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Author **Topic: Falcon 4.0 Training Mission Report #07**

BeachAV8R posted 09-05-2003 16:17 “ ”

Member
Member #
3055

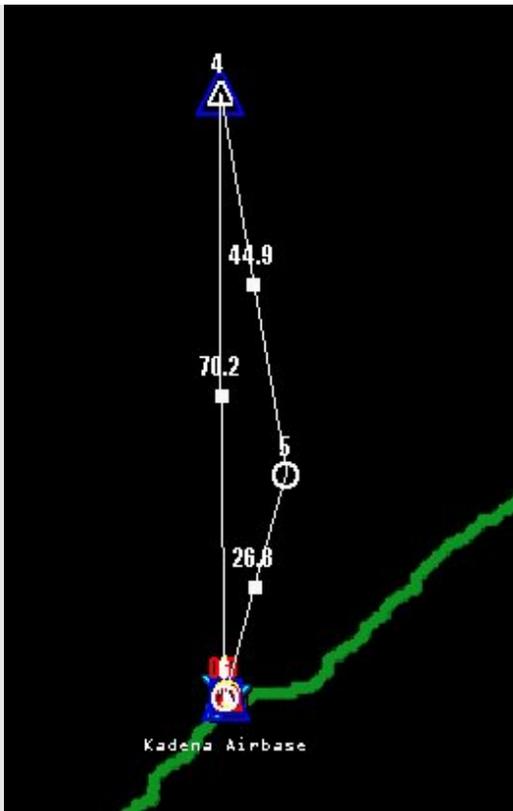
09/05/03
Falcon 4.0/SP3 Training Mission Report #07

Objective:

TWS radar mode.
AIM-7 missile engagement.
AIM-9 missile engagement.

Planning/preflight:

Today we head out, yet again, to the missile firing range north of Kadena AFB, Japan. Our last lesson covered the basics of RWS (Range While Search) and indicated that RWS is the preferred mode for general airspace volume searching. Today we will explore a different mode: Track While Scan (TWS). TWS mode allows you to collect data on more than one contact at a time. TWS can track up to 16 targets and give you data such as speed, heading, altitude and position for each target without you having to “bug” an individual target. The drawback to TWS is that you will be scanning a smaller volume of airspace in front of your aircraft as a trade-off for more data from more targets. According to the manual TWS is more likely to lose a lock on targets, but is also less likely to “spike” an enemy’s threat warning receiver.



Debrief:

Sometimes you just have to leave your airbase in style:



Heading off the coast of Japan we switch to TWS mode and start scanning the airspace in front of us. We are rewarded a few minutes later with our first contact at about 33 miles, 20 degrees left of the nose at 23,000 feet:



As I slewed my radar cursor to the left to get the altitude data block you can see the entire scan volume (blue lines) moved with the cursor as is mirrored on the HSD on the right MFD:



After approximately 3 seconds of being within the TWS mode scan the individual target data will be sorted by the Fire Control Radar (FCR) and displayed on the MFD. The target symbols turn into triangles with the line extended from the front of them indicating their direction of travel and velocity. Additionally you can see that as opposed to the RWS mode BOTH of the targets have altitude information next to them (22,000 feet and 21,000 feet). Additionally you can see there is an artificial horizon in the center of the

radar MFD that is indicating I'm in a moderate left bank turn because I'm trying to put the targets on the nose:



With my wings in a shallow left bank, the targets are 20 miles away moving right to left. Since I am not in Air-to-Air mode there is no Dynamic Launch Zone (DLZ) information in either the HUD or the radar so I'll switch now to A2A mode and select an AIM-7 missile:





I've now switched to A2A mode and have the AIM-7 selected, giving me the DLZ on the right side of my HUD and radar. I've also "bugged" one of the targets (the left one) to give me an accurate reading of his airspeed, heading and closure. They must have gotten tipped off to my presence because they have executed hard turns and are now headed directly away from me at a high rate of speed. They have matched my heading and are doing 532 knots, leaving me with a negative closure of -31 knots:



Cont..

<http://home.carolina.rr.com/beachav8r>

From: **Charlotte, NC USA** | Registered: **Jan 2001** | IP: [Logged](#)

BeachAV8R

posted 09-05-2003 16:17

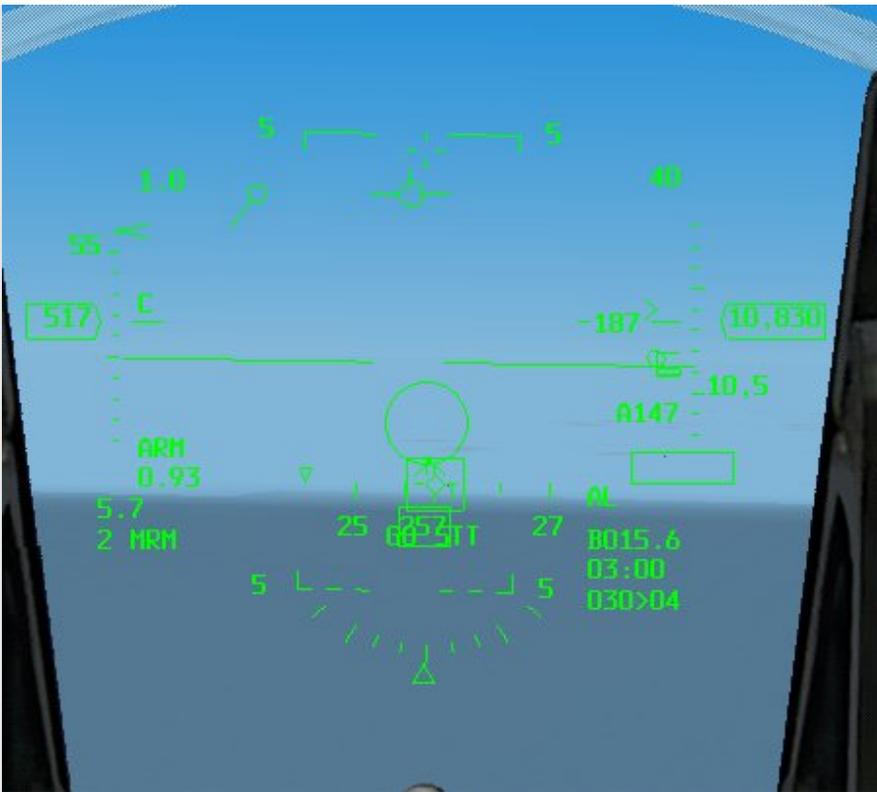


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A peek at the targets shows them to be MiG-19s:



