F-15 STRIKE EAGLE

Loading Instructions

CBM 64/128 Cassette

Place the program cassette in your program recorder (rewind if necessary).
Press RUN/STOP while holding down the "COMMODORE" key. Press PLAY on the cassette recorder. Loading requires at least 10 minutes.

COMMODORE 64/128 Users Only

Note only one Joystick is used in the Commodore 64 version. The Joystick should be placed in joystick port # 2 (nearest the back of the computer).

Amstrad CPC Cassette

Press the CTRL and small ENTER keys together. Press PLAY on the cassette deck.

Spectrum 48/128K, +2 Cassette

To load your F-15 type LOAD"" and press enter. F-15 will now load into your computer's memory.

Documentation	C64	Ams	Spec
"OPTION"	"F1"		
"SELECT"	"F3"	W	
"START"	"F7"		
Nav Cursor:		U,H,J,N	U,H,J,N
Left	←	←	←
Right	→	→	→
Up	↑	↑	↑
Down	↓	↓	↓

SOUND ON/OFF	<SYMBOL SHIFT>+V
JOYSTICK SELECT	FIRE BUTTON
POWER	<SYMBOL SHIFT>+0-9
NAV CURSOR	U,H,J,N
BAIL OUT SWITCH	<CAPS SHIFT>
RESTART	ENTER
REVERSE VIEW	<SPACE>

OPTIONS

SKILL LEVEL

This simulation has four skill levels: ARCADE, ROOKIE, PILOT, and ACE. It provides an introduction to the aircraft's systems for those with no prior flying experience.
As you progress form ROOKIE to ACE, it is more difficult to destroy both enemy aircraft and ground targets and there are more numerous and effective enemy aircraft and ground launched missiles that seek to destroy your aircraft. The skill level may be changed by use of the "OPTION" key.

MISSIONS

F-15 STRIKE EAGLE contains seven different missions. To select your initial mission, type a number from 1 to 7. Your objective is to complete each mission by destroying the Primary Targets and returning successfully to your base. Once you have successfully completed your mission, you will fly to the next mission, which is more challenging. You may return to your base before destroying all Primary Targets in order to refuel, repair damage, and reload weapons. In this case you will remain on the same mission until all Primary Targets are destroyed. (To Return to Base, (RTB), you must fly below 3000 feet over the base.)

NUMBER OF PLAYERS

Up to four players may participate. Use the "SELECT" key to choose the number of pilots. In multi-player games, each pilot's turn consists of one mission. Note that if a pilot returns to base without completing the mission or bails out and is rescued, the same pilot continues to play. The aircraft symbol after each pilot's score indicates which pilots are still active.

START

After option selection is completed, press "START" or the joystick trigger to begin the simulation.

AUTHENTICATION CODES

At the start of the simulation, you will be asked to enter your secret F-15 authentication code. It is important to enter the correct code in order to gain access to all flight and weapons systems. Consult the Authentication Code charts and type the countercode letter which matches the number displayed.

SCORING

LEVEL	ARCADE	ROOKIE	PILOT	ACE
PRIMARY TARGETS	500	1000	1500	2000
AIR TARGETS	150	300	450	600
GROUND TARGETS	200	400	600	800

F-15 STRIKE EAGLE COCKPIT DISPLAYS

This simulation provides you many of the same devices provided the real F-15 pilot. (See illustration).

FORWARD AND REAR VIEW

You may select the view rearward by pressing the space bar, and return to the view forward by pressing the space bar again. The forward view includes the HEADS-UP-DISPLAY and the instrument panel. The rear view is only of the sky, the ground or sea surface, and any other aircraft or missiles. When over ground, the surface is green; when over water it is blue.

HEADS-UP-DISPLAY (HUD)

