

CLICK ON PARTS OF THE PICTURE TO EXPLORE TOPICS



CLICK ON THE KEYS TO EXPLORE TOPICS



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INFORMATION HOW TO TIPS & TRICKS

F1 INFORMATION

Full HUD view displays the HUD and the cockpit; HUD only does not display the cockpit details, so will allow faster frame rates on slower machines.

F1 HOW TO.

This view is accessed by pressing the F1 key. Repeated pressing toggles between full HUD and HUD only modes.

F1 - TIPS & TRICKS.

Press SHIFT A to place the RADAR and DASS overlays on screen, and SHIFT M to display JTIDS information on-screen.

On slower machines, this view is ideal for dogfighting.

Use F2 wide-angle track view while acquiring targets in close dogfights, then flick to F1 view when the target enters the HUD area.



INFORMATION HOW TO TIPS & TRICKS

SHIFT F1 - INFORMATION

Allows you to view all the MFDs in the cockpit.

SHIFT F1 - HOW TO

From any other view, press SHIFT F1 to access this view.

SHIFT F1 - TIPS & TRICKS.

This view is most useful in high-resolution screen modes, which allow you to read information on the displays.



F2 - INFORMATION

When activated, this view locks-on to the currently tracked target, regardless of its position. The wideangle padlock view increases your peripheral vision to match that of a real pilot's, and helps overcome the limitations of the PC screen. Although it adds slight distortion to the cockpit, it is a useful view in close combat.

When in landing mode (I key for ILS), the view will padlock on to the end of a runway, allowing you to fly the correct approach patterns easily.

F2 - HOW TO.

From any view, press the F2 key.

F2 - TIPS & TRICKS

In close combat, where the enemy is within twenty miles, switch to this view to help acquire targets more easily. By pressing the C key, you will be able to cycle between targets.

With the pilot-aids (SHIFT A) switched on, you may use the transparent arrows on the canopy to orientate yourself. The arrows point towards your HUD.

When a target crosses into your HUD, switch to the F1 HUD only view for steadier aiming.

In landing mode, use this view to orientate yourself correctly to the runway. Don't forget to ask for permission to land first!



INFORMATION

HOW TO TIPS & TRICKS

F3 - INFORMATION

The check-six view mimics a frequent action by fighter pilots. It is also useful for watching targets after delivering AG ordnance, or for checking the presence of wingmen

F3 - HOW TO

From any view, press the F3 key.

F3 - TIPS & TRICKS

Use this view if you suspect an enemy is firing cannon at you from behind.

If you see an enemy launch a missile, break hard and dump chaff and flare. There is a good chance that you will not escape from a bandit who is close on your six and who has fired a short-range missile, so prepare to eject.

After delivering dumb bombs, pull up and switch to this view to watch the explosions.



INFORMATION HOW TO TIPS & TRICKS

F10 - INFORMATION

When activated, this view will immediately lock on to the tracked target. It is similar to the wide angle padlock but gives a narrower field of view.

When landing mode (I key for ILS), the view will padlock on to the end of a runway, allowing you to fly the correct approach patterns easily.

F10 - HOW TO

From any view, press the F10 key.

F10 - TIPS & TRICKS

In close combat, where the enemy is within twenty miles, switch to this view to help acquire targets more easily. By pressing the C key, you will be able to cycle between targets.

With the pilot-aids (SHIFT A) switched on, you may use the transparent arrows on the canopy to orientate yourself. The arrows point towards your HUD.

When a target crosses into your HUD, switch to the F1 HUD only view for steadier aiming.

In landing mode, use this view to orientate yourself correctly to the runway. Don't forget to ask for permission to land first!



INFORMATION HOW TO TIPS & TRICKS

F11 - INFORMATION

This is a variation of the full padlock and automatically tracks your wingman. This is useful for checking attack patterns.

F11 - HOW TO

From any view, press the F11 key.

F11 - TIPS & TRICKS

If a wingman shouts for help this view will enable you to vector onto him.



INFORMATION HOW TO

TIPS & TRICKS

F12 - INFORMATION

This is a variation of the full padlock, and automatically tracks any enemy missile within three miles. This gives you a better opportunity to avoid the missile.

F12 - HOW TO

From any view, press the F12 key.

F12 - TIPS & TRICKS

When you see or hear a missile warning, switch to this view. If you can see the smoke plume of the missile, prepare to take the following evasive maneuvers.

- 1. Fly the plane so that the missile is off to your left or right at about forty-five degrees.
- 2. Watch the DASS display until the missile is within a mile or two of the aircraft.
- 3. Begin a hard turn towards the missile, dumping chaff and flare manually.


CLICK ON THE KEYS TO EXPLORE TOPICS INFORMATION HOW TO TIPS & TRICKS

EASY VIEW KEYS - INFORMATION

Many of the in-cockpit views are available through the numeric keypad. The keys 1-9 represent the image layout shown in this help screen. Note, this applies to the numeric keypad only.

- NUM 1. Left-hand MFD also accessed via the R key.
- NUM 2. Middle MFD also accessed via the M key.
- NUM 3. Right-hand MFD also accessed via the D key.
- NUM 4. The left-hand glareshield.
- NUM 5. The IRST screen.
- NUM 6. The right-hand glareshield.
- NUM 7. Glance left.
- NUM 8. HUD and cockpit view.
- NUM 9. Glance right.

EASY VIEW KEYS - HOW TO

Simply press the appropriate key on the numeric keypad. Practise using them for easier access during combat.

EASY VIEW KEYS - TIPS & TRICKS

Use the glance left and right keys as you pass ground targets you have just attacked, to check whether they have been destroyed.

From whatever view you are in, the NUM 8 key is a sure way to get your forward view back.

Use the IRST NUM 5 view to confirm the type of vehicle targeted by the Maverick missile system. Use this view instead of radar when the radar is switched off to maintain stealth.



INFORMATION HOW TO TIPS & TRICKS

GLANCE LEFT - GENERAL INFORMATION

In addition to smooth scrolling with the SHIFT and cursor keys, it is possible to glance left or right in 60 degree steps using the Numeric keys 7 and 9. This is a useful function for players with programmable joysticks, who would like the possibility to pan around the cockpit using a hat control.

GLANCE LEFT - HOW TO

From any view, press the 7 key on the numeric keypad. Repeated pressing of the key will continue the panning action.

GLANCE LEFT - TIPS & TRICKS

The glance views are particularly useful for observing a ground target as you fly past it. Perhaps you want to check that a target has been destroyed. Alternatively, the glance keys are useful when making a landing approach, particularly when you make the traditional approach and perform a circuit of the runway before beginning finals.



INFORMATION HOW TO TIPS & TRICKS

LOOK AHEAD - INFORMATION

On the numeric keypad, number 8 always returns you to the frontal cockpit view. It's useful to know in case of disorientation when using other view keys.

LOOK-AHEAD - HOW TO

From any view, press the number 8 on the numeric keypad.

LOOK AHEAD - TIPS & TRICKS

If you have a programmable joystick, you may want to program the look ahead view into a button or hat function, in order to regain orientation after using other views.



INFORMATION HOW TO TIPS & TRICKS

GLANCE RIGHT - GENERAL INFORMATION

In addition to smooth scrolling with the SHIFT and cursor keys, it is possible to glance left or right in 60 degree steps using the Numeric keys 7 and 9. This is a useful function for players with programmable joysticks, who would like the possibility to pan around the cockpit using a hat control.

GLANCE RIGHT - HOW TO

From any view, press the 9 key on the numeric keypad. Repeated pressing of the key will continue the panning action.

GLANCE RIGHT - TIPS & TRICKS

The glance views are particularly useful for observing a ground target as you fly past it. Perhaps you want to check that a target has been destroyed. Alternatively, the glance keys are useful when making a landing approach, particularly when you make the traditional approach and perform a circuit of the runway before beginning finals.



F4 - INFORMATION

There are a number of different views available, which may be cycled through by repeatedly pressing the key. The options are:

- Normal external view.
- Fixed external view.
- Chase plane view.
- Two different fixed camera views.

F4 - HOW TO

From any view, press the F4 key. On the normal and fixed external views the camera may be moved using shift and cursor keys, it may be zoomed in and out using shift and keypad 7 and 1.

F4 - TIPS & TRICKS

External camera views are especially helpful when steering the plane off the apron and onto a runway.

These views are also helpful during difficult maneuvers such as refueling, and are fun when simply cruising around.

Set the camera to show the weapons just prior to firing a missile or dropping a bomb.

Try setting the autopilot to terrain follow at 500 ft, then watching the plane from different angles.



SHIFT F4 - INFORMATION

For a God's eye view of your plane, switch to this view. The view may also be zoomed in and out, if required.

SHIFT F4 - HOW TO

From any view, press the SHIFT F4 keys. The camera may be zoomed in and out using SHIFT and the keys 1 and 7 on the numeric keypad.

SHIFT F4 - TIPS & TRICKS

The satellite view is especially helpful when steering the plane off the apron and onto a runway.

It is also useful for observing how your formation is flying.



INFORMATION HOW TO TIPS & TRICKS

F5 - INFORMATION

There are a number of different views available, which may be cycled through by repeatedly pressing the key. The options are:

- Wingman external view.
- Wingman and player view.
- Player and wingman view.

F5 - HOW TO

From any view, press F5. The wingman external view may be moved using SHIFT and cursor keys and zoomed using SHIFT and keypad 7 and 1. The other two views may be zoomed only.

F5 - TIPS & TRICKS

These views are useful for monitoring your wingman during the action. Learning to use these views will help you decide which commands to give in combat.

Try setting up this view while you are autopilot, then issuing formation or combat commands. Watch your wingman go into action!



INFORMATION HOW TO TIPS & TRICKS

F6 - INFORMATION

When activated, the player's plane will perform a fly-past. The view will return to a player external view.

F6 - HOW TO

From any view, press F6.

F6 - TIPS & TRICKS

In air combat, use this view to help avoid incoming missiles.

The fly-by view is one of the most spectacular views in EF2000. Use it for fun, or for watching the aircraft as you try your hand at stunt-flying; for example, while tail-sliding, flying at high AoA, or buzzing the tower.



SHIFT F6 - INFORMATION

When activated, the target plane or a browse plane will perform a fly-past. The view will return to a player external view.

SHIFT F6 - HOW TO

From any view, press SHIFT F6.

SHIFT F6 - TIPS & TRICKS

Like the player fly-by view, this is a lot of fun. Watch what other aircraft are doing, but be sure to switch on your autopilot first!


F7 - INFORMATION

This view is only available if you are tracking a target. Repeating the key will change the view as follows:

- Target external
- Target and player.
- Player and target.
- Target and it's target

F7 - HOW TO

From any view, press F7. The first view can be moved with shift and cursor keys and zoomed with shift and keypad 7 and 1. The last three views may only be zoomed.

F7 - TIPS & TRICKS

Strictly speaking, this is a cheat view. However, it is useful if you are curious to watch how your target behaves.

NOTE: If your target is jamming you, then this view will be available only intermittently.



F8 - INFORMATION

The missile sequence view eliminates the need to cycle through different missile camera views by letting the computer decide what view to choose. If no weapon is active the view will show the missile launch view. This places the camera in a good position to see the missile launch. When a missile is fired the camera will zoom and pan around the missile and also give target views.

The original camera views are still available on SHIFT - F8

There are a number of different views available, which may be cycled through by repeatedly pressing the key. The options are:

- Missile external view
- Missile internal view
- Missile and target view
- Target and missile view

F8 - HOW TO

From any view, press F8. For the original cameras, the first view can be moved with shift and cursor keys and zoomed with shift and keypad 7 and 1. The last two views may only be zoomed.

F8 - TIPS & TRICKS

To see whether you have scored a hit or a miss, switch to this view shortly before the weapon reaches its target.

Watch the thrust vectoring ASRAAM with this view, to see how the missile is able to alter its flight path radically.



INFORMATION HOW TO TIPS & TRICKS

F9 - INFORMATION

In the EF2000 world, there is a lot going on. Dozens of other flights are at work, performing a full range of different missions. The F9 Browse Plane view was designed to let you see this other activity.

F9 - HOW TO

From any view, press F9. To be safe, make sure you engage autopilot before using the F9 key. The two views available are

- player and browse plane
- browse full

use Shift - C and Shift - X to cycle forwards and backwards through all the planes in the world

F9 - TIPS & TRICKS

On simulator missions, use F9 to discover what the other flights are up to. In campaign missions, use this view to watch other flights in your strike package performing their duties.



SHIFT F7 - GENERAL INFORMATION

This view is similar to the browse plane view but shows all of the surface based vessels in the world.

SHIFT F7 - HOW TO In any view, press Shift and F7

SHIFT F7 - TIPS & TRICKS



INFORMATION HOW TO

TIPS & TRICKS



INFORMATION

HOW TO TIPS & TRICKS



INFORMATION

TIPS & TRICKS



INFORMATION

HOW TO TIPS & TRICKS

RADAR - GENERAL INFORMATION

The ECR-90 is distinguished by its ability to portray a complex air picture in a simple graphical way that is easier for the pilot to understand. In addition, it automates many of the functions that would traditionally require a great deal of button pushing, such as changing modes. It is also closely integrated with IRST, which is able to track air targets passively and supplement radar data when enemy jamming is in progress.

Normally, radars display a pseudo plan-view of their beam pattern, which can be difficult to interpret. In the ECR-90, three views of the beam pattern are available:

A - the more conventional plan view.

B - a side elevation, useful when you need to analyze relative altitudes.

C - a cross section of the radar picture, useful in determining enemy altitude and movement across your flight path.

At the top of the screen, the speed, heading and altitude of your aircraft are displayed. At the bottom of the screen, the speed, heading and altitude of selected target aircraft are displayed.

RADAR - HOW TO

1. Press '1' on the numeric keypad. In Super EF2000, the three available views of the ECR-90 data are displayed on the left-hand Multi-Function Displays. Press the appropriate key to access this MFD and press it again to return to the previously selected view.

2. Pressing R will turn the radar on and off.

3. Point at MFD buttons with the mouse and select with the left-mouse button. Once the MFD is active, you will have access to the various buttons around it by using the mouse or key sequence. When the mouse is over the MFD buttons, it has a box shape, which indicates that you can activate buttons by pointing and clicking. A label will appear next to the button, describing its function. When the cursor is over the screen itself, it changes to a cross.

RADAR - TIPS & TRICKS

Use your radar only when necessary, because when it is switched on it gives your position away. The use of composites and radar absorbent materials reduces the aircraft's Radar Cross Section (RCS) to about one fifth the RCS of an FA-18 Hornet. Even with a full weapons load, EF2000 has an unusually small RCS, which can help make it practically invisible at low level.

If you are on a bombing mission, always use JTIDS to monitor enemy ground and air movements in preference to radar. Use JTIDS with the map overlay to compare targets with the terrain. Try and ascertain the heading of enemy aircraft before switching on your radar in panic. Then plot an evasive course.

