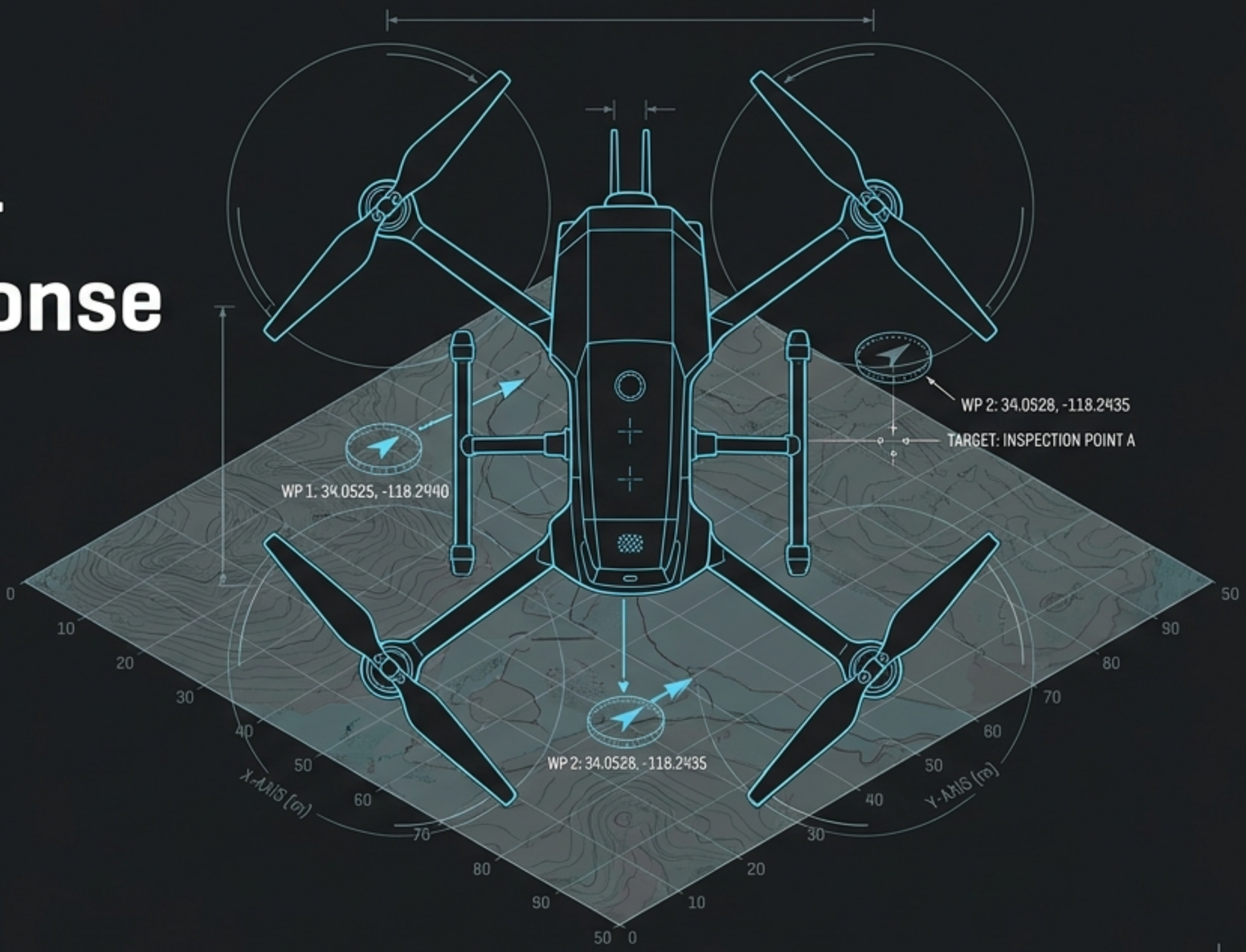
MODULE 6

ADM, CRM, Human Factors & Emergency Response

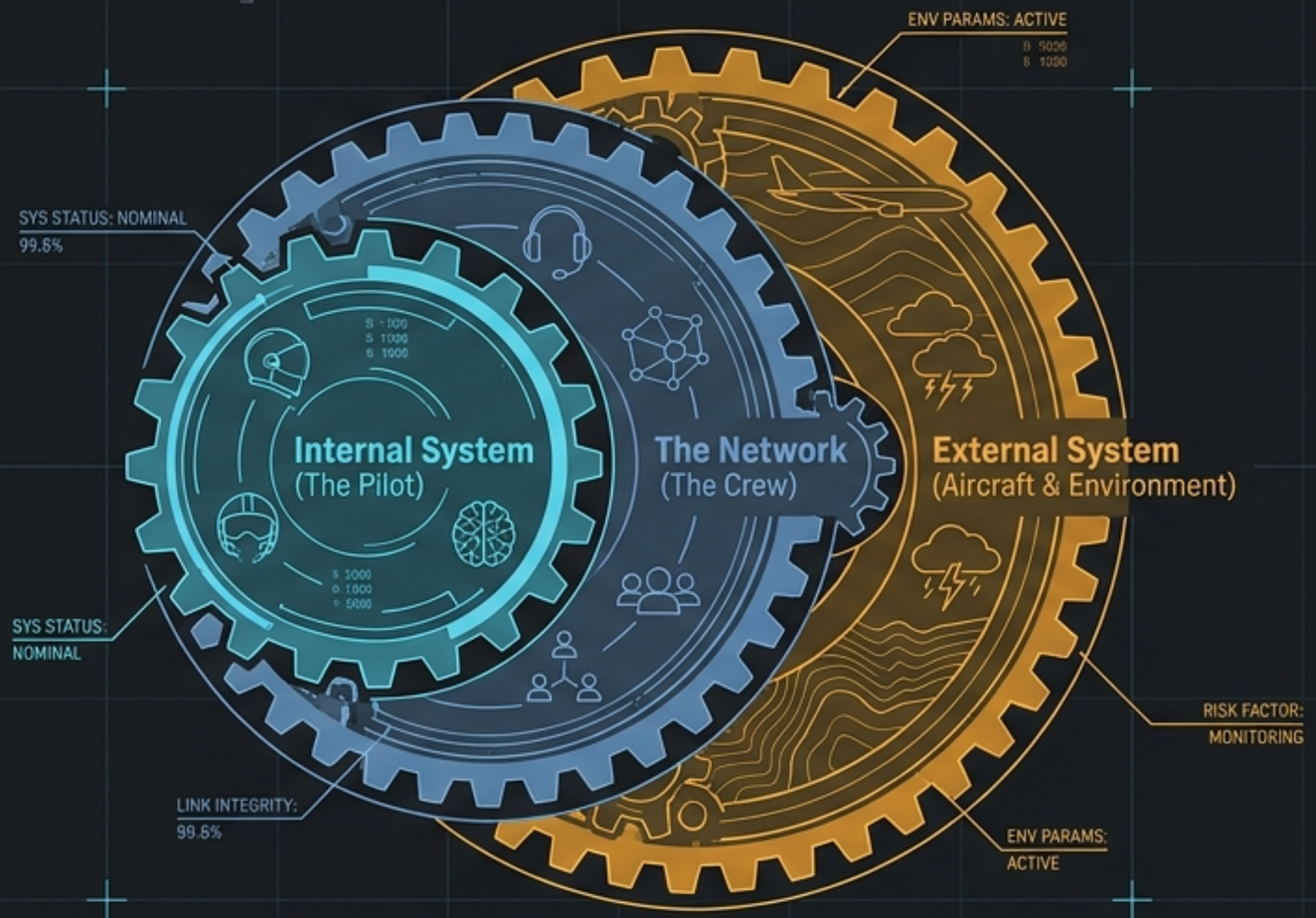
Breaking the Error Chain in Commercial UAS Operations



- **Aeronautical Decision Making (AOM)**
  Status: ACTIVE
  Metrics: Risk Assessment, Situational Awareness
- **Crew Resource Management (CRM)**
  Status: ACTIVE
  Metrics: Communication, Leadership, Workload
- **Human Factors Analysis**
  Status: MONITORING
  Metrics: Fatigue, Stress, Ergonomics
- **Emergency Response Protocols**
  Status: READY
  Metrics: Contingency Planning, Incident Reporting

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The Philosophy of ADM



› **Aeronautical Decision-Making** is systematic risk management.

In commercial aviation, accidents rarely happen from a **single failure**; they happen when a chain of human and mechanical errors align.