The following essential flight and aircraft systems information is projected on a glass plate in the pilot's forward line of sight directly above the instrument panel.
AIRSPEED: "SPD:600" indicates that you are flying at 600 knots. A knot is one nautical mile per hour.
ALTITUDE: "ALT:9000" indicates that you are flying 9000 feet above the ground.
AIRCRAFT LINE OF FLIGHT: A circle containing an AIRCRAFT SYMBOL is in the centre of the HUD. It displays the line of flight of your aircraft.
AIR-TO-AIR RETICLE: The stationary reticle surrounding the AIRCRAFT SYMBOL is used for aiming the guns and missiles. For the highest probability of hits with the guns, get directly behind the enemy aircraft with his wing span filling the aiming circle.
AIR-TO-GROUND RETICLE and LINE OF IMPACT: The smaller flashing/moving reticle that appears when you are in the BOMB mode indicates the projected impact point of the bombs. The line that connects the AIR-TO-GROUND RETICLE to the AIRCRAFT SYMBOL is the LINE OF IMPACT.
PITCH LINES: The horizontal lines indicate how many degrees your aircraft is pitched up or down. When the horizon is on the longest pitch line, the one that is level with the aircraft symbol, you are in level flight. Each pitch line represents 10 degrees. When you are diving to line-up with a ground target, you should be in a 30 degree dive, and the horizon should be on the third line above the aircraft symbol.
TARGET DESIGNATOR BOX: The TARGET DESIGNATOR BOX indicates the position of an enemy aircraft that has been detected by the search and tracking radar or by your radar or infra-red warning receiver. The TARGET DESIGNATOR BOX aids you in planning and positioning yourself for an attack before the target is within visual range. When the enemy aircraft is within visual range, it will appear inside this box.
MISSILE DESIGNATOR BOX: The MISSILE DESIGNATOR BOX indicates the position of air or ground launched missiles. It aids you in evading missiles launched against you which are small and therefore difficult to see.
STEERING CUE: The flashing letters "NAV" indicates the direction of flight corresponding to the location of the NAVIGATION CURSOR on the HORIZONTAL SITUATION DISPLAY. By flying to this indicator, you will fly toward the area on the map under the NAVIGATION CURSOR.

MESSAGES

In addition to the information that is always displayed in the HUD, the following messages may be flashed in the lower left corner of the HUD:

WEAPONS SYSTEM MODES:

"GUN 900" indicates that you are in the GUN mode and that you have 900 rounds remaining. In the GUN mode, when you press the trigger on the control stick, you fire a burst of 25 shells.
"MISSILE ARMED" indicates that you have armed either a SHORT RANGE MISSILE or a MEDIUM RANGE MISSILE. In a missile mode, when you press the trigger on the control stick, you fire the type of missile that you armed.
"BOMB ARMED" indicates that have armed a "stick" of three 500 pound bombs. In the BOMB mode, when you press the trigger on the control stick, you release the "stick".

WEAPONS RESULTS:

"ENEMY PLANE HIT" indicates that you have achieved a lethal hit by cannon shells or missiles on an enemy aircraft.
"BOMBS RELEASED" indicates that the stick of bombs has been released and that you may pull up or take evasive action.
"BOMBS MISS" indicates that you have missed your ground target.
"TARGET HIT" indicates that you have destroyed the ground target.

WARNINGS:

"ALERT: SAM LAUNCH" indicates that a surface-to-air missile (SAM) has been launched against your aircraft.
"DAMAGE WARNING" indicates that your aircraft has been damaged by a missile.
"ALERT: AIR MISSILE" indicates that an air-to-air heatseeking missile has been launched against you aircraft.

DEFENSIVE SYSTEMS:

"LONG, MEDIUM, SHORT RANGE RADAR" indicates what scale your RADAR-ELECTRONIC WARNING DISPLAY is on. The short range scale displays an area of 400 square miles (10 miles in each direction from the aircraft), the long range scale displays an area of 1600 square miles (40 miles in each direction).
"ECM JAMMING" indicates that your electronic countermeasure active radar jamming device is operating and that you have released "chaff" to decoy ground launched radar homing missiles.
"FLARE RELEASED" indicates that you have released a flare to decoy heatseeking missiles.

MAXIMUM SPEED

If the aircraft is approaching the maximum "red line" speed, the screen border (C-64) will flash red to warn you to immediately reduce your air-speed by pulling back on the throttle, extend your speedbrakes, pull up, or any combination to reduce your speed and prevent pulling the wings off your aircraft at Vmax.

INSTRUMENT PANEL

Additional information is displayed on the aircraft's instrument panel.
MACH NUMBER: "Mach:.9" indicates that you are flying at .9 (90%) of the speed of sound (661 knots at sea level, decreasing with altitude). Note that the decimal point is not displayed.
HEADING:"HDG:180" indicates that you are flying on a heading of 180 degrees (south).
ENGINE POWER:"RPM:90" indicates that your engines are at 90 percent of maximum RPM. "AFT" indicates that your afterburners are engaged, giving you approximately 60 percent more thrust than at 100 percent RPM.
FUEL REMAINING: "FUEL: 20000LBS" indicates that you have 20,000 pounds of fuel remaining (one gallon of jet fuel weighs approximately six pounds). Fuel capacity is 13,500 pounds in on board tanks and 10,000 in external tanks. Fuel consumption depends on engine power, with afterburners consuming fuel at about a 60 percent higher rate than at the 100% RPM level.
WARNING INDICATORS: There are four warning indicator lights: the first indicates that you are being tracked by radar and the target of a radar homing missile; the second indicates that your infra-red warning system has detected an intense heat source such as that produced by a missile; the third indicates that you are at a low altitude (below 6100 feet); and the fourth indicates that your fuel remaining is low (less than 5000 pounds) and you should begin to return to base.

