

CVW-14 INITIAL TRAINING

Week 1: BASIC AIRMANSHIP





OVERVIEW



- Welcome to ground school with me, Knuckles, your friendly neighborhood Training Officer.
- This week, we will discuss:
 - **RADIOS** – How to set 'em up, how to use them, how to sound cool while you do it
 - **FORMATION FLYING & MANEUVERS** – Flying close to other Hornets without splattering several million dollars' worth of the taxpayers' money all across the NTTR
 - **WINGMAN RESPONSIBILITIES** – What does that jerk in –1 expect of you?
 - **THE OVERHEAD BREAK** – How to approach the field & land while at the same time imagining that you're doing it on the deck of a carrier, because that's what you'll be doing in a few weeks...
- Any pressing questions?



KNEEBOARDS

- Before we dive into the meat of today's lesson, a quick word on *kneeboards*.
- Provided by Mission Planning Staff (MPS).
- You may add any custom kneeboard pages you wish.
- 2 Main types:
 - ***In-game***
 - In Saved Games for all aircraft
 - In Saved Games for specific aircraft
 - Packaged in mission for all aircraft
 - Packaged in mission for specific aircraft
 - ***Scratchpad***
 - Allows typing notes in small window
 - VR ready
 - Bundled with OvGME
 - ***CTL+SHFT+X*** to open/close, Esc to exit
 - Can save/read .txt files in Saved Games folder



Scratchpad on the left, comms card from the kneeboard on the right.



Comm Frequencies			
Chan	Name	Freq	TACAN
1	Common	261.000	
2	Big Voice	253.000	
3	Lincoln AI Ops	251.000	72X
4	Lincoln Marshal	257.500	
5	Lincoln Paddles	255.750	
6	Washington AI Ops	250.000	73X
7	Washington Marshal	256.500	
8	Washington Paddles	254.750	
9	AI AWACS	285.000	
10	Trident	263.000	
11	Arco	245.000	45X
12	Shell	246.000	46X
13	Texaco	247.000	47X
14	Bloodhound (S-3B)	248.000	48X
15	Mauler (S-3B)	249.000	49X
16	---	---	---
17	---	---	---
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19	---	---	---
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TOPIC 1.1 – RADIO

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

"How do I not sound like an asshole when I key the mic?"





FLIGHT, SECTION OR SOLO?



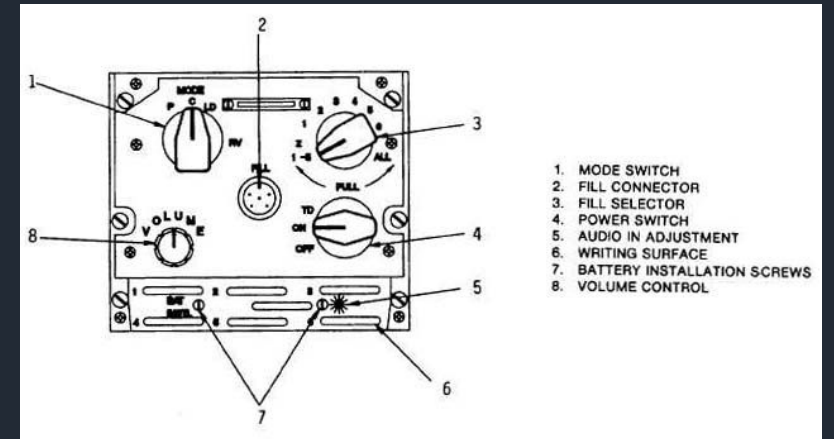
- A **flight** is treated as a single entity.
- The **Flight Lead** answers for the flight externally.
- Outside the boat, you will use your **flight callsign**: “STING 1-2”
- Ops around the boat - you will use your **Board Number**:
 - “637, Hornet Ball, 4.1”
- Exceptions:
 - Tanker check in – DCS ATC AI limitation. Use Flight Callsign.
 - Inbound and around Mother– Individual planes - use Board Number.



HORNET RADIO OVERVIEW

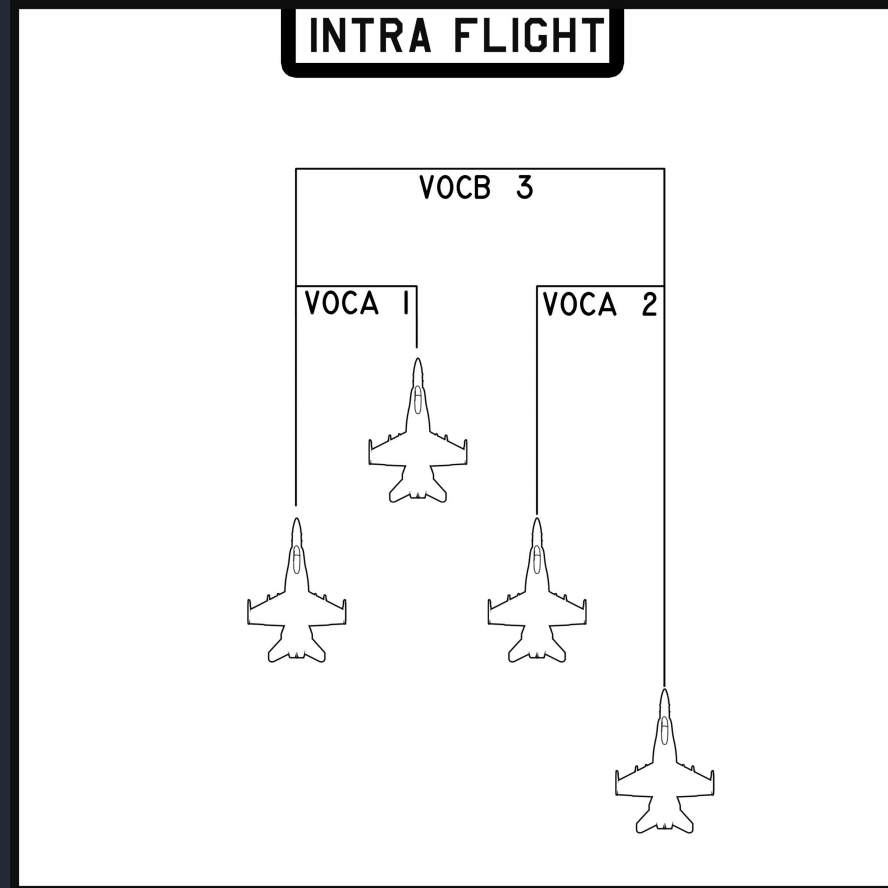


- RADIO 1 & 2 , VHF/UHF AM/FM:
 - Sometimes you'll hear "**PRI**" and "**AUX**" to refer to 1 & 2.
- MIDS 1/2 (VOC A/B):
 - Voice over Datalink (aka Link-16, JTIDS, TADIL-J).
 - **Secure by default.**
- VINSON KY-58 Secure Voice Module:
 - Can secure both Radio 1 or 2 – VID switch below UFC.
 - 1) Power On 2) Mode switch to "C" 3) Select briefed channel 1-6 (Fill).





MIDS USE





RADIO COMMS 101



- Some radio calls are *directive* and some are *informative*.
 - It takes practice to know which is which.
- **Not every call requires a response.**
 - That said, some of them do...
- Example 1 – **Radio Direction**: “Flight, push Button 2 on Aux”
 - Tune to the new channel immediately.
 - Then on new freq: “Flight, check in”
 - **“2”, “3”, “4”** – if you're 3 and you don't hear 2 respond, give him a second before jumping in!
- Example 2 – **What's Happening Next**: “Flight, starting a descent to 10,000”
 - No response necessary. Just stay in position and descend with FL.
- Example 3 – **Instructions**: “Flight, Fence In”
 - “2, Fenced in, 6.7”, “3, Fenced in, 7.0”, etc...
- Example 4 – **Formation Change**: “Flight, go Combat Spread”
 - “2”, “3”, “4”



RADIO CHECK IN

- FL: “Sting 1 Flight, check in MIDS 1 (VOC A)”
 - Wingmen: “2” “3” “4”.
- FL: “Sting 2 Flight, check in 261 in the red”
 - Wingmen: “2” “3” “4”.
- When FL: "Sting 3 Flight, Go Secure Button 1" (Note channel will be pre-briefed).
 - Wingman set KY-58
- FL: “Sting 4 Flight, check in Button 1 in the green”
 - When he hears “2”, “3”, “4”, FL knows you’re also secure and hearing him
- **Only the Flight Lead will direct check-ins and respond to other flights.**
 - Don't just randomly check in on Squadron Common! We'll laugh at you.
- Whenever you switch frequencies, expect your FL to lead a check-in!



