

Milviz Presents:



F-4E Phantom II

# Military Visualizations Inc.



## *Milviz F4E User Guide for: FSX & P3D 2.1+*

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**77 Mont Royal West, Suite 402 Montréal,**

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**[www.milviz.com](http://www.milviz.com)**

**MINIMUM SYSTEM REQUIREMENTS:**

**THIS PRODUCT REQUIRES FSX ACCELERATION OR PREPAR3D V2.1. IT IS ALSO DESIGNED FOR NEWER COMPUTER SYSTEMS WITH AT LEAST A 2.6 CORE 2 DUO, 4GB OF RAM, 1GB VIDEO CARD WITH DX10.1 OR GREATER AND 1.2GB OF FREE DISK SPACE.**

**OPTIMAL REQUIREMENTS ARE AN I7 960 CPU, 8 GB RAM, 2 GB VIDEO CARD, OR GREATER.**



Brian Alexson	Beta Tester
Ryan Butterworth	Beta Tester
Vassilios "Dimus" Dimoulas	Beta Tester
Bryant "Storm" Hardee	Beta Tester
Ville Keränen	Beta Tester
Rick Mackintosh	Beta Tester

**Colin Pearson, Creative Director**

Jon Bleeker	Coding, Dynamics
Jenya	Model
Chuck Jodry	Coding, Effects
Steve Jordan	Forum Moderator
Mike Maarse	J79 Sound Engineer
Jim Stewart	Marketing Manager
Bernt Stolle	Flight Dynamics Engine
Federico Sucari	Special code and programming
Torsten	F4 Pilot/Project Consultant
Dmitry Usatiy	Paint
Wills T. Wills, Captain USAF (sep)	F4 Pilot/Project Consultant

### *Special Thanks*

Milviz would like to express their gratitude and thanks to those not listed in the credits above. Their artistic and technical contributions not only helped to make the Milviz Phantom II F-4E possible, but undoubtedly, the most superior rendition available to the flight sim world to date .

**TECHNICAL WRITER: RICH PETOCZ**

The goal of this user guide is to familiarize the reader with the Milviz Phantom II F-4E as it relates to **FSX and Prepar3D, (v2.1+)**, flight simulators. The User Guide intentionally avoids excessive technical terminology and leaves that aspect to the professionals who released the *official* McDonnell Douglas F-4E manual, (included with this package). It's meant for those relatively new to flight simulation in general, and/or have little experience with official aviation procedures. The **MD F-4E PDF manual ("TO 1F-4E-1")** is included in the "*Documents*" folder. It's an important resource meant to be used as an adjunct to this User Guide or vice versa, depending on the reader's flight-sim and aviation experience.

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(TO 1F-4E-1)**

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# Installation:

## [Turn Off your Anti-Virus!]

Please take a few moments to disable all your anti-virus and malware security software before beginning the F-4E installation. Taking a moment to do that can avoid time-consuming troubleshoots and correspondences with the Milviz support team!

1. Download the **Milviz F-4E Phantom II** to your desktop or folder of your choice and unzip the file.
2. After disabling your anti-virus software, right-click on the installer and select “**Run As Administrator**”.
3. In the following screen, select your simulator version and then click “**Next**”.
4. The installer will locate the flight simulator you've selected and complete the installation. (If you have FSX & P3D and want to install the F-4E in each, simply re-run the installer after it completes the installation in the sim you’ve selected first).
5. Upon the completion of the installation, you’ll find a **Milviz ACM** Icon in your Desktop which will give you many configuration options for the F-4E you installed<sup>†</sup>. If you already have one or more Milviz aircraft ACM Icons on your desktop from previous purchases of various Milviz aircraft, you’ll likely find the F-4E added to it.
6. Re-enable your anti-virus and other security software.

In addition, you'll find the official **McDonnell Douglas\*** F-4 E Phantom II PDF manual as well as this **F-4E User Guide** in the Milviz Phantom II “***Documents***” folder located in your FSX or P3D **Sim Objects** folder.

\* The official **MD F-4E PDF** manual, (filename “**TO 1F-4E-1**”), is a searchable document. Throughout this user guide, there will be references to specific page numbers of the MD F4E PDF manual. You can refer to those pages if you want a more complete, detailed explanation on the same subject the covered by the guide. For that reason, we recommend that you keep the MD F4E PDF manual close at hand.

<sup>†</sup>**IMPORTANT:** User guide revisions which include the abbreviation “*Ltd*” in the file name are an incomplete version meant to accompany early ‘Beta’ model releases. This user guide is a “limited” version and may include and/or omit features of the F-4E software partially, or entirely inoperative. [This is a temporary condition.](#)



# Some features simulated in the Milviz F-4E:

## • Avionics Features:

### ◇ AN/ASN-63 INS fully simulated which includes:

- \* Full mechanical simulation of inertial platform levelling & **Gyro Comp** alignment<sup>2</sup>.
- \* Heading Alignment, (**Hdg Mem**), mode<sup>3</sup>.
- \* Realistic *present position drift* resulting from alignment errors and platform drift.
- \* Updates these drifts, (due to alignment and platform drift errors ), using the **AN/ASN-46A** navigation computer.

### ◇ AN/AJB-7 Attitude Heading Reference System, (including 3 compass control panel modes) consisting of the following:

- \* Compass mode; providing "pure magnetic heading" info, (to the HSI in the event of a AHRS failure)
- \* Directional Gyro mode; providing "reliable magnetic heading" info, (close to the pole areas)
- \* Slaved Mode; providing "Gyro stabilized magnetic heading" input

### ◇ AN/ASN-46A navigation computer fully simulated and includes:

- \* Waypoint input based on one stored memory waypoint, (**TGT 2 mode**), and waypoint **Lat/Lon counters**, (**TGT 1 mode**).
- \* Dead reckoning mode based on **Air Data computer** & manually input wind/magnetic variation data.
- \* **Air-Data computer/mode** updates itself and the INS with the present position updates it receives.
- \* Automatically set present position updates & flight-plan waypoint sequencing modes via desktop ACM, ( for single players only)

## • Desktop ACM includes but not limited to<sup>†</sup>:

### ◇ KEYBOARD/JOYSTICK/HARDWARE CONTROL MANAGER TO EASILY ASSIGN YOUR HOTAS BUTTONS TO THESE FUNCTIONS:

◇ Flaps	◇ Autopilot Master/Altitude Hold switches	◇ Auto Flight-plan waypoint sequencing toggle (retrieves waypoint data from FSX flight plan)
◇ Speed-brake	◇ Nose-Wheel-Steering (NWS) control	◇ MIL/Afterburner threshold control
◇ Pitch/Roll/Yaw trim	◇ Drag Chute control	◇ Afterburner can be engaged either by throttle position, or by throttle position combined with input command
◇ Afterburner control	◇ INS Alignment time control	
◇ Engine Master switches	◇ Cold and Dark/Ready to Fly, (default), control	
◇ Engine start switch	◇ Radar Warmup toggle	
◇ Throttle idle/cutoff control	◇ Auto Present Position Update toggle	
Pitch/Roll/Yaw SAS switches		

<sup>†</sup> **Desktop & In-Game ACM is subject to changes and additional functions with product updates.** Therefore, this user guide may not reflect all available options beyond this revision date.

<sup>2</sup> Real-world INS alignment can take 10 minutes or longer depending on a number of variables. The Milviz F-4E accurately simulates the Gyro Comp alignment process right down to the waiting time. However, you can shorten that time to whatever you wish with the Alignment Time Control feature in the F-4E's desktop ACM!

