

# CVW-14 INITIAL TRAINING

Week 6: A2G-2 – MISSILES





# OVERVIEW



- Welcome to Week 6!
- This week we will be discussing missiles, specifically...
  - **AGM-88 HARM** – Do no harm, but do know HARM. Or... maybe also do harm? We're talking about shooting people. That implies harming them. I'm having an ethical crisis here.
  - **AGM-65 MAVERICK** – Ever seen that movie "Top Gun?" Yeah, well, this is nothing like that.
  - **DEFENSIVE SYSTEMS** – Oh God, they're shooting at me!
- Questions?
- I promise this G/S will be shorter than last week's. I can assure you my IRL students hate me too.

# TOPIC 6.1 – DEFENSIVE SYSTEMS

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"What are the various defensive systems equipped on the F/A-18?"





# DEFENSIVE SYSTEMS



- 3 major defensive systems
  - **Flares** – Useful against infrared threats; flares are hotter than your engines!
  - **Chaff** – Useful against radar threats; little metal clouds reflects radar waves
  - **Jamming** – Electronic countermeasures, effective against radar threats
- **Radar Warning Receiver (RWR)** indicates radar search or lock/track

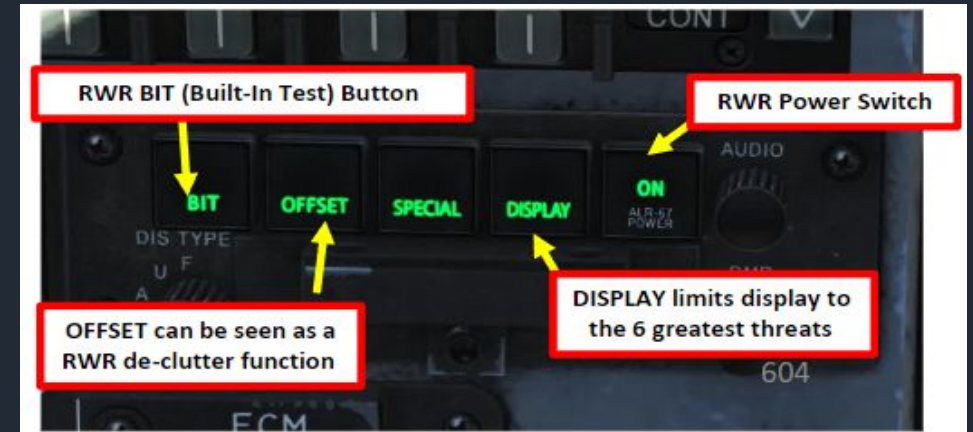




# RWR



- **RWR** activated by small control panel under the AMPCD
- **EW page** displays detected emitters
  - Numbers/Letters correspond to various systems – learn these!
  - Can be displayed on any DDI
  - Boxing **HUD** gives indications with bearing lines – very useful!
- Learn the noises it makes!
  - Single/Double Beep: New Emitter Detected
  - Beep-Beep-Beep-Beep (etc): Emitter is tracking
  - **BEEPBEEPBEEPBEEP** (etc): MISSILE!





# COUNTERMEASURES

- Chaff & Flares can be deployed via a set *program* or *manually*
  - For programs, set dispenser to **ON**
  - For manual, set to **BYPASS**
- Why program?
  - Lessen the workload while you're on an attack run
  - Entering an IR SAM WEZ? Great to have the jet spit out flares at a given interval so you can focus on putting iron on the target
- Programming done through EW page
  - Lots of settings here to play with, spend some time with it
  - ~~Wow Knuckles thanks for explaining that in depth there, what the fuck are my tuition dollars going to~~



# JAMMING

- **ALQ-165 Airborne Self Protection Jammer**
  - Onboard Electronic Countermeasure System
  - When in **XMIT** mode, will automatically attempt to jam fire control and guidance radar
- Controlled by knob under AMPCD
  - Generally set to **REC** unless jamming desired
- Note that jamming will interfere with your radar, so it's not something you want to be using all the time
  - If a radar SAM launches on you, turn the thing on!