BREVITY



- **Brevity** is a way to say a whole lot and minimize comm jamming on a busy freq.
- Brevity is established and known by all friendly forces.
- Don't confuse **Brevity** with **Codewords**:
 - Codewords are to keep the enemy from knowing what you are talking about (security).
 - Brevity is to minimize comms and declutter a frequency.
- A single Brevity term can convey a lot of information:
 - Ex. "Defensive" – means your wingman:
 - Is no longer attacking the target (maybe jettisoned ordinance).
 - Is not in the briefed position.
 - May need help or has been shot down.
 - A 2v2 fight just became a 1v2 fight (or worse) which should change your gameplan as you no longer have any mutual support.
- Brevity is listed in the Squadron Brevity Dictionary – KNOW IT!
 - "Knock It Off" vs. "Terminate", "Visual" vs. "Tally", etc.

TOPIC 1.2 – TAXI & TAKEOFF

"How do I safely take off from a shore airfield?"





STARTUP – THINGS TO KNOW



- We're not going to go over the startup procedure; you should be familiar with that by now!
 - Develop your own checklist and do it the same damn way every time to make sure you don't forget anything!
- There are a couple good things to know from SOP we want to review
 - **LIGHTS** – turn the damn slimes off during the day, but put the strobe on as soon as you start engines!
 - **RADIO** – be up and ready on MIDS ASAP. Remember, don't respond to an FL "Radio Check" on common, but if he asks you to "Check In," 2-3-4!

	Day	Night
Position	OFF	ON
Formation	OFF	ON
Strobe	ON while engine running	ON while engine running
Taxi	ON when Taxiing, Takeoff, and Landing	ON when Taxiing, Takeoff, and Landing



SECTION TAKEOFF

- From a shore field we almost always use *Section Takeoff*
 - Lead lines up on the far side, 2 next to him
 - 3 & 4 will line up behind the first section
- Standard takeoff procedure applies
 - Brakes on, power to 80%, brakes off, burner as lead desires
 - *10 seconds between sections!*





REJOINING

- As soon as you're wheels-up, work towards getting into formation
 - The default formation in safe areas is *cruise* (we'll talk more about that in a minute) so head for that unless lead's briefed you otherwise
 - If you're -2, *you'll generally need to cross over to lead's left side* – be careful!
- As soon as you're in formation, let the boss know!
 - *"2/3/4, SADDLED"* tells lead I'm in position
- Sometimes you might be RVing with lead at a different waypoint; if this is the case he should have briefed speeds & altitudes
 - *If you have a question, there's no shame in confirming!*

TOPIC 1.3 – WINGMAN RESPONSIBILITIES

"As a wingman, what are my primary responsibilities?"





WINGMAN RESPONSIBILITIES



- Rule #1: Be in position at all times.
 - “It’s the wingman’s job to be there”
- Rule #2: NEVER show Lead your belly.
- Back up lead with good SA!
- Admin tasks as directed:
 - Scanning for targets, inputting waypoints, etc., if lead asks you to do it, be ready!
- Be prepared to take Lead at any time.
 - *You'd better pay attention to the briefings just as closely as the flight leads do, because the responsibility might fall on your shoulders!*
- ***Lastly***, weapons employment.

TOPIC 1.4 – FORMATIONS

"What are the standard formations?"

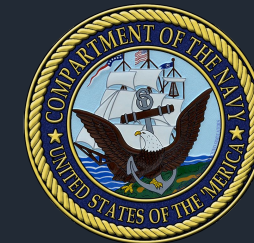
"What are the 3 standard Tac Turns?"





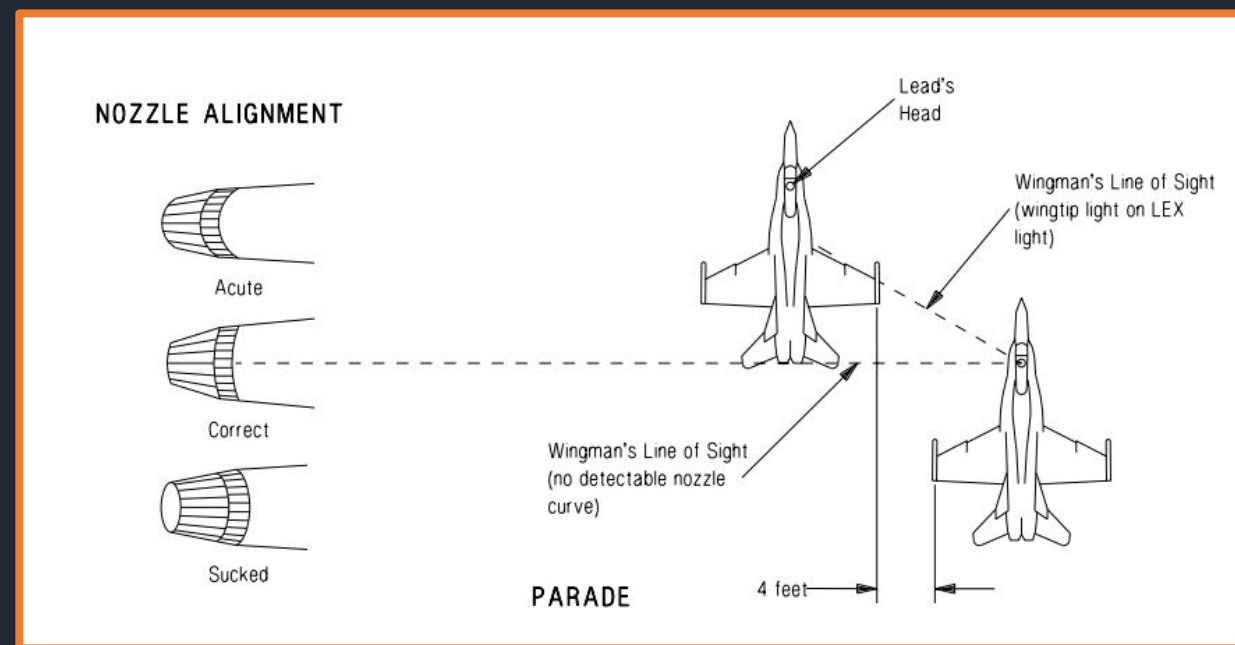
FORMATION FLYING

- ***Formation Flying*** is, to put it very simply, multiple aircraft flying together in a coordinated manner, usually under the command of a ***Flight Lead***:
 - The standard groups of 4 aircraft we use are referred to as ***flights***, subdivided into 2 smaller 2-ship ***elements***.
- Why do we fly formation?
 - ***Mutual Defense.***
 - ***Concentration of Firepower.***
 - ***Enhanced Situational Awareness.***
- CVW-14 SOP states that we use 3 standard formations.
 - ***Parade, Cruise, and Combat Spread.***