DATA SOURCE: FAA ADM HANDBOOK | REF: 14 CFR PART 121

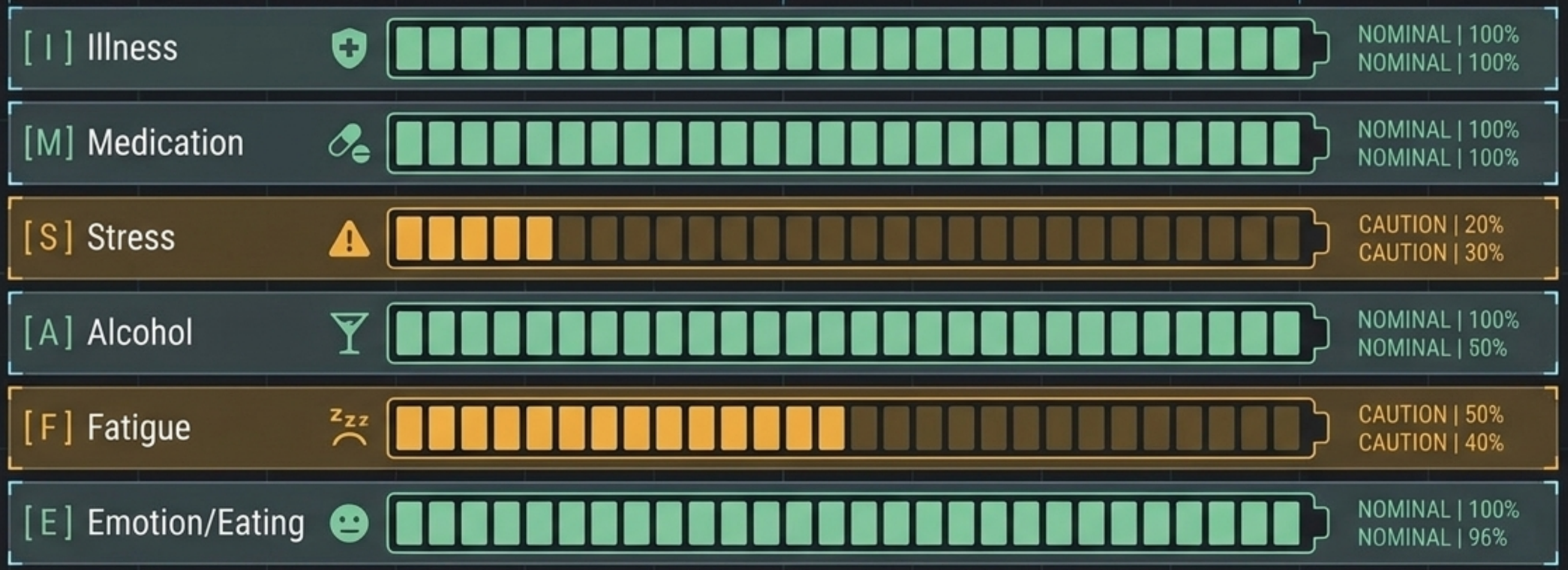
LIVE TELEMETRY

Speed without safety equals failure. There is no respawn.

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System Check 1: The IMSAFE Diagnostic

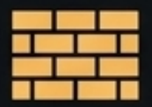
Mandatory Pre-Flight BIOS Boot for the Remote PIC.



A compromised internal system means the mission is at risk before the drone ever leaves the ground.

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System Check 2: The Hazardous Attitudes Threat Matrix

Threat Signature	System Patch
Anti-Authority ("Don't tell me") 	Follow the rules. They are usually right.
Impulsivity ("Do it quickly") 	Not so fast. Think first.
Invulnerability ("It won't happen to me") 	It could happen to me.
Macho ("I can do it") 	Taking chances is foolish.
Resignation ("What's the use?") 	I am not helpless. I can make a difference.

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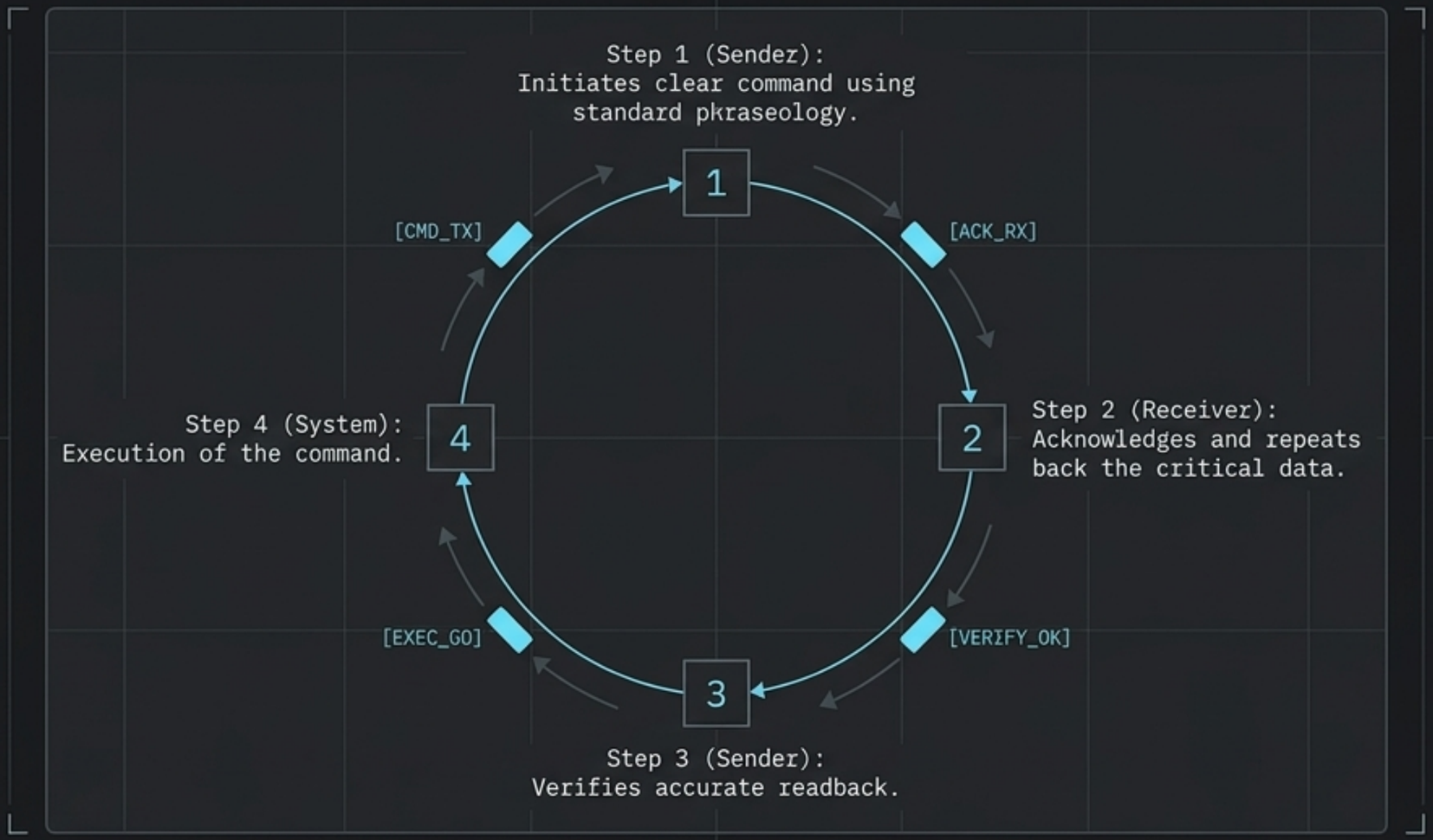
The Human Network: Crew Resource Management



