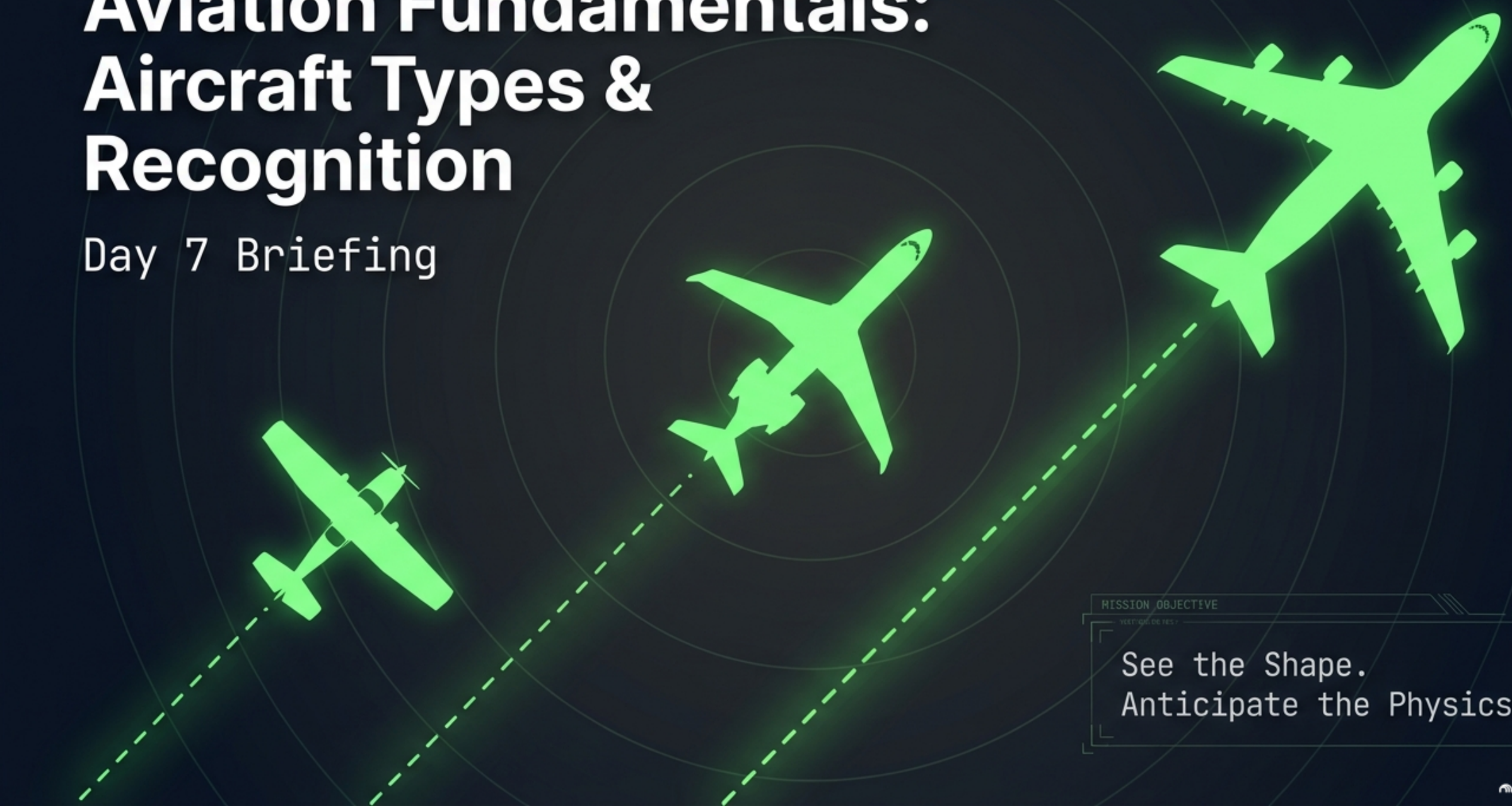
Aviation Fundamentals: Aircraft Types & Recognition

Day 7 Briefing



MISSION OBJECTIVE

See the Shape.
Anticipate the Physics.