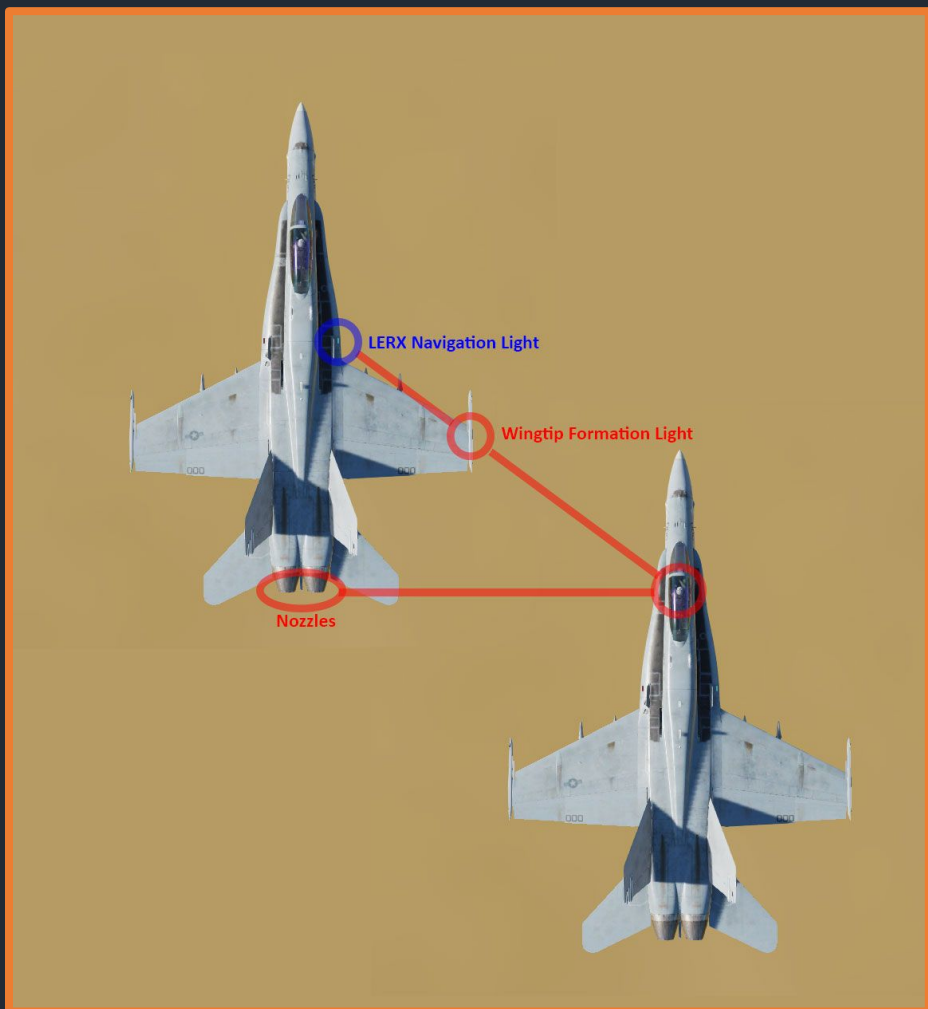
PARADE FORMATION

- “Parade”
- "Finger Four" with minimal spacing:
 - About 4 feet between wingtips!
 - Only used in safe areas!
- Visual References:
 - Aligning the bottom wingtip light (located about in the middle of the missile rail) with the light on the LEX
 - For left/right spacing, look for ***no discernable curve on the nozzles!***
 - Yeah this is kinda hard for those of us flatscreeners, but do the best you can





