DOGFIGHT: 80 YEARS OF AERIAL WARFARE

POWERPLUS

MICROPROSE

DOGFIGHT
80 YEARS OF AERIAL WARFARE

Technical Supplement
for IBM PC Compatibles

Contents

Your *Dogfight* package should contain a manual, this technical supplement, a set of 3.5" high density disks or a set of 5.25" high density disks, a key guide and a registration card.

Required Equipment

Computer

- The simulation requires an IBM PC, AT, PS/2 or a computer 100% compatible with one of these models.
- The computer must have a high-density floppy-disk drive and a hard disk.
- The simulation will run on a 80286 processor (15 MHz) but an 80386 or better is recommended with at least 1 Megabyte (Mb) of memory.

Controls

The simulation can be run entirely from the keyboard or from a joystick. Mouse control is supported within the menu selections, but is not available for flight control.

Display

The simulation requires a colour monitor with a VGA/MCGA graphics system. If you are using a compatible graphics card/ monitor, it must be 100% compatible to one of the above.

Disk Drives

Dogfight must be installed onto a hard disk.

DOS

You must have IBM PC-DOS or Microsoft MS-DOS version 5.0 or higher.

Copy Protection

Dogfight has no disk copy protection. This means that you can install the simulation files from the original disks to a hard disk. However, the program asks you a manual-related question. Use the manual to answer the question. MicroProse regrets that continuing casual and organised software piracy requires that this minimal form of copy protection is retained.

Installation

A program called INSTALL is included on the *Dogfight* Disk A.

• Insert Disk A into your floppy drive (Drive A or B) and designate that drive (by typing A: [RETURN] or B: [RETURN]).

• When the new prompt appears, type INSTALL [RETURN].

• Please follow the on-screen text which appears to configure the installation program for your computer.

Sound

The simulation supports the following sound cards:

IBM Internal Speaker, AdLib, Soundblaster.

Loading Instructions

• Switch on your machine, if necessary and wait until the C:\> prompt appears.

• Type CD DOGFIGHT [RETURN] and then type DOGFIGHT [RETURN].

The simulation will begin to load.

If you have installed *Dogfight* to another directory, you must type CD [Name of your directory] first.

Changing your Config setup

Type INSTALL [RETURN] from within the Dogfight directory at any time to change the system setup for *Dogfight*. This will allow you to change the sound driver and control method. Follow any on-screen prompts.

Recommended controls

A Joystick is recommended for flight within the simulation. A Mouse is ideal for menu selection, but will not work in flight mode. All controls can be emulated by the keyboard, including flight control.

If the simulation does not load, look at the Problems Section in this Technical Supplement.

Operating Difficulties and Loading Problems

Q. Why can't I install the game to my hard disk?

1. You must check all System Requirements, especially any mention of hard disk space required, listed in this Technical Supplement.

2. If you still have a problem, you should make copies of the original disks and use the duplicates in place of the originals: sometimes you'll get a read error due to a difference in head alignment.

3. If the game still doesn't work, make sure you are not running a compression utility program on your hard disk

4. Finally, try installing the game on another machine to see if the problem recurs.

Q. How do I copy disks?

From the C:\> prompt use the DOS command DISKCOPY A: A: [Return]. Follow the on-screen prompts.

Q. Why won't my game load?

Check all Memory Requirements listed in this Technical Supplement. The computer must have enough Conventional Memory to load the game successfully.

Slow Running

If you are not running from a Boot Disk, please ensure you have SMARTDRV.SYS or SMARTDRV.EXE loaded in your CONFIG.SYS or AUTOEXEC.BAT.

Conventional Memory

To run most MicroProse games you will need at least 610,000 bytes so it's wise to check how much Conventional Memory is available. From the C:\> prompt, type MEM /C [Return]. Look for the Largest Executable Program details. If there is not enough Conventional Memory you may need a Boot Disk.

Q. What is a Boot Disk?

This is a Start Up disk for your computer which contains alternative start up files to those on the hard disk. The Boot Disk will allow you more Conventional Memory.

Making a Boot Disk

Instructions on making an MS-DOS Boot Disk (sometimes called a System Disk) will be found in your Microsoft manual.

Using the Boot Disk

Always insert the Boot Disk into your floppy disk drive A: and then switch on the computer. You should leave the disk in the floppy drive during play.

Q. Can I run my game through Windows?

No, this is not recommended, unless specifically mentioned in the System Requirements.

Q. Does my game run with DR DOS?

Success is not guaranteed. MicroProse games are currently designed to run with MS DOS 5.0 or 100% compatible DOS.

Q. What is Base Memory?

This is the original 1Mb (1024K) in your machine. It is divided up into Conventional Memory (640K), where MS-DOS and all PC programs load and Upper Memory (384K), where system drivers (such as the mouse driver) reside.

In MS-DOS 5.0 the bulk of the operating system and associated drivers are normally loaded into Upper Memory. Other drivers held in the area of Conventional Memory will reduce your 640K available for the program.

Q. What is Extended Memory (XMS)?

Further memory, beyond the 1Mb of Base Memory on your PC is called Extended Memory. XMS can be used to free more Conventional Memory so that bigger games can be run. XMS can also be used to simulate Expanded Memory.

Q. What is Expanded Memory (EMS)?

EMS was originally designed to give the PC more memory to run programs. It has been around far longer than XMS

so most programs take advantage of it. Most MicroProse games take advantage of EMS. The DOS command EMM386.EXE can be used to turn XMS into EMS and should be in your CONFIG.SYS.

Remember that hard disk drive space is also measured in Megabytes (Mb). Don't confuse this with memory -the two are completely different!

Technical Assistance

If you have read through the Problems Section of this document and still experience difficulties with the game, you may need some help from us. As we receive many calls every day, we can deal with your enquiry more efficiently if you have the following information available:

1. The correct name of the game

2. The type of computer you are running it on

3. Your DOS version

4. How much conventional memory you have

5. Exact error message reported (if any)

6. The version # of the game

Ring us on 0666 504399, Monday to Friday 0900 to 1700 hours. Have a pen and paper handy when you call. Or, write to Customer Services at the address shown in the manual.

Virus

Be aware that a virus may have transferred into your hardware from another piece of software. Pirated copies of games are an incredibly common source of virus problems It always pays to own original software.

Software Fault

In the unlikely event of a software fault please return the complete package, with your receipt, to the place of purchase. MicroProse regret that goods cannot be replaced unless bought from the company directly.

Simulation Enhancements and Last Minute Information

The Dogfight Manual contains all operating instructions but there are several features that have been added since it was printed. These are listed below.

1. What If? Mode - Multi aircraft

In the WHAT IF?/ PLAYER vs. COMPUTER option of the simulation, you can now fight against a maximum of five out of the12 featured aircraft.

- Select WHAT IF? from the Main Game Option screen.

- Select PLAYER vs. COMPUTER from the Game Type screen

- Select YOUR AIRCRAFT. Choose your aircraft as described in the manual.

- Select ENEMY AIRCRAFT.

This will allow you to select the aircraft you wish to fly against. Select your opposition aircraft; a small number will appear in each chosen aircraft's box indicating what you have chosen (3 Camels, 2 F16s, etc).

- Once the number of opposing aircraft have been selected, click on the OK button.

- Select COMBAT ZONE. Choose the scenario you wish to dogfight over.

The Read.Me File

The latest notes regarding this program, additions, revisions etc. can be found on Disk A in an ASCII file named "READ.ME". You can access this file using the standard AmigaDOS commands such as "Type" or "More". These utilities can be found on the Workbench disk.

Explanation of Terms

AmigaDOS

This is the Operating System used by the Amiga computer. The operating system tells the respective parts of the computer what to do when it receives a command from programs.

AmigaShell

This is a direct way of issuing commands to the AmigaDOS. It can be a little confusing or daunting as the syntax for commands must be accurate. It is advisable to be familiar with as many Shell commands as possible.

Kickstart

This is the bulk of the Amiga operating system and is stored on a chip in the computer. There are 3 versions, 1.x, 2.x, and 3.x.

WorkBench

This is a graphic interface for AmigaDOS. It consists of small icons (pictures) that replace the sometimes complex commands used in the AmigaShell. WorkBench was designed very much with user-friendliness in mind.

Peripherals

Any external add-on such as a disk drive that plugs into your Amiga.

Technical Assistance

If you have read through the Problems Section of this document and still experience difficulties with the game, you may need some help from us. We can deal with your enquiry more efficiently if you have the following information available:

1. The type of computer you are running the game on and details of any peripherals.
2. Exact error message reported (if any).
3. The version # of the game.

Ring us on 0666 504399, Monday to Friday 0900 to 1700 hours. Please have a pen and paper handy when you call. Or, write to Customer Services at the address shown in this document.

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In the unlikely event of a software fault please return the complete package, with your receipt, to the **place of purchase**. MicroProse regret that goods cannot be replaced unless bought from the company directly.

Will you make the take-off before the enemy aircraft attacks you?

To escape from any game once you have landed, press ESC.

5. What If? Mode - Free Flight Option

Free Flight Option allows you to fly the aircraft of your choice over any scenario gameworld in order to practice flying, landings and take-offs. Press ESC to return to the SELECT MODE screen.

6. Medals

Due to the differing scenarios within the game, we have opted for a generic medal system. The medals are awarded for overall mission performance, not just for your own flight performance, so it is important to plan the mission well and use your resources carefully. The medals awarded are as follows:

• Combat Gallantry Medal

Awarded posthumously to the player who has not survived the mission.

• Air Medal

For successful completion of the mission.

• Air Combat Valour Medal

For achieving success in the mission and destroying targets in addition to those specified in the briefing.

• Distinguished Flying Cross

For achieving success in the mission far in excess of the specific mission orders.

• Medal of Honour

The ultimate accolade. Exceptional performance at the highest level of difficulty is required to achieve this award.

7. Target Follower Mark

Once a target is selected (within Missions) or is already selected (at the start of a dogfight) a small 'X' appears on the edge of the screen pointing to the direction you must fly for the shortest route to the target when it is off-screen.

• If the marker is at the bottom edge of the screen, this indicates that the target is below you; at top centre means it is directly above you. If the marker is not visible then it is behind you. This marker works on all internal cockpit views and helps you keep an eye on the target's position at all times.

8. Head to Head Play - Modem and Direct connect

The Head-to-Head option, allows two computers to link up, via Modem or directly using a Null Modem cable.

CONNECTING IN THE GAME

• Select What If? Mode.

• Select Two Player Serial Link

You will see the CONNECT OPTIONS Screen. This screen allows you to configure the connection between the two computers.

BAUD RATE

The available choice is 2400, 9600, 19200 and 38400. The Baud rate you set depends on the modem you are using. Please check the manufacturer's instructions for the modem you are using. Set the option to the highest available on your modem. If using Direct Connect, then it is generally best to set it to 9600

• Select either MODEM or DIRECT connection.

MASTER/ SLAVE

Whoever selects MASTER will be in control of the menus at the beginning and end of each game. The SLAVE will be able to choose his aircraft but will have to wait until the MASTER has chosen both the Zone over which the dogfight will take place and the start positions of the respective aircraft.

PORT

Select this icon to toggle through the available port options (from 1 to 4). Set this to match your port configuration at the back of your computer.

OK

If the Connect option is set to Direct connect, selecting OK will then attempt to link with the other computer and the screen changes to LINK SCREEN (showing a picture of two machines attempting to link, with an animation of electricity arc-ing between them).

If the link is successful, the animation will freeze briefly after a second or two and then both screens should change to the SELECT YOUR AIRCRAFT screen.

If the electricity continues to animate for more than five seconds, there is obviously a problem in linking. If so, ESC should be pressed and the relevant settings should be double checked from the CONNECT OPTIONS screen.

If the CONNECT OPTIONS screen is set to Modem, then by selecting OK, you will get to:

MODEM SETUP Screen

• Select NUMBER TO DIAL, then enter the required number. Press [RETURN].

• If you are calling the other computer, then select DIAL. This will then initialise your modem and dial. The screen will then change to LINK SCREEN, as above.

• If the other computer is calling you, then select WAIT FOR CALL.

END OF LINKED GAME

After each dogfight in Linked Mode, you will be asked:

PLAY AGAIN (Takes you back to choosing your aircraft.)

or

DISCONNECT (This option hangs up the modem/ quits from the Direct Connect and places both computers back under individual control.)

Null Modem Cables

To connect two computers directly together, you will need a Null Modem cable, of not more than 15 feet in length (this is due to the spec. limit of most cables). These are available from most good computer hardware stores, or from any number of suppliers advertising in PC computer magazines. The cable needs to be connected to your Serial Port, usually labelled COM1, COM2, etc.. Please refer to your PC manual to check this.

If you wish to make a Null Modem cable, the connections are simple:

Connector 1		Connector 2
Pin 2	to	Pin 3
Pin 3	to	Pin 2
Pin 7	to	Pin 7

The Read Me File

If there are any further enhancements to the simulation, these can be found in a Read Me File. The notes can be read by using standard DOS commands. In addition, DOS 5.0 allows you to read this file in a text editor and scroll the document up and down. Type EDIT README.TXT.

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SIMULATION • SOFTWARE

MP122163T/SR

DOGFIGHT
80 YEARS OF AERIAL WARFARE

Key Guide

Simulation System Keys

CTRL/Q	Quit to Operating System
Key P	Pause Game On/Off
ESC Key	Quit Game / Go to Mission Review (if applicable) Return to previous screen (if applicable)

View Keys

F1	Forward Cockpit View
F2	Instrument View (two modes: Full instrument view or with 50% Forward View- Key S toggle)
F3	Tactical View
F4	Inverse Tactical View
F5	'Heads Up' View
F6	Left Cockpit View
F7	Right Cockpit View
F8	Rear Cockpit View
F9	Map Screen (Zoom in/out with Keypad +/-)
F10	External View of selected object (rotate using Insert,
Delete,	PageUp and PageDown)
Shift/F1	Slot View
Key S	Change from Full Instrument (in F2 mode)View to Half Instrument/Half Forward Cockpit View
TAB Key	Fix 'Heads Up' View on Target/ (in F5 Mode) Allow Head to To Move Freely
Keypad +	Zoom In Map View
Keypad -	Zoom Out Map View

Keyboard View Controls

Keypad Minus -	Zoom out from selected external view (F3, F4, F9, F10)
Keypad Plus +	Zoom in from selected external view (F3, F4, F9, F10)
Insert	Move External Camera (F10)/'Heads Up' View (F5) Clockwise
Delete	Move External Camera (F10)/'Heads Up' View (F5) Anti-Clockwise
PageUp	Move External Camera (F10)/'Heads Up' View (F5) Up
PageDown	Move External Camera (F10)/'Heads Up' (F5) View Down

Fighter Controls

Key Plus +	Increase Power
Key Minus -	Decrease Power
Shift Plus +	Maximum Power
Shift Minus -	Minimum Power
Key Close Square	
Brackets]	Flaps Up/Down
Key <	Left Rudder (release to centre)
Key >	Right Rudder (release to centre)
Key G	Landing Gear Up/Down (if applicable)
Key W	Wheel Brakes On/Off
Key B	Air Brakes On/Off
Key R	Radar range key (for aircraft with radar threat display)
Key A	Resource Menu (in F3, F4, F5, F9 & F10 Mode). Select to go to that resource.
Shift/Z	Accelerate Time (3 settings x2, x4, x8)
Shift/X	Return to Normal Time
CTRL/T	On-Screen Mission Timer On/Off
CTRL/E	Eject (if applicable)

Dogfight - Key Guide

FRS 1 Sea Harrier Jet Nozzle Controls

Key 1	Nozzles to horizontal
Key 2	Nozzles to 45 degrees
Key 3	Nozzles to vertical

Weapon Control

Spacebar	Fire Selected Weapon
Return	Change Selected Weapon (if applicable)
Joystick Button 1	Fire Selected Weapon

Decoy Control

Key C	Chaff Release (if applicable to your aircraft)
Key F	Flare Release (if applicable to your aircraft)

Target Control

Tab Key	Target Select for missile lock-on. F1 & F2 views only (if applicable to your aircraft)
Key T	Select next Target (on F3, F4, F5, F9 & F10 views)
Shift/T	Return to player's aircraft (on F3, F4, F5, F9 & F10 views)
Alt/B	Auto Guns Mode

Gameplay Configuration Options

Alt/H	Horizon On/Off
Alt/D	Detail Level (Cycle Through)
Alt/V	Sound On/Off
Alt/S	Joystick/Keyboard Sensitivity

Keypad

Controller

4, 8, 6, 2,	Joystick Emulator & movement through menus
Key 7	Select Option (Left Mouse Button)
Key 9	Centre Map F9 (Right Mouse Button)

Joystick

Controller

Joystick Movement	Flight Controller
Button 1	Fire Selected Weapon
Button 2	Hold and move Joystick to rotate external views/rotate 'Heads Up' F5 view
Buttons 1 & 2	Hold both and move joystick forwards/back to zoom in/out external object view

Menu Selector

Joystick
Button 1

Keyboard

Controller

Cursor Keys	Joystick Emulator & Movement through menus

Menu Selector

Return Key (Not during game) & Home Key

Mouse

Controller

Left Mouse Button	Change target on F9 Map View
Right Mouse Button	Centre selected object on F9 Map View

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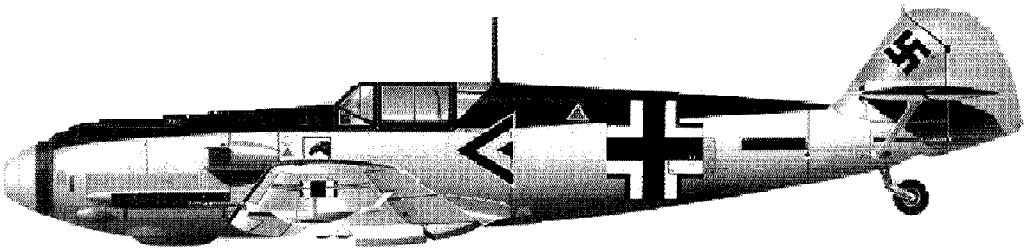
DOGFIGHT



"Only the spirit of attack, born in a brave heart, will bring success to any fighter aircraft, no matter how highly developed it may be."