Stay stealthy by keeping radar and ECM off. If possible, use mountains to mask yourself. If you have been spotted, prepare to take combat countermeasures. If JTIDS is unavailable, simply keep an eye on your DASS to see whether any enemy aircraft or ground defenses are tracking you.

Switch on your radar only as a last resort, when defense becomes vital for survival.

RADAR - MISSILE TRACK

A small yellow square denotes either a friendly or enemy radar-guided missile. An orange square denotes an IR guided missile.

RADAR - LOOK-AHEAD MODE

Look ahead mode is for detection of aircraft likely to be heading in roughly the same altitude domain as your aircraft. The different mode is shown by a symbol in the MFD.

RADAR - LOOK-UP MODE

Look-up mode is for detection of high-flying reconnaissance planes and bombers. The different mode is shown by a symbol in the MFD.

RADAR -LOOK-DOWN MODE

Look-down mode for catching the devious low-flying bomber, intent on breaking through your defenses. The different mode is shown by a symbol in the MFD.

RADAR - THREAT PRIORITISATION

If your mission is to detect bombers, the ECR-90 will filter information to detect only that target type by pressing the PRI button.

The radar will also prioritize six of the nearest threats, by dividing the range of each target by its closing speed, to give a Time To Go number (TTG). The smaller the TTG, the greater the threat. Targets with the smallest TTG are marked A, B, C, D, E, or F.

RADAR - MANUAL RANGE INCREASE

Increase radar range manually.

RADAR - MANUAL RANGE DECREASE

Decrease radar range manually.

RADAR - AA MISSILE SELECTION

Select an alternative AA missile. This may help if the range bar is too short for the desired target.

RADAR - CYCLE TARGETS

Switch between targets.

RADAR - SCAN ELEVATION & RANGE

The small blue symbol represents the attitude of the radar scanner; the top and bottom figures give maximum and minimum altitudes respectively (x 1,000 ft). The middle number is radar range in miles.

MFD - NAVIGATION INFORMATION

At the top of every MFD, you will see speed, compass tape and altitude.

RADAR - TARGET DATA

In red, you will be given the target's speed, bearing, range and altitude. As you cycle targets, so the data will change.

RADAR - AUTOMATIC IFF

The radar automatically performs IFF (Identification Friend or Foe) and displays an appropriate symbol: Red for hostiles, green for friendlies, and blue for neutrals.
RADAR - AUTORANGING

Once the radar has detected targets, it will employ Autoranging to keep the blips within optimum radar range. It works in much the same way as an autofocus camera, and relieves the pilot of another basic task. Autoranging is the default setting, but can be overridden manually.

RADAR - SYMBOLOGY: AIRCRAFT TRACKS

The color of the boxes will show you whether the aircraft is a friend, foe or neutral (green, red, or blue respectively).

RADAR - SHIP TRACKS

The color of the box will show you whether the ship is a friend, foe or neutral (green, red, or blue respectively).

RADAR - SYMBOLOGY: MISSILE RANGE BAR

The missile range bar will vary in length depending upon altitude and your aspect to the target. This visualizes the way that missile range changes with respect to altitude and aspect to target. With AA missiles, you must ensure that the target is within the reach of this line.

Once the target is in range, the symbol will change to indicate a lock, and the 'SHOOT' cue will appear. If you decide to release a missile, an X will appear through the track box in the HUD, to indicate that a missile has been allocated. You will then be free to engage another target.

RADAR - SEA MODE

Selecting this Air-to-Ship weapon will automatically set the ECR-90 to a special SEA mode, which is a plan-only view. This key will allow you to zoom in on targets for easier identification in tight groupings.

RADAR - SWITCHING ON/OFF

Press 'RAD' on the MFD or the R key. If you don't have to use your radar, remember to switch it off, in order to avoid detection by hostiles.

MFD - SWITCHING ON/OFF

Press 'MFD' on the MFD to blank the display. You might want to use this as a required setting in head-to-head tournaments.

RADAR - SEA EAGLE ZOOM MODE

This will allow you to enlarge the picture on tracked targets for better identification.

MFD HORIZON BALL - SWITCHING ON/OFF

When flying heads-down, the artificial horizon ball is an invaluable aid to safe flying. However, in some displays you may want to switch it off to declutter the picture.



DASS - GENERAL INFORMATION

Radar Warning Receivers (RWR) are as old as radar itself, and were developed to tell a pilot when an enemy radar was 'painting' his plane. Signals are gathered from aerials positioned in various parts of the aircraft to give all-round coverage. Modern receivers, such as the type built into the DASS, are able to check 'spikes' against a library of known signals, and decide what aircraft , SAM or EW radar is painting the plane. An integrated Missile Approach Warning System (MAWS) also detects incoming missiles, and triggers an appropriate warning.

In the EF2000, the RWR is supplemented by an IR Warning which uses data from the Infra Red Search and Track System. This is able to detect the hot gases of SAMs and AA missiles in the forward field of view and classify whether it is an IR or radar guided weapon. Also incorporated is a laser warning system.

Red squares represent enemy aircraft. The number denotes the type of radar, which in turn denotes the type of aircraft; e.g. 1 = SU-35, 2 = MiG-29, 3 = MiG-21. IR missiles show up as orange squares, radar-guided missiles as yellow squares. When a radar guided missile is being jammed, the yellow square flashes.

DASS - HOW TO

To access the correct MFD, press '3' on the numeric keypad or press the D key. In EF2000, the DASS is displayed on the right-hand Multi-Function Display.

DASS - TIPS & TRICKS

DASS is one of your most useful systems for detecting attack. In Full HUD view, be sure to switch on the pilot aids (SHIFT A) to see the DASS overlay in your view.

Remember, the most dangerous radius of threat is 30 miles. When nearby threats are overlaid, zoomingin should help to separate the signals.

If DASS detects a missile launch, it will release Chaff or flare when the missile is within five miles of the plane. However, study the DASS display or 'padlock' view the missile to determine where it is coming from. Study the diagrams for ideal evasive maneuvers.

Automatic systems are wonderful, but they can always let you down. For example, imagine you are making a sneaky, attack run, and the radar of your wingman causes the system to start dumping flares and chaff. Use the ECM key to disable the automatic Electronic Counter Measures when making sneak attacks.

DASS - ACTIVATING AND DE-ACTIVATING ECM

Press 'ECM' on the MFD to deactivate or activate your automatic countermeasures. In dogfights, we advise that you have the system turned on.

DASS - SWITCHING ON/OFF

To switch the DASS on or off, press 'DASS' on the MFD. The default is off, but DASS should be on at all times during missions. Selection of other displays will cancel DASS, which may be activated by pressing the appropriate key.

DASS - RANGE UP

To increase the range manually, press '+' on the MFD. This will allow you to expand the threat picture to the maximum range of 80 miles.

DASS - RANGE DOWN

To decrease the range manually, press '-' on the MFD. This will allow you to zoom the threat picture to the minimum of 7 miles.

DASS - RELEASING CHAFF AND FLARE MANUALLY

Press 'insert' or 'delete' keys. You may feel the need to dump chaff and flare manually, in which press the appropriate keys.



MMD - GENERAL INFORMATION

The Moving Map Display is located on the center MFD. The symbol representing your plane is located two-thirds of the way down the display, in order to give you a good forward view. The real EuroFighter offers three different map scales: 500,000:1 map for general navigation and situational awareness; 1,000,000:1 for airways flying; and 50,000:1 for target identification and accurate navigation. In EF2000, two maps are available, a larger scale for general navigation; and a smaller scale map for ground attack and precision navigation.

MMD - HOW TO

To access the correct MFD, PRESS '2' ON THE NUMERIC KEYPAD, OR PRESS THE M KEY. In EF2000, the MMD is displayed on the center Multi-Function Display. Press the appropriate key to access this MFD and press it again to return to the previously selected view.

MMD - TIPS & TRICKS

Estimating time to go (TTG). The direction line extending from the top of the MMD is calibrated to show five minute intervals. This scale will vary according to your airspeed. So if you want to know how long it will take to reach a point directly in front of you, simply count the number of marks and you have the time! Note that if you go into a vertical attitude, the line will disappear. The line will also disappear at very slow airspeeds.

A useful feature of the MMD is the ability to overlay waypoint routes, turning the display into an essential mission tool. It's also possible to overlay JTIDS data, which will indicate the position of hostile aircraft and ground targets.

MMD - CHANGING MAP SCALES

Selects the large scale or small scale maps.

MMD - OVERLAYING WAYPOINTS

Press to overlay your current mission's waypoint route.

MMD - SWITCHING ON/OFF

The default status for this MFD is on, but selection of other displays will cancel the MMD, which may be re-activated by pressing this key or the 'M' key.

MMD - TIME-MARKERS

Each mark indicates five minutes of time. You will notice it get shorter as you slow down, and extend as you go faster.

MMD - WAYPOINTS

Waypoints are marked as blue squares joined by a line. They are numbered sequentially, with the take-off point as number 1.







JTIDS - GENERAL

An important trend in tactical display systems is to provide all combatants with an up-to-date picture of enemy and friendly positions in the entire theater. This means collecting data from all major sensors operating in the battle environment, integrating them into one picture, then relaying that picture directly to the pilots and commanding officers. The sensors are principally AWACS, the Airborne Warning and Control System, and the Joint Surveillance and Target Attack System, which was first battle-tested in the Gulf War. Secure transmission of the data to all parties is handled by the Joint Tactical Information Data System.

The advantages are that the combatants do not have to rely on radar (which gives their position away) and that they have access to information on what's going on all around them, which could never be done with localized sensor systems only. Another major advantage is that force commanders can be sure that everyone involved is getting the same big picture, and is able to react swiftly to changing local conditions.

JTIDS - HOW TO

JTIDS lets you display your waypoint route on the tactical picture, helping you to determine where threats may occur during your flight. Double checking this information with the DASS will tell you where active EW and SAM radars are located. In addition, you can de-clutter the display by turning off the waypoints, air threats and ground threats. This is worthwhile in case air targets are obscuring an immediate ground-based threat. Range can also be adjusted, with the smaller scales providing the clearest display of the immediate battle zone.

You can also overlay JTIDS data onto the moving map, enabling you to pinpoint the exact geographic locations of different threats. This is especially useful for engaging 'Targets of Opportunity' and SAM sites.

JTIDS - TIPS & TRICKS

Wherever possible, use JTIDS in preference to radar, because it does not give your position away to the enemy. It makes you stealthy'. It also provides you with an all round picture of the combat environment. JTIDS will display all hostile aircraft, ground mobiles and ships detected by AWACS and JSTARS. If either of these planes is shot down, the relevant aspects of the JTIDS picture will disappear, forcing you to rely on your radar once more. It is always worth double-checking your JTIDS data from time to time, by comparing it with the ECR-90 radar picture.

JTIDS - SWITCHING ON/OFF

Press 'JTD' on the MFD. The default is off, but JTIDS can be on at all times during missions. Selection of other displays other than the map will cancel JTIDS, which may be re-activated by pressing the appropriate key.

JTIDS - RANGE UP

Press 'J+' on the MFD. This will allow you to zoom in on the threat picture. When nearby threats are overlaid, zooming-in should help to separate the signals. Ranges in nautical miles are 160, 80, 40, 20, 10 and 5. Note. Only two scales are available when used in conjunction with the MMD.

JTIDS - RANGE DOWN

Press 'J-' on the MFD. This will allow you to zoom in on the threat picture. When nearby threats are overlaid, zooming-in should help to separate the signals. Ranges in nautical miles are 160, 80, 40, 20, 10 and 5. Note. Only two scales are available when used in conjunction with MMD.
JTIDS - FILTER AIR TARGETS

Press 'AIR' on the MFD. This lets you declutter the display, and search for ground targets obscured by the air targets.

JTIDS - FILTER GROUND TARGETS

Press 'GND' on the MFD. This lets you declutter the display, and makes only ground targets visible.











TIALD - GENERAL

When you select LGBs, the TIALD aiming display is set-up on MFD 2. It automatically slaves to the waypoint, which is chosen to be as close to the target as possible. At the center of the screen are the cross hairs and tracking box, which can be steered with the SHIFT CURSOR ARROW keys. It is also possible to double the magnification, or field of view with the FOV MFD button.

The vertical scale on the right of the display is a countdown indicator for weapon release. You should begin your run two to three minutes from the target, or approximately 15 miles away. Check your moving map display for this information, or read the distance to waypoint from the HUD.

TIALD - HOW TO

To access the correct MFD, press the T key. In EF2000, TIALD is displayed on the center multi-function display.

To 'designate' a target, slew the track box over the target and press the 'TRK' button on the TIALD MFD. Be aware that the image will not necessarily remain stable until you decide to track the target.

If you have problems losing your position, turn TIALD off and on again to look at the waypoint once more. If you are happy with the aiming, lase the target by pressing the 'LAS' button on the MFD.

Now you will see a countdown indicator running down the scale on the right-hand side of the display. You must release the bomb when the countdown indicator is between the triangular markers. Release after the second triangular marker, also called the 'cliff-edge', will result in a miss.

You must now continue to lase the target until you see the bomb impact.

TIALD - TIPS & TRICKS

Best altitude is around 15,000 ft, depending upon how well defended the target is.

The dotted line extending from the track box indicates the relative bearing of the target, and you should aim to get this at twelve o'clock by flying towards the waypoint. As you get closer, this line will shorten, and it will flash until the target is tracked.

Do not release a bomb when the release cue is outside of the 'cliff-edge' markers, because the bomb will certainly miss the target.

TIALD - ON/OFF BUTTON

Switches into or out of TIALD mode, according to weapon type selected.

TIALD - EARLIEST DROP POINT

Do not release the bomb before the marker crosses this point.

TIALD - LATEST DROP POINT

Do not release the bomb after the marker crosses this point.

TIALD - COUNTDOWN MARKER

Indicates the time at which the bomb is available for release.

TIALD - SWITCHING ON/OFF

Press 'TLD' on the MFD. The default is off, but TIALD is automatically selected when laser guided weapons are chosen.

TIALD - FIELD-OF-VIEW

Press key 'FOV' key on the MFD'. TIALD features a one step zoom focus.

TIALD - CAMERAS

Press key 'CAM' on the MFD. Select the image which gives the best contrast for your target.

TIALD - SLEW IR OR TV IMAGE

Press 'SHIFT' cursor arrow. Use this to move both the tracker box and the cross hairs.

TIALD - TRACK DESIGNATED AREA

Press key 'TRK' on the MFD. Press this to lock the track box onto a ground object.

TIALD - LASE DESIGNATED AREA

Press key 'LAS' on the MFD. This fires the laser, and triggers the timer countdown.

TIALD - OFFSET TRACK BOX

Press key 'OFT' on the MFD. This disconnects the track box from the cross hairs, allowing you to offset track for easier and more stable aiming.

TIALD - SLAVE TO WAYPOINT

Turn TIALD off and on to reslave the TIALD pod to your waypoint view.

TIALD - RELEASE WEAPON

Spacebar or joystick button 1 drops the bomb. Remember that you must lase the target until the bomb hits.