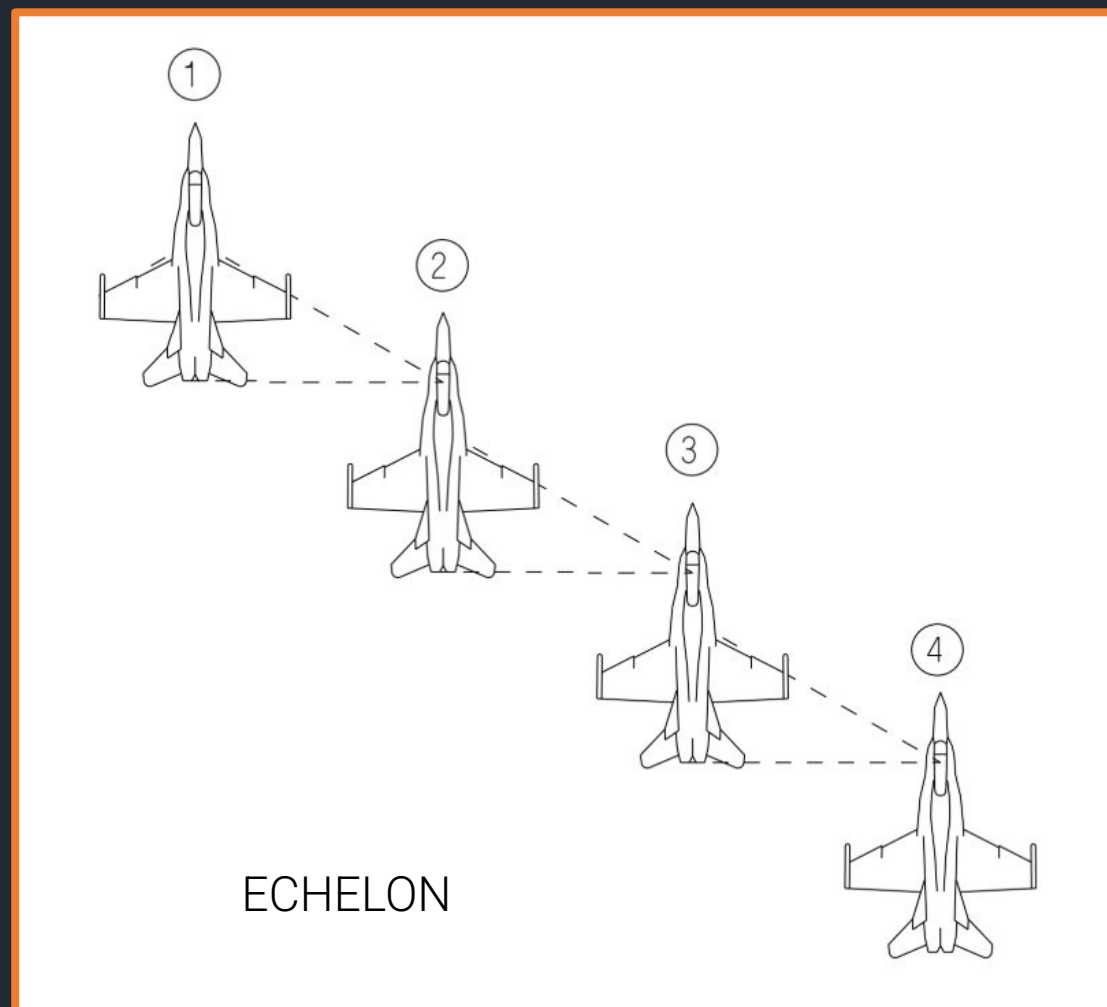
PARADE FORMATION





ECHELON

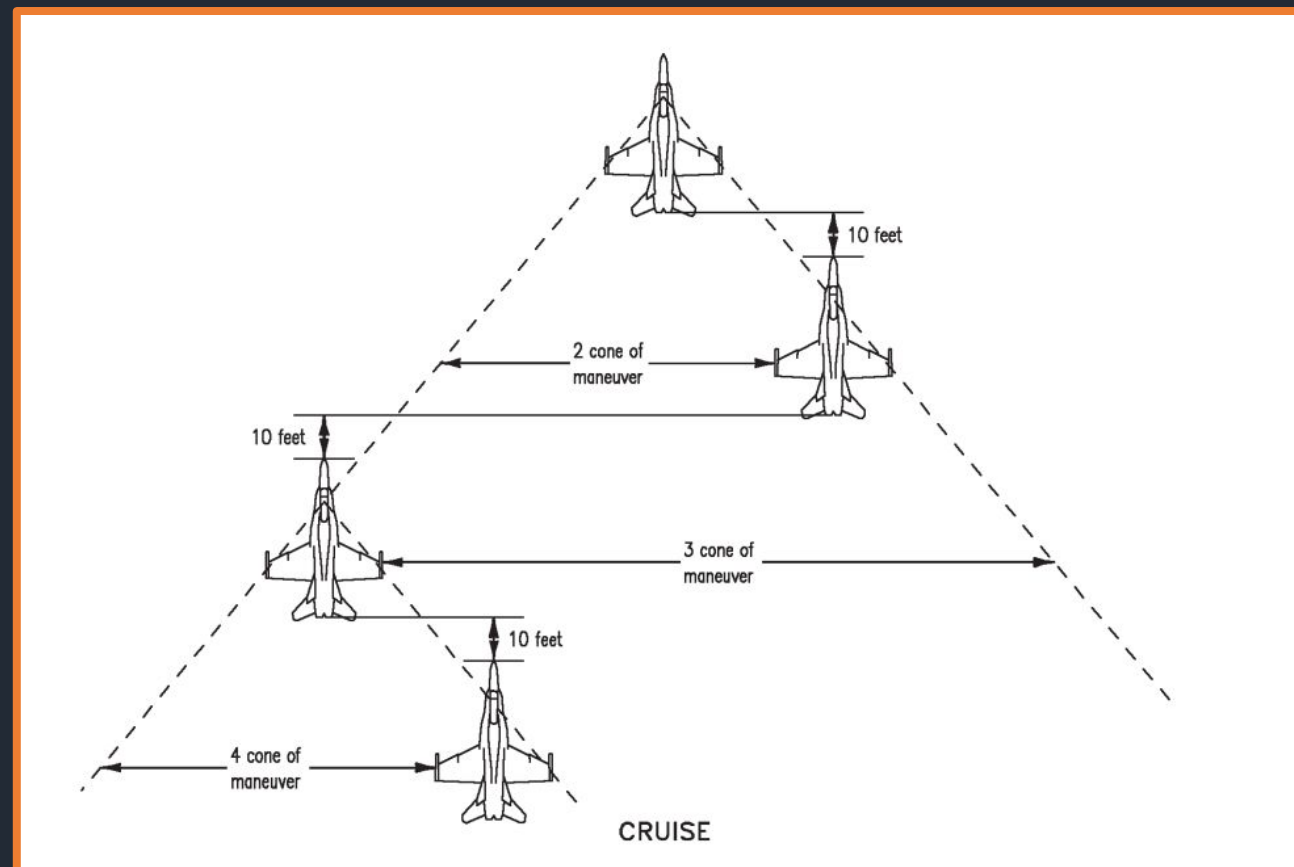
- **“Echelon Left/Right”**
 - Derivative of Parade Formation
 - Maintains same spacing
- Used on approach to the boat or field to facilitate carrier breaks.
- Can also be flown on the left side of lead





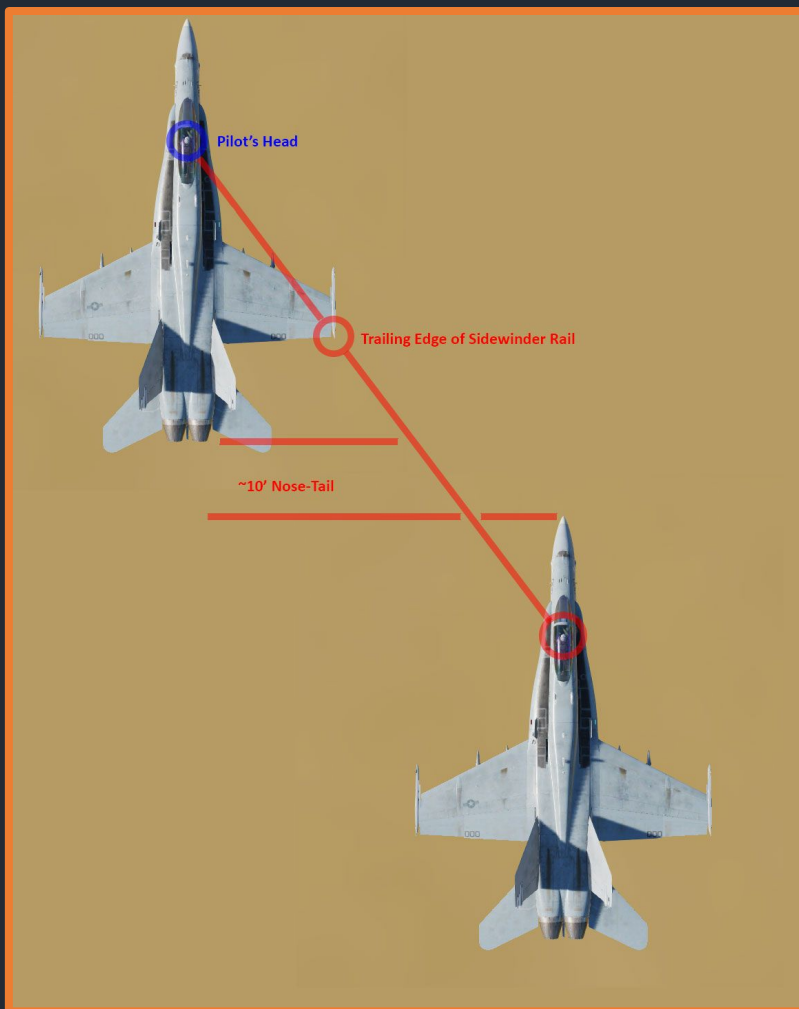
CRUISE FORMATION

- “**Cruise**” allows more maneuvering room for wingmen.
 - **70 degree Cone** behind lead, can be anywhere within.
- Used when contact possible, allows for administrative tasks.
 - 10ft spacing.
- Reference: **line from lead’s head through the trailing wingtip edge**
- This is the **default formation unless directed otherwise**; when you take off, saddle into cruise unless you briefed something else!