Adolf Galland WW2 Luftwaffe Ace

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Credits

Software	*Ciaran Gultnieks* *Dominic Robinson* *Ian Martin*
Shapes	*Derrick Austin*
Maps	*Derrick Austin*
Artwork	*Mark Griffiths*
Animated Intro	*Angus Fieldhouse*
Music Composed by	*John Broomhall*
Sound Effects	*Andrew Parton*
Project Leader Project Manager 'Leeds'	*Martin Moth* *Steve Ramsden*
Quality Assurance Testing by	*Pete Woods* *Andrew Luckett* *Nick Stokes* *Richard Bakewell* *Phil McDonnell*

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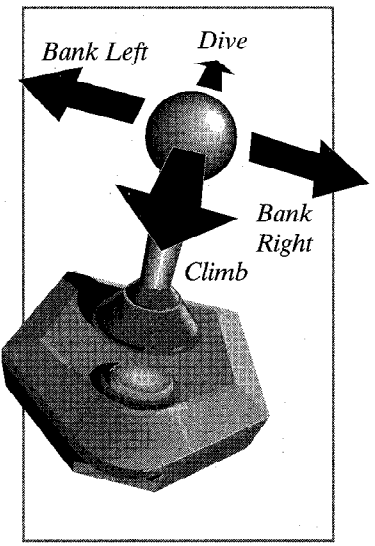
Packaging by	*Joanna Smith*
Aircraft Illustrations	*Greenborough Associates*
Graphic Illustrations	*Brushworks*
Picture Research	*Alkis Alkiviades*

Contents

Contents

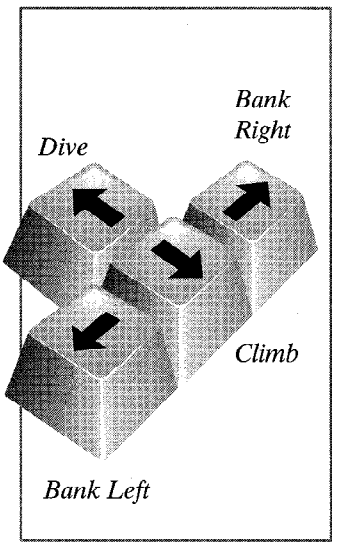
The Controller

Dogfight can be controlled using a combination of keyboard cursor keys, mouse or joystick. For flying it is recommended you use a joystick and for menu selection it is recommended you use the mouse pointer. Flight control is not possible with a mouse. In this manual, which is applicable to all computer systems, the three devices will be referred to as the *Controller*.



Joystick Flight Controller

Keyboard Flight Controller



The Selector

At times during the game you will be asked to select from a series of options. You will be able to use any one of three devices: Keyboard Return/Enter key and Spacebar; Left Mouse Button and the Joystick Fire Button. In this manual these devices will be called the *Selector*.

Instant Action

Duel Mode

Getting Started

For those of you who just want to get up there and fight one-on-one in an accurate historical setting, Duel Mode provides a choice of six eras and two typical opposing aircraft. You will start from a position of your own choice and you will only have one opponent to shoot down. Duel Mode is recommended for Rookie pilots who want to learn the basic air combat manoeuvres and get experience of their aircraft handling ability.

• Copy Protection

After the opening sequences *Dogfight* will take you to the Copy Protection Screen. Enter the correct word from the manual using the reference given.

• Configuration Screen

You will then see the Configuration Screen. This should be set for the easiest level. If you are flying your aircraft with a Joystick *Controller* you should calibrate your Joystick. Select Calibrate Joystick then follow the on-screen prompts.

Save the joystick calibration, then click on the OK button to accept the default set up.

• Select Mode Screen

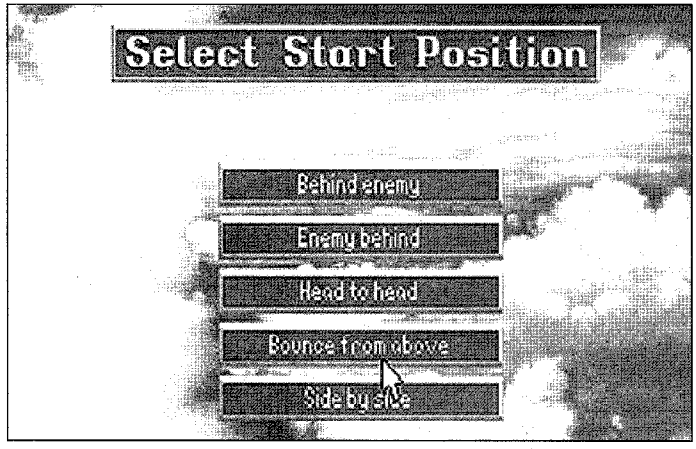
You will then see the Select Mode Screen. This is where you choose between the three main elements in the game. Select Duel Mode.

• Select WW2

• Select Spitfire

For full details of instruments, weapons and performance consult The *Dogfight* Dozen section in this manual.

• Game Options



The Game Options screen lets you choose the precise starting point for the Duel. This allows you to set up any degree of difficulty:

Player flying out of the sun
Enemy flying out of the sun
Behind the enemy
Enemy behind player
Nose to nose
Bounce from above
Side by side
Altitude

- **Fly**

You will now be placed in your Spitfire, in the position specified in your Game Options selection. Get ready for battle! Remember - Key P will Pause the simulation. Press Key P again to unfreeze the action.

- **Check your views:**

Press Function Key F1 to see the main cockpit forward view
Press Function Key F2 to see the Instrument Panel. Press Key S to move your view up 50%

Press Function Key F3 to see your Spitfire in the foreground and the enemy aircraft position (it will probably be a dot) in the background (Tactical View)

Press Function Key F4 to see the enemy Bf109 in the foreground and your Spitfire (it will probably be a dot) in the background (Inverse Tactical View)

Press Function Key F5 to see the 'Heads-Up' View. Press Button 2 on the Joystick and use the joystick movement (or use PgUp / PgDn / Insert / Delete) to look all around from within the cockpit.

Press the TAB key to lock 'Heads-Up' View on target. Press TAB key again to unlock the view; it will then re-centre if no control movement occurs.

Press Function Key F6 to see Left Cockpit View

Press Function Key F7 to see Right Cockpit View

Press Function Key F8 to see Rear View (and you)

Press Function Key F9 to see the Map View

Press Function Key F10 to see Target View - in this case it will be your opponent

Press Shift/F1 to see the Slot View

Return to Cockpit View (F1)

- **Combat**

Duel Mode exists for pure air combat. You must now try to shoot your opponent down. If you are new to air combat, you might be shot down quite quickly. But, if this happens, you can re-enter Duel Mode quickly and easily to hone and improve your skills.

Select F3 Tactical View - your opponent will remain in the centre of the background and probably show up as a dot. If you head for the dot (into the middle of the screen) you will be heading for your opponent. Press Function Key F4 to see your position relative to him, this is useful for gauging relative heights, then return to F3 View.

Study the air combat manoeuvres in this manual and the quick tips below. *The rest is up to you!*

Duel Mode will end when one of the aircraft is shot down, crashes, or if you press the Esc Key to end the fight.

A fighter pilot is greeted by the squadron mascot while his aircraft is re-armed and refuelled by ground crew.

The Basics of Air Combat

• Surprise is your strongest weapon. 80% of 'kills' are over before the victim knows of his hazardous position.

• Use the sun. Keep it behind you if possible.

• Do not stay on a predictable course. 'Tack' diagonally to and fro.

• Don't be caught instrument watching. Keep looking out of the cockpit preferably all around (top fighter aces in WW2 were known as 'swivel-heads'!).

• Use all the available outside views, especially 'Heads-Up', Tactical and Inverse Tactical Views.

• Watch your Six (your rear). *This is your major blind spot; the optimum position for an enemy fighter who's going to shoot you down.*

• Attack decisively and aggressively. Be sure of your first shot. This may be your only chance!

What If?

Getting Started

What If? Mode lets you pick any one of twelve *Dogfight* aircraft and fly it against any other, over any of the six conflicts. In this guide you will fly an F-16 Falcon against a Fokker Triplane over the Falkland Isles!

• Copy Protection

After the opening sequences *Dogfight* will take you to the Copy Protection Screen. Enter the correct word from the manual using the reference given.

• Configuration Screen

You will then see the Configuration Screen. This should be set for the easiest level. If you are flying your aircraft with a Joystick *Controller* you should Calibrate your Joystick. Select Calibrate Joystick then follow the on-screen prompts.

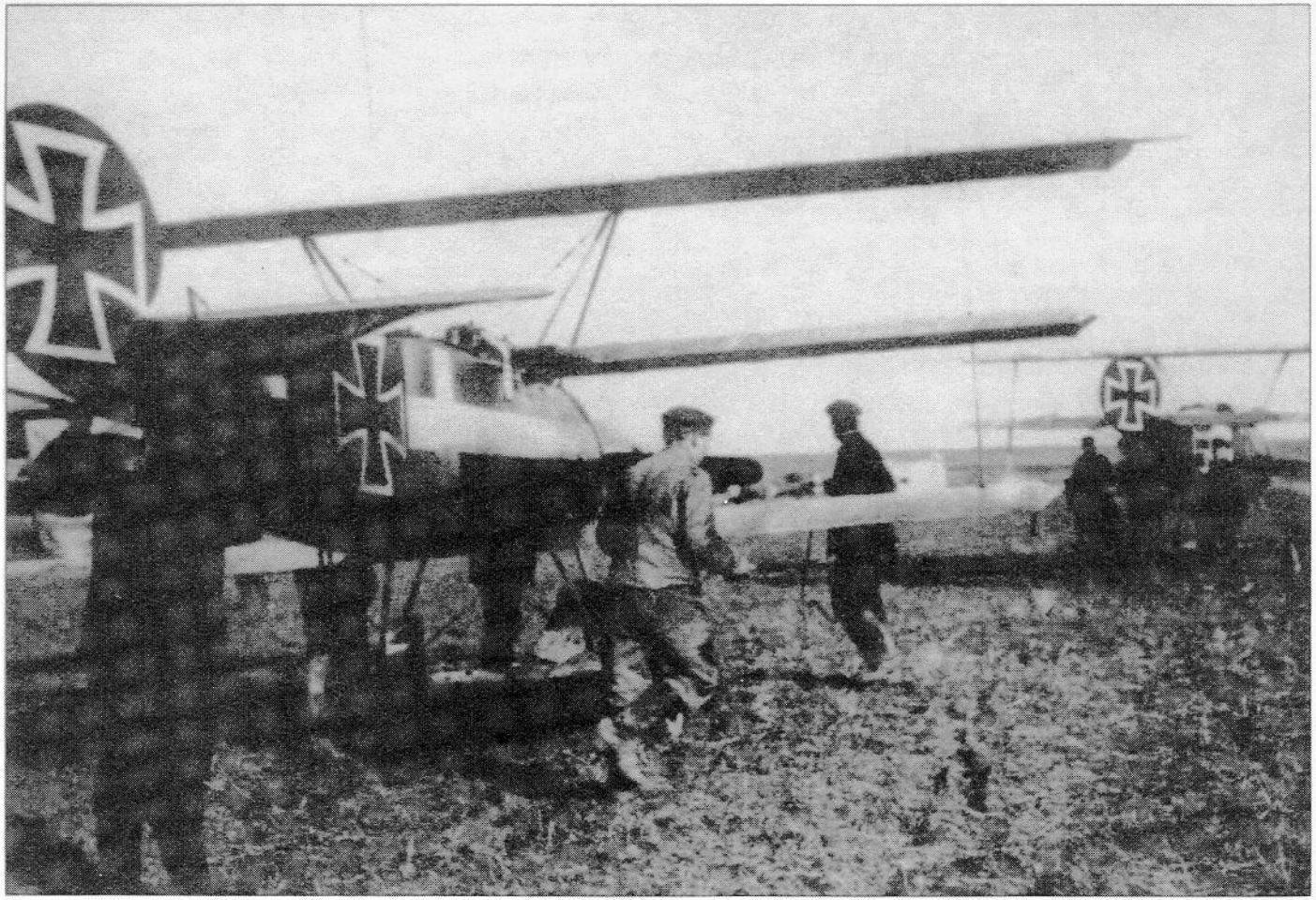
Save the calibration and click on the OK button to accept the default game set up.

• Select Mode Screen

You will then see the Select Mode Screen. This is where you choose between the three main elements in the game. Select What If?

•Game Type

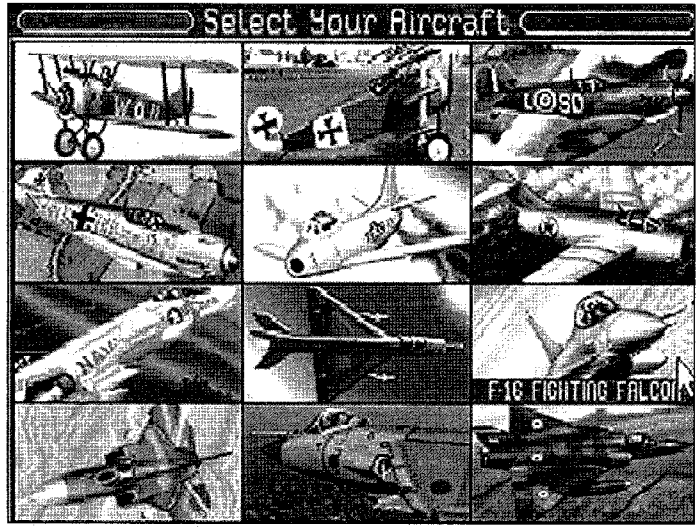
Select One Player



The WW1 Fokker Triplanes of the Red Baron's 'Flying Circus' preparing to take-off for patrol over the British lines.

- **Your Aircraft**

  Select the F-16 Fighting Falcon as your aircraft.

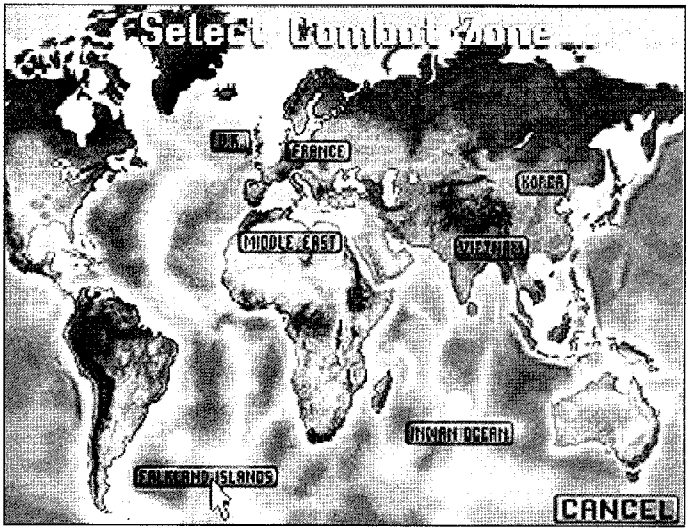


- **Enemy Aircraft Options**

  Select the Fokker Triplane as your opponent

- **Combat Zone**

  Select Falkland Islands



- **Game Options**

  The Game Options screen lets you choose the precise starting point for air combat. This allows you to set up any degree of difficulty: for instance you can begin nose to nose or side by side with your opponent.

- **Fly**

  You will now be placed in your F-16 Fighting Falcon ready for air combat. Press Key P if you want to pause the simulation and look at the manual. Press again to unfreeze the action.