INFORMATION HOW TO TIPS & TRICKS

MAVERICK AIMING SYSTEM - GENERAL

The Maverick AGM-65D Imaging Infra Red missile is an ideal weapon for destroying armor, vehicles and aircraft on the ground. Its range of around 12 nautical miles allows the aircraft a limited stand-off margin, enabling it to avoid flying close to the target and possible AAA or SAM fire. To use this weapon to its best effect, practise firing it at long range.

It was not until 1980 that IR detectors were smart enough to detect point targets. The problem is that at great distances, targets subtend an angle that is smaller than the picture element (pixel) of the detector. In EF2000, the IIR detectors are able to detect and lock on the smallest point targets at ranges of around 25 miles. Furthermore, the detector has the ability to analyze two different wavelengths, making it extremely difficult for enemies to use IR camouflage.

In EF2000, the Maverick aiming system uses both the MFD and IRST screens. The MFD is used for aiming the weapon, and the IRST screen is used for target imaging.

MAVERICK AIMING SYSTEM - HOW TO

After selection, the weapon is aimed via the left-hand MFD. The image projected on the MFD originates in the missile seeker head, and is slaved to the EF2000 optical systems. Aiming is a straightforward business. Simply fly the plane towards a target, or slew the seeker head with the SHIFT CURSOR keys, and the missile will track the point of greatest temperature differential on the vehicle. Next, the digital centroid seeker adjusts the aim so that the missile is heading directly for the center of the object. To break the lock, simply slew the seeker head away from the currently selected target, or fly the plane away from the target.

Once a target has been locked, you will receive information on target range in the corner of the MFD. At the same time, an enlarged and enhanced image of the target will be relayed to the IRST screen under the HUD (access with numeric key 5). This will help you to assess the target type, and whether it is worthwhile destroying with a valuable Maverick missile. To fire the weapon press the SPACEBAR or press the trigger on your joystick.

If desired, the image may be zoomed to assist target recognition, and help pick the right target from closely bunched vehicles.

MAVERICK AIMING SYSTEM - TIPS & TRICKS

Maverick is an ideal weapon for a fast moving jet, which has little time near the target and is vulnerable to ground fire. When terrain hugging and flying directly towards a reported target position, it is best to aim simply by pointing the aircraft at the target, because this is the quickest method. However, when approaching the target on a parallel heading, maintaining a safe distance and slewing the seeker head is your best option. This will allow you to remain at maximum range. Remember, there is a zoom function to help you select the right target.

AWACS AND FORWARD AIR CONTROL

On a real battlefield, little remains the same for very long. The constant movements and redeployment of ground troops and vehicles demands careful and constant monitoring. There are three principle methods of intelligence gathering : special units on the ground, inserted under cover of darkness behind enemy lines by stealthy helicopters; small spotter planes, which act as Forward Air Controllers, relaying tactical information to pilots on the whereabouts and danger of enemy units; and JSTARS, which is able to detect second echelon ground movements deep behind enemy lines.

On missions such as Close Air Support and Battlefield Interdiction, you will receive information from both FAC and AWACS, detailing where your next targets are to be found. Messages will be displayed on your screen, so watch out for updates.

Remember to watch out for missile launches during low-level operations. Cockpit alarms and messages will tell you when to start worrying, while the DASS will help you determine where the threat is coming from.

MAVERICK - TOGGLE FIELD-OF-VIEW

Press key 'MZ' on the MFD. Maverick aiming features a one step zoom focus. Press this key once to obtain a close-up image, and again to zoom out.



AUTOPILOT - GENERAL INFORMATION

In the EF2000, an autopilot system is available on MFD 3, which is able to control the aircraft by adjusting joystick and throttle inputs. There are four main modes, and the pilot can set up the desired mode by entering the correct data into the MFD before activating the Autopilot.

AUTOPILOT MODE 1: WAYPOINT Directs your aircraft at the chosen speed to the next waypoint. This is particularly useful if you want to spend some time studying MFDs while on the way to a target.

AUTOPILOT MODE 2: HEADING Maintains the required heading, altitude and speed - adjusted as you see fit. This mode is handy for flights where you are likely to deviate from set waypoints.

AUTOPILOT MODE 3: TRACKING Directs your aircraft towards the aircraft you are tracking on radar. The default speed is the aircraft's own, but adjustments can be made. When it's difficult to get a good angle on a target aircraft, switch to this mode. In the real EF2000, there is a similar feature which flies the plane into optimum position for weapons firing. If you select autofiring cannon, you are using what is know as the Maneuvering Attack System. To change targets, simply use the target cycle controls on the radar.

AUTOPILOT MODE 4: AUTOTHROTTLE Leaves the joystick (or mouse or key) control in the hands of the pilot, but uses throttle to maintain the speed shown in the Control MFD. This is an excellent mode for maintaining a constant speed in supersonic BVR maneuvers. It can also be used to fix a maximum or minimum throttle setting, which may help in dogfighting where rapid changes of speed are necessary. For example, with speed set to 250 knots, simply pressing 'A' while traveling at Mach 1 using afterburner will cause a sudden loss of speed.

NOTE: Your aircraft's speed will not remain constant in all situations, for example, no great speed can be sustained in an 80 degree climb, even on autothrottle.

AUTOPILOT - HOW TO

The procedure is to first select mode 1,2, 3, or 4, and then select the relevant data field to edit, and then alter the numbers using the appropriate controls. You may then activate Autopilot using the appropriate key.

AUTOPILOT - TIPS & TRICKS

Use autopilot when setting up a TIALD bombing run, or when you are searching for targets with Mavericks. It's a useful tool whenever you have cockpit management tasks to take care of during flights. It is also useful for making approaches to the tanker for refueling; simply use the autothrottle, and gradually decrease its value to match the tankers speed once you have caught up.

AUTOPILOT - SWITCH ON/OFF

Press 'ON ' on the MFD or press the 'A' key. Once you have adjusted your autopilot parameters, you may activate the system from the MFD or the keyboard.

AUTOPILOT - SELECT MODE

Press 'AM ' on the MFD or use the ALT 'A' key combination. This allows you to select one of four autopilot modes. The mode selected is highlighted in the description bar at the top of the MFD. Repeated pressing of ALT A causes the MFD to cycle between the different autopilot modes.

AUTOPILOT - EDIT PARAMETERS

Press 'SEL ' on the MFD. This allows you to select a field for editing in any mode. When selected, the field changes color to green.

AUTOPILOT - INCREASE VALUES OF SELECTED FIELD

Press 'A+' on the MFD or press the '+' key. A single click will increase the value by one unit. Holding the key down will increment the values continuously.
AUTOPILOT - DECREASE VALUES OF SELECTED FIELD

Press 'A-' on the MFD or press the '-' key. A single click will reduce the value by one unit. Holding the key down will decrement the values continuously.

AUTOPILOT - ACCESS AUTOPILOT SCREEN

Press 'AU' on the MFD. This lets you activate the autopilot menu screen.



FUEL MANAGEMENT - GENERAL INFORMATION

Next to running out of weapons, running out of fuel is a major embarrassment - especially in a dogfight. And dogfighting is certainly sure to burn up your fuel at an alarming rate, as you turn, twist, and apply afterburner. That is why you should carefully monitor the fuel display during a mission.

On its top line, the display shows how much fuel the aircraft is carrying. The bar below shows how much fuel is required to reach the next waypoint. The bottom bar shows how much fuel is required to reach base. If the length of the bottom bar exceeds the length of the bars on top, you are in trouble and should start looking for a tanker or your airbase.

FUEL MANAGEMENT - HOW TO

Press 'FUE' on the MFD to access this screen. Lower the throttle when you're in a dive, as the plane will build momentum. Just remember to open the throttle again before you need to climb. Watch the range indicator on the MFD, and compare this with your distance to target.

FUEL MANAGEMENT - TIPS & TRICKS

The relationship between throttle setting, duration of reheat or full throttle, and load being carried is critical. It's just the same as a car or motorbike. Don't try high-speed stunts when you're heavy. If you must maneuver or depart at high speed, your only choice may be to drop your air to ground stores (Alt J, for Jettison). Although they take valuable pylons, drop-tanks could save you the embarrassment of a dry gas tank. Alternatively, make sure a tanker is on-track at critical phases of your flight, or plan for a refuel stop at a friendly airbase.

On ground attack missions, try to avoid conflicts with fighters altogether. Use stealth. On the run-in, you'll be heavy with weapons and less agile. On the way out, you may be lighter on weapons, but you'll have less gas too, so don't start anything you can't finish. Remember, if you have to dump your AG stores to enter a dogfight, this counts as a 'mission kill' to the enemy(he may not destroy you, but he has eliminated your strike capability).



ENGINE MANAGEMENT - GENERAL INFORMATION

Accessible on the right-hand MFD, this display tells you the status of your engines, your fuel load and the fuel flow for a given throttle setting. Take a look at this display just prior to take-off, to check that all systems are go. It's also useful to check how the afterburner is affecting your fuel load. It will certainly serve to remind you that afterburners should only be used in the following cases:

- * To gain altitude rapidly on a ground-launched intercept mission.
- * To accelerate rapidly into or away from a dogfight.
- * To maximize the range of your long-range missiles prior to launch.
- * To assist take-off when fully laden for an Air-to Ground mission.

ENGINE MANAGEMENT - HOW TO

Press 'ENG' on the right-hand MFD to access this screen.

ENGINE MANAGEMENT - TIPS & TRICKS

Altitude affects your fuel consumption, so you will be able to use this display to judge the optimum cruising altitude. Use it in conjunction with the fuel management display for proper management of your fuel reserves.

Warning: using afterburner increases your IR signature, which means IR guided SAMs and IRST equipped aircraft will see you for miles!



STORES MANAGEMENT - GENERAL INFORMATION

EF2000 is capable of carrying a generous amount of weapons for both the air-to-air and air-to-ground roles. Keeping track of these during battle is difficult, which is when you need the stores display. This tells you exactly what is mounted on which pylon, and the amounts of chaff and flares remaining.

STORES MANAGEMENT - HOW TO

Press 'STO' on the right-hand MFD to access this screen.

STORES MANAGEMENT - TIPS & TRICKS

Prior to BVR engagements, check the stores MFD to assess whether you have what it requires to do battle. If not, fly evasively and stay out of trouble.



SYSTEM WARNING - GENERAL INFORMATION

In an airplane as advanced as EuroFighter, there are many complex systems and many potential sources of problems. Managing this sophistication must never be a challenge for the pilot, who will be busy enough trying to stay alive in the enemy saturated combat environment. This is why EuroFighter incorporates a range of advanced warning and damage control systems, including warning lights and an MFD page display system.

SYSTEM WARNING - HOW TO

Press 'SYS' on the right-hand MFD to access this screen. The screen also displays messages automatically whenever a warning lamp illuminates on the left-hand glareshield.

SYSTEM WARNING - TIPS & TRICKS

When you see a warning lamp illuminate on the left-hand glareshield, check the right-hand MFD for instructions on how to deal with the problem. It could be a life-threatening problem, or a relatively minor irritation, but it always pays to check.



IRST - GENERAL INFORMATION

Years before Western powers considered it worthwhile, the Russians were busy integrating Infra-Red Search and Tracking equipment into their front line fighters. This enabled them to acquire and track targets without resorting to radar, which always gives the game away with its tell-tale emissions. Planes like the MiG-29 were able to make 'sneak' attacks on enemies, getting close enough to ensure a high Probability of Kill (PK) without their opponents ever knowing that they were there. IRST works by detecting differences in heat emitted by various objects, and that doesn't only mean hot jet pipes.

Consider that at absolute zero, or zero Kelvin (-273.15 degrees Celsius), the IR scanner would see nothing; an iceberg by contrast would have a difference in temperature of between 230 K and 280K, so would be clearly visible. IRST is therefore capable of showing detailed visual information over a distance up to 25 miles. This information can be filtered by software to provide a radar-like display of air targets, or enhanced to produce TV-like images of target air and ground vehicles.

IRST - HOW TO

The 'IRST' display works continuously like a radar to a range of around 30 nautical miles. It is integrated with the ECR-90 radar's functions to enhance its stealthiness, and helps you identify targets visually with its imaging capabilities. Press 5 on the numeric keypad to zoom in on the IRST display.

IRST - TIPS & TRICKS

Phantom F4 pilots on air-defense duty sometimes carried a small telescope to help confirm distant visual sightings. The IRST screen does virtually the same job. Simply let an IR missile lock-on to a target that's within visual range in the HUD, but is to small to be recognizable; a zoomed image of the tracked plane will appear in the screen. If you are lucky and your aircraft recognition skills are good, you should be able to identify the target.



LEFT GLARESHIELD - GENERAL INFORMATION

The left glareshield contains warning lights for all the major systems in the EF2000. The light follow a set of rules as follows:

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

Any exceptions to this rule will be explained by clicking on the relevant light.

LEFT GLARESHIELD - HOW TO

To access the left glareshield, press 4 on the numerical keypad.

LEFT GLARESHIELD - TIPS & TRICKS

In a dogfight it is easy to sustain damage without really noticing. A regular look at the glareshield will satisfy you of the condition of your plane. If any major systems are damaged, a report is printed out on the right MFD (keypad 3).

As you familiarise yourself with the layout of the glareshield you will no longer need to switch to it in an emergency. Simply glancing at the glareshield whilst in a cockpit view will be enough to indicate which system is damaged.



INFORMATION HOW TO

TIPS & TRICKS

RIGHT GLARESHIELD - GENERAL INFORMATION

In the worst circumstances, you may lose all your MFD and HUD functions, in which case you will lose all digital navigation data. However, your analogue back-up instruments should still function and will tell you enough for basic navigation. The compass also functions as a basic Horizontal Situation Indicator (HSI), with the red marker showing the heading to the next waypoint, and the green marker indicating your current heading. When both markers are overlaid, you are on course. The read-out in the center is your current heading in degrees.

RIGHT GLARESHIELD - HOW TO

In any view, press 6 on the numerical keypad.

RIGHT GLARESHIELD - TIPS & TRICKS

It is worthwhile learning to navigate using only these instruments at least once so that in an emergency it will be easier to get home again.



INFORMATION HOW TO TIPS & TRICKS

HUD & HMD - GENERAL INFORMATION

World War II saw the development of the predictor gunsight, which projected a computing gunsight onto a plate of glass between the pilot and the canopy. With the advent of digital computers in post-war avionics, this relatively simple device was to evolve into the Head Up Display (HUD) that is now a standard feature of modern jet fighters. The major difference between the early reflecting gunsights and today's HUD is the amount and type of information displayed.

In EuroFighter, you'll find data on pitch, heading, speed, altitude, gear status, weapons selection and much more. In fact, virtually all you need to know for 90% of the time you are flying is projected onto the HUD. Naturally, HUD design has its own peculiar problems - not least how much information to display without confusing the pilot or causing images to overlap and lose their meaning. For this reason, HUD symbology varies according to the flight mode currently in use; for example, air-to-air combat, refueling, air-to-ground missions and landing all have their own special modes.