WARNING HORNS

In addition to visual information, there are two warning horns which indicate impending contact with the ground (based on altitude and rate of descent) PULL UP IMMEDIATELY!; or approach to stall speed (based on airspeed and bank angle) apply more power.

HORIZONTAL SITUATION DISPLAY (HSD)

The HSD displays a map of the area over which the mission is to be flown. It depicts the primary target or targets, secondary targets, which are airfields and surface-to-air missile sites, your base, and geographic features such as rivers and coast lines.
Your aircraft's position and direction of flight are indicated by the position and orientation of the flashing aircraft symbol.
The **NAVIGATION CURSOR** is tied into your aircraft's inertial navigation system and can greatly reduce the workload on the pilot. Simply pick the location you want to fly to, use the computer cursor control keys (see the computer chart) to move the cursor square over your desired target; bank the aircraft to put the nose of the aircraft pointed directly at the flashing **"N", "A", "V"** letters projected on the HUD, the aircraft will now fly directly to your desired target. Great for locating a target or returning to base.

RADAR-ELECTRONIC WARFARE DISPLAY (REWD)

The **REWD** displays targets in the airspace and on the ground surrounding your aircraft. You can change the scale by pressing the **"R"** key. Each grid line represents 10 miles. Your aircraft is always in the centre of the display pointing up. The REWD displays the returns from your radar, from your Radar Warning Receiver (**RWR**, which alerts you that a ground-based or airborne radar is tracking your aircraft), and from your Infra-red Warning Receiver (**IRWR**, which alerts you that a surface-to-air or an air-to-air missile has been launched) is also displayed.
The position and direction of enemy aircraft are shown. They are displayed if they are detected by your search and tracking radar, by your Radar Warning Receiver (RWR) which detects other aircraft's radar emissions, or by your Infra-red Warning receiver (IWR) which detects the heat of other aircraft's engines. Primary ground targets are depicted as well as airports, surface-to-air missile (SAM) sites, and your base.

WEAPONS STATUS DISPLAY (WSD)

The **WSD** provides the combat pilot with a quick visual reference of his available weapons stores. It displays all remaining three bomb "sticks" of bombs, medium range missiles, short range missiles, flares, and the status of the fuel drop tanks.

CONTROLS

UP FRONT CONTROL (UFC)

The **UFC** is immediately below the HUD in the F-15. In this simulation it is your keyboard. You select weapons modes, control the radar, activate defensive systems, and operate all controls necessary for combat that are not operated by the CONTROL STICK and THROTTLE. It is also a backup for the controls activated by the THROTTLE if joystick 2 is not used. The UFC's functions are as follows:

ACTIVATE GUN MODE: Press **"G"** to arm the guns. When within 1000 feet of your target, press the trigger on the CONTROL STICK to fire a burst of 25 cannon shells. Gun mode is automatically selected at the beginning of the simulation and whenever no bombs/missiles are armed.
ACTIVATE SHORT RANGE MISSILE MODE: Press **"S"** to arm a short range, heatseeking Sidewinder missile and lock its seeker head into the AIR-TO-AIR RETICLE on the HUD. Press the trigger on the CONTROL STICK to launch the missile when the target is between one half mile and ten miles away and is within the reticle. You may not launch a missile until the previous missile has completed its flight.
ACTIVATE MEDIUM RANGE MISSILE MODE: Press **"M"** to arm a medium range, radar homing Sparrow missile and lock its homing device into the AIR-TO-AIR RETICLE on the HUD. Press the trigger on the CONTROL STICK to launch when target is between 10 and 40 miles away.
ACTIVATE BOMB MODE: Press **"B"** to arm a stick of three 500 pound bombs and activate the AIR-TO-GROUND RETICLE on the HUD. Press the trigger to release the "stick" when the BOMB AIMING RETICLE is inside the target triangle. You should be in a 30 to 40 degree dive for best results. Release at 2000 feet and pull-up immediately.
THROTTLE: Press numbers **"0"** (55%) through **"9"** (100% RPM) for aircraft power and adjustment.
AFTERBURNER: Press **"A"** to engage. Any throttle command will cancel. The afterburner increases thrust (and fuel consumption) by 60 percent over the unaugmented thrust at 100 percent throttle.
SPEEDBRAKE: press **"X"** to extend. Any throttle command will retract. The speedbrake reduces your aircraft's speed to approximately 75 percent of whatever speed it would have with the speed brake retracted.
DEFENCE AGAINST RADAR HOMING MISSILES: Press **"E"** to activate the electronic countermeasures radar jammer and to release chaff to decoy a radar homing missile. Electronic countermeasures are effective for a short period of time.
DEFENCE AGAINST HEATSEEKING MISSILE: Press **"F"** to release a flare. The heat of the flare will decoy a heatseeking missile away from your aircraft. If the heatseeking missile is within range it may explode on the flare. Flares burn for 5-10 seconds.
DROP EXTERNAL FUEL TANKS: Press **"D"** to drop your external fuel tanks when empty (when fuel remaining is less than 13,500 pounds) for extra speed and range.
NAVIGATION CURSOR: Press **cursor control keys** (see Computer Chart) to move the cursor.
FRONT OR REAR VIEW: Press the **space bar** to change from front to rear view and back again.
BAIL OUT: Press **Esc (C64:" ← ")** to eject. You may be rescued and go on to fly other missions or be captured and end the simulation.
RADAR RANGE: Press **"R"** to change the range scale of the RADAR-ELECTRONIC WARFARE DISPLAY. (Note: Joystick must be centered prior to pressing **"R"** on C64 or bailout may result.)
PAUSE: Press **"P"** to pause the simulation. Press any other key to resume.
START: Pressing **"START"** during the game will abandon the current game and return you to the initial selection screen.