Through the HUD the data reveals the grim truth. I'm 15.6 miles behind them, and they are pulling away from me at 140+ knots; I'm so far out of the launch zone for the AIM-7 that I consider peeling off and re-starting the exercise:



Since this is only a training exercise, aggressiveness followed by mistakes can be a valuable learning tool. Better to make mistakes here than in the campaign. I drop my external tank, light the burner and take off in pursuit:





A nifty feature of TWS is the EXP feature, which essentially “zooms in” on the targeted (bugged) symbol on the radar screen, expanding the field of view by 4x. This allows you discriminate individual targets that are flying closely together and target the specific contact you want. This is somewhat analogous to the “RAID” radar mode on the F-18 Hornet although all you are doing in the Falcon is physically expanding the zoom level of the radar picture, NOT actually changing a setting in the broadcast radar beam. You select the EXP mode with the pushbutton on the top of the MFD labeled “EXP”. Here you can see the results as the previously cluttered image of the two contacts becomes two distinct and separate contacts:



You'll also notice that the targets have increased their speed to 665 knots and with my external tank gone and full burner I'm closing at 122 knots.

Unfortunately, the penalty for this tail-end Charlie chase in burner is horrific fuel burn rate and I keep glancing at my rapidly unwinding fuel quantity display, now down to 5600 from 8000 just a minute before:



Grasping at straws I slew the radar cursor over the trailing contact as the beginning of a plan start to take shape in my head. As you can see on the bottom left of the radar the contact is almost into the top end of the AIM-7 DLZ:



Another furtive glance at the fuel gauge:



Cont..

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BeachAV8R

posted 09-05-2003 16:18



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Member #
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Doing Mach 1.22 in the chase I've closed the distance to just under maximum AIM-7 range (non-maneuvering) and have gone into Single Target Track (STT) mode. The carat drops into the DLZ and the target designator box in the HUD begins to flash. This will be an almost zero-probability shot, but my hope is that when the enemy sees the missile launch he will not know that he's actually fairly well out of range and he'll do a break turn allowing my closure rate to skyrocket and give me a chance for a higher probability shot:



I take the first AIM-7 shot and the missile tracks straight out and falls hopelessly short. A few seconds later I attempt a second shot:



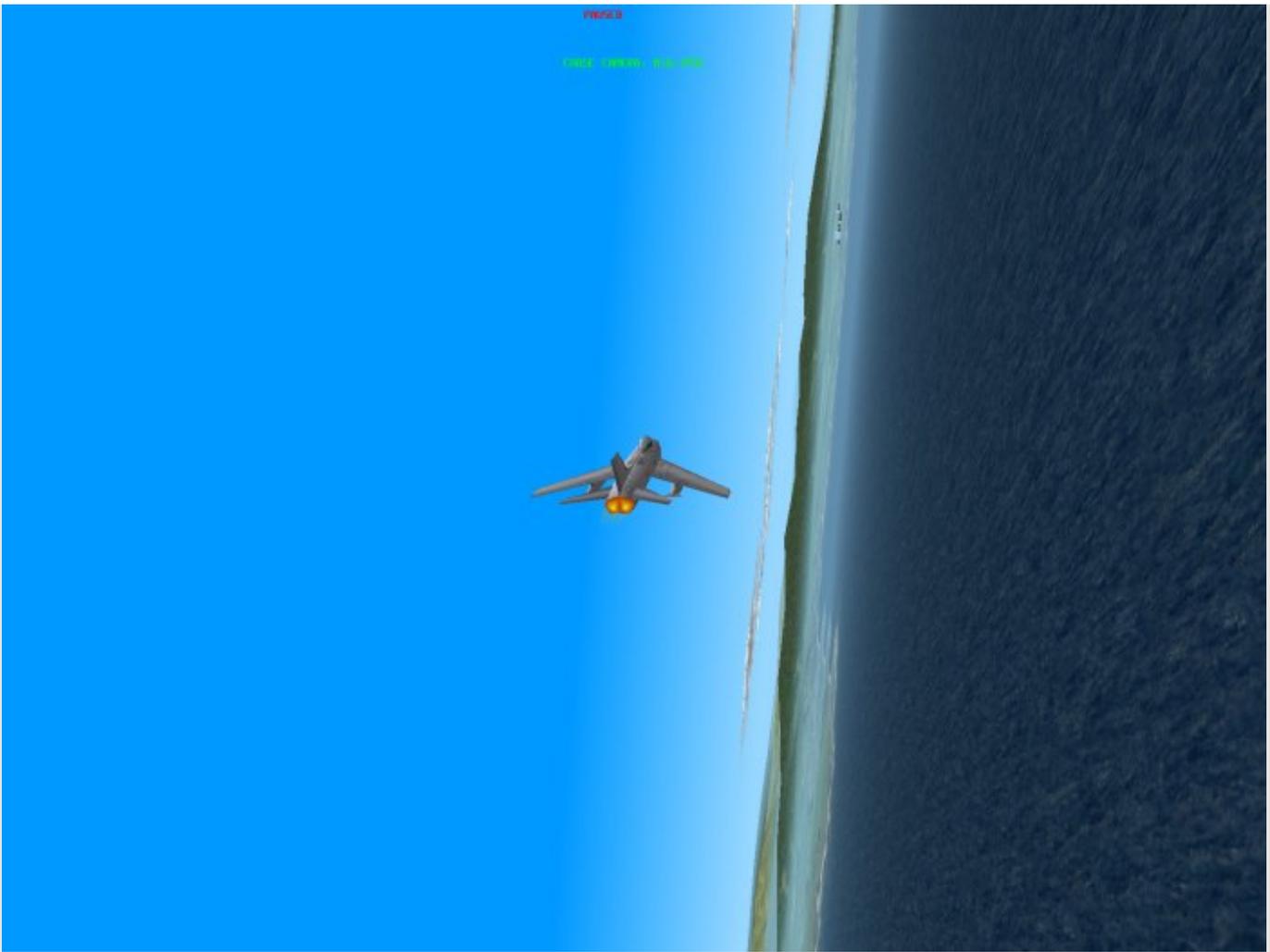
This time the target is a bit more down in the DLZ (still not in the no-escape zone) when I fire:



The radar bugged target turns red indicating a weapon has been released on the target:



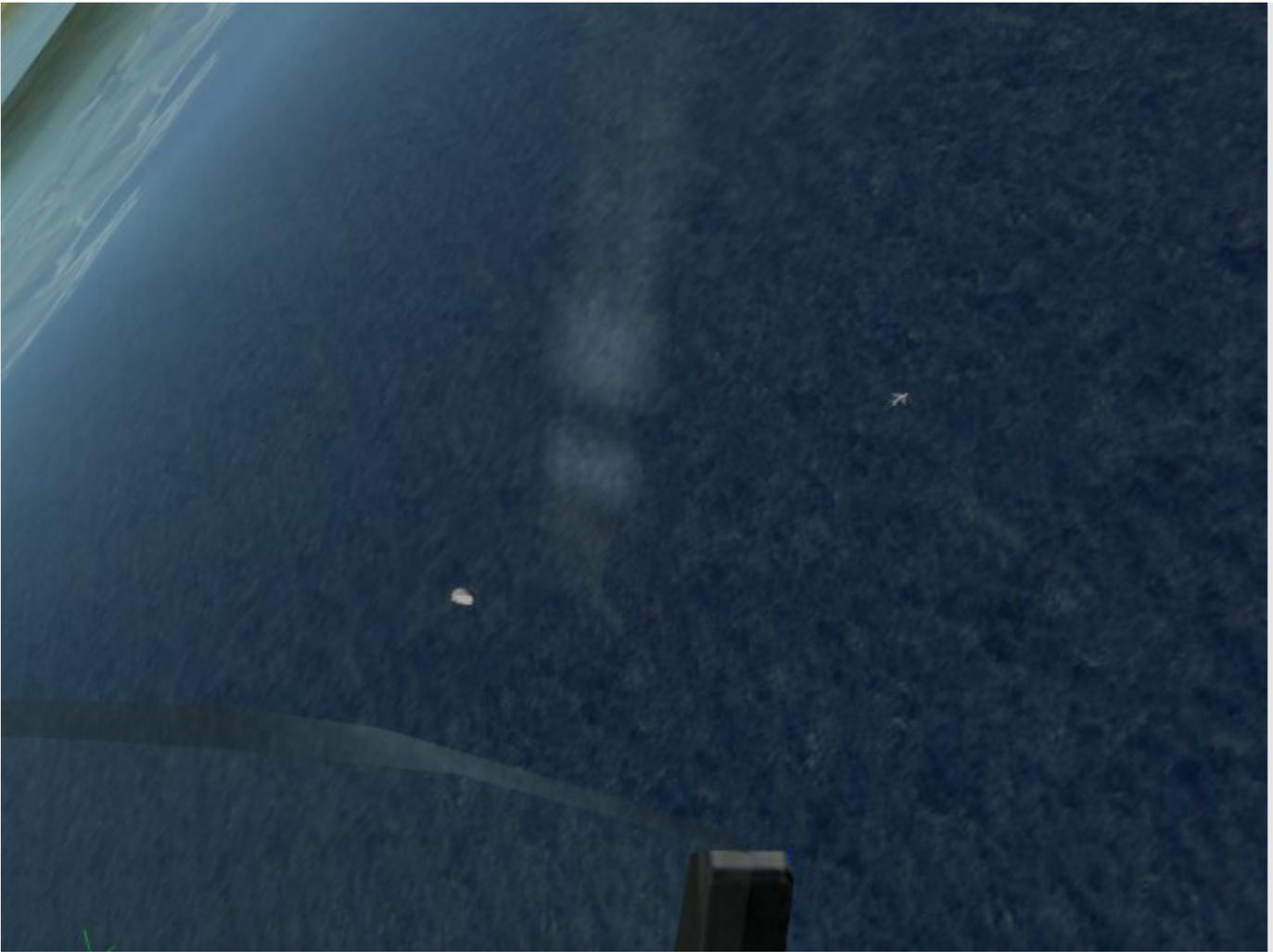
This time the shot has the desired result as the MiG-19 enters a hard left break turn:



My missile actually tracks quite well on the breaking MiG-19 even though the turn has depleted most of my Sparrow's energy. It explodes just above and behind the MiG-19, not close enough to damage him however:



As I look down and to my left next to my HUD glass I see my missile explode behind the MiG-19 as he continues his break turn to the right:



Flying like a nugget I realize I haven't thought the requisite few steps ahead and am now barreling past the breaking MiG with my burner on and WAY above cornering speed. As I belatedly pull my throttle to idle and start turning into the MiG I realize I've already made the first mistake that will lead to my last mistake:



Cont...