Helmet mounted sights or displays are a more recent innovation, and show the trend towards integrating information systems into the pilot's helmet. Such displays also requires weapons systems capable of launch 'off-boresight', or when the direction of plane travel does not correspond with where the pilot wants to aim. The advantage is obvious, in that the pilot can now engage targets much more easily with less maneuvering. In a knife-edge fight, this will make the difference between life and death.

HUD & HMD - HOW TO

The HUD is available in all fixed forward views. The Helmet Mounted Display is available whenever F2 or F10 padlock views are used.

HUD & HMD - TIPS & TRICKS

Use the F2 or F10 padlock views for tracking enemies in close dogfights, and switch to a forward HUD view for shooting guns or Sidewinders. ASRAAMs can be fired using the HMD in padlock views, although you should not expect to hit targets which are too far behind you.



INFORMATION HOW TO

HUD AIR TO GROUND BOMBS - GENERAL INFORMATION

Just because there are plenty of high tech weapons available in EF2000, don't ignore the plain-old iron bomb. In the Gulf War, more iron bombs were dropped than any other, simply because they are cheaper and more plentiful. Learn to drop an iron bomb accurately, and you really deserve the title of bombardier.
HUD AIR TO GROUND BOMBS - HOW TO

1. Medium altitude, starting at 15,000 ft above the Man Portable Air Defenses (MANPAD). Wingmen should split to gain the separation needed to avoid the blast of the bombs from man in front.

2. When you reach 7 nm from the target, fly at 15 degrees offset to the target.

3. When 3 nm from the target, tip in towards it and begin a dive. Fly the bomb fall line through the target, and release the weapon as soon as the CCIP marker passes through it.

4. Recover from the dive, preferably before 5000 ft, and climb to a safe altitude.

NOTE: The steeper the dive, the more accurate your bombing will be.

HUD AIR TO GROUND BOMBS - TIPS & TRICKS

If you are preparing for a mission, give plenty of attention to the intelligence data on your target. Study the satellite views and memorize key details. If you are making a high-level attack, for example, it's easy to mistake buildings and details from 20,000 ft. And if you are attacking a site such as an airfield, you need to know which way the runway lies, so you can line up properly for an anti-runway attack.

Also try and plan your escape route on the MMD. If there are hills nearby, you can use these to cover your escape. Watch out for SAM sites!



INFORMATION

TIPS & TRICKS

HUD AIR TO GROUND ALARM - GENERAL INFORMATION

There are two delivery techniques for ALARM in EF2000. The first is 'direct' mode, in which the missile will lock on to any radar emission within range and line of sight. All the pilot has to do is make the decision to fire the missile, or hide from the radar by using terrain masking. The direct mode is best reserved for attack runs at low level, where the aircraft may be surprised by an active SAM battery. The missile will react quickly to the SAM radar, and should enable you to fire before the SAM has a chance to launch.

HUD AIR TO GROUND ALARM - HOW TO

Use the indirect mode for clearing heavily defended territory. Fly in low, below 500 ft and when 15 miles from the target, release the ALARM in the general direction of the target. The missile will zoom climb to 40,000 ft and hang on a parachute until a radar emission is detected. When you are closer than 10 miles, turn on a parallel course to the target and 'pop-up' in order to encourage the enemy to switch on their radar, which in turn will cause a missile to fall on them.

HUD AIR TO GROUND ALARM - TIPS & TRICKS

The height at which you approach a SAM site is also important. Fly below 500 ft and you will avoid radar detection until you are relatively close. Even if the site launches, the SAM may find it difficult to lock on to you at low level. For extra measure, switch on stealth mode and use your map to navigate to the site. If there are mountains or hills nearby, use these to mask you approach as much as possible. Radar cannot see through solid earth!



HUD AIR TO GROUND CRV-7 - GENERAL INFORMATION

The CR-V7 rockets are designed to be used with a large stand-off from the target - typically 3 miles. The weapon is well-suited to the anti-shipping role against small craft that are not well defended, such as spy trawlers and landing craft. The weapon could be used against many other types of target, but becomes the second choice to the cluster bomb. The weapon is very fast (about Mach 4), and is reckoned by pilots to be 'the best fun you can have with your clothes on'. It goes wherever you point your aircraft.

HUD AIR TO GROUND CRV-7 - HOW TO

- 1. Fly towards an offset from the target of 4 nm at 480 kt, 500 ft.
- 2. At the offset point, pull-up hard passing 5000 ft then roll towards the target and begin a dive.
- 3. Aim with the pipper (death dot). Take a second or so to track the target then fire.
- 4. After the last rocket has gone, pull hard away from the target and egress at low level.

HUD AIR TO GROUND CRV-7 - TIPS & TRICKS

If you are on a ground attack mission, always use JTIDS to monitor enemy ground and air movements in preference to radar. Use JTIDS with the map overlay to compare targets with the terrain. Try and ascertain the heading of enemy aircraft before switching on your radar in panic. Then plot an evasive course.

Stay stealthy by keeping radar and ECM off. If possible, use mountains to mask yourself. If the threat light comes on, you have been spotted, so prepare to take combat countermeasures. If JTIDS is unavailable, simply keep an eye on your DASS to see whether any enemy aircraft or ground defenses are tracking you. Switch on your radar only as a last resort, when defense becomes vital for survival.



HUD AIR TO GROUND CANNON - GENERAL INFORMATION

Strafing is now far less popular than it used to be in days of old. This is mainly because of the dangers that the aircraft is exposed to while making an attack. In addition, strafing from a fast moving jet with any accuracy is very hard indeed. However, it is great fun in EF2000 so go ahead and strafe.

HUD AIR TO GROUND CANNON - HOW TO

The technique is simple. Approach the target in a shallow dive. The cannon pipper is calibrated to three miles, so wait until the range clock starts to count down. Start firing just before the target and 'walk' the cannon fire across it.

The rate of fire is set to 1700 rounds per minute. With a total ammunition store of 1760 rounds it will not take long to deplete the gun's supply. Short cannon bursts are more effective overall than keeping your finger on the trigger until the target is destroyed.

HUD AIR TO GROUND CANNON - TIPS & TRICKS

Don't 'fixate' on a ground target when there may be enemies shooting at you. Pick your target as early as possible, using other identifiable ground features to help keep your bearings.

The ammunition used in the EF2000 is a high explosive round mostly suited to aerial warfare. Although there is an air-to-ground firing mode, CR-V7 rockets would be favored over the cannon.



HUD AA - GENERAL INFORMATION

When this mode is chosen, the air-to-air radar, JTIDS and DASS are activated, the flight model is adjusted to a more appropriate air-to-air combat profile, and air-to-air missiles can be launched. The HUD symbology becomes combat-specific. Most noticeable is the fact that there are half the number of pitch lines, in order to keep the HUD as decluttered as possible.

HUD AA - HOW TO

Press the ENTER key to select the air-to-air HUD mode. Press the ENTER key again to cycle through any air-to-air missiles on board and activate the relevant air-to-air systems. The following pilot aids can be displayed over the HUD only (F1) view:

Radar overlay - press 'R' JTIDS overlay - press 'SHIFT M' DASS overlay - press 'D'

HUD AA - TIPS & TRICKS

Use the F2 or F10 padlock views for tracking enemies in close dogfights, and switch to a forward HUD view for shooting guns or Sidewinders. ASRAAMs can be fired using the HMD in padlock views, although you will not hit targets which are too far over your shoulder.

HUD - AIRSPEED

From standstill to Mach one, the speed is shown in knots. At the speed of sound, your velocity is automatically shown as a Mach number. You will notice that the speed of sound is achieved at seemingly lower speeds the higher you fly, simply because there is less air resistance at altitudes.

HUD - ALTIMETER

Up to altitudes of 5,000 ft above the nearest terrain, the altimeter displays what is known as RADALT. This simply means that a small downward looking radar calculates your real altitude above the terrain below, as opposed to your altitude above sea level, otherwise known as BAROMETRIC ALTITUDE. Above 5,000 ft, barometric altitude is displayed automatically. The small clock surrounding the altitude data displays your change in altitude in hundreds of feet.

HUD - ENGINE THRUST

Tells you the percentage of power currently being delivered by the engines. At 60%, the engines are effectively idling. At 100% you are using full dry thrust. Activate the afterburner, and the engine power is boosted dramatically, along with your fuel consumption. To check this, watch the engine management or fuel management displays while turning the afterburner on and off.

HUD - G-FORCE METER

The G-Force indicator not only warns you when G-LOC is likely to occur, it gives you a way to time the rate of your turns. See the section devoted to gravity.

HUD - COMPASS TAPE

Located at the top of the HUD, and giving your heading in units of 10 degrees. North is at 0 degrees, East is at 90 degrees, South is at 180 degrees and West is at 270 degrees. To read your heading, check the number above the pipper, which is located just below the tape in the center. A small inverted 'U' shaped mark indicates the correct heading for your currently selected waypoint.

HUD - WEAPON RANGE BAR

On the left of the HUD, a small vertical bar and arrowhead symbol indicate whether a weapon is within range. If no arrowhead is displayed, don't waste your ordnance!

HUD - MASTER ARM INDICATOR

Informs you that the currently selected weapon is armed and ready to fire. In air-to-air mode, pressing ENTER will cycle the weapons. In air-to-ground mode, press BACKSPACE to cycle the weapons.

WARNING: If you run out of missiles, cannon will be selected automatically. If you use all the cannon shells, the master arm indicator begin to flash. In this condition, it's best to head for home as fast as possible, avoiding any trouble on the way.

HUD - PITCH LADDER

This is very handy for checking the orientation of the plane. Note that the widest bar corresponds to the horizon. The bars below the horizon are broken, and the ends of the bars indicate the direction to the ground. In air-to-air mode, the number of pitch bars is halved to help declutter the HUD.

NOTE: when using the Helmet Mounted Display to look around the aircraft, both the Pitch Ladder and Velocity Vector disappear.

HUD - AFTERBURNER

Afterburner involves dumping large quantities of fuel into the final stages of a jet engine. It boosts power and speed considerably, but at price: fuel consumption is enormous.

HUD - AIRBRAKE

Whenever your airbrake is activated, a small flashing symbol will appear above the velocity vector. Remember not to leave the airbrake on for too long, or you may lose so much airspeed that you place yourself at a tactical disadvantage.

HUD - VELOCITY VECTOR

This small airplane shaped symbol predicts your flight path, and therefore provides an invaluable aid to positioning yourself for critical maneuvers; for example, in dogfights or on landing approaches. Suppose you are in a turning fight behind a bandit, flying your velocity vector directly over the target puts you on a collision course; placing it slightly behind puts you in what is called 'lag' pursuit; and placing in front of the target places you in 'lead' pursuit.

On landing, try to get the velocity vector to settle on the place where you wish to touch down. When terrain hugging over hills, keeping the velocity vector above the crest of the hill will ensure that you don't collide with the ground.

AIMING RETICULE

This 'kill circle' appears on the HUD when an air-to-air missile is selected. The size of the Aiming Reticule depends on the chosen missile: a small circle is used for long-range stand-off weapons such as the S-225, and a large circle is for short-range missiles.

HUD - ASPECT ANGLE CARET

On each track box, this shows the target aircraft's heading relative to you. If the caret is at the bottom of the track box, the target is flying away from you. If the caret is at the top, the target is flying towards you.

HUD - TRACKING INFORMATION

On any aircraft being tracked by your radar: AIRCRAFT TYPE; SPEED (KNOTS) ; and RANGE (MILES). Press the C key to toggle tracking between any aircraft within range.

HUD - DIAMOND X

When you see this diamond with an 'X' at its center, you will know that a target is outside the HUD view. Fly in the direction of the Diamond X until the target enters the HUD view. The Diamond X will change to a Target Designator Box.

HUD - ANGLE OF ATTACK INDICATOR (AOA)

AOA is the angle between your velocity vector (current estimated flight path) and your aircraft datum, or center-line. A high angle of attack means that your nose is up, although the airplane is traveling in a different direction to where your nose is pointing. The 'Cobra' is a typical example of a high AOA maneuver, and may be useful in combat for quickly bringing weapons to bear in difficult dogfight situations.



HUD AIR TO AIR CANNON - GENERAL INFORMATION

When the Mauser 27 mm cannon is selected, a circular predictor sight appears, which shows where your shells will strike if fired at that moment. A 'snake' line predicts the shells historical path of travel. The outer ring of the circle is also a range indicator.
HUD AIR TO AIR CANNON - HOW TO

A complete circle shows that the target is at three miles or more, which represents a difficult shot. As you get closer, the line moves around and at the half-way mark you are with one-and-a-half miles, which is a good range to go for a kill. Lead the 'snake' through the target to be sure of getting shells to hit their mark.

HUD AIR TO AIR CANNON - TIPS & TRICKS

It is advisable to open fire only when the target is well within range, and to avoid firing at violently maneuvering targets unless autofire is selected. This triggers a short burst whenever the predictor sight crosses through the center of the track box.



INFORMATION

TIPS & TRICKS

AIR TO AIR AIM-132 ASRAAM - GENERAL INFORMATION

The ASRAAM is guided by an advanced imaging infra-red seeker utilizing image processing systems in order to recognize its target and give it all-aspect capability. ASRAAM differs from conventional missiles in offering high off-boresight targeting via a helmet mounted display. In other words, the missile may be launched over-the-shoulder.

Its performance is assisted by thrust vectoring, allowing fantastic turn capability of more than 30 G. The difference this makes in difficult turning dogfights is enormous, because you no longer have to point the plane's nose directly at the target. However, these missiles travel at speeds around Mach 4, which means that a slower moving plane pulling less G's can still outsmart the missile.

AIR TO AIR AIM-132 ASRAAM - HOW TO

Get a visual lock in the HMD when the enemy is in the missile's best range. A diamond lock indicator will snap over the track-box when the weapon is ready to fire.

AIR TO AIR AIM-132 ASRAAM - TIPS & TRICKS

Despite its revolutionary performance, success is not guaranteed as flares may still confuse the missile locking system under certain conditions. If possible, fire at the enemy's rear aspect at close range.



INFORMATION HOW TO TIPS & TRICKS

AIR TO AIR AIM-9M - GENERAL INFORMATION

When using this missile, a single track box appears for targets. When a target has been picked up by the designator box and is in range, the Missile Seeker Head diamond will lock on it. The currently selected missile is now locked on to the target and ready to launch.

AIR TO AIR AIM-9M - HOW TO

With Sidewinder selected, you will hear a deep growling tone as the missile seeks a target. When it starts to acquire a target, the pitch of the tone rises, reaching a very high pitch when lock has been achieved.

AIR TO AIR AIM-9M - TIPS & TRICKS

The Sidewinder model in EF2000 is an all-aspect variety, and can be fired at targets from any angle. However, you will always achieve higher kill ratios if you launch the weapon at the rear aspect of your enemy, between seven and five o' clock.



