Strike Fighters 2 Series

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Quick Basics

This section provides a short introduction to the basic tasks required for successful combat mission. For a complete list of commands, see Default Key Commands at the end of this manual.

Navigating

Finding your way around is fairly easy through the use of the game's Head-Up Display (HUD) overlay. This section assumes that all Gameplay options are set to Easy or Normal; for Hard settings, you may need to rely on bearings and cockpit instruments to find your next waypoint.

Your waypoints show up in the Planning Map before the mission. During flight, your next waypoint shows up either as a white triangle in your forward view, or as a white cone on the perimeter of your screen. Steer towards it to maneuver to the next waypoint. Note that you always have a preliminary waypoint just before the target area or rendezvous point, and just before landing.

You can select the next or previous waypoint to switch them in mid-mission. Be aware that violating the planned flight path can consume precious fuel.

W / Shift+W	Select next/previous waypoint.
A	Activates autopilot and flies toward next waypoint.
Alt+N	Skips forward in time to the next encounter.
Alt+M	Display the in-flight map.

Targeting

Your next order of business is to find and lock onto a target. You can do this either by bringing a target into view or using your radar. For guided weapons that require a radar lock, you must acquire a target prior to firing weapons. Even your gunsight relies on your aircraft's targeting system to compensate for range and motion.

Visual Targeting

You can select any target you can see out of the front view. A selected target appears in square brackets on the HUD. If the target moves out of view, a cone appears to "point" you toward your current target.

T / Shift+T	Target next/previous air enemy or unidentified target. Depending on your HUD settings, information may appear onscreen about your target.
Ctrl+T	Target closest air enemy or unidentified target.
E / Shift+E	Target next/previous enemy ground object.
Ctrl+E	Select closest enemy ground object.

Radar Targeting

If you have advanced Radar option enabled, and if your aircraft is equipped with a radar, you can also use the radar to search and track targets beyond visual range. More specifics of radar usages are covered in Using the Radar.

PgUp / Shift+PgUp	Switch radar mode - Search / Boresight / Ground Map / Terrain Avoidance.
PgDn / Shift+PgDn	Cycle to next/previous radar range setting.
Home / Shift+Home	Select next/previous radar target on the radar display. (Your radar must first be in Search mode, and a target must be within radar range).
Insert	Lock on to the currently selected target and go to Target Tracking mode.

Using a Weapon

After you have something targeted, you're ready to fire your gun, missile, or rocket or ready to drop your bomb. Before you can do so, however, you must select a weapon.

Backspace / Shift+Backspace	Switch to next/previous Air-to-Air (ATA) weapon.
Backslash (\) / Shift+(\)	Switch to next/previous Air-to-Ground (ATG) weapon.
Spacebar (or Joystick button 1)	Fire primary gun or cannon.
Enter (or Joystick button 2)	Fire/release currently selected missile, bomb, or rocket. (Some guided weapons may require a lock.)

Some weapons require a radar lock, and until it is achieved, you won't be able to fire the guided weapon. Some heat seeking missiles will sound an audible tone when locked on. You do not have to keep the target in view after launch to hit targets with heat seeking weapons.

For radar-guided weapons, you must wait to fire until you see a solid yellow diamond over the target in the HUD. Whenever you launch a radar-guided weapon, remember that you must keep the target within the cone of your radar's view to maintain the lock.

Weapons such as rockets and forward guns don't require a lock and can be fired whenever you want. Your gunsight is somewhat automated and can help you aim. Just place the red gun reticle over the target and fire at will. The system will automatically compensate for your target's range and help you "lead" the bullets into his path.

Ending Mission

You may end the mission at any time by pressing ESC key. However, if you end the mission before your mission is accomplished, it will be recorded as a failed mission.

You may, of course, choose to continue to fly back to your home base and attempt landing.

On the Ground

Every successful mission starts with a good plan. *Strike Fighters 2* offers a variety of entertaining mission types, including instant action, single missions, and full campaigns. But before you rush to suit up and get off the ground, you've got to properly equip your aircraft for the task at hand.

Your journey into the skies starts on the ground, beginning with the Main Screen. From there, you select a pilot (except for Instant Action) and a mission type. After you study the mission briefing, you can then memorize your waypoint route and outfit your bird with fuel, bombs, missiles and guns. Finally, you'll be ready to take on the best strategic maneuvers your foes have to offer.

Main Screen

The first thing you see when you start the game is the Main Screen. Here, you select what type of mission you want to fly. You can also view statistics for the current pilot or another pilot you've previously saved.

The Main Screen lists the following options. Click a button to access that screen.

Instant Action	Jump immediately into flight in a randomly generated mission.
Single Mission	Load a historical mission, or configure a new mission and fly it.
Campaign	Load the currently active pilot and campaign, or start a new campaign with a different pilot.
Pilot Record	View vital statistics for all of your saved pilots, or create a new pilot to man your aircraft
Options	Set options for gameplay, graphics, sound, controls, network and other miscellaneous options.
Exit	Closes the game.
	Displays a small menu that allows you to view other screens, see the credits, and quit the game. The small green aircraft icon in the upper left corner appears on every base screen and has quick links to the Main Screen, Pilot Record Screen and Options Screen. You can also select Quit to close the game.

Instant Action Screen

Jump into the cockpit and quickly engage enemy targets in an Instant Action mission.

When you select Instant Action from the Main Screen, you immediately find yourself high in the

air near enemy territory. In some cases, you may even find yourself doggedly evading a bandit who's on your tail. With an Instant Action mission, you don't get to choose your aircraft, enemies, or setting - it's a surprise each and every time you enter battle. You also don't have to deal with takeoffs and landings.

At the end of each Instant Mission - after winning, crashing, or dying - you see the Debrief Screen.

Single Mission Screen

Create and fly randomly generated missions, or fly historical missions.

When you click Single Mission in the Main Screen, you're able to select a specific set some parameters for the mission. Another difference between a Single and Instant Mission is that the results of Single Missions are saved to your pilot's permanent record.

You have several options in the Single Mission Screen. The left side of the file folder shows two buttons, and the right side displays the parameters for the selected subscreen.

New Mission	Configure a new mission. (The game remembers the last settings you used.)
Load Mission	Load a custom mission or a previously saved mission. You can select a previously saved mission from the Mission Filename list.
ACCEPT	Once the mission is configured or loaded to your satisfaction, click Accept to move to the Hangar Screen.
EXIT	Return to the Main Screen and cancel this mission.

New Mission Parameters

Setting different mission parameters can drastically affect the difficulty of a mission. For instance, it's going to be harder to fly a reconnaissance mission when there is heavy enemy air activity, and if you want to up the ante for your pilot, try setting up heavy enemy air activity and heavy enemy air-defense activity.

You can alter the following options for a new Single Mission:

Aircraft Type	Select an aircraft to fly on this mission.
Service	Select the national insignia you want painted on your aircraft.
Mission Date	Select a specific year for this mission. Different weapons became available at different date, so select a later year to make more advanced weapons available. (this applies to both friendly and enemy weapons!)

Mission Type	Select a mission type - Random Mission (program randomly picks a mission), Fighter Sweep, Combat Air Patrol, Intercept, Escort, Strike, Close Air Support, Air Defense Suppression, Armed Reconnaissance, Anti-Ship, or Reconnaissance. (See Mission Types for details on different mission types.
Mission Map	Select a specific map and terrain type.
Mission Start Time	Select a time of day for the mission - Random / Dawn / Morning / Noon / Afternoon / Evening / Dusk / Night.
Mission Weather	Set the weather conditions - Random / Clear / Scattered / Broken (partly cloudy) / Overcast / Inclement (stormy).
Enemy Air Activity	Select the approximate level of enemy activity for the mission- Random / Light / Normal / Heavy. This sets the number of airborne enemies you'll likely encounter during the mission.
Enemy Air Defense	Select the approximate level of enemy ground-based anti-aircraft units you'll face during the mission - Random / Light / Normal / Heavy.

Campaign Screen

Participate in a full-length war and fly dynamic campaign missions.

The Campaign Screen allows you to start a new campaign mission series, or load an existing campaign that you've created. Once you begin a new campaign, you can't change the pilot you're using for that particular campaign. However, you can start a new campaign with a different pilot.

Two buttons appear on the left side of the screen. When you select one, the right-hand page changes to reflect your chosen option.

New Campaign	Starts a new campaign. After you choose this option, set the campaign parameters and then click Accept. When prompted, enter a save name for the new campaign.
Load Campaign	Enables you to load a saved campaign. Select the campaign you want to load from the drop-down list on the right-hand side of the screen, and then click Accept.
ACCEPT	Prompts you for a campaign name and saves the new campaign, then displays the Hangar Screen.
EXIT	Returns you to the Main Screen and cancels the campaign mission.

New Campaign Parameters

When you opt to create a new campaign, you can set the following options:

Pilot Name	Displays a list of pilots you've created. Select one to associate that pilot with this campaign. That pilot will still be able to fly Single Missions.
Campaign Name	Displays a list of available campaigns.
Service	Displays the available service branches by nationality.
Unit Name	Displays a list of available squadrons. The list varies, depending on which service branch you select.
Campaign Difficulty	At the Easy level, your success has less effect on the success of other units involved in the campaign war. If you perform poorly, other battle areas can still achieve overall success. The opposite is true for Hard campaigns - your performance guides the overall performance for your side. Normal falls somewhere in between.
Weapon Supply	Controls how often your base receives supplies, and how many supplies are delivered - Limited / Normal / Unlimited. Limited resupply means that you're much more likely to run out of weapons before the next convoy arrives. Normal gives you slightly more weapons, and Unlimited means that you never need to worry about running out of supplies.

Hangar Screen

The Hangar Screen is your pre-flight area. From this area you can review the mission briefing, alter your aircraft's ordnance loadout, view and adjust your mission waypoints, and select a pilot for the mission. The main Hangar Screen page shows the mission briefing. Along with your squadron, callsign and aircraft information, it also displays the current date (in game time). Planned takeoff, target arrival and landing times for the mission appear as well in 24-hour military time.

The Hangar Screen contains six buttons, four of which activate subscreens.

Loadout	Lets you proceed to the Loadout Screen and adjust weapon and fuel settings for up to four aircraft in your wing. You can also customize your aircraft's appearance in the Loadout area and, in some mission types, select the type of aircraft you want

	to fly.
Planning Map	Shows the Planning Map Screen, where you can view and adjust waypoints. You can also see all friendly and some enemy positions in this area, along with basic aircraft and base information.
Pilot Roster	Shows the pilot assignments for this mission.
EXIT	Returns you to the previous screen (Single Mission or Campaign).
FLY!	Puts you into the cockpit and starts the mission.

Loadout Screen

In the Loadout Screen, you equip your aircraft with ordnance appropriate for the selected or assigned mission type, whether it's a Single Mission or the next mission in a Campaign game. (See Mission Types for information about different types of missions you can fly in the game.) You can view or configure your own aircraft, as well as that of your wingman and any other aircraft flying with you.

The functionality of this screen differs slightly depending on what type of mission you're flying and what branch of the military you choose. Single Missions allow you a little more flexibility than Campaign Missions, since your aircraft, callsign, squadron alignment and aircraft appearance are configurable. (These items are not editable for a Campaign mission.)

The top right side of the screen has a number of drop-down lists. The lower right side of the screen details the current aircraft weight (calculated by adding the fuel, ammunition and external weapon weights to the raw weight of the aircraft).

You can set the following options in the Loadout Screen for all aircraft involved in your flight. When you're finished with all of the loadouts, click EXIT to return to the Hangar Screen. When you re-enter the Loadout Screen, the settings for your aircraft display by default.

Callsign	Displays a list of each individual member of your flight. Your aircraft is always designated by "1-1", and that of your wingman by "1-2." Select a callsign entry to configure the loadout for that particular aircraft.
Aircraft	For Single Missions, this drop-down list lets you assign an aircraft type to the currently selected callsign. For Campaign missions, the aircraft type is fixed, but you can adjust loadouts as needed. Also note that in Campaign missions you start with a limited number of weapon stores and aircraft. Periodically, your base is resupplied with new munitions and aircraft. The best way to ensure that this happens in a timely manner is to successfully complete all escort missions for incoming supply

	vehicles.
Number	Displays a drop-down list of individual serial numbers for each aircraft of the selected type. This unique number identifies each individual aircraft on the base.
Paint Scheme	For Single Missions, sets the chosen aircraft's paint job. A small sample of the selected scheme appears to the right of this drop-down list.
Markings	For Single Missions, displays a drop-down list of national military air force emblems for your aircraft.
Squadron	For Single Missions, enables you to select squadron markings, which will appear on the exterior of your aircraft. In a Campaign game, your squadron is predetermined.

Planning Map Screen

The Planning Map Screen shows an overhead view of the mission area, complete with color-coded icons that represent friendly and enemy units. You should use this screen to become familiar with the navigation layout of the mission, the enemy line, and the type and number of known foes.

The map shows the following elements of information for each mission. You can click-and-drag anywhere on the map to scroll in any direction.

Info Display Area	Displays basic information about the mission, target area and base. This area also displays waypoint and unit information, as described below.
	Blue icons represent friendly air and ground units, and red icons denote enemy units. The type of unit appears as an image on top of the icon. When you move the cursor over a friendly or enemy unit icon, known information about that unit appears on the Info Display Area, including the unit type, number of units and home base. As you win more Campaign missions and gather more intelligence, you'll be able to spot more targets and view more information about them in this screen.
	The small yellow triangles indicate waypoints for your flight. All aircraft flying with you follow these waypoints. Although the set waypoints are optimal for the mission, you can click-and-drag these waypoints to different locations. Be aware that extending the mission path requires additional fuel. Whenever you move the mouse pointer over a

	waypoint triangle, details about that navigation point appear on the Info Display Area.
Battle line	The red, jagged line on the terrain indicates the front line of battle. As you progress through the Campaign, this line will move to reflect your success or failure.
Target area	The black circle surrounds the area containing the main mission target. If you're having trouble winning a particular mission, you can try entering the target area from a different point.
	The magnifying glass icons allow you to zoom the map view in (+) and out (-). The icon with the dashed outline re-centers the map over the target area.
EXIT	Returns you to the Hangar Screen.

Pilot Roster Screen

The Pilot Roster screen lists the current game date, as well as the type of aircraft being flown and the names of all pilots involved in the current flight. Pertinent information about each pilot's experience, success and current condition also appears here.

You can click on any unassigned pilot to assign him to the mission, or click on already assigned pilot to unassign him.

Click EXIT to return to the Hangar Screen.

The following information displays for each pilot:

Pilot	Shows the pilot's first name, last name and current military rank.
Combat Missions	Displays the total number of combat missions flown by the pilot.
Kills	Tallies the number of Air-to-Air (A/A) and Air-to-Ground (A/G) kills made by the pilot.
Status	States whether the pilot is available for duty or not. During a Campaign game, the game tracks the status of all pilots in your squadron. As they get shot down, they can become KIA (killed in action), MIA (missing in action), or POW (prisoner of war) and will no longer be available to fly the mission. Pilot replacements are flown in on a semi-regular basis.
Morale	Describes the current morale level for the pilot.
Condition	Describes the current physical condition of the pilot - Fatigued, Normal, Rested and Refreshed.

	Refreshed is the highest level available
Aircraft Assigned	Lists the callsign for the pilot's current aircraft assignment.

Debrief Screen

Anytime you complete a mission, die, or press ESC, the Debrief Screen appears. From here you can view your score for the mission, the length of the mission, the success/failure message and a Top 10 score list. You will also view any new medals you receive as a result of earning points for that mission.

You have several other options in this screen. From any other post-mission screen, you can click Debrief at any time to return to the mission summary.

Stats	Shows who fired what weapons during the course of the mission, the number of launches/rounds, the number of successful hits and the percentage rate of success. Finally, a kill tally also appears for each pilot involved in the mission.
Log	Here, every event that occurs during the mission is logged and time-stamped.
Save	Save the mission out to a file so it can be re-loaded and re-played again later.
REFLY	Fly this same mission again.
ACCEPT	Save the mission score for the currently selected pilot and return to the Main Screen.

Pilot Record Screen

View detailed pilot records containing a complete history and statistics for your pilot.

This screen shows a detailed record for the currently selected pilot.

Pilot Name	Displays a drop-down list of all saved pilots. Select a pilot to display his or her information on the right side of the screen.
Photo	Displays a drop-down list of available pilot photos. You can add to this list by placing additional *.BMP images in the PilotData folder in the game directory
Last / First Name	Lets you type in a name for your pilot.
Callsign	Lets you type in a callsign or "handle" for your pilot.
EXIT	Returns you to the Main Screen.

Pilot Statistics

The rank, score, ratings and missions that appear in the right-hand box reflect the pilot's accumulated scores.

The following stats appear for the selected pilot:

Rank	Shows the current military rank. As you earn points with this pilot, you earn medals and advance in rank
Score	Shows the cumulative score. You receive points for each mission based on success in achieving the objectives.
Rating	Overall rating of the pilot.
Total Kills	Shows the kill tally (number of enemies destroyed)
Aircraft	Breaks out the number of aircraft kills.
Vehicle	Breaks out the number of vehicle and ground unit kills.
Buildings	Breaks out the number of building destroyed..
Friendly Fire	Shows the number of friendly objects destroyed (hopefully accidentally!) by the pilot
Shot Down	Number of times the pilot was shot down.
Kill Ratio	Ratio of kill tally divided by number of times shot down.
Flight Hours	Shows the total hours flown by this pilot.
Last Flown Type	Shows the last type of aircraft flown by this pilot.
Missions	Displays the total number of missions flown, the number of missions that was successful, and percentage of missions success.
Campaigns	Shows the total number of campaigns flown, the number of campaigns won, and the percentage of campaigns won.

Options Screen

Adjust various game settings such as gameplay, graphics, sound and controls options.

You can change many of the game's options by setting them in the Options Screen. To access the options from anywhere in the game prior to flight, simply click the green aircraft icon in the upper left corner of the screen, and then click Options.

Note: You cannot reset options while you're airborne.

You have access to four Option Screens - Gameplay, Graphics, Sound, and Control. Click on the name of a section to jump to that option category.

EXIT takes you back to whichever screen you were in prior to accessing the Options Screen.

Gameplay

The Gameplay subscreen lets you change difficulty settings that affect how hard or easy the game is to play.

Mission Start Position	Position of your aircraft when the mission starts - Near Target / Airfield. This determines whether you begin the game in the air or not.
Default Viewpoint	Your perspective when the mission starts - External / Cockpit. An external view positions you so that you see the outside of your aircraft; a cockpit view seats you behind the controls. See Key Commands for details on how to change camera views.
Display Unit	Sets the unit of measurements used for display - Default / Metric / English. Metric uses standard units of meters and kilometers. English uses feet, nautical miles and knots. Default selects the unit based on the aircraft type - generally, US and British aircraft use English unit, while most other aircraft use Metric.
Enemy Skill Level	Skill of your opponents - Easy / Normal / Hard. Easy: Enemies aren't all that accurate - they'll fire less often and miss more often. Also, their flying skills are below average. Medium: Opponents are a slightly better shot at range and are better at executing combat maneuvers. Hard: Opponents are seasoned veterans who pick their shots carefully and are fairly accurate. Dogfighting these enemies won't be an easy task, offensively or defensively.
Simulation Difficulty	Overall difficulty of the game, based on a number of option settings - Easy / Normal / Hard / Customize. Click Customize to display additional drop-down menus and options (listed below). For all of the customizable options, you may select Easy / Normal / Hard. The default setting is Normal.
Options under Customize...	
+ Flight Model	Controls the flight model for the aircraft. Easy: Arcade-type flight model. You have a lot of flight control and the aircraft flies where the nose is pointing. Normal: More accurate flight model. No true stalls or spins exist, but you must deal with some external aerodynamic forces. Hard: Most

	complex flight model. External forces can cause you to stall out or enter a spin. Realistic flight control limits make the diagonal motion of the joystick less useful for rolling during high angle-of-attack (AoA) maneuvers.
+ Weapon Effectiveness	Controls behavior and realism of weapons. Easy: Guns and weapons are very effective. Even the simple cannon can penetrate armor. All weapons have a wide blast radius and will not malfunction, so you need less accuracy when aiming at your target. Normal: Cannon rounds will still puncture armor, but otherwise guns and weapons do normal damage. Missile launch parameters exist, and missiles may malfunction if fired outside of those parameters. Hard: Gun and cannon rounds observe armor resistances, so attacking the front of a tank with a gun is a moot point. Strict missile parameters exist. Some missiles have a built-in, realistic firing delay of up to two seconds.
+ Radar Display	Controls the realism of the radar control and display. Easy: The radar automatically marks targets as friendly or enemy. Additionally, you have a 360-degree view of the area - no blind spots exist. Normal: The radar has a limited forward front view and uses realistic ground clutter and return signals. Targets remain on the radar screen as long as they remain in the cone of view. The radar automatically tracks targets as soon as they move into radar range. Hard: The radar realistically displays targets as momentary blips. It can take 6 seconds or longer to enter tracking mode, depending on the strength of the radar signal and the proximity of the target.
+ Visual Targeting	Controls how visual target is selected. Easy: You can target any enemy object, even target you cannot see. Normal: You can target any enemy that are within visual range. Hard: You can only target enemy that are within visual range and not obstructed by clouds or terrains.
+ HUD Display	Controls how the game's head-up display (HUD) operates. Easy: All available information are displayed on the HUD, including all flight, waypoint, and target information. The labels are displayed on all currently active objects. Normal: Only the basic flight and waypoint information are displayed, and target information on selected

	target. Hard: No flight, waypoint, or targeting information are displayed.
+ Landing	Controls how difficult it is to land the aircraft. Easy: If you lower the gear, you land successfully. Speed and angle are not factors. Normal: If you lower the gear and don't come down too steeply or too fast, you land successfully. If the descent rate is too high, however, you may crash. Hard: You must descend at the correct angle and speed to make a successful landing. Violating landing parameters may result in gear damage or collapse, or even worse, a crash.
+ Collision	Controls mid-air collisions and collisions with the ground. Easy: You cannot collide with another aircraft in the air. Also, crashing into the ground doesn't do any damage. Normal: You cannot collide with friendly aircraft, but you can hit an enemy. Damage from collisions is reduced, and you won't usually die as a result. Hard: You can collide with both friendly and enemy aircraft. If you crash into the ground, you will probably die.
+ Blackout	Controls the blackout and redout that can occur as a result of turning too tighly under high G-forces. Easy: Blackout and redout never occur. You can push or pull as many negative or positive Gs as you like. Normal: You may experience redout and blackout during excessive G-forces. However, the effects are short-lived. Hard: Blackouts and redouts occur under realistic circumstances, and the side effects remain active longer.
+ Ammo Usage	Controls the rate at which ammunition is expended. Easy: You have an unlimited supply of gun ammunition, cannon rounds and missiles. Normal: You can run out of ammunition and armament, but you start out with twice as much. Hard: You carry a realistic amount of ammunition, and you can only use your guns for a few short bursts.
+ Fuel Usage	Controls how quickly the aircraft consumes fuel. Easy: Your fuel supply is infinite, even when you use afterburners. Normal: Fuel is consumed at half of the normal rate during regular flight, and

	slightly less than the normal rate when you're using afterburners. Hard: Fuel consumption is realistic, and you can't use afterburners very much without risking a fuel shortage later in the mission.