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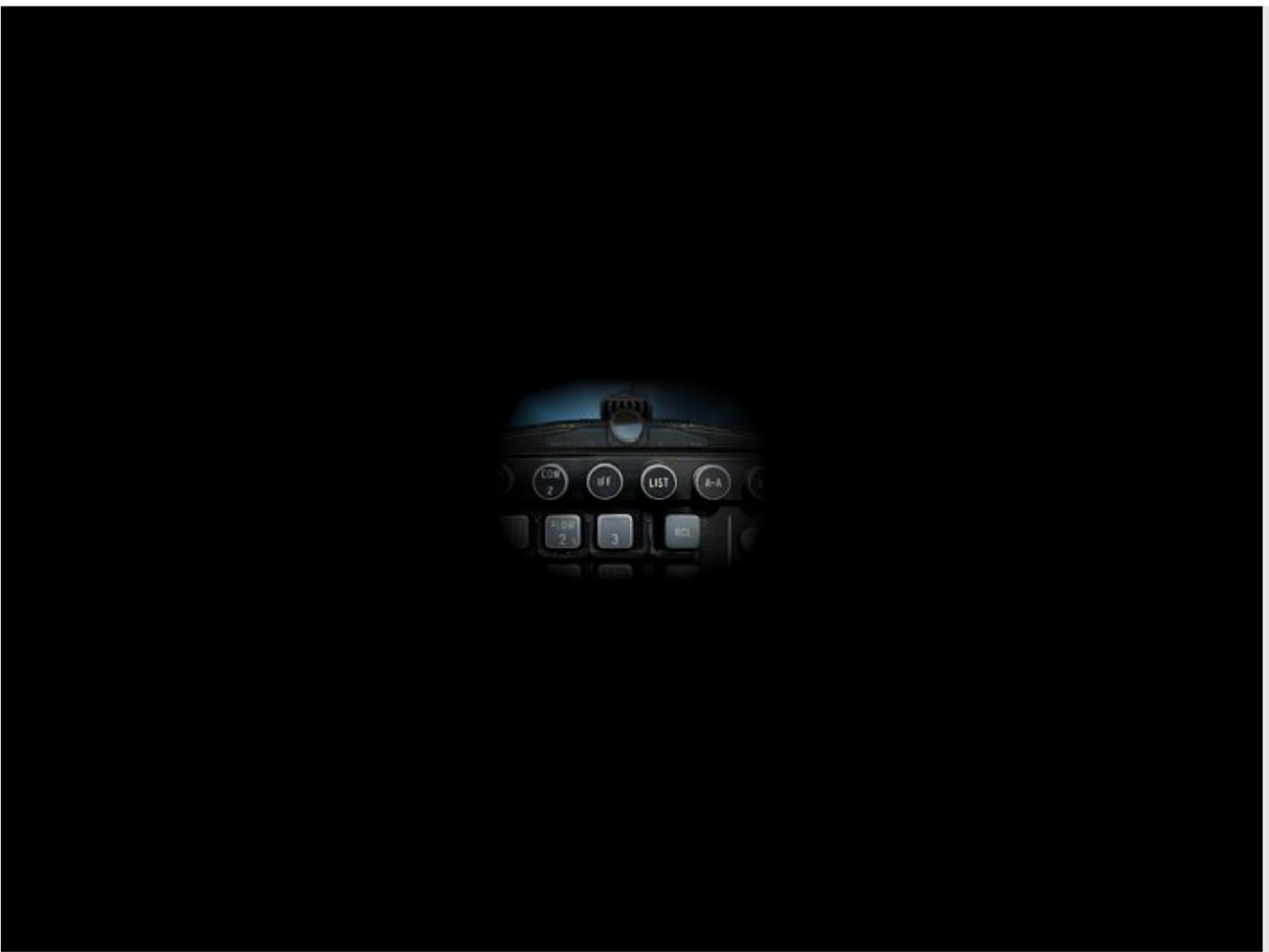
BeachAV8R