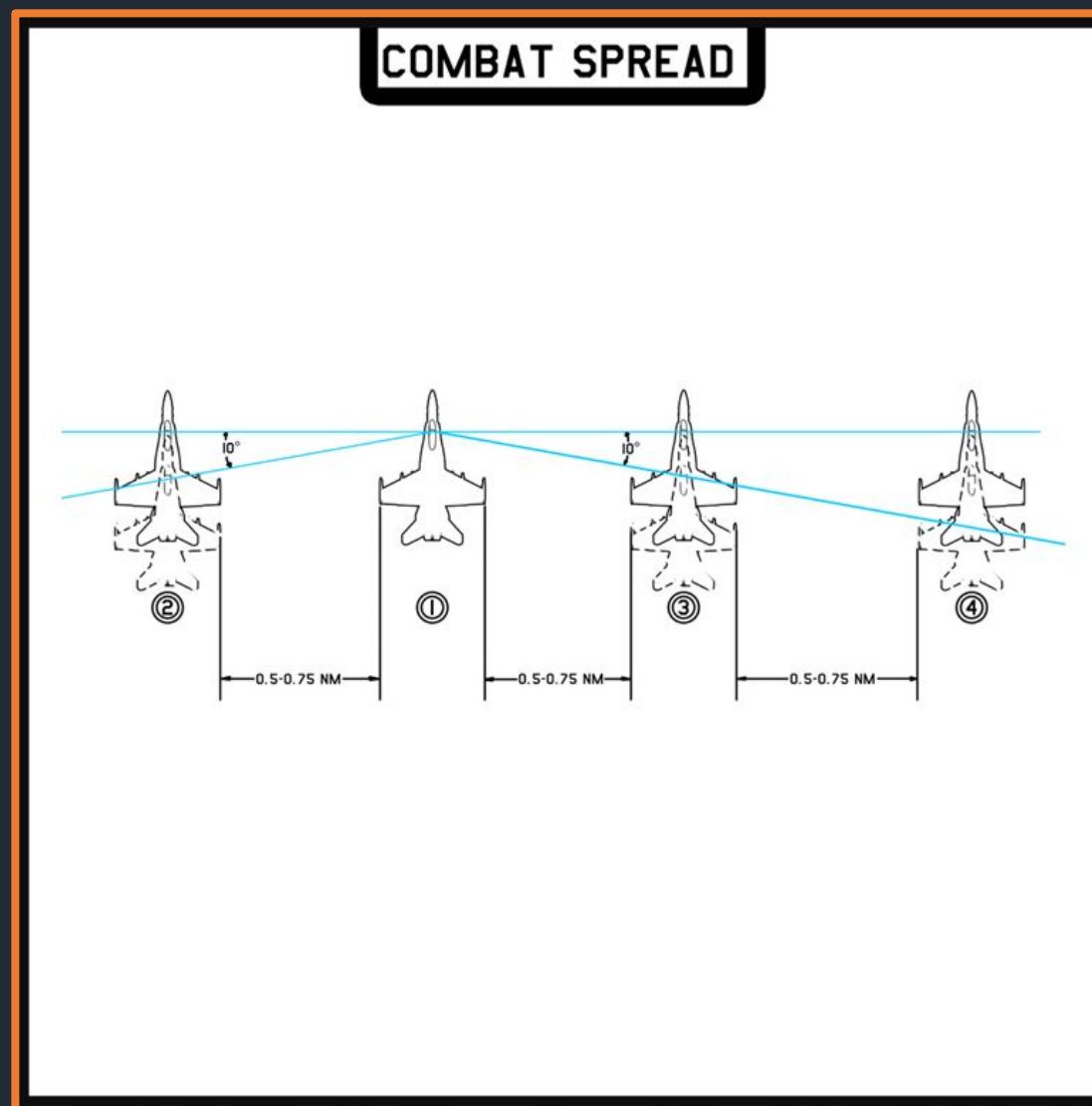
CRUISE FORMATION





COMBAT SPREAD

- **“Combat Spread”**
 - "Line Abreast"
 - Approx. .5-.75nm spacing horizontally.
- Used when enemy contact is imminent.
 - Particularly common in BVR A2A engagements.
- Lead will provide speed, altitude, reference heading.





FORMATION FLYING

Formation flying is a foundational skill to being a good fighter pilot, but it's also something that takes time.

Commit the different formations to memory and understand that it's going to take time to be able to fly them perfectly. Make small adjustments. See what the jet does. You'll get the hang of it.

As with getting to Carnegie Hall, the key element here is practice, practice, practice!



TAC TURNS

- Hard as it may be to believe, sometimes the formation needs to do something beyond just flying straight and level.
- To change the direction of the flight, the flight lead will often utilize a ***Tac Turn***.
 - *Naturally, as these turns involve multiple aircraft maneuvering in close proximity to one another, it's important to drill them into your head to avoid any mid-air!*
- ***Per CVW-14 SOP, you are expected to be familiar with 3 standard Tac Turns:***
 - ***Tac 90, Tac 180, Tac 45***
 - No points for guessing where the names come from...



TAC TURNS



- Standard Procedures for TAC Turns:

- **Full Military Power (MIL).**
- **3G Pull***

- In a combat environment we'll often pull for a specific airspeed instead of a specific g-load, but for training standardize on the 3G Pull. Flight leads are responsible for calling this out!

- Nomenclature:

- **Inside Fighter (IF).**

- The fighter “inside” the turn, i.e. the left fighter in a left turn.

- **Outside Fighter (OF).**

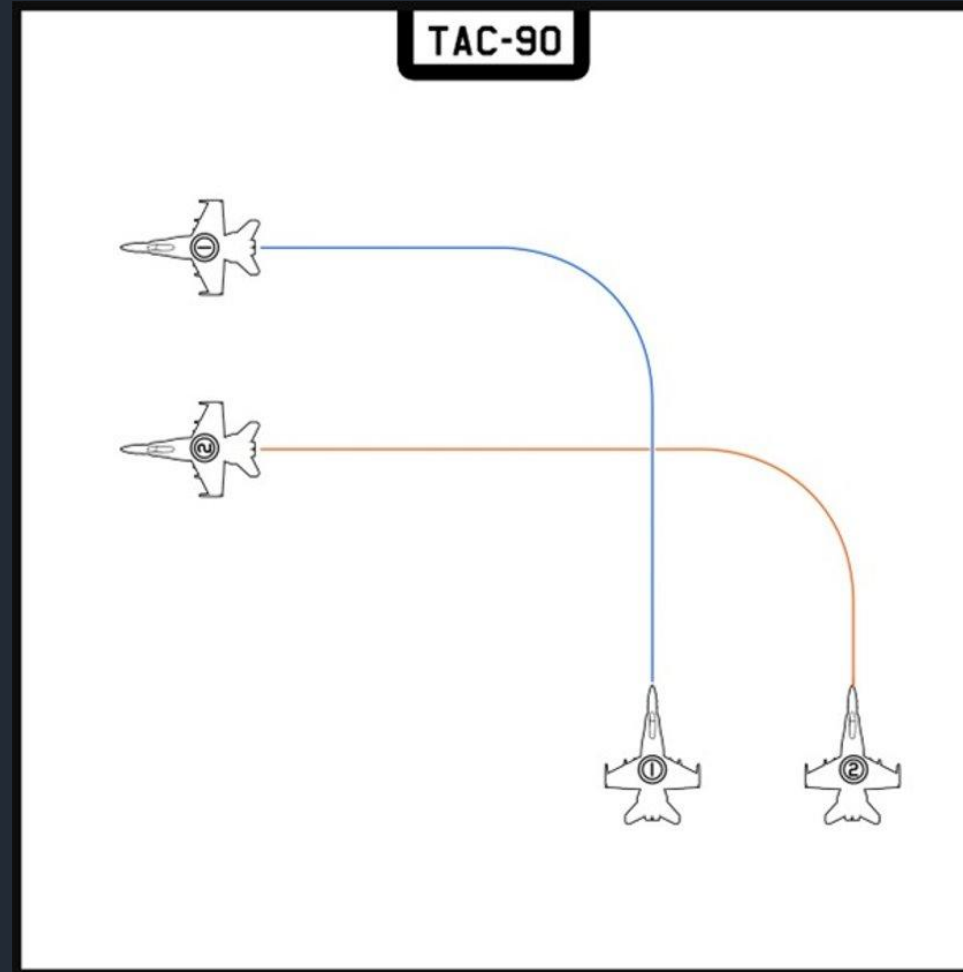
- The fighter outside the turn, i.e. the right fighter in a left turn.



TAC 90



- OF starts a turn to heading first.
- Once OF “nose on” to IF, IF turns to new heading.