Graphics

The Graphics subscreen allows you to change options that affect video settings. In general, the fewer textures and less detail you specify, the better the game performance. Older, slower machines operate best at lower graphical settings. If you have a top-end system, you can leave everything on the highest setting and enjoy increased video quality.

Medium settings are generally recommended for machines that meet the minimum system requirements. However, if the video is jerky or slow, try disabling some of these settings or lowering the detail levels.

Display Device	Specifies which video card the game should use. Normally only one video card will be listed here. If multiple cards appear, choose the option that corresponds to your 3D video card.
Display Resolution	Sets the resolutions for your monitor during gameplay. The list that appear here are different, depending on which video card you have installed. If you're having performance problems, you can reduce the game's resolution setting.
Display Aspect Ratio	Sets the aspect ratio for your monitor, 4:3, 5:4, 16:9, or 16:10. Standard CRT monitors typically have 4:3 or 16:9 ratio, while newer LCD monitors typically have 5:4 or 16:10 aspect ratio.
Graphics Detail Level	Overall level of graphics details you see during flight, based on a number of option settings - Low / Normal / High / Unlimited / Customize. Click Customize to display additional drop-down menus and options (listed below). These settings greatly affect frame rate.
Options under Customize...	
+ Object Detail	Controls level of detail and distance limits for 3D objects. Low: Fewer polygons exist for each object. Some visual effects such as reflections and decals are turned off. Medium: Objects have more art polygons and appear more detailed at close range. High: Objects appear highly detailed both at range and up close. All visual effects and decals are turned on.
+ Object Texture	Controls the level of texture detail for objects. Low: Object textures are limited to 128x128 detail.

	Medium: Object textures are limited to 256x256. High: Object textures are limited to 512x512. Unlimited: Object textures have unlimited detail.
+ Cockpit Texture	Acts identically to object textures, but applies only for the 3d virtual cockpit model.
+ Cockpit Mirrors	Toggles the rearview mirror on/off. When active, this option significantly slows down your frame rate, as each scene must be rendered twice.
+ Cockpit Reflection	As above, but toggles the transparent, interior cockpit reflections on the canopy glass on/off.
+ Shadow	Controls the distance and type of object that can cast shadow. Low: No shadows are cast. Medium: Aircraft cast shadow only in external view and only at close range. High: Aircraft and some ground objects cast shadow. Unlimited: All objects cast shadow at furthest distance.
+ Effects Detail	Controls the detail level for special effects, such as smoke, fire and explosions. Low: Visual effects are short-lived and don't have much particulate detail. Medium: Particle effects are denser, and visual effects last longer. High: All effects are shown at full detail, and the effects remain onscreen for longer. Unlimited: HDR effects are enabled (on DX10 or higher cards only).
+ Terrain Detail	Controls how detailed the terrain appears at various distances. Low: Terrain is represented as a simple mesh. Medium: Terrain shows more hills and valleys. High: Terrain is at highest detail.
+ Terrain Texture	Controls the level of texture detail for terrain. Low: terrain textures are limited to 128x128 detail. Medium: terrain textures are limited to 256x256. High: terrain textures limited to 512x512. Unlimited: terrain textures have unlimited detail, and have additional noise detail added (with proper Shader support).
+ Horizon Distance	Determines the distance to the horizon - Near / Normal / Far / Unlimited. Note that this only affects terrain. Enemy object and aircraft visibility distances are not affected.
+ Ground Objects Density	Controls how many objects (such as trees, buildings, and parked aircraft) appear on the ground. Low: Only important ground targets and buildings are displayed. Medium: Some trees and non-mission critical buildings also appear. High: More trees and buildings appear. Unlimited: All trees and buildings appear on the ground.

+ Water Detail	Controls how water is rendered. Low: Water texture is rendered just as normal terrain texture. Medium: Water texture has specular highlights and appears shinier. High: Water texture is animated (with proper Shader support).

Sound

The Sound subscreen lets you change audio options for the game and any external speakers you have attached to your computer.

To adjust the volume slider bars, click on the desired part of the bar. You can also click-and-drag the slider left to reduce volume, or right to increase volume.

Sound Volume	Adjusts the main master sound level for the game.
Speech Volume	Changes the volume of in-flight radio conversations.
Music Volume	Changes the volume of the in-game music.
Sound Channels	Sets the number of sound channels to use - 8 / 16 / 24 / 32. The higher the setting, the richer the sound.
Stereo Speakers	Setup Sets the speaker direction - Normal Stereo / Reverse Stereo. Switch the setting to reverse the left and right speakers in the game.
Speech Subtitles	Toggles subtitles on and off for all radio speech.

Control

The Control subscreen lets you adjust your joystick's sensitivity and deadzone settings.

Joystick Sensitivity	Changes how responsive your joystick is to movement. Slide the bar left to reduce sensitivity, or right to increase sensitivity.
Joystick Deadzone	Adjusts the non-responsive area of the joystick around the center position. Slide the bar left to reduce the amount of "dead" space, or right to increase it. A low deadzone value means that a slight joystick movement has a greater effect on your movement than the same movement with a high deadzone value.
Customize...	Change key mappings in this screen. The default control list is loaded by default, but you can click Customize to change the key mappings. If you choose to customize, a new *.INI file will be saved in the Controls subdirectory under the main game folder. You can then select the control list you

want by clicking the drop-down list and choosing a key mapping option.

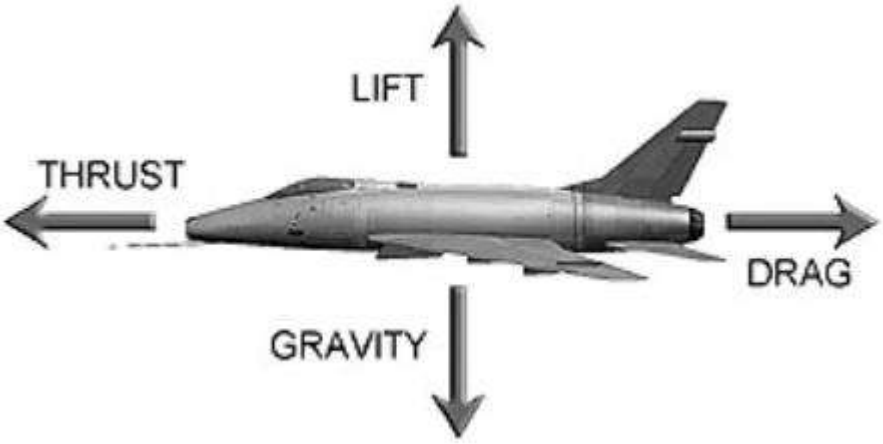
In the Air

This section covers the basic forces that operate on your aircraft, gives an overview of the cockpit and its instruments, illustrates some basic combat maneuvers and how to use weapons, as well as providing details about all the aircraft found in the game.

Flight Basics

Forces

Four forces operate on all aircraft: lift, gravity, thrust and drag. It is the combination of these forces that allows a plane to fly.

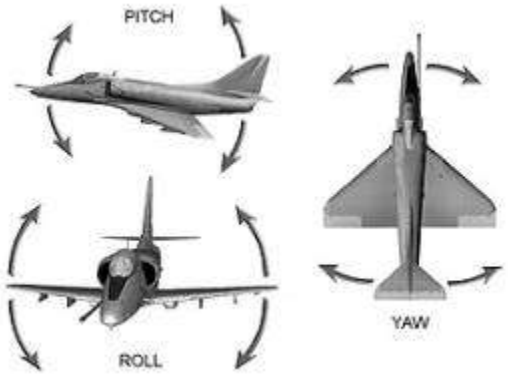


Lift keeps an aircraft airborne, and is mostly generated by airflow over and under the wings. A lot of factors are involved in how much lift is present at any given moment, including a plane's airspeed, the shape and position of its wings and their angle of attack. Gravity, on the other hand, is always constant and is the force counteracting lift, trying to pull an aircraft straight towards earth, no matter its orientation. The balance between these two determines whether an aircraft ascends or descends in level flight.

Thrust propels an aircraft forwards and is adjustable by throttle. In jets it is generated by turbojet engines and afterburners, if so equipped. It is counteracted by drag, the amount of friction a plane's shape must overcome when flying through the air. Thrust and drag are affected by a number of factors, including air density, variable at different altitudes.

Axes of Movement and Controls

Aircraft have three axes of movement: pitch, roll and yaw. Each has a corresponding flight control surface. Sufficient airflow over these control surfaces allows a pilot to "steer" a plane in an individual or a combination of axes.



Pitch is the angle of the nose of a plane relative to the ground and is controlled by an elevator or an all-moving horizontal stabilizer (found to be more effective as aircraft approached high subsonic and supersonic speeds). Elevators and moving tail surfaces are found at the rear of an aircraft and are controlled by pushing the flight control stick forward or pulling it backward. This is the quickest and most effective way to make your plane's nose point up or down.

Roll is a rotating movement on the longitudinal axis running through the center of a plane from front to back, also known as bank. When an aircraft banks, one wing rises or lowers relative to the other. Roll is operated by ailerons, found on the trailing edge of each wing. These are activated by pushing the flight stick from side to side. If you want to change your aspect from right side up to inverted - or any position in between - use the ailerons.

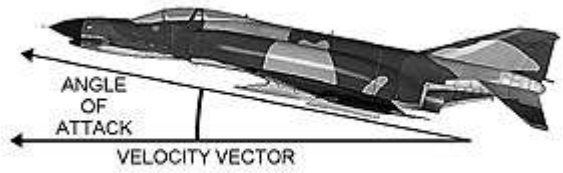
Yaw is movement of the nose on a horizontal plane, much like the steering of a car. Yaw is controlled by the rudder, a vertical airfoil found on the tail of a plane. It is operated by a set of pedals, which also control the nose wheel when on the ground. In aircraft with a high sweepback to the wings, the rudder can also be used to initiate roll when the wings are at a high angle of attack and ailerons prove ineffective.

Inertia

Following Newton's First Law of Motion, which states that "an object at rest tends to stay at rest and an object in motion tends to stay in motion," objects also naturally resist a change of state to their motion (velocity); this resistance is called inertia. The more mass that an object has, the greater the effect of inertia. How this applies to aircraft is that they will tend to resist a change to their path of movement, despite the pilot moving the controls. That is, the vehicle's momentum will want to continue to carry it along its center of mass's original path. While an aircraft's orientation in space may change, its actual flight path may lag behind where the aircraft is pointing, and it can take a while for the plane to "catch up" to its new heading. The higher the velocity, and the greater the mass, the more evident this is. Unless you have chosen to use the Easy flight model, remember that an aircraft isn't like a train on rails that will instantaneously go exactly where it's pointed. You have to take into account its inertia. This is especially important if you are planning on making wild maneuvers with a full bomb load or at high speeds!

Angle of Attack

On the pitch axis, the difference between where the nose is pointed and where the plane is actually traveling (its velocity vector) is called the Angle of Attack (AoA). Often times even when the nose appears level with the horizon the aircraft may still be ascending or descending according to how much lift is being generated by the wings.



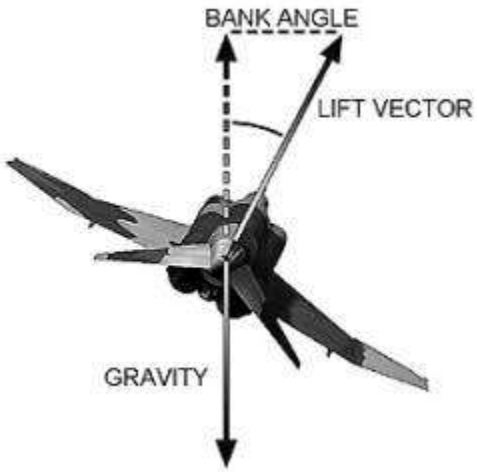
By increasing the angle of attack, both more lift (up to a point!) and more drag are generated. Unfortunately, this added drag will have a degenerative effect on speed, and this in turn decreases lift. The deceleration can be counteracted by applying more throttle if there is more power available and, when used on the vertical plane, thrust combined with lift can overcome the force of gravity. As you can imagine, it's all a delicate balancing act!

Slip Angle

On the yaw axis, the difference between where the nose is pointing and where the plane is actually traveling is known as the slip angle. Having a high slip angle greatly increases drag, as airflow slams into the side of the aircraft rather than parting around it. In combat it can sometimes be useful to momentarily have a high slip angle to bring the nose to bear on a target.

Lift Vector

Lift is generated by wings at an angle roughly perpendicular to where they attach to the aircraft, originating from its center of mass. The direction in which lift occurs is called the lift vector. In level flight this is straight up, away from the ground, and directly opposite to the force of gravity. By rotating on the roll axis, the lift vector no longer remains in precise opposition to gravity, and the balance between the two is disturbed. With less lift opposing gravity, the plane naturally loses altitude. In flight pilots often anticipate and counter this loss by pointing the nose slightly above the horizon when banking. The degree to which the lift vector varies from the direct opposite of the force of gravity is called the bank angle.



Stalls

Stalls occur when there is not enough airflow over the wings to generate lift. The higher an aircraft's speed, the more lift it creates; conversely, the slower it travels, the less it generates. Eventually, it can slow down enough that lift no longer counteracts the force of gravity, and the plane will simply drop. This is known as a low speed stall and the velocity at which it happens will vary between designs of aircraft. The only way to recover from such a situation is to increase speed so that lift can once again be generated by the wings. A low speed stall close to the ground can be especially deadly, since there may not be enough time or altitude to recover.

Stalls can also occur at high speeds. Generally speaking, the greater a wing's angle of attack, the more lift it generates. There comes a point, however, where the angle of the wing is sufficiently steep that airflow over it becomes disrupted and so turbulent so that the wing can longer create lift, despite a high velocity. This is known as a high speed or an accelerated stall. Easing off back pressure on the stick, thereby decreasing the angle of attack of the wing, will allow proper airflow to once again resume and lift will be restored. High speed stalls most often happen during violent maneuvers.

Sweptback Wings

Many of the fighter planes modeled in *Strike Fighters 2* have a high sweepback to the wings. Sweepback was first utilized by the Germans during WWII with their revolutionary Me-262 jet fighter, and it was subsequently discovered to be vital for aircraft that would be traveling at high subsonic and supersonic speeds. Highly swept wings require a higher angle of attack to produce the same lift as straight wings, but this is a fair trade-off for the higher speeds they allow. They also don't share the same stall characteristics. As they reach higher and higher angles of attack, the rate at which lift increases actually declines; finally, lift itself actually decreases without the sharp break that happens with traditional wings. Furthermore, at particularly high angles of attack, the rolling effect produced by ailerons is significantly reduced and can actually create adverse yaw effects that can only barely be countered by the rudder. Therefore, in this particular situation, using the rudder and sideslipping creates more roll and proves more effective than using the ailerons, known as "dihedral effect."

Mission Types

Fighter Sweep

Fighter sweeps are the most basic type of sortie for combat aircraft. They are an offensive mission by fighters to seek out and destroy enemy aircraft or targets of opportunity in a specified area. There are normally no assigned goals, except to exert influence over a region and to maintain air superiority.

Combat Air Patrol (CAP)

Combat Air Patrols involve flying within a dedicated area and remaining on the lookout for incoming enemy air threats. Aircraft are not allowed to stray too far from their assigned waypoints, and often have to loiter for long periods of time. Any hostile aircraft that enter the CAP area are to be destroyed before they can reach their targets.

Intercept

Intercepts are defensive missions with the goal of engaging specific aerial threats that have been identified by friendly forces. Planes are vectored to close in on hostile aircraft, often heavily laden with bombs or Air-to- Ground ordnance, and are to prevent them from reaching their targets.

Escort

Escorts are fighters that have been tasked to stay close to and defend friendly aircraft from hostile air attacks. Escorted aircraft are often strike fighters or bombers, and escorts usually fly in close formation with them. The goal of an escort mission is not to destroy enemies, but to protect the assigned aircraft. Convincing enemy fighters to break off an attack is a key ingredient of a successful escort mission.

Strike

Strike missions involve attacking enemy surface targets either in close support of ground forces or to knock out defenses and other targets deep behind enemy lines. Specific Air-to-Ground ordnance suitable for the target is almost always required and is only to be jettisoned when directly attacked, likely preventing any possibility of mission success.

Close Air Support (CAS)

Close Air Support means to engage enemy ground units close to, and in support of, friendly ground forces from the air. CAS missions are often directed by Forward Air Controllers (FAC) and are closely integrated with friendly ground unit's own movement and fire. CAS can be both defensive or offensive, and great care is required as friendlies will be operating near targets.

Suppression of Enemy Air Defense (SEAD)

The targets of air defense suppression missions are enemy ground positions that pose a threat to friendly aircraft in a specific area. Threats may be Surface-to-Air missiles sites (SAMs) or AAA units. Knocking out these defenses is vital to allow friendly air forces to operate with impunity, and SEAD aircraft are often the first to arrive over a target area and the last to leave. They are usually the most demanding missions.

Armed Reconnaissance

Sometimes referred to as Search and Destroy missions, the primary goal of Armed Reconnaissance is to find and attack targets of opportunity. Mission orders are not specific and any hostile forces within the assigned area should be considered legitimate targets, including all types of mobile equipment.

Anti-Ship

Much like Strike missions, Anti-Ship missions involve attacking and destroying ground targets - in this case, hostile watercraft. Enemy defenses on anti-ship missions can vary tremendously, depending on the nature of the target.

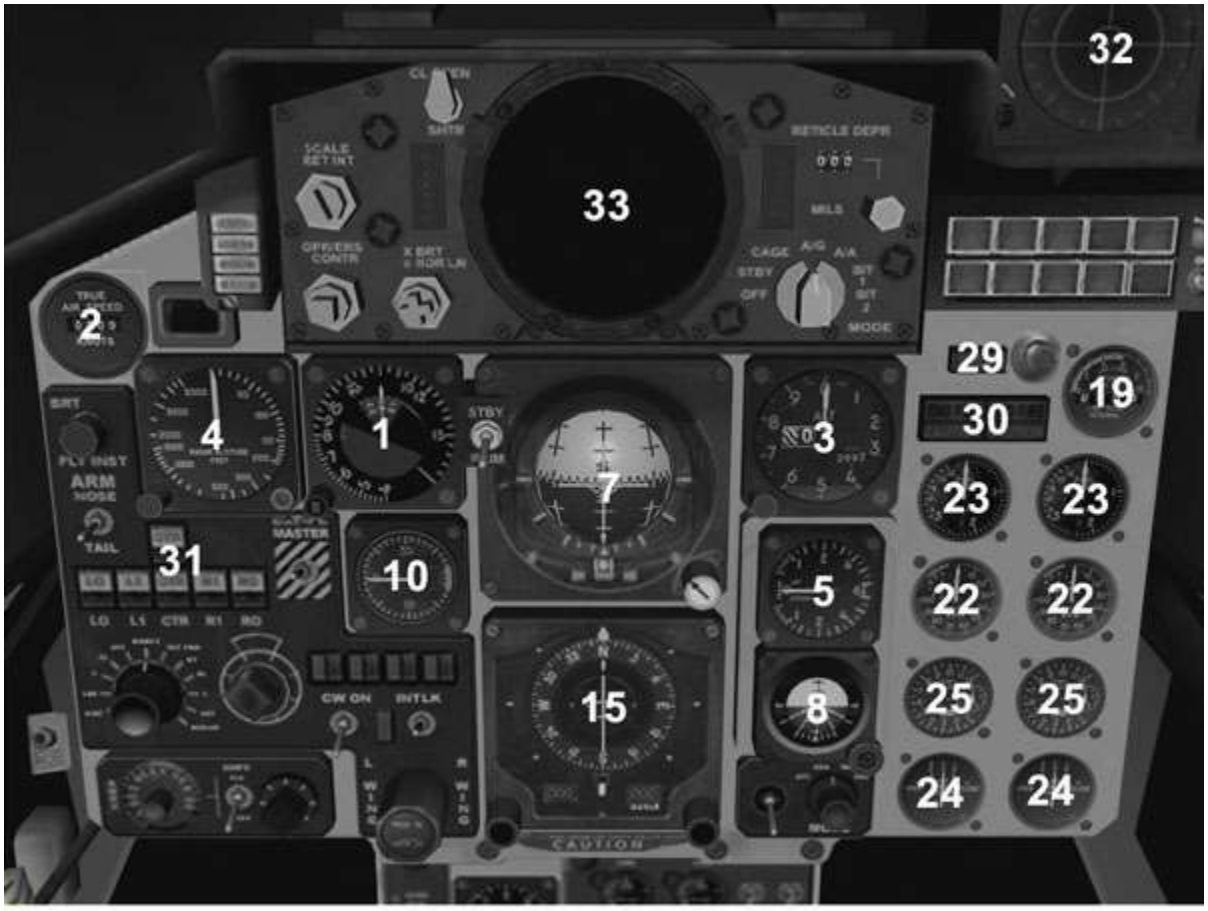
Reconnaissance

Reconnaissance missions are usually non-combative to discover and report on enemy positions. This information used for subsequent attacks or to prepare defenses.

Cockpit Instruments

All of the flyable aircraft modeled in *Strike Fighters 2* share many of the same cockpit instruments. While they may differ slightly in appearance, they function in much the same way, as explained below. The following list is of the basic instruments used by the game, and most aircraft will actually have more than presented here.

A-4E Skyhawk



F-4E Phantom II

1. Airspeed and Mach Number Indicator
A combination airspeed and Mach number indicator. On the F-100 and A-4, the needle displays the Indicated Air Speed (IAS) in knots on the outside wheel, and an inner dial shows Mach number. The F-4's airspeed indicator is divided into two parts: the right hand side of the gauge measures airspeed up to roughly 200 knots, and the numerals on the left hand indicate a percentage of Mach by tenths. The speed of sound varies according to air density and therefore altitude.

2. True Airspeed Indicator
A measure of the aircraft's true airspeed (TAS) rather than its indicated airspeed (IAS). TAS is velocity through space, while IAS is a measure of airflow, variable by air density and wind conditions.