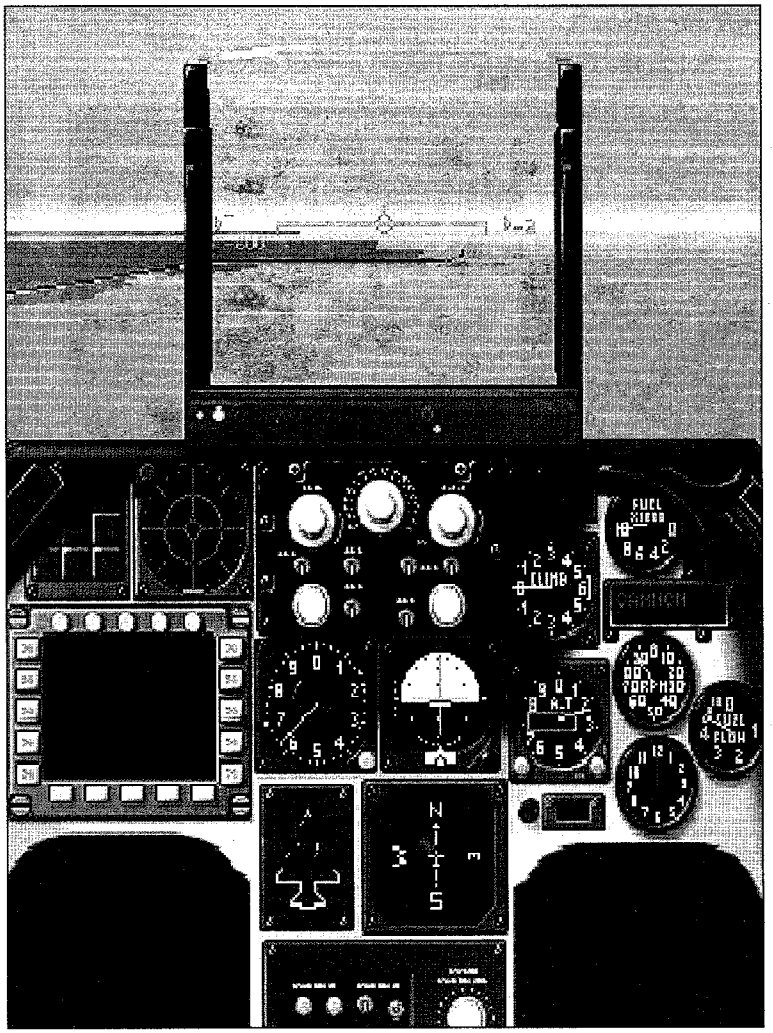
• **Views**

Check your views Function Keys F1-F10 (see Duel Mode above)

• **F-16 Falcon Controls**

The F-16 is one of the world's most modern fighter aircraft. To save you the indignity of being shot down by a WW1 Fokker Triplane, pause the simulation (Key P), take time to look through the cockpit details in this manual and become familiar with weapon selection, aiming, HUD and firing.

It won't be as easy as it sounds to shoot down the slower but tighter-turning Fokker Triplane; and don't feel confident of using Sidewinders! You will soon realize that you'll have to know as much about the opposing aircraft capabilities as your own. Next time you load the simulation - why not fly the Fokker?



The First Mission

Getting Started

Dogfight has different missions for each combat world. In this guide you will be taken through a basic World War One mission flying the Sopwith Camel over the trenches in Northern France.

• Copy Protection

After the opening sequences *Dogfight* will take you to the Copy Protection Screen. Enter the correct word from the manual using the reference given.

• Configuration Screen

You will then see the Configuration Screen. Initially, this should be set for the easiest level.

Ground Detail	High
Aircraft Detail	High
Graduated Horizon	On
Landing Realism	Easy
Sun Blind Spot	On
Sound Effects	On
Skill Level	Novice
Player Kill	Gradual
Opponent Kill	One Hit
Gun Aiming	Easy
Missile Effectiveness	Easy
Flight Control	Joystick (if available)

If you are flying your aircraft with a Joystick *Controller* you should Calibrate your Joystick. Select Calibrate Joystick then follow the on-screen prompts. When you have finished the Configuration select Save.

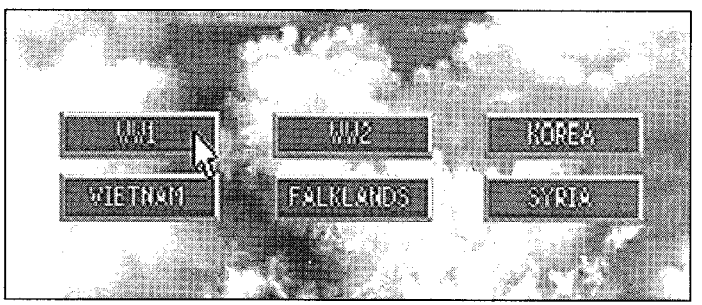
Click on the OK button to accept the above setup.

• Select Mode Screen

You will then see the Select Mode Screen. This is where you choose between the three main elements in the game. Select Missions.

• Select Era Screen

You will be given a choice of six aerial conflicts from WWI to Syria. Select WWI.



• Select Side

You can choose which side you want to fight on by selecting your aircraft. For this guide choose the Sopwith Camel; this will put you on the British side in the conflict.

By the end of the war in 1918, the Sopwith Camel had destroyed more enemy aircraft than any other Allied type. The name was derived from the humped-back appearance created by the cowling over the machine guns in the nose.

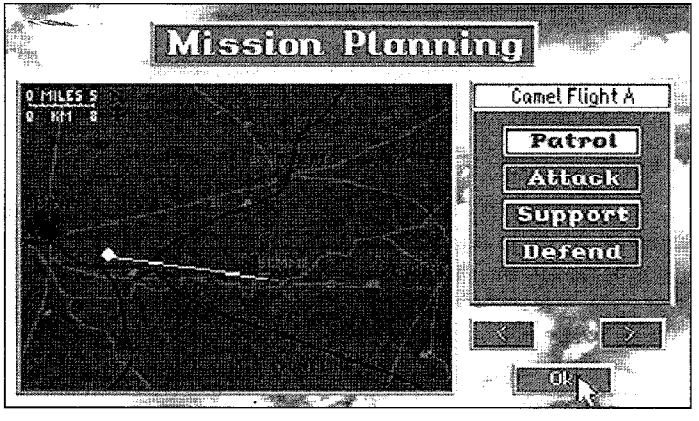
Mission Planning

The Mission Planning Screen gives you a background scenario and a list of mission orders for you, and your resources, to complete.

• Read the Mission Orders

This outlines the conflict you are participating in and lists your mission objectives.

• Select Resources



Resources are the other aircraft at your command for that mission. The number you have will vary depending on the complexity of the mission. You will see a map of the area of conflict on the left of the screen. In this case it will be Northern France.

On the right of the map are the control boxes.

Select the left arrow button and watch the top of the box. This will show the type of aircraft you have to issue orders to. Select again to cycle through all your other aircraft; these may be other Camels or DeHavilland DH4s.

Choose an aircraft then give it an order from the four types available:

Patrol

Choose an area on the map to patrol.

Attack

Attack a target from a given list. If you choose the Attack order another box will appear asking you for a choice of target for that aircraft. Simply highlight and select one from the list.

Support

Highlight and select an aircraft to support in an attack or a patrol.

Defend

You'll be given a list of home bases that could be defended. Highlight and select.

You will then return to the original control box but now the target will be shown at the lower part of the box and a mission flight path will be marked on the map.

Plan your mission carefully to get the best out of your resources.

Repeat the above procedure for each of your available aircraft. Don't forget to assign some form of defence. The enemy will be planning their attacks against you at the same time!

Click through the arrow buttons to check that all your resources have been used then select OK to exit.

• Mission Planning Screen

You will be returned to the main Mission Planning Screen.

• Select Arming

This option will only show armaments carried on more modern aircraft from Vietnam onwards. You will have to choose a combination of missiles and rockets for your particular mission. Select OK to return to the main Mission Planning Screen.

• Mission Planning Screen

Select Start to begin the mission.

Start Mission

You will begin on your home base runway for WW1 and WW2 missions. Due to the distances involved, missions in Korea, Vietnam, the Falklands and Syria will begin in the air.

• Map and Zoom

Before you take-off check the map by pressing Function Key F9.

Green dots are friendly aircraft. A highlighted dot is the selected game object; initially, this will be your Camel. Move your *controller* around the map and select other dots. The legend at the base of the map will tell you what all the dots represent. Red dots are enemy targets.

The Keypad + and - keys will zoom you in and out of selected areas. If the Zoom makes the object disappear from the screen, place your *controller* on one of the screen edges to move the map left/right/up/down. The zoom facility is a very powerful feature; it can home in on any game object with a high degree of magnification. Click on the Right Mouse Button to centre the map on the selected object.

• View Other Objects

Press Function Key F10 to view the mission targets/objects and resources. Press Key T to cycle through enemy and friendly objects. Remember that, even though you are still on the ground, the game world events will have begun. You can watch Fokker Triplanes and Albatrosses getting ready for attacks.

Press Shift/T to return to Your Aircraft View.

• The Take-Off

Press Function Key F1. You will be looking along the runway. In some aircraft (such as the Spitfire) you might not be able to see the runway when the plane is at rest. If this is the case, you must take off from an outside view such as Shift/F1 Slot View, positioning yourself behind and slightly above the plane. You might actually prefer this method anyway!

Set engine revs to maximum (Shift Plus +)

Steer along the runway until you gain maximum speed.

Pull back gently on the stick until the plane lifts off the ground.

Normally, you should raise your gear (Key G) but the Camel has a fixed undercarriage - so it's one less thing to worry about.

• In The Air

When the Camel is safely in the air, quickly cycle through all available views (see the section on Views in this manual), then check the map (Key F9) for your chosen target.

Press Key F10 and check on the progress of the other aircraft/targets (Key T). Press Shift/T to return to your aircraft view.

Now select a target. Press Tactical View F3 and then Key T. Each time you press Key T the view will change as each object/target is placed in the centre of the background.

You may support one of your other aircraft or attack a target on your own. The choice is yours! You can line up on static objects with F3 and F4 Keys. If you are attacked, or want to *Dogfight,* the F5 'Heads Up' View will help you locate the enemy fighters (look at the Views Section of this manual).

• Return to Base

Eventually, you will receive a message to tell you if the mission has been a success, failure or if the opposition have succeeded against you. You will then be told to return to base. Check your position and the location of your base or any friendly runway on the map (Key F9) and head for home using the compass and map grid.

• Landing

Locate your runway. The aircraft in *Dogfight* will only land on a runway.

Reduce power (Minus Key -).

Lose height.

Adopt the correct approach using an appropriate outside view. Slot View (Shift/F1) is very useful here.

Reduce Power

The Camel has fixed undercarriage and no flaps but remember to lower the landing gear (Key G) and flaps (Key Close Square Brackets]) on any aircraft from WW2 onwards.

Control your speed on jet aircraft with Airbrakes Key B.

Aim for the runway but do not point the nose of the aircraft down.

Land as gently as possible and cut power (Shift Minus -) as soon as you are on the ground.

Later aircraft will have wheelbrakes (Key W) to stop forward movement.

The mission will end when you come to a stop.

Mission Review

You will be given a summary of the major mission events. Appropriate medals and promotions will be awarded.

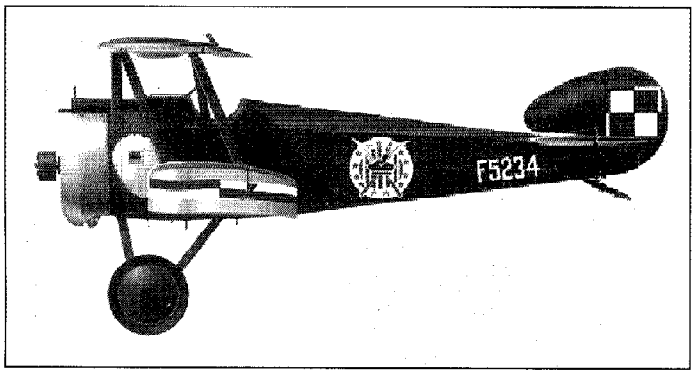
Head-to-Head Dogfight

If your version of the software supports head-to-head play, you will be able to do battle against another human opponent either in Direct Link or through a Modem. Select your choice of head-to-head mode as detailed in the Technical Supplement for your specific machine.

An American and a Polish fighter pilot wearing their flight gear exchange cigarettes and combat tales as they wait for the order to 'scramble'.

The Dogfight Dozen

The Sopwith Camel



The Sopwith Camel has the distinction of having destroyed more enemy aircraft than any other Allied type. The successor of the Pup and Tripe, the Camel did not have the easy handling of its predecessors. It had a very heavy 130 horsepower engine that tended to act like a huge gyroscope; it could out-turn any German fighter (with the possible exception of the Fokker Triplane). The name comes from its slightly hump-backed appearance created by the cowling over the machine guns in its nose.

During the 3rd Battle of Ypres and the Battle of Cambrai, the Camel was used extensively for ground support activities. Carrying four 20 pound bombs under the fuselage and armed with twin Vickers machine guns, the Camel was a fearsome fighter. However, its real strength lay in its dogfighting capabilities. Its tremendous turning finesse, speed and simplicity of construction (and therefore maintenance) made it the most reliable fighter on the Allied side.

By January 1918 there were over 1300 Sopwith Camels operating in France at the front and over 2100 more on order.

Technical Details

Manufacturer: The Sopwith Aviation Company Ltd., Kingston upon Thames, UK.

Type: Single seat Bi-plane fighter, bomber escort and occasional light bomber.

Engine: One 130hp Clerget 9B Rotary engine.

Dimensions: Span: 28ft. Length: 18ft 9in. Height: 8ft 6in.

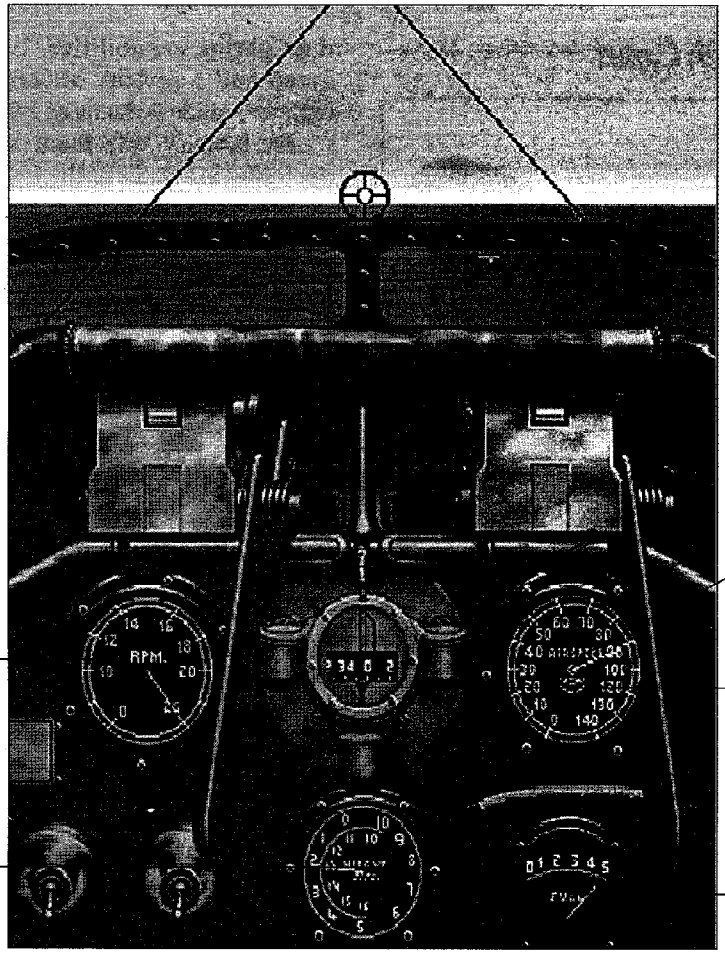
Weight: [empty] 950lbs [430kg], [with maximum load] 1,482lbs [673kg].

Performance: Maximum speed: 170 km/h [106 mph]. Ceiling: about 13,000 ft. Endurance: about 2 3/4 hours.

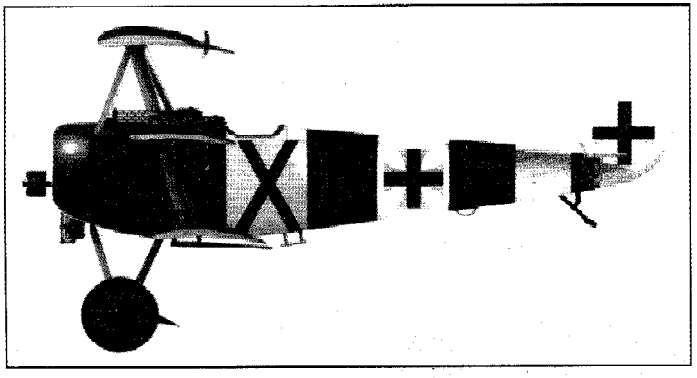
Weapons: Twin .303in [7.7mm] Vickers machine guns, with Kauper No. 3 interrupter gear. Rate of fire: about 200rpm.

