

# Range Operations Guide

## for The Bombing Range Terrain

### Terrain by Deuces

Targets and data by Bunyap and The Wrench

BQM-34 Firebee Drone by RussoUK

Airfield lights by Sidewinder86

Intercept missions by Zerocinco



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# Overview

This started as a post by Aladar on the SIMHQ forum and quickly turned into what I would consider a very important add-on for Strike Fighters. The difficulty in weapon delivery for this era screamed for an area for virtual pilots to practice and hone their A2G skills.

There are two versions of the terrain, one for “friendly” aircraft called “Bombing Range” and one for “enemy” aircraft called “Red Range”. Both are installed when you run the installation program. It is important to remember that only friendly aircraft such as NATO forces can be flown on the Bombing Range and only enemy aircraft such as Soviet forces may be flown on the Red Range.

The Range Terrain consists on an airfield and main range complex. A variety of targets are available for bombing. Intercept missions against a drone aircraft are available when flying the included pre-built single missions.

An add-on called the Weapons Pack featuring hundreds of additional weapons for use on the Bombing Range is available for download here: [Weapons Pack](#)

A Weapons Delivery Manual with additional tools and information on employing weapons is available for download here: [Weapons Delivery Manual](#)



# Installation

The Bombing Range now uses a self-extracting installer for installation. Simply run the installation program, choose the version of the simulation you are installing it to, and the rest is done for you.

The installer creates two folders in the Terrain folder called Range and Red Range. It also adds an updated version of the BQM-34 Drone to the Aircraft folder and adds the four intercept missions to the Missions folder.

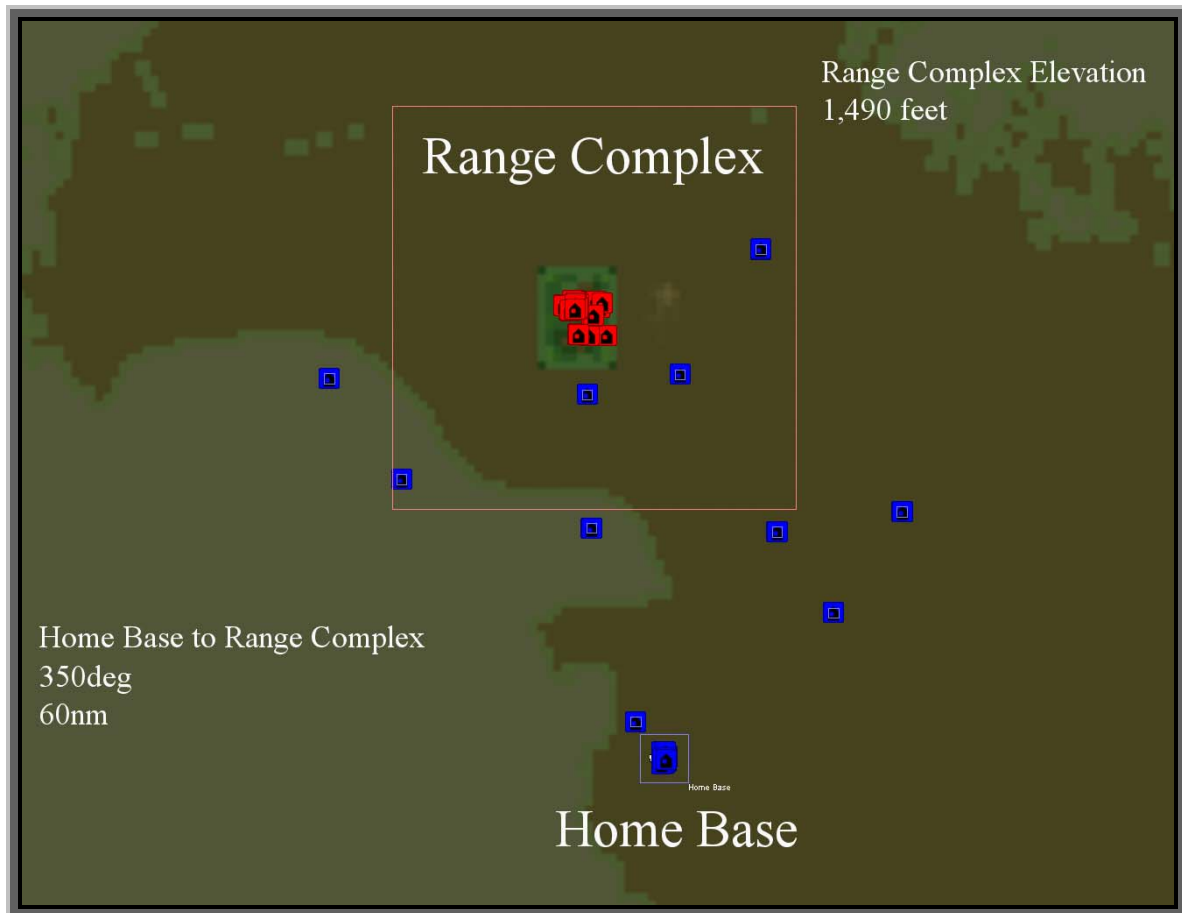
The only default file changed by the installer is the addition of the speechsystem.ini to the Flight folder. The file has been modified to remove the “mission accomplished and mission failed” calls from Red Crown. If you really want to hear these again simply delete the file.