3. Altimeter
The altimeter measures altitude above sea level via barometric pressure.

4. Radar Altimeter
This gauge indicates feet about ground level as measured by a radar return.

5. Vertical Velocity Indicator (VVI)
Also known as a Vertical Speed Indicator (VSI), the VVI measures a gain or loss of altitude by hundreds of feet per minute. Numbers on the top of the gauge indicate a climb, numbers on the bottom a descent.

6. Attitude Indicator
Sometimes called a Horizon Ball, this gauge shows the aircraft's orientation relative to the horizon with the sky shown as light blue. Horizontal white lines show pitch in degrees of ten, and fixed hash marks to the outside are used to measure bank angle.

7. Attitude Director Indicator
This instrument works similarly to the Attitude Indicator, but has more detailed information, including a heading reference scale, bank indicator and a turn and slip indicator.

8. Standby Attitude Indicator
A secondary Attitude Indicator in case the first fails.

9. Turn-and-Slip Indicator
This instrument measures bank angle and sliding on the yaw axis.

10. Angle-of-Attack Indicator
A measure of the pitch of the aircraft as divergent from its actual flight path. In other words, it compares the difference between the flight path and the actual pitch.

11. Heading Indicator
A rotating compass card viewed top down.

12. Standby Compass
A secondary compass in case others fail. (not shown in the pictures above, this is usually located on the canopy frame next to the gunsight)

13. Radio Magnetic Indicator
Navigational equipment available on the A-4 and F-100, this instrument contains a fixed compass card with two rotating pointers. The wide pointer indicates the ground track (heading) of the aircraft, and the narrow pointer indicates bearing to the next waypoint.

14. Position and Homing Indicator (PHI)
The PHI is a basic navigation tool. Consisting primarily of a rotating compass card, it also has a pointer marking the correct bearing to the next waypoint and digital numerals to show the range to it in nautical miles.

15. Horizontal Situation Indicator (HIS)
Found in the F-4 Phantom II, the HIS is a more sophisticated navigation tool. The large pointer just outside of the rotating compass card shows the correct bearing to the next waypoint from the current position. The long arrow bisecting the entire gauge shows the course from the previous waypoint to the next waypoint. The digital numerals on the left, bottom side of the gauge

measure range to the next waypoint in nautical miles. Lastly, the innermost component measures current course deviation from the line between the previous to next waypoint.

16. Range Indicator
A basic gauge showing range to the next waypoint in nautical miles.

17. Clock
A timepiece set to local time.

18. Accelerometer
This measures the amount of G forces acting on the aircraft.

19. Internal Fuel Quantity Indicator
A measure of available fuel in all internal tanks.

20. External Fuel Indicator
A measure of available fuel in external tank(s).

21. Total Fuel Quantity Indicator
A measure of total fuel remaining.

22. Fuel Flow Indicator
A measure of the amount of fuel flow at the current throttle setting (and therefore, consumption).

23. Tachometer
An indicator of engine revolutions per minute, measured as a percentage of total allowable RPM.

24. Engine Nozzle Position Indicator
A gauge to indicate the current aperture of the jet nozzle.

25. Exhaust Gas Temperature Gauge
A measure of the heat of the exhaust from the jet engine. Excessively high heat can indicate an engine malfunction or engine overuse at high settings.

26. Oil Pressure Gauge
An indicator of oil pressure in the engine. An overly low reading signifies a malfunction.

27. Oil Quantity Indictor
A measure of the amount of oil present in the oil receptacle. A low reading could signify a leak, or an overly hot engine. An engine that runs with too little oil will sustain damage and may stop functioning altogether.

28. Hydraulic Pressure Gauge
A measure of the pressure of hydraulic fluids that are used to move control surfaces. A low reading could mean reduced or total loss of control of any or all of the ailerons, elevator and rudder.

29. Caution Light
A master warning light signifying a general malfunction. Check all gauges and systems if lit.

30. Fire Warning Light
An indicator of a fire in the engine.

31. Armament Control Panel
A weapons panel to indicate status of weapons and related systems.

32. Radar Warning Receiver (RWR)
The RWR can detect, identify and characterize radar signals 360 degrees around the plane, displaying threat type and the relative bearing. It can also identify if the threatening radar is in search mode or is tracking the aircraft.

33. Radar Scope
Displays the radar image.

Using the Radar

Possibly the most complicated instrument in the cockpit, the radar can be used to detect enemy aircraft at long range before they can be spotted visually. There are four selectable modes of operation: Search, Boresight, Ground Map and Terrain Avoidance. Acquisition and Track modes are modes operated automatically by the radar system.

Not all aircraft in game have radar on board, and not all radar have the same capabilities. The F-4 radar has a maximum search range of 200 miles and a track range of 50 miles; The radar on Mirage III has maximum range of 27 miles; The A-4 radar has Ground Map and Terrain Avoidance modes only.

Search Mode

In Search mode the radar antenna sweeps the sky in front of the aircraft, displayed as a vertical line (B-sweep) tracing across the scope. The range can be set to 10, 25, 50, 100 or 200 miles in the F-4. Longer range settings also scan a greater arc vertically. Targets are displayed as a momentary blip on the B-sweep, and a bracketed acquisition bar can be manually cycled (by hitting the "Next/Previous radar target" keys) through all targets on the scope when the display range selected is within the radar's track range. The radar system can then be ordered to attempt to lock on (by hitting the "Acquire selected target" key) and track the target with the acquisition symbol, at which point the system will automatically transition to Acquisition mode.

Boresight Mode

Rather than sweeping, in Boresight mode the radar antenna is fixed on a reference line directly ahead of the aircraft. Any target within +/- 3 degrees of the CAGE gunsight circle is detected,

and the radar will automatically go into Acquisition mode to attempt to lock on and track it.

Acquisition Mode

Acquisition Mode is an transition mode between Search or Boresight modes and Track mode. A Range Gate Strobe will move from the bottom of the display toward the selected target symbol as the system attempts to lock on and track the target. If successful, the radar will then automatically transition to Track mode.

Track Mode

Once a target is being successfully tracked, Track mode will display angle and range tracking information and the system will automatically keep the antenna pointed towards the target. As long as the lock is maintained, a radar-guided missile can be fired at the target. A large Range Rate Circle will appear in the display with a small break in its perimeter, known as the Vc Gap . The orientation of this gap indicates the rate of closure to the target. When the gap is in the 12 o'clock position, this signals the distance to the target is constant. A clockwise rotation of the gap designates decreasing range, and a counterclockwise rotation an increase. The actual position of the Vc Gap indicates the following:

Position of Gap	Rate of Closure	Position of Gap	Rate of Closure
10:30 (315-deg)	450kts, opening	4:00 (120-deg)	1200kts, closing
11:00 (330-deg)	300kts, opening	5:00 (150-deg)	1500kts, closing
12:00 (360-deg)	0kts	6:00 (180-deg)	1800kts, closing
1:00 (30-deg)	300kts, closing	7:00 (210-deg)	2100kts, closing
2:00 (60-deg)	600kts, closing	8:00 (240-deg)	2400kts, closing
3:00 (90-deg)	900kts, closing	9:00 (270-deg)	2700kts, closing

Ground Map Mode

In Ground Map mode, the radar will scan the terrain ahead with a PPI sweep, tracing an arc across the face of the scope. Significant terrain contours and any ground targets will be displayed.

Terrain Avoidance Mode

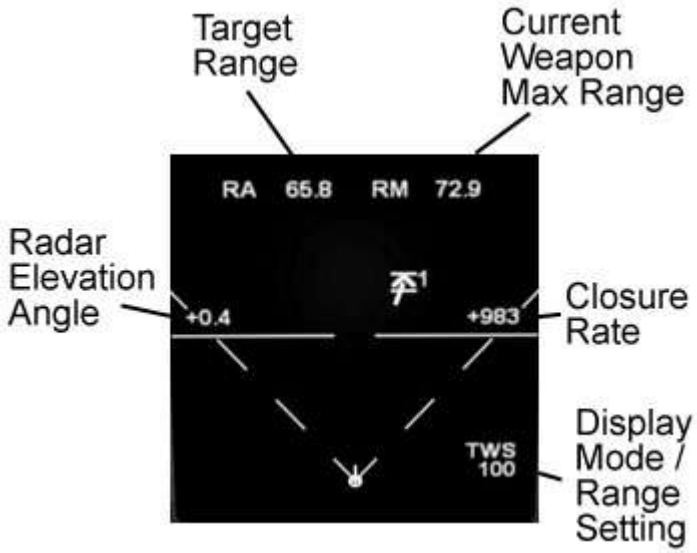
The simplest radar mode, Terrain Avoidance displays any obstacles that lie ahead parallel to the aircraft's current flight path with a clearance plane elevation fixed at 500 feet below. If an object appears in the scope, climbing until it disappears will avoid it.

Using the Radar on F-14A

F-14A carries the AWG-9 radar, the most powerful radar of its time. The radar was desgined specifically for fleet defense, and when used with the AIM-54 Phoenix missiles, it can engage up

to 6 enemy bombers at once at range of almost 100 miles. There is no raw radar display in the pilot's cockpit, instead, there is TID (Tactical Information Display), which shows not only the target detected by the radar, but also all the targets detected by nearby airborne early warning aircraft.

There are three selectable modes available: Search (Range-While Scan, or RWS), Track-While-Scan (TWS), and Air Combat (Vertical Scan Lock-on, or VSL) modes. Single Target Track (STT) mode is entered by the radar system when a target track is established. All radar modes display the same top-down, birds-eye view of the battlespace in front of the aircraft, up to 400 miles display range.



TID target symbols:

Search Mode

Search mode has the widest search volume and fastest search time, but only shows minimum information regarding targets. Target can be designated using the "Next/Previous radar target" keys, and the "Acquire selected target" key can be used to transition to STT mode unless AIM-54 missile is currently selected, in which case the radar will switch to TWS mode instead.

Track-While-Scan (TWS) Mode

TWS mode displays additional information about the currently selected target and is used for engaging multiple targets simultaneously with the AIM-54 missiles. Radar in TWS mode scans slightly smaller volume than in Search mode, and radar elevation is automatically centered on the currently highlighted target. Different targets can be selected using the "Next/Previous radar target" keys. When the AIM-54 is selected, up to 6 targets may be designated using the "Acquire selected target" key. When the first target is designated, a number "1" appears next to the target. And each time a different target is designated (by hitting the "Next/Previous radar target" to go to next target and then hitting the "Acquire selected target" again), next number in sequence is assigned ("2", "3", "4", etc), up to the number of AIM-54 currently carried. When an AIM-54 is fired, it automatically aims to the next target (designated "1") and the sequence is cycled down by one (so "2" now becomes "1", "3" becomes "2", etc) for the next missile, allowing the pilot to fire all 6 missiles at 6 different targets at once. When other weapons are selected, the "Acquire selected target" key switches to STT mode instead.

Single Target Track (STT) Mode

STT mode displays the all the same information as the TWS and is used to guide the AIM-7 radar-guided missiles. While in this mode, the radar does not search for any new targets, but new targets can still show up on TID if detected by the airborne early warning aircraft.

Auto Acquisition Mode

Radar in Auto Acquisition mode scans straight ahead and vertically from 0 to 40 deg above the boresight line. It automatically locks on to the first target it encounters in its vertical search arc, and switches to STT mode.

Using the Radar on F-15A

F-15A carries the APG-63 radar, the most advanced radar of its time. The radar was the first US airborne radar to incorporate Programmable Signal Processor, and its capabilities are significantly enhanced over earlier generation radars, such as the one carried by F-4 Phantom.

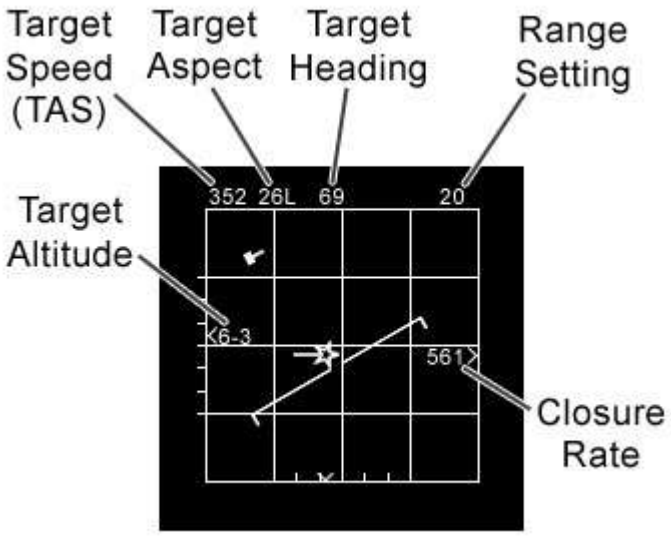
There are three selectable modes available: Search, Track-While-Scan (TWS), and Air Combat (ACM) modes. Single Target Track (STT) mode is entered by the radar system when a target track is established.

Search Mode

Search mode has the widest search volume and fastest search time, but only shows minimum information regarding targets. The display shows top-down view displaying radar contacts' azimuth and range relative to the radar. Target can be designated using the "Next/Previous radar target" keys, and the "Acquire selected target" key can be used to transition to STT mode.

Track-While-Scan (TWS) Mode

TWS mode displays additional information about the currently designated target while still showing basic azimuth/range info on other targets. Radar in TWS mode scans slightly smaller volume than in Search mode, and radar elevation is automatically centered on the currently highlighted target. The display shows top-down view displaying radar contacts' azimuth and range relative to the radar, and target symbol may have a vector to show its movement direction. Different targets can be designated using the "Next/Previous radar target" keys, and the "Acquire selected target" key switches to STT mode.



Additional info may be displayed depending on the current air-to-air weapon type selected.

Radar target symbols while in TWS mode:

If Avionics Option is set to Hard, it takes the radar 3 hits before it can gather enough information needed to show target vector and friendly info on non-designated target.

Single Target Track (STT) Mode

STT mode displays the all the same information as the TWS about a single target, but does not display any other targets. Radar can be used to guide radar-guided missiles (AIM-7 Sparrow) from this mode. Shows top-down view displaying radar contacts' azimuth and range relative to the radar, and target symbol has a vector to show its direction. Additional info may be displayed depending on the current air-to-air weapon type selected.

Auto Acquisition Mode

Radar in Auto Acquisition mode only displays basic radar operation info, and does not display any target info. The radar scans straight ahead and vertically from 0 to 55 deg above the boresight line. It automatically locks on to the first target it encounters in its vertical search arc, and switches to STT mode.

Combat Basics

Strike Fighters 2 includes a variety of Air-to-Air and Air-to-Ground combat. This section covers the basic knowledge guiding air combat, a necessity for any successful pilot.

Rules of Thumb

There are a few basic rules of thumb that all fighter pilots live by in combat, especially when in gun range. Learn them well, as they may just save your virtual life! The first is "Lose sight, lose the fight." In simple terms, this means always keep your eye on enemy aircraft and constantly analyze their position and orientation relative to yours. The moment you lose sight of a bandit you can no longer tell how it is maneuvering or if it is threatening your aircraft. Make it your first priority to re-establish sight of it!

A second basic maxim of ACM (Air Combat Maneuvering) is "Speed is life!" This rule holds true for a couple of reasons, but an important one is that speed can easily be cashed in for altitude. Similarly, a high flying aircraft can dive to pick up speed and for this reason "Altitude is life!" is also a popular saying. This trade-off between altitude and speed is known as "energy." A fighter at a high speed and high altitude is almost untouchable (it has very high energy and therefore lots of options), a low flying fast aircraft or a lower speed fighter with altitude both have medium energy (each have a few different options) whereas a low flying, low speed aircraft that has used up all its "E" has next to no options. Needless to say, energy management and keeping your options open is critical in a dogfight.

A third basic tip is not to fly straight and level in combat. Keeping a constant course makes you easy prey and is very predictable. Also, learn to think in three dimensions: not only do aircraft move about on a horizontal plane, but they can also use the vertical one very effectively. By using vertical maneuvers, a pilot can easily turn the tables on an opponent that insists on making only flat turns.

Using the Lift Vector

As explained in the Flight Basics section, the lift vector is the direction in which lift is applied on an airframe. Lift as a force is not only used to counter gravity, but it can also be used in maneuvers. Since lift is effectively "pushing" your aircraft in a known and constant direction, you can use that force to your advantage. Rolling an aircraft so that your lift vector points towards your target will force you to accelerate towards it; subsequently increasing pitch by pulling back on the stick will then increase your turn rate toward it (subject to certain limits, see below). When following an enemy aircraft, keeping your lift vector on the same plane of motion as that of your foe can help you turn inside of it and set up a kill.

G Forces

G force is the measurement of inertial loads, with 1G being the normal force of gravity. The higher an aircraft's velocity, the easier it is to increase G loading during maneuvers. G forces act on both pilots and aircraft, sometimes with negative consequences. Sustained high positive Gs send blood rushing out of a pilot's head, and can lead to increasingly grayed vision and eventually unconsciousness, known as "black out." Human beings are much less tolerant to negative Gs, which force blood into the head and can lead to a condition known as "red out" as vessels in the eye become engorged and vision is negatively affected. In order to recover from either black out or red out, G loads must be reduced to allow more normal blood flow to the brain and eyes. Aircraft can also be damaged if Gs are allowed to climb too high, even if only for a moment. As airspeed decreases the ability to initiate and hold G forces is reduced.

Turn Rate versus Turn Radius

Turn Radius is the size of a circle flown by an aircraft as measured from the center and decreases as velocity is reduced. While this is an important figure, the fighter that can turn the tightest isn't always at an advantage in a dogfight. Turn Rate - the speed with which the nose changes heading, measured in degrees per second - is even more significant. Since firing air-to-air weapons is generally done from the forward aspect of a fighter, the rate at which the nose can be brought to bear onto a target is critical. Thus, even though an aircraft may be creating a wider circle than its opponent, if it can travel around that circle more quickly, it is at an advantage. At any given velocity and G load, an aircraft has a specific turn radius and turn rate.

Corner Velocity

At high speeds turn rate is limited by the amount of G forces that can be sustained. As speed lowers and maximum Gs are maintained, turn rate increases. This seems ideal but, as mentioned above, as airspeed is reduced, so is the ability to hold Gs. The slowest speed at which maximum Gs can be applied is known as Corner Velocity and is the point at which an aircraft has the maximum instantaneous turn rate. Corner Velocity will vary between aircraft and is important to learn, as this is where a fighter will perform at its best. Unfortunately, most aircraft don't have enough thrust to maintain this velocity under maximum G loads and will find that their turn rate decays as their speed and hence Gs decrease. The maximum constant velocity that can be held with the highest steady G load is known as Sustained Corner Velocity and results in a steady rate

of turn. One of the reasons energy management is critical is so that pilots can temporarily achieve corner velocities above the sustained rate and as close as possible to the instantaneous turn rate.

Basic Maneuvers

Immelman Turn

Named after Max Immelman, a German pilot during the dawn of aerial combat, WWI, this move involves pulling back on the stick and climbing through the vertical as part of a half loop. At the top of the loop, when the aircraft is inverted, the pilot rolls through 180 degrees to be right side up and facing the opposite direction from where the maneuver was started. The aircraft finishes at a higher altitude than it began, with a resultant loss in velocity. Useful for changing direction quickly, it can be dangerous when pursued closely since an opponent can easily achieve a firing solution when the plane is slow towards the top of the loop. Insufficient speed before entering an Immelman will result in a stall.

Spit-S

The Split-S can be considered the counterpart to the Immelman, since it is also a half loop. However, in this case the pilot rolls inverted before pulling back on the stick and then performs the half loop while descending. The end result is a 180-degree change in direction, a loss of altitude and a gain in airspeed. It is critical that it be performed with sufficient height to avoid flying into the ground. Mainly a defensive move, it can also be used if an opponent flies beneath you in the opposite direction. The half roll is executed before the loop since a pilot can withstand many more positive Gs than negative ones.

Break Turn

A break turn is used to quickly defeat a guns solution by a hostile aircraft that is rapidly closing from the rear aspect. It is executed by banking either right or left and pulling back on the stick rapidly so as to carve a tight turn and force an overshoot. It is imperative to turn into the attacker and not away from him, as the latter would give him an even easier shot. A break turn is best performed level with the horizon or lower to avoid a pop-up in altitude and loss of speed, thus unwittingly becoming an even easier target. Break turns are most effective when the pursuer has a significant speed advantage and therefore cannot pull as tight a turn.

High and Low Yo-Yo

A Yo-Yo, whether high or low, is a very effective offensive tactic against an opponent that insists on making flat turns. Its principle advantage is that by using the vertical plane an aggressor can create an offset path of pursuit and thus gain an angle on the enemy. The Yo-Yo is performed by rolling outside of the horizontal plane during a turn and pitching up or down, followed by an opposite roll back into the original turn. The end result is that you will have

effectively "cut the corner" of the flat circle and will find yourself more squarely on your opponent's rear. The High Yo-Yo should be used when you have energy to spare and are above Corner Velocity, while the Low Yo-Yo should be used when you need to gain speed to reach your instantaneous turn rate.

Using the Gunsight

The F-100 Super Sabre and F-4 Phantom II are equipped with a Lead Computing Optical Sight System (LCOSS). This gunsight can be operated in three modes: CAGE, A/A and A/G.

In CAGE mode the gunsight reticle is fixed along the radar boresight line of the aircraft. When selecting Air-to-Air missiles the LCOSS automatically goes into CAGE mode.

In A/A (Air-to-Air) mode and with the cannon selected, the gunsight is placed in lead computing mode with the reticle position governed by the sight gyro and radar range. By these means the sight effectively predicts where cannon fire will go, given your current G load and range to a selected target. Place the predictor sight onto the target and fire guns to hit it. If no air target is selected, the sight defaults to a range of 1,000 feet.

In A/G (Air-to-Ground) mode, the sight is manually depressible to 245 mil below the fuselage line.

In F-4 Phantom II, the LCOSS also has roll tabs and a range bar. The range bar moves from roughly the 1 o'clock position (delineating maximum range) to the 6 o'clock (showing minimum range) and reflects different distances according to the weapon selected.

Using Air-to-Air Missiles

Aerial combat during the Korean War and even into the early 1960s was still very much a visual affair. While bogeys could be plotted on airborne radar at quite a distance, fire control technologies that existed were quite primitive by today's standards and downright unreliable. Heat-seeking missiles had to be fired within very specific parameters, and cannon still proved very effective for in-close fighting. This lesson is evident by the case of the F-4 Phantom II, which began life without any onboard cannon and was overly reliant on missiles; it later had gun pods fitted, and finally had a 20mm Vulcan cannon installed in the nose by 1967.