History: First flight [prototype] December 1916; entered service July 1917; fought in Russian Civil War [1917-22]; continued in service in some countries until the late 1920's.

Sopwith Camel Cockpit



Fokker DR1



In the summer of 1917, there were 318 DR 1s on order. Baron Manfred Von Richthofen's 'Flying Circus' was the first unit to receive the new aircraft and the 'Red Baron' was thrilled with the plane. The high degree of manoeuvrability inherent in the plane's design, the triple wings and heavy 110 horsepower Oberursel rotary engine, made it successful despite early setbacks. It has often been compared to the Sopwith Camel in terms of handling, and to the Sopwith Triplane for its tremendous climbing capabilities.

Technical Details

Manufacturer: Fokker Aircraft Company, then of Germany, later, of Schiphol, Netherlands.

Type: Single-seat Triplane fighter and bomber escort.

Engine: 110hp Oberursel UR II rotary engine

Dimensions: Span: 26ft 10in. Length: 18ft. Height: 9ft 6in.

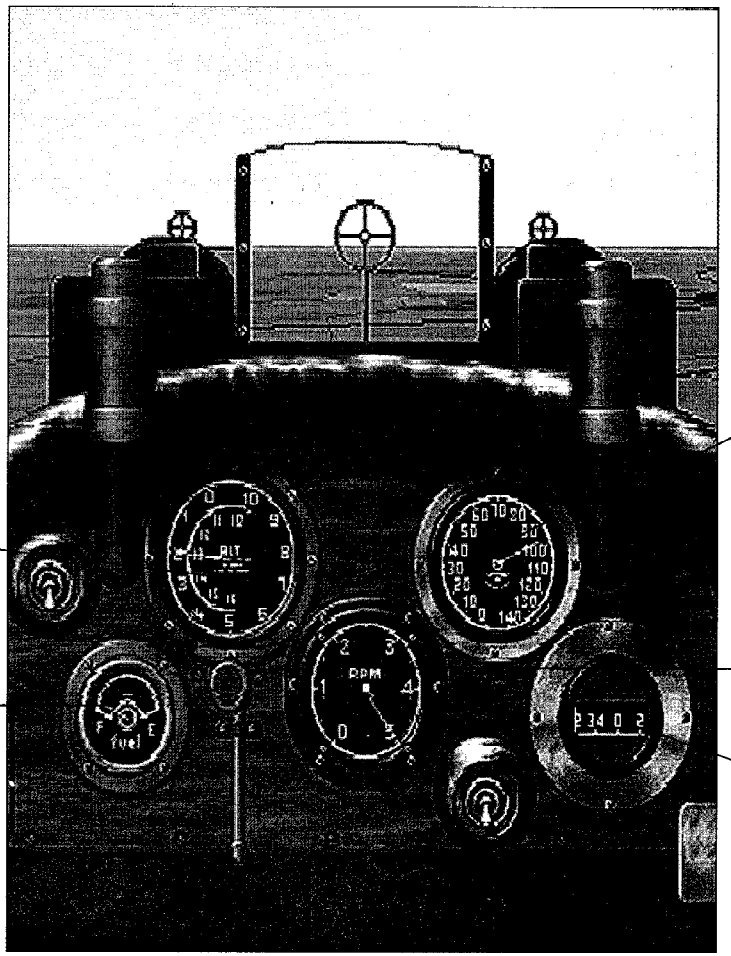
Weight: 376kg

Performance: Maximum speed: 166 km/h [103 mph]. Ceiling: about 14,000 ft. Endurance: about 4 hours.

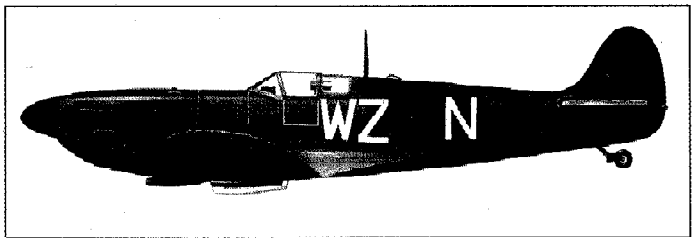
Weapons: Twin .312in [7.92mm] MG08/15 machine guns, with new Fokker camshaft-operated synchroniser gear. Rate of fire: about 600rpm, magazine capacity 97 rounds.

History: Entered service August 1917, replaced by D.VII in April 1918.

Fokker DR1 Cockpit



MkII Supermarine Spitfire



The Schneider Trophy air races, begun in 1912, sought to find the fastest aircraft that could take off and land from water. In 1929, the trophy was won by Britain, with a Supermarine S6, designed by R.J. Mitchell and powered by an engine designed by Henry Royce. From the S6, it was but a short step to the first experimental Spitfires. Mitchell struggled against the usual government indecision and reticence. By 1936 when war was becoming inevitable, the first fully working prototype, the Spitfire I, swept away all doubt and emerged, along with the Hawker Hurricane, as the British answer to rapidly increasing German fighter production.

The Spitfire's role was to take out the fighter escorts, the Messerschmitt Bf109s, and in this, with its superb manoeuvrability and speed in excess of 350mph, it was unsurpassed. Its many guises, in the space of five years, included the MkI & IIs that fought the Battle of Britain, the MkIXs that saw off the formidable 400mph+ Focke-Wulfe Fw190s, and the Mk21s that, with a top speed of over 450mph, were almost twice as fast as the original MkIs. The Spitfire was the only plane to have remained in production throughout the war.

Technical Details

Manufacturer: Supermarine, UK

Type: Single-seat, single-engine fixed wing monoplane fighter.

Engine: 1030hp Rolls-Royce Merlin III piston engine.

Dimensions: Span: 36ft 10in. Length: 29ft 11in. Height: 12ft 7 3/4in.

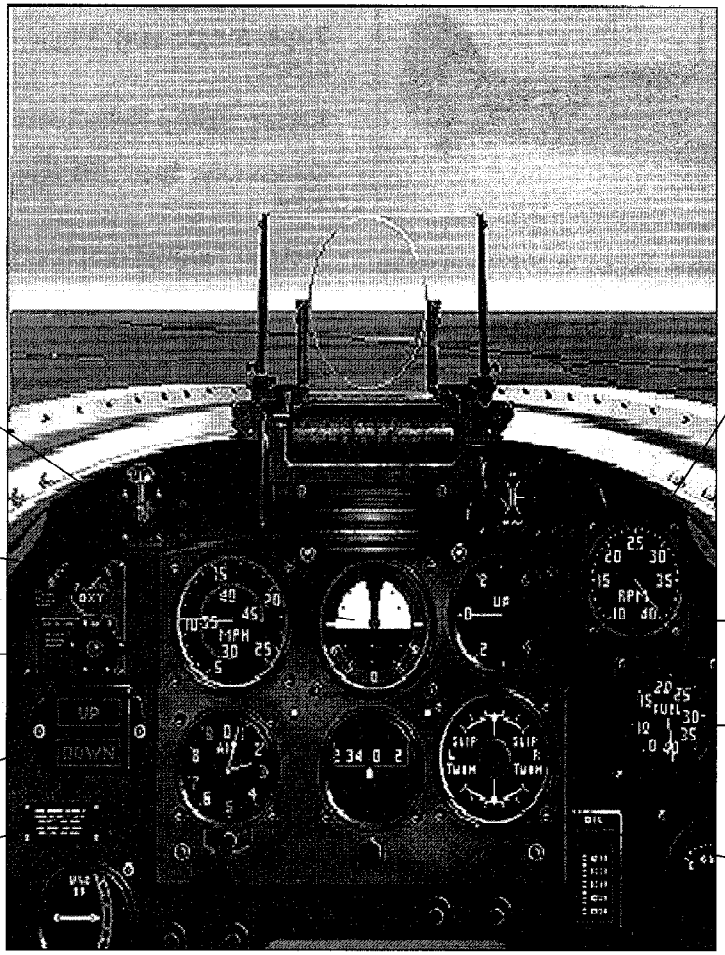
Weight: [empty] 4,517lbs [2050kg], [with maximum load] 5,844lbs [2656kg].

Performance: Maximum speed: 590 km/h [365 mph]. Max. range [slow]: 630 miles [1000km], [max. cruise] 415 miles [664km] . Endurance: 3.6 hours.

Weapons: Eight .303in [7.7mm] Colt-Browning Machine Guns, mounted in two rows of four in either wing. Rate of fire: 1100-1200rpm, magazine capacity 300 rounds per gun.

History: Prototype first flown 1936; MkIA entered service May 1938; More powerful MkVB supplied March 1941; later replaced with MkIX, with Merlin 60 engine, and 2 20mm Hispano cannon & 4 Browning machine guns; MkXII & MkXIV given R-R Griffon engine; Mk21, with 2050hp Griffon 60 engine and capable of 454mph, entered service mid-1945, shortly before the end of the war. Some French Air Force MkIXs Spitfires were still fighting in the early days of the Indo-China conflict, later to become the Vietnam war, whilst the British were still using them well into the jet age, often in situations where jets would be unsuitable - in anti-guerrilla engagements, for instance, like the Malaya campaign.

MkII Supermarine Spitfire Cockpit



Airspeed Indicator

Artificial Horizon

Oxygen Level Indicator

Landing Gear Indicator

Altimeter

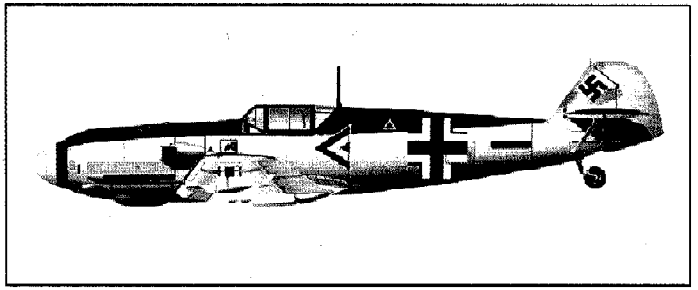
Tachometer (Engine Revs)

Rate of Climb Indicator
Indicates the rate at which the plane is climbing/diving.

Fuel Gauge

Directional Indicator (Compass)

Messerschmitt Bf109E



The German Luftwaffe's Bf109 was the first of a new generation of single-engine fighters to enter the service. The first models were, ironically, powered by a British engine, the Rolls-Royce Kestrel. This was changed when the Bf109B was produced. This aircraft flew with a Junkers Jumo 210 engine when it was used in the Spanish Civil War.

The fighter fulfilled a multitude of roles during the Civil War, including ground support of the Nationalist Army conventional air combat with the Russian-supplied Republican fighters. Its bomber escort duties allowed the Junkers Ju87, (or Stuka) and Heinkel He III light bombers to bomb the enemy ground forces and cities in relative air supremacy.

When WWII began, the Bf109B was relegated to training and reserve duties. Its place in the front line was taken by the first full production fighter, the Bf109E. This aircraft was a match for its allied counterparts: the Spitfire and Hurricane, and was superior in a dive thanks to its direct fuel injection. Allied planes often stalled through fuel starvation in a steep dive due to the effects of negative gravity.

Technical Details

The early 109s, including the 109E, were equipped with two MG FF 20mm cannons in the wings, and two MG-17s above the engine. In later models, the MG FFs were replaced by one MK [Machine Cannon] 108, mounted to fire through the propeller hub, and capable of firing 850 17oz shells a minute.

Manufacturer: Messerschmitt, Germany.

Type: Single-seat, single-engine fixed wing monoplane fighter.

Engine: 1100hp Daimler-Benz DB601Aa inverted V-12, fuel-injection engine.

Dimensions: Span: 32ft 4 1/2in. Length: 28ft 4 1/4in. Height: 8ft 2 1/2in.

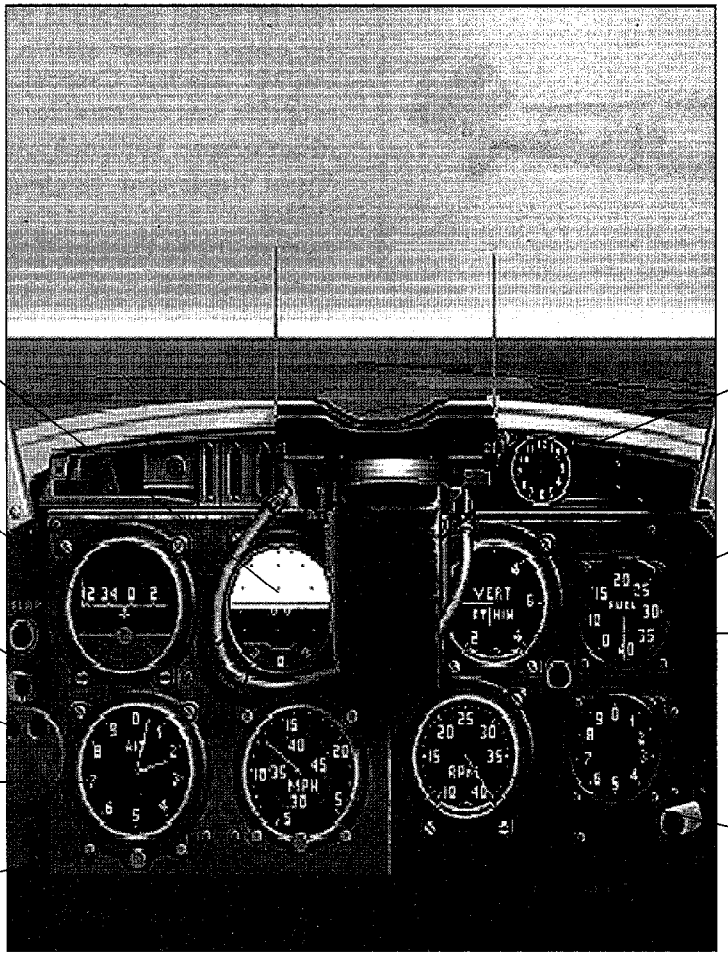
Weight: [empty] 4,189lbs [1904kg], [with max. load] 5,875lbs [2670kg].

Performance: Maximum speed: 570 km/h [354 mph]. Ceiling: about 34,450ft. Max. Range: 410 miles.

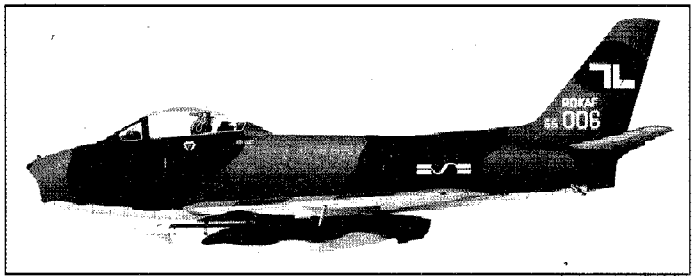
Weapons: Two 20mm Oerlikon-Bekker MG FF cannon mounted in the outer wings, two 0.312in [7.92mm] Rheinmetall-Borsig MG17 machine guns mounted above the engine. Rate of fire: MG FF cannon - 540rpm; MG17 machine guns - 1180rpm. Capacity [MG FF]: 60 rounds per gun, [MG17] 1000 rounds per gun.

History: First 109 flown September 1935, powered by R-R Kestrel engine; 109B fought in Spain with Junkers Jumo 210 engine; 109E first production plane proper, powered by 1100hp DB601 engine; 109F arrived early 1941, with DB601 uprated to 1300hp; replaced by 109G in late 1942 - despite speeds of 450mph+, heavier armament and engine caused drop in combat ability; some models were still produced in Spain and Czechoslovakia after the war.

Messerschmitt Bf109E Cockpit



North American F-86E Sabre



By the end of WWII it was becoming obvious that the propeller had had its day as a method of fighter propulsion. From 1944 both sides rushed out a series of experimental jet fighters, with mixed success. The British Gloster Meteor was the allied answer to the German Me262. It remained in service for many years after the war, accompanied by a wide variety of other planes including the F-80 Shooting Star, F-84 Thunderjet and the de Havilland Vampire. But all of these first jet designs made the same mistake, (failing to learn from the Me262) - they were all straight-winged craft, and due to the potentially lethal air compression that happened along their leading edges when approaching the sound barrier, most were limited to speeds little greater than those achieved by the piston-engined planes they had replaced.

In 1949 the first operational North American F-86 appeared, complete with the swept wings first used by the pioneering Messerschmitt five years before. In December 1950, the F-86 first saw service in the Korean war.