**An F-100D over the Range Complex.**

# The Bombing Range Terrain

The Bombing Range terrain was built by Deuces and features an airfield, low level route checkpoints, and a range complex. The range complex is 60 miles from the base at a bearing of 350 and elevation of 1,490 feet. Low level route checkpoints are provided if you wish to practice navigation.



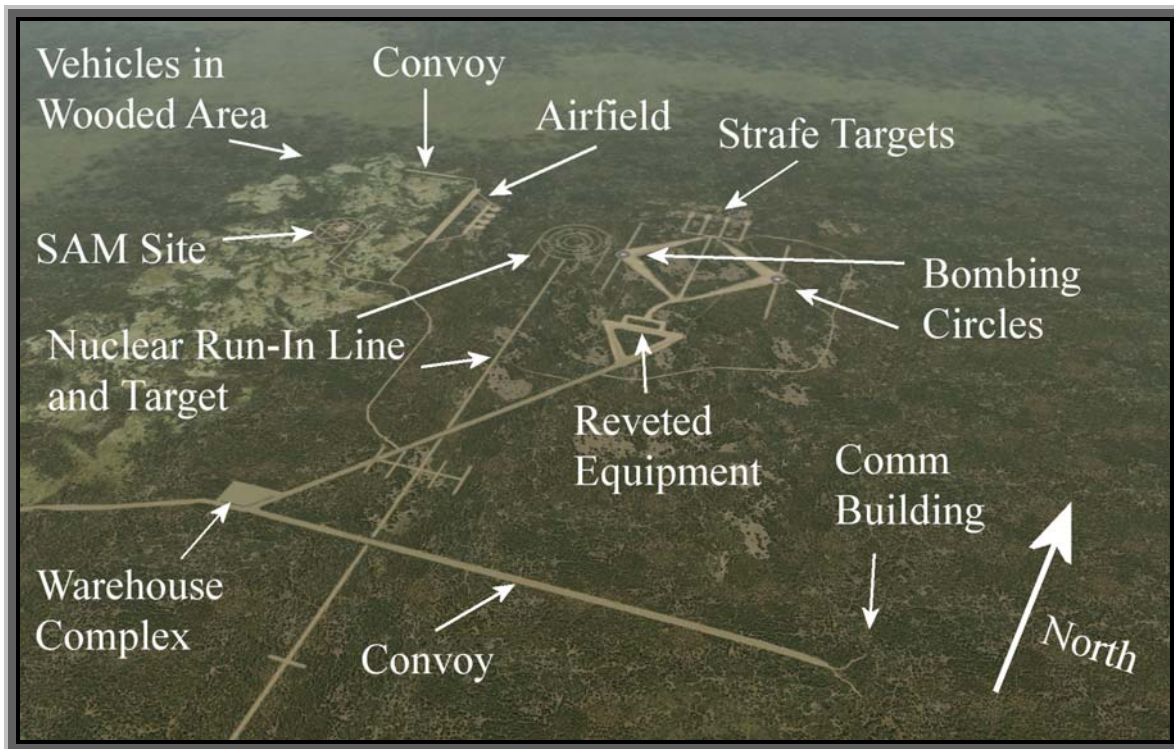
# The Range Complex

A variety of targets are provided for practice attacks. Provisions are made for the release of all weapon types. Targets provided include bombing circles, strafe targets, a transmitting SAM radar, simulated airfield, warehouse complex, reveted equipment, convoys, and a nuclear toss bombing target.