On board fire control radars of the 1960s could only lock onto one enemy at a time, and radar-homing missiles had to "ride the beam" to their targets, not having their own independent guidance systems.

Missile technology evolved quickly, though, and Air-to-Air capabilities steadily increased throughout the decade.

Heat-Seeking Missiles

Many aircraft can only be equipped with heat-seeking missiles and don't have the capability to fire radar-guided ones. Infrared (IR) missiles track the heat signature produced by a jet's exhaust. To be used successfully, they have to be fired from the rear aspect of the target; otherwise, they will not pick up a heat source properly. Early versions were sometimes fooled by other objects that radiate heat against the sky like the sun or clouds. Even the most modern heat-seeking missiles can still be fooled by flares.

When AIM-9 missiles are selected, you will hear a constant medium pitched tone known as a "growl." As the IR seeker head detects and locks onto a source, this pitch will change to a high tone. The sensor of a heat-seeking missile has a limited field of view, so in order to "get a tone," the target has to be roughly within your gunsight (it will have automatically switched to CAGE mode) and within range of the seeker head.

Early Sidewinder missiles could not be fired when pulling too many Gs. Likewise, a missile also has maneuverability limits, and if it is fired from too close a range or too high an aspect angle, it may not be able to turn sharply enough to engage the target. The best way to ensure your missile hits is to have a constant tone and to be following the target in pure pursuit without a high G load. The maneuverability and/or maximum range of Sidewinder missiles improves with each variant.

If your target is too close to use AIM-9 missiles, use your guns!

Radar-Guided Missiles

Radar-homing missiles (RHM) rely on information from a radar signature to find their way to a target. They operate at a much greater range than heat-seeking missiles and can be fired from any aspect, meaning you do not have to maneuver to the rear of a bandit. While in flight, they require radar information constantly provided by the aircraft from which they were launched. Unlike a heat-seeking missile, which is "fire and forget", their guidance depends on a radar lock being kept by your radar and the target being illuminated. At longer ranges this can be defeated by enemy radar jamming, and only one target can be illuminated at a time. Hostile aircraft can also employ chaff defensively to defeat radar locks.

For information on how to achieve a radar lock using your radar scope, view the Using the Radar section of this manual.

Using Air-to-Ground Missiles

There are three types of air-to-ground guided missiles available in *Strike Fighters 2*: 1) Anti-radiation missile (ARM), such as AGM-45 Shrike and AGM-78 Standard ARM, 2) Electro-Optical (EO) weapons, including AGM-65 Maverick, and 3) Laser-guided bombs (LGB), such as GBU-10/12 Paveway I series bombs.

Anti-Radiation Missile (ARM)

Anti-radiation seeker head homes in on the emitted signal from enemy ground radar installation and is completely self-guided. To use these missiles, simply point the aircraft toward a known enemy radar, and fire. If the enemy radar is within the range, it'll automatically lock on and guide itself to the target.

Electro-Optical (EO) Guided Weapon

EO weapons are guided using small TV camera located on the nose of the weapon. Once EO-guided weapon is selected, the radarscope will display the image seen by the EO seeker of the selected weapon. To use EO-guided weapon, simply select the visual target (by hitting Select Ground Target key), and if the target is in seeker range and in seeker field-of-view, the weapon will automatically lock-on to the selected target. The radar display will show the weapon seeker tracking the target, and the Heads-Up-Display will display a symbol indicating where the target is located. Once fired, EO-guided weapons are "fire-and-forget", and the attacking aircraft may immediately switch target for next weapon without losing guidance.

Laser-Guided Bomb (LGB), No Designator

Laser-Guided weapons are guided toward reflection of laser dot "painted" on the target by a laser designator. If the aircraft is not carrying the laser designator, then it cannot select target on its own - it can only attack primary targets, which are always being designated by other laser designators (such as Special Forces on the ground). Since the target is being lased by other units, the attacking aircraft does not have to maintain target, and can immediately switch to another target to attack using other weapons.

Laser-Guided Bomb (LGB), with Designator (AVQ-23 Laser Designator Pod)

If the aircraft is carrying a laser designator (such as AVQ-23 Laser Designator Pod), the radarscope will display image similar to EO-guided weapon, and the target may be selected similarly using the Select Ground Target key. If the target is in designator range and in designator field-of-view, the display will show the designator tracking the target. Laser-guided weapons fired this way are not "fire-and-forget", and the target must remain designated until the weapon impact. Switching visual target while bomb is still in flight will cause the bomb to lose its target and miss.

Player Aircraft

The following is a brief description of the player flyable aircraft in *Strike Fighters 2* series games. Not all aircraft are available in every game.

P-51 Mustang

Year: 1942
Role: Fighter / Fighter-bomber
Max Speed: 437 mph (380 knots)
Max G-loading: 8.3 G
Weapons: Six 0.50 caliber M2 machineguns with 270-400 rounds per gun, up to 10 5" HVAR rockets or 1,000 lb of bombs.

The P-51 (renamed F-51 in USAF service after 1948) was originally designed as a ground-attack fighter for the Royal Air Force in 1940. The RAF was impressed with the Mustang's long range, high speed, and maneuverability, but found its performance inadequate at high altitude. In 1942, the RAF mated the Mustang with the British Merlin engine for better high-altitude performance, turning it into an unmatched escort fighter. The long-ranged P-51 was able to escort the Allied bombers to targets deep within German territory, including Berlin itself, ensuring the Allied victory. After the war, Mustang proved its strategic value once again when the North Korea invaded the South and forced the USAF off the Korean peninsula - F-51 units could continue to attack North Korea from bases in Japan where short-ranged jet fighters could not. P-51 Mustang was cheap and easy to produce, with over 16,700 produced, and it served with air forces of more than 55 nations worldwide after the war. It continued to serve with some air forces until the 1980s.

P-51D [*Strike Fighters 2 Expansion Pack 1*]
The D model, entering service in 1944, is the definitive production version. Powered by Packard V-1650 engine (a license-built Merlin), P-51D has "bubble" canopy for all-around visibility out the cockpit, and armament increased to six 0.50 caliber M2 machineguns (from four in previous version).

Meteor

Year: 1944
Role: Fighter / Fighter-bomber
Max Speed: 580 mph (504 knots)
Max G-loading: 6.0 G
Weapons: Four 20mm Hispano Mk.2 cannons with 150 rounds per gun, up to 16 60-lb rocket projectiles or 2,000 lb of bombs.

The British Meteor was the Allies' first operational jet fighter, and the only Allied jet to see combat during the World War II. The design began back in 1940 as the Air Ministry Specification "F.9/40" for a turbojet-powered fighter, but due to the experimental nature of the early jet engine development, the aircraft did not become operational until 1944 when it was pressed into service to intercept German V-1 flying bombs. Single-seat Meteor, powered by two Rolls-Royce turbojet engines, became the standard RAF fighter immediately after the war. Meteors were also widely exported, with some 16 air forces using it, and it saw combat in Korea in the hands of Royal Australian Air Force and during the 1956 Suez Crisis where it was used by both Egyptian and Israeli air forces.

Meteor F.8 [*Strike Fighters 2 Expansion Pack 1*]
The F.8 version is the definitive production version designed to keep the Meteor up-to-date with the new post-war aircraft developments while retaining much of the manufacturing tooling. It entered service in 1949 with uprated Rolls-Royce Derwent 8 engines and revised tail surfaces.

Hunter

Year: 1954
Role: Fighter / Fighter-bomber
Max Speed: 715 mph (620 knots)
Max G-loading: 7.3 G
Weapons: Four 30mm ADEN Mk.4 cannons with 150 rounds per gun.

Design for the Hawker Hunter began in late 1948 to fulfill the Air Ministry specifications for a second-generation jet fighter, and it is a classic example of British aircraft design with all the smooth curves and pleasing lines. It had very good handling characteristics, but even with the transonic swept-wing design and powered by then-new axial flow turbojet, it was unable to break the "sound barrier" in level flight. The Hunter replaced several fighter types in the Royal Air Force, including the Meteors, Sabres, Vampires and Venoms, to become the backbone of the fighter command from the mid-1950s to the end of 1960s. It was also widely exported, with no less than 19 countries operating the type. Hunter saw considerable action across the globe, including the crisis in Suez, Indonesia and Aden, civil conflicts in Chile, Somalia, Rhodesia and Zimbabwe, wars in the Middle East, and India-Pakistan war of 1971.

Hunter F.1 [*Strike Fighters 2 Expansion Pack 2*]
The Hunter F.1 (Fighter, Mark 1), powered by Avon Mark 113 engine, is the first version to enter service in 1954. It suffered from several technical problems and was quickly withdrawn from front-line service after suffering high accident rates. In its short service life, 37 out of 113 F.1 built were lost in accidents, many of them simply running out of fuel during routine exercise.

Hunter F.2 [*Strike Fighters 2 Expansion Pack 2*]
The Hunter F.2 (Fighter, Mark 2) is similar to F.1 and produced at the same time, but powered by an alternate engine, Sapphire 101 with more thrust.

Hunter F.4 [*Strike Fighters 2 Expansion Pack 2*]
The F.4 (Fighter, Mark 4), entering service in 1955, is the next production version designed to address many of the problems found on F.1 and F.2. It has new wings with more internal fuel capacity, and it can also carry external drop tanks. It has distinct pair of blisters (called "Sabrinas" after a busty British pinup girl) under the fuselage to collect spent ammunition links to prevent airframe damage. The spent shells are still discarded normally since they are heavy enough to fall away from the aircraft.

Hunter F.5 [*Strike Fighters 2 Expansion Pack 2*]
The F.5 (Fighter, Mark 5) produced at the same time as F.4 and is similar but with the alternate Sapphire 101 engine. Although Sapphire engine has more thrust and better fuel economy, it is not as reliable and has a shorter service life.

Hunter F.6 [*Strike Fighters 2 Europe*]
The Hunter F.6 (Fighter, Mark 6), entering service in 1957, is the definitive fighter version of the Hunter. It is powered by more powerful Rolls-Royce Avon 203 engine, and its outer wings have increased area giving them a distinctive leading-edge "dog-tooth". It can also carry four external drop tanks on underwing pylons.

Hunter F.6 (60) [*Strike Fighters 2 DLC 001*]
By 1960, many countries including the Netherlands began arming their Hunters with two AIM-9 missiles. The Royal Netherlands Air Force operated Hunter F.6 from 1957 to 1968, and had about half of its Hunters modified to carry Sidewinders starting in 1960.

Hunter FGA.9 [*Strike Fighters 2 Europe*]
The Hunter FGA.9 (Fighter Ground Attack, Mark 9) is the F.6 converted for ground-attack role. It is powered by Rolls-Royce Avon 207 engine, has further strengthened wings, and provisions to carry larger 1,044-liter drop tanks on inner wing pylons. FGA.9 entered service in 1960.

J 34 Hunter F.50 [*Strike Fighters 2 DLC 008*]
The Hunter F.50, locally designated "J 34," is the F.4 exported to Sweden. J 34 entered service in 1955 and equipped 4 wings of Swedish Air Force.

J 34 Hunter F.50 (60) [*Strike Fighters 2 DLC 008*]
The Swedish Air Force upgraded their Hunters with outer pylons for carrying two AIM-9 missiles in 1960.

Hunter F.51 [*Strike Fighters 2 Expansion Pack 2*]
The Hunter F.51 is the F.4 exported to Denmark.

Hunter F.58 [*Strike Fighters 2 DLC 014*]
The Hunter F.58 is the F.6 exported to Switzerland after its indigenous P-16 design was abandoned. Delivered in 1959, Swiss Hunters had features that were later introduced on the FGA.9, including the ability to carry bombs on outer pylons.

Hunter F.58 (63) [*Strike Fighters 2 DLC 014*]
From 1963, about half the Swiss Hunters were modified to carry 2 Sidewinder missiles.

Hunter F.58A [*Strike Fighters 2 DLC 014*]
Hunter F.58A is the reconditioned Hunters sold to Swiss in 1970 while they evaluated A-7 and Milan as their attack aircraft. But instead, they decided to purchase more reconditioned Hunter F.58As. F.58A is powered by uprated Avon 207 engine and generally similar to the ground-attack Hunter FGA.9.

Hunter FGA.59 [*Strike Fighters 2 Expansion Pack 2 bonus with Strike Fighters 2*]
The Hunter FGA.59s are ex-RAF F.6s updated to FGA.9 standard, exported to Iraq.

Hunter FGA.70 [*Strike Fighters 2 Expansion Pack 2 bonus with Strike Fighters 2*]
The Hunter FGA.70 is the FGA.9 exported to Lebanon.

Hunter FGA.73 [*Strike Fighters 2 Expansion Pack 2 bonus with Strike Fighters 2*]
The Hunter FGA.73s are ex-RAF F.6s updated to FGA.9 standard, exported to Jordan.

Hunter FGA.73 (75) [*Strike Fighters 2 DLC 004*]
In 1975, Oman purchased Hunter FGA.73 from Jordan and modified them to carry 2 AIM-9 missiles. These Hunters, mostly flown by ex-RAF mercenary pilots, were put to immediate use fighting the insurgents in the Dhofari region which were supported by Saudi Arabia, Egypt, Iraq, and Soviets in South Yemen.

Hunter FGA.73 (82) [*Strike Fighters 2 DLC 004*]
Omani Hunters were further upgraded in 1982 with 2 additional pylons for AIM-9 missiles and ALE-40 chaff/flare dispensers. In this configuration, Omani Hunters would go on to participate in the Operation Desert Storm in 1991 as part of the Coalition Forces before retiring in 1993.

F-100 Super Sabre

Year: 1954
Role: Fighter / Fighter-bomber
Max Speed: 864 mph (750 knots)
Max G-loading: 7.3 G
Weapons: Four 20mm M39 cannons with 200 rounds per gun, four AIM-9 Sidewinder heat-seeking missiles, and up to 7,000 lb of ordnance on six underwing pylons.

The single-seat F-100 Super Sabre evolved from the famed F-86 Sabre, legendary in combat against the Soviet MiG-15s of the Korean War. The first of the "Century Series" of fighters, its design dates back to 1949 and is often considered the first production aircraft capable of supersonic speeds in level flight. It was originally known as the Sabre 45 because of the 45-degree angle of its low mounted sweptback wings. By 1954 the F-100A was entering squadron service to become the standard USAF front line fighter. Powered by a Pratt & Whitney J57

afterburning turbojet, the Super Sabre was originally designed for daytime aerial superiority, but was later tasked as a fighter-bomber and saw extensive use with the USAF in South-East Asia. The F-100D was the definitive version optimized for the air-to-ground strike role, capable of carrying an increased weapons load. More versions of the "D" were built than all other models combined before production was halted in 1959. The Super Sabre continued to serve well into the late 1970s.

F-100A [*Strike Fighters 2 Expansion Pack 2*]
F-100A, entering service in 1954, is the first production version of the F-100. It is powered by J57-P-7 turbojet engine and armed with four 20mm M39 cannons with 200 rounds per gun. As with many contemporary fighters rushed into service, it suffered from various technical problems, including stability problems at high speed.

F-100A (58) [*Strike Fighters 2 Expansion Pack 2*]
By 1958, F-100A is withdrawn from front-line USAF service and passed onto the Air National Guard (ANG) units where they are upgraded with Sidewinder capability. Tragically, the only confirmed air-to-air kill by US F-100 happened in 1961 when ANG F-100A accidentally fired a Sidewinder missile and shot down a B-52 in a friendly-fire incident.

F-100C [*Strike Fighters 2 Expansion Pack 2*]
F-100C is the fighter-bomber version with "wet" wings for increased internal fuel capacity and two extra stores pylons for up to 2,000 lbs of bombs and rockets. It incorporates many other improvements, including uprated J57-P-21 engine, better yaw damper, and air-to-air refueling probe. F-100C began entering service in 1955.

F-100C (65) [*Strike Fighters 2 Expansion Pack 2*]
F-100s, rushed into service due to Cold War pressure, had hundreds of in-service field modifications, making it so no two F-100 are exactly the same. In mid-1960s, a major standardization program, project "HIGH WIRE", was launched to ease the maintenance problem. The process to refit all 700 F-100 in service would take over 10 years, and all F-100C are brought up to similar standard as F-100D, with a tail hook for emergency landing and ability to carry a wider range of conventional weapons, including Sidewinder capability. The first F-100C returned from from refit in 1965.

F-100D [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The F-100D, entering service in 1956, is the dedicated fighter-bomber version of the F-100. It is powered by a single Pratt & Whitney J57-P-21/21A afterburning turbojet engine, and is armed with four 20mm M39 cannons, four Sidewinder heat-seeking missiles, and 6 underwing pylons for up to 7,000 pounds of bombs and rockets.

F-100D (64) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
Starting in 1964, all F-100s were subjected to project "HIGH WIRE", a major standardization program to ease the maintenance problem. All F-100D are standardized with a tail hook for emergency landing, additional fuselage pylon, and capacity for a wider range of conventional weapons.

F-100D (68) [*Strike Fighters 2 Vietnam, Strike Fighters 2 Europe*]
By 1968, APR-25 "Vector" RHAW (Radar Homing and Warning) display has become more commonly available, and one is placed inside the F-100D cockpit even though most F-100Ds spend their time in South Vietnam and out of danger of SAM threat.

Mystère IV

Year: 1955
Role: Fighter / Fighter-bomber
Max Speed: 695 mph (605 knots)
Max G-loading: 7.3 G
Weapons: Two 30mm DEFA cannons with 150 rounds per gun, and up to 2,000 lb of ordnance on four pylons.

Mystère IV is part of the first series of jet fighters produced by France after the World War II. The series began in 1947 as a private venture by Marcel Dassault, without French government contract, as a straight-wing Ouragan (Hurricane) and then evolved into swept-wing Mystère II (Mystery). The rapid pace of aircraft evolution was such that Mystère IV design started in 1952 before the first Mystère II could enter service. Despite its name, Mystère IV is a total re-design of Mystère II, with new fuselage, new thinner wings with greater sweep, and new tail surfaces, giving it overall shape and performance of the U.S. F-86 Sabre. It remained in service with the French ArmÉe de l'Air until the 1970s, and it also saw extensive combat in the hands of Israeli and Indian air forces.

Mystère IVA [*Strike Fighters 2 Expansion Pack 1*]
Starting from the second production batch in 1956, Mystère IV is powered by more powerful Hispano Verdon 350 engine. The elevators are also replaced with all-moving stabilators to give it much better pitch control at transonic speed.

A-4 Skyhawk

Year: 1956
Role: Attack
Max Speed: 595 mph (517 knots)
Max G-loading: 6.0 G
Weapons: Two 20mm Mk 12 cannons with 100 rounds per gun, two AIM-9 Sidewinder heat-seeking missiles, and up to 8,200 lb of ordnance on five pylons.

The A-4 Skyhawk, originally designated A4D, was designed to meet a US Navy requirement for a carrier-borne medium attack aircraft in the early 1950s. The Navy's specification called for an aircraft weight of approximately 30,000 lb but Edward Heinemann submitted a design that was remarkably light, weighing only half the specified amount. At first, the Navy couldn't believe

such a light aircraft could meet the range and payload specifications, but this small jet not only met all the requirements, it also proved to be extremely versatile and effective. The A-4, also known as "Heinemann's Hotrod" and the "Bantam Bomber", began entering service in 1956 and remained in frontline service with the Navy and Marines into the 90's, seeing a number of engine and avionics revisions. It has a conventional cruciform tail section and a delta-shaped wing with distinctive air intakes close to the canopy glass. The A-4 Skyhawk can carry a wide variety of external weapons on two wing-mounted pylons and one under the fuselage, and is as maneuverable as many jet fighters of the day.

A-4B [*Strike Fighters 2*]
The A-4B (A4D-2), entering service in 1957, is the initial full-scale production version of the Skyhawk. It is powered by a single Wright J65-W-16 turbojet engine. A-4B is armed with two 20mm Mk 12 cannons with 100 rounds per gun, and 3 pylons for external stores.

A-4B (65) [*Strike Fighters 2*]
To counter the ever increasing threats from enemy Surface-to-Air Missiles (SAM), A-4B received ALQ-51 ECM and a chaff dispenser under project "SHOEHORN" in 1965. Due to limited internal space, the black box for the ECM is placed in cannon ammo box, reducing the ammo capacity to 20 rounds per gun.

A-4C [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
The next Skyhawk production version is the A-4C (A4D-2N). It is equipped with AN/APG-53 ground radar for limited night/adverse weather attack capability. The A-4C entered service in 1960, and is armed with the same two 20mm cannons with 100 rounds per gun and 3 pylons for external stores as the A-4B.

A-4C (65) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
A-4C received ALQ-51 ECM and a chaff dispenser under project "SHOEHORN" in 1965, with the same reduction in ammo capacity to 20 rounds per gun.

A-4E [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
The A-4E (A4D-5), entering service in 1962, is an upgraded version with 2 additional pylons, one under each wing, for a total of 5 pylons. It also has an uprated engine, Pratt & Whitney J52-P-6A, which has 27 percent lower fuel consumption than the Wright J65. The internal armament remains the same two 20mm cannons with 100 rounds per gun.

A-4E (65) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
A-4E also received ALQ-51 ECM and a chaff dispenser under project "SHOEHORN" in 1965, with the same reduction in ammo capacity to 20 rounds per gun.

A-4E (67) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
A-4E is retrofitted with "humpback" avionics bay with more advanced ALQ-100 ECM, first used on A-4F, in 1967. APR-25 "Vector" RHAW (Radar Homing and Warning) display is added to the cockpit to help locate and attack enemy radars. Re-location of the ECM restores its cannon ammo to the original 100 rounds per gun.

A-4E Ahit [*Strike Fighters 2 Israel*]
Israel is one of the major users of the Skyhawk, where they are given Hebrew name Ahit (meaning Vulture). To supplant the slow rate of delivery of the newly built A-4H, Israel purchased Navy-surplus A-4E in 1971. A-4Es exported to Israel are similar to the early A-4E model with no ECM and chaff dispenser.

A-4E Ahit (73) [*Strike Fighters 2 Israel*]
During the Yom Kippur War of 1973, Israeli A-4Es were upgraded with the latest avionics to combat the Surface-to-Air Missiles (SAM) threats they were facing while providing close-air-support to the troops on the ground. The tailpipe is also extended to reduce their vulnerability from heat-seeking missiles.

A-4F [*Strike Fighters 2, Strike Fighters 2 Vietnam*]
The A-4F, ordered as replacement for losses during the Vietnam War, is equipped with more powerful J52-P8A engine and wing landing spoilers. It entered service in 1967, and is equipped with ALQ-100 ECM in "humpback" avionics bay, chaff dispenser and APR-25 RHAW display. It is armed with the two 20mm cannons with 100 rounds per gun and 5 pylons for external loads.

