

## Storm the Desert Madman in your Apache!



A Madman in the Middle East is about to start Armageddon. General Hellbaba, having murdered his way to a huge oil fortune, has amassed an immense military arsenal. Now he is poised for an assault on the West. The President has deployed YOU, the Air Force's best chopper pilot, to save the world from destruction.

Locate and destroy nuclear, chemical, and biological weapons facilities. Stop calamitous oil spills. Rescue downed fighter pilots and American ground troops from war-torn cities. Breakout hostages from POW camps. Then take out the Madman himself.



- 4 explosive missions, 28 unique sub-missions.
- Realistic flight dynamics of Super Apache from a unique 3D view.
- Arm yourself with Hellfire and Hydra missiles - even a 30mm chain gun.
- Various enemies to destroy including tanks, SAMs and Scud missiles.

# APACHE AHX

## DESERT MADMAN™

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EA  
AIR FORCE

# F22

## INTERCEPTOR™

ADVANCED TACTICAL FIGHTER



#### ABOUT THE PROGRAMMERS

**Ned Lerner** played his first war game in the second grade and has been playing games ever since. His previous game development includes everything from an Arabian Nights fantasy adventure to a 3D game of Deep Space. Ned was bitten by the simulator bug several years ago and turned his programming talent into developing the next-generation simulation experience.

**Gene Kusmiak** has been playing with computers ever since he discovered his high school's state-of-the-art machine—a terminal with a roll of teletype paper, a paper tape punch for saving programs, and an acoustic coupler where you plugged in a telephone handset to log into a distant mainframe. His love of math led him to Harvard, after which he got his first job with PCs - writing the Bank Street Writer, a word processor for children. It sold over 400,000 copies. Since then, he's written numerous computer games, including several of the Chuck Yeager's Advanced Flight Trainer series from Electronic Arts. Gene says what he really likes to do is make pretty pictures with computers.

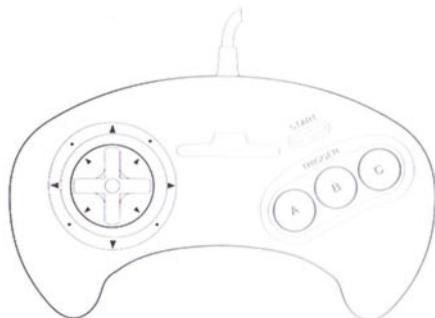


#### “WARNING TO OWNERS OF PROJECTION TELEVISIONS:

STILL PICTURES OR IMAGES MAY CAUSE PERMANENT  
PICTURE-TUBE DAMAGE OR MARK THE PHOSPHOR OF  
THE CRT (TELEVISION SCREEN). AVOID REPEATED OR  
EXTENDED USE OF VIDEO GAMES ON LARGE-SCREEN  
PROJECTION TELEVISIONS. ”



## CONTROL SUMMARY



### FIGHTER'S MANUAL

**A**—Afterburners.

**B**—Fire selected missile.

**C**—Fire Cannons.

**Start**—Select arming/map screen (Use D-Pad to select missile).

**A+B**

**In Cadet:** Hold down for autopilot to nearest enemy target.

**In Training, Combat:** Select next target.



**A+C**—Fire chaff and flares.

**A+Start**—Select next missile.

**D-Pad Up+START**—External 360° circling view of F-22.

**D-Pad Down+START**—Look at nearest enemy.

**C+B**—Customize game.

**Start+A+B+C**—Eject.

### FLIGHT CONTROLS

	STICK	WHEEL
D-Pad Up	Pitch Down	Pitch Up
D-Pad Down	Pitch Up	Pitch Down
D-Pad Left	Roll Left	Turn Left
D-Pad Right	Roll Right	Turn Right



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## F-22 INTERCEPTOR: Vanguard of the EAAF™

In an effort to bring you the most advanced aerial combat simulators, the Electronic Arts Air Force™ presents F-22 Interceptor, first in what promises to be a long line of exhilarating, state-of-the-art products. In the view of the EAAF, a great sim not only provides a fast, responsive vehicle in a believable setting, but it reproduces the plane's actual flight dynamics. The result here is the highest quality simulation possible on the Sega® Genesis®.

F-22 Interceptor gives you the chance you've been waiting for, the chance to climb the Air Force ladder from greenhorn cadet to unbeatable ace. And what a jet to do it in! Slated to become the United States' primary air superiority fighter in the 21st Century, the F-22 incorporates the most sophisticated turbojet engine, the most sensitive avionics, the most advanced composite structural design, and the most devastating weaponry. If you want to get started right away, follow the simple start-up procedure outlined below. There are enough instructions on the screens to help an experienced Sega Genesis user begin flying a combat mission, but everyone will need the manual to get the most out of the game.