CONTROL STICK

Joystick 1 is the CONTROL STICK

It is used to control the altitude of the aircraft and to activate the weapons - to fire the gun, launch missiles, or drop bombs.
Moving the control stick left or right causes the aircraft to bank and begin a turn in that direction.
Moving the Control Stick forward or back changes the pitch (nose up or nose down) of the aircraft.
The trigger on the Control Stick is the fire button. Pressing the trigger will fire the gun, launch an air-to-air missile, or drop a stick of bombs.
Pushing the stick forward pushes the nose of the aircraft down. Pushing the nose down will cause the aircraft to dive.
CAUTION: If the airspeed is allowed to climb to the maximum speed for your altitude, your aircraft may suffer structural failure. The speed brake can be used to rapidly reduce speed and should be used for steep dives.

THROTTLE

The keyboard keys 1-9, and 0 are used as the F-15 THROTTLE. "0" (zero) is idle thrust. "A" activates the afterburners. Moving the THROTTLE forward increases the engine RPM in 10 percent increments; moving it back decreases the engine RPM in 10 percent increments.

FLYING THE F-15

AIRCRAFT CONTROL

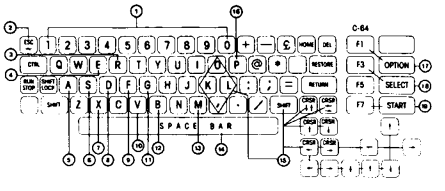
If the airspeed is allowed to fall to the stall speed (100 knots in level flight at sea level), the aircraft will stall. Therefore, you must add engine power when climbing to maintain airspeed and to avoid a stall if the climb is steep and sustained.
Moving the stick to the right or left controls the roll motion of the aircraft and thus the aircraft's bank angle. For example: a right turn would be accomplished as follows. 1) Move the stick to the right to roll right. 2) Neutralise the stick when the bank angle is achieved for the desired rate of turn (the steeper the bank angle the higher the rate of turn, a 45 degree bank is normal bank angle). 3) Add throttle to maintain airspeed (because of the extra drag created by turning) and be careful not to stall (stall speed is higher in a turn than in level flight because of the higher 'G' loading on the aircraft). 4) When you are near the desired heading, roll to the left until you are level and reduce throttle.
In an aircraft it is necessary to co-ordinate your ailerons (the control surfaces in the wings that control bank angle) with your rudders (the control surfaces in the vertical stabilizers that control yaw - the right and left movements) and your elevators (the control surfaces in the tail that control pitch attitude). The F-15 simulator automatically interconnects these control surface movements to apply the correct amount of up elevator to keep the nose from dropping. This permits turns of any bank angle without the need to pull the stick back to maintain altitude. Pulling the stick back will raise the nose in a shallow bank and increase the turn rate in a steep bank.

MISSION PROCEDURE

As each mission begins, you are flying at a medium altitude and a high cruise airspeed appropriate for combat engagement. When cruising toward a target, use Cruise Power, 90 percent RPM, to conserve fuel while retaining sufficient speed to respond to threats.
You should first plan your mission flight path. Use the Horizontal Situation Display to identify your current position and the location of your primary target(s). Select a flight path to and from the target. You may wish to avoid major SAM and Airport concentrations, or you may select an aggressive flight plan and knock out some of these installations. You may also decide on a high-altitude penetration to minimise the effectiveness of SAM missiles, a medium altitude penetration to save time, or a low altitude penetration to neutralise radar-guided missiles. For the more difficult missions you might select a multiple flight strategy and return to your base to re-fuel and re-arm as necessary.
When you have determined your flight plan, place your NAVIGATION CURSOR on the first objective. The STEERING CUE will guide you to your target. You might climb to 36,000 feet for best speed and range. Higher altitudes can be used to evade surface-to-air missiles or less capable enemy aircraft. Or, to avoid surface-to-air missile (SAM) radars, stay below 1500 feet. However, note that at these low altitudes turbulence affects your altitude.
On your way to the target you will need to defend yourself against heatseeking missiles, radar-guided missiles, and enemy aircraft. Each of these threats has different flight characteristics and must be dealt with by appropriate countermeasures. The first requirement is to identify threats as soon as possible. All missile launches will be