<sup>3</sup> The Heading Memory Alignment method acquires previously stored INS alignment information from a successfully completed Gyro Comp alignment. Therefore, you must successfully complete at least one Gyro Comp alignment from start to finish as instructed in the F-4E User Guide , (beginning on pg. 14), or the MD F4E PDF manual, (beginning on page 177).



# PHANTOM II F-4E

## BASIC SPECS

All dimensions are approximate, derived in general from aircraft references beginning with those in category ***Block 35*** and up as listed in MD F4E PDF, beginning on pg. 8.

Weights are rounded to the nearest 500lbs and an expanded weapons configuration is covered on MD PDF pgs. 11&12.

<b>Engines</b>	<b>J79-GE-17 [x 2]</b> 11,870lbs. thrust (Mil pwr) / 17,900lbs. thrust (Max pwr)
<b>Primary Armament [Close air support missions]</b>	Choice of missiles, rockets, & bombs
<b>Primary Armament [Long-range attack missions]</b>	Conventional or Nuclear weapons
<b>Secondary Armament</b>	20mm nose gun
<b>Wingspan</b>	38.5 ft. [27.8 ft. when folded]
<b>Length</b>	63.0 ft.
<b>Height</b>	16.5 ft.
<b>Max Speed</b>	Mach 2.2
<b>Operating weight [lbs.]</b>	33,500-33,000 GW
<b>Plus full internal load, [2] ext. wing tanks, and Aero-27A rack</b>	49,500-50,500 GW



## The MD F-4E PDF Manual & This User Guide

The McDonnell Douglas Phantom F-4 has earned its place in history among one of the best long-range, supersonic intercept fighters of the 20th century. Although it had a "love/hate" relationship with its pilots early on, the aircraft's upgrades and changes quickly won their admiration.


It was one of the few aircraft to see the Vietnam War from start to finish. From about 1959, the Phantom II went on to break at least 15 aeronautical world records.

The résumé of the Phantom II is extensive and beyond the scope of this user guide. You can easily find volumes of information regarding the F-4's history and evolution. Even through the F-4's progressive stages, there were small "tweaks" that separated the aircraft within those stages/versions.

Therefore, you'll note that McDonnell Douglas lists variations of the F-4E in categories called "**Blocks**". You'll find a detailed table referencing these *Blocks* on **page 8** of the McDonnell Douglas F-4 E manual.

Within these *Blocks*, the F-4 E's specifications vary in some way to adjust for an addition to the base configuration of that stage. As a result, some of the specifications within this user guide are approximate.

Milviz has taken some of the best of the F-4E's attributes from various *Blocks* and combined them into one, single, F-4E configuration. It's incredible how many of the small upgrades and changes throughout the MD F4E's progressive adaptation, were included and simulated by the Milviz team with such detail and precision!

Some of the following pages of this guide, may contain an icon similar to this one:  in the top-left corner of the page.

It'll contain the PDF page number/s within the MD's Official F4E manual, covering the subject summarized by the guide, in more detail.

Even though the MD F4E PDF manual is searchable, this additional page reference is to make it that much easier and quicker to find. However, the pages noted are not necessarily the only pages with information on the subject.

Because the F-4E has many advanced systems, Milviz has included an "**Aircraft Configuration Manager**", (desktop ACM), as well as an **in-game ACM** and '**Genny**'<sup>†</sup>, (External Starter Generator), which will quicken some of the simulated procedures if you're pressed for time.

However, DON'T be fooled by these "shortcuts"! The experienced pilots and "purists" out there should definitely expect as near a real world immersion as they can hope for in a home flight simulator when they choose. It's all up to you!

Simply open the desktop ACM and select the configuration you wish. You can elect to follow the real-world INS alignment procedure if you like, (a process that can take 10 minutes or more).

Alternatively, you may want a little 'taste' of it but without the real-world waiting time. If so, you can shave off as much time as you wish but still go through the sequence and steps real-world F-4 pilots followed but without the *real world waiting* time!

<sup>†</sup>**IMPORTANT:** User guide revisions which include the abbreviation "*Ltd*" in the file name are an incomplete version meant to accompany early 'Beta' model releases. This user guide is a "limited" version and may include and/or omit features of the F-4E software partially, or entirely inoperative. [This is a temporary condition.](#)



## ABOUT THE F-4 E STARTING METHODS (AND INS PLATFORM ALIGNMENT PRECAUTIONS)

These are the 4 starting methods, (on-ground), covered in the MD F4E PDF manual:

1. External power source and cartridge
2. Battery and cartridge
3. External power source and pneumatic ground cart
4. Battery and pneumatic ground cart

Milviz replicates all of these and in addition, a “**Ready-To-Fly**” state which can be selected within the desktop **ACM**. If you select the RTF state, the F-4E will be ready to go and even the INS platform will be aligned! Of course, “**Cold & Dark**” is the alternative, and must be selected for the manual startup procedures.

The following pages in this guide will cover the **2nd** starting procedure in the list. This procedure requires no external power or pneumatic supply. It utilizes the aircraft’s **on-board battery and 2 pyrotechnic cartridges**.

There are two points in this starting method, which can’t be simulated precisely, due to some flight simulator limitations. One is the actual loading of the pyrotechnic cartridges into their respective chambers. Therefore, you may assume they are in place.

The other, is holding down the “**Ignition Button**”, (located on each throttle), while moving the throttle from its full back position.

This action will be replicated in the flight simulator by left clicking on the throttle grip itself. When the time comes, this will cause the throttle selected, to ‘jump’ out from the locked/off position and into idle.

Please keep in mind that you should select the ‘**in-game**’ **ACM**, (**Shift+1**), before starting the plane. That ACM panel is where you’d select your additional, external fuel tank/s and fuel quantity configuration as well as armament and more.

If you choose to start the F-4E using the 1<sup>st</sup> method, (External power source and cartridge), you must press “**Shift + 2**” in order to bring up the “**Generator**” panel.

Immediately following the startup, you’ll begin the steps to align the **Inertial Navigation Set platform**. **INS** warm-up and/or alignment steps will fail if attempted during the aircraft startup procedures. MD recommends the pilot confirm the *selection knob*, (on the rear cockpit’s “**Inertial Navigator Control Panel**”), is set to **OFF** prior to initiating the engine startup process.

In addition, the aircraft should not be moving when the **Gyro Comp INS Alignment** process is being executed. Just set the parking brake and leave it that way until the “**Align**” light Starts blinking and the **selection knob** is turned to “**NAV**”. *You may wish to remember that the longer the selection knob is left in the “Align” position after the light begins blinking, the more accurate the alignment will be!*

That said, anytime after the light begins to blink, the selector may be moved to “**NAV**” and the platform set will be ready for use. The “**Inertial Nav Sys Out**” lights, (in both cockpits), should go out, (after a successful alignment), when the selector knob is turned to “**NAV**”.

*( We’ll cover more on that in the pages to come.)*



## F-4E ON-BOARD "BATTERY & CARTRIDGE" STARTUP PROCEDURE:

Please be sure to configure your aircraft fuel supply and armament with the "in game ACM", (Shift +1), and that both Left and Right Generator switches are in the off, (center), position.

Please make the assumption that the pyrotechnic cartridges are already locked in their starter chambers.