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The One-Second Decision



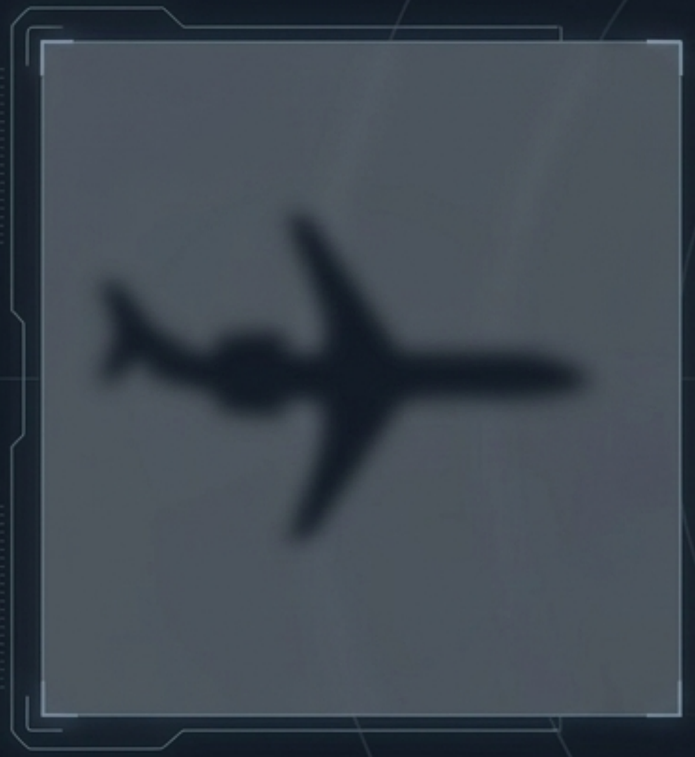


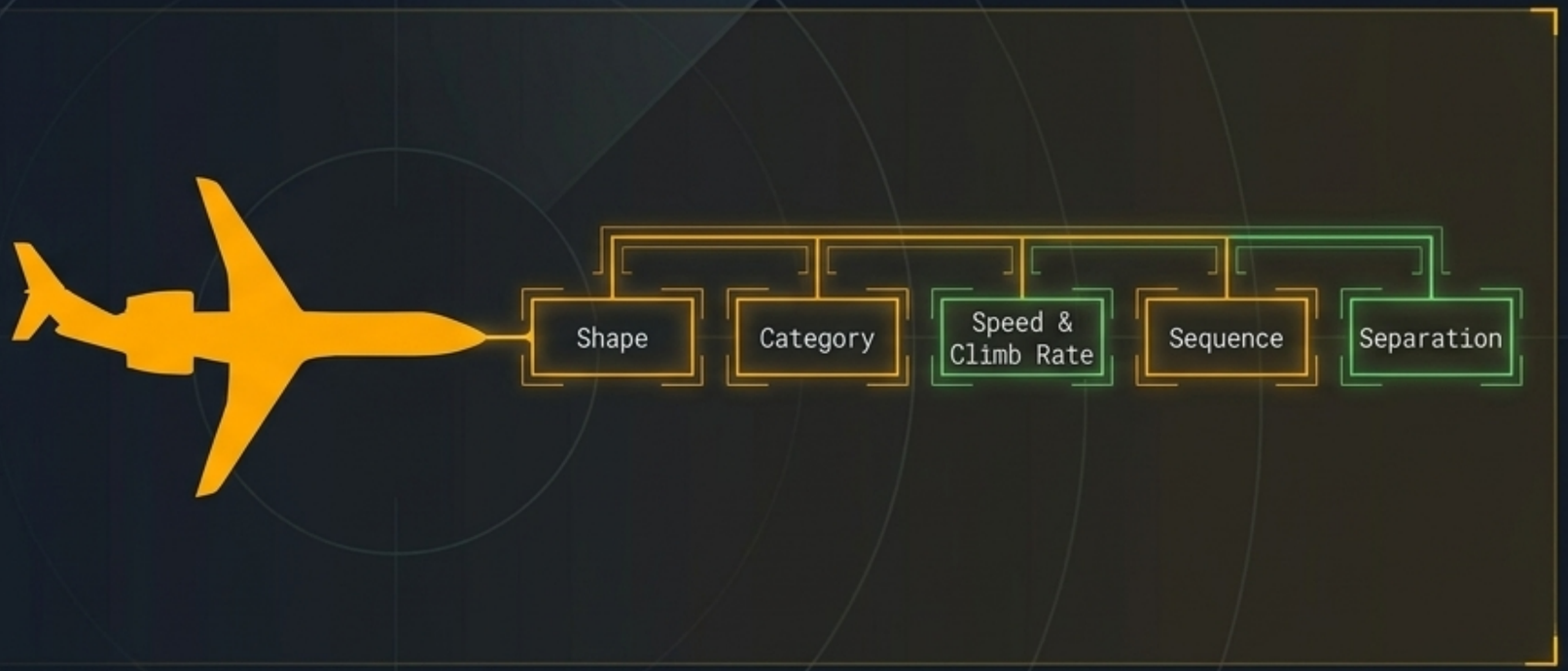


Which is fastest?
Which is heaviest?
You have one second.

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Recognition is the First Input





Every second spent identifying an aircraft type is a second not spent managing traffic. Recognition must be fast and automatic. It drives performance expectations, and performance drives every decision a controller makes.

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The Scale of Aviation



Small / Slow / Agile

Massive / Fast / Heavy

Aircraft category groups types by general performance limits.

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Anatomy of Quick Recognition

Wing Position & Span: High-wing vs. low-wing; total width dictates size class.

Empennage (Tail Shape): Conventional horizontal stabilizers vs. T-Tail configurations.