INFORMATION HOW TO TIPS & TRICKS

AIR TO AIR AIM120 AMRAAM - GENERAL INFORMATION

Target track boxes appear around the targets when they are within range. When S-225 and AIM-120 are selected, you may see up to six targets locked in track boxes. You will notice that they are prioritized, with the letters A to F, depending upon their threat value. With ASRAAM, AIM 9M and cannon, only one track box will appear. You may override the computer's choice of target by pressing 'C', which will then select the next target in the sequence A to F.

AIR TO AIR AIM120 AMRAAM - HOW TO

You may override the computer's choice of target by pressing 'C', which will then select the next target in the sequence A to F.

AIR TO AIR AIM120 AMRAAM - TIPS & TRICKS

Always fire salvoes in BVR combat. An enemy might be able to evade a single missile, but dealing with two or more is another matter.



HUD AIR TO AIR S-225 LRAAM - GENERAL INFORMATION

Target track boxes appear around the targets when they are within range. When S-225 and AIM-120 are selected, you may see up to six targets locked in track boxes. You will notice that they are prioritized, with the letters A to F, depending upon their threat value. With ASRAAM, AIM 9M and cannon, only one track box will appear. You may override the computer's choice of target by pressing 'C', which will then select the next target in the sequence A to F.

HUD AIR TO AIR S-225 LRAAM - HOW TO

You may override the computer's choice of target by pressing 'C', which will then select the next target in the sequence A to F.

HUD AIR TO AIR S-225 LRAAM - TIPS & TRICKS

Always fire salvoes in BVR combat. An enemy might be able to evade a single missile, but dealing with two or more is another matter.



HUD REFUELING - INFORMATION

A variation of the air-to-air HUD comes into effect when you are set to refuel. Instead of an enemy target, the HUD tracks the refuel aircraft. Note that all weapons systems are shut down for refueling. A lot of practice will be needed to perfect this, so go to the basic training section of the simulator first.

HUD REFUELING - HOW TO

To help you navigate to the refueler, press SHIFT ^c to bring up the refueling mode HUD. This will give you a track box on the refueler and show your closing velocity. Data on time to tanker and altitude are given in the lower right-hand side of the HUD. In the full cockpit view, press key ^c to extend the refueling probe. The objective is simply to insert this into the basket and keep it there. Approach the tanker with a closing velocity of plus 50 knots and use your airbrake to modify your speed.

HUD REFUELING - TIPS & TRICKS

Set the autothrottle to match the refueler's speed and make maneuvering easier. If you are finding refueling too difficult in missions, simply press the event skip key (key S) to bypass it. You will be refueled automatically in the process.



TIPS & TRICKS HOW TO

HUD TERRAIN FOLLOWING - GENERAL INFORMATION

By eliminating the need for ground radar, a Digital Terrain System provides a stealthy and affordable way to help pilots fly ground-hugging flight profiles through hostile territory. The system projects flight cues into the HUD based on reference to digital terrain data. These data are cross-referenced with inputs from the aircraft's various navaids, such as the radar altimeter. Differences between the real and anticipated readings are resolved and relayed to the display system.

HUD TERRAIN FOLLOWING - HOW TO

In EF2000, a Digital Terrain System predicts the flight path that should be taken, and projects a small rectangle into the HUD, showing the pilot when to pull back or push down on the stick. All the pilot has to do is keep the velocity vector centered in the small square. The system appears at altitudes of 1,000 ft or below, and should keep the aircraft at least 250 ft clear of terrain and obstructions.

HUD TERRAIN FOLLOWING - TIPS & TRICKS

Real Digital Terrain systems have other uses, including assistance in weapons cueing. In EF2000, use the system for stealthy low-level attack approaches in well-defended territory.



HUD LANDING - GENERAL INFORMATION

A variation of the navigation mode HUD comes into effect when the Instrument Landing System is activated. If ILS is available or in range, a corridor in the sky will be drawn from the ends of the runway.

HUD LANDING - HOW TO

Fly at 10,000 feet to within 25 miles of the airfield. Dump any excess stores by pressing ALT 'J'. Press I to activate ILS and the Command Flight Path Display, which shows a virtual corridor in the sky extending from the runway. Head for the nearest box and align yourself so that you are flying down the corridor. Keep a close eye on your airspeed, and make sure that your velocity vector does not drop below the CFPD boxes. With skill, you should arrive on the runway at an ideal velocity and rate of decent. Cut the autothrottle just before touchdown, so you can drop the RPM quickly.

When ILS is activated, so is the undercarriage indicator in the bottom center of the HUD. Three U's mean that your undercarriage is up. Three D's indicate that it is down.

HUD LANDING - TIPS & TRICKS

When in ILS mode and you are within close range to the destination airfield, switching to an F2 or F10 padlock view will lock your line of sight to the end of the runway. This is useful for making a good approach.

Landing in any plane is a tricky business. You should learn how to execute a fully manual landing, because you may have a crippled plane to put on the deck. However, the autothrottle is a tremendous help for landing approaches. Set this to 150 knots and activate it during descent.

ILS - COMMAND FLIGHT PATH DISPLAY

Simply fly your velocity vector through the corridor, and attempt to hold the aircraft in position. If you are successful, you will be following the correct glide path for a perfect touchdown.



AIM-132 - INFORMATION

TYPE: All-aspect IIR missile with thrust vectoring RANGE : 15 km/10 miles SPEED: M 4 DELIVERY: Fired from any angle at the target, including off-boresight EFFECT: Will down most fighters, but may only damage heavier aircraft like bombers AIMING: Using the Helmet Mounted Sight and IRST

Despite its revolutionary performance, success is not guaranteed as flares may still confuse the missile locking system under certain conditions.

AIM-132 - HOW TO

- 1. Obtain an IRST lock on the target (box in the HMD).
- 2. Wait until the diamond snaps onto the box.
- 3. Ensure you are within range by checking the range bar and waiting for the shoot cue.
- 4. Press the trigger and fire.

AIM-132 - TIPS & TRICKS

Track your targets using the F2 or F10 padlock views. The missile may be launched at targets which are not directly in front of the aircraft. However, firing at targets which are in front of the aircraft will have a higher probability of success.

Save these valuable weapons for the moment you really need them. If possible, shoot the cheaper, less capable AIM-9M Sidewinders in 'head-on' or 'rear aspect' engagements when your plane's nose is pointing easily at the enemy.



INFORMATION HOW TO TIPS & TRICKS
AIM-9M - INFORMATION

NAME: AIM-9M Sidewinder TYPE: All-aspect IR missile RANGE : 8 km/5 miles SPEED: M 2.5 DELIVERY: Fired from any angle at the target, but best from the rear-aspect. EFFECT: Will down most lightweight fighters like the MiG-21, but may only damage heavier aircraft like the SU-27 and its variants AIMING: Using the HUD, radar and IRST

In operation the EF2000 would carry Sidewinders as a secondary short range missile, favoring instead the ASRAAM. However the Sidewinders are more plentiful, so may be used in cases where the ASRAAM is in short supply or where its capabilities are not as important; for example when defending against older generation fighters or intercepting bombers. Once released, the Sidewinder requires no more thought from the pilot, enabling you to turn and leave.

AIM-9M - HOW TO

- 1. Obtain a radar lock on the target (box in the HUD).
- 2. Wait until the diamond snaps onto the box, an the growl tone rises to a consistent high pitch.
- 3. Ensure you are within range by checking the range bar and waiting for the shoot cue.
- 4. Press the trigger and fire.

AIM-9M - TIPS & TRICKS

The AIM-9M is an infrared missile and even though it is 'all-aspect', the biggest heat signature will come from the rear of an enemy's aircraft. The missiles range is shorter than ASRAAM so in order to get a good kill from behind the AIM-9M will need to within five miles. Head-on passes increase the relative range of the missile according to the closing speed of the two aircraft, although the lower infra-red signature will reduce the likelihood of hitting the plane; i.e. a lower PK, or Probability of Kill.

When attacking a target using AIM-9M, position your aircraft so as to enable the missile's IR seeker to locate the target within your HUD. This may require a degree of violent maneuvering at close range.

In adverse conditions of ECM, or when flares are being ejected by the target plane, the Sidewinder may break its lock in which case you must re-acquire it before launching.



AIM-120 - INFORMATION

NAME: AIM-120 AMRAAM TYPE: Medium-range radar guided missile RANGE : 48 km/30 miles SPEED: -DELIVERY: Fired BVR at radar tracked targets EFFECT: Will down most fighters and bombers AIMING: Using the radar and HUD

The primary air to air missile carried by the EF2000 will be AMRAAM for general engagement, while ASRAAM is favored for close range. It is targeted by locking the radar on to a tracked enemy. Once fired, the missile then uses on board inertial guidance with command updates from the launch aircraft. In its final phase it switches on the active radar seeker. As the radar only switches on in the terminal phase, the missile is less susceptible to any jamming, it also makes the missile hard to detect until it is too late.

AIM-120 - HOW TO

- 1. Obtain a radar lock on the target (box in the HMD).
- 2. Wait until the diamond snaps onto the box.
- 3. Ensure you are within range by checking the range bar and waiting for the shoot cue.
- 4. Press the trigger and fire.

AIM-120 - TIPS & TRICKS

Fire more than one missile at individual target. This is standard operational practise in BVR engagements.

After launch, execute a high speed turn to avoid enemy return fire.



S-225 - INFORMATION

NAME: S-225 LRAAM TYPE: Long-range radar guided missile RANGE : 80 km/50 miles SPEED: -DELIVERY: Fired BVR at radar tracked targets EFFECT: Will down most fighters and bombers AIMING: Using the radar and HUD

S-225 - HOW TO

- 1. Obtain a radar lock on the target (small box in the HMD).
- 2. Wait until the diamond snaps onto the box.
- 3. Ensure you are within range by checking the range bar and waiting for the shoot cue.
- 4. Press the trigger and fire.

S-225 - TIPS & TRICKS

Always fire the S-225 before the AMRAAM. It is a stealthier missile and more likely to take the enemy by surprise.

Fire more than one missile at individual target. This is standard operational practise in BVR engagements.

After launch, execute a high speed turn to avoid enemy return fire.

Targeting of the long-range 'stealth' missile is identical to the ASRAAM system except that only targets within the HUD may be locked. However, because the missile only uses its own radar after covering half the distance to the target, the lock box will remain flashing after launch. You must remain pointing at the target until the lock box goes solid, otherwise the missile will be wasted.

It is better to engage at long distance than to enter a dogfight, at the risk of giving away your position. The stealthy attributes of this missile, however, go a long way in keeping you location hidden. This weapon may also be used at a similar range to AMRAAM, although the poor availability of the weapon would make AMRAAM the preferred choice.



CANNON - INFORMATION

NAME: Mauser BK-27mm cannon TYPE: Single barrel gas driven cannon RANGE : 5 km/3 miles SPEED: 1.2 miles per second at sea level DELIVERY: Fired at any aspect in close dogfights EFFECT: Will down most fighters and bombers AIMING: Using the radar and HUD predictor sight

CANNON - HOW TO

1. Obtain a radar lock on the target (small box in the HMD).

2. Drift the snake and range circle over the box. The snake shows the path of the shells, ending at the circle.

Press the trigger and fire.

NOTE: The AG strafing predictor sight comprises two small bars with a dot in the center, which is where the bullets will fall. When the range clock around the sight begins to wind down, you are within range. Most important is the approach profile, which demands a shallow glide slope and low speed, much like an approach for landing.

CANNON - TIPS & TRICKS

The best shots are always made from the target's six o'clock position.

Try to minimize the length of the snake to get more shells into a smaller space. If the autofire feature is active, it will trigger a burst of shells whenever a good firing solution is found.

The rate of fire is set to 1700 rounds per minute. With a total ammunition store of 1760 rounds it will not take long to deplete the guns supply. Short cannon bursts are more effective overall than keeping your finger on the trigger until the target is destroyed.

It is advisable to open fire only when the target is well within range, and to avoid firing at violently maneuvering targets unless autofire is selected. This triggers a short burst whenever the predictor sight crosses through the center of the track box.



INFORMATION HOW TO TIPS & TRICKS

FREEFALL BOMBS - GENERAL INFORMATION

The Mk 80 bombs have standard HE (High Explosive) warheads, which can be easily modified to improve performance in different attack scenarios. Pilots who used the bombs in the Gulf War stated that the HE was devastating if a direct hit was scored on tanks, armored vehicles, dug-in artillery or buildings. A near miss from a Mk.84 bomb was also reported to be almost sure of knocking out an armored vehicle.

FREEFALL BOMBS - HOW TO

Low level attack

1. Fly towards the ingress waypoint at low-level to avoid radar, with a speed of 480 knots. Maintain accurate timing!

2. At 65 seconds from the target, a countdown clock will appear.

- 3. Try to acquire the target visually.
- 4. Smoothly fly the bomb fall line through the target.
- 6. Release the weapon when the CCIP mark crosses the target.
- 7. Run out fast and low over the target. Do not turn for at least 30 seconds.

Dive bombing attack

1. Medium altitude, starting at 15,000 ft above the Man Portable Air Defenses (MANPAD). Wingmen should split to gain the separation needed to avoid the blast of the bombs from man in front.

2. When you reach 7 nm from the target, fly at 15 degrees offset to the target.

3. When 3 nm from the target, tip in towards it and begin a dive. Fly the bomb fall line through the target, and release the weapon as soon as the CCIP marker passes through it.

4. Recover from the dive, preferably before 5000 ft, and climb to a safe altitude.

FREEFALL BOMBS - TIPS & TRICKS

When dive bombing, the steeper the dive, the more accurate your bombing will be. DO NOT RELEASE THE BOMBS BELOW 2000 FT, OR YOUR PLANE WILL BE DAMAGED BY THE BLAST.



LGB - GENERAL INFORMATION

The EF2000 carries the GBU12 and GBU16 as standard. The TIALD Thermal Imaging And Laser Designation system is probably the most accurate bombing system in the world for single-seat and twin-seat aircraft. Originally fitted to RAF Tornados and Jaguars, TIALD feeds the pilot with all the data needed to make the correct attack run, illuminates the target, and calculates the correct release point for the weapon. On release, the weapon derives its power from a small on-board generator, which will drive the control surfaces for just over one minute. For this reason, the delivery aircraft must always fly within one minute from the target.

| Bomb type | 2,000 ft | 5,000 ft | 10,000 ft | 20,000 ft |
|-----------|----------|----------|-----------|-----------|
| LGB | 5 nm | 7 nm | 10 nm | 15 nm |
| Free-fall | 0.5 nm | 1.5 nm | 2.5 nm | 3.5 nm |

LGB - HOW TO

1. Fly towards the target and switch to TIALD (T key) when 15 miles away.

2. The TIALD pod should already be pointing at the waypoint.

3. If necessary, expand the Field-Of-View with the FOV MFD key.

4. Pick a point for tracking and press the TRK MFD key. Slew the track box with the SHIFT cursor keys until you are satisfied with the position.

5. Press the OFT key and slew the laser cross-hairs with the SHIFT cursor keys until you are satisfied with the positioning.