📄 posted 09-05-2003 16:18

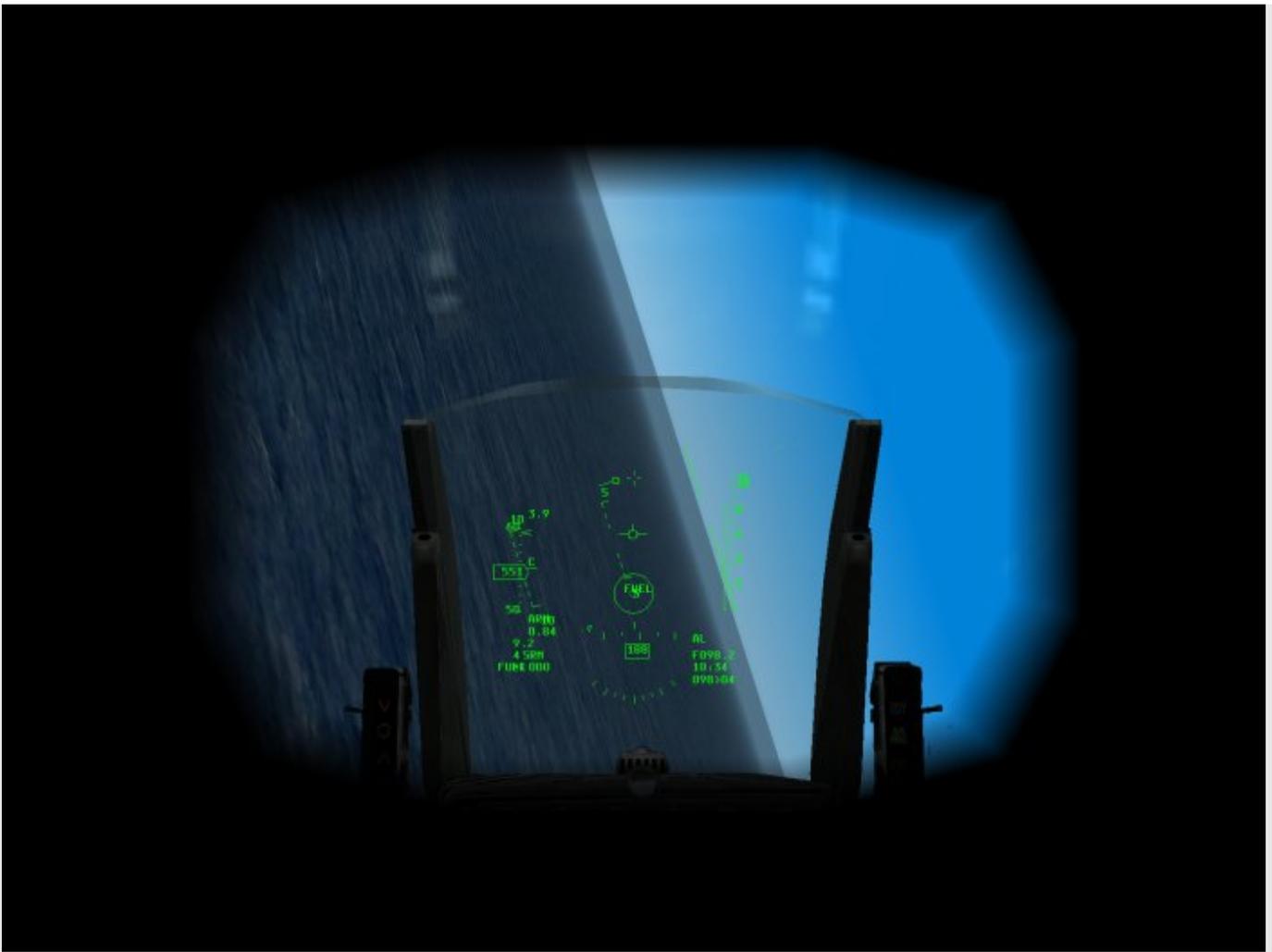


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As I pull into a tight right hand turn my world goes dark as the blood rushes out of my head. Whatever the outcome I'll be needing an extra smear of Preparation-H this evening:

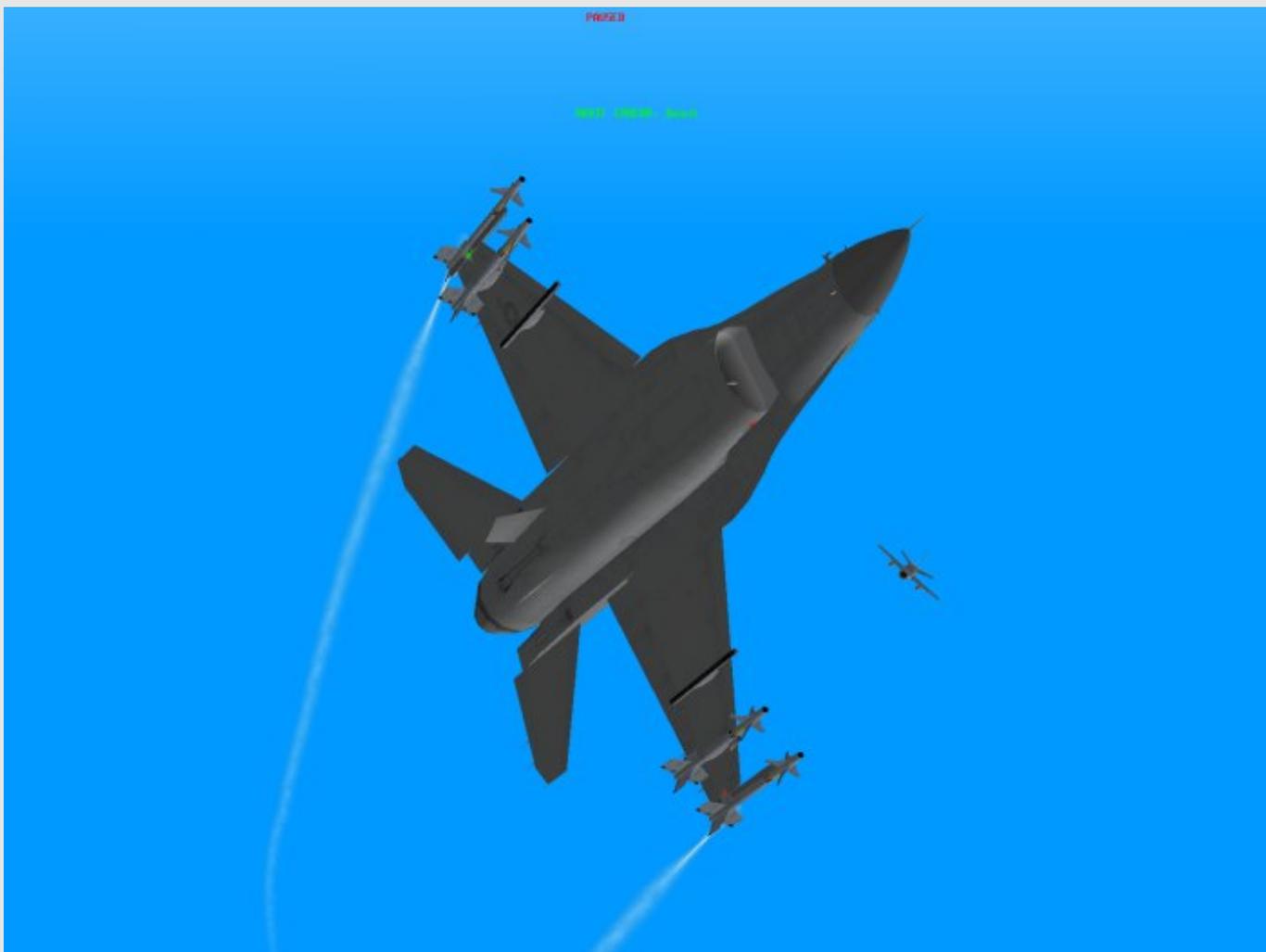


As my speed gradually bleeds off my tunnel vision starts to improve. The MiG has reversed his turn and I roll into a left turn to try to match him but I know I'm still way to fast:

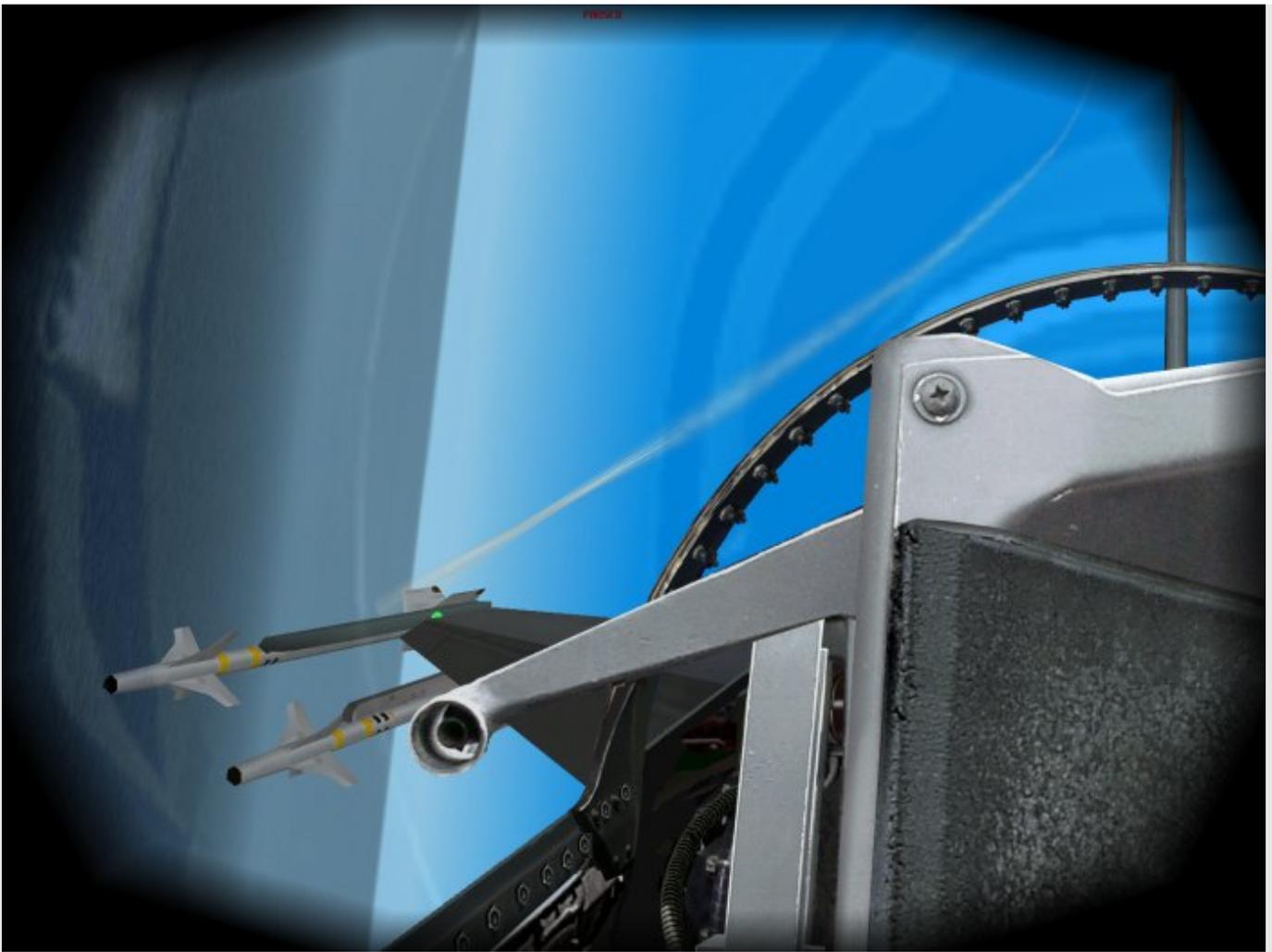




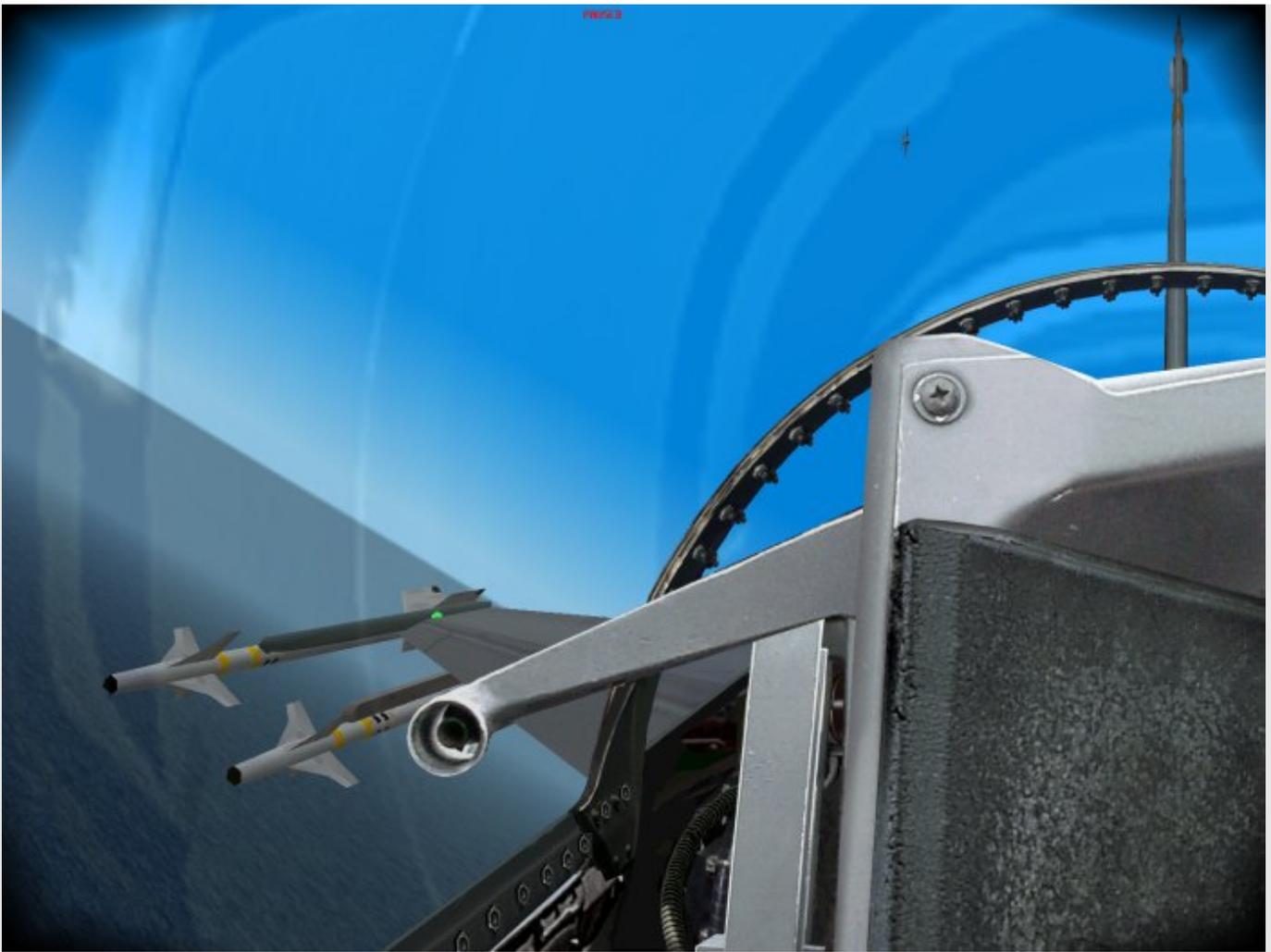
I (of course) over-shoot, the MiG reverses his turn once more and now I'm in a world of hurt:



Desperately scissoring I keep looking over my shoulder trying to get a padlock on the MiG I know is back there but the heavy G's keep hindering my vision:



There he is! On my high 6 o'clock, in perfect firing position!



Hoping he will overshoot I keep the G on and for a second it looks like it will actually work as he closes rapidly but isn't able to keep the angles on me for a gun shot:



He is in the drivers seat though because he's got good sight of me through his canopy and can lessen his turn and take some G off, arcing wider and above me without ever losing site of me. I, however, am totally defensive, in a right hand turn with poor visibility over my left shoulder. Tightening the right hand turn will put him totally out of my sight under the canopy rail:



Cont...

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From: **Charlotte, NC USA** | Registered: **Jan 2001** | IP: [Logged](#)