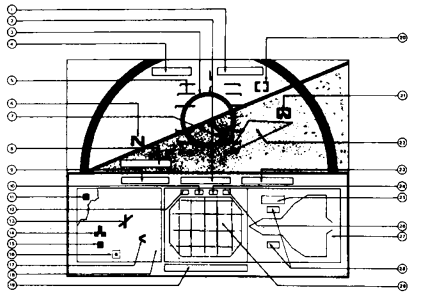
reported by a HUD message. Locate the missile on the Long Range Radar scan. Use the radar and infra-red warning indicators to identify the missile as radar-guided or heatseeking. (All air-launched missiles are heatseeking; ground-launched missiles may be either heatseeking or radar-guided.)
Enemy aircraft may be identified via the Long Range radar or by the appearance of the Target Designator Box.
There are a number of countermeasures available to decoy heat-seeking missiles. You may turn toward the missile (to present your cold side to the heatseeker).
If this is not effective you may release a flare to fool the heatseeker into attacking the flare instead of you. Your IR warning light will indicate the effectiveness of your countermeasure. As a last resort you may punch up the Short Range Radar Display and try to out-fly the missile. Remember that the missile is faster than your plane but you may be able to out-turn the missile in a high-G turn.
If a radar homing missile is approaching your aircraft, press "**E**" to activate your radar jammer and to release chaff (radar reflective material) to fool the radar homing missile into attacking the chaff instead of you. Activate your countermeasures when the missile is about three to five miles away, then take evasive action.
The best defence against enemy aircraft is to destroy them before they come close enough to be a threat. Use a medium range missile for targets more than 10 miles away. Since the guidance system on the **MRM** requires about 10 seconds to acquire the target, you should fire your missile towards the Target Designator Box. For targets at ranges of less than 10 miles, use a Short Range Missile. An **SRM** locks on to the target immediately and does not require careful aiming.

UP FRONT CONTROL (UFC) KEYBOARD



1 BACKUP THROTTLE
2 BAIL OUT SWITCH
3 RADAR RANGE SELECTOR
4 ELECTRONIC COUNTER MEASURES AND CHAFF DISPENSER
5 AFTERBURNER IGNITER SWITCH
6 SHORT RANGE MISSILE ARM SWITCH
7 SPEED BREAK SWITCH
8 DROP TANK RELEASE
9 FLARE ACTIVATE SWITCH
10 ⁄BM SOUND EFFECT TOGGLE (3 POSITIONS)
11 GUN ACTIVATE SWITCH
12 BOMB ACTIVATE SWITCH
13 MEDIUM RANGE MISSILE ARM SWITCH
14 FRONT REAR VIEW CONTROL
15 NAVIGATIONAL TARGETING CURSORS
16 PAUSE CONTROL
17 SKILL LEVEL
18 NUMBER OF PLAYERS
19 START RESTART SWITCH

F-15 STRIKE EAGLE COCKPIT LAYOUT



1 HUD ALTIMETER
2 HUD HEADING
3 AIR TO AIR RETICLE
4 HUD AIRSPEED
5 PITCH LINES
6 STEERING CUE
7 AIR TO GROUND RETICLE
8 MESSAGE INDICATOR
9 MACH INDICATOR
10 INFRA RED WARNING INDICATOR
11 F-15 BASE
12 RADAR WARNING INDICATOR
13 AIRFIELD
14 SAM MISSILE SITE
15 NAVIGATION CURSOR
16 PRIMARY TARGET
17 AIRCRAFT POSITION INDICATOR
18 HORIZONTAL SITUATION DISPLAY (HSD)
19 FUEL STATUS DISPLAY
20 AIR TARGET DESIGNATOR BOX
21 MISSILE DESIGNATOR BOX
22 WEAPONS STATUS DISPLAY (WSD)
23 ENGINE POWER INDICATOR
24 LOW ALTITUDE WARNING
25 WEAPONS ARMED INDICATOR
26 FUEL LOW WARNING
27 WEAPONS STATUS DISPLAY (WSD)
28 DROP TANK INDICATOR
29 RADAR-ELECTRONIC WARFARE DISPLAY (REWD)