## CLIMB INTO THE COCKPIT: STARTING UP THE GAME

1. Turn OFF the power switch on your Sega™ Genesis™.

**Never insert or remove a game cartridge when the power is on.**

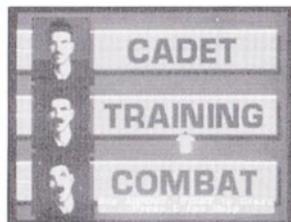
2. Insert the game cartridge into the slot on the Genesis. Press the cartridge down firmly to lock it in place.

3. Turn ON the power switch.

4. When the *F-22 Interceptor* title screen appears, press START to see the *Game Set-Up* screen.

## TAKING TO THE SKIES

There are three levels of play in *F-22 Interceptor: Cadet, Training, and Combat*.



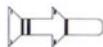
•D-Pad up/down to select desired level.

**Cadet** level is the simplest of the three. The combat is slow and the enemies are neither very aggressive nor defensive. Aiming is easy and the Automatic Targeting device is active. Also, if you fly too close to the ground, the F-22 autopilot will take over the controls and keep you from crashing.

**Training** level is a little more challenging than **Cadet** level. Combat takes place at normal speed. Your enemies are somewhat aggressive and defensive, and the F-22's Automatic Targeting device and ground avoidance systems are active.



**Combat** level is the real thing. You're on your own. Combat takes place at high speed and you have only the Automatic Targeting device to help you knock out targets before you yourself are shot down. The ground is unforgiving.



See **Customizing Game** on p. 25 for instructions on changing the default settings for any level.

• Press START to go to the **Campaign Selection** screen.



## FLYING A MISSION (Campaign Screen)

You can choose to fly a series of missions in four theaters (**United States, Korea, Iraq, and Russia**), challenge **The Aces**, or **Create a Mission**.

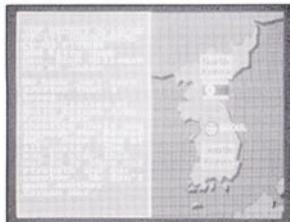


**United States** is the easiest, then **Korea, Iraq, and Russia**. There are some thirty individual missions in each theater of war. When you successfully complete one, you automatically move on to the next. The missions become more challenging as you progress.

• D-Pad up/down to select a theater of war.

## FIGHTING IN THE CAMPAIGN THEATERS

When you select a pre-set mission in one of the four theaters, the **Intelligence** screen appears. Here you see an overhead map of the country in which you will be fighting, and a short campaign scenario in a top secret report.





The next screen shows a picture of the F-22 and the refueling plane, followed by all the targets (aircraft, tanks, SAM sites, buildings, etc.) you will have to destroy to complete the mission you have just selected. The name of the target and sometimes a brief description appears with each intelligence photo.

• Press **START** to go to the *Loading Weapons* screen.

This screen shows your crew chief overseeing the loading of your F-22 with ordnance for your mission. At the top of the screen is a picture of each weapon and a brief description of its capabilities.

• Press **START** to begin your mission.

#### MISSION EFFECTIVENESS RATING

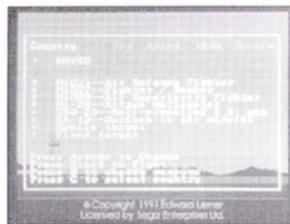
After you finish all the missions in a single campaign scenario, the top brass will congratulate you on your valor and heroism. Check the bottom left-hand corner of the victory screen for your Mission Effectiveness Rating. The higher the rating, the better. **You will not receive a Mission Effectiveness Rating after completing a mission you have created yourself.**

Your MER is based on a combination of a number of factors. In general, the easier you make your missions on the **Customize Game** screen, the lower your rating will be. Conversely, the harder you make your missions, the higher your rating will be.

Since not all available targets are essential to completing some of the missions, the total number of targets destroyed figures into your rating as well.



## CREATING YOUR OWN MISSION



• D-Pad down until you come to **Create Mission**.

• Press **START** to begin.

*The computer will generate a custom mission in one of the four theaters automatically, but you can change it however you like. The pre-selected country appears highlighted.*

• D-Pad left/right to select another country (if desired).

• D-Pad down to highlight **WAVES**.

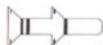
*A **wave** is a group of enemy forces which attack in concert. Once a wave is destroyed, a brief delay will precede the onset of the next wave.*

• D-Pad left/right to choose number (1-9) of waves.