BeachAV8R

📄 posted 09-05-2003 16:18

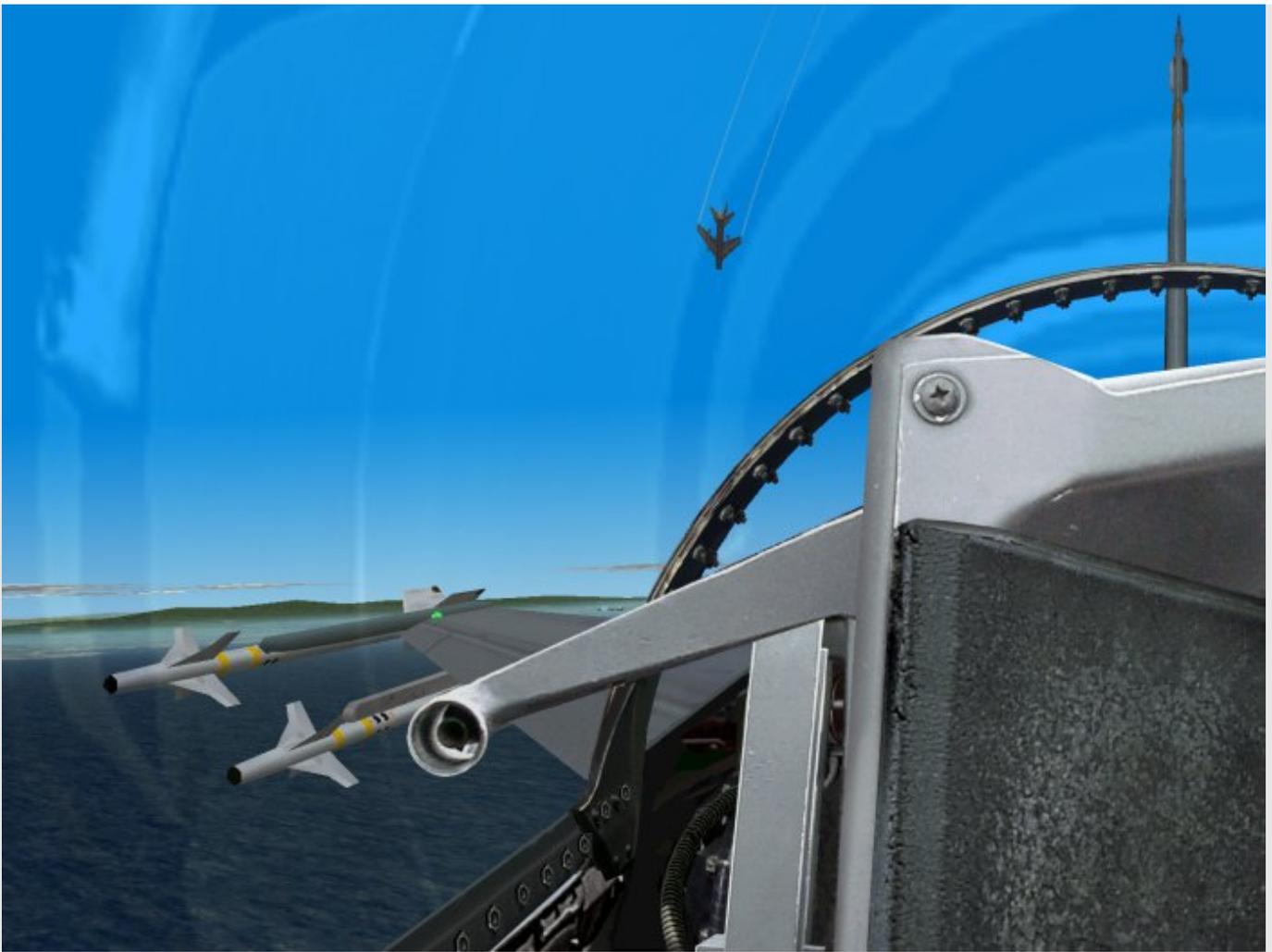


Member
Member #
3055

Reversing to the left I catch him committed to the right (one thing about an F-16 is that it will roll on a dime when it has no stores or gas!) but a glance at my fuel gauge shows I'm in no position to continue this fight:



I'm now way out of energy after the horizontal scissors maneuvering and try one last desperate act. I know I can't plug the burner in to get out of this mess because I don't have the fuel for it, so I pop the speed brake and hope that my low speed handling is better than that old MiGs. The MiG drops down from his last hard left reversal (I'm assuming he went UP in sort of a Yo-Yo to keep from overshooting me):



As he comes back down he has too much speed and for the briefest of seconds I have a passing shot! Brrrrrp...my cannon fires as he flashes through the HUD just a couple hundred feet in front of me:





Hits! I got hits on him!! I see parts and debris come off him!

My master caution glares on the left side of the panel indicating that I'm too slow, below 190 knots without my gear down the computer is alerting that I'm in a bad way. A second later, inverted I use up the last of my altitude as I fight to roll back upright away from the water. I crash into the water with a tremendous roar, sending a plume of water skyward as the MiG staggers along above at a high AOA:



Cont..

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From: **Charlotte, NC USA** | Registered: **Jan 2001** | IP: [Logged](#)

BeachAV8RMember
Member # 3055

posted 09-05-2003 16:19



Though I'm now dead I use the external camera to look off into the distance, following the MiG as he staggers above the water trying to make landfall in North Korea (that's right, my tail chase took us all the way from just north of Kadena to North Korea!). As the MiG slides inexorably toward the water a plume is roused from his exhaust:



My gun round must have mortally wounded him as he too loses his battle with gravity:

**Conclusions:**

The goal of the training mission was to learn about the TWS mode of the radar. In that respect I can say the mission was a success. The decision making process obviously broke down more and more as the mission progressed. Had this been a campaign mission I could have received vectors from AWACS to a more silent approach and I definitely would not have engaged in such a foolish, long distance chase that had questionable chances of success.

Additionally I think I learned (once again) that flying sims (any sim) is really no different than flying in real life. You absolutely MUST think several minutes, miles and steps in front of your aircraft (and the enemy) at all times. After my second AIM-7 launch I should have been ready to select an AIM-9, been at cornering speed and positioning myself to roll in behind the MiG that was obviously first concerned with evading the Sparrow. Training is designed to highlight these lapses in judgment and hopefully I will remember my mistakes in future missions.

FLIGHT STATISTICS:			
Callsign	Status	Ordnance Fired	Results
Slng11	Destroyed	16 x 20mm M61	15 misses, 1 hit (6%)
		2 x AIM-7M	2 misses (0%)

BeachAV8R

PS – I've had some requests to include the key-presses in my mission reports that reflect what I'm doing. Fortunately Falcon 4 has the distinct advantage of having a fully clickable cockpit, making almost every action attainable by simply selecting the proper switch in the cockpit. Without a full working knowledge of my HOTAS set-up yet I spend a lot of time hitting MFD buttons and clicking around the cockpit. As such, I'm hesitant to put in keyboard shortcuts that I don't use. I hope you don't mind.

<http://home.carolina.rr.com/beachav8r>

From: **Charlotte, NC USA** | Registered: **Jan 2001** | IP: [Logged](#)

Orion

Member
Member # 8755

📄 posted 09-05-2003 16:55    “ ”

Hello Beach,

I am by far no expert in this sim but have flown enough to giv a couple of pointers.

First, if you key press "U" you will uncage the AIM 9 and if you are in close like in this exercise the seeker head may acquire.

Second, if you get in close combat press "D" will put you in dogfight mode which should bring up your gun funnel and the AIM 9 reticule.

these items are quick and easy to perform without losing you SA in a dogfight situation.

By the way I too have sort of followed you from F-15 to F/A 18 to LB2 to here. I started flying F4 in campaing mode about a month or so ago...lots to learn.

As always you put out some great reports and I really appreciate you showing the mistakes along with the successes. We all learn from your reports.

Respectfully,
Orion

Luck is when Preparation meets an opportunity

From: **Everett, WA** | Registered: **Jan 2002** | IP: [Logged](#)

Shallow

Junior Member
Member # 16894

📄 posted 09-05-2003 17:02    “ ”

That's one adrenaline-pumped and captivating dogfight description! The thing I really liked about this one was the old Top Gun "I'll hit the brakes and he'll fly right by" -trick! And it actually worked 😊

Every time I read one of your mission reports, I'm compelled to fire up F4 and fly just another campaign mission... Time for another one 🇺🇸

Registered: **Sep 2003** | IP: [Logged](#)