A-4F Ahit [*Strike Fighters 2 Israel*]
In October 1973, middle of the Yom Kippur War, a batch of A-4F were rushed off the US carriers and sent to Israel as an emergency replacement for the heavy losses they had suffered in the opening days of the conflict. These A-4Fs have the standard avionics of USN A-4F, including the ALQ-100 ECM and RHAW.

A-4F (74) [*Strike Fighters 2*]
In 1974, in response to a range of new air and surface threats emerging after the Vietnam war, A-4F is further upgraded with ALQ-126A ECM.

A-4G [*Strike Fighters 2 DLC 002*]
A-4G is the export version of Skyhawk used by the Royal Australian Navy. A-4G is based on A-4F but optimized for air-defense role with four AIM-9 missiles and with downgraded avionics. It provided fleet defense aboard HMAS *Melbourne* from 1967 to 1982. After decommissioning of the carrier, all surviving A-4G were sold to New Zealand, where they operated as A-4G from 1984 for about a year before they were all converted to the New Zealand's A-4K standard.

A-4H Ahit [*Strike Fighters 2 Israel*]
Israel had always shown interest in purchasing US warplanes, but the US government had refused such sales in order to appear neutral in the region. However, US reversed its course when Soviet Union started exporting high-performance fighters to the Arab neighbors. A-4H, given Hebrew name Ahit (meaning Vulture), arrived in Israel at the end of 1967 to became the first US-built jets to be sold to Israel. A-4H is based on A-4F, but with downgraded avionics and engine.

A-4H Ahit (70) [*Strike Fighters 2 Israel*]
Starting in 1970, Israeli A-4 had their two 20mm cannons replaced with heavier 30mm DEFA cannons used by other French fighters in Israeli service at that time.

A-4H Ahit (72) [*Strike Fighters 2 Israel*]
Israeli A-4 fleet was continuously upgraded locally throughout the years, and by 1972, they had upgraded engine and expanded capabilities to carry guided weapons such as AIM-9, Walleye, and AGM-45.

A-4H Ahit (73) [*Strike Fighters 2 Israel*]
During the Yom Kippur War of 1973, A-4Hs were upgraded with the latest avionics to combat the Surface-to-Air Missiles (SAM) threats they were facing while providing close-air-support to the troops on the ground. The tailpipe is also extended to reduce their vulnerability from heat-seeking missiles.

A-4K [*Strike Fighters 2 DLC 005*]
A-4K is the export version of Skyhawk used by the Royal New Zealand Air Force. It is based on A-4F but with downgraded avionics - even though it has the "humpback" avionics bay, no actual ECM is provided due to budgetary reasons. A-4K, entering service in 1970, replaced Canberra in maritime strike role, and is also capable of performing secondary air-defense role using four AIM-9 missiles.

F-8 Crusader

Year: 1957
Role: Fighter
Max Speed: 1,225 mph (Mach 1.6)
Max G-loading: 7.3 G
Weapons: Four 20mm Mk 12 cannons with 144 rounds per gun and four AIM-9 Sidewinder heat-seeking missiles.

The F-8 Crusader (originally designated F8U) is a single-engined, carrier-based fighter aircraft, designed to replace the F7U Cutlass. It is the US Navy's first supersonic fighter, capable of reaching then records setting Mach 1.6. Although it is armed with rockets and AIM-9 Sidewinder missiles, it is most famous for its four 20mm cannons - the Crusader is known as "the Last Gunfighter", the last U.S. fighter designed with guns as its primary weapon. The US Navy F-8s were first to engage MiGs over North Vietnam in 1965, and with its aircrews trained for dogfighting (as opposed to F-4 Phantom II aircrews trained for interceptions using long-range missiles) F-8 would score the highest kill-ratio of any aircraft of the Vietnam War. It remained in service through most of the Vietnam War, operating mostly from smaller Essex class carriers where F-4 could not due to its weight. The Crusader was not an easy aircraft to fly, and its accident rate was relatively high compared to other aircraft. Most of the F-8s were retired shortly after the Vietnam War, but some photo-recon F-8s continued to serve for another decade until 1984.

F-8C [*Strike Fighters 2 Vietnam*]
The F-8C (F8U-2) entered service in 1959. F-8C is powered by J57-P-16 afterburning turbojet and can reach speed of Mach 1.6.

F-8C (66) [*Strike Fighters 2 Vietnam*]
In 1966, F-8C received ALQ-51 ECM and chaff dispensers under project "SHOEHORN", after A-4 and F-4 were upgraded. The cannon ammo capacity is reduced slightly to make room for the ECM black box.

F-8D [*Strike Fighters 2 Vietnam*]
The F-8D (F8U-2N) was the all-weather interceptor version, entering service in 1960. It is equipped with AN/APQ-83 radar and more powerful J57-P-20 engine.

F-8D (66) [*Strike Fighters 2 Vietnam*]
F-8D also received ALQ-51 ECM and chaff dispensers under project "SHOEHORN" in 1966. The cannon ammo capacity is reduced slightly to make room for the ECM black box.

F-8E [*Strike Fighters 2 Vietnam*]
The F-8E (F8U-2NE), entering service in 1962, was the final production version of the Crusader. It is equipped with better AN/APQ-94 radar, and two underwing pylons for air-to-ground ordnance.

F-8E (66) [*Strike Fighters 2 Vietnam*]
F-8E also received ALQ-51 ECM and chaff dispensers under project "SHOEHORN" in 1966. The cannon ammo capacity is reduced slightly to make room for the ECM black box.

F-8E(FN) [*Strike Fighters 2 DLC 012*]
The F-8E(FN) is the French Aeronautique Navale version of the F-8 armed with Matra R.530 missiles. Nicknamed "Le Crouze" by the French crew, it operated off *Clemenceau*-class carriers from 1964 to 1994 until they were upgraded to F-8P standard. F-8E(FN) introduced many of the features, such as double-hinged leading edge flaps and drooping ailerons, that were later incorporated into remanufactured F-8J for the US Navy.

F-8H [*Strike Fighters 2 Vietnam*]
Starting in 1967, F-8Ds were remanufactured as F-8H, with improved AN/APQ-149 radar, ALQ-51 ECM, and the same underwing pylons as F-8E.

F-8H (69) [*Strike Fighters 2 Vietnam*]
F-8H is re-engined in 1969 with more powerful J57-P-420 engine. It also has improved ALQ-100 ECM in a larger pod, and full cannon ammo capacity restored.

F-8J [*Strike Fighters 2 Vietnam*]
F-8J is a remanufactured F-8E with improved AN/APQ-149 radar, ALQ-51 ECM, and other improvements such as double-hinged leading edge flaps and drooping ailerons. However, its performance has suffered significantly due to increases in its weight.

F-8J (69) [*Strike Fighters 2 Vietnam*]
To restore lost performance due to increased weight, F-8J is re-engined in 1969 with more powerful J57-P-420 engine. It also has improved ALQ-100 ECM in a larger pod, and full cannon ammo capacity restored.

F-105 Thunderchief

Year: 1958
Role: Fighter-bomber
Max Speed: 1,420 mph (Mach 2.1)
Max G-loading: 7.3 G
Weapons: One 20mm M61 Vulcan with 1,028 rounds, four AIM-9 Sidewinder heat-seeking missiles, and up to 14,000 lb of ordnance on five pylons.

The design for F-105 Thunderchief began in 1950 as a simple follow-on to the F-84F Thunderstreak fighter-bomber. It was designed for high-speed, low-level penetration nuclear strike, with secondary air-to-air capability. As the largest single-seat, single-engined fighter ever built, the Mach 2.0 capable F-105 could carry a greater bomb load than the any of the four-engined, 10-man strategic bombers of the World War II. Although designed for nuclear strike role, the F-105, known simply as the "THUD" by its crews, is best known for its conventional bombing over North Vietnam, flying over 20,000 sorties during the early part of the Vietnam War. The low-altitude attacks and dive bombing often brought the F-105s into the range of North Vietnamese anti-aircraft fire, and F-105 suffered very high loss rates - of 610 F-105s built, over half of them were lost in combat. F-105s were replaced by F-4 Phantom II as a strike bomber, but its specialized Wild Weasel version remained in service until 1982.

F-105D [*Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The F-105D, entering service in 1960, is the definitive production version. It has all-weather capability from AN/ASG-19 "Thunderstick" fire control system, and is powered by single J75-P-19W afterburning turbojet.

F-105D (66) [*Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
By 1966, F-105D had APR-25 "Vector" RHAW (Radar Homing and Warning) display added to the cockpit, and other modifications such as additional armor and backup control systems to improve its survivability.

Lightning

Year: 1960
Role: Fighter
Max Speed: 1,320 mph (Mach 2.0)
Max G-loading: 5.0 G
Weapons: Two 30mm ADEN cannons, two Firestreak or Red Top heat-seeking missile.

The Mach 2.0 capable Lightning is the first and the only supersonic fighter to be developed solely in Britain. The origin of its design goes way back to 1943, when "E.24/43" specification called for a supersonic aircraft to break the sound barrier. The project was cancelled when the American X-1 broke through the sound barrier first, but the general design concept was used again to meet the 1949 specification "F.23/49" for a supersonic research aircraft. When the

prototype easily exceeded Mach 1.2 even without the afterburning engines, a production order was placed as an operational interceptor. By this time, 1957 British Defense White Paper had regarded all manned aircraft to be obsolete and be replaced by missiles, and Lightning entered service only as an "interim solution". Ironically, the missiles failed to replace manned aircraft, but with all the other fighter programs cancelled, the Lightning remained in front-line service for 28 years until it was finally retired in 1988.

Lightning F.1 [*Strike Fighters 2 Expansion Pack 2*]
The Lightning F.1, entering service in 1960, is the first operational version. Powered by two Avon 201 engines with single-stage (on/off) afterburner control, it has a top speed of Mach 1.7. The F.1 is armed with two 30mm ADEN cannons in the nose and an interchangeable fuselage weapon pack containing either two more cannons, 48x 2" micro-cell rockets, or 2 Firestreak air-to-air missiles.

Lightning F.1A [*Strike Fighters 2 Expansion Pack 2*]
Production quickly switched to F.1A version in 1961 with several minor revisions including air-to-air refueling probe and better radio equipments.

Lightning F.2 [*Strike Fighters 2 Expansion Pack 2*]
The F.2 entered service in 1962, and is externally identical to F.1A but features improved cockpit layout with new navigation systems. It also features Avon 210R engine with better afterburner control. The option for rockets is removed, the only available armament options for fuselage pack are the cannons and Firestreak missiles.

Lightning F.2A [*Strike Fighters 2 Expansion Pack 2*]
F.2A is the designation for re-built F.2 with aerodynamic improvements introduced in F.3 and F.6, including new wings, tail, and larger ventral fuel tank. It retains the nose cannons and Firestreak armament of F.2, as well as the Avon 201R engine. The F.2A entered service in 1968.

Lightning F.3 [*Strike Fighters 2 Expansion Pack 2*]
The F.3, entering service in 1964, is the next production version after F.2. It features improved Red Top missiles, improved radar, uprated Avon 301 engines, and new vertical tail for better stability, but the nose cannons deleted. The maximum speed is increased to Mach 2.0.

Lightning F.6 [*Strike Fighters 2 Expansion Pack 2*]
The F.6 is the last Lightning version for the RAF, it features new wings with "kinked" outer panels for better low-speed handling and a larger ventral fuel tank for increased range. Two over-wing pylons are also added for additional fuel tanks, and the internal cannons are re-introduced in the ventral pack. The F.6 entered service in 1966.

Lightning F.53 [*Strike Fighters 2 Expansion Pack 2 bonus with Strike Fighters 2*]
The F.53 is the mutli-role Lightning for export, used by the air forces of Saudi Arabia and Kuwaiti. It features additional under-wing pylons for bombs and rocket pods. The fuselage pack also has the option to carry 44x 2" micro-cell rockets instead of Red Top missiles.

Mirage III

Year: 1961
Role: Fighter
Max Speed: 1,430 mph (Mach 2.1)
Max G-loading: 6.7 G
Weapons: Two 30mm DEFA cannons with 125 rounds per gun, one Matra R530 radar-guided missile, and two AIM-9 Sidewinder heat-seeking missiles.

The French Mirage III is one of the most successful aircraft designs of the Cold War era; it grew out of 1953 French Armée de l'Air specification for a lightweight all-weather interceptor with a top speed of Mach 1.3 in level flight. Dassault's response was the "Mystère-Delta 550", a sporty little jet fighter with a delta-wing configuration. The delta wing has a number of limitations, including long take-off run, high landing speed, and limited maneuverability, but it is a simple design, with plenty of space in the wing for fuel storage, and most importantly, has a very low supersonic drag. In fact, as the design matured with a larger engine, the Mirage III would become the first European aircraft to exceed Mach 2 in level flight. Armed with two 30mm DEFA cannons and a single Matra 530 radar-guided missile for bomber-interception, the production version Mirage IIIC was delivered to Armée de l'Air in 1961 and remained in service until 1988. It is also widely exported to air forces around the world, and some are still using the Mirage III or its variant as front-line equipment even today.

Mirage IIIC [*Strike Fighters 2 DLC 003*]
The first production version of the delta-winged series, the Mirage IIIC (C for Chasse - Interceptor) is the interceptor version for the French Armée de l'Air. It is equipped with Cyrano I radar and Atar 9B turbojet engine, and it entered service in 1961.

Mirage IIICJ Shahak [*Strike Fighters 2 Israel*]
The Mirage IIICJ is the version exported to Israel, where it was given Hebrew name Shahak (meaning Skyblazer). These Mirages were delivered to Israel starting in 1962, and even though it was originally designed as pure interceptor, Israeli Air Force used Mirage III as multi-role fighter-bomber with deadly efficiency; it formed the main bomber force in the opening attacks of the 1967 war. In the air-to-air arena, Israeli pilots would score over 280 kills in their Mirages.

Mirage IIICJ Shahak (71) [*Strike Fighters 2 Israel*]
Starting in 1971, Israel began replacing the troublesome Atar 9B engine with more powerful and more reliable Atar 9C engine used by Mirage 5 and Nesher.

Mirage IIICZ [*Strike Fighters 2 DLC 010*]
The Mirage IIICZ is the export version of the Mirage IIIC for the South African Air Force (SAAF). It was used by the No.2 *Flying Cheetahs* squadron from 1963 until 1990, and was used extensively in the "Border War" against Angola.

F-4 Phantom II

Year: 1962
Role: Fighter / Fighter-bomber
Max Speed: 1,430 mph (Mach 2.1)
Max G-loading: 7.3 G
Weapons: Four AIM-9 Sidewinder heat-seeking missiles and four AIM-7 Sparrow radar-guided missiles, up to 16,000 lb of ordnance on five pylons, and one 20mm M61 Vulcan cannon with 640 rounds on F-4E model.

The twin-engine, two-seat F-4 Phantom II was originally designed as a fleet-defense interceptor for the US Navy and can fly at over Mach 2. Armed with advanced radar and missiles, it was one of the first fighter aircraft not to carry an internal cannon, though operational experience saw this redressed in subsequent versions. Its performance proved so successful that, in an almost unprecedented move, the USAF adopted the Phantom II straight from the Navy's design. It is immediately identifiable by the drooping horizontal tail mounted high on the aft fuselage to avoid hot jet exhaust, and by its conspicuous wings with positive dihedral angle outer panels. Widely used as a ground attack aircraft as well as an air superiority fighter, it could carry up to 16,000 lb of assorted external stores, including eight air-to-air missiles. Known for its brute power, the Phantom II saw extensive use in South-East Asia, and with constant upgrades to avionics, it is still present in many modern air forces today.

F-4B [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
The F-4B, entering service in 1961, is the initial production version for the US Navy and Marines. It is designed as missile-armed, Mach 2 capable fleet interceptor, and is equipped with AN/APQ-72 radar. F-4B can be armed with up to 8 air-to-air missiles, but lacks internal cannon.

F-4B (65) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
In 1965, F-4B received ALQ-51 ECM under project "SHOEHORN".

F-4B (67) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
F-4B is further upgraded with ALQ-100 ECM and chaff dispensers in 1967. APR-25 "Vector" RHAW display is added to the cockpit to help locate the enemy radars.

F-4C [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The F-4C is the initial US Air Force version, externally similar to F-4B but with different avionics that are better suited for its tactical strike role, such as the AN/APQ-100 radar with ground mapping capability. F-4C entered service in 1964.

F-4C (67) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
In 1967, APR-25 RHAW display is placed inside the F-4C cockpit. In contrast to USN/Marines F-4s, USAF F-4s do not receive any internal ECM. Instead, USAF F-4s carry external ECM pods, which in theory are more flexible.

F-4D [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The F-4D, entering service in 1966, is an improved version for the US Air Force. It is designed to fix many problems encountered by the F-4C during its first operational year in Vietnam. It also has upgraded radar, AN/APQ-109, and a lead-computing sight for aiming with external gun

pod, such as SUU-23/A Gunpod.

F-4D (67) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
F-4D also received APR-25 RHAW display in 1967. The upgraded F-4D can also carry new laser-guided weapons.

F-4D (75) [*Strike Fighters 2*, *Strike Fighters 2 Europe*]
After Vietnam War, F-4D is upgraded with ALE-40 chaff and flare dispensers in 1975.

F-4D (78) [*Strike Fighters 2 Europe*]
In 1978, F-4D is upgraded with ALR-69 RWR that can better locate and identify radar types based on their emission characteristics.

F-4E [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The F-4E, entering service in 1967, is the definitive USAF version. Combat experiences over Vietnam have shown the need for a gun, and as a result, F-4E is armed with an internally mounted 20mm M61 Vulcan cannon with 640 rounds of ammo. It also has improved AN/APQ-120 radar and APR-25 RHAW display.

F-4E (72) [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
In 1972 under program "AGILE EAGLE", F-4E is equipped with leading-edge slats to improve stall characteristics and enhance its maneuverability. The slats are retrofitted to older aircraft as well as new production aircraft.

F-4E (75) [*Strike Fighters 2*, *Strike Fighters 2 Europe*]
F-4E is further upgraded with ALE-40 chaff and flare dispensers in 1975.

F-4E (78) [*Strike Fighters 2 Europe*]
F-4E is upgraded with ALR-69 RWR in 1978.

F-4E Kurnass [*Strike Fighters 2 Israel*]
The F-4E is known as Kurnass (Hebrew for Sledgehammer) in Israeli service. The first F-4Es were delivered to Israel starting in 1969 under Operation "Peace Echo I". Its arrival immediately shifted the balance of power in favor of Israel - unlike the previous point-defense interceptors and tactical fighter-bombers, it was the first truly strategic fighter-bomber in Israeli service capable of reaching out and striking any targets in the region, all without the need for any escort. Even though it was assigned to bomber squadrons, Israeli F-4E would go on to score 116 air-to-air kills as well.

F-4E Kurnass (73) [*Strike Fighters 2 Israel*]
F-4E with leading-edge slats and more advanced avionics were delivered to Israel under Operation "Peace Echo IV" in 1973 before the Yom Kippur War.

F-4E Kurnass (75) [*Strike Fighters 2 Israel*]

By 1975, Israeli F-4Es were updated with locally-developed avionics as well as chaff and flare dispensers.

F-4E Kurnass (78) [*Strike Fighters 2 Israel*]
Israeli F-4Es have been heavily modified throughout the years to fit the local needs, and by 1978, these modifications included a non-retractable in-flight refuelling probe, latest RWR display, and internal EL/L-8230 ECM jammer.

F-4EJ [*Strike Fighters 2 DLC 006*]
The F-4EJ is a version of F-4 license-built in Japan. It is based on the USAF's gun-nosed but non-slatted F-4E, but due to treaty restrictions prohibiting Japan from acquiring any offensive weapons, F-4EJ cannot carry any air-to-ground weapons and lacks air-refueling capability. F-4EJ entered service with the Japan Air Self Defense Force in 1972 with six interceptor squadrons (hikotai) replacing the F-104J.

F-4F [*Strike Fighters 2 Europe*]
The F-4F, entering service in 1974, is the version of the F-4E built for the West German Luftwaffe. It is lighter than other F-4Es, it had simplified electronics and all the Sparrow equipments removed as cost-saving measures. It also can not carry any air-to-ground guided weapons, and has no in-flight refueling capability.

F-4F (80) [*Strike Fighters 2 Europe*]
Starting in 1980 under Operation "Peace Rhine", Luftwaffe F-4F had restored some of the capabilities initially removed for economic reasons, including the air-to-ground guided missiles capabilities and in-flight refueling receptacles. The electronics were also updated to include locally-built RWR display and ALE-40 decoy dispensers.

F-4J [*Strike Fighters 2*, *Strike Fighters 2 Vietnam*]
The F-4J, entering service in 1966, is the definitive US Navy and Marines version, similar to the Air Force's F-4E. It is equipped with AN/AWG-10 fire-control system with AN/APG-59 radar, ALQ-100 ECM, chaff dispensers, and APR-25 RHAW display. However, unlike the USAF F-4E, the Navy F-4J is not fitted with internal cannon, 20mm Mk 4 Mod 0 gun pod can be carried externally instead.

F-4K [*Strike Fighters 2 DLC 015*]
The Phantom FG.1 (Fighter Ground attack, Mark 1) is the version of F-4 for the Royal Navy Fleet Air Arm. It is powered by Rolls-Royce Spey afterburning turbofan engines with increased thrust and better fuel economy, but it has poorer high altitude performance despite the increased thrust as the new engines require larger intakes, increasing weight and drag. F-4K was operated by No. 892 Naval Air Squadron off the carrier *HMS Ark Royal* from 1969 to 1978. Since the carrier *HMS Victorious* and *HMS Eagle* were not upgraded as planned, additional F-4K were diverted to the Royal Air Force instead. The F-4K carries no internal cannon and it can not carry any gun pods.

F-4K (75) [*Strike Fighters 2 DLC 015*]
By 1975, F-4K had received a series of upgrades including Marconi ARI.18228 RWR display. When the *HMS Ark Royal* was decommissioned in 1978, all its F-4Ks were transferred to the Royal Air Force where they served until 1989. In the RAF service, the F-4K were modified to carry SUU-23/A Gunpod.

F-4K (80) [*Strike Fighters 2 DLC 015*]
In 1980, F-4K is further upgraded with ALE-40 chaff and flare dispensers.