1. **Engine Master switches** (Both) to "ON"
2. **Right Generator switch** to "ON" (you'll be starting the right engine first)
3. Left-Click the **Right & Left Throttle Grips**, (the throttle handles will each 'jump' forward away from their locked, off, position and into the Idle position)
4. **Right-Click the Engine Start toggle switch**, (this switch fires the Right engine's cartridge and is a momentary toggle switch). It'll snap back to the middle position after you click it

-At this point, the right engine start cartridge will detonate, beginning the right engine "light-off"-

You will note the readings of the right engine's following gauges:

- ◇ EGT: 220°C to 420°C
- ◇ Fuel Flow: should settle between 800 and 1400 PPH at idle
- ◇ RPM: 64% - 66%
- ◇ Oil Pressure: 12 PSI minimum
- ◇ PC-2 gauge \*\*: (left hyd. gauge on pedestal) **3000 psi +/-250 psi**
- ◇ Utility Hydraulic Pressure \*\*: **2775 psi +/-225 psi (for the right engine only)**. After the left engine has started, this same gauge will indicate **3000 psi +/-250 psi**
- ◇ RH GEN OUT and BUS TIE OPEN lights will go out
- ◇ Note that the "Check Hydraulic gauge" light will stay on until both engines have been started and all 4 pumps have reached a pressure above 1750 psi

Even after each engine has started, an increasingly audible turbine 'spin-up sound' will be heard until the pyrotechnic cartridge fuel has been depleted.

-When the right engine's gauges have all indicated their proper idle readings, continue with the startup procedure for the left engine-

5. **Left Generator switch** to "ON"
6. **Left-Click the Engine Start toggle switch** (and observe gauges as was outlined for the right engine)

Before you begin this engine-start procedure, be sure the selection knob on the Inertial Navigator Control Panel, (rear cockpit, fwd., R-H panel), is set to **"OFF"**!



Inertial Navigation Control Panel



Pilot's Pedestal Panel

\*\* MD F-4E PDF manual pg. 29, covers the two hydraulic gauges, (PC 1 / 2 & Utility), in detail and exactly how and where, they get their readings.





## F-4E *BASIC* SHUTDOWN PROCEDURE:

The engine shutdown procedure outlined here is based on the assumption that both engines were running, (as opposed to single engine taxiing options), and the “After Landing checklist”, (MD F-4E PDF page 114), has been accomplished. Only those steps applicable to the flight simulator environment are covered. Seat or Oxygen adjustment steps for example, are not included in this outline.

1. Wheels Chocked (Press Shift+1 for the ACM and select “Chocks”)
2. Inertial Navigation Power Control Knob (WSO Cockpit) to “OFF”
3. Navigation Computer Selector Knob (WSO Cockpit) to “OFF”
4. Right Throttle, (from the Front Cockpit) Left-Click to “CUT OFF” position (full back)
5. Left Throttle Left-Click to “CUT OFF”
6. Engine Master Switches to “OFF”
7. Right-Click the Left and Right Generator switches to move them to the center position
8. ALL remaining Switches in the WSO and Pilot cockpits should be placed in the “OFF” position

## Cockpit Layouts

As mentioned earlier in this user guide, McDonnell Douglas upgraded and/or modified the systems of each F-4 as it progressed through the alphabet. On **page 8** of the **MD PDF manual**, you'll find a table comprised of **F-4E Airframe Serial Numbers**, which have been grouped together and then assigned to a specific group or, "**Block**".

The configuration of the cockpit consoles and instrument panel layouts would be altered and modified to take the latest updates, modifications, and upgrades available as the technology progressed with time. Between the 2 pairs of cockpit layouts illustrated in **pages 465 through 469**, it is possible to configure any of the F-4E cockpit layouts assigned to a specific *Block* as indicated in that table, up to the most recent revision date of the MD PDF manual.

If this sounds confusing, don't let it be. All you need to know is that the Milviz F-4E cockpit includes some of the most advanced systems and platforms available for that airframe's time period, and are accurately simulated!

The following pages are the cockpit maps for the Milviz F-4E's instrument panels and consoles as they are actually configured for FSX and P3D flight Sims.

This means that you won't have to try to mix, match and memorize the configuration combinations. There may be slight discrepancies regarding a specific version of navigation or communication model but nothing significant.

*The page numbers in yellow text refer to the pages in this user guide for that specific instrument panel or console. Pages 14 through 16 cover the front, (Pilot), cockpit layout and pages 17 through 19 cover the rear, (WSO), cockpit.*

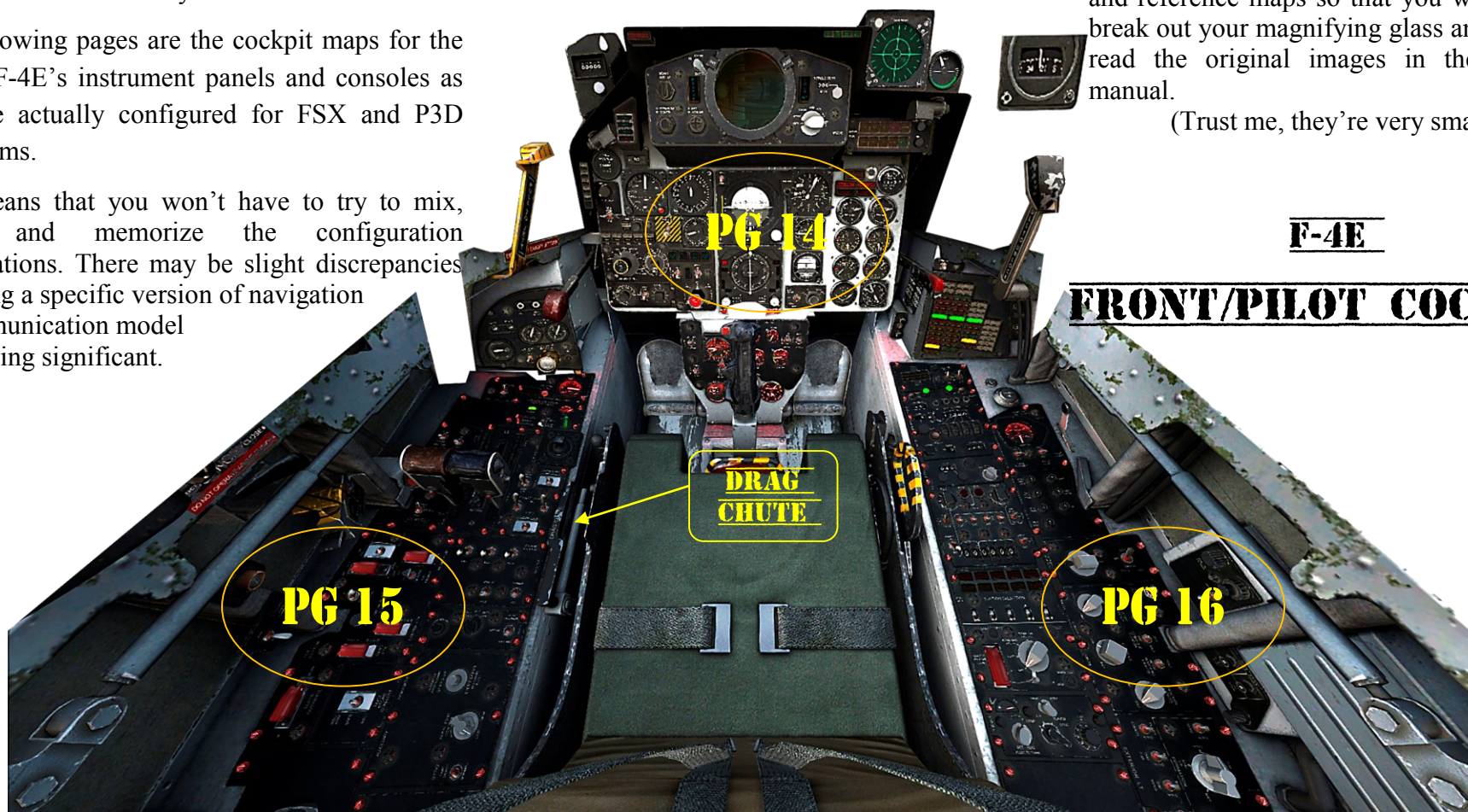
Milviz included the cockpit maps here so you would have to open both documents side by side to identify the systems.