On 17th December 1950 an F-86 shot down a MiG-15; the first combat between swept-wing fighters. The earliest models to see action were the F-86As, Es and Fs but, despite the high technology of their engines and construction, both Russian and American planes were still using conventional combat tactics. They were armed with M-3 heavy machine guns and a basic radar gunsight that was often discarded by the pilots. It was not until the arrival of the F-86D that rockets were first used and - in conjunction with a computerised interception package and an afterburner system- produced the first of the 'modern' jet fighters.

Technical Details

Manufacturers: North American Aviation Inc., Inglewood, USA.

Type: Single-seat fighter-bomber.

Engine One 5,970lb [2710kg] Wright J65 single-shaft turbojet.

Dimensions: Span: 37ft 1 1/2in [11.31m]. Length: 37ft 6in [11.43m]. Height: 14ft 8 3/4in [4.47m].

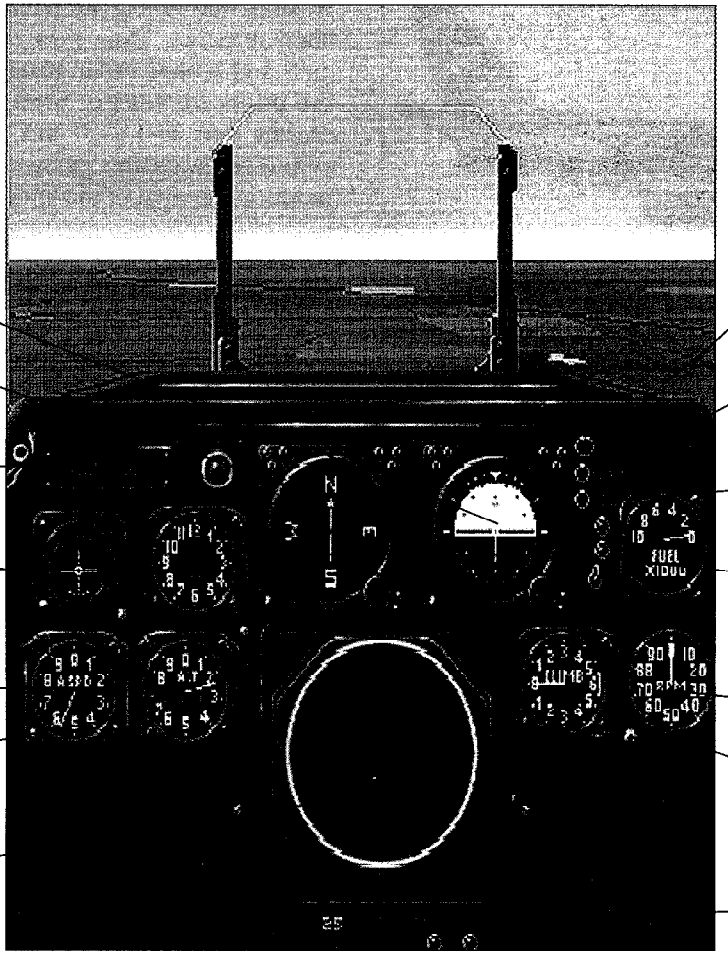
Weight: Empty: 11,125lbs [5,045kkg]. With maximum load: 20,611lbs [9350kg].

Performance: Maximum speed: 678 mph [1091km/h]. Ceiling: about 45,000 ft. Range: about 850 miles [1368km/h. Initial climb: 8,000ft [2440m]/min.

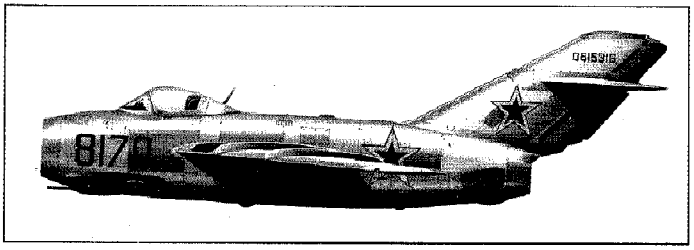
Weapons: Six 0.5in Colt-Browning M-3 heavy machine guns. Hardpoints for two external tanks or two loads of 1000lbs. Rate of fire: 1,150-1,250rpm. Capacity: min. 267, max. 500 rounds per gun.

History: First experimental flight November 27th 1946; service delivery [F-86A] December 1948; first service flight December 22nd 1949; first combat service late 1950; later models E,F,D,K,H,AF-1E. Total production, including under licence, 9502 the highest of any Western military plane since WWII.

North American F-86E Sabre Cockpit



Mikoyan-Gurevich MiG-15



At the end of WWII, the Allied forces were involved in a desperate race to be the first to reach Berlin. The haste was not only based on the removal of Hitler from power but also a desire by both sides to be the first to capture German rocket secrets, and the scientists who created them. Berlin was eventually divided amongst the Russians, Americans, British and French, and the same happened to the new captured technology.

Just as the German A-4 rocket was to form the basis of all subsequent ballistic missile research and development, so the Me262 and its variants were to be the basis of all modern jet fighters, especially for the Soviet Union and its chief jet designers, the Mikoyan-Gurevich Bureau. Although the USSR had designed its first revolutionary fighter within months of WWII's end, they had to wait longer for a suitable engine. Ironically, the first engine was given to them by the British. A Rolls-Royce 'Nene' turbojet was sent to the Soviet Union quickly copied and mass-produced (without a licence) as the RD-45.

The MiG-15 was flying by 1947, and in service by August 1948. While the Allies were still mainly relying on piston-engined fighters such as the Mustang and Spitfire. Needless to say there was panic in the UN ranks when these silver swept-wing jets roared out over the Korean arena for the first time, the F-80 Shooting Star was in service, but with its straight wings it was instantly outclassed by the vastly superior climbing, shooting and turning abilities of the MiG.

That an F-80 managed victory in the first jet-to-jet combat was due purely to the superior flying of the US pilot. It was not until the introduction of the F-86D in 1952 that the MiG-15 had any serious technological competition. Although the last service delivery to the Soviet Air Force was sometime around 1953, it is a sign of the quality of the MiG-15 that the UTI dual-control variant of this first Soviet jet fighter was still being used for training purposes as late as 1977.

Technical Details

Manufacturers: Mikoyan-Gurevich Bureau, Soviet Union, and under licence.

Type: Single-seat fighter.

Engine: One 5,005lb [2270kg] thrust Klimov RD-45 single shaft centrifugal turbojet.

Dimensions: Span: 33ft 0 3/4in [10.08m]. Length: 36ft 3 1/4in 11.05m]. Height: 11ft 1 3/4in [3.4m].

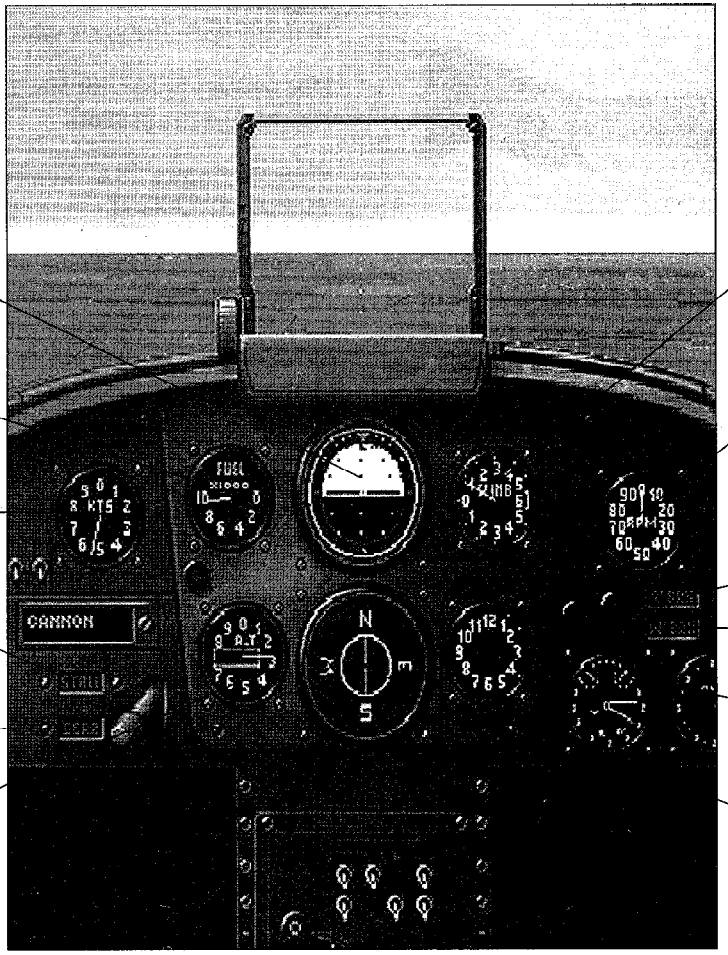
Weight: Empty 8,820lbs [4000kg]; With maximum load 12,566lbs [5700kg].

Performance Maximum speed: 668mph [1075km/h]. Ceiling: 51,000ft. Range: about 885 miles [1424km].

Weapons: One 37mm Nudelmann [N] cannon and one 23mm Nudelmann-Suranov [NS] cannon under the nose. Capacity: [N37] 40 rounds, [NS23] 80 rounds per gun.

History: First flight December 30th 1947; service delivery August 1948; last delivery to Soviet Air Force believed to be 1953. Continued to be delivered to Warsaw Pact countries until 1954; still used as a fighter by 15 countries until 1960, and MiG-15 UTI Trainer still in use in Soviet Union and over two dozen countries up to the late '70s.

Mikoyan-Gurevich MiG-15 Cockpit



Artificial Horizon

Fuel Gauge

Airspeed Indicator

Stall Warning Indicator

Landing Gear Indicator

Altimeter

Rate of Climb/Dive Indicator

Tachometer (Engine Revs)

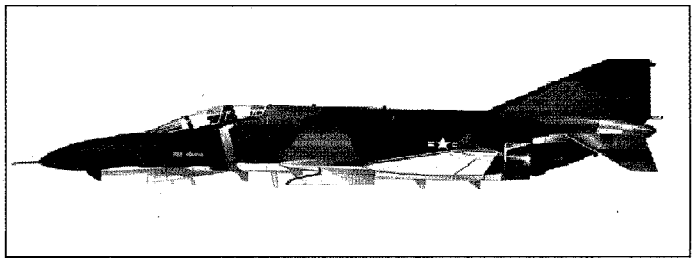
Airbrake Indicator

Wheelbrake Indicator

Clock

Directional Indicator (Compass)

McDonnell Douglas F-4J Phantom II



The F-4 Phantom was the result of the inequalities of jet combat during the Korean war. The US was aware of the prowess of the Russian MiG-15 over their own fighters, and needed a machine that would outdo this and any other Russian fighter for the foreseeable future. The F-4 underwent many changes of design even before it left the test bed: originally designed as a four-gun fighter, eventually entered service as a gunless, missile armed interceptor, and since then it has been everything from an unarmed reconnaissance plane to a tactical bomber, serving with both Air Forces and Navies the world over. The F-4J was adopted by the US Navy, and it is in this guise that it appears in Dogfight. The F-4 gave the Soviet-trained pilots a severe shock over Vietnam. Most of its early rivals have long been retired, but the F-4 remains stubbornly in service with innumerable Navies and Air Forces after nearly thirty years.

Technical Details

Manufacturers: McDonnell Douglas Corporation, St. Louis, USA and under licence.

Type: Twin-seat all-weather interceptor.

Engine: Twin 17,900lb [7711kg] thrust General Electric J79-10 single-shaft turbojets with afterburners.

Dimensions: Span: 38ft 5in [11.7m]. Length: 58ft 3in [17.76m]. Height: 16ft 3in [4.96m]

Weight: Empty 28,800lbs [12,700kg]; with maximum load 58,000lbs [26,308kg].

Performance: Maximum speed: [low] 910mph [1464km/h, Mach 1.19]. [high] 1,500mph [2414km/h, Mach 2.27]. Ceiling: over 60,000ft [19,685m]. Combat radius: [Ground attack, hi-lo-hi] about 517 nautical miles [960km]; [air patrol] 250nm [460km, 2 hours] inc. 2 minutes high altitude, high speed combat.

Weapons

One 20mm M-61A1 General Electric Vulcan 6-barrel machine gun (1200 rounds)
Four AIM-7 Sparrow air-to-air missiles under fuselage.
Four AIM-9 Sidewinder air-to-air missiles.
18 x 130mm Zuni Rockets (ground attack)
Four AGM-65 Mavericks (ground attack)

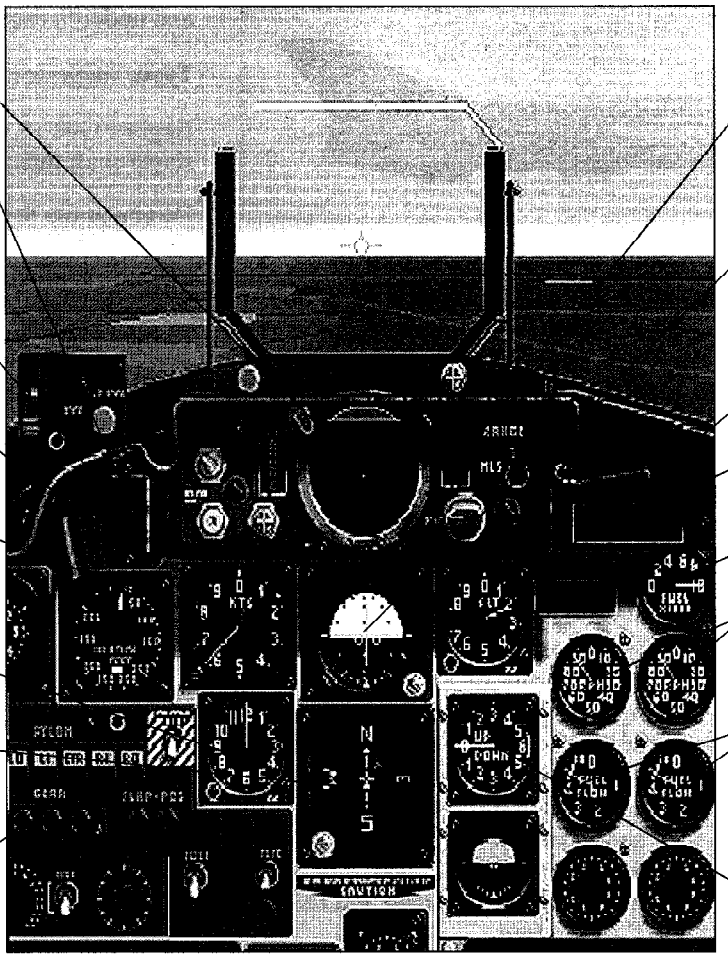
History: First flight [experimental XF4h-1] May 27th 1958; service delivery [F-4A] February 1960; first flight [Air Force F-4C] May 27th 1963. F-4J accepted by US Navy, later to be modified and uprated into the F-4S. Some modified models - mostly EF-4E Wild Weasels - still being delivered to date: latter model saw service from Allied carriers against Iraq in the 1991 Gulf War.

McDonnell Douglas F-4J Phantom II Cockpit

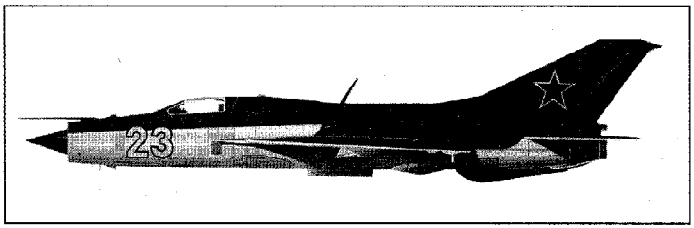
Aiming and Firing Missiles

Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.



MiG-21F 'Fishbed'



Like its frequent combat opponent the F-4 Phantom, the MiG-21 was, and still is, the most successful of all Soviet fighters, selling more than 10,000 in various versions in the twenty years of its life. Also, like the Phantom, the MiG-21 was developed in the eighteen months after the Korean War in answer to the problems highlighted by that war, and was a multi-role aircraft, carrying out all types of missions from reconnaissance to ground attack.

This new MiG, largely based on its predecessor the MiG-19, was packed full of new features, including powered controls and body flaps and an armoured ejection seat. By the time the 21F - possibly the classic variant of the type - arrived, it was further equipped with radar ranging, improved performance, greater fuel capacity and two air-to-air missiles.

With a Mach 2 capability and two good 30mm cannons, the MiG-21 was an excellent combat aircraft, and served to ensure that the 'noble art of dogfighting' did not die out. Its only real limitation, with a maximum internal fuel capacity of 500 gallons, was a very short combat radius, but even this could be increased with the help of external tanks. The MiG-21 was faster, more manoeuvrable, better armed and roughly a third of the price of the F-4 Phantom.

Technical Details

Manufacturers: Mikoyan-Gurevich Bureau, Soviet Union, and under licence.