For close range visual targets, use your cannon. Note that you must lead the enemy aircraft to obtain a hit. Although one missile hit will destroy an enemy aircraft, a couple of gun hits are generally required.
Keep your radar on long range scan unless you are ready engaged and need an uncluttered look at your immediate vicinity. The long range radar will give you the most warning of threats and ground targets.
Use a 45 degree bank angle for most turns. Establish your desired heading before climbing steeply because you may lose sight of the horizon. Use pitch angles of 360 degrees or less to avoid major airspeed changes.
Use a 70-90 degree bank for high turn rate combat manoeuvring, pull back on the stick in a 90 degree bank for the maximum turn rate. Use the afterburner to maintain airspeed for a sustained high rate turn.
To maximise your probability of a bomb hit, line up for a straight-in run using the Navigational Cursor and your Long Range Radar. Make your bombing pass at moderate speed and less than 5000 feet. When the target triangle appears, begin a shallow dive. As the triangle grows, manoeuvre to place your air-to-ground reticle in the middle of the triangle. Press the trigger (be sure your bombs are armed). Of course a slow, straight bombing pass leaves you a sitting duck for SAM missiles and enemy aircraft.
If you do get into trouble and your plane is damaged, your best bet is to try to return to base for repairs. If this is not possible, bail out; you have a 50/50 chance of being rescued.
Good planning, skilful flying, and the proper use of all of the F-15's sophisticated systems is the key to a successful mission. This simulation accurately rewards the pilot who masters these skills.

BASIC AERODYNAMICS

There are four forces acting on an aircraft in flight: lift, weight, thrust, and drag.

TURNING PERFORMANCE

One of the most important performance attributes of a fighter aircraft is its rate of turn. A rate of turn higher than that of your opponent enables you to turn with and lead your opponent for a gun or missile attack and to prevent him from leading you if he is behind you in a turn. You lead a target by aiming in front of it so that your bullets or missile and the target arrive at the same point in space at the same time.
An aircraft's turn rate increases with bank angle (and therefore with G force) and decreases with altitude (because the less dense air has less capacity to produce the high lift needed to steep banking turns). At low altitude in a steep turn, the turn rate increases as airspeed increases from stall speed to approximately Mach 0.8, then it decreases sharply. At higher altitudes, the maximum turn rate is less, is reached at a higher speed, and does not decrease as sharply with increased speed. Best turning performance is always below Mach 1.0, and generally is in the Mach 0.8, 500 knot range.

PERFORMANCE ENVELOPE

The top of the performance envelope indicates the aircraft's service ceiling. It is limited by the ability of the engines and wings to produce sufficient thrust and lift to keep the aircraft flying. The right side of the performance envelope indicates the aircraft's maximum speed (Vmax). The maximum speed at altitudes over 36,000 feet is limited by the ability of the engines to generate thrust in the thin air of high altitudes in excess of drag; this is the 'thrust limit'. An aircraft's maximum possible speed generally increases with increased altitude up to 36,000 feet. This is because at this altitude, as altitude increases, air temperature and density fall in such a proportion that thrust decreases less than drag.
Above 36,000 feet, air density continues to fall but air temperature remains constant, resulting in a greater decrease in thrust than in drag.
At altitudes below 36,000 feet, maximum speed is limited by the structural strength of the aircraft; this is the "strength limit". Exceeding the Vmax speed for your altitude below 36,000 feet will result in the destruction of your aircraft. CAUTION: You must reduce engine power and sometimes extend your speedbrakes to avoid exceeding Vmax in steep dives.

AIR COMBAT

Early detection and positive identification are the keys to surprise, and surprise is the most important contributor to success in air combat. Aircraft (and SAM sites) that emit radar signals may be detected by your Radar Warning Receiver (RWR), which alerts you to their presence by lighting the first warning indicator on the instrument panel.
Radar targets may be identified as friendly or hostile electronically, and visual targets may be identified based on the shape of the aircraft. In this simulation, however, all aircraft are hostile and there is no need to identify before engaging. You can do this by keeping your radar on the long range scale (unless it is necessary to use the greater resolution of the medium or short range scales to locate close in targets and threats) and continuously scanning the RADAR-ELECTRONIC WARNING DISPLAY for threats.

ATTACK

Once a target has been detected, the attack is planned on the flight characteristics and offensive and defensive weapons systems of your aircraft, and on the hostile aircraft and the tactical situation. Your aircraft is at least as manoeuvrable and fast as any adversary aircraft. Some adversary aircraft have performance and weapons systems similar to your F-15, so you generally will not enjoy a significant advantage based solely on your aircraft. Therefore your analysis of and response to the tactical situation is the key to success.

AIR COMBAT MANOEUVRES

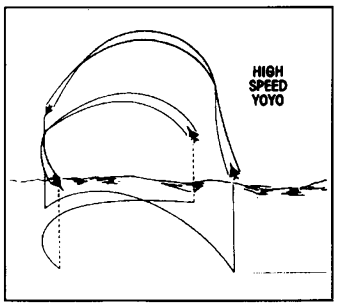
In the manoeuvres phase of air combat, the attacker seeks to stay behind the defender and to get into position for effective use of his weapons. The defender seeks to disengage or to reverse roles and get behind the attacker.