CRM maximizes situational awareness by treating the crew as a distributed sensor network. The PIC delegates attention, not authority.

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The Protocol: Closed-Loop Communication



Note: Gamer shorthand relies on context and assumptions. Part 107 commercial aviation requires strict verification to break the error chain.

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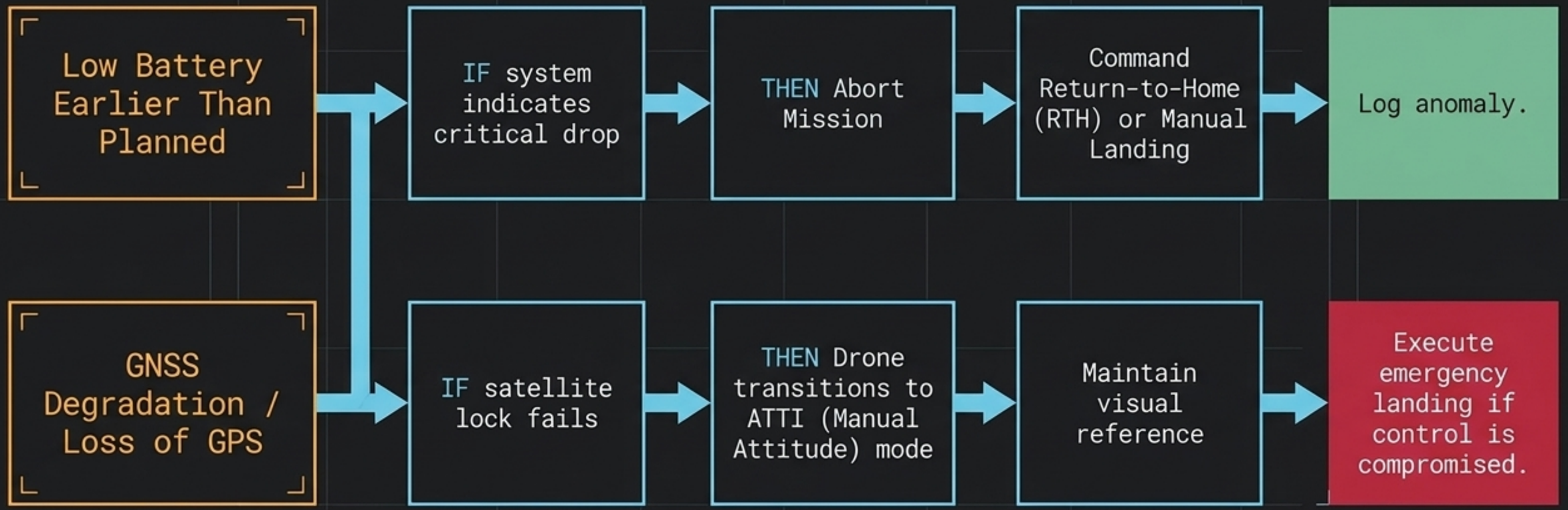
WHEN THE SYSTEM FAILS

Human factors mitigate risk.
Emergency protocols manage failure.

Transitioning to acute tactical execution.

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Emergency Logic Gate 1: Power & GNSS Anomalies



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Emergency Logic Gate 2: Lost Link vs. Flyaway

Lost Link



State: Expected behavior. Control signal severed.

System Action: Drone executes pre-programmed Return-to-Home (RTH).

Pilot Action: Monitor airspace, attempt to regain link, clear area. (Non-emergency if RTH path is clear).