**Overview of the Range Complex.**





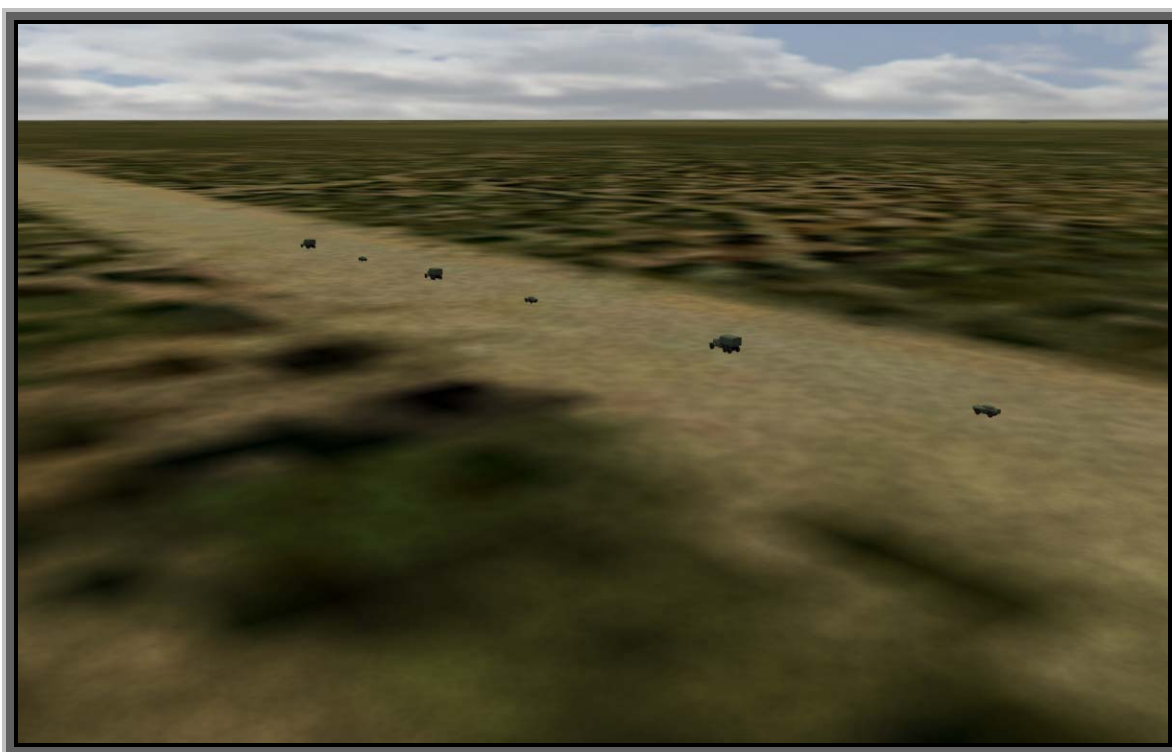
**Targets available on the Range.**



**Strafe Targets.**



**Warehouse Complex.**



**South Convoy.**



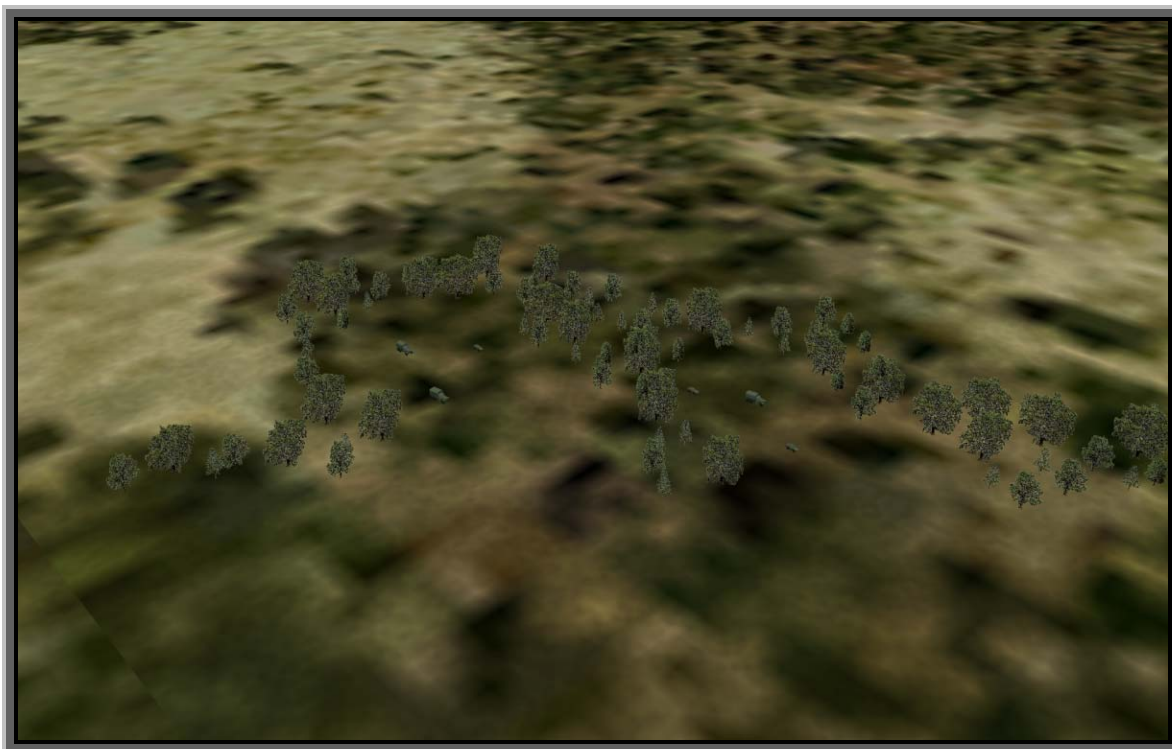


**Comm Building.**



**SAM Site.**





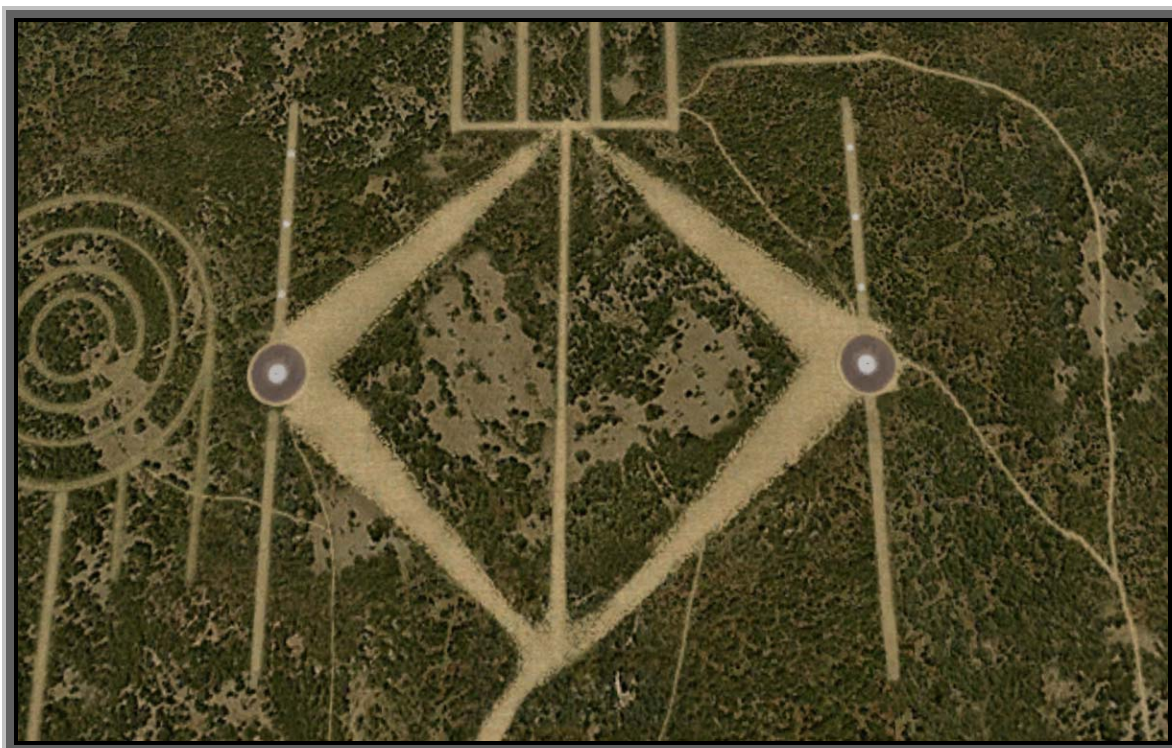
**Vehicles in wooded area.**



**North Convoy.**



**Reveted Equipment.**



**Bombing Circles.**





**Simulated Airfield.**



**Nuclear run-in line and target.**



# The BQM-34 Firebee Drone

The Firebee is a simple, reliable, and low-cost target that has been adapted to a wide range of purposes. In the target role, it can be fitted with various control systems, some that give it fighter-like maneuverability; scoring and countermeasures systems; radar enhancement devices to allow it to emulate a wide range of combat