F-4M [*Strike Fighters 2 Europe*]
The Phantom FGR.2 (Fighter Ground attack and Reconnaissance, Mark 2) is the version of F-4 for the Royal Air Force. Entering service with RAF in 1969, it replaced the Hawker Hunter in both the ground attack and fighter reconnaissance roles. British Phantoms are powered by Rolls-Royce Spey afterburning turbofan engines with increased thrust and better fuel economy, but they generally have poorer high altitude performance despite the increased thrust as the new engines require larger intakes, increasing weight and drag. The F-4M is not fitted with internal cannon, but is usually fitted externally with SUU-23/A Gunpod.

F-4M (75) [*Strike Fighters 2 Europe*]
By 1975, F-4M had received a series of upgrades including Marconi ARI.18228 RWR display.

F-4M (80) [*Strike Fighters 2 Europe*]
In 1980, F-4M is further upgraded with ALE-40 chaff and flare dispensers.

A-7 Corsair II

Year: 1966
Role: Attack
Max Speed: 698 mph (606 knots)
Max G-loading: 7.0 G
Weapons: One 20mm M61 Vulcan cannon with 1,000 rounds (or two 20mm Mk 12 on A-7A/B with 340 rounds per gun), two AIM-9 Sidewinder heat-seeking missiles, and up to 15,000 lb of ordnance on six underwing pylons.

Affectionately called "SLUF" ("Short Little Ugly F-----"), A-7 Corsair II is a carrier-based subsonic light-attack aircraft designed to replace the A-4 Skyhawk. It was developed as a result of Navy's operational requirements for the 60s and 70s, which included all-weather weapons delivery. Because the Navy could not afford the cost or long development time for a new light-weight attack aircraft, they "suggested" using already existing design as starting point, and thus, A-7 design is based on F-8 Crusader. Its development period was one of the fastest and trouble free, it began its first Vietnam combat tour aboard aircraft carriers in 1967, less than two years after its first flight. Later model A-7s were the first combat aircraft to feature a modern Heads-

Up Display (HUD) with computerized weapons delivery system. A-7 saw extensive action during the later years of Vietnam War, and the US Navy continued to operate A-7 until 1991, the last A-7 combat sorties were in Operation Desert Storm.

A-7A [*Strike Fighters 2 Vietnam*]
The A-7A is the first production version for the US Navy, armed with two 20mm Mk 12 cannons with 340 rounds per gun and external ordnance carried on six underwing pylons. It entered fleet service in 1966 powered by a single Pratt & Whitney TF30-P-6 turbofan.

A-7B [*Strike Fighters 2 Vietnam*]
The A-7B is the next production version, powered by a more powerful TF30-P-8 engine. It entered service in 1968.

A-7B (71) [*Strike Fighters 2 Vietnam*]
In 1971, A-7B is re-engine with uprated TF30-P-408 with increased thrust.

A-7C [*Strike Fighters 2 Vietnam*]
The A-7C is an interim version, entering service in 1969 due to delays in the deliveries of the new engines for A-7E. A-7C has all the changes planned for A-7E, including the advanced avionics package and 20mm M61 Vulcan cannon, but with the same TF30-P-8 engine as A-7B.

A-7C (71) [*Strike Fighters 2 Vietnam*]
In 1971, A-7C is re-engine with uprated TF30-P-408 with increased thrust.

A-7D [*Strike Fighters 2 Vietnam*, *Strike Fighters 2 Europe*]
The A-7D, entered service in 1970, is the US Air Force version of the Corsair II. It is powered by Allison built Rolls-Royce TF41-A-1 engine of greater thrust, Heads-Up-Display with computerized weapons delivery system, and 20mm M61 Vulcan cannon. It is designed as a low-cost replacement for A-1 Skyraider in close-air-support role, and as such, it does not have any guided-weapons capabilities.

A-7D (75) [*Strike Fighters 2 Europe*]
A-7D is upgraded with additional guided-weapons capabilities and internal chaff and flare dispensers in 1975.

A-7D (78) [*Strike Fighters 2 Europe*]
By 1978, A-7D is further upgraded with ALR-69 RWR, Pave Penny laser-spot tracker for using laser-guided bombs, and AGM-65 Maverick missiles.

A-7E [*Strike Fighters 2 Vietnam*]
The A-7E is the final production version for the US Navy, incorporating all the advanced features introduced on the Air Force's A-7D, such as Allison TF41-A-2 engine, Heads-Up-Display, and 20mm M61 Vulcan cannon. A-7E entered service in 1970.

Harrier

Year: 1969
Role: Attack
Max Speed: 736 mph (640 knots)
Max G-loading: 7.8 G
Weapons: Two 30mm ADEN Mk.4 cannons with 100 rounds per gun and up to 5,000 lb of ordnance on five pylons.

The Hawker Siddley Harrier is one of the most remarkable aircraft of all time, highly flexible and versatile, it is revolutionary in that it does not require conventional paved airfield to operate. Its design originated in 1957 studies at the Hawker Aircraft for a lightweight V/STOL (Vertical and Short Take Off and Landing) strike reconnaissance aircraft. It started out as a private venture, initially not backed by the UK government, the support for the project coming instead from the US. The Harrier is effectively built around the Rolls-Royce Pegasus turbofan engine, with large intakes on each side of the aircraft and four rotating exhausts for directing its thrust downward for V/STOL maneuvers. Although no radar or electronic countermeasures are provided, a heads-up display (HUD) with computerized attack system is installed to make sure pilot do not have to look down during the critical maneuvers. The thrust available in the first generation Harriers did not allow for vertical take-offs with any useful warload, but its ability to operate from anywhere close to the battlefield proved extremely useful, and the aircraft became an important front-line asset for both the RAF and the US Marine Corps.

Harrier GR.1 [*Strike Fighters 2 Europe*]
The Harrier GR.1 (Ground attack and Reconnaissance, Mark 1) is the initial production version for the RAF powered by the Pegasus 6 Mark 101 engine. It entered service in 1969 to become the world's first operational V/STOL combat aircraft.

Harrier GR.1A [*Strike Fighters 2 Europe*]
In 1971, the Harrier is updated with more powerful Pegasus 10 Mark 102 engine and redesignated Harrier GR.1A.

Harrier GR.3 [*Strike Fighters 2 Europe*]
The Harrier GR.3 is the upgraded version for RAF, with "laser ranger and marked target seeker (LRMTS)" on its nose giving it a distinct appearance, called a "Snoopy nose" by the pilots. It is powered by Pegasus 11 Mark 103 with more thrust and equipped with Marconi ARI-18223 radar warning receiver (RWR). The Harrier GR.3 entered service in 1973.

Mirage 5

Year: 1970
Role: Fighter / Fighter-bomber
Max Speed: 1,460 mph (Mach 2.2)
Max G-loading: 6.7 G
Weapons: Two 30mm DEFA cannons with 125 rounds per gun, two AIM-9 Sidewinder heat-seeking missiles, and up to 8,800 lb of ordnance on seven pylons.

The Mirage 5 was originally built in direct response to Israel's request for a simplified Mirage III without any all-weather capabilities. Removal of avionics allowed for increased fuel capacity and increased range, as well as lower cost and simpler maintenance and operation. Mirage 5 is powered by more powerful and reliable Atar 9C engine, and has two additional pylons added to the rear fuselage for increased bomb load. Ironically, French government placed an arms embargo on Israel after the Six-Day War, and the Mirage 5J built for Israel were delivered to French ArmÉe de l'Air as Mirage 5F instead. Its low cost made it an ideal fighter for the export market; Mirage 5 was exported to about 20 countries, making it the one of the most exported jet fighters of all time.

Mirage 5BA [*Strike Fighters 2 DLC 007*]
The Mirage 5BA, license-built in Belgium, is a ground-attack version of the Mirage fighter. Despite the "5" in its name, it is actually closer to Mirage IIIE in that it does not have the additional fuel cells carried in other Mirage 5's; instead, it has additional US-built navigational equipments in its avionics bay. And it also lacks the additional pylons on rear fuselage, leaving it with only 5 pylons as in Mirage III. Mirage 5BA replaced the F-84F in the Belgium Air Force service starting in 1970.

Mirage 5BA (80) [*Strike Fighters 2 DLC 007*]
The Belgian Air Force decided to develop its own ECM suite after studying the IDF Mirage performances in the 1973 Yom-Kippur War. In 1980, the resulting RAPPORT II system which includes RWR display, internal self-protection jammer, and chaff/flare dispensers are installed on their Mirage 5BA. Belgian Mirage 5BA participated in the Desert Storm before being retired in 1991.

Nesher [*Strike Fighters 2 Israel*]
The Nesher is a copy of Mirage 5 built in Israel. After the Six-Day War, France refused to deliver Mirage 5J even though it was already paid for in cash. Because Israel had been working with Dassault to produce additional Mirage 5Js under license, Israel was able to build the aircraft themselves, with a little "help" form their intelligence agency obtaining parts and blueprint. It is given Hebrew name Nesher (meaning Eagle), and it has scored 115 air-to-air kills since its service introduction in 1971.

F-14 Tomcat

Year: 1974
Role: Fighter
Max Speed: 1,544 mph (Mach 2.3)
Max G-loading: 6.5 G
Weapons: Six AIM-54 Phoenix radar-guided missiles or AIM-7 Sparrow radar-guided missiles, two AIM-9 Sidewinder heat-seeking missiles, and 20mm M61 Vulcan cannon with 940 rounds.

The F-14 was developed for the "Naval Fighter Experimental (VFX)" program, which called for a long-range fleet defense fighter equipped with the very large and powerful AWG-9 radar and AIM-54 Phoenix missiles. It was the first of the American "teen-series" fighters designed with lessons learned from the Vietnam War, and as such, it was also required to be more agile than the F-4 Phantom it was replacing. To satisfy these conflicting demands, the design incorporates variable geometry wings, and the resulting F-14 is quite maneuverable despite the fact that it is the largest and heaviest U.S. fighter to ever fly from an aircraft carrier. Although the aircraft was designed with secondary air-to-ground capability, in practice, it is used exclusively in air-to-air role, as its ECM was deemed inadequate for its large size. In fleet defense role, the F-14 can detect, track, and engage multiple targets simultaneously at a range of almost 100 miles using the AWG-9 and AIM-54 missiles, a feat no other fighters can duplicate even today. It has scored 4 kills with no losses in two separate dogfights against Libyan fighters using the short-ranged AIM-9 Sidewinder missiles. Iran is the only other country to use the F-14 besides the US Navy.

F-14A [*Strike Fighters 2 North Atlantic*]
The F-14A, powered by two TF-30 afterburning turbofan engines, is the initial production version for the US Navy entering service in 1974.

F-14A (77) [*Strike Fighters 2 North Atlantic*]
The F-14 is upgraded with improved ECM and RWR by 1977.

Kfir

Year: 1975
Role: Fighter-bomber
Max Speed: 1,516 mph (Mach 2.3)
Max G-loading: 6.7 G
Weapons: Two 30mm DEFA cannons with 140 rounds per gun, two AIM-9 Sidewinder heat-seeking missiles, and up to 8,800 lb of ordnance on five pylons.

The Kfir (Lion Cub in Hebrew) is the ultimate Israeli development of the Mirage, matching French designed airframe with US designed engine and Israeli designed avionics. The design for

the semi-indigenous Israeli fighter began when Mirage 5J delivery was cancelled due to the French arms embargo, forcing Israel to develop its own aircraft industry. Israeli Air Force felt that Atar 9 engine was the weakest point of the Mirage design, and decided to re-engine it with more powerful and reliable J79 engine used on F-4 Phantom II . The cockpit was also modernized using Israeli designed systems including a heads-up display (HUD) with computerized weapons delivery system, and advanced avionics suites including Israeli-built ranging radar and electronic countermeasures. It entered service in 1975 as a second-tier multi-role combat aircraft when IDF was already preparing for introduction of the next-generation fighter, the F-15. The Kfir is also exported to Colombia, Ecuador, Sri Lanka and was used by the Aggressor squadrons in USN and USMC.

Kfir C1 [*Strike Fighters 2 Israel*]
The Kfir C1 is the initial production version, externally similar to the Mirage 5 except the engine and additional ram intake. The original Kfir is renamed Kfir C1 after the Kfir C2 version entered service. Although Kfir has a higher thrust than Mirages, it is also heavier and less maneuverable, and it quickly became known as "Kfir Brick" by Mirage pilots.

Kfir C1 (77) [*Strike Fighters 2 Israel*]
When the Kfir C2 entered service in 1977, the original Kfir was renamed Kfir C1 and received some of the C2 improvements, including the nose strakes. Because the fuselage structure does not have enough strength to carry the aerodynamic loads generated by canards, only small fences were attached in place of the canards. All four under wing pylons are wired to carry heat-seeking missiles as in C2. Kfir C1 with the aerodynamic fences is also called "Kfir Fence" by its pilots.

Kfir C2 [*Strike Fighters 2 Israel*]
The Kfir C2, entering service in 1977, is the main production version with fixed canards, nose strakes, and larger outer wings with extended "dogtooth". These aerodynamic refinements give Kfir C2 enhanced maneuverability, improved take-off performance, and better low-speed handling. C2 also has two additional fuselage pylons for increased bomb loads, and all four under wing pylons are wired to carry heat-seeking missiles. Kfir C2 is also known as "Kfir Pirate" by its pilots.

F-15 Eagle

Year: 1976
Role: Fighter
Max Speed: 1,650 mph (Mach 2.5)
Max G-loading: 7.3 G
Weapons: Four AIM-7 Sparrow radar-guided missiles, four AIM-9 Sidewinder heat-seeking missiles, and 20mm M61 Vulcan cannon with 940 rounds.

The design for F-15 evolved from the mid-60s USAF studies for "Fighter Experimental (FX)", a

long-range air-superiority fighter to replace the F-4 Phantom. To engage and defeat enemy fighters at "beyond visual range (BVR)", twin-engined F-15 is equipped with the most advanced avionics at the time, AN/APG-63 radar with "look-down / shoot-down" capability, AN/ALR-56 radar warning receiver (RWR), and AN/ALQ-135 internal ECM jammer. Incorporating the lessons learned from the Vietnam War, the single-seat F-15 is also designed for "within visual range (WVR)" dogfight - high thrust-to-weight ratio for unmatched acceleration, large wings with low wing-loading for superb maneuverability, and a 20mm internal cannon. The F-15A's cockpit provides an excellent all-round field of view and features a head-up display (HUD) and "hands on throttle and stick (HOTAS)" controls, allowing the pilot to easily switch between BVR and WVR engagement without ever taking his eyes off the target. F-15 is still in service with the USAF, and it has unmatched kill-ratio among all jet fighters, with score of over 100 air-to-air kills without a single loss.

F-15A [*Strike Fighters 2 Europe*]
The F-15A, entering service in 1976 powered by two F100-PW-100 afterburning turbofan engines, is the initial production version for the USAF.

F-15A Baz [*Strike Fighters 2 Israel*]
Israel is the only foreign operator of the F-15A model, where they are known as Baz (Hebrew for Falcon). Israeli F-15As were delivered in 1976 under the Operation "Peace Fox", and they feature Israeli avionics and locally-built Python-3 heat-seeking missiles. Even though F-15A was designed as pure air-superiority fighter, Israel has adapted their F-15A for air-to-ground missions as well.

A-10 Thunderbolt II

Year: 1977
Role: Attack
Max Speed: 439 mph (380 knots)
Max G-loading: 7.3 G
Weapons: One 30mm GAU-8/A Avenger cannon with 1174 rounds, and up to 16,000 lbs of ordnance on eight under-wing and three under-fuselage pylons.

The A-10 Thunderbolt II, affectionately known by it crews as the "Warthog", is a single-seat aircraft specifically developed to provide close-air-support to the troops on the ground. The aircraft is a result of 1969 USAF study for a low-cost attack aircraft designated "Attack Experimental (A-X)" The A-10 is designed around the massive 30mm GAU-8/A cannon, which fires armor-piercing depleted uranium rounds that can defeat any known armor on the battlefield. It is also designed with extreme survivability in mind - the pilot sitting in an armored "bathtub", control systems built with redundancy, two TF34-GE-100 turbofan engines mounted high on the fuselage to protect them from enemy ground fire, and twin vertical tails positioned to protect the engines from heat-seeking missiles. The A-10 replaced A-7D in USAF service, and despite being

"retired" several times by the Air Force who preferred high-performance jet fighters, the A-10 is still in service as the combat experiences have proved it to be too invaluable to be replaced.

A-10A [*Strike Fighters 2 Europe*]
The A-10A is the initial production version, entering service with the USAF in 1977.

A-10A (78) [*Strike Fighters 2 Europe*]
In 1978, soon after its introduction, A-10A is upgraded with ALR-69 RWR and Pave Penny laser-spot tracker for using laser-guided bombs.

F-16 Fighting Falcon

Year: 1978
Role: Fighter / Fighter-bomber
Max Speed: 1,320 mph (Mach 2.0)
Max G-loading: 9.0 G
Weapons: Six AIM-9 Sidewinder heat-seeking missiles, 20mm M61 Vulcan cannon with 500 rounds, and up to 20,450 lb of ordnance on nine stores pylons.

The F-16 design originated in 1965 as the USAF "Advanced Day Fighter (ADF)" studies for a small, lightweight fighter to out-perform MiG-21 in a dogfight. The concept evolved into "Lightweight Fighter (LWF)" project in 1972, calling for a simple, low-cost air-combat fighter to supplement the more expensive F-15 fighter already in development. In order to achieve superior maneuverability, the F-16 is intentionally designed to be aerodynamically unstable, and a quadruplex FBW (flight-by-wire) flight control system is required to keep the aircraft flyable. It was designed to withstand 9 G turns, has a thrust-to-weight ratio in excess of one for good acceleration and sustained turn ability, and the engine intake is placed on the belly of the aircraft to allow the aircraft to fly at high angles-of-attack. The F-16 also features a frameless, bubble canopy for better visibility, side-mounted control stick and reclined seat to reduce the effect of g-forces on the pilot. Avionics suite for F-16 includes AN/APG-66 multi-mode radar and AN/ALR-69 RWR. The F-16, called "Viper" by its pilots, entered service with the USFA in 1978, and it has been a huge export success, with 4,400 aircraft built and in use by 25 nations.

F-16A Netz [*Strike Fighters 2 Israel*]
Israel received the F-16 starting in 1980 under Operation "Peace Marble I." Ironically, the F-16s were originally intended for the Imperial Iranian Air Force, but the demise of the Shah in 1979 allowed them to be diverted to Israel instead. Israeli F-16s feature a number of modifications, including chaff/flare dispensers and locally-built electronic countermeasures. In Israeli service, the F-16A is known as Netz (Hebrew meaning Hawk).

Non-Player Aircraft

Enemy Fighters

MiG-15 "Fagot"
The MIG-15, designed in 1947 to intercept enemy bombers carrying atomic bombs, is the first successful jet fighter developed by the Mikoyan-and-Gurevich Design Bureau (MiG OKB). It is a swept-wing fighter powered by a single Klimov VK-1, a reverse-engineered copy of the Rolls-Royce Nene turbojet engine. It has an exceptional climb rate and a heavy armament of two 23mm and 37mm cannons, and due to its simplicity in design, it is also reliable and easy to maintain, earning the nickname "solider aircraft" from its crew. It became operational in remarkably short time, and its appearance in the skies over Korea in 1950 shocked the West. Over 13,000 MiG-15 were produced, the large production number leading to another nickname, "Aluminum Rabbit". It is widely exported to over 40 nations.

MiG-17 "Fresco"
The MiG-17 is an improved successor to the highly successful MiG-15 of the Korean War. Although its top speed remains subsonic in level flight, it is considered an excellent dogfighter and is highly maneuverable at low speed and low altitude. Deliveries of the MiG-17 first began in 1952 with total Soviet production estimated at 6,000 units, with others made under license by China and Poland. The MiG-17's mixed armament of two 23mm and 37mm cannons have low rate of fire, and are best suited for attacking heavy bombers.

MiG-19 "Farmer"
First revealed to the world in 1955, the MiG-19 is the first supersonic fighter to enter service with the Soviet Air Force. It is widely viewed as the Soviet counterpart to the F-100 Super Sabre or even better. Despite having a general shape similar to the earlier MiGs, the MiG-19 is actually a twin-engine design that produces a much higher thrust-to-weight ratio and rate of climb than its Western opposite. However, despite its high performance, it is considered very difficult airplane to fly and was not popular among pilots. The MiG-19S "Farmer-C" is armed with three powerful 30mm cannons.

MiG-21 "Fishbed"
With a production of more than 11,000 units, the MiG-21 is one of the most successful fighter designs in history. The delta wing, single-engine "Fishbed" is capable of flying at over twice the speed of sound and its many variants have been widely exported - some still in use today. The single-seat MiG-21F "Fishbed-C" entered service in 1960 carrying only two heat-seeking missiles and a single 30mm cannon with 30 rounds, but later versions can carry up to 4 heat-seeking missiles and rapid-firing GSH-23L twin-barreled 23mm cannon.

MiG-23 "Flogger"
The MiG-23 is the next in the series of successful tactical fighters designed by the MiG OKB. The original requirement was for an advanced air-superiority fighter with good short-field performance, and this lead to the use of variable-sweep geometry wing. The MiG-23 is given

"beyond visual range (BVR)" interception capability by its Sapfir-23 radar and the R-23R ("AA-7 Apex") semi-active radar homing (SARH) missiles. In addition to the medium-range AA-7 missiles, MiG-23 can carry up to 4 short-range heat-seeking missiles and GSH-23L twin-barreled 23mm cannon. Built and put into service in large numbers, the MiG-23 can also carry wide array of air-to-ground stores such as bombs, rocket pods, and gun pods.

Su-7 "Fitter"
The Su-7 started its life as a Mach 2 capable tactical fighter to compete against the MiG-21, but the program was re-directed by the Soviet Air Force to produce a fighter-bomber instead. The Su-7B, the single-seat ground-attack version, entered service in 1961. The Su-7 enjoys excellent handling and a robust simplicity, noted for its high penetration speed and low-level stability. Despite a poor combat radius and a relatively light external weapons load for a plane of its size, it was well liked by its pilots. The Su-7 is armed with two hard-hitting 30mm cannons, and various external stores such as bombs, rocket pods, and gun pods.

Yak-23 "Flora"
The Yak-23 is a development of the earlier Yak-15/17 fighters, originally just a conversion of successful WWII Yak-3 piston-engine fighter, giving it a distinct look with jet engine in the front and under the cockpit. After WWII, Stalin ordered Yakovlev OKB to start a crash program to deploy jet fighters as quickly as possible by simply replacing the piston engine with a jet engine. Yak-23, entering service in 1949, is the final development in this series. By this time, more advanced design such as MiG-15 was nearing completion, and Yak-23 saw limited service with Soviet Air Force. However, it was cleared for export before the MiG-15, and the Yak-23 was the first jet fighters to be supplied to the newly formed Warsaw Pact air forces, including Poland and Czechoslovakia. It was well liked by the Warsaw Pact pilots - it was highly maneuverable and faster than the propeller fighters they were used to - and it remained an important fighter type of the fledgling Warsaw Pact air forces until it was replaced by MiG-15 in mid-1950.