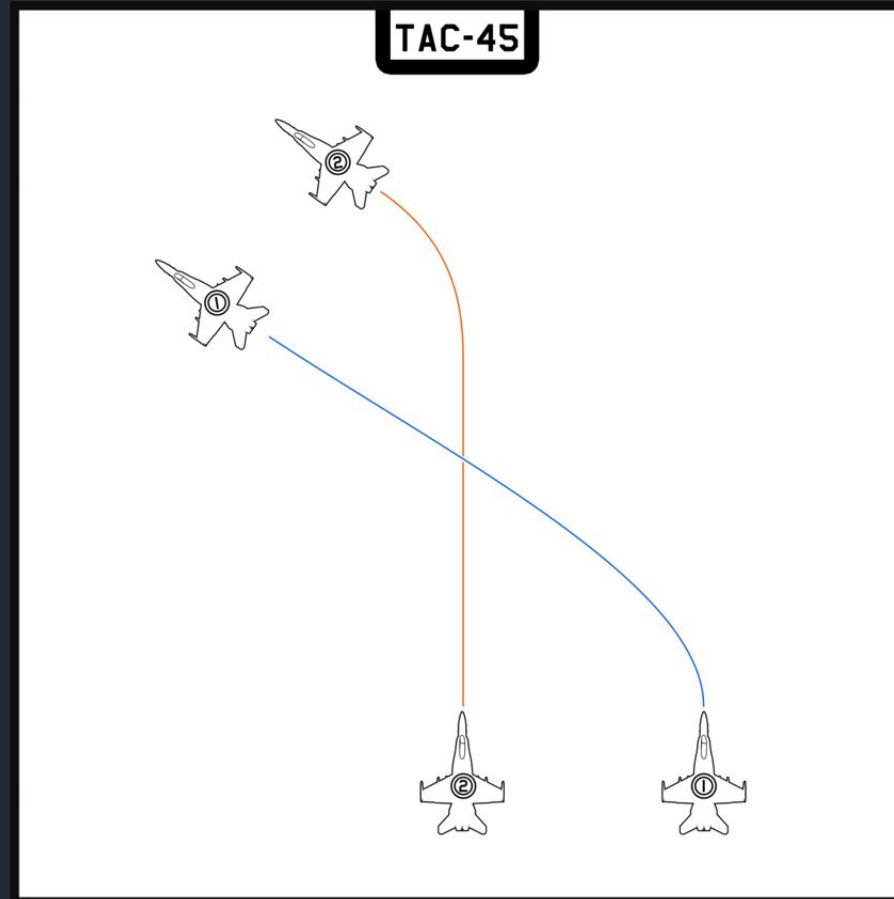




TAC 45



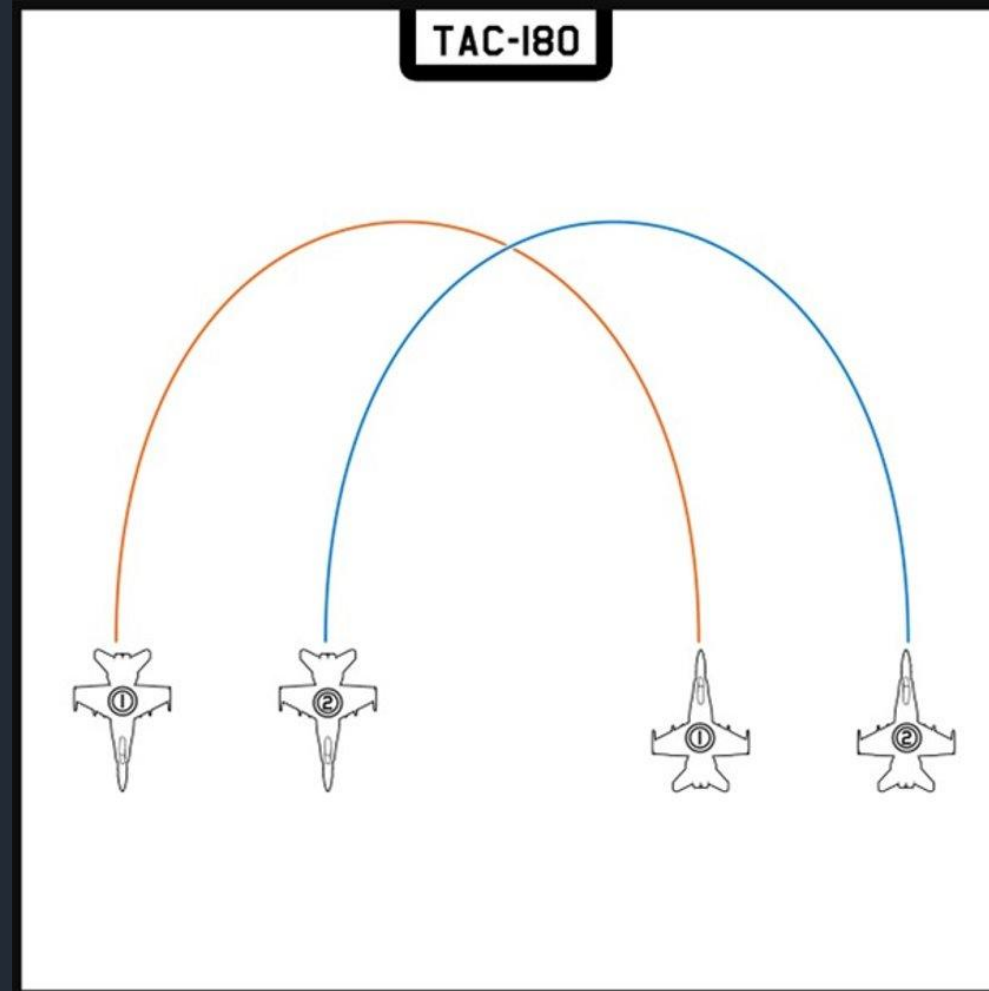
- **OF** starts a turn to heading first.
- Once **OF** passes behind **2**, **IF** turns to new heading.





TAC 180

- *Entire flight* turns at once.
- SOP direction to the left.





TAC TURNS

- Note that in all of these cases, *the order of the flight reverses:*
 - If -2 was on the left and the flight does a tac turn, he'll now be on the right.
- Unless otherwise directed by the FL, *just stay in that new position:*
 - When you get out of spread and back into Cruise or Parade to go home, you'll most likely go back to your normal position in the formation.

TOPIC 1.5 – LANDING

"What is an overhead break, and how is it performed?"





THE OVERHEAD BREAK

- **FCLP** stands for **Field Carrier Landing Practice**. Basically, it's an approach to a land airfield flown as you'd fly an approach to the deck of the carrier.
 - The main difference here is that if you fuck it up you don't slam into the back of the boat.
 - There is no FLOLS in DCS on shore.
 - Oh, and also the airfield doesn't move. The boat does. So there's that.
- One wrinkle here is that when we fly at Nellis, there are, y'know, mountains.
- FCLPs aren't flown at Nellis IRL, but a variation called the **Overhead Break** is pretty much the standard recovery for tactical jets.
 - We just introduce the FCLP terminology now so you get an idea of the basic flow of a carrier landing, but know that the Nellis numbers are a little different!



THE MARSHAL STACK

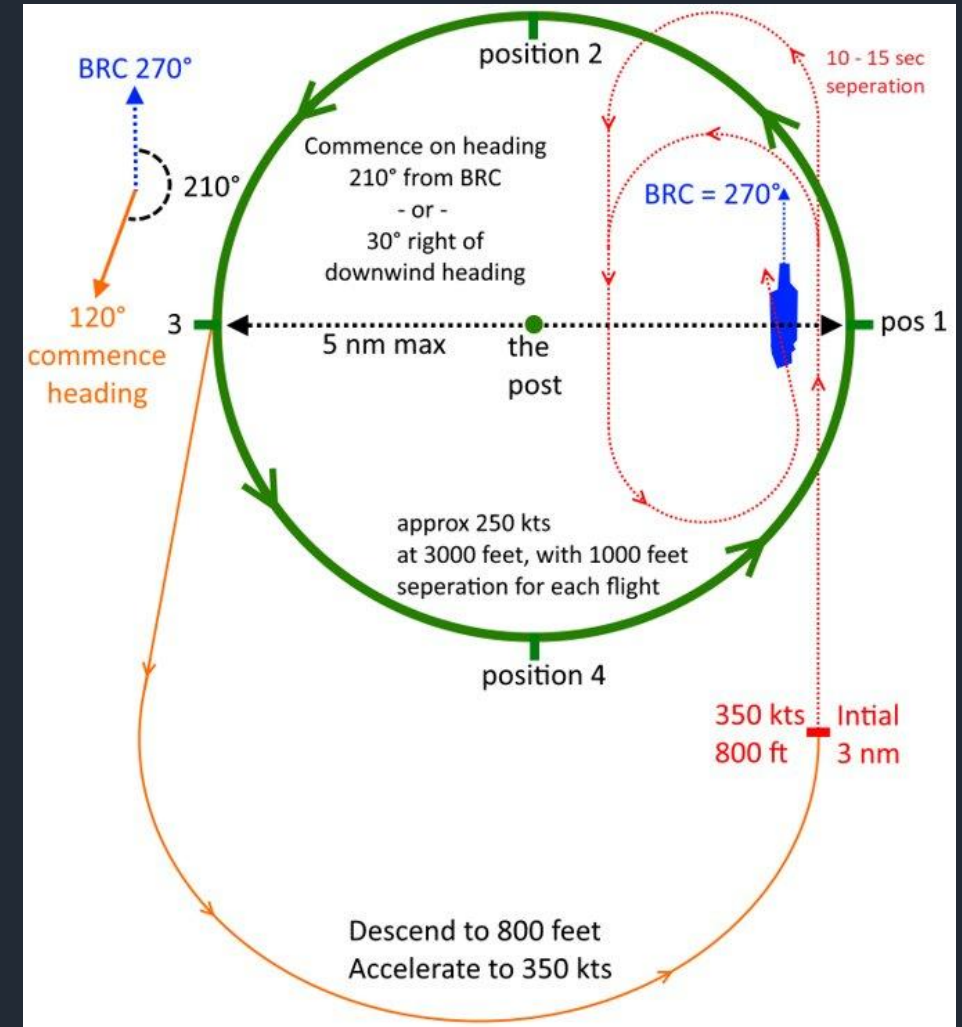
- In general, the airspace above the boat is pretty crowded.
 - If everyone just tried to head for the deck at once, you can imagine it wouldn't end very well.
- To organize the chaos, we use *the Marshal Stack*. The Stack keeps flights separated and helps maintain the proper interval for each flight to land.
 - Note that as a wingman, you'll generally be following a flight lead throughout this whole process (as you will be today), but it's presented here to start familiarizing yourself with it. Again, you never know when you may get stuck in the lead!