*You are allowed a maximum of ten targets per wave.*



- D-Pad down/up to select targets.
- D-Pad left/right to choose number (1-9) of each target.



*The computer will assign your F-22 a weapons package to meet your anticipated needs on the mission you have generated, but you are free to select your own weapons package.*

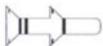
- Press B to go to the **Weapons Selection** screen.

*You always carry the 20mm cannon.*

- D-Pad up/down to select a weapons package.

*For a description of each weapon and countermeasure, see the **Weapons Glossary** on p. 33.*

- Press START to begin the mission.



*When you have destroyed all of the targets, or if you get shot down, the computer returns you to the **Create Mission** screen with a pre-selected mission. You can fly that mission, generate a new one, or return to one of the four theaters.*



## MISSION ACCOMPLISHED (A Walk-Through)

*A mission might last an hour or two minutes, depending on the size and difficulty of your task. Sometimes you're required only to shoot down one enemy jet, and other times you might have to destroy a dozen ground targets before calling it quits.*

*The Mission Generator gives you the opportunity to get a feel for the kind of stamina sometimes demanded of fighter pilots. Select the **Create Mission** option on the **Campaign Selection** screen. Now choose a country—how about our friend Russia?*

*To get a full sense of the kind of combat you'll face in some of the more difficult missions of the campaign scenarios, you should choose both ground and air targets. Four MiGs and six ground targets will provide a good balance between dogfighting and aerial assault tactics. Choose **one MiG 21, one MiG 27, and two MiG 29s**. Then choose **two ZSU-23s, three SA-13s, and one Mobile Target** for good measure.*

*Now, to test your endurance, you'll want to call for at least three waves.*

*Once you're in the air on this mission, it's probably a good idea to head for the sun. If you stay low and try to take out the ground targets first, enemy aircraft will almost certainly shellac you. In general, you should try to eliminate the enemy's air-defense before trying to destroy targets on the ground.*

*When you reach between 40,000 and 50,000 feet, the MiGs will likely*



be close below you. Now is probably your best chance to roll over and wax their heinies. Point your nose downward, and don't wait until you see the whites of their eyes before you start blasting. But you should wait to see the cross hairs turn white, if you're using your cannons.

Using missiles, you might be able to hit all four MiGs on one pass; but if you're using your cannons you might have to climb back up to the safety of the sun a few times before you get them all.

Once you finish off the MiGs, you're ready to take out the ground targets. The safest way to take out SAM sites and mobile artillery is to swoop in low, from a distance. SAMs and AA guns are designed to fire at targets high above them, so if you stay low you're generally safe.

When you take out the last ground target, the next wave of enemies will arrive. Hit the afterburners and beat it back up to the sun, maybe dropping a little chaff as you go to keep off the heat. As you're climbing, look out for MiGs; you might be able to skewer one through the belly.

Think of each wave as a separate mission, part of a larger mission. When you've destroyed all the targets in all the waves, the larger mission is completed and the **Create Mission** screen returns.

Each campaign scenario consists of some thirty missions, or waves, that follow close on each others heels.



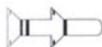
## DOGFIGHTING THE ACES



Each of the four countries represented has an ace.

- Use the D-Pad to highlight **Aces' Challenge** on the **Campaign Selection** screen.
- Press START to begin the dogfight.

There are nine phases at this level. First you face the Iraqi ace, then the Korean, then the Russian, and then the American.



Each time you win a dogfight in the **Aces' Challenge** your F-22 is automatically refueled, your cannons are re-armed, any damage to the jet is repaired, and any injuries you've suffered are healed. **There are no missiles in the Ace's Challenge for you nor for your adversaries, unless you choose to add them to the F-22 from the Customize Game screen.** Otherwise it's head-to-head, mano-a-mano, in-your-face, do-or-die, may-the-best-man-win, good-old-fashioned aerial combat.



Once you out-duel all of the aces in single combat, you get to fight them again, only this time it's two against one.

If you manage to make it through the second level of dogfights, you will then face all four world-renown aces at once. This is what all your experience and training come down to, fighting the world's four best aces at once. If you can do it without having to add missiles to the F-22, you will attain the permanent military fame reserved for the rarest few.

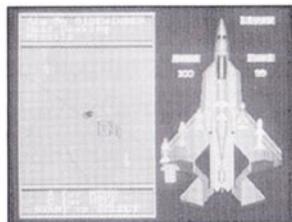


## ARMING YOUR WEAPONS (Pausing the Game)

Your Sidewinder heat-seeking missiles are pre-selected at the beginning of the first mission in each theater of war, but you don't have to use these first. If your F-22 is equipped with other missiles or countermeasures, you can elect to use these first and save the Sidewinders for later.