# TOPIC 6.2 – AGM-88 HARM

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"What is SEAD/DEAD?"

"What are the various modes in which we can employ the HARM?"





# SEAD/DEAD



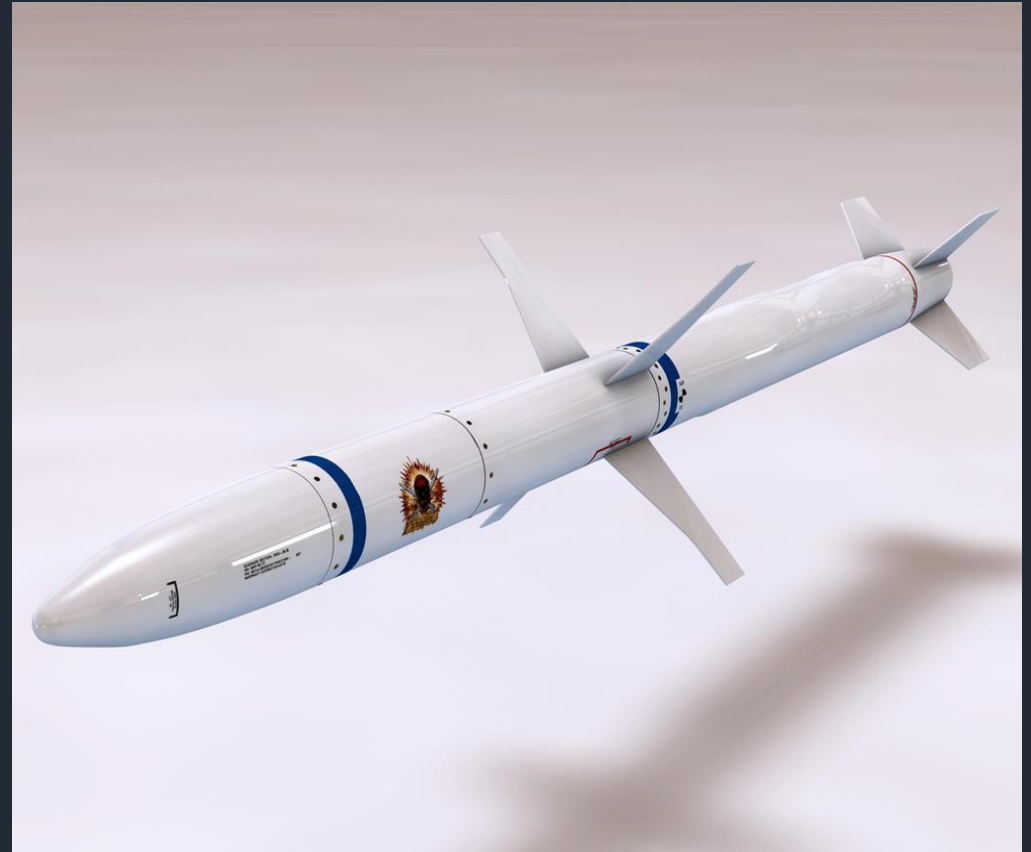
- ***Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD)*** are also common A2G missions.
  - ***Suppression*** – degrading SAM systems and operators to prevent engagement
    - Get the bad guys to turn their radars/launches off so we can get in and do the mission
    - Sometimes this is through actually putting weapons on target. Sometimes it's intimidation. If they know we've got HARMs, they might be more careful.
  - ***Destruction*** – elimination of a SAM system by killing operators and destroying their equipment
    - This can be lobbing HARMs at a SAM site, or getting in close and dropping bombs on it.
- Sometimes there can be overlap between these two mission types.
- This can be ~~super fun (Weld Wuz Here)~~ very dangerous.
- Exercise caution at all times!