- 6. Press LAS of the MFD to begin lasing the target.
- 7. When the release marker is between the parameter markers, release the bomb.
- 8. Continue lasing the target until bomb impact.

LGB - TIPS & TRICKS

It is claimed that approximately 90 per cent of laser-guided bombs landed on target during the Gulf War. However, if cloud obscures the target, then it the laser cannot see it and the lock will break, causing the bomb to free fall ballistically. This is very undesirable, as it means the target will not be hit and the concept of minimum collateral damage is invalidated.

It usually takes at least two minutes for aircraft flying at medium to high altitudes to acquire and then designate targets. While the bomb is dropping to the target the pilot has to keep the target illuminated - a procedure requires great skill, and which makes the aircraft vulnerable to SAMs and other threats.



CBU - GENERAL INFORMATION

Once the BL-755 falls to a pre-set altitude, it breaks open and scatters hundreds of sub-munitions over the target area. If the sub-munitions are anti-personnel, they explode and fill the air above a wide area with deadly red-hot shrapnel. Anti-tank sub-munitions are fitted with whole-charge warheads to penetrate tanks' weak top armor. Some of the sub-munitions are also fitted with delayed-action fuses to make the target area dangerous for anyone who survives the initial attack.

CBU - HOW TO

1. Fly towards the ingress waypoint at low-level to avoid radar, with a speed of 480 knots. Maintain accurate timing!

- 2. At 65 seconds from the target, a countdown clock will appear.
- 3. Try to acquire the target visually.
- 4. Smoothly fly the bomb fall line through the target.
- 6. Release the weapon when the CCIP mark crosses the target.
- 7. Run out fast and low over the target. Do not turn for at least 30 seconds.

CBU - TIPS & TRICKS

The best height for deliver will be around 150 ft. Only 5 seconds spacing is required between aircraft delivering this weapon. Formations should attempt to achieve the minimum throughput time for aircraft over the target, in order to saturate the enemy defenses and overwhelm them.

As often happens in war, pilots quickly find new applications for their weapons. For example, US aircraft in the Gulf found them ideal for destroying SAM and radar sites, which could not be attacked with anti-radiation missiles. Iraqi patrol boats and naval bases were also found to be suitable targets. In EF2000, you will find this is the only weapon to use against widely dispersed ground targets.



CRV-7 - GENERAL INFORMATION

The CR-V7 rockets are designed to be used with a large stand-off from the target - typically 3 miles. The weapon is well-suited to the anti-shipping role against small craft that are not well defended, such as spy trawlers and landing craft. The weapon could be used against many other types of target, but becomes the second choice to the cluster bomb. The weapon is very fast (about Mach 4), and is reckoned by pilots to be 'the best fun you can have with your clothes on'. It goes wherever you point your aircraft.

CRV-7 - HOW TO

- 1. Fly towards an offset from the target of 4 nm at 480 kt, 500 ft.
- 2. At the offset point, pull-up hard passing 5000 ft then roll towards the target and begin a dive.
- 3. Aim with the pipper (death dot). Take a second or so to track the target then fire.
- 4. After the last rocket has gone, pull hard away from the target and egress at low level.

CRV-7 - TIPS & TRICKS

These weapons employ the same sight as the ground cannon, but do far more damage to ground targets. The number of rockets released depends on whether the player holds the fire button for continuous release, or simply clicks the trigger once for single rocket fire.

Because these weapons are more capable of destroying armored targets than the cannon, they should be chosen for the close air support missions. In case of emergencies, the cannon can be used though it will require greater skill to destroy the targets.



DURANDAL - GENERAL INFORMATION

Durandal achieves its objectives using a unique delivery system. The missile is dropped in a low pass over the runway, it is then slowed by parachute to the correct delivery angle at which point a rocket motor ignites. The acceleration is enough to drive the specially shaped penetrating head through up to 400 mm of reinforced concrete. After a pre-programmed delay the missile explodes causing the paving slabs nearby to be disturbed.

The nature of the weapon means that repair work can be hampered by unexploded Durandals as there is no way of telling when it will detonate. The damage a Durandal causes is also extensive and requires more than just earth-moving equipment to fill in the holes; all the paving slabs around the crater will need repairing. This makes the runway unusable for considerable lengths of time.

DURANDAL - HOW TO

1. Fly towards the ingress waypoint at low-level to avoid radar, with a speed of 480 knots. Maintain accurate timing!

- 2. At 65 seconds from the target, a countdown clock will appear.
- 3. Try to acquire the target visually.
- 4. Smoothly fly the bomb fall line through the target.
- 6. Release the weapon when the CCIP mark crosses the target.
- 1. Run out fast and low over the target. Do not turn for at least 30 seconds.

DURANDAL - TIPS & TRICKS

Approach is everything! Make sure you are flying towards the runway as if making a landing. Speed is essential, as you will be tracked by every available defensive system.

As you fly over the airfield, drop plenty of chaff and flares.

Do not turn or break hard for at least 30 seconds after flying over the airfield, and do not hit the afterburners! This will attract IR SAMs.


ALARM - GENERAL INFORMATION

The ALARM, or Air Launched Anti Radiation Missile, was designed as a stand-off multimode anti radiation missile that could be fired before the aircraft could get within range of the target's aerial defenses. SAMs like the SA-6, the SA-N-9 and the SA-N-4 have ranges to about 15-20 nm. ALARM can be launched from outside this range, it will then ascend to 40,000 feet from where it will deploy a parachute and descend slowly, using its seeker to search for any radiation source.

ALARM - HOW TO

There are two delivery techniques for ALARM in EF2000. The first is 'direct' mode, in which the missile will lock on to any radar emission within range and line of sight. All the pilot has to do is make the decision to fire the missile, or hide from the radar by using terrain masking.

1. Fly in fast and low.

2. Launch ALARM when fifteen miles from a suspected SAM site (indirect mode) If the missile acquires a target automatically in the HUD, fire the weapon.

In 'indirect mode', the pilot launches an ALARM at up to 12 miles from where the SAM sites are located. Use the indirect mode for clearing heavily defended territory.

Fly in low, below 500 ft and when 15 miles from the target, release the ALARM in the general direction of the target.

The missile will zoom climb to 40,000 ft and hang on a parachute until a radar emission is detected.

When you are closer than 10 miles, turn on a parallel course to the target and 'pop-up' in order to encourage the enemy to switch on their radar, which in turn will cause a missile to fall on them.

Fly in a flat formation for stand-off and low-level missions.

ALARM - TIPS & TRICKS

The direct mode is best reserved for attack runs at low level, where the aircraft may be surprised by an active SAM battery. The missile will react quickly to the SAM radar, and should enable you to fire before the SAM has a chance to launch.

As the missile is 'fire and forget' they can be fired before reaching the target area, leaving a clear path to attack any other targets in the area.



INFORMATION HOW TO TIPS & TRICKS

SEA EAGLE - GENERAL INFORMATION

SAMs like the SA-6, the SA-N-9 and the SA-N-4 have ranges between 15 and 20 nm. The Sea Eagle anti-ship missile can be launched from outside this range. With 50 nm ranges, the SA-N-6 and SA-4 SAMs come close to the Sea Eagle's maximum range of 70 nm. Best launch altitude is relevant to target acquisition.

SEA EAGLE - HOW TO

The Sea Eagle is a stand-off weapon, which helps to keep the launch aircraft out of the lethal radius of naval SAM coverage. This is particularly important at sea, because terrain masking is simply not possible.

1. Fly to the ingress point at less than 500 ft to avoid detection.

2. At the ingress point the flight should split to attack the target from different directions. Pay attention to the required speed to achieve a correct Time On Target (TOT)

3. At 60 nm or less, pop-up to 2,000 ft and acquire your target using the Sea Eagle radar.

4. Cycle targets with the 'C' key. To get a closer look, use the Zoom key on the MFD.

5. When you have identified and acquired the right target, launch your weapon.

6. Drop to less than 500 ft and turn away from the target as quickly as possible and check your DASS to ensure that no SAMs are chasing you.

SEA EAGLE -TIPS & TRICKS

You must be at least 2,000 ft above sea level before the ECR-90 radar will detect targets at maximum Sea Eagle range. The best launch altitude is that at which you can detect the target at the maximum range of the weapon, which would be 2,000 ft for the 70 nm range of the Sea Eagle. Fly in a flat formation for stand-off and low-level missions.



MAVERICK - GENERAL INFORMATION

Development of the Maverick started in the mid sixties with the first missile going into service in 1972. It saw service during the Gulf conflict, scoring an 80 percent hit rate. The USAF fired over 5,000 Mavericks, mainly at Iraqi tanks. There are four main versions, The imaging infra-red (IR) version is one of the most widely used and are therefore featured in EF2000. The IR version has superior night performance because its infra-red sensors show tanks as 'hot-spots'.

MAVERICK - HOW TO

The Maverick AGM-65D is designed for stand-off use at ranges of up to 12 miles.

- 1. Fly towards the target at 480 kt.
- 2. When about 12 nm from the target, offset to one side by about 15 degrees.
- 3. Select the left-hand MFD and slew the seeker head using the SHIFT Cursor keys.
- 4. The seeker will lock onto a target automatically. Check its identity in the IR screen under the HUD.
- 1. Vacate the area as quickly as possible.

MAVERICK - TIPS & TRICKS

Maverick is ideal for taking out armored vehicles, but can also be used as a precision weapon against targets such as parked aircraft, control towers, radar sites, SAM sites and communication centers. It is less useful against hardened targets.

The quoted range of the Maverick is up to 25 miles (40 km) if released at altitude by a fast flying aircraft. However, experience shows that you need to be within 5 miles to pick up and identify your target. This is not such a problem for the slow-flying and armored A-10s, but it may be too dangerous for the EF2000. For this reason, you will need to practise long-range targeting.

ENGINE WARNING LIGHTS

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

AFTERBURNER WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

RH: Reheat or afterburner. This should not be left on for periods longer than two minutes, otherwise the jet-pipe temperature (TP) will become excessive leading to possible engine damage.

WHEEL BRAKE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

When the wheel brake is activated on the ground, this light will glow orange. Use the brakes in bursts, because they may overheat and fail.

WING TANK WARNING LIGHTS

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

T1: Wing tank 1. Jettison tanks prior to aerial combat or a ground strike.T2: Wing tank 2.

CENTERLINE TANK WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

T3: Centerline tank.

OXYGEN SYSTEM WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

OX: Oxygen. If your oxygen system fails, you must descend to below 10,000 ft, and you will not be able to pull more than 4G without blacking out.

CABIN PRESSURE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

PR: Pressure. If you cabin pressure drops, you may black-out at altitudes around 20,000 ft. Descend to less than 10,000 ft. If both your oxygen and cabin pressure fail at high altitude, try to get down to a safe altitude as quickly as possible. Keep your finger on the Recovery button.

BRAKECHUTE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

CH: Chute for braking. On activating the chute, the light will glow orange, but the chute should be released (disconnected from the aircraft) at a speed of not less than 50 kt, to prevent excessive damage. Releasing the brake will cause the warning lamp to glow red.

HYDRAULIC SYSTEM WARNING LIGHT

GREEN The system is functional.

ORANGE The system is active; i.e. in use.

YELLOW Caution! The system has sustained slight damage.

RED The system is damaged beyond repair.

HEAD-UP-DISPLAY WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use.

YELLOW Caution! The system has sustained slight damage.

RED The system is damaged beyond repair.

AIR BRAKE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

AB: Air brake. When the air brake is extended or retracted, this light will glow orange. Remember to watch your air speed does not become too low with the brake extended.

IRST WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

PI: Infra-Red Search and Track System (PIRATE).

RADAR WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

RA: Radar. If this system fails, the alternatives are JTIDS and IRST. However, you will be unable to use radar guided weapons.

UNDERCARRIAGE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

UC: Undercarriage. When the undercarriage is extended or retracted, this light will glow orange.

JTIDS WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

JT: JTIDS. Information of the JTIDS display is only available if the relevant AWACS and JSTARS aircraft are flying (AWACS detects AA targets, JSTARS detects ground targets). If the information is not available, the lamp will glow red.

MOVING MAP WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

M: Moving Map. Should the MMD fail, you will have to use the paper map included with EF2000 or the full screen map and navigate by compass and visual sighting.

NAVIGATION SYSTEMS WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

NV: Navigation. Should your HUD fail, you will still have access to the same information of the navigation HDD.

DASS WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

DA: DASS. Failure of the DASS will leave your aircraft vulnerable to attack. You will be forced to drop chaff and flares manually, and the advice is to abort the mission and return to base as quickly as possible.

AUTOPILOT WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

WEAPONS SYSTEMS WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

WE: Weapons. If weapons become damaged or unusable, jettison them to save weight and return to base as quickly as possible.

FUEL WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

FU: Fuel. If your plane takes damage during combat, check these light quickly to ascertain whether the fuel level has become critical or the supply damaged

OIL WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

OI: Oil. Damage to the hydraulics systems will eventually lead to damage in the engines, leading to overheating and finally engine failure. If this light is on, try shutting down the damaged engine, prepare for emergency landing or get ready to eject.

JET PIPE TEMPERATURE WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

TP: Jet pipe temperature. A warning that your engines are getting too hot, either through excessive use of reheat or through combat damage.

MISSILE LOCK WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

LK: Missile Lock. If a radar guided missile obtains a lock on your plane, this lamp will glow yellow. If and IR missile obtains a lock, the lamp will glow red. This is a good indication to look at your DASS display in HDD mode.

MISSILE LAUNCH WARNING LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

LA: Missile Launch. If a radar guided missile is launched at your plane, this lamp will glow yellow. If and IR missile is launched at your plane, the lamp will glow red.
INFRARED MISSILE LAUNCH LIGHT

GREEN The system is functional. ORANGE The system is active; i.e. in use. YELLOW Caution! The system has sustained slight damage. RED The system is damaged beyond repair.

RADAR GUIDED MISSILE LAUNCH LIGHT

GREEN The system is functional.

ORANGE The system is active; i.e. in use.

YELLOW Caution! The system has sustained slight damage.

RED The system is damaged beyond repair.



PRESS THE KEYS TO EXPLORE THE EF2000 KEYBOARD







KEYBOARD CONTROLS: `

Activate in-game menu

KEYBOARD CONTROLS: 1 - 9

Wingmen commands are accessed through a simple hierarchy of menu overlays. Press TAB or any number above the keyboard to see the main menu. The command highlighted in red will bring up a sub-menu when you press the relevant number shown next to the command.

KEYBOARD CONTROLS: -

Decrease throttle.