• Press START to call up the *Arming Weapons* screen.

*When you're on this screen, the game will remain paused indefinitely.*

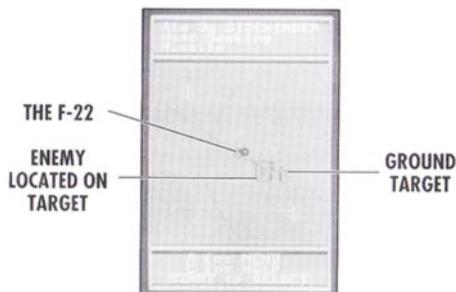


The yellow arrow points to the weapon currently selected. The box in the upper left hand corner of the screen gives the name of the selected weapon.

• D-Pad left/right or up/down to toggle the arrow.



The **Arming Weapons** screen furnishes vital information. The number of rounds left in the cannons appears beneath the word "**Ammo**". Beneath "**Fuel**" is displayed the number of fuel-units (0-99) remaining. At the upper right hand screen is a **row of hearts**, which represent the number of lives you have left on your current mission. Above "Ammo" is the **password**. (See *Password* on p.24)



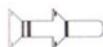
The left half of the screen shows a large overhead view of the battle. The F-22 is pictured in gray. The enemies and targets are pictured in various colors. If you're on a landing mission, your landing strip or aircraft carrier will also appear. The overhead view presents a complete picture of the battle zone, including all enemies and hostile targets, as opposed to the radar warning receiver, which shows only those in your immediate proximity.

- Press **START** to return to mission.



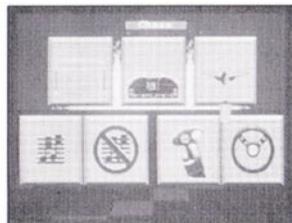
## COCKPIT MENU

The computer automatically starts you with the cockpit view and the flight stick control. You can choose between three different views and two different flight controls, and you can turn the music on or off.



*Note that you can change only one option at a time. You must repeat the process outlined below for each option you want to change.*

- Press **START** to call up the **Arming Weapons** screen.
- Press **A** to call up the **Cockpit Menu** screen.
- D-Pad left/right/up/down to select desired option.



- Press **START** to return to the mission (with the option now on).



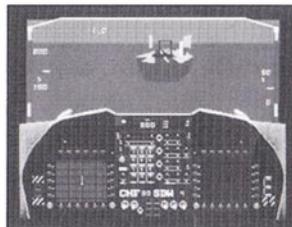
### HUD—HEADS-UP-DISPLAY

The heads-up display gives you a wide-angle view from inside the cockpit without the control panel. You don't have the benefit of radar or cockpit indicators, but you can visually track your opponent and try to put his tail in your gun-sight. **This option is great for dogfighting.**



### COCKPIT

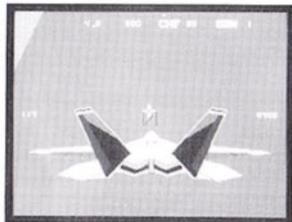
This is your default setting, which means that you will automatically see this view every time you start a mission. The advantages here are the various indicators on your control panel which enable you to make fast informed decisions as to your plane's condition, your remaining weapons, and the enemy's whereabouts. **This view is best for all-around combat.** (See **The Instrument Panel** on p. 36 for detailed information.)





### CHASE

The chase view gives you an external, rear perspective of your F-22 in flight, as though you were chasing yourself. The advantage of this view is a broader peripheral vision of your surroundings. You will need to master the controls in order to make maximum use of this advantage, otherwise you might wind up a sitting duck. **This view is good for ground-attacks.**



### STICK

This is your default control, which means that every time you start the game the D-Pad will work like the stick on a real jet fighter.

- D-Pad down to pull the plane's nose up. (Like pulling the stick toward yourself.)
- D-Pad up to push the plane's nose down. (Like pushing the stick away from yourself.)
- D-Pad left to roll left.
- D-Pad right to roll right.



### WHEEL

The wheel allows for greater maneuverability. Instead of rolling left or right to turn, with the wheel you can actually turn left or right, as though the F-22 were a car. A beginning and intermediate flyer might find it helpful to use the wheel while he or she develops targeting and firing skills. Ascending and descending are reversed on the D-Pad when the wheel is selected.

**The wheel is good for ground-attack training.**

- D-Pad up to ascend.
- D-Pad down to descend.
- D-Pad left to turn left.
- D-Pad right to turn right.

