It's on its way!



Click on the  for more technical information



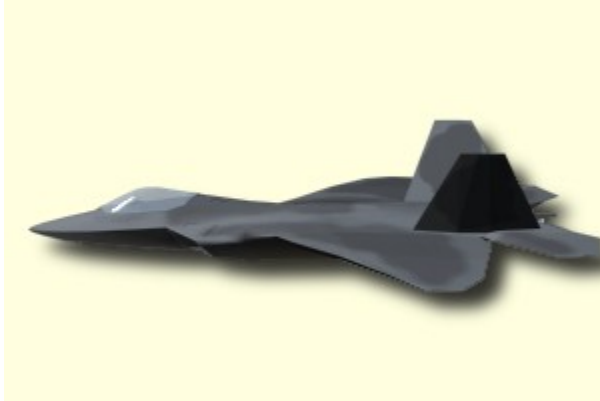
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Click on the  for more technical information




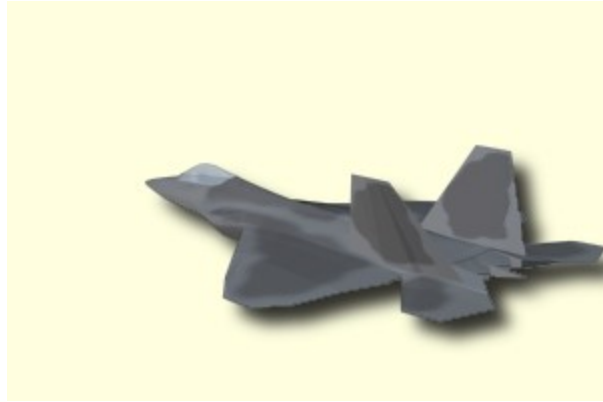
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Click on the  for more technical information




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Click on the  for more technical information




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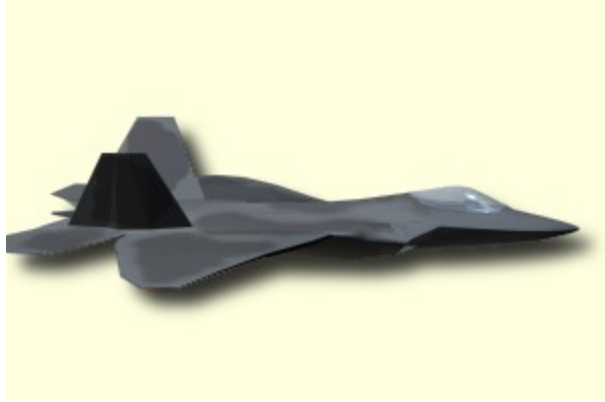
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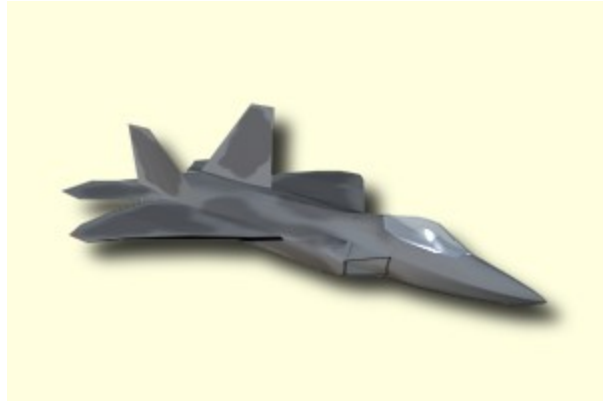
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Click on the  for more technical information



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Click on the  for more technical information



{button <<,JI('F22HELP.HLP'(w95sec)',`rotation01')} {button >>,JI('F22HELP.HLP'(w95sec)',`rotation07')}

Tour Of Duty



In [Tour of Duty](#) you will apply the skills you learned in [Simulator](#) to more complete live missions. The Tours are a collection of three scenarios which rise in difficulty and complexity. Each is set in a different part of the world, and involves different countries. This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

Quick Combat



Quick Combat is the "Fun" arcade section of F22 Air Dominance Fighter. The Flight and Avionics models are the same as the rest of the game, but elements from arcade type games are included, the mission is designed to be action packed, lasting approximately four hours.

Simulator



The [Simulator](#) section of F22 Air Dominance Fighter adheres closely to real military practice and tactics, and is intended foremost as a training area in which the new user can build up his knowledge and skill before going to war fully in [Tour of Duty](#), and Campaign.

Multiplay



In [Multiplay](#) you may choose to only play this simulation by yourself, however it can be linked to other computers allowing your friends and colleagues to share the same mission or war in real time by linking the computers by a variety of methods. This option may not be available in this version of F22 ADF. Access the [DID Online Web Site](#) for a free upgrade.

F22 Demo



The demo mode can be engaged to show off F22 Air Dominance fighter

Help



Online Help can be called up from here assuming you have chosen to install it as part of F22 ADF. The Online help largely reflects the contents of the manual, but with greater use of interactive graphics where this is of use to the user.

Quit



You can leave the game and return to your desktop.

F22 Credits



A team of hard working people with experience gained in award winning flight simulations, made this product. We would greatly appreciate the courtesy of you finding out who they are by reading the [Credits](#) section!

Options



A large selection of user configurable options that will have previously have been presented to you in the Custom parts of Feature Options in [Game Installation](#). These options can be reached from the Main Interface to make the default set up of the game on your machine, and can further be reached to alter the settings for individual sections of the game from within [Quick Combat](#), [Simulator](#), and Campaign.

ACMI



The USAF operates several training establishments where data recorded by fighters in practice combat, can be replayed in a graphical form for the benefit of the those pilots, enabling them to learn from their mistakes. After much demand we have included an [ACMI](#) facility for the player to record and compare actions that he has been involved with.

Contents

Contents is the default start area when you load the Online Help. It presents you with a series of books which when opened (double-click on a book to open it) display the documents.

Index

This will allow you to type in a word, after which you will be shown the document titles that contain that word.

Find

This works in much the same way as **Index** but offers more power and flexibility by searching through entire documents.

Contents

This will return you to the main **Online Help Contents**.

Find

Find works in exactly the same way as Find on the main Online Help window. It offers power and flexibility by searching through entire documents.

Back

Clicking **Back** will return you to the previous document that you were reading.

Print

To make a printed copy of the current document click this button.



You must have a printer connected for this function to work, or alternatively Windows 95 will allow you to print to a file (see your **Windows 95 documentation** for more details).



Pressing this button will take you to the previous document in the Online Help.



Pressing this button will take you to the next document in the Online Help.