aircraft; and wingtip thermal flares, which cause heat-seeking missiles to aim for the wingtips, not the engine exhaust, sparing the target. It can also tow a target sleeve or other types of towed targets.



**The BQM-34 Firebee Drone.**



**BQM-34 Firebee Drone in Navy markings.**

# F-4E Intercept Procedures

By Zerocinco

When one intercepts another aircraft, he uses certain techniques that bring him into attack or identification position rapidly. Since this must be conducted at night and in weather, all the information must be passed to the pilot or radar intercept officer through the scope.

You should learn to intercept entirely on the scope without visual reference. Sometimes you really do not know where you are in a map view but the techniques here are designed to get you into the other aircraft's six o'clock no matter whatever else is going on.

## **THE SCOPE.**



At first, this is a little mysterious.

In the above figure, you have locked onto an aircraft. The bars spaced left and right of center are degrees of azimuth. Your target is about 40-degrees left of the nose. At 60-degrees, the radar will break lock since that is as far as the radar antenna will slew in any direction. In other words, the intercept is done keeping the aircraft in front of you at all times. Exactly where you keep the target is the important part.



The horizontal lines measure distance out from you. Zero is at the bottom. Since this is the 50-mile scope (the farthest you can acquire lock) our target is about 38 NM away from you. If this were the 25 or 10 mile scopes, he would be 19 and 7 respectively. Therefore, each line is 20% of the selected scope's distance.