### MUSIC/NO MUSIC

Selecting "Music off" turns off the music and turns on the static engine noise.

- Repeat the steps under *COCKPIT MENU* for every option you wish to change.



## THE PASSWORD

When flying in one of the four campaign scenarios, or when dogfighting the Aces, you can switch to the **Arming Weapons** screen at any time to check the password. The password is a six-character code above the "Ammo" field.

•While in flight, press START to go to the **Arming Weapons** screen.



*The password changes every time you complete a stage of a mission. Write down the password if you want to leave a mission and return to it later at a point where you left off.*

•To return to your mission select **Enter Password** from the **Campaign Selection** screen.

The **Password** screen will appear.

•D-Pad left/right/up/down to select the proper character.

•Press **A** to enter the character and move to the next space.

When you finish entering the correct password, the mission will resume automatically. The F-22 will have a full tank of fuel and a full rack of whatever weapons you were using. Your pilot level (Cadet, Training, Combat) and any custom features you were using are not saved with the password, so you'll have to check them when you resume a mission.



## CUSTOMIZING GAME

You can customize a mission at any time after it begins or is restored.

•Press **C+B** simultaneously to reveal **Customize Game** screen.

•D-Pad up/down to choose options.

*The chosen option will flash.*

•D-Pad left/right to change setting on the first four options.

*The selected setting will appear in capital letters.*

### Speed

This setting governs the perceived speed of all the moving vehicles on the screen, including your F-22. A fast setting demands that you make good decisions quickly. With a slower setting there is more time to make mistakes and change your mind. The range here is from very slow (**vslow**) to very fast (**vfast**).

### Controls

This setting governs the responsiveness of the F-22 to your controls, and of the enemy's jets to his/her controls. The range here is from very slow (**vslow**) to very fast (**vfast**).

### Aggressive

This setting governs the enemy's aggressiveness, or his yen for combat. The range here is from very low (**vlow**) to very high (**vhigh**).



### Defensive

This setting governs the enemy's defensiveness, or his ability to elude and evade. A superior fighter pilot is both aggressive and defensive.

- D-Pad down to choose from

### AIRPLANE OPTIONS.

The selected option will flash.

- Press **A** to activate or deactivate the selected features.

An 'X' appears next to each active feature.

### Unlimited Missiles

When you activate this feature you receive an unlimited supply of all 5 types of missiles. If you choose a weapons package after you activate this feature, you will receive an unlimited supply of only those missiles contained in that package.

### Unlimited Ammo and Chaff

Choosing this feature gives you unlimited ammunition for your cannon, and unlimited chaff and flares.

### Unlimited Fuel

Fuel is the substance which powers the engine in the jet. With this feature active you will never run out of fuel, which means your jet will always go, unless you crash or get shot down.



### Easy Aiming

This device gives you a wider range in which to hit your targets, which means that it's easier to get the cross hairs to turn white. Good pilots should make sure this is off.

### Automatic Targeting

In **Cadet** level, this option allows you to follow and line-up your nearest target automatically by holding down **A+B**. In **Training** and **Combat** levels, Automatic Targeting switches the target marker to your nearest enemy automatically as you fly.

If, when you are using Automatic Targeting in **Training** or **Combat** levels, you decide that you want to concentrate on a particular target and keep the target marker from switching to another target, press **A+B** to revert to manual targeting, where **A+B** toggles the target marker through all available targets. When you succeed in locking the marker onto the target of your choice, the target marker will not switch to any possible closer targets until that target is destroyed. When that mission is completed the F-22 will reactivate Automatic Targeting.

### Ground Avoidance

This feature makes it impossible for you to crash, except on landings or take-offs, or unless you run out of fuel or get shot down.



### Invincibility

This feature makes it impossible for you to be shot down. Enemy weapons will continue to strike the F-22, and you yourself can still be injured, but the jet cannot be shot down.

*Invincibility* also activates *Ground Avoidance*, though no "X" will appear next to *Ground Avoidance*.

- D-Pad down to choose from one or more of the following:

#### ENEMY OPTIONS

*The selected option will flash.*

- Press A to activate or deactivate the selected features.

*An 'X' appears next to each active feature.*

#### Enemies Don't Panic

Even very good pilots panic when they are about to be shot down. Selecting this feature assures you that your opponent will remain cool-headed in the face of deadly fire.

#### Enemies Accurate

This feature makes all of your enemies expert shots.

#### Enemies Smart

This feature makes all your enemies expert flyers, both when attacking and evading attack.



- D-Pad down to choose from

#### GAME OPTIONS

##### Digital Hud

Selecting this option removes the ladder displays of altitude and air-speed on either side of the cockpit window. Stationary digital displays appear instead on their respective sides of the cockpit window.