KEYBOARD CONTROLS: SPACEBAR

Fires or releases selected weapon

KEYBOARD CONTROLS: +

Increase throttle

KEYBOARD CONTROLS: CURSOR ARROWS

Control aircraft pitch and bank (alternative to joystick control)

KEYBOARD CONTROLS: BACKSPACE

Cycle Air-to-Ground weapons

KEYBOARD CONTROLS: TAB

Select wingmen commands

KEYBOARD CONTROLS: W

Activate wheel brake

KEYBOARD CONTROLS: E

Activate Electronic Counter-Measures (ECM)

KEYBOARD CONTROLS: R

Activate ECR-90 radar

KEYBOARD CONTROLS: T

Select TIALD Laser Designation System for laser-guided bombs

KEYBOARD CONTROLS: Y

Affirmative response to message from AWACS, tower or other wingman

KEYBOARD CONTROLS: U

HUD Brightness

KEYBOARD CONTROLS: I

Select Instrument Landing System (ILS)

KEYBOARD CONTROLS: P

Pause game

KEYBOARD CONTROLS: [

Left engine on/off

KEYBOARD CONTROLS:]

Right engine on/off

KEYBOARD CONTROLS: /

Afterburner cancel.

KEYBOARD CONTROLS: *

Engage Afterburner.

KEYBOARD CONTROLS: KEYPAD - 0

Mission briefing in right MFD

KEYBOARD CONTROLS:KEYPAD - .

Brings up full screen map

KEYBOARD CONTROLS: ENTER

Cycle Air-to-Air weapons

KEYBOARD CONTROLS: A

Activate Autopilot

KEYBOARD CONTROLS: D

Activate Defensive Aids Sub-System (DASS)

KEYBOARD CONTROLS: G

Landing gear up/down

KEYBOARD CONTROLS: J

Select Joint Tactical Information Distribution System (JTIDS)

KEYBOARD CONTROLS: L

Auto level the aircraft

KEYBOARD CONTROLS: '

Deploy refueling nozzle

KEYBOARD CONTROLS: X

Cycles weapon lock for enemy aircraft only
KEYBOARD CONTROLS: C

Cycles weapon or view lock for all aircraft

KEYBOARD CONTROLS: V

Activate night-vision

KEYBOARD CONTROLS: S

Send message in network game

KEYBOARD CONTROLS: B

Activate air-brake

KEYBOARD CONTROLS: Z

Select nearest enemy plane in padlock view.

KEYBOARD CONTROLS: N

Negative response to message from AWACS, tower or other wingman

KEYBOARD CONTROLS: M

Display Moving Map Display (MMD)

KEYBOARD CONTROLS: <

Rudder/nose-wheel left

KEYBOARD CONTROLS: >

Rudder/nose-wheel right

KEYBOARD CONTROLS: F

Eyeball current radar track

KEYBOARD CONTROLS: INSERT

Release chaff

KEYBOARD CONTROLS: DELETE

Release flare

KEYBOARD CONTROLS: HOME

Radar scan range up

KEYBOARD CONTROLS: END

Radar scan range down

KEYBOARD CONTROLS: PAGE UP

Set radar azimuth

KEYBOARD CONTROLS: PAGE DOWN

Change radar mode

KEYBOARD CONTROLS: SHIFT - ESCAPE

Eject.

Switches to a view with all MFDs visible.

Satellite view.

Target or browse plane fly-by (whichever view mode is selected).

Browse ground mobile view

Old style weapons views

Quit the game.

Select next waypoint.

Select time warp.

Switch on pilot-aids overlay in HUD-only view.

Skip to next event.

Toggle Auto-cannon

Jettison external fuel tanks.

Show last message

KEYBOARD CONTROLS: SHIFT - RETURN

Select cannons

Switch to HUD mode for refueling.

In browse mode, show previous target

Cycle target lock.

Brake chute on.

Toggle name display (in king of the skies)
KEYBOARD CONTROLS: SHIFT - M

Toggle mini-MFDs in full hud view

KEYBOARD CONTROLS: SHIFT - <

Left toe-brake.

KEYBOARD CONTROLS: SHIFT - >

Right toe-brake.

KEYBOARD CONTROLS: SHIFT - CURSOR KEYS

Shift view in external F4 view.

KEYBOARD CONTROLS: SHIFT - KEYPAD 7

Zoom-in for some external views.

KEYBOARD CONTROLS: SHIFT - KEYPAD 1

Zoom-out for some external views.

KEYBOARD CONTROLS: ALT - W

Select previous waypoint.

KEYBOARD CONTROLS: ALT - R

Switches screen resolution in the game (not the menus).

KEYBOARD CONTROLS: ALT - A

Each time this combination is used, a new autopilot mode is selected.

KEYBOARD CONTROLS: ALT - D

Changes the detail level in the game.

KEYBOARD CONTROLS: ALT - H

HUD declutter.

KEYBOARD CONTROLS: ALT - J

Jettison air-to-ground stores.

KEYBOARD CONTROLS: ALT - B

Brake chute jettisoned.

KEYBOARD CONTROLS: ALT - HOME/END

Alter DASS range

KEYBOARD CONTROLS: MFD SHORTCUT KEYS

These keys replace the buttons that surround each MFD, in alphabetical order anticlockwise from top left.

| Difficulty | Quick Combat Hi-S | cores | 111 |
|--|-------------------------------------|------------------|--------------|
| Rookie | lame | Level | Score |
| | Timothy Johnson | Rookie | 1000 |
| | Donna Chippendale Richard Taulor | KOOKIE Rookie | 9006 8006 |
| Mission Select | Robin Anderson | Rookie | 7000 |
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| | lan Tasker | Topgun | 1000 |
| Summary | | | |
| Emergency intercept. | | | |
| Destroy incoming hostile bomb and escort aircraft | | | |
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| Main Menu | Help |
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| Simulator | |
| Type of Mission | |
| Free Flight | |
| Basic Training | |
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| Mission 548. Flight# 2 | | | | | | | |
| Mission 568. Flight# 1 | | | | | | | |
| Mission 580, Flight# 1 | | | | | ÷ | | |
| Mission 581. Flight# 1 | | | | | . | a.e. | |
| Mission 582. Flight# 1 | | | | | | | 0 |
| Mission Overview | | X | | A C | 1. 15 | | |
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| Weapon | ASBAAM | | 14 | | and the second | | ~ |
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| #Escort Flights | 1 | | $\mathcal{L}(\mathcal{R})$ | | * | | |
| | Mission Briefing | | ap Flags | Sams Ewr | mAp mor | de: EDIT | |



| Main Menu | |
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| Network Settings | |
| Type: IPX Game Server: Do | |
| Player Name: | |
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| IPK Settings | |
| IPX Socket: 8080 Channel: 1 | |
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| | Startup |

| Type: UrrectP Game Server: Yes Player Name: UinSock TCP Connection For DirectPlay Loose Cannon DirectPlay Settings Service: WinSock IPX Connection For DirectPlay Game: LOOSE CANNON'S Game | Type: UrrectP Game Server: Yes Player Name: UinSock TCP Connection For DirectPlay Loose Cannon DirectPlay Settings Service: WinSock IPX Connection For DirectPlay Game: LOOSE CANNON'S Game | Network Setti | ngs | Service Selection | X |
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| Player Name: WinSock TCP Connection For DirectPlay Loose Cannon DirectPlay Settings Service: WinSock IPX Connection For DirectPlay Game: LOOSE CANNON'S Game | Player Name: Loose Cannon DirectPlay Settings Service: WinSock IPK Connection For DirectPlay Game: LOOSE CANNON'S Game | Type: Game Server: | UITECTP | Minsock IPH connection for UrectPlay Mindem Connection for DirectPlay | |
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GUI - CREDITS

Lists the development team for Super EF2000.

GUI - QUIT MENU

When you wish to leave Super EF2000, select this menu.

GUI - HELP

To access the on-line help, press this button.

GUI - QUICK COMBAT - DIFFICULTY

This varies the skill of enemy pilots and the effectiveness of your weapons. TOPGUN level is the most realistic mode.

GUI - QUICK COMBAT - MISSION SELECTION

Choose the type of mission you wish to fly. If you do well, you will enter the next level automatically. If you lose and you have a high score, you will get the opportunity to enter your name in the high score table. If you do not have a high enough score, you will simply be returned to the arcade menu.

GUI - QUICK COMBAT - MISSION BRIEFING

Gives you a brief overview of the type of action to expect.

GUI - QUICK COMBAT - HIGH SCORES

If you score enough points, you will be able to enter your name in the high score table. Remember, the ultimate challenge is to score high points in TOPGUN mode.

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| Main Menu | Simulator Menu | Help |
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| Custom Mission | | Enemy Type |
| #Planes | 1 2 3 4 5 6 | Tornado IDS |
| Guns Only | Yes Jo | TU16 Badger |
| Altitude | High Medlum Low | 1U26 Backfire |
| Allied Planes | 1 EF2000 EuroFighter Full Weapons Medium Altitude | 5034 |
| | Us. | Ally Thunderbolt |
| Enemy Planes | 1 A18 Thunderbolt full Weapons Medlum Altitude | Clinic Crontont |
| | 2 F14 Tomcat Full Weapons Medium Altitude | Aircraft View |
| | 2 F18 Hornet Full Weapons Medium Altitude | |
| | 4 EF2888 EUROFIGATEF FUIL WEAPONS IIIEDIUM HITITUDE | |
| Position H | ead Un Advantage Disadvantage | |
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| Range 60 | nm 30nm 22nm 6nm | |
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| Weather 🗾 | pod see Fair Poor | |
| Difficulty R | ookie Pro Topgun Accept | |

| Main Menu Simulator Menu | | Help |
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| Missions 2 on 1 mig21 2 on 2 mig21 | Mission Details USING WINGMEN TO ATTACK FOUR SU-35s | |
| 2 on 2 mig29 2 on 1 su35 2 on 2 su35 1 on 1 mig21 4 on 4 su35 Falcon | Altitude: 18.999 ft Heading: 2 degrees Weapons: AA Objective: Intercept the aircraft ahead Range to go: 199 miles 1. Increase power to gain the maximum launch speed. 2. Select a suitable weapon. CENTER key]. 3. Instruct wingmen to engage the hostile aircraft. | |
| Falcon 3 Falcon 4 AIRWAR | 4. Fire your missiles, when you have a missile lock. 5. If your opponents survive, turn and fight. Accept | |
GUI - SIMULATOR MISSION SELECTION

Select a mission from the list. Details are given in the briefing window, and if you accept, you will have the opportunity to decline the mission in the next screen.

GUI - SIMULATOR MISSION DETAILS

Gives details about your starting position in the world, and advice on what to do during the flight. Press 'Accept' to continue to the mission setup screen.



GUI - SIMULATOR MISSION PARAMETERS

Here you select the time of day for your flight, and the desired weather conditions. If you choose default weapons, you will go straight to the cockpit, otherwise you will access the arming screen. Difficulty settings are also available for different player skill levels. If you are new to Super EF2000, start on ROOKIE level.

| Main Menu 🔰 Fly | Options | Player Rating 50% Day 1 80:00:00 |
|--|---|----------------------------------|
| Mission SelectionMission 532.Flight# 2Mission 568.Flight# 1Mission 572.Flight# 1Mission 573.Flight# 1Mission 574.Flight# 1 | Mission Planner Target View Time Advance Map Options Mission Overview Mission Briefing | |
| Mission Overview Target Location Target Weapon Base | N/A None ASRAAM Kristiansand | |
| Diversion Field Role #Planes #Strike flights #Wild Weasel flights #Escort flights | Rygge Escort 4 8 8 1 1 Missinn Briefinn | |
| | mission oneimy | ap flags Sams Ewr mAp mode: EDIT |

GUI - CAMPAIGN: MISSION SELECTION

You can choose to fly any of the EF2000 missions generated in EF2000. Simply scroll through the choices given in the top window and click.

You will notice the information in the mission overview changing accordingly. When you find the mission you wish to fly, press accept.

GUI - CAMPAIGN OPTIONS: MISSION OVERVIEW

Tells you where and what your target is, and the weapon which you need to deliver. It also details your base and a diversion airfield, the type of mission you will fly and the number of wingmen, as well as the types of flight which may accompany you.

GUI - CAMPAIGN OPTIONS: MISSION BRIEFING

If you would like more information about your mission, select this option. It will also tell you whether AWACS, JSTARS and refuelers are available, which in turn affects your ability to access JTIDS data, and your ability to engage in fuel intensive combat such as dogfighting.

GUI - CONTROL ICONS

The small X in the top left hand corner will close the menu.

In some cases, it is possible to overlay windows in order to see more information or make comparisons. A small icon of overlaid pages enables you to bring the current window to the front or send it to the back of the display.

On scrolling windows, arrow icons are available on the right and bottom of the screen. On resizable windows, a small arrow in the bottom right corner will allow you to expand or shrink the window.

GUI - CAMPAIGN: MISSION DEBRIEF

After flying your mission, check the debriefing form to see how well you did. You may also select any of the EF2000 debriefing forms, to see how well your colleagues performed.

GUI - CAMPAIGN: TACTICAL

Overlays vital information on the map concerning coverage by AWACS, JSTARS, SAM sites, AAA sites, and refuelers. Also shown is the supply status at the different airbases.

GUI - CAMPAIGN: STRATEGIC

Overlays to show which territory is in enemy or allied hands, where the front line or forward edge of the battle area (FEBA) is located, and which airbase is currently the focus of attention.

GUI - CAMPAIGN OPTIONS: TIME ADJUST

In EF2000 you don't have to start your campaign at the beginning. Skip through by days, hours or minutes, to the point you desire.

There is a possibility to return by eight hours, but the results will be unpredictable.

GUI - CAMPAIGN: FILES

Save the campaign at the current time, or load a previously saved campaign.

NOTE: you cannot save the mission during play. Either finish the mission , abort it or end it. In the latter case, the AI will predict the outcome of your mission for you.

GUI - CAMPAIGN: MAP MODES

1. Geographic gives the general topography of the region.

2. Political shows the disposition of territories and shows major towns and cities.

3. Strategic is a composite map of electronic intelligence from JSTARS and satellite images, and shows major vehicle movements within the world.

4. The topological map is useful for planning a waypoint route to follow valleys, and terrain mask your flight from enemy radars. The map screen also contains a handy toolbar for ease of use.

GUI - CAMPAIGN: MAP TOOLBAR

| MAP: | This button cycles through the four types of map. |
|-----------|--|
| FLAGS: | Toggles flags depicting target nationality on and off. |
| SAMs: | Highlights SAM coverage - useful for planning routes. |
| EWR: | Plots the Early Warning Radar coverage. |
| Z-In: | Zooms into the map. |
| Z-Out: | Zooms out of the map. |
| FUEL: | Toggles NATO refueler icons. |
| MAP MODE: | Edit lets you modify items on the map. |
| | |

Zoom lets you focus on details in the map.

GUI - CAMPAIGN: MISSION PLANNER MENUS

Strike type: For choosing a mission type and target position

Base: For picking a take-off base

- Targets:For assigning different targets for each member of the strike flights
- WP: A waypoint editor for planning the mission route
- ATC: Air traffic control, for determining take-off time and weather.

GUI - CAMPAIGN: STRIKE TYPE

On the left of the screen is a list of different mission types ranging from airfield and port strikes to AWACS and refueler kills. Clicking on one of these will show the available target locations for each type of mission chosen.

All you need to do is click on the map to choose which targets you wish to attack. In the bottom left is a window which gives the operational status of the specified target and a value. This shows the number of times that this target has been attacked (either by you or someone else).

