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**Author**
**Topic: Falcon 4.0 Training Mission Report #08**
**BeachAV8R**

posted 09-06-2003 15:32


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 3055

09/06/03

Falcon 4.0/SP3 Training Mission Report #08

**Objective:**

Long Range Scan (LRS) radar mode.  
 AIM-7 Home On Jam (HOJ).  
 20mm Canon.

**Planning/preflight:**

Today we will be departing Kadena AFB once again headed to the missile range. We will be using the Long Range Scan (LRS) air-to-air radar mode to identify targets for engagement. The LRS mode is effective at long distances (80-160nm) in identifying large objects (large transport, bombers, reconnaissance, and early warning aircraft) allowing you to identify threats early enough to effectively engage them before they become a threat to the assets you are protecting.

We will identify, close and destroy the targets in today's exercise.

**Debrief:**

Anticipating high-altitude, long range intercepts today we have stocked up on the fuel with 3 external fuel tanks. The flight performance hit is very evident from take-off, climb and cruise performance:



Turning out over the Sea of Japan leaving Kadena AFB behind:



With lots of fuel onboard we have plenty of afterburner time allocated for today's mission:



Switching on the radar I select "LRS" using the pushbutton at the top of the MFD and expand the range out to 160 miles. One disadvantage to using LRS is that the rate at which the radar scans the selected airspace volume is much slower than other radar modes:



At just outside of 80 miles our first return reveals itself at 44,000 feet:



Narrowing the azimuth setting to +/-10 degrees (20 degrees total width) (as noted by the A1 symbol on the left side of the MFD) I increase the rate of scans to update the target more quickly:



The right MFD in HSD mode mirrors the scan volume and direction in blue:



At 40 miles I switch to Track While Scan (TWS) mode to start acquiring more data on the contact. He's holding at 44,000 feet and he is slowly crossing left to right in front of me:



Cont...

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**BeachAV8R**

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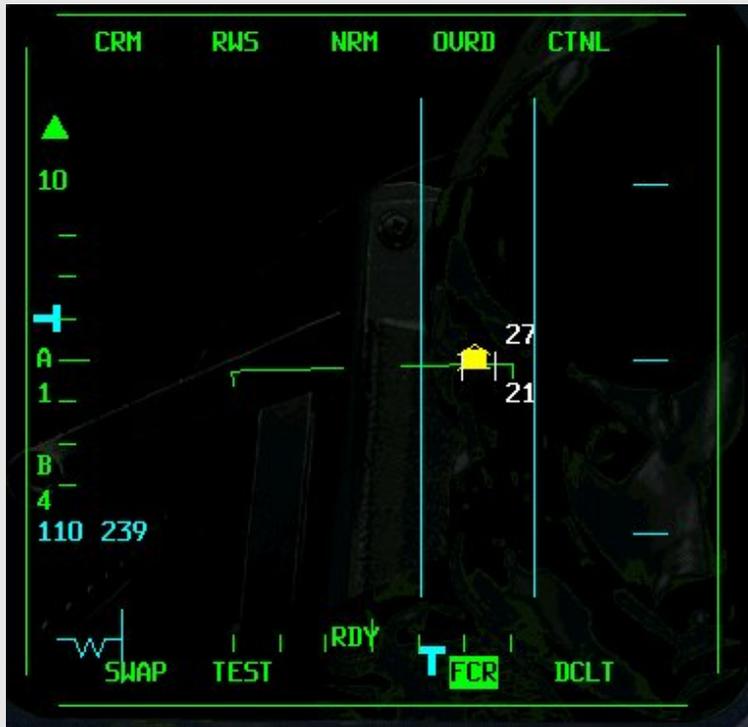
At a bit over 20 miles the radar discriminates 2 targets and my ALR-69 TWS (Threat Warning Receiver) displays a radar spike on the Radar Warning Receiver (RWR) above my left MFD:



A peek shows a Tu-95 "Bear" recon turbo-prop:



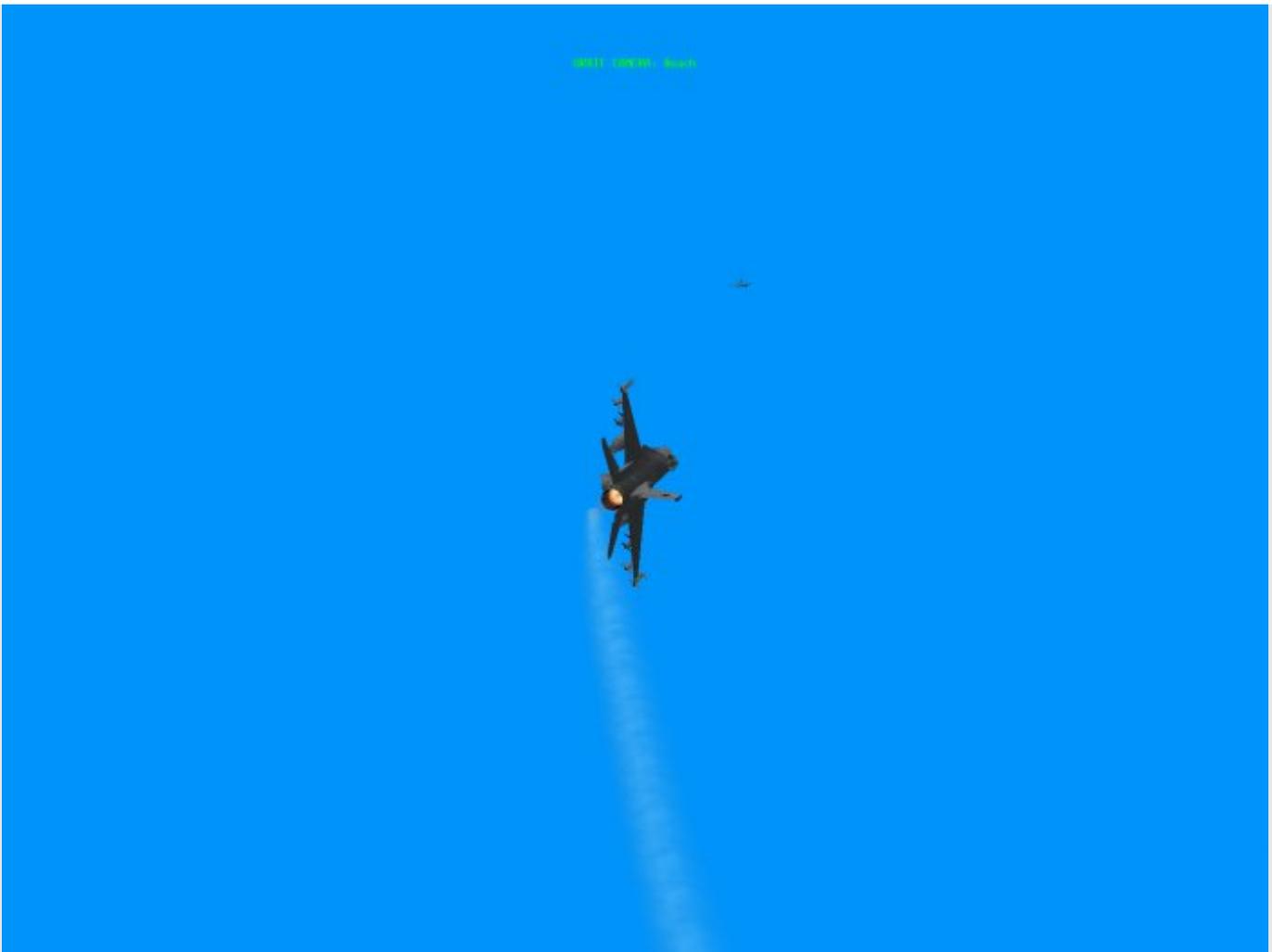
Switching to RWS mode I repeatedly attempt to lock up the Tu-95 but he is jamming (as indicated by chevrons over the contact, hard to see) and preventing my radar from getting a solid lock:



As I merge with the contacts I look up through the canopy and can just barely see the outline of the Bear flying overhead 15 thousand feet above me:



Plugging in my burner I stagger up to engage the Tu-95:



Switching to A2A mode I'm still unable to lock the Tu-95 as his jamming continues to be effective:



At five miles in trail I'm finally able to get a TWS lock on the trailing Tu-95 and my DLZ shows that I'm in range for an AIM-7 shot:



The HUD indicates I need to firmly lock the target in Single Target Track mode (STT) with the "GO STT" message:



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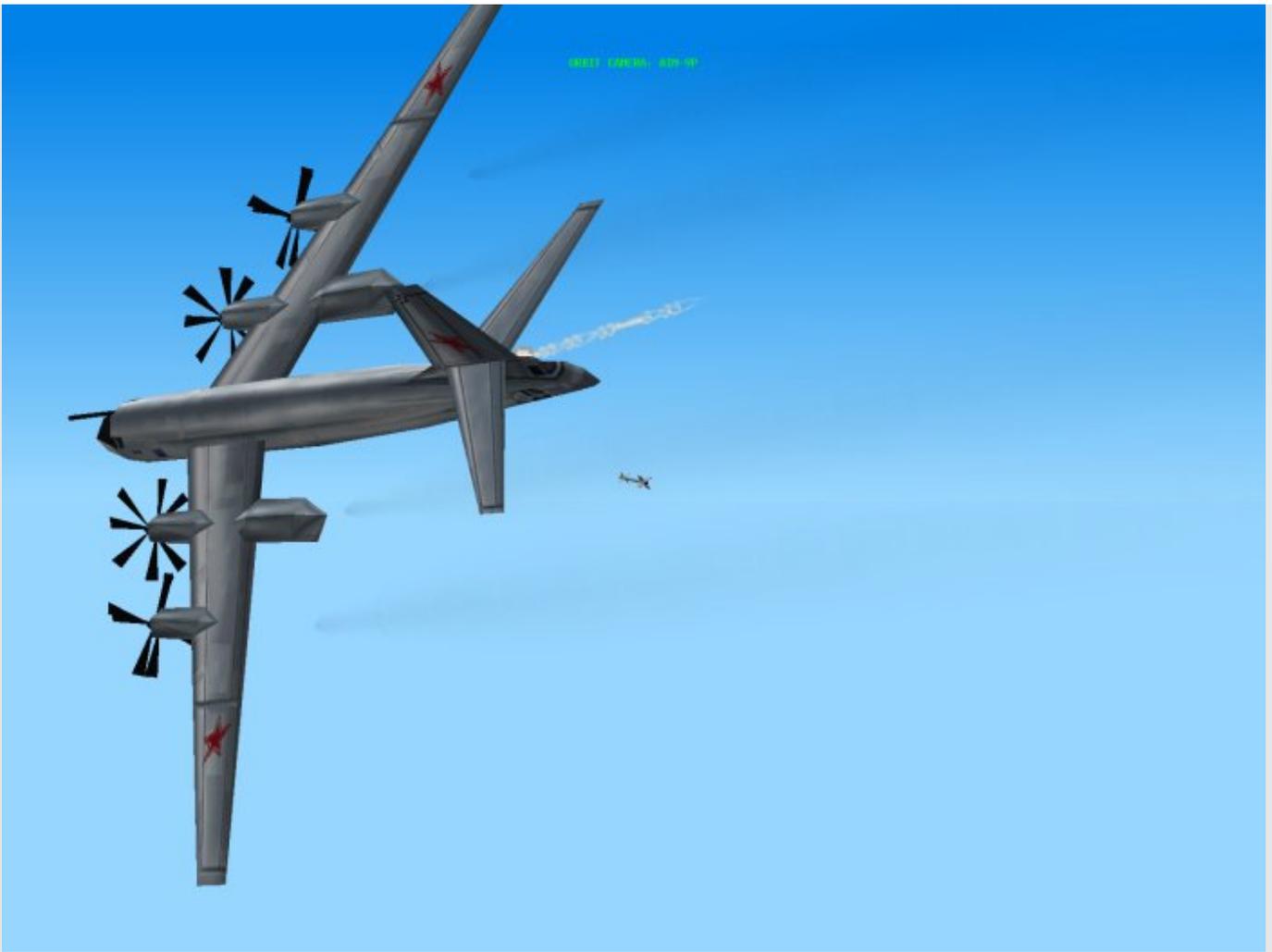
Frustratingly I cannot achieve STT on the target due to heavy jamming so I switch to an AIM-9P which does not require STT (or ANY radar for that matter). As the carat drops into the DLZ for the AIM-9 I fire:



The AIM-9 tracks for a short distance then is lured away by a flare. My second AIM-9 comes off the rail and zips past the canopy:



The second AIM-9 tracks true and explodes against the Tu-95:



As flares spiral down in the Tu-95's wake smoke from the first hit hangs in the air as he rolls to the left I fire a 3rd AIM-9P at the Bear:



The beast continues to fly! In desperation I launch my last AIM-9 at the lumbering thorn in my side and watch the missile track perfectly into the target:





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Breaking off my attack and circling around to the right I put some distance between myself and the damaged Bear in order to re-engage. I lock him back up at just under 10 miles:



The AIM-7 tracks directly into the Bear finally finishing him off after 4 missile hits:

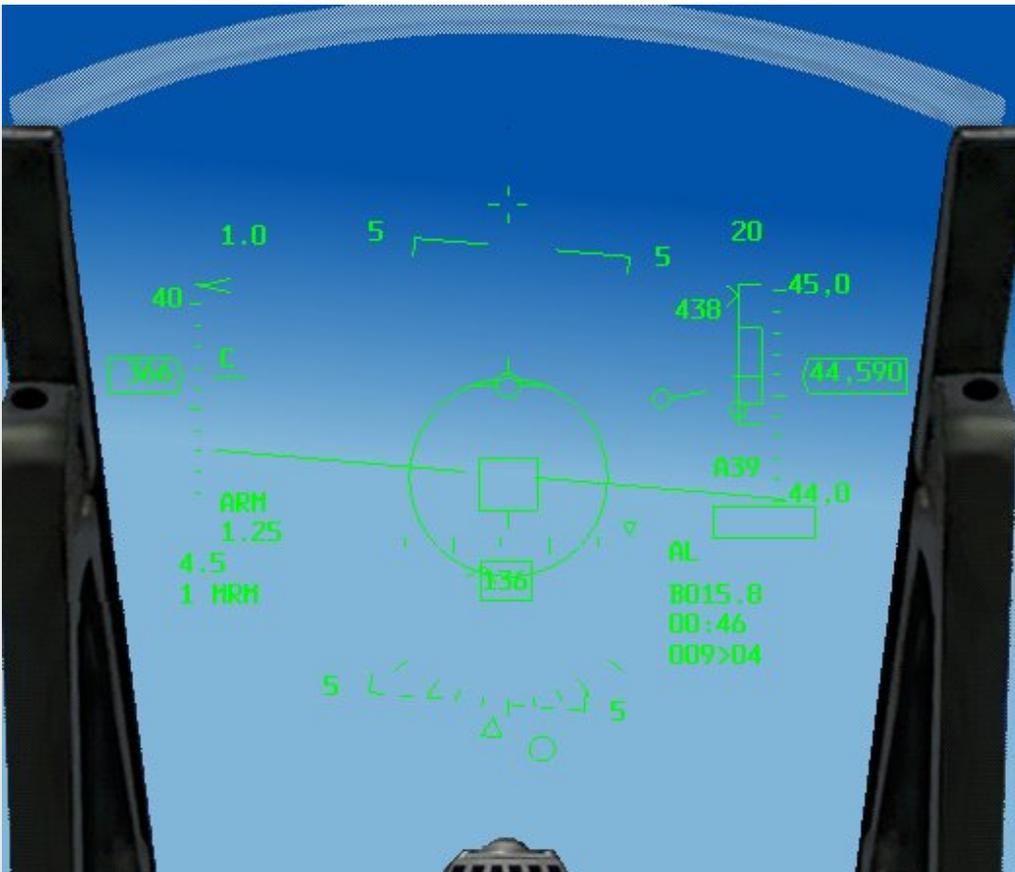




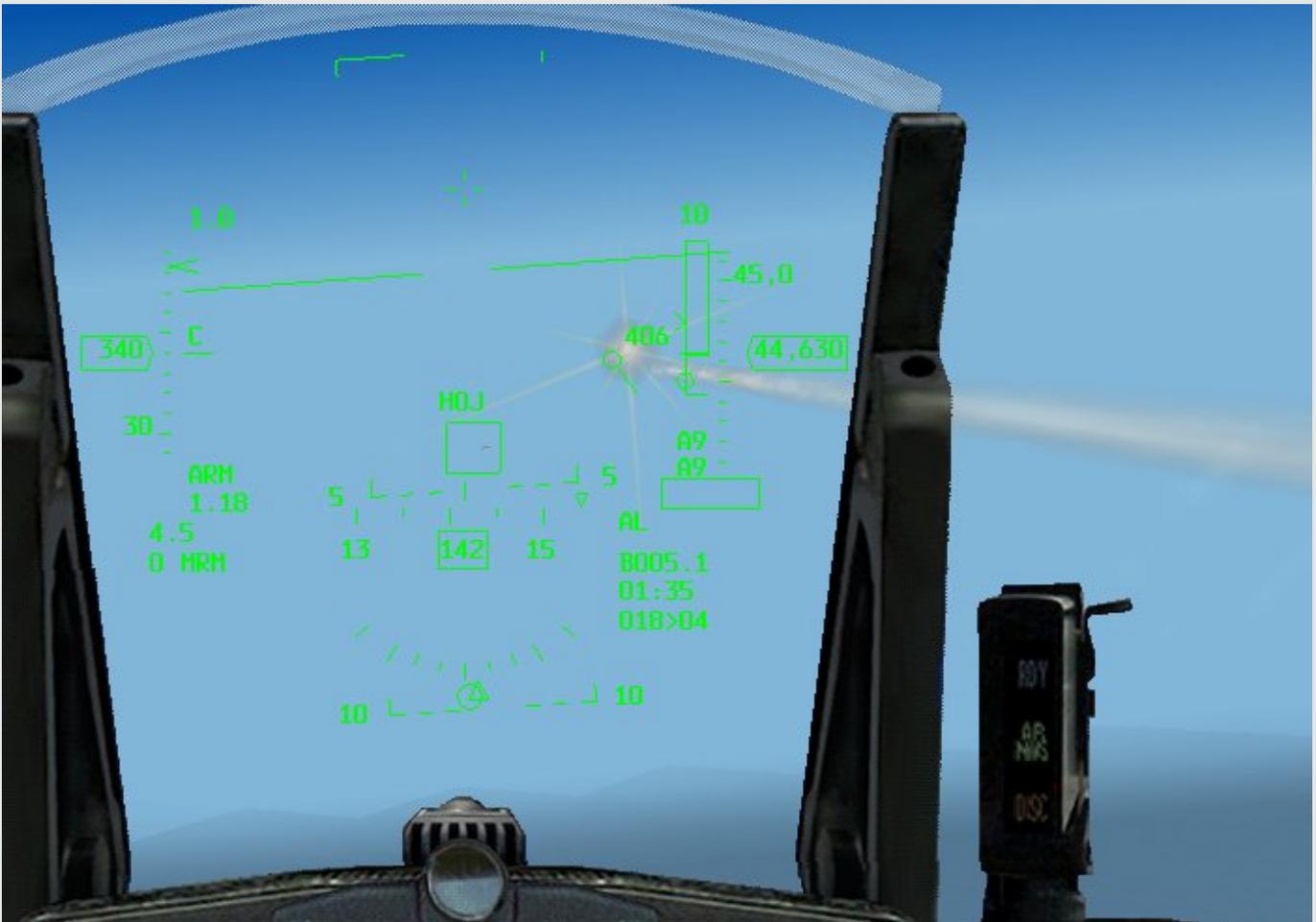
I immediately start searching for the remaining Tu-95 and find him in RWS radar mode inside of 40 miles:



Closing on him I wait for the DLZ to indicate I can launch my last remaining Sparrow:



Well into the DLZ I launch and again the HOJ message appears in the HUD:



The AIM-7 flies directly under the belly of the Tu-95 but fails to explode and sails right past him!



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Out of missiles I select the 20mm cannon and continue to close on the Bear:



The flaming debris of the Bear falls to the ocean below:



Turning for home it's only a matter of minutes before Kadena appears before me:



#### Conclusions:

LRS is an excellent tool for picking up large targets at long distances. As the Tu-95 showed, downing a large target can sometimes be an exercise in futility. The smaller warhead of the AIM-9 series is sometimes not adequate for the job and I'm sure the AMRAAM would pack much more punch in this situation. As for the AIM-7, it almost seems to work better in the HOJ mode, although I'm still a bit unclear on this method of employment. I'm not sure if I can still fire the weapon when "GO STT" is in the HUD and it will lock onto the jamming signal or not. I searched the web for answers but there is a lot of conflicting opinions on the HOJ capability of the Sparrow. Some feel that it is worthless in that without an effective ECM package the HOJ capability would be easy to defeat. I just don't know.

One other interesting thing to note is that I was sure that the Tu-95 had a radar operated tail-gun for self-defense. As such, initially I wanted to keep my distance and just use missiles for this engagement. After successfully passing astern of both Bears multiple times and not being engaged I started to doubt my knowledge. Are the Bears in Falcon 4 equipped with tail-guns and what does it take to get them to fire?

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