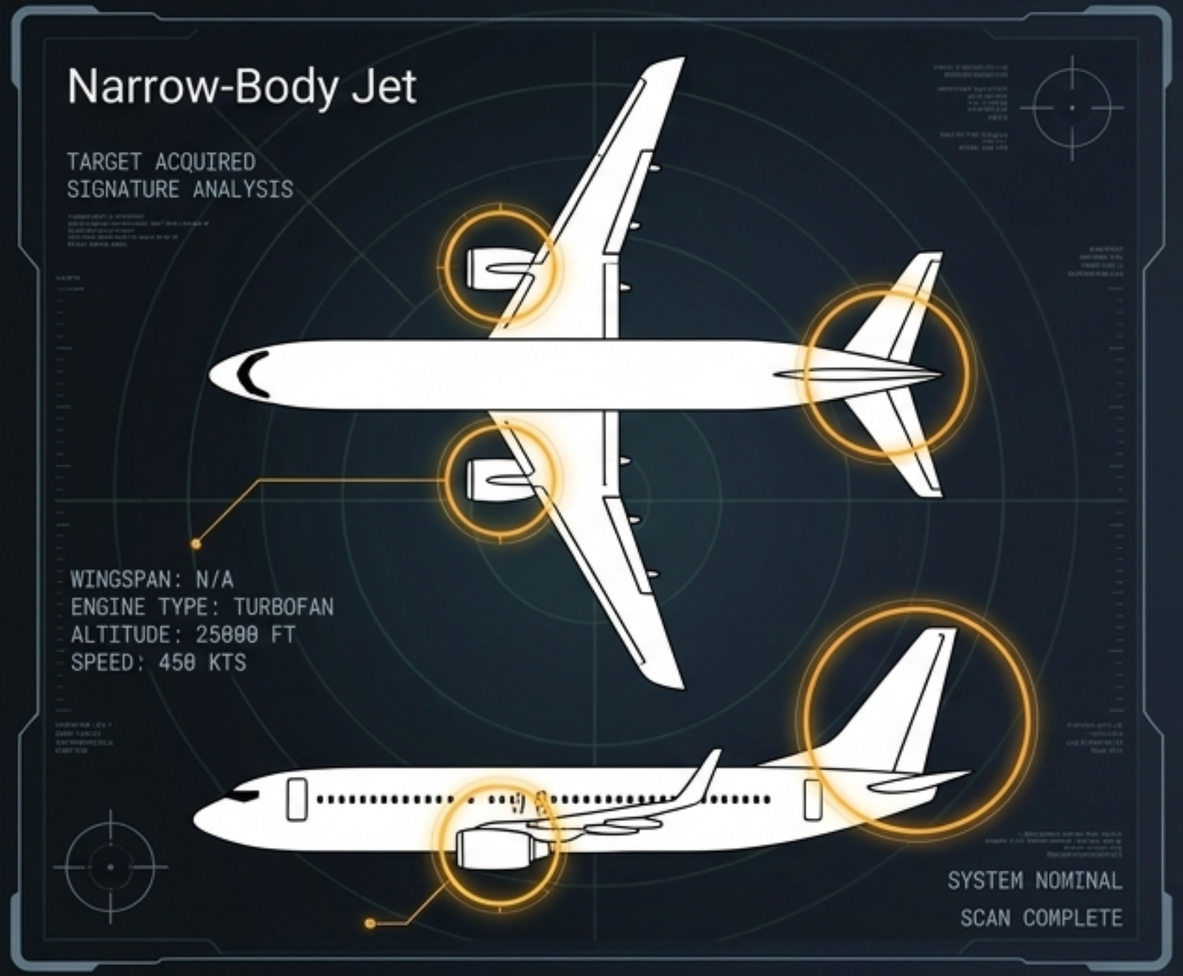


Engine Placement: Wing-mounted vs. fuselage-mounted; single vs. multi-engine.