Flyaway



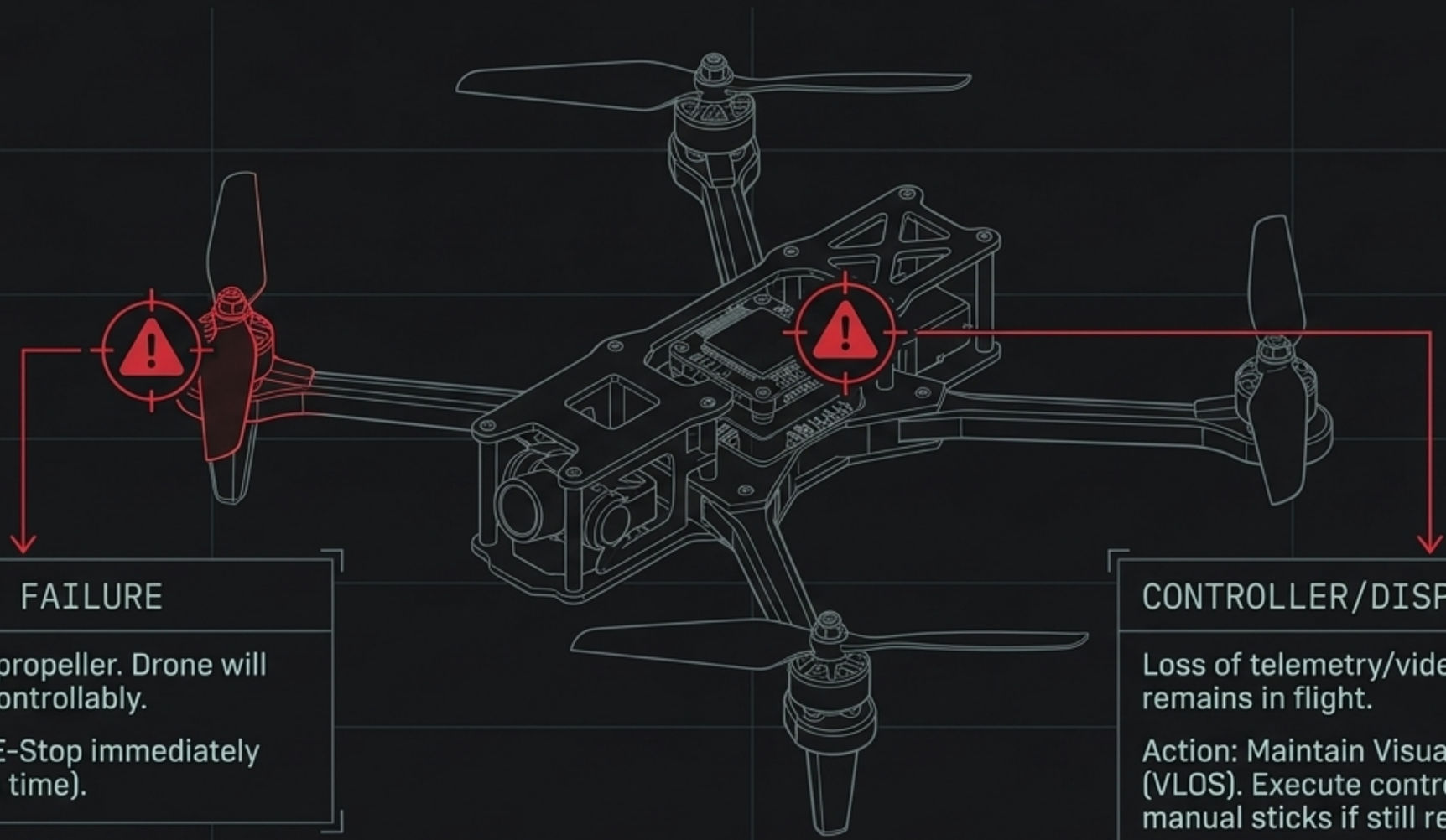
State: Rogue behavior. Control severed + Drone defies programming.

System Action: Uncontrolled flight.

Pilot Action: IMMEDIATE EMERGENCY. Notify ATC/authorities if entering controlled airspace. Clear immediate hazards.

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Emergency Logic Gate 3: Critical Hardware Failure



PROPULSION FAILURE

Loss of motor/propeller. Drone will fall or spin uncontrollably.

Action: Utilize E-Stop immediately (<0.8s reaction time).