Type: Single-seat daytime fighter.

Engine: One 13,120lb [5950kg] thrust R-11-F2-300 Tumansky single-shaft turbojet with afterburner.

Dimensions: Span: 23ft 5 1/2in [7.15m]. Length: 46ft 11in [14.3m]. Height: 14ft 9in [4.5m].

Weight: Empty 11,464lbs [5200kg]; with maximum load 18,740lbs [8500kg].

Performance: Maximum speed: 1285mph [2070km/h, Mach 2.1]. Ceiling: 59,050ft. Range: [high, internal fuel] 683 miles [1100km]; [high, 3 ext. tanks] 1,118 miles [1800km].

Weapons:
One 30mm NR cannon under fuselage (200 rounds)
Two/four K-13 'Atoll' air-to-air missiles
Two/four AATO 'Advanced Atoll' air-to-air missiles

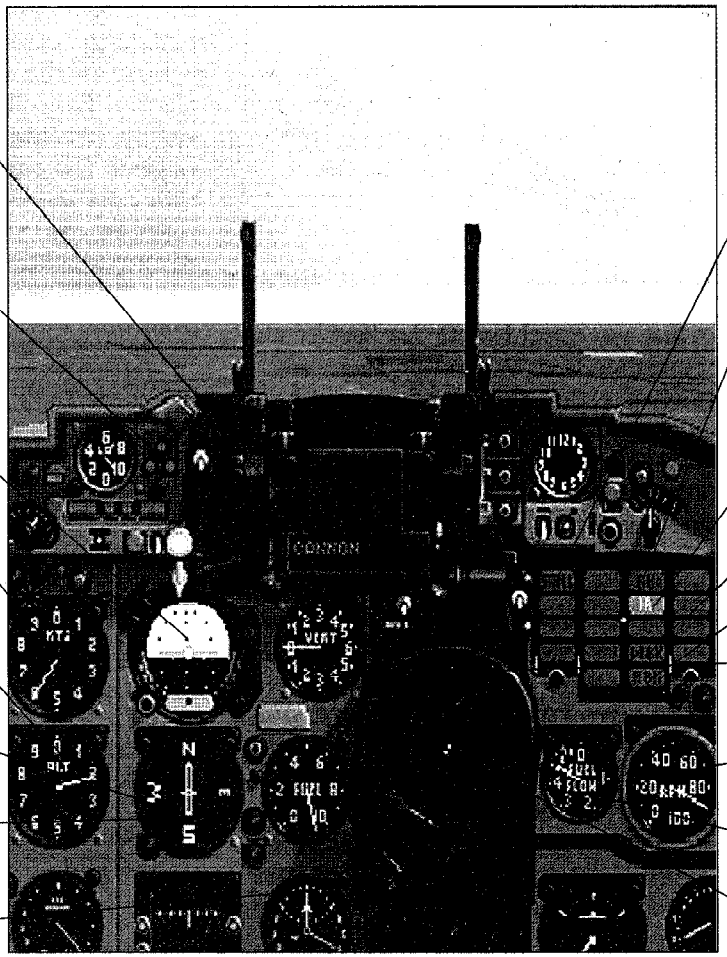
History: First flight [prototype] late 1955, [-21F] late 1957; service delivery early 1958; later variants still in service as trainer and second line fighter.

MiG-21F 'Fishbed'

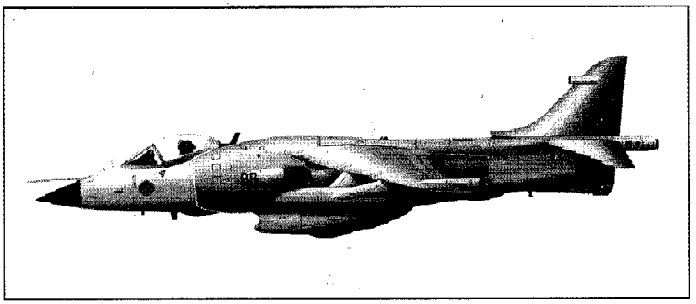
Aiming and Firing Missiles

Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.



British Aerospace Sea Harrier FRS.1



There is no doubt that the Royal Navy's Sea Harrier was the star of the Falklands War. Without it, there would have been a strong chance that the islands would have remained in Argentine hands. The Argentine Air Force proved far more capable than expected, using Mirage IIIs, A-4s, and most surprisingly the slower Super Etendard to devastating effect against the Task Force.

Despite the fact that only 28 Sea Harriers were taken to the South Atlantic, they not only defended the naval presence against superior numbers but also performed ground attack, reconnaissance *and* interception duties. It is a credit to the Harrier and its pilots that only five were lost in the whole campaign, and none of these in aerial combat.

The most astonishing aspect of the Harrier is its V/STOL, or Vertical/Short Take Off and Landing capabilities, developed in anticipation of a time when the first casualties of a war will be the runways. Although considerably slower than most modern fighters, there is nothing that can even come close to the Harrier's manoeuvrability. Its main advantage was the ability to take off and land without a long runway; although this ability is generally reserved only for emergencies. Even a short take-off run substantially increases both range and available payload.

Out of the Air Forces Harrier GR.3 came the Sea Harrier. Basically, the FRS.1 is the same as the land-based variety, converted for use off the Navy's Invincible-class light carriers. The engine is a modified version of the GR.3s, but with extra anti-corrosion casings and increased power to the reaction control jets to take account of the often more adverse weather conditions at sea. The avionics, however, are virtually all-new, taking into account the changes needed from what was basically a low-level strike aircraft. They use the Blue Fox radar system that has enabled a new cockpit placed higher up with an improved all-round view.

Technical Details

Manufacturer: British Aerospace [originally Hawker Siddeley Aviation], UK

Type: Single-seat ship-based multi-role V/STOL fighter/bomber.

Engine One 21,500lb [9,752kg] thrust Rolls-Royce Pegasus II MkI04 two-shaft vectored thrust turbofan.

Dimensions: Span: 25ft 3in [7.7m]. Length: 48ft [14.63m]. Height: 11ft 3in [3.43m].

Weight: Empty 13,000lbs [5897kg]; with maximum load [Non-VTOL] 26,000lbs [11,793kg].

Performance: Maximum speed: [unloaded, low level] 737mph [1186km/h, Mach 0.972]; [Maximum dive] 985mph [1586km/h, Mach 1.3]. Ceiling: over 50,000ft. Combat/Tactical radius: [hi-lo-hi] about 260 miles [418km]; Max. Range: 2070 miles [3330km]. Initial climb [VTOL weight] 50,000ft/min.

Weapons: All external. Usual configuration:
Twin 30mm Aden cannon in ventral packs (400 rounds)
Two/Four AIM-9 Sidewinders
18/36 SNEB 68 Rockets (Ground Attack)

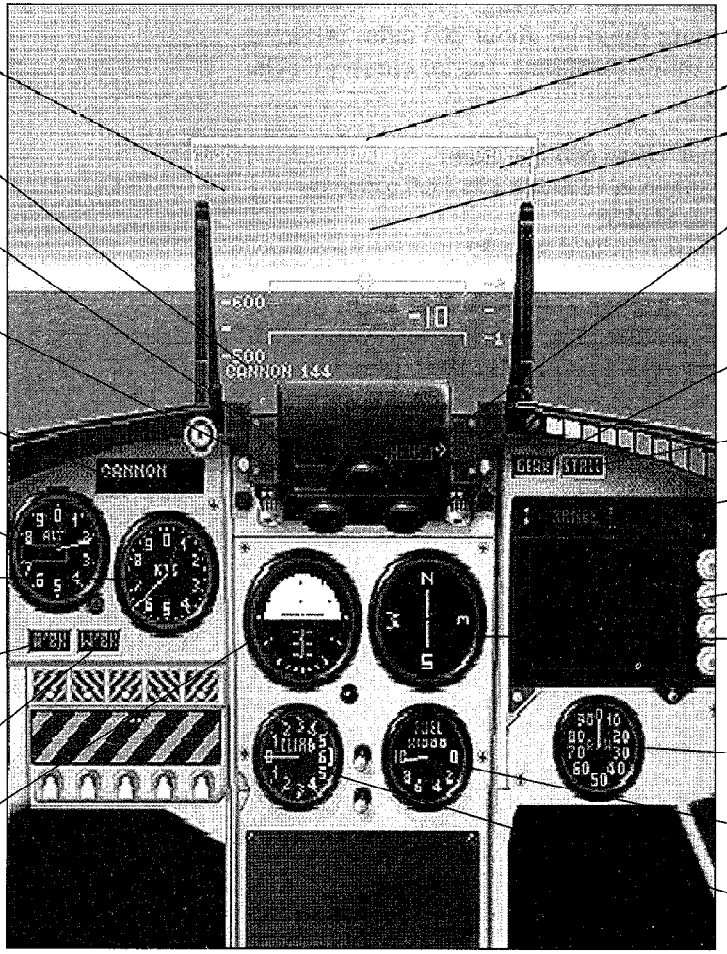
History: First hover October 21st 1960; first flight [development Harrier] August 31st 1966, [Sea Harrier] August 20th 1978; service delivery [GR.1] April 1st 1969, [Sea Harrier] June 1979.

British Aerospace Sea Harrier FRS.1 Cockpit

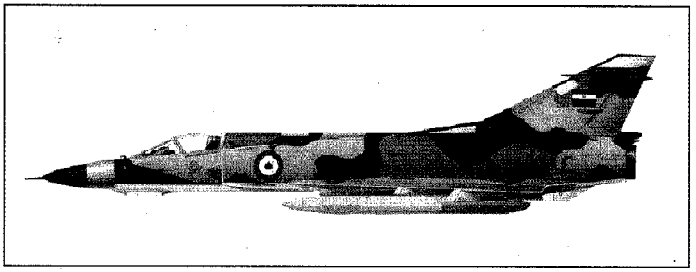
Aiming and Firing Missiles

Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.



Dassault Breguet Mirage IIIE



The Mirage, in its many forms, is without doubt one of the most successful fighters since WWII and the III is probably the most popular Mirage of all variants.

- It was the first Western fighter to reach Mach 2 in level flight.
- It was remarkably cheap, costing just over $1 million each in 1960, with standardisation of variant parts being a large contributor to this economy of design.
- It was given huge publicity by the Israelis when they used them to great effect against the largely Russian-supplied Air Forces of the Egyptians, Syrians and Jordanians in the early hours of the 1967 Six Day War.

The definitive version was the Mirage IIIE, with its larger engine, improved avionics and increased fuel capacity, as well as its higher top speed of Mach 2.2, and it was these that Argentina used against the RN Harriers during the Falklands War. Although the Exocet-carrying Super Etendards grabbed all the headlines, it was the Mirages that were to do battle with the Harriers in the high level dogfights. The Mirages were to prove no match for the Royal Navy's combination of Harrier and AA missiles and guns, and almost all of Argentina's Mirage force was destroyed before the war had ended, largely due to operating at the end of their range.

Technical Details

Manufacturer: Avions Marcel Dassault/Breguet Aviation, France, and under licence.

Type: Single-seat multi-role fighter-bomber.

Engine: One 13,670lb [6000kg] thrust SNECMA Atar 9C single-shaft turbojet.

Dimensions: Span: 27ft [8.22m]. Length: 50ft 10 1/4in [15.5m]. Height: 13ft 11 1/2in [4.25m].

Weight: Empty 15,540lbs [7050kg]; with maximum load 29,760lbs [13,500kg].

Performance: Maximum speed: [unloaded] 1460mph [2350km/h, Mach 2.2]. Ceiling: 55,775ft. Multi-role combat radius: 745 miles [1200km]. Max. range: 2,485 miles [4000km]. Initial climb 16.400ft/min; [time to 11,000m (36,090ft)] 3 minutes.

Weapons:
Two 30mm DEFA 5-52 cannon (500 rounds)
One Matra R.530 Radar/Homing AAM
Two R550 Magic AAM
18/36 Matra RL F2 Rockets (Ground Attack)

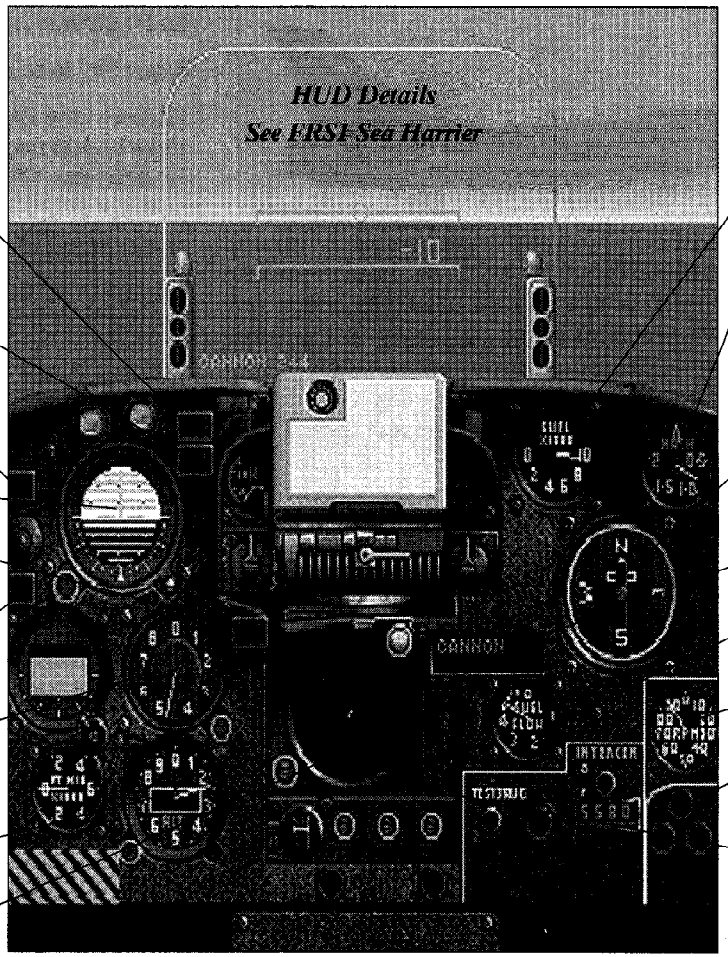
History: First flight [Mirage I] June 25th 1955, [production IIIE] April 5th 1961; service delivery June 1962. Mirage III now largely replaced by Mirage F1 and/or 2000, but all-new Mirage IIING [New generation] flew for the first time in December 1982. In one form or another, the Mirage has remained in production for over thirty years and will probably continue to do so for some time to come.

Dassault Breguet Mirage IIIE Cockpit

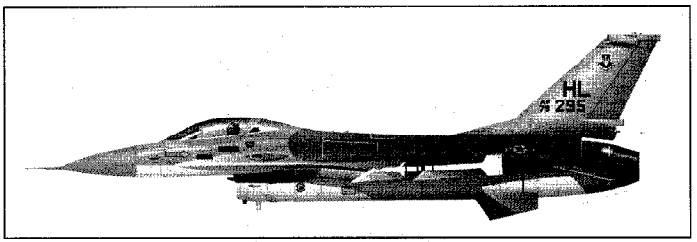
Aiming and Firing Missiles

Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.



General Dynamics - F-16A Fighting Falcon



In 1981, eight Israeli fighters flew nearly six hundred miles, refuelling in mid air to drop a number of 2,000lb bombs on Osirak nuclear reactor near Baghdad, Iraq. They then returned to Israel, again refuelling in mid-air and again unchallenged, to land back at base completely unscathed. General Dynamics couldn't have publicised their F-16 Fighting Falcon better if they'd tried.

Designed largely as a replacement for the valiant but ageing F-104 Starfighter, it soon became obvious that the F-16, with its low cost, and outstanding manoeuvrability and adaptability, was also a worthy successor to the F-4 Phantom. With the excellent Pratt & Whitney F-100 engine the Falcon can climb at any airspeed, and thanks to highly advanced avionics, it is impossible for the pilot to execute any manoeuvre that will damage the plane. At the time of its first operational service, the F-16 could out-fly every other fighter in the world; even the super-agile uprated MiG-21. In air-to-air combat, if not in straight flight, it can even better the astonishing and terrifyingly powerful MiG-25 Foxbat. Just a few of the reasons why the F-16 has been bought in its thousands by the US Air Force and why Israel is still using them to such devastating effect.

Technical Details

Manufacturers: General Dynamics, Fort Worth, USA, and under contract manufacture in Europe.

Type: Single-seat fighter bomber.

Engine: One 24,000lb [10,885kg] thrust Pratt & Whitney F-100-PW-100 two-shaft afterburning turbofan. In some export models, the 17,900lb [7711kg] thrust General Electric J79 turbojet is offered, whilst the General Electric F110 is now being supplied for 50% of future production.

Dimensions: Span: [with Sidewinders] 32ft 10in [10.01m]. Length: 47ft 7.7in [14.52m]. Height: 16ft 5.2in [5.01m]

Weight: Empty 14,800lbs [6,733kg]; with maximum load 33,000lbs [14,969kg].