# AGM-88C



- **H**igh-Speed **A**nti-**R**adiation **M**issile
  - Automatically locks onto and guides to source of RADAR emissions. Fire and forget!
  - Brevity code “**MAGNUM**”
  - Long effective Range (~50+ nm)
  - Can be shot down by certain SAM systems
- **Self-Protect (SP)** mode will target any radar emitters locked on the A/C
- **Target Of Opportunity (TOO)** mode allows the pilot to select a target from any detected radar emitters
- **Pre-Briefed (PB)** guides on waypoint coords, looks for specific type of emitter





# PRE-BRIEFED MODE

1. Select **PB** on HARM Page
2. Waypoint Designate on TGT
3. Input **target code** on the UFC based on specific emitter type
  1. Found on Sqn kneeboard
4. Select A/C vs HARM ~~pull-out~~ – er, **Pull UP**
  - I. Are you going to pull the jet up or let the HARM do it for you?
  - II. A/C pullup puts a little more energy on the missile, but isn't always practical
6. Gives estimated Time Of Flight (**TOF**)





# TARGET-OF-OPPORTUNITY MODE



1. Select **TOO** on HARM Page
  1. Various emitters displayed by number
2. Cycle targets with **RAID/FLIR**
3. Press **CAGE/UNCAGE** to send TGT to missile

Unlike in PB mode, TOO does not give range information. It is entirely possible to launch a HARM against a target it has no chance of hitting!





# SELF-PROTECT MODE

1. Note that an enemy has locked onto your jet. **Panic.**
  2. Select ***SP Mode***.
  3. The HARM will automatically prioritize the target.
  4. Magnum!
- SP also does not give range information!



# TOPIC 6.3 – AGM-65 MAVERICK

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"What are the two types of Mavericks the Hornet carries?"

"How do we employ laser- and infrared-guided Mavericks to hit stationary & moving targets?"