Other Enemy Aircraft

Il-28 "Beagle"
The Il-28 was the first successful Soviet bomber to be powered by jet engines. It entered service in 1950, and was the primary tactical bomber of Soviet Air Force throughout most the Cold War. The Il-28 was a simple and robust aircraft - easy to build, maintain, and fly. The Il-28 has an internal bomb bay for up to 6,600 lb of bombs, and it is armed with two 23-mm cannon fixed in the nose and two 23-mm cannon in a tail turret. Its production is estimated at over 3,000 units; over half went to Warsaw Pact forces and other countries. It served with the Soviet Air Force well into the 1980s, and Chinese copies are still in service today.

Tu-16 "Badger"
The Tu-16 was originally designed as a replacement for aging Tu-4 (Soviet copy of the B-29) in the long-range strategic bomber role. It is powered by two powerful RD-3M turbojet engines, giving it high subsonic performance and a range of over 5,000 miles. The Tu-16 can carry up to 20,000 lb of bombs internally, and its defensive armament includes 7x 23mm cannons - in three twin turrets and one fixed forward. Entering service in 1954, the Tu-16 were produced in large quantity and served in wide range of roles, including bombers, missile carriers, torpedo bombers,

antisubmarine warfare (ASW), reconnaissance and maritime surveillance, ECM platforms, in-flight refueling tankers, and various other experimental platforms.

Tu-22 "Blinder"
First unveiled in 1961, the appearance of the Tu-22 bomber that could reach Mach 1.5 shocked the West. It is immediately recognizable by its afterburning twin engines mounted high and above the rear fuselage, on either side of the vertical tail. It has sophisticated electronics and a capability of up to 10 tons of freefall bombs, or variants can be equipped with long-range cruise missiles.

An-12 "Cub"
The An-12 is a basic four-engine propeller driven cargo aircraft with a defended rear turret. It has a maximum payload of 20 tons and is used in different variants to carry troops, armored fighting vehicles, or supplies and has even been modified for electronic warfare and electronic intelligence gathering purposes.

Friendly Aircraft

B-57 Canberra
The B-57 light tactical bomber is based on a British design equipped with two US Wright J65 engines, first flying in 1953. The B-57B has a two seat tandem fighter-style cockpit, with 8 .50 cal. or four 20mm guns in the wings along with dive brakes. It employs an unusual rotating bomb bay door system in which ordnance is stored on the doors themselves, and also has wing pylons available. The B-57's maximum speed is a good 100 mph faster than the IL-28 Beagle at sea level, and was pressed into service in South-East Asia as it neared the end of its operational life. Its proven effectiveness there extended its days and led to variants for various roles, including as a night intruder and for high-altitude reconnaissance.

Player Weapons

Air-to-Air

Cannon

20mm Mk 11 (Mk 4 Mod 0 Gunpod)
The Mk 11 is a twin-barreled 20mm cannon used on the US Navy's Mk 4 Mod 0 gunpod. It has a muzzle velocity of 1,010 m/sec and a rate of fire of 4,200 rounds per minute (rpm). Mk 4 Mod 0 is the only gunpod designed to withstand the repeated shocks of aircraft carrier landings, and can be carried by the US Navy and Marines F-4 and A-4.

20mm Mk 12
The Mk 12 is the standard cannon armament used by the US Navy. It has a muzzle velocity of 1,010 m/sec and a rate of fire of 1,000 rounds per minute. It has a reputation for being inaccurate and unreliable, yet is used on almost all US Navy fighter and attack aircraft, including the A-4 Skyhawk and F-8 Crusader.

20mm M39
The M39 is a twin-revolver type cannon developed for the US Air Force. It has a muzzle velocity of 1,030 m/sec and a rate of fire of 1,700 rpm. It is found on the F-100 Super Sabre.

20mm M61A1 Vulcan (SUU-23/A Gunpod)
The M61A1 Vulcan is an externally powered six-barreled rotary cannon firing at rate of 6,000 rpm. It is the current standard cannon armament for the US Air Force, and is mounted internally on the F-4E version of the Phantom II. The M61 Vulcan cannon is also available as an external gun pod, in the form of SUU-23/A gun pod.

30mm ADEN Mk.4
30mm ADEN (Armament Development Establishment) is the standard cannon used on British aircraft. It was designed in the late 1940s as a replacement for the older Hispano 20mm Cannon used in WWII. The 30mm ADEN first entered service with the Hunter, and used on almost every British fighters developed since.

30mm DEFA 552
30mm DEFA 552 is the standard cannon used on French aircraft. It was designed in the late 1940s and entered service starting in 1954. The 30mm DEFA is used on Super MystÈre, Mirage and their Israeli derivatives such as Sa'ar, Nesher and Kfir, as well as Israeli variants of Skyhawk, the A-4H.

30mm GAU-8/A Avenger
The 30mm GAU-8/A Avenger cannon is one of the most powerful aircraft cannons ever built, it is 7-barreled gatling cannon firing large depleted uranium armor-piercing shells at a rate of 4,200 rpm. Designed in the 1970s to penetrate and defeat all known armor at the time, it is the primary weapon of the A-10 Thunderbolt II.

Heat-Seeking Missiles

AIM-9B Sidewinder
The Infra-red (IR) homing AIM-9 missile is one of the most widely used air-to-air missiles in the world, with over 110,000 produced. It is simple, easy to use, and reliable; it is employed by a wide variety of Western fixed wing combat aircraft and helicopters. The performance of the AIM-9B, the first production version entering service in 1956, was unsatisfactory. Its launch load factor is limited to 2G, and its seeker head can be easily be fooled and locks onto false heat signatures. It has a range limit of 2.6 miles, and the missile is unable to follow MiGs turning at more than 5 G's. To score hits, the launching aircraft has to be properly positioned with great attention paid to closure rate and range.

AIM-9D Sidewinder
The AIM-9D, entering service in 1966, is a much superior version of the Sidewinder developed and used by the US Navy. It has a new seeker head and new motor for vastly improved range and performance.

AIM-9E Sidewinder
The AIM-9E is a slightly improved version of the Sidewinder used by the US Air Force. Its improvements over the original AIM-9B are limited - it has a new seeker head, but leaves warhead, fuse and motor untouched. AIM-9E's performance is well below that of US Navy's AIM-9D, despite the fact that AIM-9E entered service over a year later in 1967.

AIM-9E-2 Sidewinder
The AIM-9E-2 is a version of AIM-9E with a smoke reducing motor, making it less visible at launch. Otherwise, it has the same performance as the AIM-9E.

AIM-9F Sidewinder
The AIM-9F is a version of Sidewinder manufactured in West Germany for use by NATO forces. It is based on AIM-9B body, but with the improved seeker head used on the AIM-9E. It entered service in 1969, and is used by the West German F-4F Phantom II.

AIM-9G Sidewinder
The AIM-9G is a development of the AIM-9D Sidewinder used by the US Navy. First introduced in 1968, it has a more sensitive seeker head and much greater maneuvering capability, making it much more effective in aerial combat.

AIM-9H Sidewinder
The AIM-9H, entering service in 1970, is the next development of the US Navy's Sidewinder series, with improved reliability.

AIM-9J Sidewinder
The US Air Force continued to develop its own Sidewinder series independently, and AIM-9J, introduced in 1972, is their next version with improved reliability over the E model. Its performance is still below that of the Navy's AIM-9H Sidewinder.

AIM-9L Sidewinder
The AIM-9L, introduced in 1978 after being developed jointly by the US Air Force and the Navy, represents a major advance in the Sidewinder development - it is the first "all-aspect" Sidewinder missile, with ability to attack target from all angles, even from head-on. The pilots no longer have to maneuver behind the target for a missile shot, resulting in dramatic improvement in the effectiveness over the earlier models.

AIM-9M Sidewinder
Improved version of AIM-9 entering service in 1983 with a reduced smoke motor.

Firestreak
The Firestreak is a British-designed first-generation heat-seeking missile entering service in 1957. Designed primary to intercept bombers, its seeker head is slaved to the radar of the launching aircraft until released. It has maximum launch range of about 4 miles.

Red Top
The Red Top is an upgraded version of Firestreak, it was originally called Firestreak Mk.4. It has improved motor for longer range (about 7.5 miles), more sensitive seeker head, and a larger warhead. It entered service in 1964.

Shafrir-2
The Shafrir is an IR seeking air-to-air missile developed domestically by then budding Israeli defense industry. Entering service just after the Six-Day War when Israel was under arms embargo from France, their main weapons supplier at that time, Shafrir-2 had similar capability as AIM-9D version of the Sidewinder.

Python-3
Python-3 is the next generation of air-to-air weapon developed by Israel. Rushed into service in 1982 just in time for the Lebanon War, it had all-aspect capability like the AIM-9L version of the Sidewinder, but with superior speed, turning radius, and range.

Radar-Guided Missiles

AIM-7D Sparrow
The AIM-7 Sparrow III missile, first introduced in 1959, is a medium range air-to-air missiles with semi-active radar guidance. They are capable of attacking targets from all aspects, with maximum range of up to 20 miles but varying greatly according to target aspect and closing speeds. The launching aircraft must maintain radar lock and illuminate the target throughout the missile's entire flight for it to guide properly.

AIM-7E Sparrow
The AIM-7E, entering service in 1965, is the improved version of the Sparrow. It uses a new propulsion system, giving it better range and performance.

AIM-7E-2 Sparrow
The AIM-7E-2 Sparrow, so called "Dogfight Sparrow", is an AIM-7E missile modified for use in the short minimum-range and high-G firing required in dogfights. The Dogfight Sparrow entered service in 1970.

AIM-7F Sparrow
Improved version of Sparrow introduced in 1976, the AIM-7F has dual-stage rocket motor for longer range, solid-state electronics for improved reliability, and a larger warhead for increased lethality.

AIM-7M Sparrow
Much improved version of AIM-7 entering service in 1982 with higher reliability.

Skyflash
Skyflash is a British semi-active radar guided missile derived from the US AIM-7 Sparrow missile. It features improved seeker and electronics, making it less susceptible to enemy electronics countermeasures. The missile entered service in 1978, and is used on British Phantom FGR.Mk 2.

Air-to-Ground

Anti-Radiation Missiles (ARM)

AGM-45A Shrike
Entering service with the US Navy in 1965 and then with the US Air Force, the AGM-45A Shrike is a weapon used to destroy enemy Surface-to-Air Missile (SAM) sites. Its anti-radiation seeker head homes in on the emitted signal from a ground radar installation and is completely self-guided. When a SAM site turns off its radar, the AGM-45A will lose its lock and does not have the capability to continue to target. Its maximum range is roughly 10 miles.

AGM-45B Shrike
Improved version of the original AGM-45A Shrike, with a new propulsion system giving it a much better range (about 28 miles). The AGM-45B began entering service in 1970.

AGM-78B Standard ARM
Produced in 1968, the AGM-78B is a anti-radiation missile based on US Navy's Standard Surface-to-Air Missile body. Its seeker head has a much greater overall field of view, and it has the capability to track many different frequencies of radar. It also has a basic memory circuit allowing it to continue to target even after the radar source stops emitting. Its maximum range is roughly 56 miles.

Electro-Optical (EO) Guided Weapons

AGM-65A Maverick
The AGM-65A Maverick is an electro-optically guided air-to-ground missile designed primarily for close-air-support. It provides stand-off capability against a wide variety of tactical targets, including tanks, air defenses, and other vehicles. The AGM-65A entered service in 1972, and its TV guidance system has maximum lock-on range of about 6 miles.

AGM-65B Maverick
The AGM-65B is an improved Maverick, with a scene magnification capability allowing it to lock-on to a target at a greater range of about 12 miles. It is available after 1975.

GBU-8/B HOBOS
The GBU-8/B HOBOS (Homing Bomb System) is an electro-optically guided bomb developed by the US Air Force. Entering service in 1969, it is essentially a standard Mk 84 2,000-lb bomb casing fitted with a TV guidance and control kit. The TV guidance has range of about 3 miles, but since the bomb is not powered and relies on the gravity, the maximum release range varies depending on the altitude.

Mk 1 Mod 0 Walleye I
The Walleye series of bombs are Electro-optically guided bombs developed by the US Navy. The Mk 1 Mod 0 Walleye I entered service in 1967, and its TV guidance has lock-on range of approximately 3 miles. The bomb has no propulsion unit, and the maximum range varies depending on the release altitude.

Mk 5 Mod 4 Walleye II
The Mk 5 Mod 4 Walleye II, entering service in 1974, is a larger warhead version of the Walleye. It also features an improved TV guidance unit, giving it an increased lock-on range of about 4.5 miles.

Laser-Guided Bombs (LGB)

GBU-10/B Paveway I
The Paveway series of bombs are laser-guided bombs developed by the US Air Force. The GBU-10/B Paveway I, entering service in 1968, is a standard Mk 84 2,000-lb bomb casing fitted with a laser-guidance and control kit, and it has lock-on range of about 4.5 miles. Like other guided bombs, Paveway LGB's are not powered, and its maximum range varies depending on the release altitude.

GBU-10C/B Paveway II
The GBU-10C/B Paveway II is an improved version entering service in 1977. It has an enhanced seeker head with higher reliability and increased range of about 5 miles.

GBU-12/B Paveway I
The GBU-12/B Paveway I is a version of Paveway I based on a smaller Mk 82 500-lb bomb. Entering service in 1968, it has the same seeker head as the GBU-10/B, and it has the same range of 4.5 miles.

GBU-12B/B Paveway II
The GBU-12B/B Paveway II has the improved seeker head of GBU-10C/B mated with a smaller Mk 82 500-lb bomb. It entered service in 1977 and has range of 5 miles.

Unguided Rockets

LAU-3/A Rocket Pod
The LAU-3/A Rocket Pod carries nineteen 2.75" unguided rockets with explosive warheads.

LAU-10/A Rocket Pod
The LAU-10/A Rocket Pod carries four 5" unguided rockets with explosive warheads.

Unguided Bombs

M-117 Bomb
The M-117 bomb is a conventional general-purpose bomb weighting 750 lb.

Mk 80 Series
The Mk 80 Series of bombs (Mk 81, 82, 83, 84) are the standard low-drag, general- purpose bombs.

Mk 82 Snakeye Retarded Bomb
The Mk 82 Snakeye is a 500-lb bomb that is equipped with special fins that open up and extend behind the bomb like an umbrella, slowing it down dramatically. Used in low-altitude level bombing, this allows the launching aircraft time to be clear of the bomb's blast radius.

Mk 20 Rockeye Cluster Bomb
The Mk 20 Rockeye Cluster bomb is a free fall weapon that carries hundreds of small bomblets that can be spread across a great area upon release. Individual bomblet has shape charged warhead that are set to explode on impact. The Rockeye is effective against both hard targets like armor and soft skinned targets.

BLU-1 Napalm
The BLU-1 Napalm bomb is an aluminum canister filled with fuel gel. Tumbling end over end when released, as it strikes a target or the ground the container will rupture, spreading highly flammable napalm that sticks to most structures. Upon impact, fuses rapidly ignite the fuel gel. Napalm is effective against personnel, light structures and vehicles.

Strike Fighters 2 Campaign Background

Burning Sands Campaign

Two proud nations, one oil rich desert, one very old conflict...

April 1919: Mazadran Desert
During an expedition hosted by the Amir of Dhimar, geologists from the Northern Oil Company discover oil leaking to the surface in a place called the Valley of Kerman. It is desolate landscape in the Al'Samara region lying very near the eastern border of the Kingdom of Dhimar and the western border of the Empire of Paran. This border region has always been in dispute, and the Amir claims the inhospitable region as a territory of Dhimar, beginning drilling operations with Western-backed capital.

August 1919: Mazadran Desert
The Shah of Paran disputes the Dhimari claim to the newly discovered Mazadran Oil Fields. Shah Mushani sends Parani cavalry cross the rocky sands of the Mazadran Desert and, after fierce fighting, the battle for the Valley of Kerman ends with the retreat of the Parani army. It marks the beginning of a long conflict between the two nations.

September 1933: Mazadran Desert
After over a decade of fighting, Shah Mushani has grown old and no longer has the will to continue the long-running and unsuccessful war against Dhimar. Over the years, numerous attempts have been made to claim the Mazadran Oil Fields though none have been successful. The entrenched Dhimari, the rugged Valley of Kerman, and the desert itself have kept victory from Paran. The Mazadran Oil Field war gradually slows, then stops, resulting in an uneasy peace.

December 1956: Mazadran Desert
The Kingdom of Dhimar has grown to become a very wealthy and economically powerful nation by selling the oil produced at the Mazadran Oil Fields. There is an increasing feeling of resentment in the Empire of Paran against Dhimar because of the economic disparity between the two neighboring nations.

February 1957: Kurzah, Paran
Pro-reclamation forces led by Halani Komar, and backed by a powerful benefactor, the Soviet Union, successfully stage a bloody coup against the Mushani regime. Once in power, Shah Komar begins secretly building up military forces, using the newest and best Soviet hardware that he is permitted to buy. His goal is to return the Empire of Paran to its former glory by defeating its longtime enemy, the Dhimari, and to reclaim the Mazadran Oil Fields.

September 1957: Muthala, Dhimar
King Husani Al'Galbhi of Dhimar watches with growing concern as reports come in of brand new MiG-17 jet fighters, IL-28 bombers, T-54 tanks and BTR-50 armored personnel carriers seen at new military bases throughout Paran. Tensions increase as Husani approaches the United States for military assistance, and begins to place F-100 jet fighters and M-48 tanks into service to counter the threat.

May 1959: Mosak, Dhimar
Two years of increasing tensions between Paran and Dhimar have culminated in terrorist bombings in the border city of Mosak, located in the Basari River delta. War appears imminent, as Parani forces mass near the border at Maqazad and Riqdur.

June 1959: Mosak, Dhimar
Mosak has been subjected to a blockade by Parani naval forces. Paran now claims ownership of the entire Bay of Basari, and has stopped all Dhimari shipping into and out of Mosak.

June 1959: Muthala, Dhimar
Prince Fa'ad of Dhimar, realizing that their armed forces are still under manned and under equipped, recommends King Husani to institute an emergency buildup of air power. Intrigued and impressed by the legendary Flying Tigers of World War II, he proceeds to form several Special Operations Wings (Mercenary), and fills his new squadrons with foreign pilots who are willing to fly and fight for money and glory.

July 1959: Washington, D.C.
In order to prevent the Soviet-backed Paran from gaining the strategically important oil fields, the United States decides to dispatch military forces to assist Dhimar in the current crisis. The USS Saratoga heads for the region and a squadron of A-4 Skyhawks lands to take up temporary duty at Shaqaz, Dhimar. Meanwhile, F-100 Super Sabres of the 354thTFW, USAF arrive at Muthala, Dhimar, to take a defensive position there.

September 1959: Mazadran Oil Field
Large formations of Parani tanks are seen crossing the Al'Samara River and heading towards the Valley of Kerman and the industrial oil center at Al'Qatan. War has returned to the desert...

Additional Campaigns

War in the desert continues...

Operation Quick Sand
December 1966:
For years, U.N.-backed ceasefire has kept the peace between Empire of Paran and Kingdom of Dhimar. Shah Komar of Paran spent these years secretly rebuilding his military and meticulously planning revenge against Dhimar. His deceptive measures to hide his activities were successful, and he catches U.N. and Dhimari forces by surprise when he launches his well-planned attacks. U.S. reacts swiftly, deploying units to defend the Kingdom.

Operation Rattle Snake
August 1968:
Despite the U.N. backed ceasefire, Empire of Paran continues to support terrorists engaged in guerrilla warfare against Kingdom of Dhimar. In response to repeated guerrilla attacks, Dhimari aircraft violates Parani airspace and destroy terrorist camps just across the border. Paran retaliates with intense artillery fire against Dhimari positions. The exchange escalates into a full-scale war, and U.S. once again deploys units to defend the Kingdom.

Operation Desert Thunder
October 1972:
After years of uneasy truce and massive troop buildup on both sides, hostility between the Empire of Paran and Kingdom of Dhimar reaches a fever pitch. Once again, war appears imminent. Shah Komar of Paran expels U.N. peacekeeping force from the region, closes the ports of Mosak to Dhimari shipping, and masses his troops at the border. In response, King Husani of Dhimar, with support of the United States, makes a bold move: a pre-emptive strike.

Operation Desert Fury
June 1975:
Despite the U.N.-backed ceasefire, tension continues to rise between Empire of Paran and Kingdom of Dhimar. Crisis in other parts of Middle East sends oil price soaring, further deepening the economic divide between the two countries. While petro-dollars pour into oil-rich Dhimar, Paranian economy is on the blink of collapse. Paran's military command, with its oil reserves dwindling fast, sees invasion of Dhimar as the only option for its survival.

Strike Fighters 2 Vietnam Campaign Background

Operation Rolling Thunder

On March 2, 1965, President Lyndon Johnson commences Operation Rolling Thunder, a sustained but restricted aerial bombardment campaign against North Vietnam.

The objective of the campaign is to deliver a message to Hanoi that a negotiated settlement is preferable to continuing the conflict. Using the doctrine of "gradual escalation," U.S. warplanes are ordered to strike limited targets selected to bring North Vietnamese government to the negotiating table.

Operation Linebacker I

March 1972, after building up its military during the three years of bombing halt, North Vietnam had launched a massive invasion of the South using their regular troops, tanks and artillery.

On May 8, 1972, President Nixon authorizes Operation Linebacker I in response. The objectives of the campaign are to destroy the supply chain supporting the invasion and to force North Vietnam to resume peace talks. In contrast to Rolling Thunder where the White House had handpicked all the individual targets, operational commanders are allowed to select targets.

Operation Linebacker II

On December 18, 1972, President Nixon orders Operation Linebacker II, a maximum-effort bombing of Hanoi. It has become clear that North Vietnam is simply using the peace meetings as propaganda tool to buy more time while engaging in a massive military buildup.

The objectives of this campaign are to decisively destroy the military-industrial targets in North Vietnam, to force North Vietnam to resume the delayed peace negotiations, and to end the war in terms acceptable to the U.S.

Historical Epilogue

The "gradual escalation" policy used by President Johnson in Rolling Thunder campaign did eventually bring the North Vietnamese to the negotiating table, but it took over 3 years of fighting and at a cost of almost 1,000 U.S. aircraft lost.