##### No Cuts in Combat

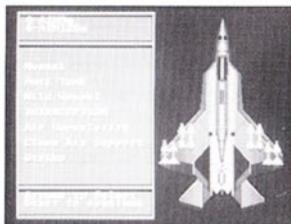
When you select this option your combat will not be interrupted by any cuts in the action, such as missile launches, enemy views, etc.

##### No Takeoff, Land, Refuel

If you don't want to spend any time taking off, landing, or refueling during your mission, select this option. Be advised that not having to refuel is not the same as having *Unlimited Fuel*. You still have to complete each phase of a mission before you run out of fuel; you just won't have to dock with the tanker or return to the airfield to replenish the F-22.



## WEAPONS SELECTION



The **Weapons Selection** screen, described earlier in the *FLYING A MISSION* section, is also available from the **Customize Game** screen.

- Press **B** to reveal the **Weapons Selection** screen.
- D-Pad up/down or left/right to select weapons package.
- Press **START** to return to the **Weapons Selection** screen.
- Press **START** to begin (or return to) your mission.



## BLACKOUTS/REDOUTS

When you pull too many negative g's, blood rushes into your head and you see red. When you pull too many positive g's, blood rushes out of your head and you begin to blackout. Redouts and blackouts compromise your vision and might give your opponent the split-second advantage he needs to do away with you.

### SUN GLARE

You will notice that sun glare hampers your vision to varying degrees, depending on your attitude toward the sun. Pointing your nose into the sun causes sun glare, but it can help you elude a heat-seeking missile, as heat from the sun can confuse the sensors on the missile.



## TARGETING AND FIRING

### CANNONS

The red box is your close range target marker. When your target is off-screen, flying in the direction of the target marker is the easiest way to put the enemy in your sights, but it can also leave you vulnerable to attack.

- When the red box appears at the top of the screen, fly up. When it appears to the left of the screen, roll left—etc.

When your target is in range, cross hairs will appear at or near the center of the screen. Your target will appear in the red target marker.

- Move the cross hairs to the marker to draw a bead on the target.

Initially, the cross hairs are black (red at night), indicating that the target is not yet in your sights. As you move the black cross hairs closer to the box the cross hairs turn green. Green cross hairs indicate that you are almost locked onto the target, and even might be able to score a chance hit.

The cross hairs turn white when the target is dead in your sights.

- Fire your cannons when your cross hairs are white.

### MISSILES

Targeting enemies with missiles works much the same as targeting with your cannons. At close range, the red target marker works



for both missiles and cannons.

At long range, a diamond appears around your closest target. Initially, the diamond is black. As you approach the target the diamond turns red, then yellow, then white.

- When the diamond turns white, launch a missile.

## WEAPONS GLOSSARY

### CANNON—Air-to-Air/Air-to-Ground: Medium Range

The cannons are very accurate in the 3000 foot range. Firing the cannons when the cross hairs are white virtually guarantees you a hit.

### AIM 9m—SIDEWINDER—Air-to-Air: Short Range

This 9m missile is heat-seeking and very accurate over short distances. The cross hairs need not be in the targeting box to score a hit, but the closer the better.

### AIM 7m—SPARROW—Air-to-Air: Medium Range

The Sparrow is a semi-active radar-guided missile similar in force to the Amraam, but not quite as accurate over long distances. You can fire only one Sparrow at a target at a time.

### AIM 120a—AMRAAM—Air-to-Air: Long Range

These radar guided missiles are very accurate over medium distances. Once one of these locks onto the target in the target



marker, nothing can save the plane from destruction. The pilot has a parachute, and he'd best use it.

#### **HVR-1—Air-to-Ground: Short Range**

This stands for Hyper-velocity rocket. Accurate over very short distances, these little babies pack a lethal wallop. The rockets get to their targets in a hurry, but they fizzle out quickly, so you'd better make sure the target is in your sights before you resort to these.

#### **BGM-71, TOW-2—Air-to-Ground: Medium Range**

The TOW is wire-guided, and packs a similar punch to the Maverick. If you are skilled enough to guide this pig into a target, there will be nothing left to identify.

#### **AGM-65a—MAVERICK—Air-to-Ground: Long Range**

The Maverick is a TV guided missile and operates over a long range. Launch this missile when your target is in view. A new screen will appear with cross hairs in the center. Using the cross hairs and the white diamond, guide the missile to the target. If the missile does not hit the target, it will eventually explode harmlessly.