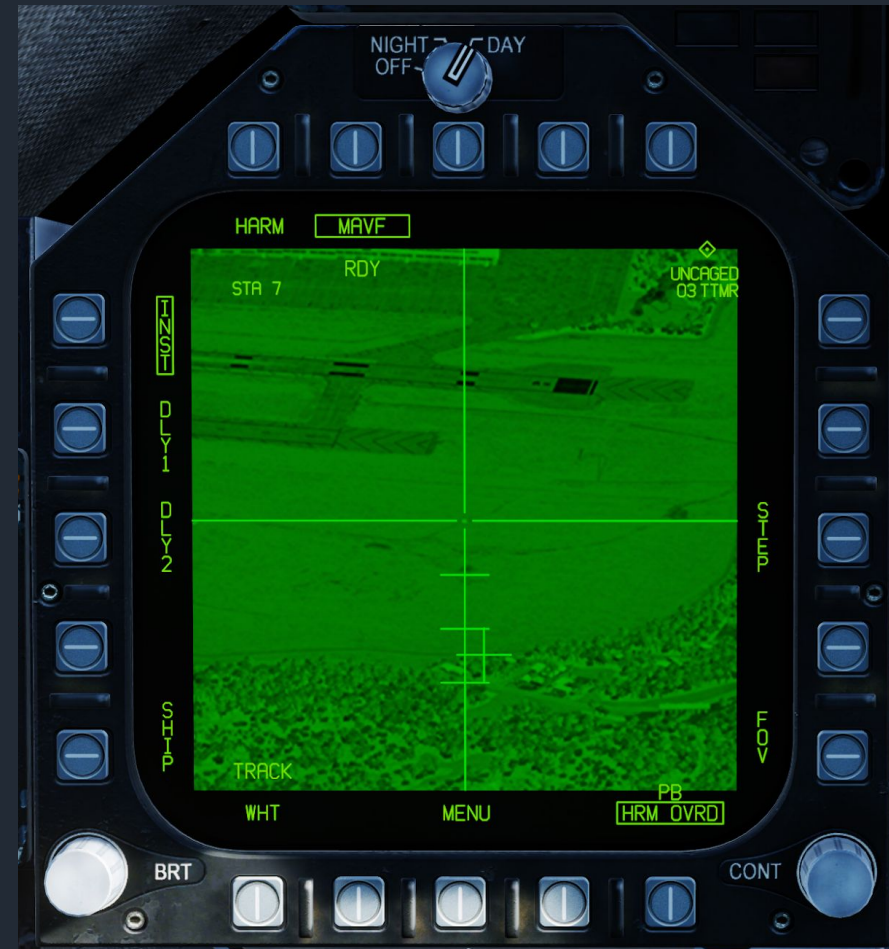




# AGM-65F EMPLOYMENT



1. Track via ATFLIR
2. Select **MAVF** on STORES page
  - I. Note that IR MAVs need to be warmed up prior to launch!
3. UNCAGE Maverick
4. Crosshairs will “close”
5. Watch **TTMR** (Time To Max Range) come down as you fly towards the TGT
6. Verify **MAVF** is not crossed out on the right of the HUD
7. **Rifle!**
  - I. Fire and forget
  - II. Note that you can ripple multiple MAVFs off on one pass if you're quick with the TGP – my favorite A2G weapons for that purpose!

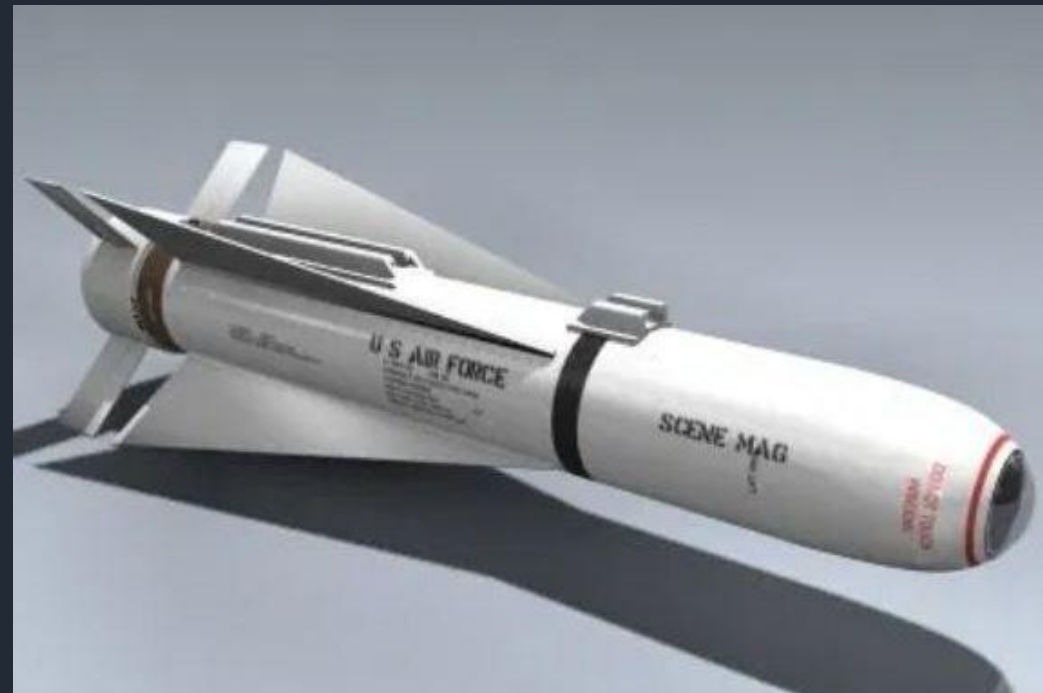




# AGM-65E



- **LASER** Guided Maverick
  - Brevity “Rifle”
  - ~13 nm range
  - Locks on to LASER source (self or buddy laze)
- Useful against armor or other ground targets
  - Can hit moving targets!





# AGM-65E EMPLOYMENT



- Laser Mavs have about a 30-second self-test, so make sure you select them before you need them!
- Set Laser Search Code (LSTC) OSB 14
  - 1 & Board Number (1637)
- Set Laser Tracking Designator (LTDC) if self-lasing





# AGM-65E EMPLOYMENT

- If manual lasing is desired, box **TRIG** on ATFLIR OSB 11
  - If this isn't boxed, the laser will automatically fire before the weapon comes off the rail
- MAV Page on other DDI
- UNCAGE
- Laze target
- When MAV acquires laser (X turns to ■) RIFLE!
  - If buddy lazing, free to come off the target
  - If self-lazing, ensure you don't mask the pod!





# WHAT QUESTIONS DO WE HAVE?



Fuck That Guy In Particular