We've also enlarged and enhanced the ID lists and reference maps so that you won't have to break out your magnifying glass and attempt to read the original images in the MD PDF manual.

(Trust me, they're very small!)

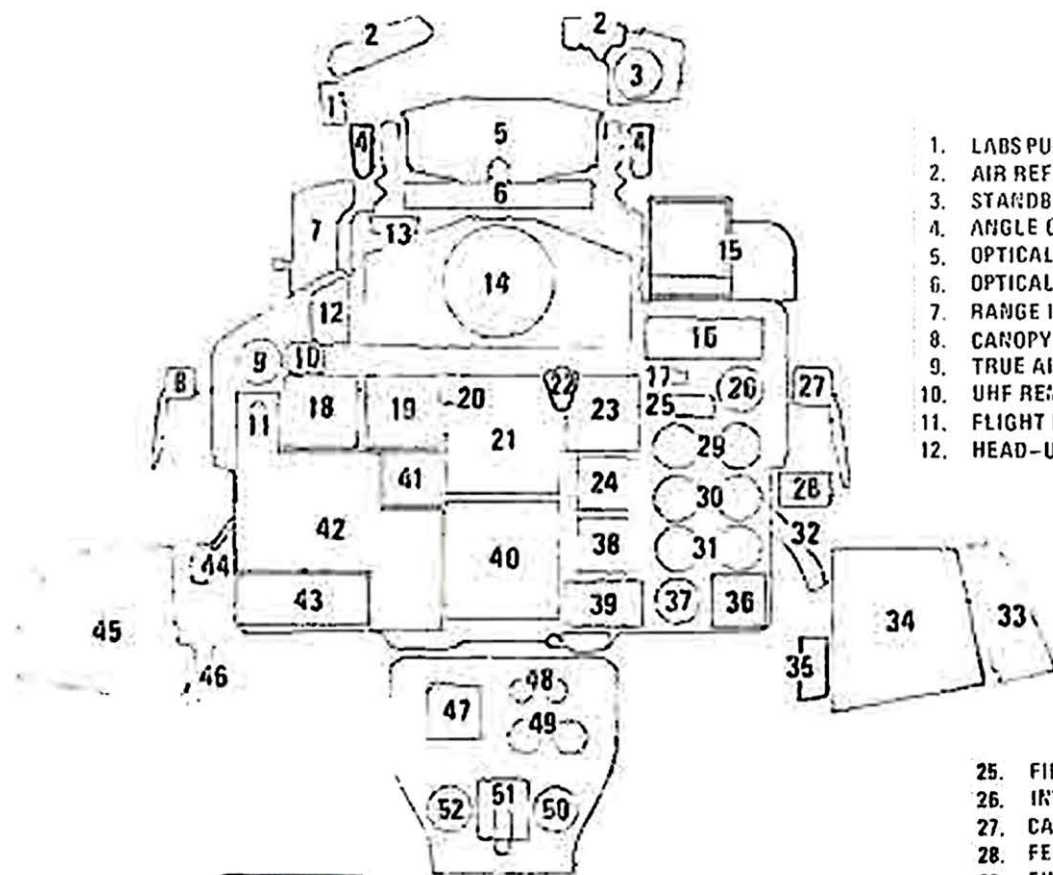
**F-4E**

**FRONT/PILOT COCKPIT**





## Front Cockpit Instrument & Pedestal Panels

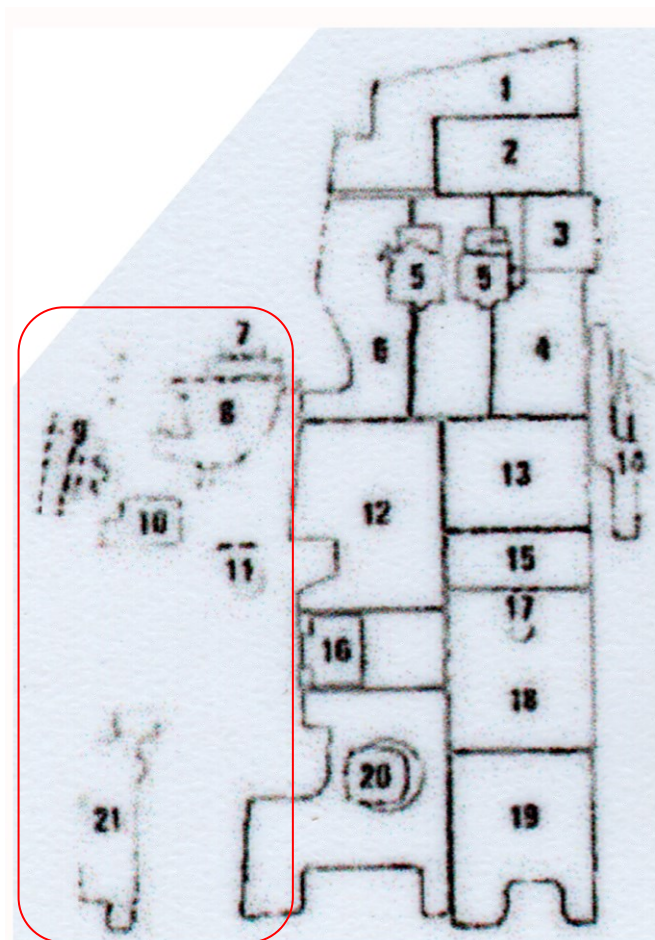


- |   |  |
|---|--|
| 1. LABSPULL-UP LIGHT                                | 13. LANDING GEAR WARNING LIGHT                   |
| 2. AIR REFUELING LIGHTS                             | 14. RADAR SCOPE                                  |
| 3. STANDBY MAGNETIC COMPASS                         | 15. CRT AZIMUTH AND AZIMUTH-ELEVATION INDICATORS |
| 4. ANGLE OF ATTACK INDEXER LIGHTS                   | 16. THREAT DISPLAY PANEL                         |
| 5. OPTICAL SIGHT UNIT                               | 17. MASTER CAUTION LIGHT                         |
| 6. OPTICAL SIGHT CAMERA                             | 18. RADAR ALTIMETER                              |
| 7. RANGE INDICATOR                                  | 19. AIRSPEED AND MACH INDICATOR                  |
| 8. CANOPY EMERGENCY JETTISON HANDLE                 | 20. REFERENCE SYSTEM SELECTOR SWITCH             |
| 9. TRUE AIRSPEED INDICATOR                          | 21. ATTITUDE DIRECTOR INDICATOR                  |
| 10. UHF REMOTE CHANNEL INDICATOR                    | 22. MARKER BEACON LIGHT                          |
| 11. FLIGHT INSTRUMENT LIGHTS CONTROL                | 23. ALTIMETER                                    |
| 12. HEAD-UP DISPLAY (HUD)                           | 24. VERTICAL VELOCITY INDICATOR                  |
| 25. FIRE-OVERHEAT WARNING LIGHTS                    | 37. EXHAUST NOZZLE (DUAL)<br>POSITION INDICATOR  |
| 26. INTERNAL FUEL QUANTITY INDICATOR                | 38. STANDBY ATTITUDE INDICATOR                   |
| 27. CANOPY MANUAL UNLOCK HANDLE                     | 39. NAVIGATION FUNCTION SELECTOR PANEL           |
| 28. FEED TANK CHECK SWITCH                          | 40. HORIZONTAL SITUATION INDICATOR               |
| 29. FUEL FLOW INDICATORS                            | 41. ANGLE OF ATTACK INDICATOR                    |
| 30. TACHOMETERS                                     | 42. MULTIPLE WEAPONS SELECTOR PANEL              |
| 31. EXHAUST GAS TEMPERATURE INDICATORS              | 43. AUTOMATIC WEAPONS RELEASE UNIT               |
| 32. ARRESTING HOOK CONTROL HANDLE                   | 44. LANDING GEAR CONTROL HANDLE                  |
