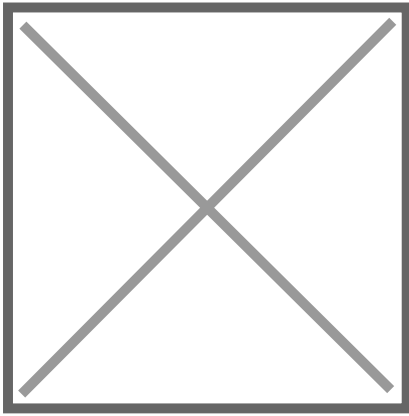


Marshall stack



The stack (overhead port holding) is defined as a left-hand pattern tangent to the BRC with one side located directly overhead the carrier position and the other 5 NM on the port side of the carrier.

The stack has four points. point one is directly overhead the carrier with points 2, 3 and 4 incrementing 90 degrees in the direction of flow.

Every flight gets assigned a stack altitude by the marshal, separated by 1000ft. All aircraft must remain within 5 NM of mother and no lower than 2,000 feet AGL while in the pattern.

Within the stack, climbs are performed between points 1 and 3 (climb area) and any descents are performed between points 3 and 1 (decent area).

The climb area is rarely used, but exists for altitude corrections or for departing the pattern to the recovery tanker. Normal recoveries do not use the climb area.

Entering the stack

Note: For the sake of simplicity, we will ignore Red Crown and Strike (ATC frequencies) as they do not add much to the landing and require two more human ATC's.

Before entering the stack, all flights will contact Marshal when approaching the carrier control area (50 nm from the carrier). The check-in call includes the flight's composition, position (bearing and range from mother), altitude, and fuel state. Marshal will provide each flight a stack altitude if not pre briefed, confirm recovery Case, and provide the expected BRC and Charlie time if applicable.

When the flight is visual with mother, max at 10 nm, they will report "see you at X" and switch to tower.

Flights may enter the stack from any direction but must enter tangentially and wings level. You are required to be established at your assigned stack altitude no later than 10 NM from the carrier. If another flight is already at your altitude, you should visually space out to maintain separation between other flights at the same altitude. For example, in case there are a total of two flights at the same altitude, they would ideally maintain 180 degrees separation, for 3 flights it's 120 degrees, etc.

Charlie

The first flight to recover has to ensure that the signal is Charlie before landing, meaning the deck is ready for recoveries to start. In most cases, there is a pre-briefed Charlie time, which is the time the first flight should arrive in the groove. In that case, the lowest flight should visually confirm a green deck and commence about 4-5 minutes before the given Charlie time. Sometimes Tower may call "100, signal is Charlie" to start the recovery immediately, but this is uncommon.

So "100, signal is Charlie" is not something the tower says to clear you to commence. It indicates the mother is ready to start the recovery procedure immediately.

Laddering down

The purpose of the marshall stack is to organize and sequence flights for an efficient and safe entry into the landing pattern. This sequencing is done visually by the flight leads through a process called laddering down or collapsing the stack.

Laddering Down Procedure:

- When a flight visually confirms that it is safe to descend to the lower altitude with safe spacing, they may descend to that lower level between points 3 and 1.
- After descending, the flight will space itself appropriately in the new layer, maintaining maximum separation from any other flights.
- Flights continue this stepwise descent until they reach the lowest layer.

Note: All flights must keep an eye on other flights both above and below them in order to plan their descent and allow them to create separation when other flights descend. It is advised to have no more than two flights at the same altitude if there is room on top of the stack.

Commencing

The lowest flight (typically at 2,000 ft) may commence at their own discretion, once the deck is ready. It is up to this flight to ensure they will arrive at the Initial without causing congestion.

Commencing is done strictly from point 3, where roll out at BRC+210 (counter course +30 degrees), start descending, speed up to 350, and then start your left turn towards initial 5.5nm from mother.

Note: It is advised to only commence with 1.5+ minutes separation to ensure efficiency and prevent over-congestion in the landing pattern.

Comms

In a non-Zip-Lip Case 1 recovery, the standard comms are:

- “Established at X” - when established in the stack
- “Commencing” - when leaving the stack for initial.
- “Initial” - when 3 NM astern, wings level at 800 ft.
- “Spinning” - if entering the spin pattern.
- “Hornet Ball X” - when acquiring the optical landing system on final approach. Include your state.
- LSOs will respond to the ball call with “Roger Ball” or other voice calls as needed.

During zip-lip, which is very common, comms are minimized and the following comms are left out entirely:

- “Established at X”
- “Initial”
- “Roger ball”

Never transmit on the radio when another aircraft is on the ball, unless required for safety of flight.

Sources

NAVAL AIR TRAINING COMMAND - P-816 - FLIGHT TRAINING INSTRUCTION - CV PROCEDURES - T-45C - 2014

NAVAIR 00-80T-105 - CV - NATOPS MANUAL - 2007

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