MANOEUVRE AND DISENGAGEMENT

The first principle of air combat manoeuvres is energy management. An aircraft at a given altitude and airspeed has an amount of energy equal to the sum of its potential energy (which is proportional to its altitude and its kinetic energy (which is proportional to the square of its speed).
You may convert potential energy (altitude) into kinetic energy (airspeed) by diving, and you may convert kinetic energy into potential energy by climbing.
Maintaining a high cruise speed (Mach.9) enables you to climb quickly; flying at high altitude enables you to accelerate quickly to high speed by diving.

OFFENSIVE AIR COMBAT MANOEUVRES

HIGH SPEED YOYO: Use when the defender breaks (rolls into a steep bank and turns rapidly) and your speed is too high for you to stay on the inside of his turn to lead him properly (aim ahead of his position).
Reduce your bank angle, pull up into a steep climb, roll inverted over the top of a half loop. When you are in a dive, roll to a steep bank in the direction of the turn, then pull up to a level behind the defender and inside his turn.
LOW SPEED YOYO: Use when you are unable to close within gun range in level flight because the target is as fast as your aircraft.
Push the nose over into a shallow dive, trading altitude for airspeed and gaining on the target. When you are below the target, pull up and fire.
LAG PURSUIT: Use when the defender breaks and your closing speed is too high for you to turn with him.
Maintain your higher speed and your position behind the target, but slide outside his turn, with the same turn rate as the target (in degrees per second), but with a larger turn radius. Be prepared to shoot if he reverses in front of you and be prepared to follow him into a spiral dive.
IMMELMAN: Use to position yourself above the defender or in the proper relation to a ground target.
Pull up into a vertical climb, roll when flying vertically to place yourself in the desired plane of flight, pull back on the stick until you are in level flight inverted, and then roll upright.



BOMBING TECHNIQUES

DIVE BOMB: Use when flying at medium altitude (4000 to 6000 feet).
Press "**B**" to arm a stick of bombs and activate the AIR-TO-GROUND RETICLE on the HUD. Manoeuvre the aircraft to place the target directly ahead of you. When the target is on the AIR-TO-GROUND RETICLE, roll inverted and pull the nose down (if at 6000 feet), or push the nose down (if at 4000 feet) to approximately 30 degrees below the horizon, place the reticle on the target, then roll upright if inverted, keeping the reticle on the target. Release bombs at 2000 feet and pull up immediately.
POP UP: Use when at low altitude (below 1000 feet).
Line up on the target and pull up to 45 degrees above the horizon. Roll inverted at 3000 feet, pull the nose down to 30 degrees below the horizon, place the reticle on the target, then roll upright, keeping the reticle on the target. Release bombs at 2000 feet and pull up immediately.

THE AUTHENTICATION CODES ARE AS FOLLOWS:

C64

B	C	H	P	B	J	H	H	F	D	M	P	E	L
0	1	2	3	4	5	6	7	10	11	12	13	14	15

AMSTRAD & SPECTRUM

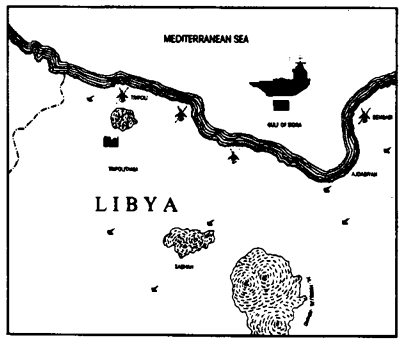
D	G	F	M	P	K	J	A	B	I	L	O	N	E	H	C
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

MISSIONS

The **F-15 STRIKE EAGLE** simulation contains seven missions. Once you have successfully completed one mission, which is more challenging. To complete a mission you must **destroy all primary targets** and **return to your base**. You may return to base before destroying all primary targets in order to refuel, repair damage, and reload weapons. To return to base, fly over your base at low altitude. (The higher the skill level, the lower you must fly.) The later missions are more challenging because they have more targets and more capable enemy aircraft and SAM's.

MISSION: LIBYA - August 19, 1981.

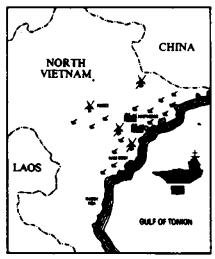
SITUATION: A U.S. Navy task force including the carrier Nimitz is conducting exercises in the Gulf of Sidra off the coast of Libya. Libyan aircraft have made numerous harassment flights towards the task force in support of their claim to the Gulf as territorial waters. The U.S. disputes this claim.
FLIGHT PLAN: 1) Daytime, climb to 10,000 feet and fly combat air patrol station; 2) if attacked, engage Libyan aircraft and bomb the air command centre (primary target) and airfields; 3) return to base.
THREATS: MiG-21; MiG-23; Su-22.
SIMULATION: You have been attacked by a Su-22 firing a heatseeking missile.