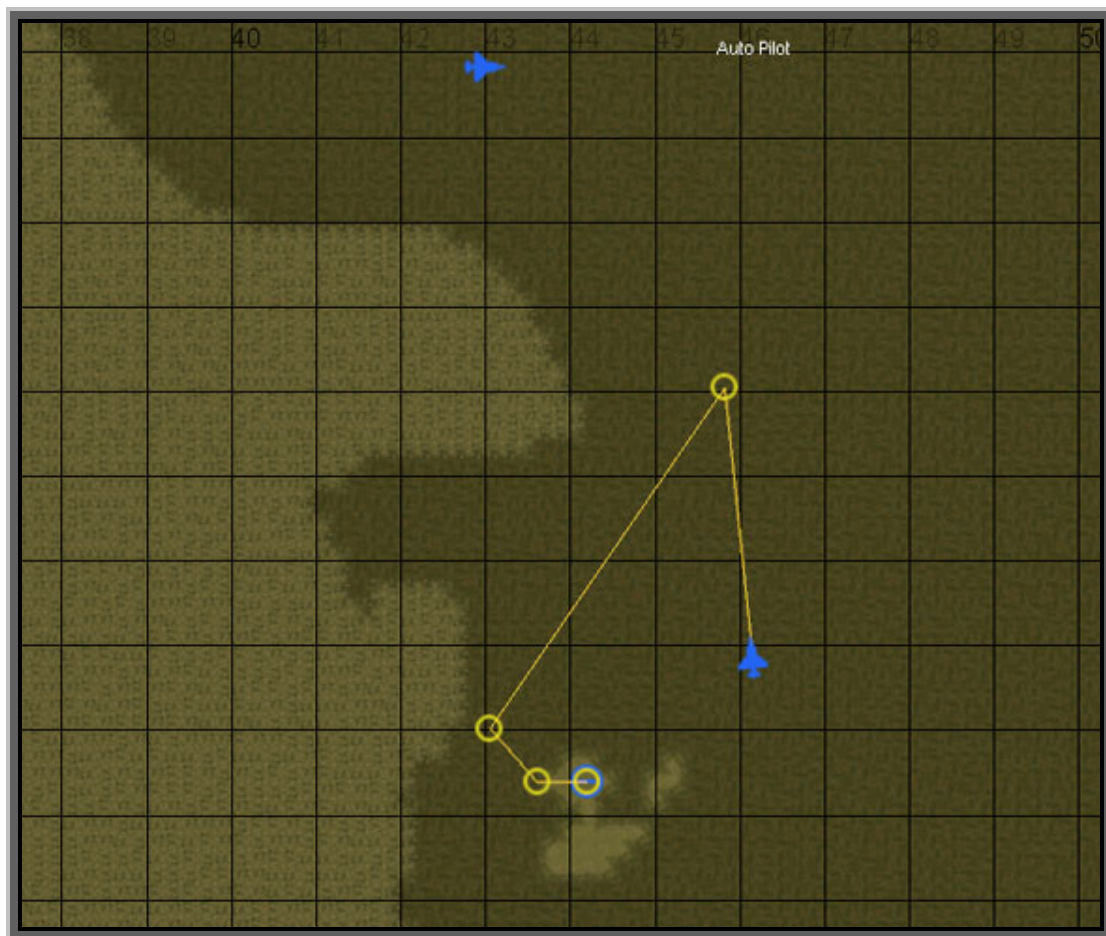


On the left are the minimum and maximum ranges for the Sparrow missile IF IT IS SELECTED. These numbers are based upon many variables and can change rapidly. Here, at this instant, you can fire at 22-miles or the max range of the missile (13.7), whichever is least. Fire when the target is in the middle of the range parameters.

This blurred mark is the Steering Dot. If you maneuver the aircraft to put that dot in the middle of the center circle, the computer will guide you to a lead-pursuit position as used in aircraft identification intercepts...slightly low and behind. On crossing intercepts, you can often just center the dot and it will put you at 6 o'clock. Head-on is another story.

The bar on the right shows the relative orientation of the target. This one is slightly low.

## FOUR INTERCEPT MISSIONS



**RANGE INTERCEPT L2R:** You will intercept a Firebee drone crossing left to right. The target is flying at 271 knots at 16386 feet. He will stay on an easterly course.

NOTE: The waypoints only point you in the general direction. Use Wing Leveler instead of Autopilot to keep it steady. Climb to his altitude, set your throttles around 35 to 40% and let the radar find him. Then lock on.



The previous map and the figure above are the same aircraft. He is initially 20 degrees left at about 45 miles. The system is acquiring lock.