THE MARSHAL STACK



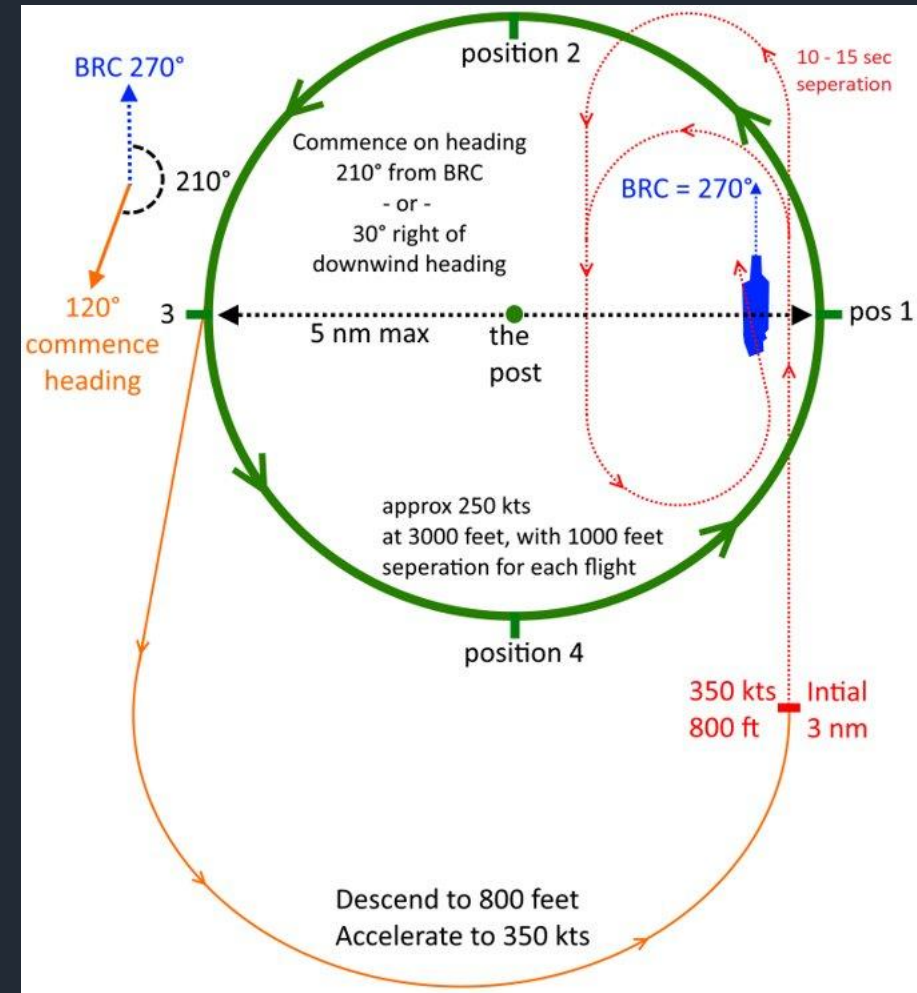
- As you approach the boat...
 - TACAN set to **Father** (The boat, but in this case Nellis)
 - Call Inbound NLT 50nm on Carrier/Field Freq
 - *More on carrier comms later*
 - Set CRS needle to **BRC**
 - "Base Recovery Course" – the heading the ship is moving in, but not the course for the angled deck!
 - Today, use the runway at Nellis
 - Set HSI range to 10 miles
 - Call "See you at 10"
 - Descend/Join Marshal stack **from any radial**





IN THE STACK

- Flights will transition to *Echelon Right* formation
- 2000' first, then +1000 ea flight
- 250 KIAS
- Maintain w/in 5nm radius of Mother
 - ~*half standard-rate turn* – use the ADI!
- Descend at *position 3* as each flight leaves the stack

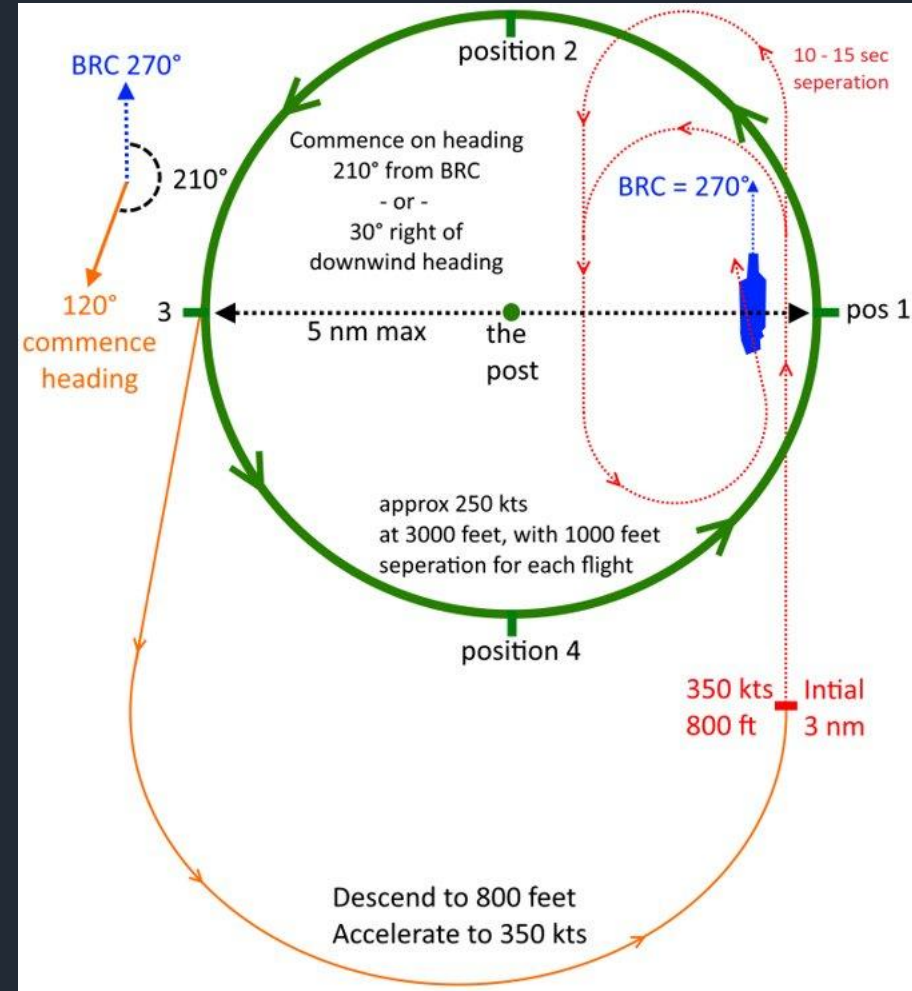




COMMENCE TO INITIAL



- **Commence at Position 3**
 - Accelerate to 350 KIAS
 - Descend to 800* AGL
 - This is the number for the boat – at Nellis, we've got quite a bit more terrain to deal with. A safe initial altitude is about 1500 feet AGL.
 - Hook down
- Pass the runway (boat) on the right, verify clear runway (deck)
- Lead will break approx. midfield, 17 second intervals following, NLT 7 miles
 - This spacing is crucial to ensure proper separation on touchdown!