| 33. INSTRUMENT LIGHTS INTENSITY<br>CIRCUIT BREAKERS | 45. LEFT SUB PANEL                               |
| 34. RIGHT SUB-PANEL                                 | 46. EMERGENCY BRAKE CONTROL HANDLE               |
| 35. KY-28 MODE LIGHT PANEL                          | 47. ACCELEROMETER                                |
| 36. EIGHT DAY CLOCK                                 | 48. OIL PRESSURE INDICATORS                      |
|   | 49. HYDRAULIC PRESSURE INDICATORS                |
|   | 50. PNEUMATIC PRESSURE INDICATOR                 |
|   | 51. RUDDER PEDAL ADJUSTMENT CRANK                |
|   | 52. ROUNDS REMAINING INDICATOR                   |

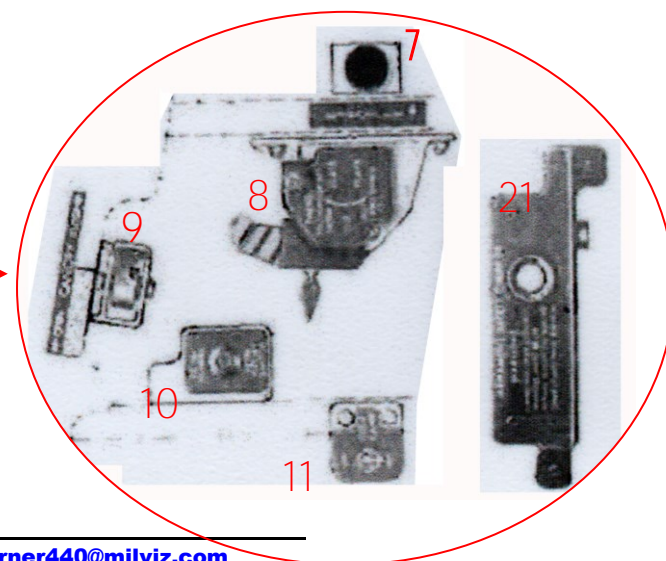




## Front Cockpit Left Console

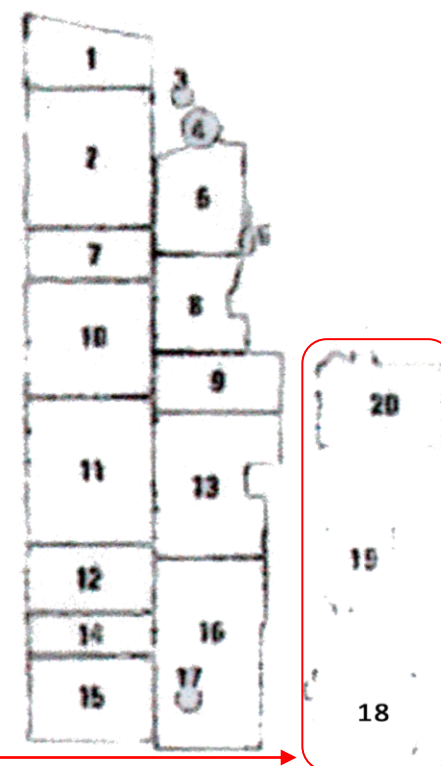
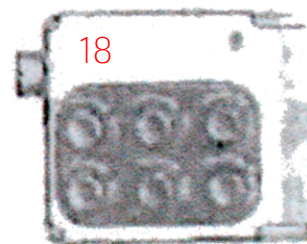
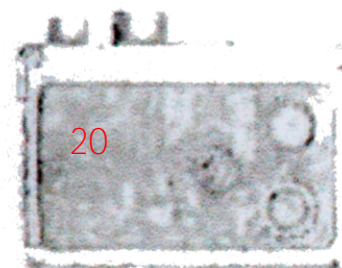


1. UTILITY PANEL (LEFT)
2. OXYGEN CONTROL PANEL
3. AGM CONTROL HANDLE
4. ENGINE CONTROL PANEL (INBOARD)
5. THROTTLES
6. ENGINE CONTROL PANEL (OUTBOARD)
7. EJECT LIGHT/SWITCH
8. FLAP/SLATS CONTROL PANEL
9. CANOPY SELECTOR
10. EXTRA PICTURE SWITCH
11. GUN CAMERA SWITCH
12. FUEL CONTROL PANEL
13. AUTOMATIC FLIGHT CONTROL SYSTEM CONTROL PANEL
14. DRAG CHUTE CONTROL HANDLE
15. INTERCOM SYSTEM CONTROL PANEL
16. SLATS OVERRIDE SWITCH
17. BOARDING STEPS POSITION INDICATOR
18. AUXILIARY ARMAMENT CONTROL PANEL
19. BLANK PANEL
20. ANTI-G SUIT CONTROL VALVE
21. ARMAMENT SAFETY OVERRIDE SWITCH



## Front Cockpit Right Console

1. GENERATOR CONTROL PANEL
2. COMMUNICATION CONTROL PANEL
3. ONI EQUIPMENT COOLING RESET BUTTON
4. EMERGENCY VENT HANDLE
5. UTILITY PANEL (RIGHT)
6. DEFOG/FOOT HEAT CONTROL HANDLE
7. NAVIGATION CONTROL PANEL
8. CIRCUIT BREAKER PANEL
9. TEMPERATURE CONTROL PANEL
10. IFF CONTROL PANEL
11. DCU-94A BOMB CONTROL-MONITOR PANEL
12. COMPASS CONTROL PANEL
13. COCKPIT LIGHTS CONTROL PANEL
14. KY-28 CONTROL PANEL
15. BLANK PANEL
16. EXTERIOR LIGHTS CONTROL PANEL
17. UTILITY ELECTRICAL RECEPTACLE
18. INSTRUMENT LIGHTS INTENSITY CONTROL PANEL
19. STANDBY ATTITUDE CIRCUIT BREAKER AND INTENSITY CONTROL PANEL
20. EMERGENCY FLOODLIGHTS PANEL





The following two pages cover the rear cockpit configuration. Just like the configuration of the front cockpit, slight, insignificant differences may exist due to updated technology and/or specific military preferences. However, most are aesthetic applications or if functional, will likely operate in the same way as the previous system it replaced.