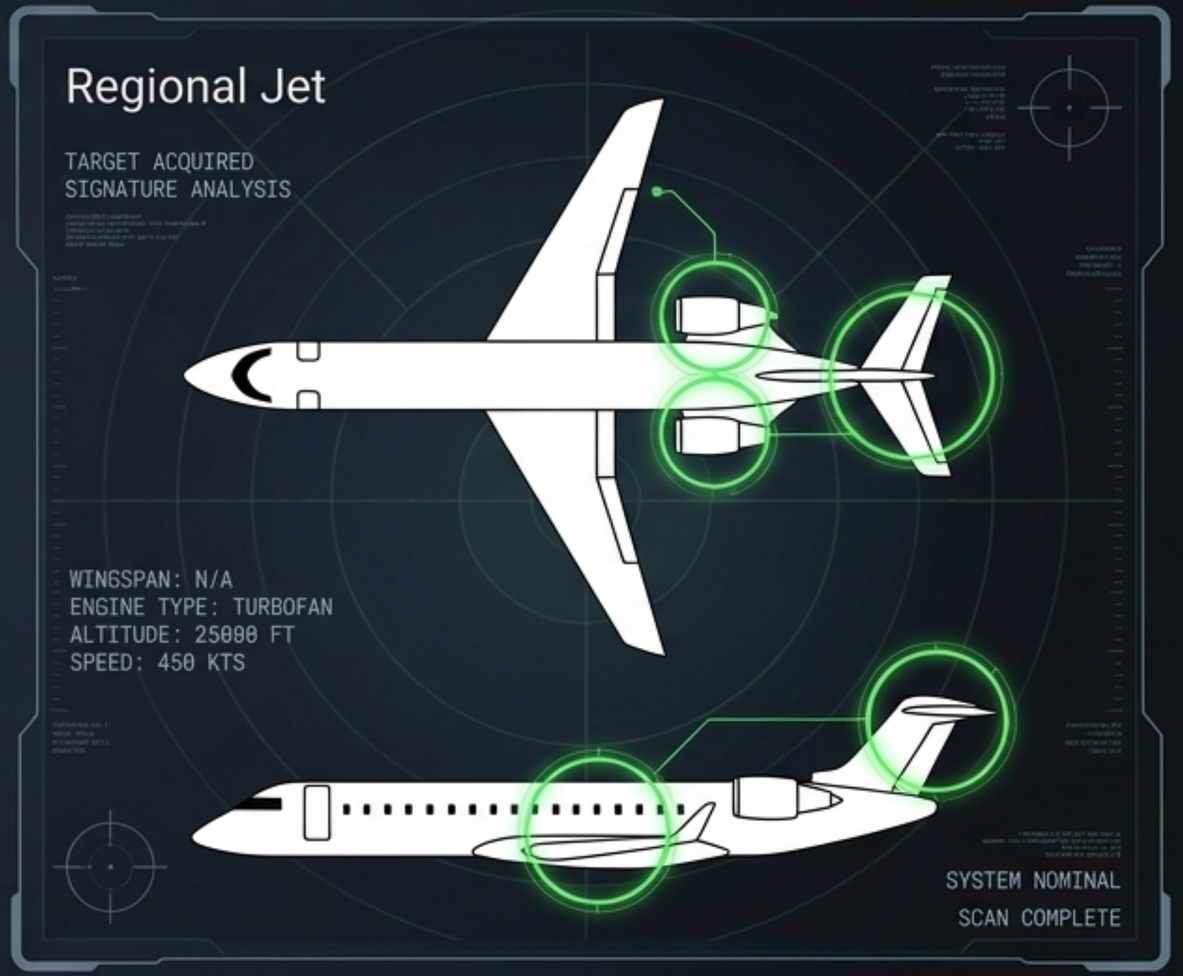
Empennage (Tail Shape): Conventional horizontal stabilizers vs. T-Tail configurations.