MISSION 2: EGYPT - October 6, 1973.

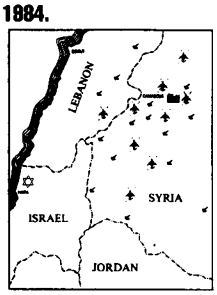
SITUATION: The Egyptian Army launches the Yom Kippur attack across the Suez Canal. Intelligence has located the Third Army command centre. Numerous SAM sites protect the Egyptian front lines and rear areas. The Egyptian Air Force is still active. A risky attack mission has been ordered to disrupt the Third Army HQ.
FLIGHT PLAN: 1) Penetrate air defences; 2) bomb the command centre (primary target); 3) bomb as many airfields and SAM sites as possible; 4) return to base.
THREATS: MiG-21; MiG-23; SA-7 (heatseeking SAMs only).
SIMULATION: You are approaching the Suez Canal, you are attacked by a MiG-21 fighter.

MISSION 3: HAIPHONG - April 15, 1972.



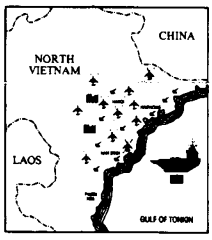
SITUATION: After a four year pause, the U.S. resumes intensive bombing of North Vietnamese targets, including military and industrial targets around the port of Haiphong. During the pause, North Vietnamese defences have been strengthened with radar guided Surface-to-Air missiles and flak batteries. The North Vietnamese air forces are still small. You have been ordered to undertake a precision night bombing raid.
FLIGHT PLAN: 1) Night, penetrate air defences at 1000 feet or at high altitude; 2) bomb two primary targets, rail yards, in harbour area; 3) bomb as many SAM sites as possible and any airports if the opportunity arises; 4) return to base.
THREATS: SA-2 and SA-3 radar homing SAMs.
SIMULATION: You are approaching the coast of North Vietnam.

MISSION 4: SYRIA - March 12, 1984.



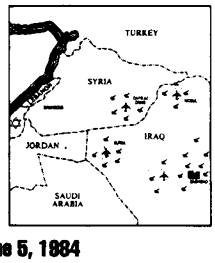
SITUATION: Modern SAM-9 missiles are being deployed by the Syrian Army. These dangerous missiles must be identified and destroyed before they become effective. Smaller SAM installations protect these sites as well as Syrian air patrols.
FLIGHT PLAN: 1) Daytime overfly the Lebanese-Syrian border and identify SAM-9 emplacements; 2) if attacked engage the enemy and bomb the air command centre; 3) bomb any SAM sites that fire on you or any air bases that launch aircraft against you; 4) return to base.
THREATS: MiG-21; MiG-23; SA-2 and SA-3 radar homing and SA-7 heatseeking SAMs.
SIMULATION: You have been attacked.

MISSION 5: HANOI - May 10, 1972



SITUATION: Reconnaissance photographs have identified two high priority ground targets deep inside North Vietnam. Defences include SAM sites and air patrols. A high speed fighter-bomber penetration raid has been ordered.
FLIGHT PLAN: 1) Night, bomb both primary targets, oil storage depots; 2) bomb SAM sites and airfields in the area; 3) return to base.
THREATS: MiG-21; MiG-23.
SIMULATION: You are approaching the coast of North Vietnam.

MISSION 6: IRAQ - June 7, 1981.



SITUATION: The Iraqi nuclear reactor complex, capable of producing weapons grade nuclear material, is nearing completion. A secret strike is planned to eliminate this facility.
FLIGHT PLAN: 1) Penetrate air defences below 1500 feet to avoid radar detection; 2) bomb reactor; 3) bomb any SAM sites or air bases that could endanger this or a follow up mission; 4) return to base.
THREATS: SA-2 and SA-3 radar homing and SA-7 heat-seeking SAMs.
SIMULATION: You are approaching the border of Iraq.

MISSION 7: PERSIAN GULF - June 5, 1984

SITUATION: Iranian aircraft have been attacking vital Persian Gulf shipping and Saudi Arabian shore installations. Your mission is to patrol the Gulf and intercept hostile aircraft.
FLIGHT PLAN: 1) If attacked, engage enemy aircraft; 2) penetrate airspace at medium altitude; 3) bomb primary targets; 4) bomb SAM sites and airbases endangering this or follow-up missions; 4) return to base.
THREATS: MiG-23; Su-22; SA-4 and SA-6 high performance radar homing and SA-7 heatseeking SAMs.
SIMULATION: You are approaching an Iranian aircraft.