In contrast, decisive use of U.S. air power during the Linebacker II campaign by President Nixon forced the North Vietnamese to resume peace talks in only 11 days and with only 27 U.S. aircraft lost.

The peace agreement was signed in Paris on January 23, 1973. Most of the U.S. ground combat troops had already left the region by mid-1972, and any remainder of the U.S. forces were removed following the peace agreement.

Removal of the US forces, however, did not end the war in the region.

By October 1973, Viet Cong had already broken the ceasefire agreement and resumed its offensive, while North Vietnam was busy re-building its military with aids from Soviet Union and China.

South Vietnamese military, on the other hand, slowly went into decline as the shell-shocked U.S. Congress placed an arms embargo on South Vietnam to prevent any further U.S. involvement in the region.

On spring 1975, North Vietnam launched a full-scale invasion of the South. With very little media coverage and no U.S. support, the South quickly surrendered, forcing the U.S. to evacuate the Saigon Embassy under hostile fire.

Neighboring Laos and Cambodia were also overrun by the Communist troops the same year...

Strike Fighters 2 Europe Campaign Background

1962 Operation Red Thunder

On October 26, 1962, Soviet Premier Khrushchev and U.S. President Kennedy fail to resolve Cuban Missile Crisis diplomatically, and the conflict escalates as the U.S. Navy ships sink Soviet freighters suspected of carrying the nuclear missiles to Cuba.

In response, Soviet Army launches massive assault into West Germany. NATO forces, already on highest alert, are ordered to defend Europe at all cost.

1968 Operation Red Hammer

August 21, 1968. Soviet Army invades Czechoslovakia to prevent reformist elements from taking control of the country.

When the western nations do nothing to challenge the take-over, General Secretary Brezhnev is encouraged to expand Soviet sphere of influence further west. His next stop, liberate West Germany and unite two Germanys under a single Soviet-style communist government. NATO forces scramble to defend Europe.

1979 Operation Red Lightning

September 18, 1979. With the Western civilization seemingly in decline and Communist ideals spreading around the globe, General Secretary Brezhnev decides the time is ripe to extend Soviet hegemony to the rest of Europe.

Assured by military commanders of success against the U.S. forces still suffering the effects of Vietnam War and Watergate, he orders the Warsaw Pact forces to liberate West Germany. NATO forces scramble to defend Europe.

Strike Fighters 2 Israel Campaign Background

1967 Six-Day War

On 5 June 1967, the IDF launches "Operation Moked", a pre-emptive strike to destroy the Egyptian Air Force on ground.

Egypt, Syria, and Jordan have formed a military alliance, and have been publicly calling for united Arab action to destroy the Jewish state. When Egypt expelled the UN observers from the Sinai Peninsula, blocked the Straights of Tiran, and began moving 6 army divisions toward the Israeli border, war on three fronts seem inevitable. The IDF sees no other choice but to strike first before the Arab build-up can be completed.

The IDF/Air Force with 200 combat aircraft must destroy the Egyptian Air Force with 450 aircraft. Once Jordan and Syria join the fight, IDF/Air Force must fight on all three fronts and deal with additional 250 aircraft of the Syrian Air Force, Royal Jordanian Air Force, and Iraqi Air Force.

1973 Yom Kippur War

On 6 October 1973, the Jewish holiday of Yom Kippur, Egypt and Syria launch "Operation Badr," a coordinated surprise attack on two fronts to reclaim the territories lost in the 1967 Six-Day War.

Because of the Yom Kippur holiday where Jews must abstain from work, the IDF is caught off-guard and vastly out-numbered on the ground. The IDF has only 1 division defending each front until reserve units can be mobilized. Against them, Egypt has 10 divisions, and Syria has 5 divisions plus 3 Iraqi and Jordanian divisions.

The IDF/Air Force with 350 combat aircraft must provide air cover on both fronts, against the Egyptian Air Force with 450 aircraft and Syrian Air Force with 350. Both Egypt and Syria have also deployed a large number of SAM batteries to cover their offensive on the ground.

1982 Lebanon War

On 6 June 1982, the IDF launches "Operation Peace for Galilee," an invasion of Southern Lebanon to expel the terrorist group Palestine Liberation Organization (PLO) from their bases.

With Syrian backing, the PLO has created an informal state-within-a-state in Southern Lebanon. From there, the PLO has been conducting terror attacks across the border against civilian targets in Israel's northern Galilee region.

Syrian forces, occupying Lebanon since 1976, have two army divisions in Lebanon. They are protected by 500 combat aircraft of the Syrian Air Force and a large number of SAM batteries moved into Lebanon in Bekaa Valley. The IDF/Air Force with 650 combat aircraft must provide air cover for the invasion.

Historical Epilogue

The six days in 1967 changed the Middle East forever. Surrounded and out-numbered by Arab states calling for a complete destruction of the state of Israel, Israeli Defense Force had launched pre-emptive strike, successfully defeating its enemies on all three fronts simultaneously. When the short war was over, Israel had seized the Gaza Strip, the Sinai Peninsula, the West Bank, and the Golan Height.

On 22 November 1967, U.N. Security Council adopted Resolution 242, the "land-for-peace" deal. The resolution calls for Israel to return the territories captured, and in exchange, its Arab neighbors to accept Israel's right to exist as a sovereign state.

However, this was never implemented, as Syria insisted on "no peace with Israel" and refused to sign. The talks continued until 1973, when Egypt and Syria launched military offensives to re-capture the lost territories by force.

On 24 October 1973, after Israel had narrowly defeated both Egyptian and Syrian attempts to re-capture the lost territories, U.N. Security Council again called for all parties to negotiate for "a just and durable peace".

Victory on the battlefield did not bring peace to Israel, however. The threat had shifted from armed invasion to terror attacks against civilians instead. For the next three decades into current day, Israel would be under constant attacks from various terrorist organizations, such as PLO, Hamas, and Hezbollah.

Of its Arab neighbors, Egypt was first to recognize Israel. After the historic summit at Camp David in 1978, Egypt signed the Israel-Egypt Peace Treaty in 1979. And as part of the agreement, Israel completed their withdrawal from Sinai Peninsula by 1982.

In 1994, immediately following the Oslo Accords in 1993, Jordan became the second and the only other Arab state to recognize Israel by signing the Israel-Jordan Peace Treaty. Jordan however did not attempt to reclaim West Bank, as they had conceded that right to the Palestinian in 1988.

The 1993 Oslo Accords had set up a framework for the Palestinian-Israel peace agreement, in which Israel would withdraw from both Gaza Strip and West Bank. Although Israel has completed withdrawal from Gaza Strip, the withdrawal from West Bank is complicated with settlement issues and requires further negotiations to complete. However, Hamas victory in 2006 Palestinian election had put this process on hold, as Hamas refuses to recognize Israel and does not accept any agreements previously made by the Palestinian Authority with Israel.

And despite numerous attempts at peace talks, Syria is still refusing to recognize Israel, and the Golan Heights is still under Israeli military control...

Strike Fighters 2 Expansion Pack 1 Campaign Background

1956 Operation Kadesh

On 29 Oct 1956, the IDF launches "Operation Kadesh" to re-open the Tiran Straits blockaded by Egypt and to destroy the Fedayeen terrorist training camps in Gaza.

The operation is part of a larger British and French plan against Egypt. Egyptian President Nasser has nationalized the Suez Canal in July, threatening the British economic interests in the region. In order to keep the canal open, the British government plans on military intervention against Egypt. They have formed a secret alliance with France and Israel, and the Israeli attack will be used as an "excuse" for Britain and France to intervene by force.

The IDF/Air Force with 100 combat aircraft must destroy the Egyptian Air Force with 150 aircraft. As part of the deal for joining the secret alliance, three French squadrons are also based in Israel to protect from Egyptian jet bombers.

Historical Epilogue

After 3 days of intense and bitter fighting in the Sinai front, the operation ended quickly when the Anglo-French forces initiated their part of the plan, the "Operation Musketeer".

Having issued an ultimatum on 30 October, Anglo-French forces began their attack with bombing of Cairo on the night of 31 October. Nasser made decision to save his air force for the long fight against Israel, and ordered them to withdraw and not contest the Allied air assault. He also ordered his army to retreat from Sinai front to defend Cairo.

The full-scale invasion by Anglo-French forces, with paratroopers and amphibious landing, began on 5 November. And Nasser responded by sinking 40 ships in the canal, completely blocking the canal until 1957.

A cease-fire was called for in the U.N., and Britain and France initially veto the resolution. Other pressures were applied to end the fighting, including financial pressure from the U.S. and oil embargo by Saudi Arabia. Faced with world-wide political and economic pressure, Britain announced cease-fire on 6 November, only a day after the landing and before the Allied forces could capture Suez.

The U.N. Assembly resolution 1001 established the first United Nations Emergency Force

(UNEF) to maintain the cease-fire, and the modern concept of "Peacekeeping" force was born.

The strategic objective of Anglo-French operation - the overthrow of Nasser's government - was a total failure. Nasser's position was greatly strengthened after "defeating" the combined Anglo-French-Israel alliance, and Egypt would become the leader of the emerging pan-Arab world.

Instead, it was the British government that fell, Prime Minister Eden would resign amidst the oil crisis resulting from the conflict - two-third of Britain's entire oil supply depended on the now blocked Suez Canal, and the shortage had caused British currency to plummet and threatened widespread economic collapse. Britain had to agree to unconditional withdrawal from Egypt in exchange for American aid to save its economy. This conflict marked the end of the British status as a superpower.

Following the Egyptian retreat, the IDF had captured the entire Sinai peninsula in a swift, sweeping operation, proving the value of mobile warfare. Rapidly moving armored forces supported by tactical air force would be the blue-print for future IDF operations...

Strike Fighters 2 Expansion Pack 2 Campaign Background

1956 Operation Red Tide

November 17, 1956, a week after the Hungarian revolution is brutally crushed by the Soviet Army without any intervention from the West, Soviet forces began their next move, the invasion of West Germany.

General Secretary Khrushchev, calling West Berlin a "malignant tumor", wants a lasting solution to the problem of divided Germany. Encouraged by the success in Hungary and believing that Western nations are unwilling to risk any military involvement due to the on-going crisis in the Middle East, he decide to apply military solution to the problem and unite the two Germanys under a single Soviet-style communist government. NATO forces scramble to defend Europe.

Strike Fighters 2 North Atlantic Campaign Background

Operation Northern Sabre

September 1979. As the Soviet Army invades West Germany, an entire division of Soviet Airborne troops parachute onto Iceland, covered by Spetsnaz Special Forces already on the ground to disable the early warning systems. The capture of Iceland is essential to Soviet victory in Europe - it allows the Soviet Northern Fleet to break out into the North Atlantic and disrupt the US convoys attempting to reinforce Europe. But the NATO forces catch a lucky break as one of the Spetsnaz attack is foiled, and the Airborne troops are forced to land on eastern half of the Iceland.

Soviet air force quickly forward deploys several MiG squadrons onto small airstrips around the Iceland to prevent any NATO reinforcement from arriving by air. And the Soviet Northern Fleet is sending in the Kiev Carrier Battle Group to block reinforcement by sea, supported by over 200 land-based, long-range heavy bombers which can strike anywhere on Iceland.

The US 2nd Marine Amphibious Group is quickly assembled to reinforce the Iceland ground defenses, and the USS Nimitz Carrier Battle Group, already underway to a routine Med cruise, is diverted north to provide cover.

Default Key Commands

The game has a default set of key commands. You can alter them by opening the Options Screen. Click the green aircraft icon in the upper left corner of the screen, then select Control. The default control list is loaded by default, but you can click Customize to change the key mappings. If you choose to customize, a new *.INI file will be saved in the Controls subdirectory under the main game folder.

In-flight Keyboard Commands

Esc	End/abort mission and display the Debrief Screen.
Alt+Q	Close the game immediately and return to the desktop.
Alt+P	Pause the game. (You can still perform many functions while the game is paused.)
Alt+T	Change the rate at which time passes - x2 (twice as fast), x4 (four times as fast), x8 (eight times as fast) and x1 (normal speed).
Alt+R	Reset time compression back to x1.
Alt+N	Jump to the next mission encounter. You can use this option only when no enemy targets are present. When pressed, this key takes you to the next action area and eliminates all travel time (including waypoints).
Tab	Display the radio communication menu. You can then press the number keys (1 through 9 at the top of the keyboard) to select a specific menu or message. (See In-Flight Communication for specific messages and their effects.)
A	Toggle autopilot on/off. In Autopilot mode, your aircraft flies toward the next waypoint. Note that moving the joystick or mouse will cancel autopilot. Autopilot also does not pause for enemy encounters.
Shift+A	Toggle wing-leveling action. When activated, this feature restores level flight and keeps the aircraft moving in a straight line. If you move the joystick or mouse while this function is active, the game will drop out of wing-leveling mode.
W	Select next waypoint.
Shift+W	Select previous waypoint.

Alt+M	Display the in-flight map, a version of the Planning Map, but with less information. It basically shows your current position and the position of known mission-critical objects.
PrtScrn	Take a screen shot. The current scene will be saved as a bitmap image in the ScreenShots folder.

View Commands

Note: In all interior views, you can move the mouse to pan the view up, down, left and right.

F1	Display the interior, front cockpit view.
F2	Display the interior, front cockpit wide view.
F3	Display the interior, front cockpit narrow (gunsight) view.
Shift+F1	Show a front 45-degrees up view from inside the cockpit.
F4	Toggle the padlock view, keeping the selected target in your view as long as it's in range. This option attempts to keep your current foe centered in your view. Pressing this key a second time switches the view back to front cockpit view (F1).
Numpad keys	Temporarily pan the view in a given direction. The view returns to its previous position when you release the key.
Numpad Del (.)	Toggle cockpit art on/off, leaving only the HUD targeting circle.
Numpad 0	Display a forward view of the dashboard, looking down at the instruments.
Numpad 8	Display the forward view.
Numpad 7 / 4 / 1	Display the left front / left / left rear view, respectively.
Numpad 9 / 6 / 3	Display the right front / right / right rear view, respectively.
Numpad 5	Add 45 degrees of vertical angle to any other view. (Press this key in conjunction with the other Numpad view keys.)
F5	Display an external, over-the-shoulder ("chase plane") view.
Shift+F5	Show an external rear view. Use this view to "Check Six" (look behind you).
F6	Cycle through external views of various aircraft in the mission. Pressing this key multiple times in succession switches to the next aircraft.
Shift+F6	As above, but in reverse order. Pressing this key multiple times switches to the previous aircraft.

F7	Display an external view of the next ground object. Pressing this key multiple times switches to the next ground object.
Shift+F7	As above, but in reverse order. Pressing this key multiple times switches to the previous ground object.
F8	Display an enlarged view of your current visual target.
Shift+F8	Show a line-of-sight view to your target. This perspective puts your current target in the center of the screen and lines it up with an external view of your aircraft in the foreground.
Ctrl+F8	As above, but reversed. Your aircraft appears in the middle of the screen, and the target appears in the foreground.
F9	Switch to the weapon camera view. You view everything from the weapon's perspective, corresponding to the last weapon you fired.
Shift+F9	Show a line-of-sight view from your weapon to your aircraft. This perspective puts your weapon in the center of the screen and lines it up with an external view of your aircraft in the foreground.
Ctrl+F9	As above, but reversed. Your aircraft appears in the center of the screen, and your weapon appears in the foreground.
F10	Display an external, fly-by view. You see your aircraft make an approach, fly past, and then exit your view.
F11	Display the view from the nearest tower to your aircraft.
Numpad + / -	Zoom the camera view in (+) or out (-). You can also use the wheel on your mouse if it's equipped with one.
Alt+Arrow keys	Pan the view in the desired direction. You can also move the mouse in any direction to pan.
Left / right mouse buttons	Zoom the view in or out. This can be very useful for examining your aircraft from an external camera view, or for reading dashboard instruments.

Flight Control Commands

You can control your aircraft by using a joystick or the keyboard. If you have a programmable joystick, many of the following functions can be assigned to your joystick buttons and/or wheels.

Note that the aircraft takes a few seconds to respond to your flight commands. Be careful not to over steer, or you may quickly get into trouble.

Left / right arrow keys	Roll the aircraft (dips the wings) left or right.
Up / down arrow keys	Pitch the nose of the aircraft up or down.
, / . (comma / period)	Turn the rudder left and right. Alternatively, you can also use a rudder pedal.
= / - (not Numpad)	Increase or decrease throttle. Note that you can also use an external throttle to control speed.
F	Extend flaps down by one notch. Most aircraft flaps have three settings. Up (Retracted) - no extra lift (good for normal flight) 1/3 (Partially extended) - some extra lift (good for taking off and avoiding stalls during tight or vertical maneuvers) Down (Fully extended) - lots of extra lift and drag (good for landing)
V	Retract flaps by one notch. Flaps are automatically raised after you reach a certain speed in order to prevent damage.
S	Toggle speedbrakes (extend/retract). Use your airbrakes in the air to quickly bleed off speed.
B	Toggle wheel brakes (engage/disengage). Use this command when landing to reduce speed, but make sure you wait until you've touched down.
G	Raise/lower landing gear.
Ctrl+L	Cycle through external navigation light settings - off / flashing / steady.
Ctrl+I	Engine Toggle. Turn engine on/off.
Shift+ESC	Eject from the aircraft, ending the mission.

Weapons Commands

Backspace	Switch to next Air-to-Air (A/A) weapon.
Shift+Backspace	Switch to previous Air-to-Air weapon.
\ (backslash)	Switch to next Air-to-Ground (A/G) weapons.
Shift+\ (backslash)	Switch to previous Air-to-Ground weapon.
Spacebar	Fire primary gun or cannon. You can also use joystick button 1 to fire.
Enter	Fire/release currently selected missile, bomb, or rocket. You can also use joystick button #2.
Ctrl+D	Jettison (drop) external fuel tanks. You can do this to gain maneuverability, as long as you have enough fuel to return to base.
Ctrl+J	Jettison all external weapons except for A/A missiles.
' (apostrophe)	Switch to next gunsight mode - CAGE / Air-to-Air (A/A) / Air-to-Ground (A/G). Whenever you select

	a new weapon, the proper gunsight mode auto-activates.
Shift+' (apostrophe)	Switch to previous gunsight mode.
]	Cycle to next ripple setting. For bombs, this key determines the ripple setting, or how many bombs are released at once when you press Enter. The number of weapons per launch varies by aircraft.
Shift+]	Cycle to previous ripple or salvo setting.
[	Cycle to next ripple interval setting. This determines the time between each bomb release when more than one bombs are rippled.
Shift+[	Cycle to previous ripple interval setting.
; (semicolon)	Cycle to next gun group - usually 2 upper guns / 2 lower guns / all 4 guns. Some aircraft have multiple gun groups or gun pods. Pressing this key activates a different set of guns. When you press Spacebar, only the selected guns will fire rounds.
Shift+; (semicolon)	Cycle to previous gun group setting.
Z	Toggle electronic counter measures (ECM) on/off. For aircraft equipped with an ECM, this can jam the enemy radar. However, it gives away your location to the enemy.
X	Drop Flare. For aircraft equipped with an decoy dispenser, flares can be deployed to spoof incoming heat-seeking missiles.
C	Drop Chaff. For aircraft equipped with an decoy dispenser, chaff can be deployed to spoof incoming radar-guided missiles and break enemy radar lock-ons.

Radar Commands

Ctrl+PgUp	Turn radar off. If the radar is off, pressing PgUp will turn it on.
PgUp	Switch to next radar mode - Search / Boresight / Ground Map / Terrain Avoidance. Note that not all modes are available on all aircraft. Additionally, the Gameplay option settings can affect what you see on the radar. When the radar is in Acquisition or Tracking mode, this key instead causes the radar to revert back to its pre-acquisition setting (either Search or Boresight mode).
Shift+PgUp	Cycle to previous radar mode.
PgDn	Cycle to next radar range setting. Note that different aircraft have different radar ranges.
Shift+PgDn	Cycle to previous radar range setting.

Home	Select the next radar target on the radar display. Depending on your Gameplay option settings, the radar target may only appear as a momentary blip during each sweep. A target must be visible in order for the radar to enter Acquisition mode.
Shift+Home	Cycle to previous radar target on the radar display.
Insert	Acquire and lock on the currently selected target. Acquisition mode is a transitional mode between Search mode and Track mode. Once you initiate acquisition, you lose all other radar contacts. When the radar is able to acquire a full system lock, it enters Tracking mode. You can then fire your radar-guided missile at the selected target.
Shift+Insert	Attempt to acquire the current visual target. This slews the radar azimuth and elevation in order to point at the visual target. If the target falls within the radar constraints, the radar tries to enter Acquisition mode and acquire that target.
Delete	Deselect the current radar target. This key causes the radar to go back into Search or Boresight mode. Note that you can also deselect a target by cycling through radar modes.

Visual Targeting Commands

T	Designate the next enemy or unidentified aircraft as your visual target. This places square brackets on the head-up display (HUD). If the target moves out of view, the brackets turn into a cone that points in the direction of the target. Additional target information may also appear in the lower right corner of your viewscreen, depending on your HUD settings.
Shift+T	Select previous enemy or unidentified aircraft as your visual target.
Ctrl+T	Select closest enemy or unidentified aircraft as your visual target.
Y	Select next friendly or neutral aircraft as your visual target.
Shift+Y	Select previous friendly or neutral aircraft as your visual target.
Ctrl+Y	Select closest friendly or neutral aircraft as your visual target.
E	Select next enemy ground object as your visual target.
Shift+E	Select previous enemy ground object as your visual

	target.
Ctrl+E	Select closest enemy ground object as your visual target.
Numpad * (asterisk)	Target the object closest to the center of view.
R	Target the last object mentioned in the radio call - an enemy aircraft (bandit), incoming missile, friendly bomber, airport, etc. For radio calls that do not involve targetable objects, the caller of the object, if appropriate, may be targeted. Some objects might not be visible or targetable.
Shift+R	Target the caller of the last radio call, if appropriate.
Ctrl+R	Select the current radar target as your visual target. You must have the target selected on your radar, but you don't need a full lock to select this as a visual target.

Misc. Commands

Shift+1	Animation key 1 (for third-party add-ons).
Shift+2	Animation key 2 (for third-party add-ons).
Shift+3	Animation key 3 (for third-party add-ons).
Shift+4	Animation key 4 (for third-party add-ons).
Shift+5	Animation key 5 (for third-party add-ons).
Shift+6	Animation key 6 (for third-party add-ons).
Shift+7	Animation key 7 (for third-party add-ons).
Shift+8	Animation key 8 (for third-party add-ons).
Shift+9	Animation key 9 (for third-party add-ons).