#### **NV-144—Decoy**

Otherwise known as an Electronic Warfare Decoy, these jet shaped missiles are large enough to fool a radar-guided missile, and they give off enough heat to attract a heat-seeking missile. Launching one of these at the right time, then peeling off, can save your butt.



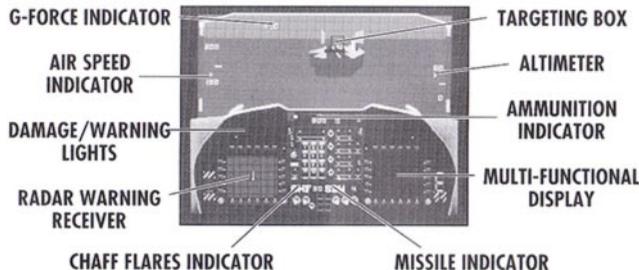
#### **ASPJ—Jammer**

The Airborne Self Protection Jammer sends out electronic impulses which disorient most missiles. While not guaranteed to work every time, it increases the odds in your favor.

#### **CHAFF AND FLARES**

Chaff and flares are best used after an enemy launches a missile at you. If you're lucky, and pull a drastic enough evasive maneuver, the missile will detonate on the chaff or flares and buy you the time you need to get into better position.

## THE INSTRUMENT PANEL



Certain information is available on the flight screen in every view.

### AIR-SPEED INDICATOR

On the left margin of the screen is the speedometer. The faster you go, the higher it rises.

### ALTIMETER

On the right margin of the screen is the altimeter. The higher you go, the higher it rises.

### G-FORCE INDICATOR

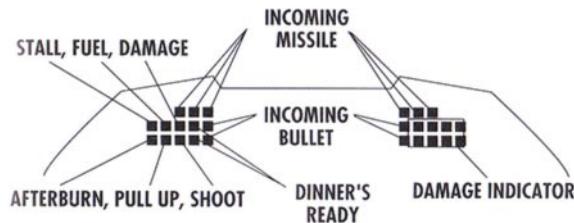
Near the upper left hand corner of the screen is the gravitational force indicator. At rest on the runway, the indicator reads 1.0. While you're flying, the indicator will register the g-forces at work on your body.

## MISSILE WARNING INDICATOR

The missile warning indicator gives you a few moments to evade a missile heading in your direction. The indicator will appear on the screen the moment it detects such a missile. If, for example, it detects an Atoll missile at 1.5 miles, the message Atoll 1.5 will appear.

As the missile draws closer (and this happens very swiftly) the number decreases. When the number reaches .1, you will suffer impact.

In many cases the indicator will disappear as the number decreases. This indicates that you are out of danger from that missile. But don't take anything for granted; when you see the missile warning indicator flash on the screen, take immediate evasive action if you know what's good for you. Also, you might want to hit your chaff and flares (A+C) or select chaff as your B weapon.



Damage Warning Lights (detail of Instrument Panel)



### DAMAGE/WARNING LIGHTS (ONLY IN COCKPIT)

Red indicators at the top of the instrument panel light up when the F-22 is damaged. The top row of lights flashes when a missile is coming in. The bottom two rows are the damage indicators. The more hits you take, the more lights you'll see. If you want to see exactly how bad the damage is, press **START** to go to your **Arming Weapons** screen, where the location and extent of the damage is displayed.

### AMMUNITION INDICATOR

The number at the top of the instrument panel indicates how many rounds are left in your cannon. In the HUD and Chase views, the indicator appears at the top of the screen.

### CHAFF AND FLARES INDICATOR

The number next to CHF at the bottom of the instrument panel indicates how many rounds of chaff and flares you have left. In the HUD and Chase views, the indicator appears at the top of the screen.

### MISSILE INDICATOR

Next to CHF indicator on the instrument panel, you'll find the abbreviation of the missile currently loaded. Next to the missile abbreviation appears the number remaining of the currently selected missile or counter measure. In the HUD and Chase views, the indicator appears at the top of the screen. Below is the list of the abbreviations.



SDW—Sidewinder  
 AMR—AMRAAM Active Radar-Guided Missile  
 HVR—Hyper-velocity Rocket  
 MAV—Maverick TV-Guided Missile  
 TOW—TOW-2 Wire-Guided Missile  
 SPR—Sparrow Semi-Active Radar-Guided Missile  
 DCY—Electronic Warfare Decoy  
 JAM—Airborne Self-Protection Jammer

### RADAR WARNING RECEIVER (RWR)

The radar screen appears on the left side of your instrument panel. The F-22 appears as a gray, jet-shaped icon. Enemy aircraft, ground targets, and sea targets appear in various colors.