**F-4E****REAR/WSO COCKPIT**





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## Rear, (WSO), Cockpit Instrument Panel



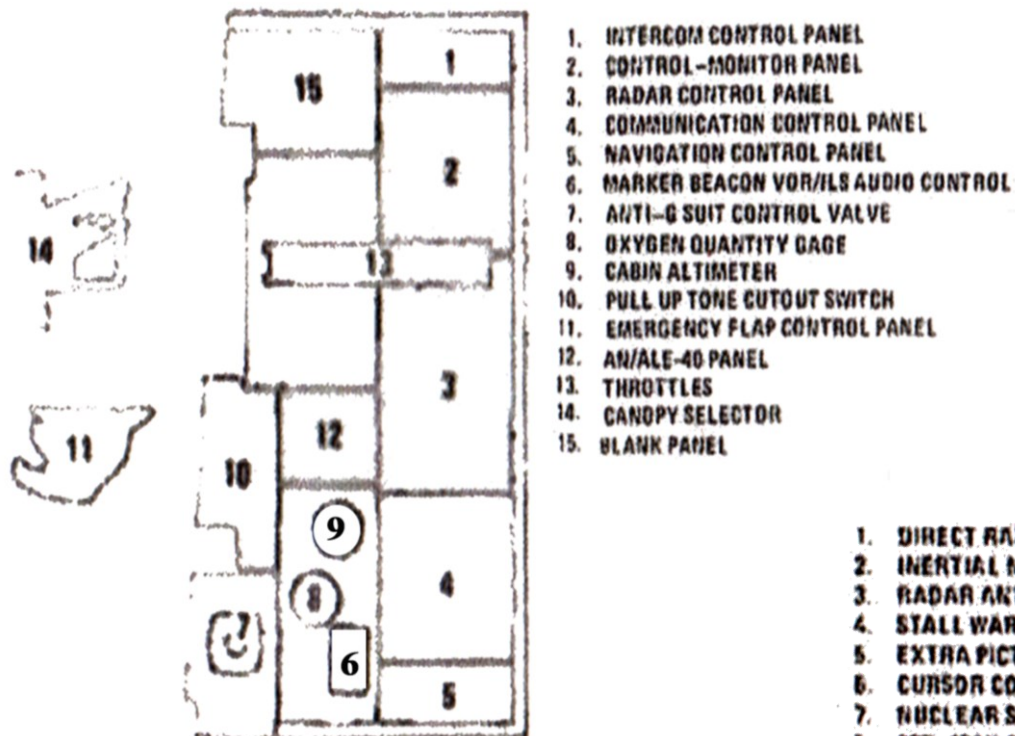
- |   |  |
|---|--|
| 1. COMMAND SELECTOR VALVE                 | 13. AIRSPEED-MACH INDICATOR            |
| 2. STANDBY MAGNETIC COMPASS               | 14. THREAT DISPLAY PANEL               |
| 3. COURSE INDICATOR                       | 15. ACCELEROMETER                      |
| 4. KY-28 MODE LIGHT PANEL                 | 16. TURN AND SLIP INDICATOR            |
| 5. ANGLE OF ATTACK INDEXER                | 17. BEARING-DISTANCE-HEADING INDICATOR |
| 6. UHF CHANNEL REMOTE INDICATOR           | 18. CRT AZIMUTH INDICATOR              |
| 7. VERTICAL VELOCITY INDICATOR            | 19. NAVIGATION FUNCTION SELECTOR PANEL |
| 8. ANGLE OF ATTACK INDICATOR              | 20. GROUND SPEED INDICATOR             |
| 9. ALTIMETER                              | 21. TRUE AIRSPEED INDICATOR            |
| 10. RANGE INDICATOR                       | 22. TACHOMETERS                        |
| 11. ATTITUDE INDICATOR                    | 23. RADAR-CNI COOLING RESET BUTTON     |
| 12. EIGHT DAY CLOCK                       | 24. CANOPY UNLOCKED WARNING LIGHT      |
| 25. INERTIAL NAVIGATOR OUT WARNING LIGHT  | 37. BLANK PANEL                        |
| 26. RADAR-CNI COOL OFF WARNING LIGHT      | 38. LANDING GEAR-FLAP INDICATOR PANEL  |
| 27. CANOPY MANUAL UNLOCK HANDLE           | 39. RADAR SCOPE                        |
| 28. CANOPY EMERGENCY JETTISON HANDLE      | 40. TARGET DESIGNATOR PANEL            |
| 29. AIR VENT NOZZLE                       | 41. RUDDER PEDAL ADJUSTMENT CRANK      |
| 30. EMERGENCY LANDING GEAR CONTROL HANDLE | 42. EJECT LIGHT                        |
| 31. EMERGENCY BRAKE CONTROL HANDLE        | 43. BLANK PANEL                        |
| 32. OXYGEN CONTROL PANEL                  | 44. ECM PANEL                          |
| 33. BLANK PANEL                           | 45. LABS RELEASE ANGLE CONTROL PANEL   |
| 34. GUN CAMERA AND CONTRAST SWITCHES      | 46. DROPPING THREAT CONTROL            |
| 35. AIR-TO-AIR BUTTON                     |  |
| 36. VIDEO SELECT BUTTON                   |  |



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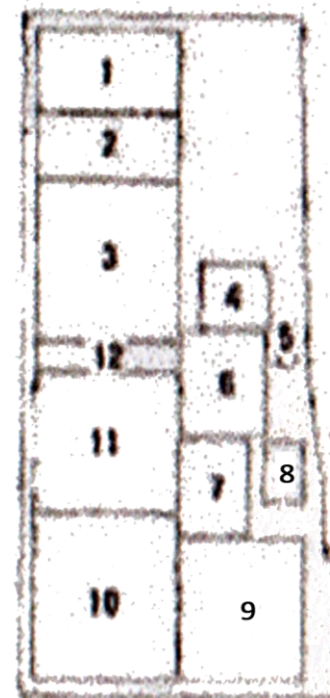
## Rear Cockpit Left & Right Consoles

### Left Console Panel



### Right Console Panel

1. DIRECT RADAR SCOPE CAMERA CONTROL PANEL
2. INERTIAL NAVIGATOR CONTROL PANEL
3. RADAR ANTENNA CONTROL PANEL
4. STALL WARNING TONE CONTROL PANEL
5. EXTRA PICTURE SWITCH
6. CURSOR CONTROL PANEL
7. NUCLEAR STORE CONSENT SWITCH
8. RST-1B1X PULSE SELECTOR SWITCH
9. COCKPIT LIGHTS CONTROL PANEL
10. NAVIGATION CONTROL PANEL
11. WEAPONS RELEASE COMPUTER CONTROL PANEL
12. WEAPON DELIVERY PANEL





## Gyro Comp INS Platform Alignment

The **Inertial Navigation Set, (INS), Platform** is the system that pretty much tells the aircraft everything from where it is, to how fast it's going and more.

To our knowledge, the Milviz Inc. software developers are the first to accurately simulate this very complex system in the F-4E. It includes the accurate simulation of the **AN/ASN-63 INS, AN/ASN-46A, and AN/AJB-7** computers and more, (see page 7 in this User Guide for a better breakdown of the 3 computers)

The “**Gyro Compass**” alignment procedure, (the most accurate method), takes the most time to complete and is dependent in part, to the immediate ambient temperature, (real-world temps), and the aircraft's geographical location. The systems must get to their operating temperature of 160 degrees Fahrenheit, at an average rate of 20F degrees per minute.

The Milviz ACM offers you the ability to forego the real world procedure, and have it aligned and ready to go as soon as FSX opens your selected flight.

However, if you wish to handle and experience the procedure much the way the real world F-4E pilot and **Weapon System Officer** did, you can follow the steps they would have.

Of course, this would include a ‘real world alignment time’ which can take over 10 minutes before the green “**Align**” light begins to blink. The total variation in the magnetic compass can also play a part in the time to complete an INS platform alignment.