CONTROLLER/DISPLAY BLACKOUT

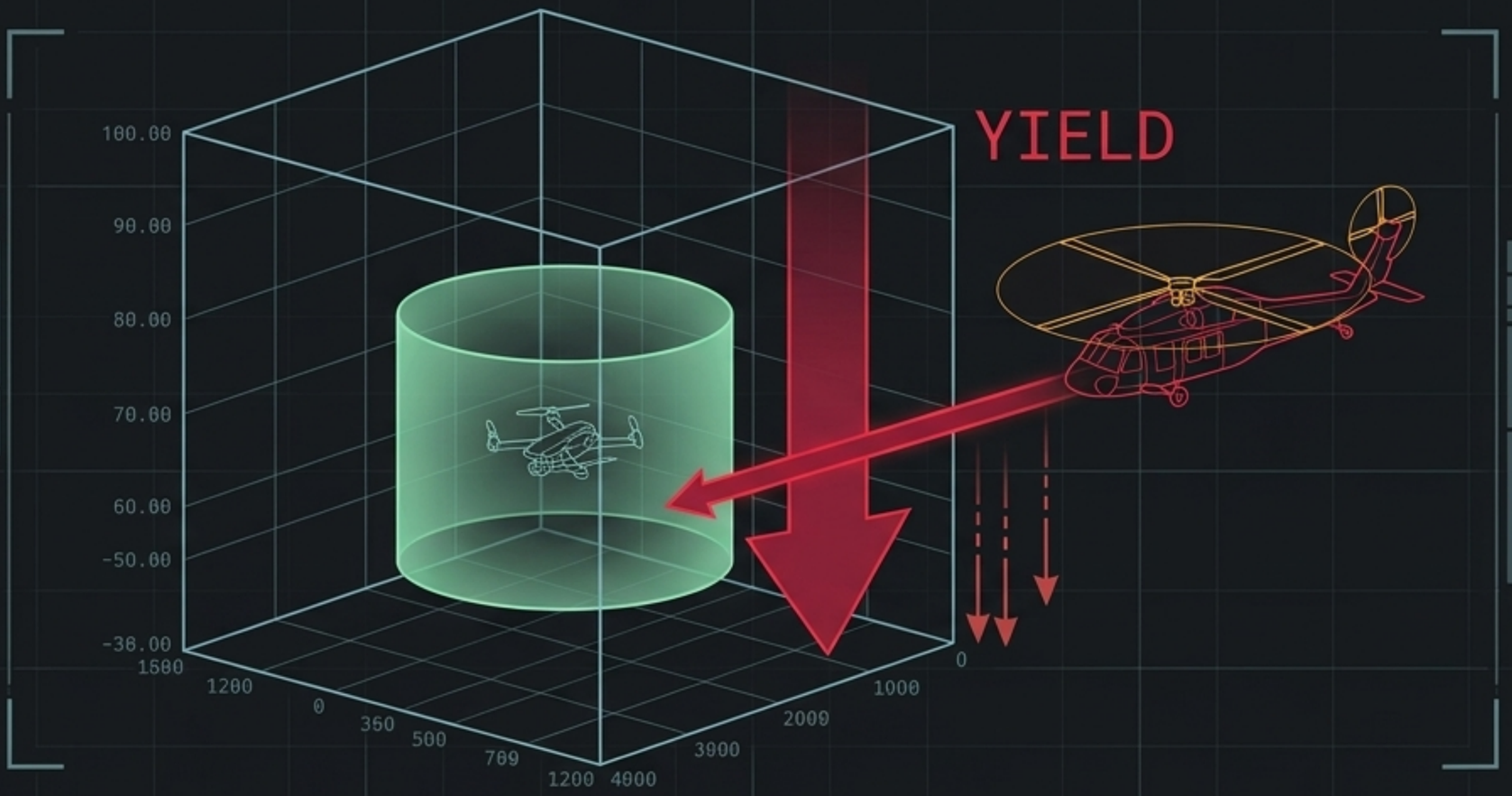
Loss of telemetry/video feed while drone remains in flight.

Action: Maintain Visual Line of Sight (VLOS). Execute controlled descent via manual sticks if still responsive.

IMPERATIVE: SHOUT PHYSICAL WARNINGS TO BYSTANDERS. PROTECT PEOPLE, NOT THE AIRCRAFT.

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The Ultimate Imperative: Manned Aircraft Avoidance



The Golden Rule:

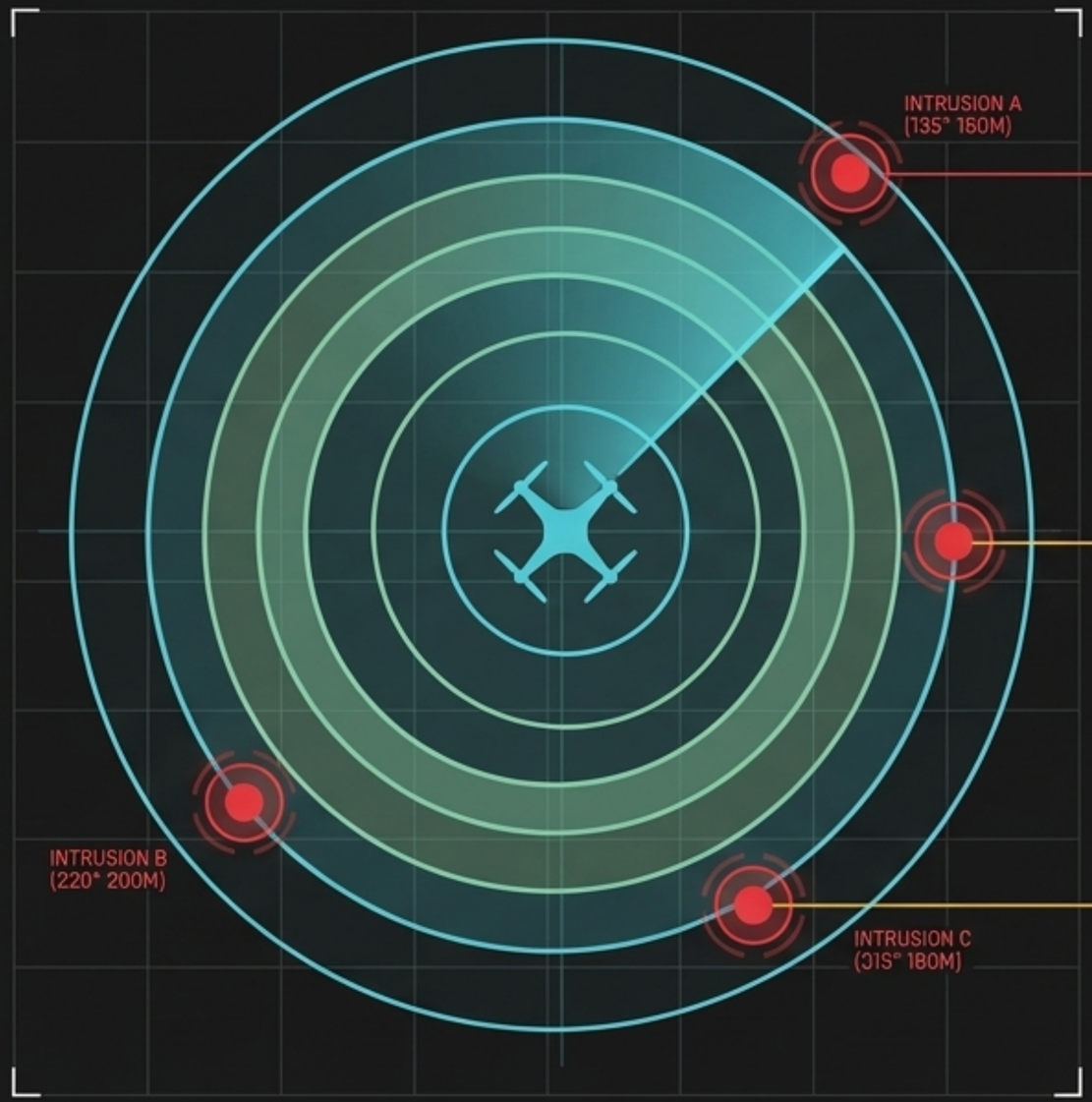
sUAS always yields right of way to all manned aircraft.

Execution:

Yielding does not mean hovering in place. It means immediately and decisively altering altitude and course to eliminate any possibility of a collision hazard. Zero tolerance for critical safety failures.

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Environmental Intrusions & Abort Criteria



MODULAR READOUT

SCENARIO: PERSON OR VEHICLE ENTERS THE OPERATIONAL AREA.

ACTION: Halt mission immediately. Maintain hover or divert until the perimeter is secured.

MODUL : MATTE AMBER

SCENARIO: SUDDEN WIND INCREASE.

ACTION: Monitor battery drain. Lower altitude to reduce wind exposure. Land if conditions exceed manufacturer limits.

MODUL MATTE AMBER

SCENARIO: RETURN-TO-HOME (RTH) PATH CONFLICT.

ACTION: Manually intervene. Do not trust automated RTH if obstacles appear in the flight path.

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Mission Capstone: The ‘Game 6’ Emergency Gauntlet

10 Scenarios. Fractions of a second.

DAKDAN STANDARD: REACTION TIME

E-stop under 0.8 seconds.

