FLIGHT APPRENTICE

HOLDING OVERVIEW

HOLDING IS A FANCY TERM FOR FLYING IN CIRCLES...

WHY HOLD?

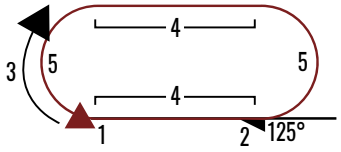
Airplanes hold by ATC request or by choice for various reasons

— Weather Delays
— Congested Airspace
— Troubleshooting Issues
— Changing Plans

DEFINING A HOLD

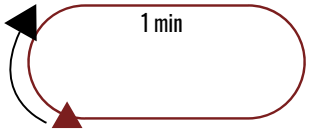
A hold is comprised of 5 elements:

1. Holding Fix
2. Inbound Course
3. Turn Direction (Left Or Right)
4. Length Of Legs
5. Two Standard Rate Turns



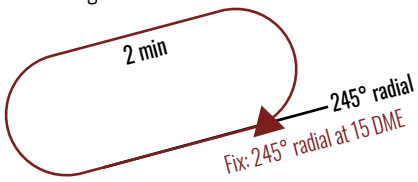
THE STANDARD HOLD

A standard hold is right turns with 1-minute inbound legs. Depending on the wind, pilots may need to adjust the length of the outbound leg to maintain a 1-minute inbound leg.



DIFFERENT KINDS OF HOLDS

Holds can be customized by changing direction of the turn, the inbound course, and by changing the length of the legs.



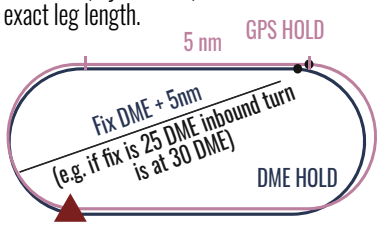
In this example the hold is left turns, 2-minute legs, with a 065° inbound course.

DME VS. GPS LEG LENGTH

Some holds use distance instead of time to define leg length.

The exact dimensions of a hold will vary depending on whether the distance is measured using DME or GPS.

DME holds include the slant-range error in measuirng DME from off-radial. GPS holds, by contrast, measure the exact leg length.



THERE ARE 3 STANDARD WAYS TO ENTER A HOLD

DIRECT

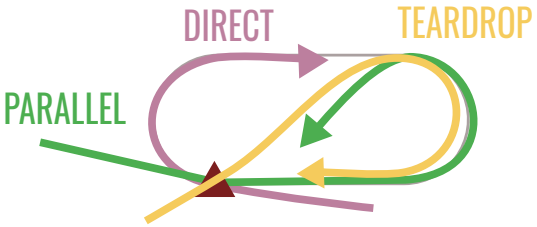
After crossing the holding fix, turn to the outbound course

PARALLEL

Parallel the outbound leg and accomplish a course reversal

TEARDROP

Fly a 30° offset from the outbound leg and accomplish a course reversal.



TO DETERMINE THE ENTRY TYPE ALL YOU NEED TO KNOW IS

1. The outbound course
2. Your heading/track direct to the holding fix
3. The holding direction (right or left)

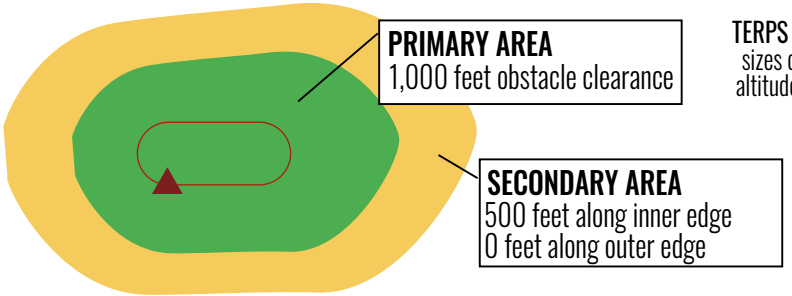
More about this on the Holding Entries handout!

THE FIVE T'S

TURN — Initiate a turn
TIME — Start a timer
TWIST — Set a new OBS course
THROTTLE — Power changes
TALK — Advise atc

TERMINAL PROCEDURES (TERPS) SPECIFICATIONS

There's a lot that goes into establishing the size of the protected areas, but the bottom line is **there's a lot more space than you'd expect.** Often the non-holding side is referred to as "non-protected" but both sides are actually quite protected.



TERPS defines **28** different sizes of holds for different altitudes and ground speeds

HOLDING SPEED LIMITS

200 KIAS S.L.-6000 MSL
230 KIAS 6001-14000 MSL
265 KIAS 14000+ MSL

If you're too fast, you may not stay in the protected area of the hold