Performance: Maximum speed: 1300mph [2090km/h, Mach 1.95]. Ceiling: over 60,000ft [19,685m]. Combat radius: [Internal fuel on air-to-air mission] about 1300 miles [2100km]; [Ground Attack with maximum load] 120m [193km]; [Average radius with mixed load] 339 miles [546km]

Weapons:
One 20mm M-61 multi-barrel machine gun (511 rounds)
Four AIM-9 Sidewinders
Four AGM-65 Mavericks (Ground Attack)
18 Mk.4 2.75in FFAR Rockets in LAU-69/A Launcher (Ground Attack)

History: First flight [experimental YF-16] January 20th 1974; service delivery [F-16A] early 1978, with first operational flight soon afterwards. Still very much in production, although superseded by the F-15E Eagle.

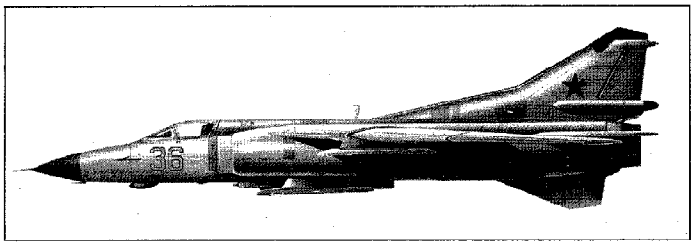
General Dynamics - F-16A Fighting Falcon

Aiming and Firing Missiles

Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.

MiG-23S 'Flogger B'



In the early sixties most Air Forces believed that the multi-role aircraft was the way forward for modern air warfare. It was becoming increasingly expensive to have two separate aircraft to do two separate jobs. Both the US and the Soviet Union began looking for ways to make their fighters even more flexible and in 1964 the US unveiled the F-111, a multi-role fighter bomber designed for both Air Force and Navy roles.

Although the F-111 was not a small aircraft, having an unladen weight of over three times the later F-16, its flexibility came from a new feature - variable geometry wings. However, due to financial, political and mostly design problems, the F-111 was never the success it was intended to be. It did, however, inspire the Mikoyan-Gurevich designers and in 1967 the Soviet Union revealed their own swing wing fighter: the highly successful MiG-23.

The new MiG's swing wings gave it enormous manoeuvrability and enabled it to achieve over Mach 2 with ease, even with a full missile load, making it a dangerous opponent for the F-4s, and F-16s over the plains of Syria. Ultimately, the concept of variable geometry was not as awe-inspiring as at first thought, but a handful of subsequent planes have employed the technique to great effect, most notably the expensive F-14 Tomcat and the universally acclaimed Tornado. The MiG-23 itself has gone on to be redeveloped into a multi-role fighter-bomber version now known as the MiG-27.

Technical Details

Manufacturers: Mikoyan-Gurevich Bureau, Soviet Union.

Type: Single-seat all-weather interceptor.

Engine: One 23,350lb [11,500kg] thrust Tumansky R-29B afterburning turbofan.

Dimensions: Span: [min. sweep] 28ft 7in [8.7m]; [max. sweep] 47ft 3in [14.4m]. Length: 55ft 1/2in [16.8m]. Height: 13ft [3.96m].

Weight: Empty 17,500lbs [7940kg]; with maximum load 33,000lbs [15,000kg].

Performance: Maximum speed: [unloaded] 1520mph [2445km/h, Mach 2.2]; [with missiles] 1380mph [2222km/h, Mach 2]. Ceiling: 55,000ft. Combat radius: [hi-lo-hi] about 400 miles [640km].

Weapons:

One 23mm GSh-23 twin barrel machine gun (200 rounds)

Two/Four AA-8 'Aphid'

Two AATO Advanced 'Atoll'

Two AS7 Kerry (Ground Attack)

12 S5 57mm Rockets (Ground Attack)

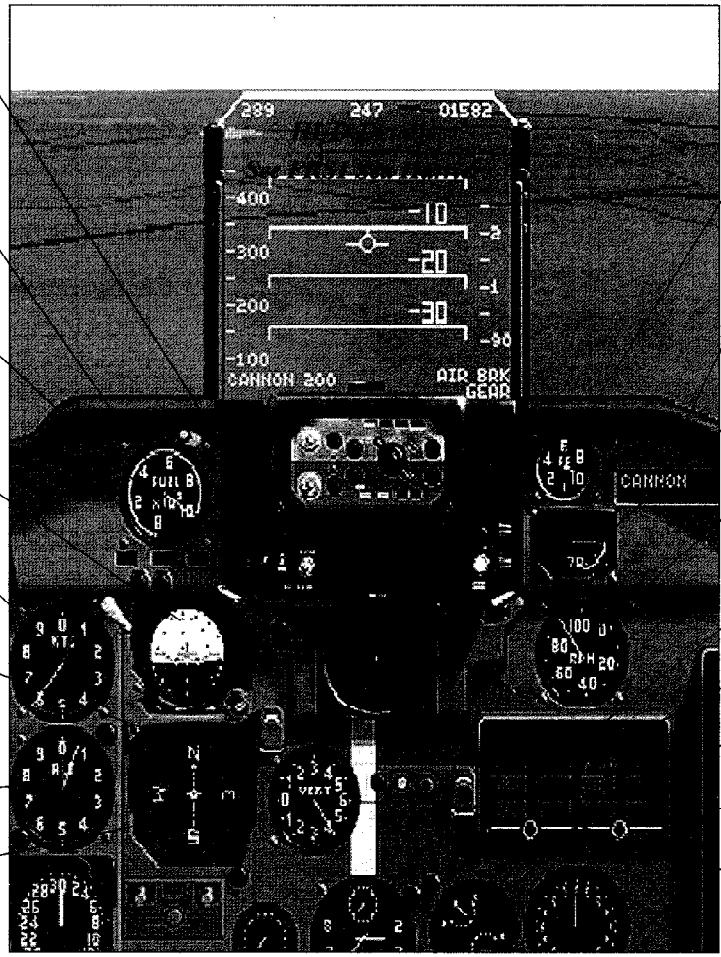
History: First flight estimated 1965; service delivery believed early 1971; later variants, largely MiG-27 multi-role attack version, still in service in most Warsaw Pact countries; -23U still employed in many countries as a dual-control trainer and sometimes as an ECM and reconnaissance vehicle.

MiG-23S 'Flogger B'

Aiming and Firing Missiles

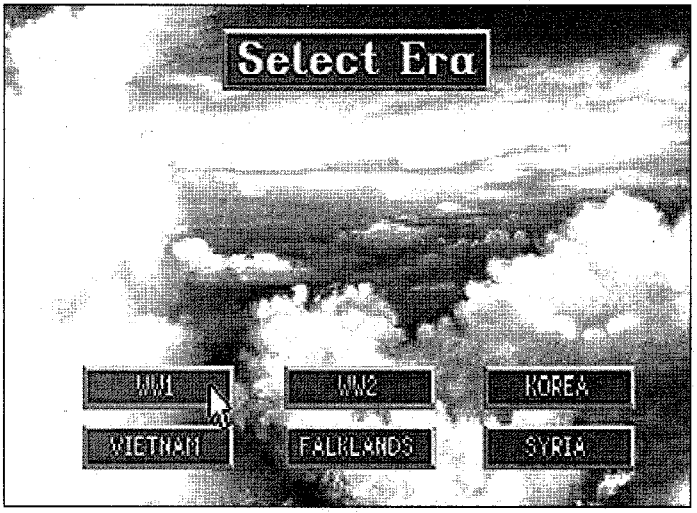
Infra-red
Infra-red missiles will not lock-on until you position yourself behind the enemy.
A white box is the target acquisition.
A white box in a white circle - within range
A white box in a red circle - locked-on. Ready to fire.

Radar-guided
Radar-guided missiles are all aspect but must be kept in HUD view all the way to the target. A red lock-on circle will appear when within range of the target.



The Dogfight Missions

The Scenarios and the Aircraft



Dogfight missions let you give orders to resources (other aircraft) to Attack, Patrol, Support or Defend various targets and areas. You can watch the mission unfold on the map screen, jump to the external 3-D views and then pilot your own aircraft to assist in the mission. At the end of the mission you will be debriefed.

Getting Started

• Copy Protection

After the opening sequences *Dogfight* will take you to the Copy Protection Screen. Enter the correct word from the manual using the reference given.

• Configuration Screen

You will then see the Configuration Screen.

If you are flying your aircraft with a Joystick *Controller* you should Calibrate your Joystick. Select Calibrate Joystick then follow the on-screen prompts. When you have finished the Configuration select Save.

Click on the OK button to accept your choice of set up.

• Select Mode Screen

You will then see the Select Mode Screen. This is where you choose between the three main elements in the game. Select Missions.

• Select Era Screen

You will be given a choice of six aerial conflicts:

WW1 - Sopwith Camel and **Fokker Dr 1 Triplane** over the trenches in Northern France.

WW2 - Spitfire Mk II and **Messerschmitt Bf109E** over the English Channel, the South and East Coast of England.

North Korea - F-86 Sabres and **MiG 15s** fighting from Kimpo to the Yalu river.

Vietnam - F-4J Phantoms and **MiG-21s** tangle over Hanoi and Haiphong.

Falkland Islands - FRS 1 Sea Harriers and **Mirage IIIs** battling over Port Stanley, San Carlos and the UK Task Force.

Syria - F-16A Falcons against **MiG-23s** over the Bekaa Valley, Beirut and the Golan Heights.

• Select Side

You can choose which side you want to fight on by selecting your aircraft.

Mission Planning

The Mission Planning Screen gives you a background scenario and a list of mission orders for you, and your resources, to complete.

• Read the Mission Orders

This outlines the conflict you are participating in and lists your mission objectives.

• Select Resources

Resources are the other aircraft at your command for that mission. The number you have will vary depending on the complexity of the mission. You will see a map of the area of conflict on the left of the screen. On the right of the map are the control boxes.

Select the left arrow button and watch the top of the box. This will show the type of aircraft you have. Select again to cycle through all your other aircraft.

Choose an aircraft then give it an order from the four types available:

Patrol

Choose an area on the map to patrol.

Attack

Attack a target from a given list. If you choose the Attack order, another box will appear asking you for a choice of target for that aircraft. Simply highlight and select one from the list.

Support

Highlight and select an aircraft to support in an attack or a patrol.

Defend

You'll be given a list of potential targets that could be defended. Highlight and select.

You will then return to the original Control Box but now the target will be shown at the lower part of the box and a mission flight path will be marked on the map.

Plan your mission carefully to get the best out of your resources.

Repeat the above procedure for each of your available aircraft. Don't forget to assign some form of defence for your home base. The enemy will be planning their attacks against you at the same time!

Click through the arrow buttons to check that all your resources have been used then select OK to exit.

• Mission Planning Screen

You will be returned to the main Mission Planning Screen.

Pilots on duty gather round the map in the Operations Room and receive instructions. The Squadron Leader indicates a method of attack. Members of No. 1 Squadron , RAF in France 1940.

Dogfight - Weapons Configuration

	F-4 Phantom	F-16	Harrier	MiG-21	MiG-23	Mirage
Mixed	Cannon - 1200 Sparrow - 4 Rocket - 18	Cannon - 511 AGM65 - 4 Sidewinder - 4	Cannon - 400 Sidewinder - 2 Rocket - 18		Cannon - 200 Kerry - 2 Aphid - 2	Cannon - 500 R550 - 2 Rocket - 18
Air combat	Cannon - 1200 Sidewinder - 4 Sparrow - 4	Cannon - 511 Sidewinder - 4	Cannon - 400 Sidewinder - 4		Cannon - 200 Aphid - 4 Advanced Atoll - 2	Cannon - 500 R550 - 2 R530 - 1
Ground attack	Cannon - 1200 Sparrow - 4 Rocket - 18 AGM65 - 4	Cannon - 511 AGM65 - 2 Rocket - 18 Sidewinder - 4	Cannon - 400 Rocket - 36		Cannon - 200 Kerry - 2 Rocket - 12 Aphid - 2	Cannon - 500 R530 - 1 Rocket - 36
Duel	Cannon - 1200 Sidewinder - 4 Sparrow - 4	Cannon - 511 Sidewinder - 4	Cannon - 400 Sidewinder - 4	Cannon - 200 Advanced Atoll - 4	Cannon - 200 Aphid - 4 Advanced Atoll - 4	Cannon - 500 R550 - 2 R530 - 1
Air-Air 1				Cannon - 200 Advanced Atoll - 4		
Air-Air 2				Cannon - 200 Atoll - 2 Advanced Atoll - 2		
Air-Air 3				Cannon - 200 Advanced Atoll - 4		

• Select Arming

This option will only show armaments carried on more modern aircraft from Vietnam onwards. You will have to choose a combination of missiles and rockets for your particular mission.

The weapon loads in these aircraft will vary depending on the type of mission or mode (See Weapons Configuration Chart).

Select OK to return to the main Mission Planning Screen.

• Mission Planning Screen

Select Start to begin the mission.

Start Mission

You will begin on your home base runway or in the air near the main action area.

• Map and Zoom

Before you take-off check the map by pressing Function Key F9.

A brown dot is a friendly ground target, blue and red dots are enemies and a highlighted dot is the selected game object. Initially, this will be your aircraft. Move your *controller* around the map and select other dots by placing the arrow cursor over the dot and pressing your *selector*. The legend at the base of the map will tell you what all the dots represent.

The Keypad + and - keys will zoom you in and out of selected areas. If the Zoom makes the object disappear from the screen, place your *controller* on one of the screen edges to move the map left/right/up/down. The zoom facility is a very powerful feature; it can home in on any game object with a high degree of magnification. Press Key T to cycle through objects.

• View Other Objects

Press Function Key F10 to view the mission targets/objects and resources. Press Key T repeatedly to cycle through enemy and friendly objects. Remember that, even though you are still on the ground, the game world events will have begun. You can watch enemy aircraft getting ready for attacks.

Press Shift/T to return to Your Aircraft View.

• The Take-Off

Press Function Key F1. You will be looking along the runway. In some aircraft (such as the Spitfire) you might not be able to see the runway when the plane is at rest. If this is the case you must take-off from an outside view such as Slot View Shift/F1, positioning yourself behind and slightly above the plane. You might actually prefer this method!

Set Flaps down (Key Close Square Brackets])

Set engine revs/thrust to maximum (Shift Plus +)

Steer along the runway until you gain maximum speed.

Pull back gently on the joystick until the plane lifts off the ground.

Once in the air, raise your gear (Key G) and flaps (Key ?)

At the height of the Battle of Britain a pilot who finishes his stint hands over a MkII Spitfire to a colleague. Valuable resources were not allowed to remain idle.

• In The Air

Cycle through all available views (see the section on Views in this manual), then check the map (Key F9) to find your chosen target.

Press Key F10 and check on the progress of the other aircraft/targets (Key T). Press Shift/T to return to your aircraft view.

Now select a target. Press Tactical View F3 and then Key Trepeatedly. The view will change as each object/target is placed in the centre of the background. You may support one of your aircraft or attack a target on your own. The choice is yours! For Rookie pilots it is recommended you initially select static or ground targets. You can line up on static objects with F3 and F4 Keys. If you are attacked or want to *Dogfight,* the F5 'Heads Up' View plus the TAB Key will help you locate the enemy fighters from within the cockpit (look at the Views Section of this manual).

Alternatively, you can select the nearest enemy target to you by going to the map screen (F9) and selecting the nearest red dot to your aircraft. Press P to pause the game at any time. Remember, you can change any view or select any target whilst the game is paused, and then unpause the game and fly to your next target.

Access the resource list by pressing key A from within F3, F4, F5, F9 or F10 views.

• Return to Base

You will receive a message to tell you if the mission has been a success, failure or if the opposition have succeeded against you. You will then be told to return to base. Check your position and the location of a friendly runway on the map (Key F9) and head for a landing site using your compass and map.

• Landing

Locate your runway. The aircraft, in *Dogfight* will only land on a runway.

Apply Air Brakes with Key B (if applicable)

Reduce power (Minus Key-).

Drop Flaps with Key Close Square Brackets](if applicable)

Drop Gear with Key G (if applicable)

Lose height.

Adopt the correct approach using an appropriate outside view. Shift/F1 Slot View is very useful here.

Reduce Power (Minus Key-)

Aim for the runway but do not point the nose of the aircraft down.

Land as gently as possible and cut power (Shift Minus -) as soon as you are on the ground. Apply Wheel Brakes Key W (if applicable) when the plane has slowed right down.

The mission will end when you come to a stop.

Mission Review

You will be given a summary of the major mission events along with times and result. Appropriate medals and promotions will be awarded.