### MULTI FUNCTIONAL DISPLAY (MFD)

On the right side of your instrument panel, the Multi-Function Display provides two different views, alternately.

The target view shows a close-up of the nearest target, with the name of the target listed at the top of the monitor and the target's distance from you in miles listed at the bottom. If the target is damaged, you will see smoke pouring from it.

The missile view shows a close-up of your missile approaching its intended target, with the name of the target at the top of the monitor and its distance from you in miles at the bottom. This occurs only when the missile you fired has sufficient range to reach its target.

You might need to use this monitor to distinguish friendlies from enemies when on an escort mission.



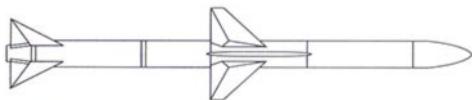
## APPENDIX



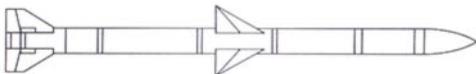
AA-2 Atoll



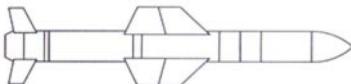
AIM-9B Sidewinder



AIM-7E/F Sparrow III



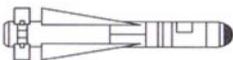
AIM-120 AMRAAM



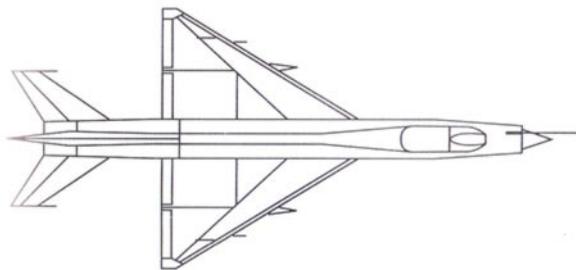
Harpoon



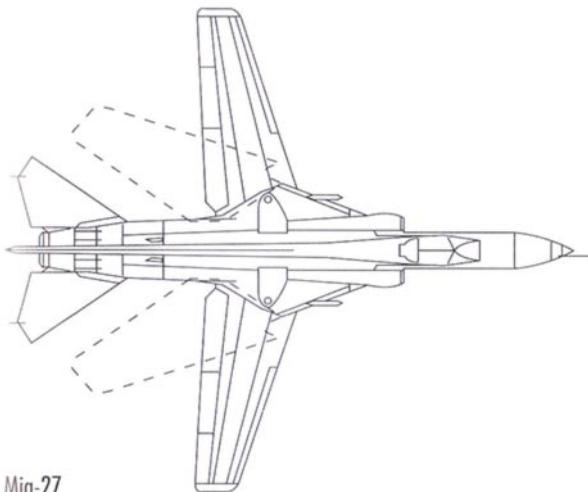
HVM



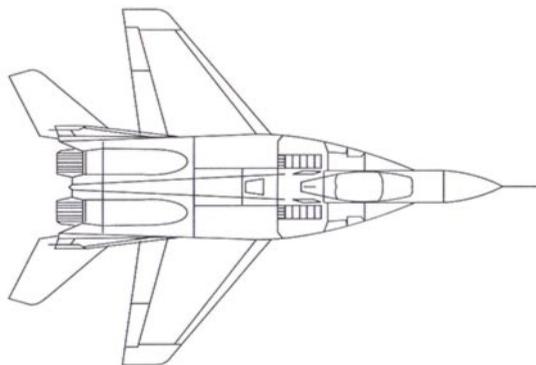
Maverick (AGM-65B)



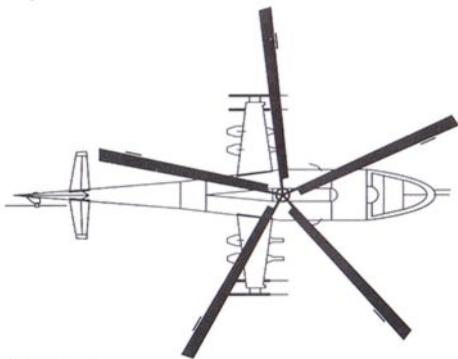
Mig-21



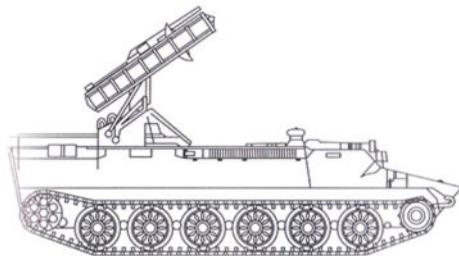
Mig-27



Mig-29



Mi-24 Hind



SA-13 TELAR 1

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