THE PATTERN: BREAK TO DOWNWIND

1. Flights will pass the INITIAL POINT at 3500ft in Echelon Right formation at 350 knots.
 - I. At the boat, this would be 800 feet.
2. Break at 17 second intervals, NLT 7 miles.
 - I. IRL on a shore field this is shorter, but we use 17 to keep things consistent
 - II. Speed Brake OUT
 - III. Pull approx. 1% of speed as G-Load*
3. Roll out on downwind on reciprocal heading.
 - I. Aim for about 1.1-1.3 miles from the runway.
 - II. Put the wing of your jet on the HSI on the course line and you're golden!
4. As you slow through 250 KIAS, Gear Down, Flaps Full
5. Trim to **On-Speed AOA**.
 1. Use your E-Bracket!
6. Once on downwind, descend to 600'
 - I. "Pitch for speed, power for altitude"

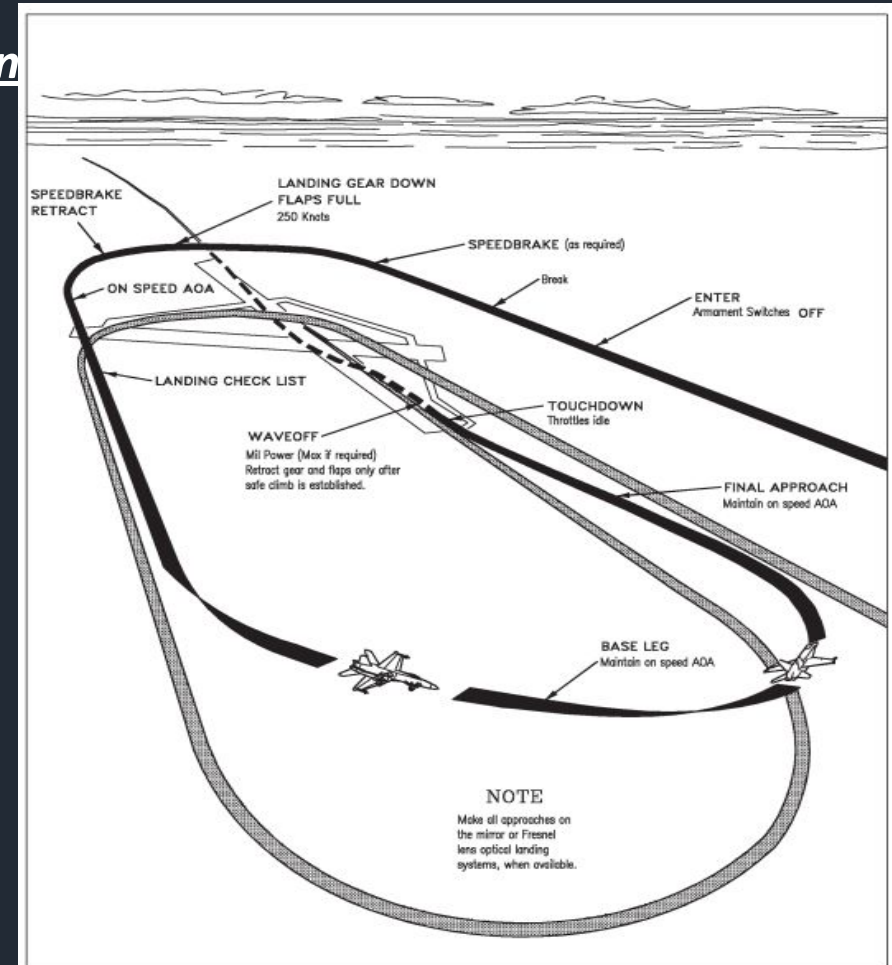


Figure 7-2. Field Landing Pattern Typical

III-7-31

ORIGINAL



THE PATTERN: BASE TO FINAL

1. Start final turn just beyond the end of the runway
2. 100-200 feet per minute descent rate.
3. 25-30 degrees angle of bank maintaining on-speed AOA (throttle controls altitude!).
4. Roll out on final at $\frac{3}{4}$ mile, wings level.
5. Power to idle at touchdown.

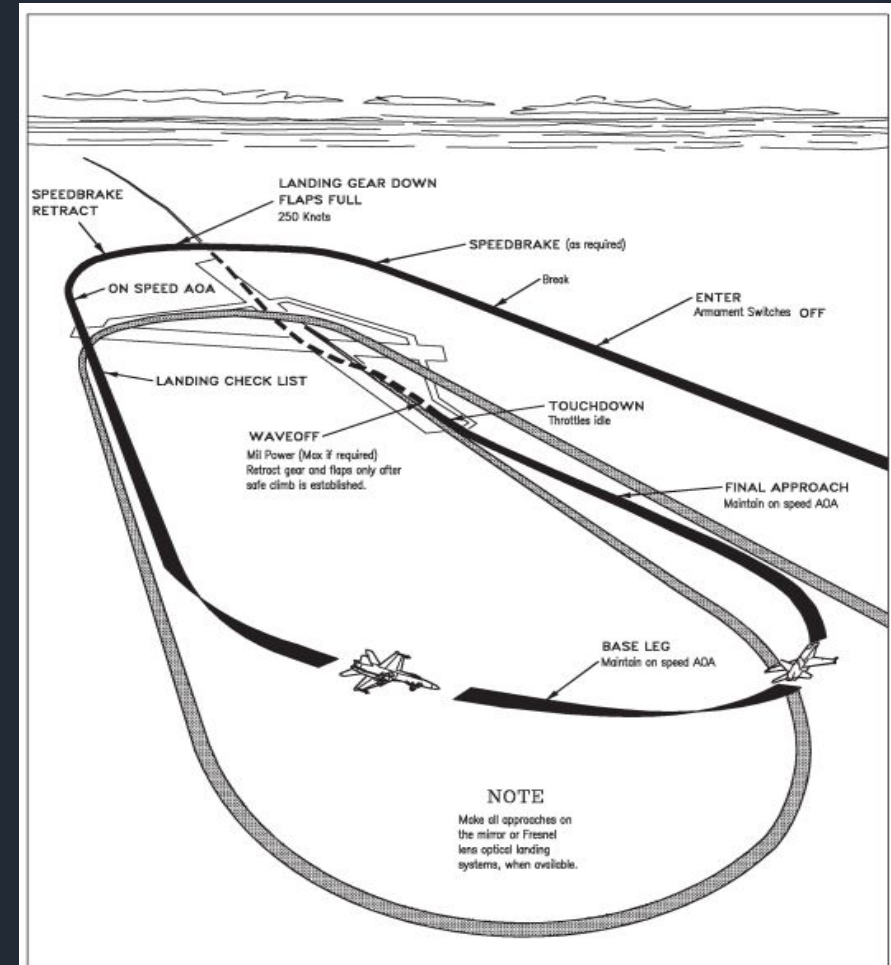


Figure 7-2. Field Landing Pattern Typical

III-7-31

ORIGINAL



THE PATTERN

Like with flying formation, there's a lot to landing and looking like you know what you're doing.

You're probably going to suck at this the first few times. That's alright. I don't expect it to be perfect today, just not "blatantly unsafe."

That's why we're doing this now, so in 2 weeks you can land on the boat!



WHAT QUESTIONS DO WE HAVE?