The scope is telling you that he's 20 degrees left, now at 32 NM, slightly low and closing at a good clip...about 300 knots.

Now is where you do the intercept. You know you are closing but can you converge on the same spot? A good practice is to turn to put him 40-degrees off your nose. (Remember: The system will break lock at 60-degrees.)

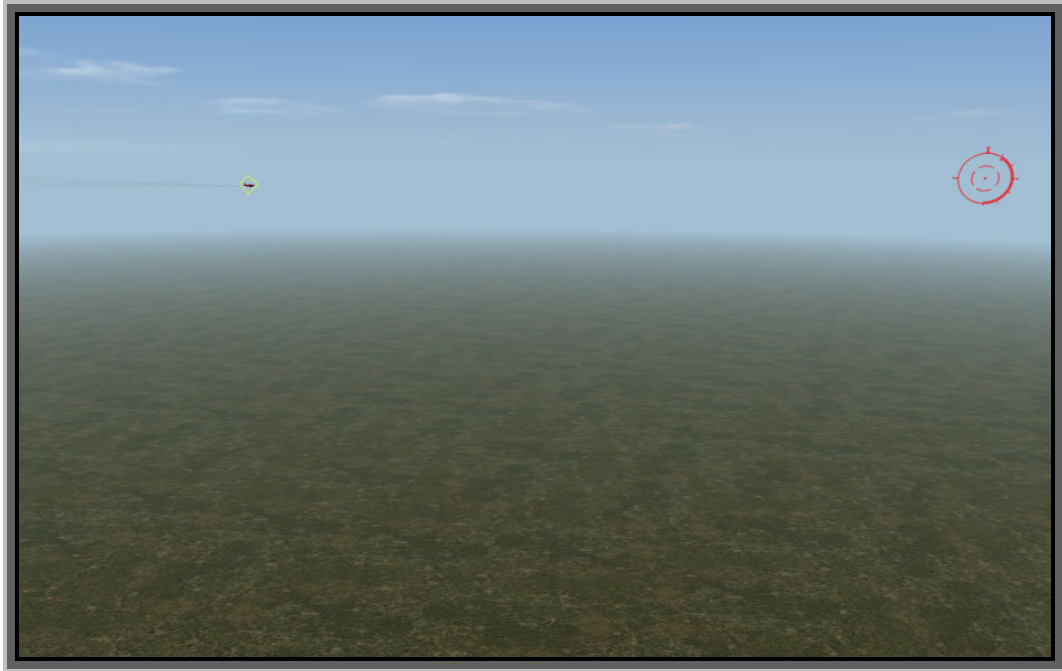
Once he is there, you watch to see what happens. If he starts to drift inward, you are converging but he is getting ahead of you. If he is drifting slowly outward, you are going to pass ahead of him and therefore not converge.

In either case, you would turn to try to keep him at 40-degrees off the nose...for now.



Keep in mind, the Steering Dot. At any time *on this intercept* you can center it and it will take you into his 6 o'clock. Center too soon and you will have a long tail chase. Center too late and you will overshoot and be at this twelve o'clock instead.

