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# MALIBU AIRBORNE RADAR REFERENCE GUIDE

***A.R.T. Specifications: Antenna Size – 10" • Beam Width – 10°***

***Beam Width***

*10nm = 10,000′ ~ (1.66nm)*
*20nm = 20,000′ ~ (3.33nm)*
*30nm = 30,000′ ~ (5.0nm)*
*60nm = 60,000′ ~ (10nm)*

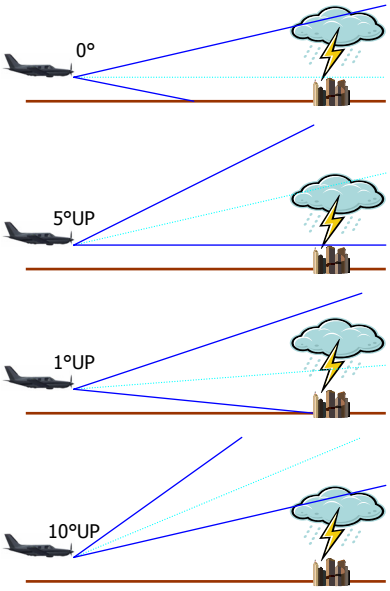
***Antenna Tilt – (nm x 100 = ft./degree)***

*10nm ~ 1°=1,000′*
*20nm ~ 1°=2,000′*
*30nm ~ 1°=3,000′*
*60nm ~ 1°=6,000′*

***To Calibrate Radar Tilt Angle –***

Altitude (AGL) = nm until ground return +5°
Example – 15,000′AGL @ 15nm until ground return, then add 5°UP
Once setting is determined, this is *Calibrated Zero Tilt* Angle
(see graphic example of calibration below)

Add 5° UP Tilt to the Calibrated Zero Tilt Angle to align the *Bottom of Beam Parallel to the Ground*. Use to identify if precipitation is above your altitude.




***Normal Sweep Position –*** Cruise Flight

Bottom of Radar Beam should be angled 4° Down Toward the Earth

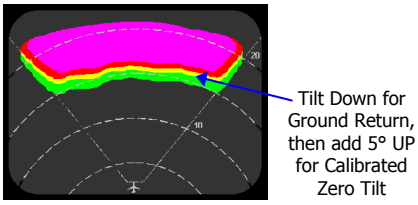
***Height Evaluation Position –*** Terminal Areas

Center of Radar Beam Should be 10° UP (5 – 6 Sweeps at a time)
Any returns here should be Evaluated / Avoided

***Weather Clues to Watch For –***

*If you see potential weather, ask these questions:*

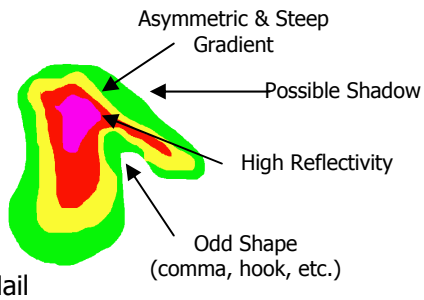
1. Is the local atmosphere unstable? (Convective?)
2. Is the Dew Point above 50°? (High Moisture Content)
3. Is the Temp/Dew Point Spread >30°? (Dry, Microbursts)
4. Is the Cell Movement >10kts? (Gusts are based on movement +30kts)
5. Is there Visible Evidence of a Hazard? (Lightning, Rain, Dark Clouds)
6. Is it the Southern Most Cell in a Line? (Highest Volatility Potential)



15nm @ 15,000′AGL
Radar Calibration

*Things to Watch for on the Radar Screen:*

1. Light Thundershowers are typically Round or Oval
2. Asymmetrical Gradients (& Steep Gradients) mean Strong Storms
3. Odd Shapes (Hooks, Bows, Pendants) are Strong Storms
4. Hourglass Shapes are Extremely Strong Storms
5. Missing U or V shaped areas mean Strong Storms
6. Pendant shapes pointing SW (narrow end) are particularly bad
7. Is it Casting a Shadow? (Never fly into a RADAR Shadow)
8. Is the Reflectivity Above 50dbz,(Red), or 57dbz,(Purple)?
9. Is the height above 15,000′? (Strong Storms)
10. Cells with Tops >10,000′ Above the Freezing Level have Damaging Hail
11. Cells with Radar Tops >30,000′ are Severe Storms, *STAY AWAY!*