LOBBY

Game	How to Play	FAA ACS Link	Scoring
0 Airsspace Commander	Micsion location altitude description ↑ chart ↑ chart extrect. Select airspace clees autherisatien. Accuracy status rationale 70'5 retoota time 10%. Zero i) unsete/unauthorivad. roplay. Direct from 7 rounds domain Dakdan M04 spec.	Airapace 20%, Regulations	Airapare class, Rationale quality, Safety
1 Orbit Precision	Takeoff hever squre skarle figure eight eight precision precision inoing using click. Joystick, prefliglit discipline.	Basis flight, Pra/Pest	Checklist compliance, Landing accurecy
2 Preflight Hunter	Find dizaualifying defecils. props woters battery battery slovre Reinote Id Prahight checklisr gamie 100 defects 1S min.	Pre/Post, Remote ID	Dofects found %, Time
3 Sectional Speed Read	Spot sport sport frequently frequencies obstacles elevations coordinates on sectional, Ses per chart.	Airspace 20%	Symbol ID speed, Accuracy
4 Weather Brief	Desode META0/7AP/TAN tarbulence density altitude dotttademe/no Soeflowiwith retionale. Dailliy brief game.	Weather 5%	Ga/no-no correctness, Bettery linpect
5 Loading Performance	Weight payload CG battery endurance, reserve reserve planning manufaclurer limls. Like Loare for CDL.	Loading 2%	CG calculation, Endurance
6 Emergency Response	10-scenario library. Low batl battery early, GNSS degradetion, lost link, menned enters, paron incresse. paicaofuehitle antent, sord ronpsoory, controller problem, RTH conflict. Choose action ↑ brief.	Operations 25%	Emergency decision, CRM
7 Remote ID & LAANC Puesic	Verify Remote ID built-in vs broedcast invennte, invenlove, regisbation, Dorone2one LAANC request for contrelled airspace.	Regulations 48%	Compliance verification, LAANC
8 Hight Ops & People	Night site survey anty-alll-collision lighting, operstions ovor peaole worsnar poople categories moving vehicles waiver determination worksheet.	Operations 25%	Night compliance, People category
9 FAA Exam Arena	Academy original 60-qaestion mock A mapped to ACS mapped to ACS. Weignting Reguiatios 48% Airspace 20% 20'5 Loadine/ Siotisnon vaiweon per necs, tocesk. qeett will, Mock B Enaiik Reeost. Prectored, anti-gaming randomized.	All ACS	Score, Domain mastery, Time

DAKDAN STANDARD: RATIONALE

You must dictate your response pathway and justify it based on Part 107 rules.

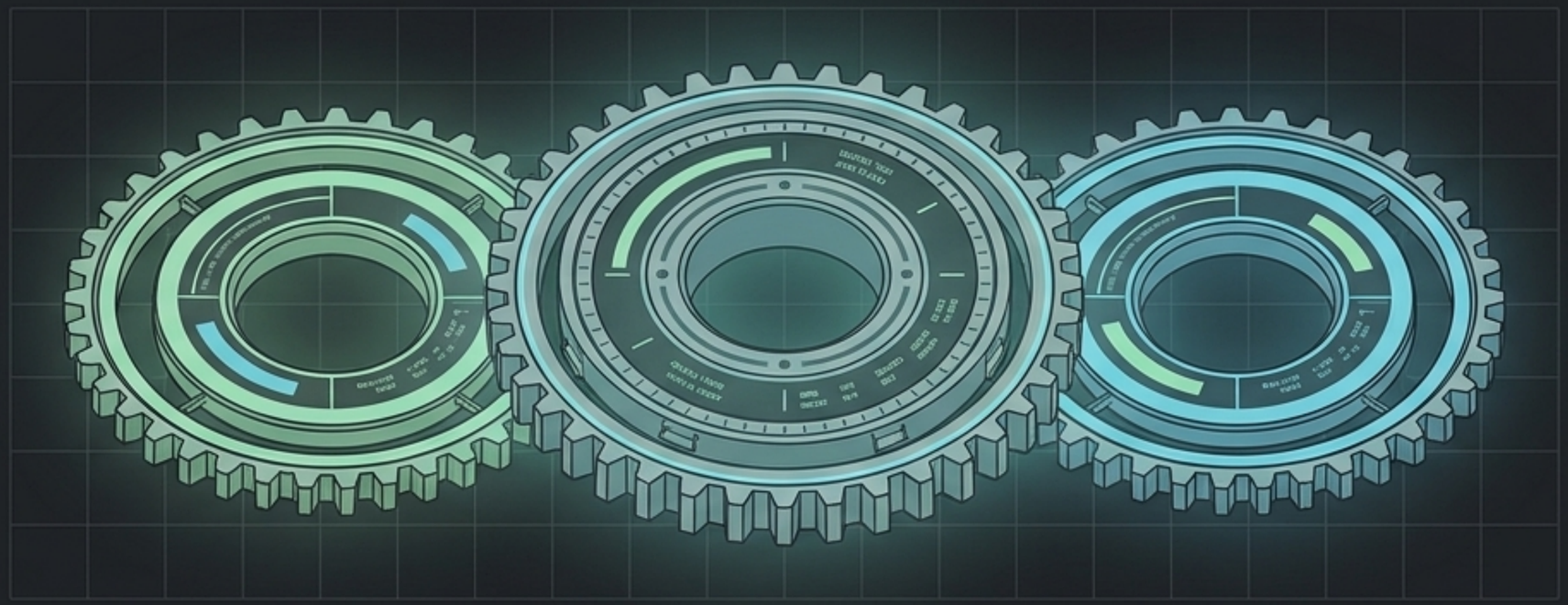
DAKDAN STANDARD: SAFETY > SPEED

Speed points are only awarded after safety and accuracy are satisfied. Any unsafe action results in an immediate zero.

⚠ Immediate Zero for Unsafe Actions.

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The Unbreakable Chain



Self-Correction (ADM) + Team Coordination (CRM) + Decisive Action (Emergency Ops) = **Commercial Mastery**

Part 107 certification makes you legal. Breaking the error chain makes you a professional.

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