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Discriminating Similar Signatures



Narrow-Body: Single-aisle domestic routes. Look for under-wing engines and conventional empennage.

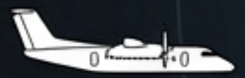


Regional Jet: Shorter routes, lower capacity. Look for fuselage-mounted engines and a distinctive T-Tail.

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The Spotter’s Matrix

Shape dictates category. Category dictates threat.

Profile	Engines	Empennage	Wake Threat	Typical Use
	Single Front	Conventional	Low	GA
	Top Rotor	Tail Rotor	Low	GA / Utility
	Twin Prop	Conventional	Medium	Short-haul
	Twin Rear	T-Tail	Medium	Comm Short-haul
	Twin Underwing	Conventional	High	Comm Domestic
	Large Underwing	Conventional	Extreme	Comm Long-haul

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The Invisible Threat: Wake Turbulence



- Larger, heavier aircraft generate violent, turbulent air behind them.
- Wake Turbulence Category is tied directly to aircraft size and weight.
- The heavier the aircraft, the more aggressive the wake.

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Physics of the Wake



Heavy planes create massive atmospheric disruption.

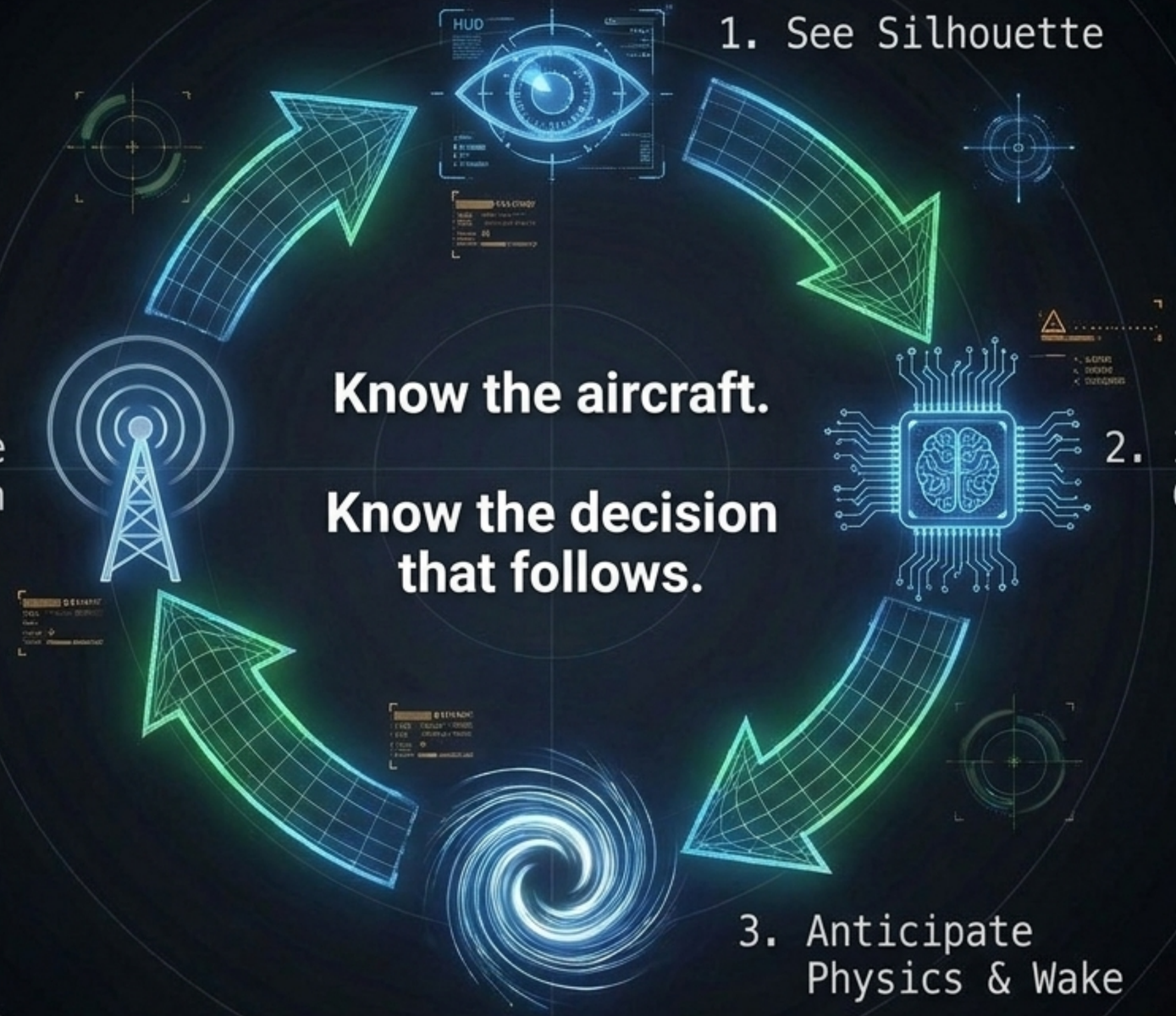
Small planes lack the mass to stabilize within that disruption.

This is the physical reason separation standards change based on aircraft category.

(Note: Exact numeric separation distances by category are verified against FAA Order 7110.65 via SME current publi

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The Perception-to-Action Loop



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Application: Caution Phraseology

Controller: Regional jet Four-Five-Six, traffic ahead is a heavy wide-body, expect wake turbulence, caution.



Pilot: Roger, caution wake turbulence, Four-Five-Six.



Controller: Four-Five-Six, follow traffic, maintain visual separation if able.

Pilot: Wilco, Four-Five-Six.

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Cognitive Lab: Timed Recognition Circuit



Platform: Microsoft Flight Simulator Reference Library.

The Drill: 15-image timed visual recognition circuit.

The Goal: Call out the correct category (not the model) instantly.

Standard: ≥80% accuracy required to pass.

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Controller Combine Arena



HUD

The Arena: 8 live tracks on the scope.

The Task: Call out the category and one performance implication (e.g.,‘wide-body, expect wider turn radius’) as tracks highlight.

The Trap: Visually similar categories will be presented together. Speed, accuracy, and discrimination under pressure are required. **Pass criteria**: ≥ 6 of 8.