Key Guide

Simulation System Keys

CTRL/Q	Quit to Operating System
Key P	Pause Game On/Off
ESC Key	Quit Game / Go to Mission Review (if applicable)

View Keys

F1	Forward Cockpit View
F2	Instrument View (two modes: Full instrument view or with 50% Forward View- Key S toggle)
F3	Tactical View
F4	Inverse Tactical View
F5	'Heads Up' View
F6	Left Cockpit View
F7	Right Cockpit View
F8	Rear Cockpit View
F9	Map Screen (Zoom in/out with Keypad +/-)
F10	External View of selected object (rotate using Insert, Delete, PageUp and PageDown)
Shift/F1	Slot View
Key S (in F2 mode)	Change from Full Instrument View to Half Instrument/Half Forward Cockpit View
TAB Key (in F5 Mode)	Fix 'Heads Up' View on Target/ Allow Head to To Move Freely
Keypad +	Zoom In Map View
Keypad -	Zoom Out Map View

Keyboard View Controls

Keypad Minus -	Zoom out from selected external view (F3, F4, F9, F10)
Keypad Plus +	Zoom in from selected external view (F3, F4, F9, F10)
Insert	Move External Camera (F10)/'Heads Up' View (F5) Clockwise
Delete	Move External Camera (F10)/'Heads Up' View (F5) Anti-Clockwise
PageUp	Move External Camera (F10)/'Heads Up' View (F5) Up
PageDown	Move External Camera (F10)/'Heads Up' (F5) View Down

Fighter Controls

Key Plus +	Increase Power
Key Minus -	Decrease Power
Shift Plus +	Maximum Power
Shift Minus -	Minimum Power
Key Close Square Brackets]	Flaps Up/Down
Key <	Left Rudder (release to centre)
Key >	Right Rudder (release to centre)
Key G	Landing Gear Up/Down (if applicable)
Key W	Wheel Brakes On/Off
Key B	Air Brakes On/Off
Key R	Radar range key (for aircraft with radar threat display)
Key A	Resource Menu (in F3, F4, F5, F9 & F10 Mode). Select to go to that resource.
Shift/Z	Accelerate Time (two settings)
Shift/X	Return to Normal Time
CTRL/ T	On-Screen Mission Timer On/Off
CTRL/E	Eject (if applicable)

FRS 1 Sea Harrier Jet Nozzle Controls

Key 1	Nozzles to horizontal
Key 2	Nozzles to 45 degrees
Key 3	Nozzles to vertical

Weapon Control

Spacebar	Fire Selected Weapon
Return	Change Selected Weapon (if applicable)
Joystick	
Button 1	Fire Selected Weapon

Decoy Control

Key C	Chaff Release (if applicable to your aircraft)
Key F	Flare Release (if applicable to your aircraft)

Target Control

Backspace	Target Select for missile lock-on (if applicable to your aircraft)
Key T	Select next Target (on F3, F4, F5, F9 & F10 views)
Shift/T	Return to player's aircraft (on F3, F4, F5, F9 & F10 views)

Gameplay Configuration Options

Alt/H	Horizon On/Off
Alt/D	Detail Level (Cycle Through)
Alt/V	Sound On/Off
Alt/S	Joystick/Keyboard Sensitivity

Joystick

Controller

Joystick Movement	Flight Controller
Button 1	Fire Selected Weapon
Button 2	Hold and move Joystick to rotate external views/rotate 'Heads Up' view
Buttons 1 & 2	Hold both and move joystick forwards/back to zoom in/out external object view

Menu Selector

Joystick
Button 1

Keyboard

Controller

Cursor Keys	Joystick Emulator & Movement through menus

Menu Selector

Return Key & Home Key
(Not during game)

Keypad

Controller 4, 8, 6, 2,	Joystick Emulator & movement through menus
Key 7	Select Option (Left Mouse Button)
Key 9	Centre Map F9 (Right Mouse Button)

Mouse

Controller

Arrow Cursor Movement	Movement through menus
Centre Selected Object on F9 Map View	Right Mouse Button

Menu Selector

Left Mouse Button

Views

All-Round Vision

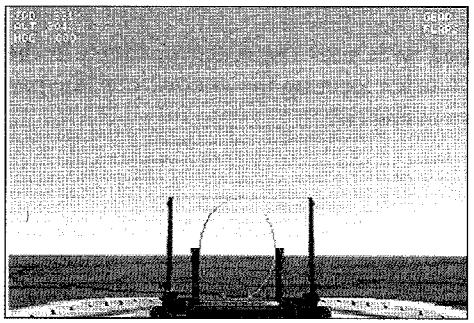
There are a multitude of Views in *Dogfight.* They are there to give you the best all-round vision of the combat area. You are advised to get used to all the View Keys as quickly as possible. It's very important to know exactly what the enemy aircraft is doing. Always look behind you for, if you give your opponent a chance he will be there lining up his best shot!

Tacti-Views

Dogfight provides full in-cockpit views including the unique 'Heads-Up' View. In addition, you have the option of Tactical and Inverse Tactical Views.

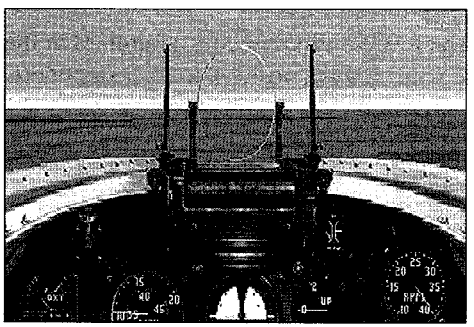
Joystick Controlled Views

Dogfight allows you to control aspects of in-cockpit and external views with the Joystick or Keyboard *Controllers.* This means that less valuable time is wasted searching for keys on the computer keyboard and more time can be spent scanning the skies for your opponent.



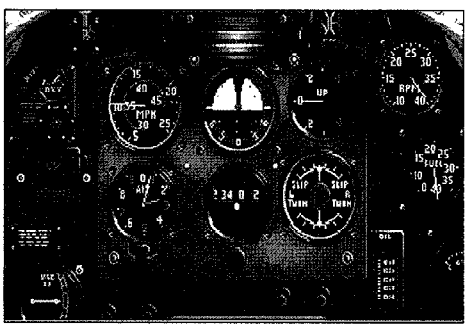
• Forward Cockpit View (Function Key F1)

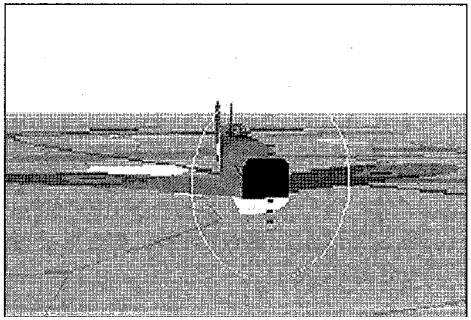
The main view out of the cockpit looking at the aiming sight (or HUD). This gives you a clear front view with no instruments. At the top left of the screen, there is information for the player consisting of: Speed, Altitude and Heading of your aircraft. At the top right of the screen, there is information pertaining to the status of your aircraft, such as whether you have your Gear down, Flaps down, Airbrakes on and weapon selected. The 'X' marker on the side of the screen points the way to your currently selected target. Turn towards the X until the target appears on the screen and the X will disappear.



•Instrument View (Function Key F2)

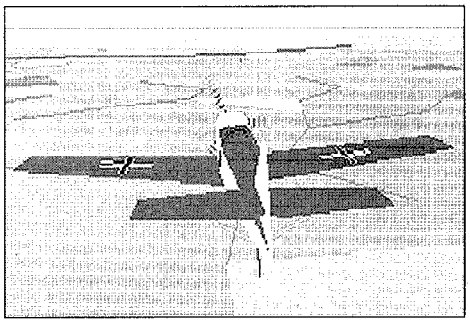
There are two Instrument View modes: Full instrument view or with 50% Forward View - Press Key S to move from one to another. *Dogfight* has extremely accurate dials and displays in each of the 12 cockpits. Look at the individual section for your choice of aircraft for more details.





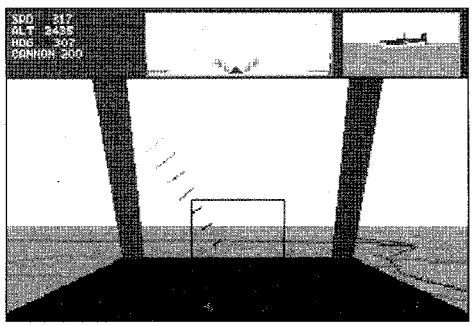
• **Tactical View (Function Key F3)**

Your aircraft stays in the foreground with your opponent or target in the background. This is a very important view for locating the enemy. Use Keypad plus + and Keypad minus - to zoom view in and out.



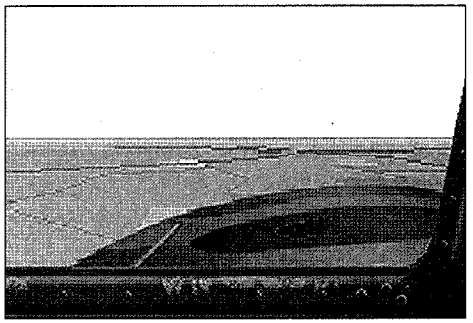
• **Inverse Tactical View (Function Key F4)**

Your opponent, or target, stays in the foreground and your aircraft is in the background. Use this view to determine your relative position to your opponent. Use Keypad plus + and Keypad minus - to zoom view in and out.

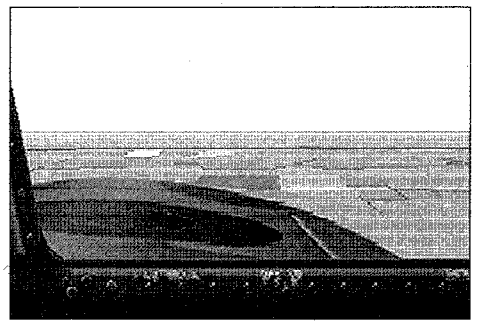


• **'Heads Up' View (Function Key F5)**

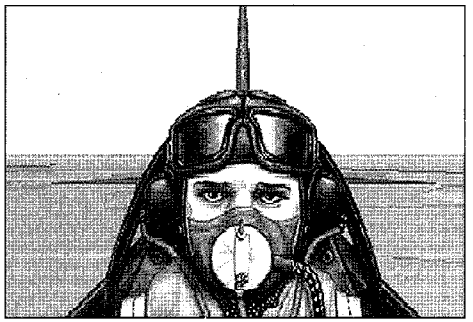
This allows you to track flying targets from within the cockpit- just like a pilot 'eyeballing' the target continuously. Above the Heads-Up Cockpit view a tracking box shows where you are looking in relation to the nose, wings and tail of the aircraft. Use with Insert, Delete, PgUp, PgDn or Joystick movement + Button 2. The bar at the top left of the screen gives info on your aircraft's speed, altitude and heading. your target and the weapon you have selected. At the top right hand corner, there is a 3D representation of what your aircraft is doing from a Southerly viewpoint. This helps you keep track of your aircraft's attitude when looking out of the cockpit.



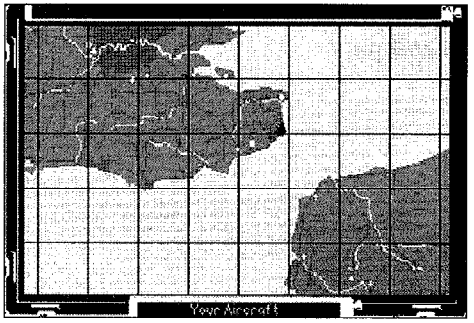
•Left Cockpit View (Function Key F6)
A fixed view out of the left side of the cockpit.



• Right Cockpit View (Function Key F7)
A fixed view out of the right side of the cockpit.



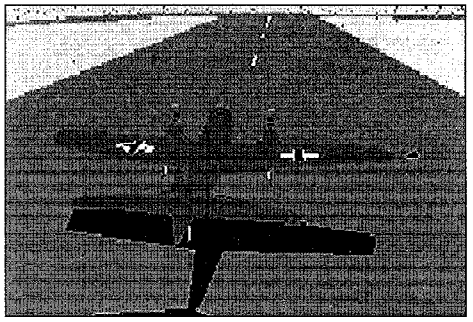
• Rear Cockpit View (Function Key F8)
A fixed view looking behind including the pilot.



• **Map Screen (Function Key F9)**

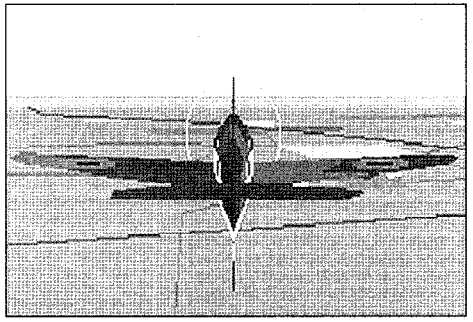
A map view of the area of conflict. A white box surrounds a selected object. Initially, this is your aircraft but you can change your selection by pressing Key T or by positioning the arrow cursor over the object and pressing the *selector.*

You can Zoom in and out by pressing Keypad +/- and move around the map by moving the arrow cursor to the edge of the map screen.



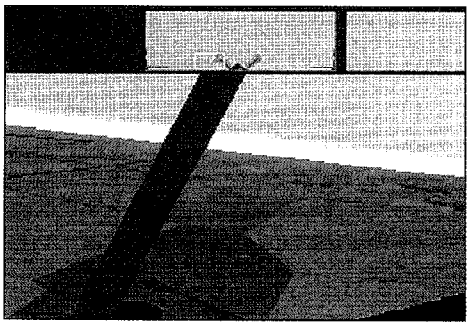
• **External View of Selected Object (Function Key F10)**

A view of any selected game object. The view can be rotated using the Insert, Delete, PageUp and PageDown Keys or with the Joystick movement while holding down Button 2.



• **Slot View (Shift/F1)**

A view to the rear of the aircraft that will assist you in landings and take-offs.



• **Fix 'Heads Up' View on Target (TAB Key)**

After selecting 'Heads-Up' View with Function Key F5 you can fix your cockpit view on flying targets by pressing the TAB key. TAB will select whatever target is selected in F3/F4 views, whether the target is on screen or not at the time. In missions, pressing key T when locked-on will swap the locked view to the next target. Your view will follow the movement of your air opponents. Press TAB again to re-centre your view to the front.

Other Views

• **Zoom out from selected External View (Keypad Minus -)**

Zoom out after selecting F3, F4, F9 and F10 external views.

• **Zoom in from selected External View (Keypad Plus +)**

Zoom in after selecting F3, F4, F9 and F10 external views.

• **External Camera/'Heads Up' Cockpit Views**

Move Clockwise (Insert Key)

Move Anti-Clockwise (Delete Key)

Move Up (PageUp Key)

Move Down (PageDown Key)

• **Joystick View Controls**

Button 2 and Movement

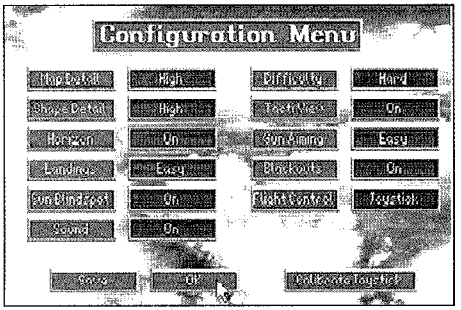
Rotate external/ 'Heads Up' views about 360°

Buttons 1 + 2 and forwards/back

Zoom in/out on selected external view

Configuration Menu

The Configuration Menu allows you to save the game setup of your choice:



Ground Detail (3 levels)

Dogfight provides three levels of map detail. The less detail you choose the faster your machine will run.

Aircraft Detail (2 levels)

Dogfight provides two levels of object shape detail. The less detail you choose the faster your machine will run.

Graduated Horizon On/Off

Turn off the Horizon to make your machine run faster.

Landing Realism (2 levels)

Select between Easy and Realistic landings

Sun Blindspot On/Off

The sun's glare can be used as an attacking device.

Sound Effects

On/No Engine Noise/Off

Skill Level

Select the level you wish to fly at from Rookie/Pilot/Ace. This affects the skill level of enemy pilots, the number of resources available during missions and the number of target kills to complete each mission.

Opponent Kill (3 levels)

Choose the level of hits you wish enemy aircraft to survive from One Hit/Quick or Gradual.

Player Kill (3 levels)

Choose the level you wish your aircraft to survive from One Hit/Quick or Gradual.

Gun Aiming (2 levels)

Select from Easy and Realistic levels.

Missile Effectiveness (2 levels)

Select from Easy and Realistic levels.

Flight Control (Joystick/Keyboard)

Select your option for flight control.

Save Configuration

Save the above so that the simulation will begin with your favourite set up.

Calibrate Joystick

If you are using a Joystick Controller you can re-calibrate it and save the settings.

OK

Select to Exit the Configuration Screen