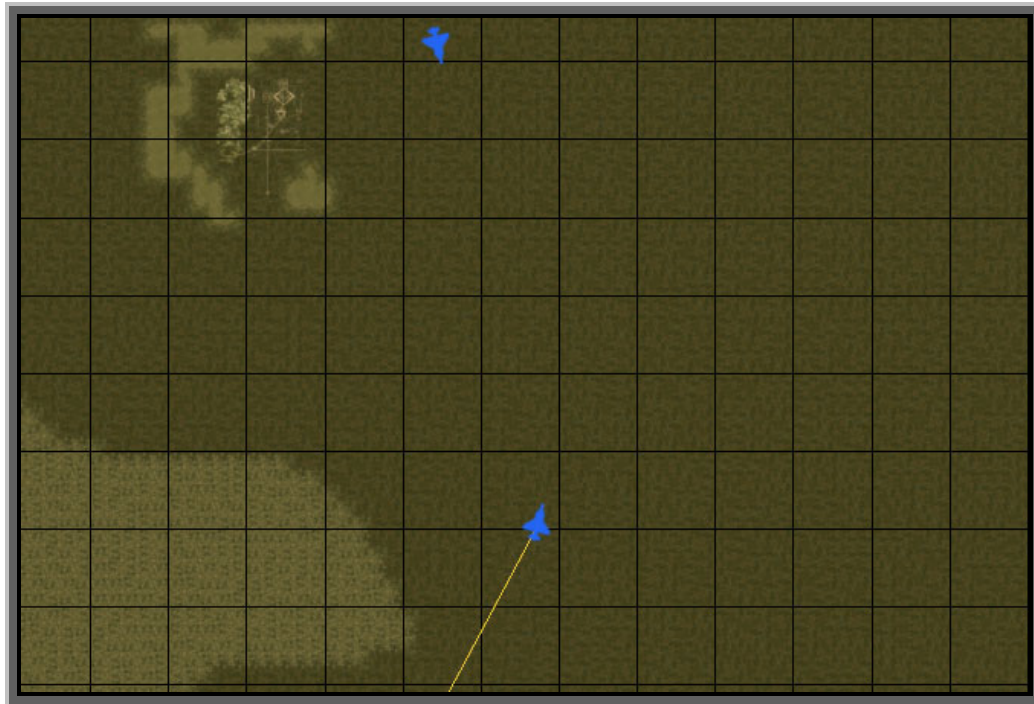




Here's how this one came out.



**RANGE INTERCEPT FQTR.** The second intercept is staged with the drone heading on a southerly heading and the fighter on a northerly heading. Note the higher closure rate.



If you were to turn to offset the target at 40-degrees, it will begin to drift outward rapidly. A rapid divergence requires that you put him on your nose and keep him there.





Center the dot and allow the target to close on you.

Obviously, if you keep him there you will fly into his face. At a point determined by rate of closure and your mach number, you will offset to one side, wait but not let him exceed 60-degrees off of boresight, then center the dot and hang on. The computer will bring you right around behind him more gently than you would imagine...perfect for a Fox Two.

In the next picture, you are head-to-head with the target in the 25-mile scope. When you select the 10-mile scope the center circle enlarges. That is the attack scope.





When you are within 10 miles, you must make a decision when to offset and then to swing back into him. Check your Mach number. At .9 Mach, an F-4 needs 9 miles to do a 180 in a less-than-steep bank turn...and in weather you won't want to horse it around.

Flying at .9 Mach and visual, take half that. At 4 or 5 miles, turn. If he is on one side of the center line, turn that direction. Watch his azimuth! At 2, turn back to center the dot.





There he is.

**RANGE INTERCEPT FQTR.** The third intercept is a rear-quarter shot. You can tell it's a tailchase by the closure rate. These are pretty boring but a good lesson. If you center the dot too early, this is where you end up. All that power won't do you any good. If you are 30 miles behind with a 100-knot advantage, you have twenty minutes of high fuel burn to sit through. The game is generous on fuel and speed. In reality, the tanks are not supersonic so you would jettison your fuel just before burning it at a horrendous rate.



Center the dot and hit the afterburner. And, finally, there he is.



This is a successful intercept but check the fuel. You started at 1200 pounds!

**RANGE INTERCEPT MANEUVER.** The last intercept is at night. This one is from right to left but if you waste too much time, he will begin to maneuver.



This is not a difficult intercept but it is here to show you that now you can catch anyone in any weather by following a few rules of thumb.

- 1- At lock, check his closure rate for a clue to his relative heading.
- 2- Turn to the shortest way to put him 40-degrees off your nose.
- 3- Watch which way he drifts...if at all.
- 4- If he is moving inward, he is getting there first and you will end up chasing him.
- 5- If he is moving outward, you are going to cut across his nose.
- 6- In either 4 or 5 miles, continue to adjust to keep him at 40-degrees to cut him off.
- 7- If he is diverging rapidly, turn to put him on your nose and keep him there until it is time to swing in behind him.