GUI - CAMPAIGN: SELECTING A BASE

This screen allows you to choose a take-off base and specify the composition of the different flights in the mission. Choose a base with enough free EuroFighters to fly the mission. When the war gets under way, you may notice that EuroFighters disappear from the vulnerable front-line bases. This is a precaution to ensure that enough survive to prolong the fight.

GUI - CAMPAIGN: SELECTING PLANES

Once a base has been chosen, you are able to select up to 15 planes to accompany you, each with a different mission type if you wish. To assign an aircraft to a flight, simply click on an empty slot. To clear an aircraft just click again on the highlighted slot

NOTE: the number of available slots is sixteen. You may assign a maximum of four aircraft to each flight.

The player does not need to use all the free EuroFighters, but each different flight can only have a maximum of four aircraft. For the network game, all players must have an aircraft and a role.

GUI - CAMPAIGN: TARGETS

Here there is a window containing all the individual targets in this area. Clicking any of these will cause the camera to fly to that particular target. In the bottom left corner is a window that is used to assign different targets to each of the members of the strike flight.

The NEXT and PREV icons cycle around the strike members. The ASSIGN icon assigns the currently displayed target to that player. VIEW will show the target that a player has designated.

NOTE: Each member of the strike flight must have a target.

GUI - CAMPAIGN: WAYPOINTS

This screen allows the player to define a waypoint route for the mission. Waypoints are placed by clicking on the map. To add a new waypoint simply right-click on the map. If you are over an existing waypoint, right-clicking will remove it.

Waypoints can be dragged by holding down the left button on the appropriate waypoint. To insert an intermediate waypoint simply click on one of the small red boxes between each pair of waypoints.

GUI - CAMPAIGN: WAYPOINT HEIGHT SETTING

In this window the height of each ewaypoint can be set. For low level flying you can zoom in to show heights of less than a thousand feet.

GUI - CAMPAIGN: WAYPOINT TARGET SYMBOL

If a waypoint is dragged over the strike area it will turn into a red triangle, therefore defining the strike waypoint. Waypoints can also be dragged over refuelers to define refueling points. These points are shown using a green circle.

GUI - CAMPAIGN: FUEL PLANNING

The fuel indicator takes into account the various mission parameters to calculate fuel. However due to the nature of combat it is only to be used as a guide.

GUI - CAMPAIGN: AIR TRAFFIC CONTROL (ATC)

This screen allows you to choose the time and conditions of take-off.

GUI - CAMPAIGN: TARGET TYPE

Pick from a list of individual targets at the chosen location. If you have wingmen or other strike planes accompanying you, use this list to assign individual targets to them.

GUI - CAMPAIGN: TARGET DETAILS

Tells you what state the target is in; i.e. whether it is still functional, or whether a previous attack has rendered it inoperable.

GUI - CAMPAIGN: HELP

There are a few dependencies in the mission planner; for example, you cannot click on the TARGETS screen without first picking a target. For all cases such as these, a warning box will appear to tell you why a particular operation cannot be performed and will suggest how to remedy the situation. When the FLY MISSION button is pressed the mission planner will check through the mission and report any errors and their solutions.





| Campaign Menu Help | |
|---|--|
| Strike Type Base Targets WP's ATC | |
| Control building Radar dishes COMMs building Directional Radar COMMs building Radar globes COMMs building Radar dishes COMMs building Radar dishes | |
| Name: Target: Preu Next Assign Uiew | |



| Campaign M | enu | Help | | |
|---|---|--|--------------------------------------|--|
| Strike Type | Base | Targets U | IP's ATC | |
| | | | No. Alas | |
| Takeoff | T.O.T | Landing L | lleather | |
| 88:88 | 81:37 | 02:50 | Good | |
| 00:48 | 82:17 | 03:30 | Good | |
| 81:28 | 82:57 | 84:18 | Good | |
| 02:08 | 83:37 | 04:50 | Good | |
| 02:48 | 84:17 | 05:30 | Good | |
| 89:28 | 94:57 | 86:19 | Good | |
| 04:08 | 85:37 | 86:58 | Good | |
| 84:48 | 86:17 | 87:38 | Good | |
| 85:28 | 86:57 | *88:18* | Good | |
| 86:88 | 87:37 | *08:50* | Fair | |
| | | | | |
| | | | | |
| 100 | Flu | Mission | | |
| 1 1 220 | 1.19 | | - | |
| 83:28 84:88 84:48 85:28 86:88 | 84:57 85:37 86:17 86:57 87:37 | B6:19 86:50 97:30 *88:10* *88:50* Mission | 0000 0000 0000 0000 fair | |



GUI - ARMING: WEAPONS SELECTION

Choose the desired weapon from the list.

If a pylon is available, a green box will appear on the aircraft to indicate where the weapon may be loaded.

Place the cursor over the available pylon, and when the box turns orange, click the left mouse button to load the weapon.

NOTE: weapons are loaded symmetrically, to save time.
GUI - ARMING: AIRCRAFT VIEW

Pitch plane and yaw plane give you manual control over the plane position. Use the left and right mouse buttons to switch directions.

Front, side, underneath and angled are all preset views,

GUI - ARMING: PYLON SETTINGS

Clear pylon - clear an individual pair of pylons. Clear all - remove all weapons and fuel tanks. Default - select the default weapons for the mission.

CUSTOM AIR TO AIR

The custom air to air section of the game allows you to hone your dog fighting skills against a variety of opponents; both Allied and Russian planes. The mission you fly is fully configurable and allows pilots of all abilities to find an appropriate match against EF2000's SMART PILOTS Artificial Intelligence.

The custom Air To Air option can also be played multi-player with each of the human players flying EF2000s in one of the flights.

CUSTOM AIR TO AIR - #FRIENDLIES

This option allows you to set the number of EF2000 planes that are present in your flight. Setting this value to one will leave you on your own.

CUSTOM AIR TO AIR - #ENEMIES

This selection allows you to set the number of enemy planes that you are pitted against you. Those pilots who thrive on long odds can set up 1 on 12 engagements against other EF2000s (though we accept no responsibility for any bruised egos).

CUSTOM AIR TO AIR - GUNS ONLY

Selecting 'Yes' will remove all AA missiles from all planes within the theater of combat. This will force all engagements to be made within gun range. This option is especially useful for those who like their dogfights "Up close and personal".

CUSTOM AIR TO AIR - LOCATION

The custom Air To Air section of the game allows you select one of several locations for your dogfight to take place. It's possible that you may not have seen some of these locations before. However remember not to spend too much time looking at the scenery; EF2000 is not a 3D travel brochure and there is at least one hostile pilot out there who wants to ruin your day.

CUSTOM AIR TO AIR - RANGE

The range selections allow you to specify the starting distance between your flight and that of the opposing flight. This is very useful for perfecting your Beyond Visual Range (BVR) combat technique.

CUSTOM AIR TO AIR - TIME

This selection allows you to select the time of day that your dogfight will take place. The 'Day' selection will provide you with better visibility than the 'Twilight' and 'Night' options.

CUSTOM AIR TO AIR - WEATHER

This selection will change the weather effects within the game environment. Selecting 'Good' will provide you with good visibility and no cloud layer. Selecting 'Fair' will provide you with a cloud layer and fair visibility. However selecting 'Poor' will reduce visibility and provide a cloud layer.

CUSTOM AIR TO AIR - DIFFICULTY

The difficulty selection allows you to adapt your mission to your level of skill. Three levels of skill are provided: 'Rookie' 'Pro' and 'TopGun'. The difficulty levels change the accuracy of the weapons used within the engagement.

The 'Rookie' and 'Pro' levels reduce the accuracy of enemy missiles and increase the chances of player missiles hitting their targets. If the user selects 'TopGun' then all the missiles within the simulation will be modeled with real world accuracy.

CUSTOM AIR TO AIR - ENEMY TYPE

It is within this section that you will select the type of plane that the enemy flight will be equipped with. The player can choose to face off against allied planes as well as those operated by the Russians and Neutral countries. Each plane has particular characteristics and capabilities.

Newer pilots may choose to practice on unarmed planes such as the IL 76 Mainstay or IL78M Refueler and then try a lower quality fighter such as the MiG 21. Experienced pilots might like to try their hand at trying to defeat a top of the line F22 or SU35 with guns only. Each time you select an enemy type a spinning model of the plane will appear in the enemy view window.

After you have finished making your choices select 'Accept' to enter the arming screen then push 'Accept' once more to enter the mission.

GUI - CAMPAIGN - LEVEL SETTING

The difficulty selection allows you to adapt your mission to your level of skill. Three main levels of skill are provided: 'Rookie' 'Pro' and 'TopGun', with steps between The difficulty levels change the accuracy of the weapons used within the engagement.

The 'Rookie' and 'Pro' levels reduce the accuracy of enemy missiles and increase the chances of player missiles hitting their targets. If the user selects 'TopGun' then all the missiles within the simulation will be modeled with real world accuracy.

GUI - CAMPAIGN - PLAYER PERFORMANCE

If you would prefer total realism, where your performance is judged as one small aspect of the total war, then select 'NO'.

Conversely, if you feel that your performance should influence the general outcome of the war, then select 'YES'.

GUI - CAMPAIGN - PLAYER RATING

You are given a performance score, which reflects how successful you have been on the assigned missions during your tour of duty.

GUI - CAMPAIGN - MISSION TIME

This indicates the temporal status of the campaign. It is useful to observe this clock after using the 'time advance' feature.

GUI - MULTIPLAY SERVER SELECTION

Choose whether you are to be server or not. One player only must be elected as the server, and this player will then be responsible for selecting the type of game to be played.

GUI - MULTIPLAY PLAYER NAME

Players should enter their unique call-signs here. In multiplayer games, players may elect to see these call-signs displayed beneath any target tracking box.

GUI - MULTIPLAY SOCKET NUMBER

This is a number allocated to the network game. It must be the same for all connected players in the same game. Please consult your network administrator before setting up any network games.

GUI - MULTIPLAY CHANNEL

If experiencing difficulty, Consult your network administrator for this setting

GUI - MULTIPLAY SEGMENT

If experiencing difficulty, Consult your network administrator for this setting

GUI - MULTIPLAY START-UP

This button will initiate the multiplayer game.

GUI - MULTIPLAY SERVICE

This window informs you which settings have been selected.

GUI - MULTIPLAY GAME

This window informs you who is in control of the multiplayer session; i.e. who is the server.

GUI - MULTIPLAY SERVICE SELECTION

It is possible to select one of three options: an IPX connection; a modem (serial) connection; or a TCP/IP connection.

CUSTOM AIR TO AIR - NUMBER OF PLANES

This allows you to specify the number of planes in opposing flights. Your flight may contain up to eight, while the other four enemy flights may contain up to six planes each.

CUSTOM AIR TO AIR - ALTITUDE

Determines what altitude each flight will start at. There are three choices: Low, or around 500 ft; medium, or around 15,000 ft; and high, or around 30-40, 000 ft.

Vary the heights to increase the combat problem; e.g. destroy fast, low flying SU-34s, protected by SU-35s at medium altitude, while heavy bombers fly at high altitude and threaten to break through your defenses.

CUSTOM AIR TO AIR - POSITION

Lets you choose several start scenarios: advantage, where you are behind the enemy flights; disadvantage, where the enemy flights are behind you; or none where you are head-on with the enemy.

CUSTOM AIR TO AIR - AIRCRAFT VIEW

Shows a spinning three-dimensional model of your chosen opponent.

GUI - CAMPAIGN OPTIONS - TARGET VIEW

This will allow you to obtain a three dimensional view of the currently selected target.

GUI - CAMPAIGN OPTIONS - MAP OPTIONS

This will reveal a menu that allows you to set the various icons displayed on the map. For example, you are able to select icons belonging to each combatant, from airbases to political targets.

This menu is useful whenever you want to make a visual assessment of the war's progress. However, turning on too many icons will clutter the map unless it is magnified for greater detail.

GUI - CAMPAIGN MISSION PLANNER: BASE MISSION ROLE

This will reveal a menu that allows you to assign different mission roles to the computer controlled planes. Possible mission types include: STRIKE 1 (usually your flight's mission); STRIKE 2, which is a secondary wave of bombers; WW, or Wild Weasel, who are assigned purely to destruction or distraction of enemy air defenses; and ESCORT, who will provide AA cover against enemy fighters.

GUI - CAMPAIGN MISSION PLANNER: BASE AIRCRAFT SELECTION

This will produce a menu that allows you to specify the type of aircraft used on the four flights. Note that aircraft have been pre-selected to reflect their suitability for the roles.

GUI - CAMPAIGN MISSION PLANNER: TARGETS LIST

Pick from a list of individual targets at the chosen location. If you have wingmen or other strike planes accompanying you, use this list to assign individual targets to them.

GUI - CAMPAIGN MISSION PLANNER: TARGETS DESCRIPTION

Gives a detailed description of the selected targets status.

GUI - CAMPAIGN MISSION PLANNER: TARGETS PREV

Select previous computer or player controlled plane.
GUI - CAMPAIGN MISSION PLANNER: TARGETS NEXT

Select following computer or player controlled plane.

GUI - CAMPAIGN MISSION PLANNER: TARGETS ASSIGN

Designate the currently selected target to the currently selected plane.

GUI - CAMPAIGN MISSION PLANNER: TARGETS VIEW

View the assigned target in a rotating three-dimensional view.

GUI - CAMPAIGN MISSION PLANNER: TARGET VIEW

A spinning three-dimensional representation of what the actual target will look like. Use this view to spot landmarks that will help you to determine the correct approach.

Remember, if you have enemy fighters to deal with, your pre-programmed flight plan may be void. Visual recognition of the target will then be essential.

GUI - CAMPAIGN MISSION PLANNER: WAYPOINT ROUTE INFORMATION

As the route is being defined the route information window is constantly updated. This shows the route speed setting, length and approximate duration of flight at the current speed.

There is also a fuel bar which gives the player an approximation of how much fuel is required to fly the route. This bar takes into account the speed, length and height of the route but is still only a rough guide as to the amount of fuel required.

Note: A route must have a strike point assigned and the previous waypoint must be free to be used as the initial point, i.e. The previous waypoint cannot be a refueling waypoint or take-off base.

GUI - CAMPAIGN MISSION PLANNER: WAYPOINT HEIGHT

In the bottom left of the screen, you'll find a window which is used to set the height of each waypoint. This is done by clicking in the box at the required height for each waypoint. The actual height can be seen in the window above, e.g. HEIGHT 10450. This value also changes to the height of a waypoint on the map when it is moved.

GUI - CAMPAIGN MISSION PLANNER: ATC TAKE OFF SLOTS

The Air Traffic Control screen allows the player to choose a take-off time for the mission. This takes into account weather and lighting conditions for each particular time of day.

The player can now click on the FLY MISSION button to go into the main game and fly their newly created mission.

GUI - CAMPAIGN - MISSION PLANNER: ATC FLY MISSION

This will launch you into the campaign mission.