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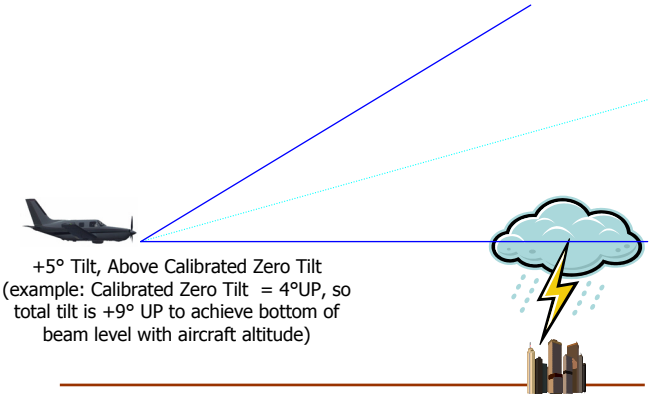
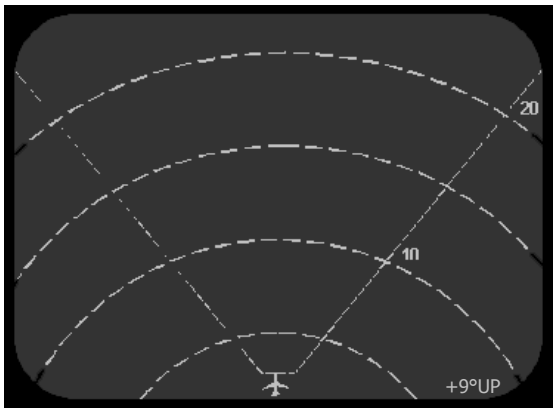
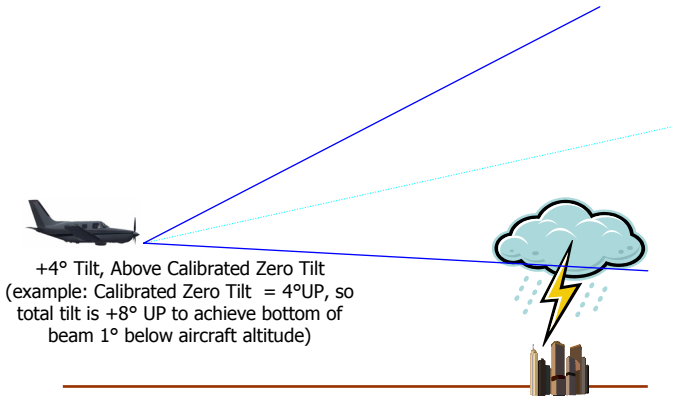
# SAMPLE CONDITIONS

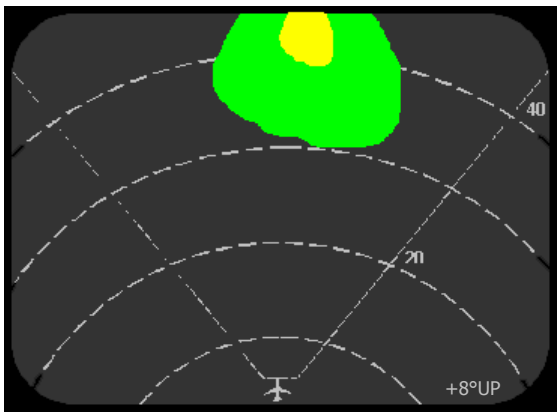
***RADAR SCENARIO*** *• Cruise Flight @ FL250 • OAT is –23°F • Ground Elevation = 1,000'MSL*
*Height Above Ground = 24,000'AGL • Calibrated Zero Tilt = +4°UP • Approaching Area of Weather*



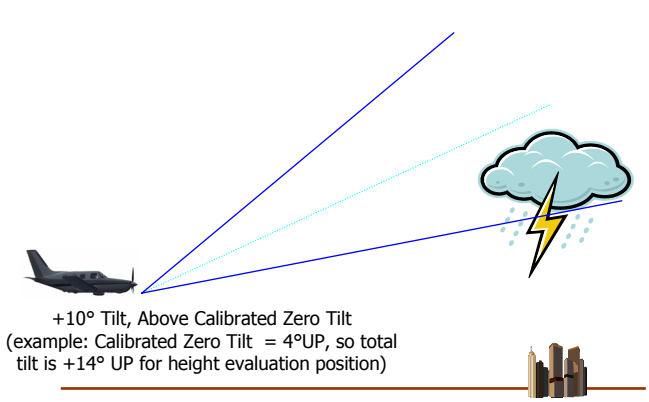



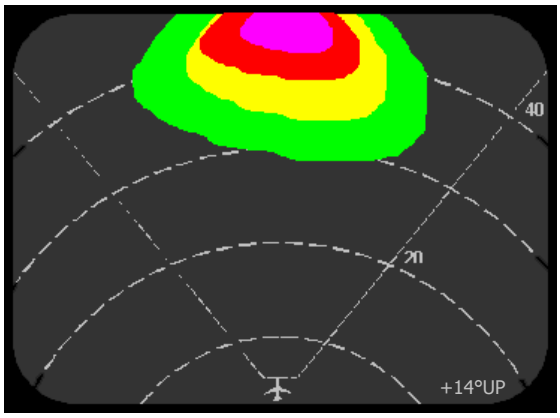

***Scenario 1:*** No radar returns on screen, so precipitation must be below aircraft altitude.




***Scenario 2:*** Radar returns at 1°DOWN and 30nm, so precipitation is approximately 3,000' below aircraft altitude.




***Scenario 3:*** Radar returns at more than 10°UP and 30nm. Intense precipitation is above aircraft altitude,(unknown height), and more than 10,000' above the freezing level,(above FL250).
STAY CLEAR – CONVECTIVE ACTIVITY, POSSIBLE HAIL AND BAD ICING!

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