The McDonnell Douglas F-4E PDF manual covers this procedure as well as the alternative procedures in great detail. The “**Hdg Mem**” selection is the other option available with the **Alignment Mode** toggle switch. It's a less accurate alignment method but quicker to execute and complete.

That method can only be used after at least one Gyro Comp alignment has been successfully completed, and the data stored in the system. (Please refer to the MD F-4E PDF manual pages listed for that procedure).

For the best, more detailed, (if not somewhat confusing), instruction of this procedure, please refer to the “**Alignment Procedures**” which begins on **page 177**.

However, **page 102** in the MD manual contains a condensed and perhaps, more concise reference to the procedure. Pages **178** thru **183** as well as **50-52, 65, 69, and 93** are additional pages covering the INS Platform and alignment.

**I**n the following User Guide pages, we cover the 8 basic steps of the Gyro Comp alignment method. In addition, we offer an example for you to follow and confirm your results.



## F-4E Gyro Comp Alignment

**B**efore beginning the INS alignment procedures, confirm that the *Alignment Mode* toggle switch and the *Function Selector Knob*, (located on the **Inertial Navigator Panel** of the right console in the rear cockpit), are in their proper positions, ("Gyro Comp" and "OFF" respectively).

If the **Function Selector Knob** was not in the "OFF" position **BEFORE** the F-4E engine start-up procedure began, the alignment procedures, as well as the function of the *Air Data Computer*, may malfunction. Prior to beginning the INS alignment, the aircraft should not be in an enclosed area such as a hanger and the wings must be in the extended position<sup>†</sup>.

As an example, a specific location will be used for this procedure Latitude and Longitude positions are taken directly from FSX's position display in the top right corner of the monitor when you press "Shift + Z".

### Inertial Navigation Set Platform; Gyro Compass Alignment:

Please note the steps will indicate the approximate waiting time, (where applicable), for each stage of the process. **It's not necessary to note the time you executed a step or its response in order to complete the alignment successfully.** The time is provided simply for those who want to use it as a source to confirm and/or compare their own results as they go through each step of the procedure.

- Set the Desktop's ACM "INS Alignment Time" slider to the full left position, (in effect, "OFF").
- Airport & Ramp: KEDW / Gate 5-Ramp Mil Cargo.
- FSX's LAT & Lon positions: LAT: N34 54.84' LON: W117 53.84'

(Be sure the INS Alignment Function Selector is set to "OFF" before starting the plane)

After startup, with brakes on:

1. **R-Click** "*Position/Function Selector*" on the (Rear Cockpit/Navigation Control Panel), to "Stby"



<sup>†</sup>The F-4E's wing tips can be folded up manually, and held in place with a locking pin. The Milviz F-4E does not simulate this feature.



**INS Alignment example (continued)**

2. **Insert the Latitude & Longitude position via the Nav Control Panel counters.** By pressing Shift + Z, FSX will display these two positions in the Top-Left corner of the monitor. The Positions you should see are “LAT: N34° 54.84’ LON: W117° 53.84’” as shown at the beginning of these instructions.

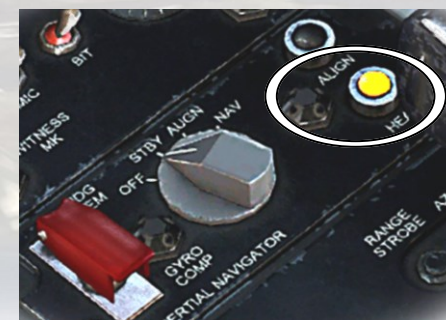
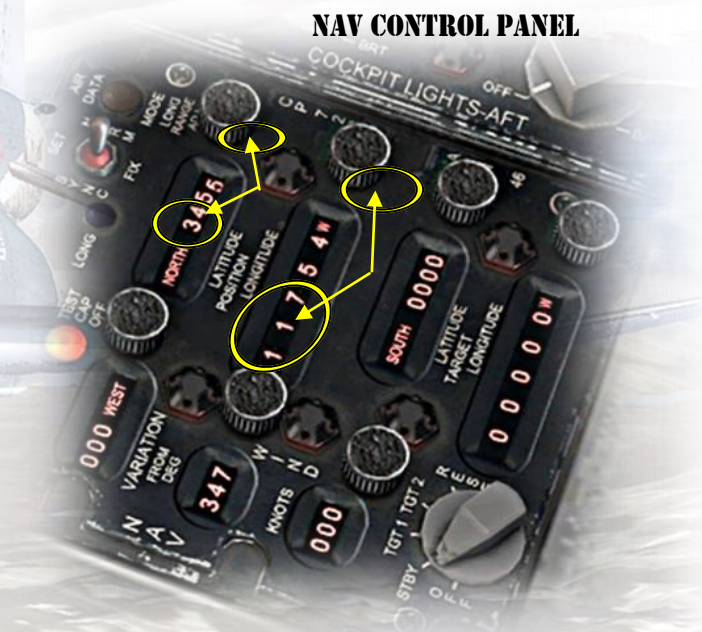
The positions can be rounded to the nearest whole number or nearest tenth. The image in this example demonstrates the positions rounded to the nearest tenth. The LAT counter was brought to 3455N. Then, using the mouse wheel or positioning the cursor over the center of the dial, the .55 minutes was rolled back two clicks making it 34° 54.8’.

The other option is to dial in to the nearest whole number which would have displayed as 3455 or, 34° 55.00’. The same method would be applied to the LON counter.

**Note:** To quickly dial in the first two figures of the Latitude or first three of the Longitude increments, you can position your mouse cursor over one of the two areas as indicated by the yellow makers in the image.

3. **INS Alignment toggle switch to “Gyro Comp”.** The “Hdg Mem” selection is only useful after a complete Gyro Comp alignment has been successfully executed and the data stored in the system. The MD F-4E manual covers the procedure in the same pages noted earlier in this guide.

4. **R-Click the INS Alignment Selector knob to “Stby” and note the time.** The Yellow “Heat” indicator light will illuminate. Approximately 3 to 3.5 minutes will pass before the same light goes out.

**INERTIAL NAVIGATION CONTROL PANEL**



**INS Alignment example (continued)**

4. **R-Click the *INS Alignment Selector knob* to “Align”** after the Heat light goes out. Approximately 11 minutes to 14 minutes after switching to the “Align” position, the “Align” lamp will illuminate Green. Then, Approximately 30 seconds to 2 minutes later, the “Align” light will begin to blink.
5. **R-Click the *INS Alignment Selector knob* to “NAV”** after the Align light has started blinking.  
It's important to remember that the longer the selector is left in the “Align” position, the more accurate the alignment will be.
6. **R-Click the *Position/Function Selector knob* to “Tgt1”**.



**INERTIAL NAVIGATION CONTROL**

7. **Dial in the *Magnetic Variance, (Mag Var)*, by aligning the two lines of the indicator just above the *Mag Var Counter***. In the case of this example, the indicator line will not begin to move until the *Mag Var Counter* reaches approximately **158° EAST**. Continue to turn the dial until the indicator line meets the datum line, (at about **166° EAST**).