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Daily Challenge & Assignments



Spotter’s Eye Challenge

eSports League Hub: Your Timed Circuit and Arena scores will combine for your Week 2 leaderboard rank.

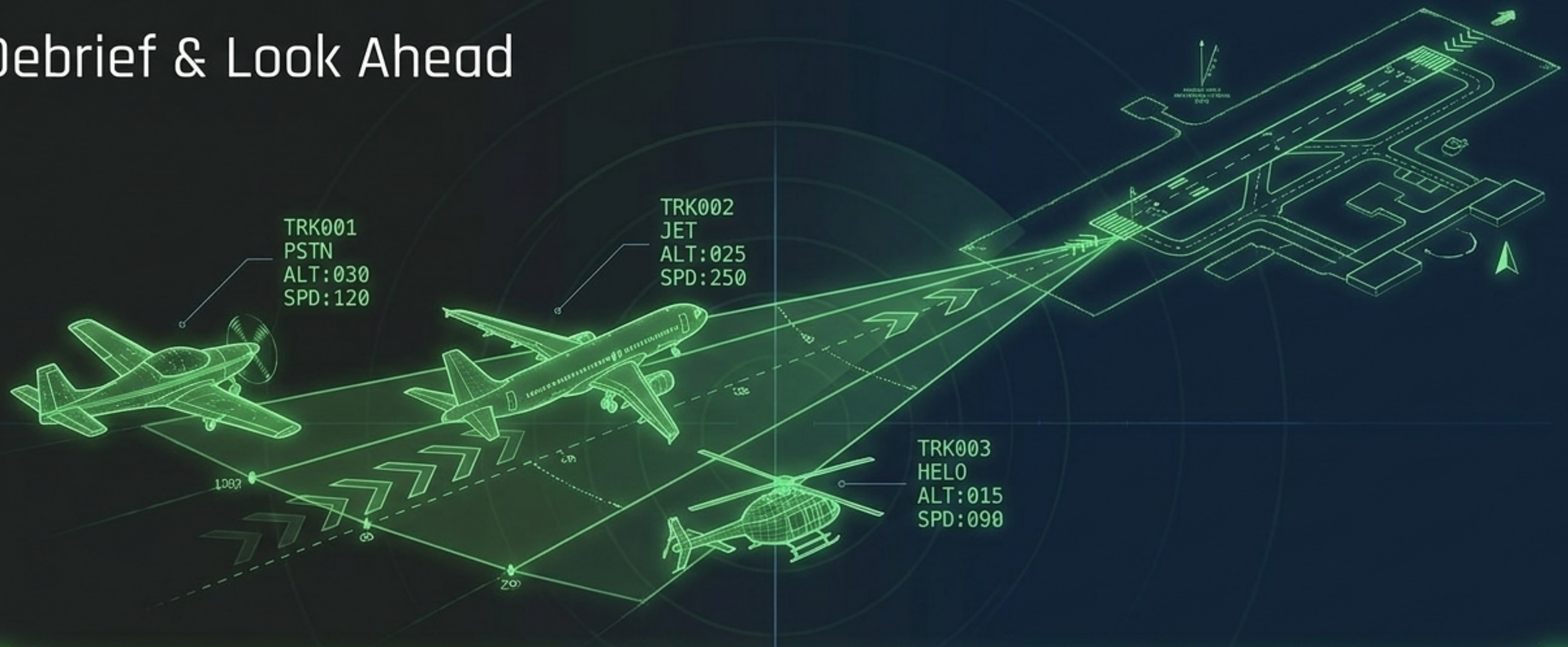
Applied Assignment



Applied Assignment: Build your 1-page personal Recognition Cheat Sheet. Sort all 6 categories by size, performance, and visual cues. Use it for the remainder of the program.

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Debrief & Look Ahead



Debrief: Recognition speed lowers workload. When identification is automatic, your cognitive focus remains entirely on safe separation.

Next Up (Day 8): Airport Anatomy. Where these specific aircraft categories live, maneuver, and park on the ground.

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