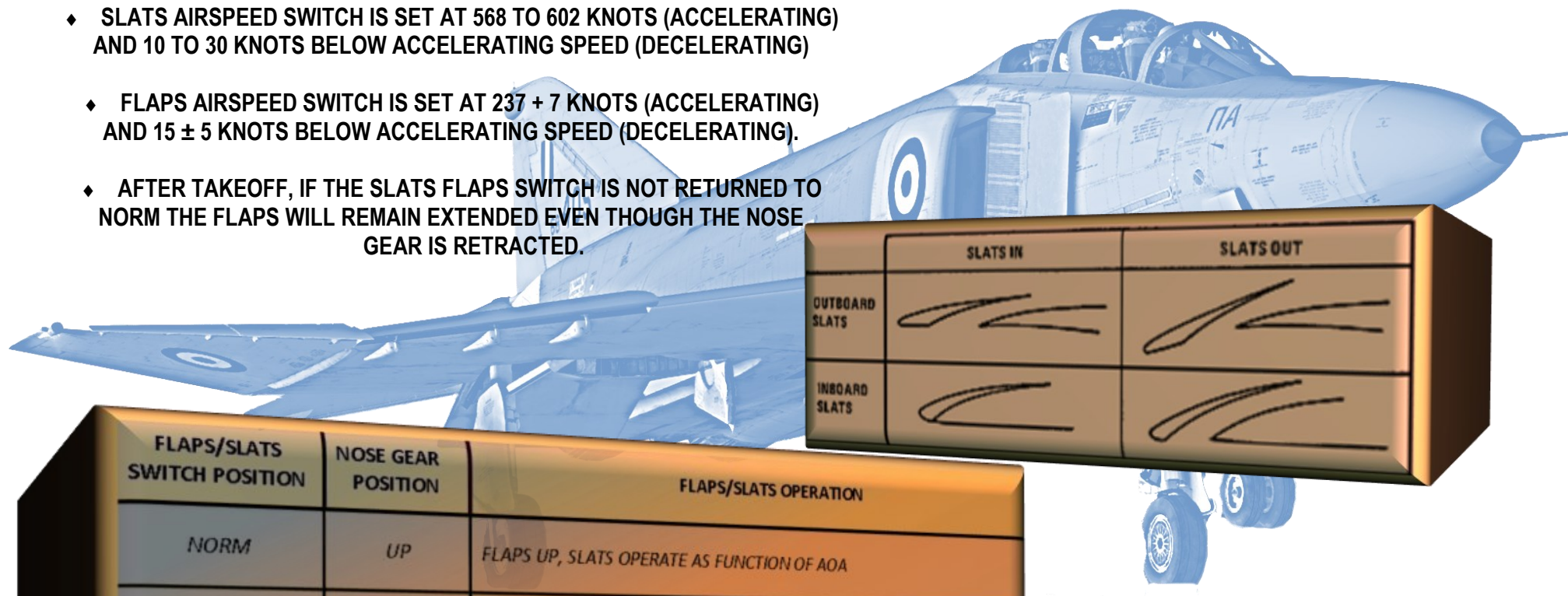
The “Inertial Nav Sys Out” lamps in both cockpits and *Tele-Light* panel will extinguish upon completion of a successful alignment.





## FLAPS & SLATS OPERATION

- ♦ SLATS AIRSPEED SWITCH IS SET AT 568 TO 602 KNOTS (ACCELERATING) AND 10 TO 30 KNOTS BELOW ACCELERATING SPEED (DECELERATING)
- ♦ FLAPS AIRSPEED SWITCH IS SET AT 237 + 7 KNOTS (ACCELERATING) AND 15 ± 5 KNOTS BELOW ACCELERATING SPEED (DECELERATING).
- ♦ AFTER TAKEOFF, IF THE SLATS FLAPS SWITCH IS NOT RETURNED TO NORM THE FLAPS WILL REMAIN EXTENDED EVEN THOUGH THE NOSE GEAR IS RETRACTED.



	SLATS IN	SLATS OUT
OUTBOARD SLATS		
INBOARD SLATS		

FLAPS/SLATS SWITCH POSITION	NOSE GEAR POSITION	FLAPS/SLATS OPERATION
NORM	UP	FLAPS UP, SLATS OPERATE AS FUNCTION OF AOA
OUT	UP	SLATS EXTEND
OUT AND DOWN	UP	SLATS AND FLAPS EXTEND. (WHEELS LIGHT FLASHING UNTIL LANDING GEAR IS DOWN)
NORM	DOWN	FLAPS UP, SLATS OPERATE AS FUNCTION OF AOA
OUT	DOWN	SLATS AND FLAPS EXTEND

## Drag Chute, Payload Penalties, & Joystick Profiler

Some quick points regarding the Drag Chute application, Payload vs. drag considerations, and Joystick key assignments.

Milviz may very well be the first to achieve proper drag reduction via chute, slats, spoilers, and flaps in a fighter jet! Our F-4E will definitely be affected by the amount of weight you have configured it to handle. In addition, the aircraft will behave differently while in flight as the weight is reduced, (such as fuel tank jettisons, weapon deployments, etc.).

The Drag chute can also be used to slow a 'out-of-control spin' and you can read more on that on page 39 of the MD F-4E PDF manual.

As has been noted in several places throughout this user guide, not all of the features are prepared for use and though the Joystick assignment options are still in development, there are some parts which do operate.

At this point, a few events are working but we'll cover the Drag Chute event at this time. In fact, you can assign the Drag Chute deployment/repack function directly to the Joystick button.

When the Milviz F-4E Joystick assignment software is complete, it will be in effect, a profiler with full key action assignment options similar to FSUIPC capabilities but in a more streamlined sense.

For now, select a single "momentary action" button on your stick that offers a "pulse" action, i.e.: Pushing the button once will deploy the chute and the action of that button ends. Push it again and it'll jettison/repack the chute.

⇒ Please note that your joystick must be connected to the computer before you begin following these steps:



## Joystick button assignment for Drag Chute Deployment

It's not clear at this time if the button assignments can be performed while the flight sim is open.

Therefore, I recommend you close the flight sim program before following the button assignment procedure

1. Open the Desktop ACM and click on the F-4E image
2. Click the “v” arrow and select “Misc Controls” (Fig A)
3. If you have multiple Flight controls connected, (J-Stick and Rudder Pedals), select the desired controller from the drop down list.
4. Click in the bottom row, (the “Drag Chute” event), of the column which shows the name of your Joystick. Press and release the button that you wish assigned to the Drag Chute deployment
5. Be sure that the “Toggle” option has a check in the box and all others do not (Fig B)
6. At this point, another window will open offering “action and button states” (Fig C). Please ignore that for now, and click the “X” at the bottom of the screen
7. If you want to change the event to a different button, click the “Clear” selection and repeat steps 4-6
8. That's it, close the ACM and open your Flight Sim

Fig A



Fig B

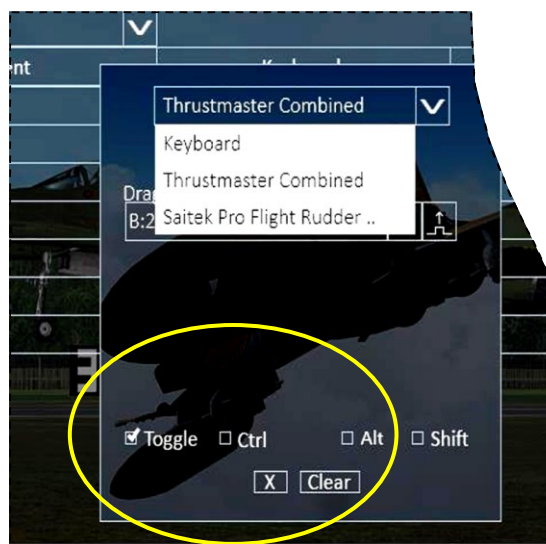


Fig C

... More to come in the next update!

