

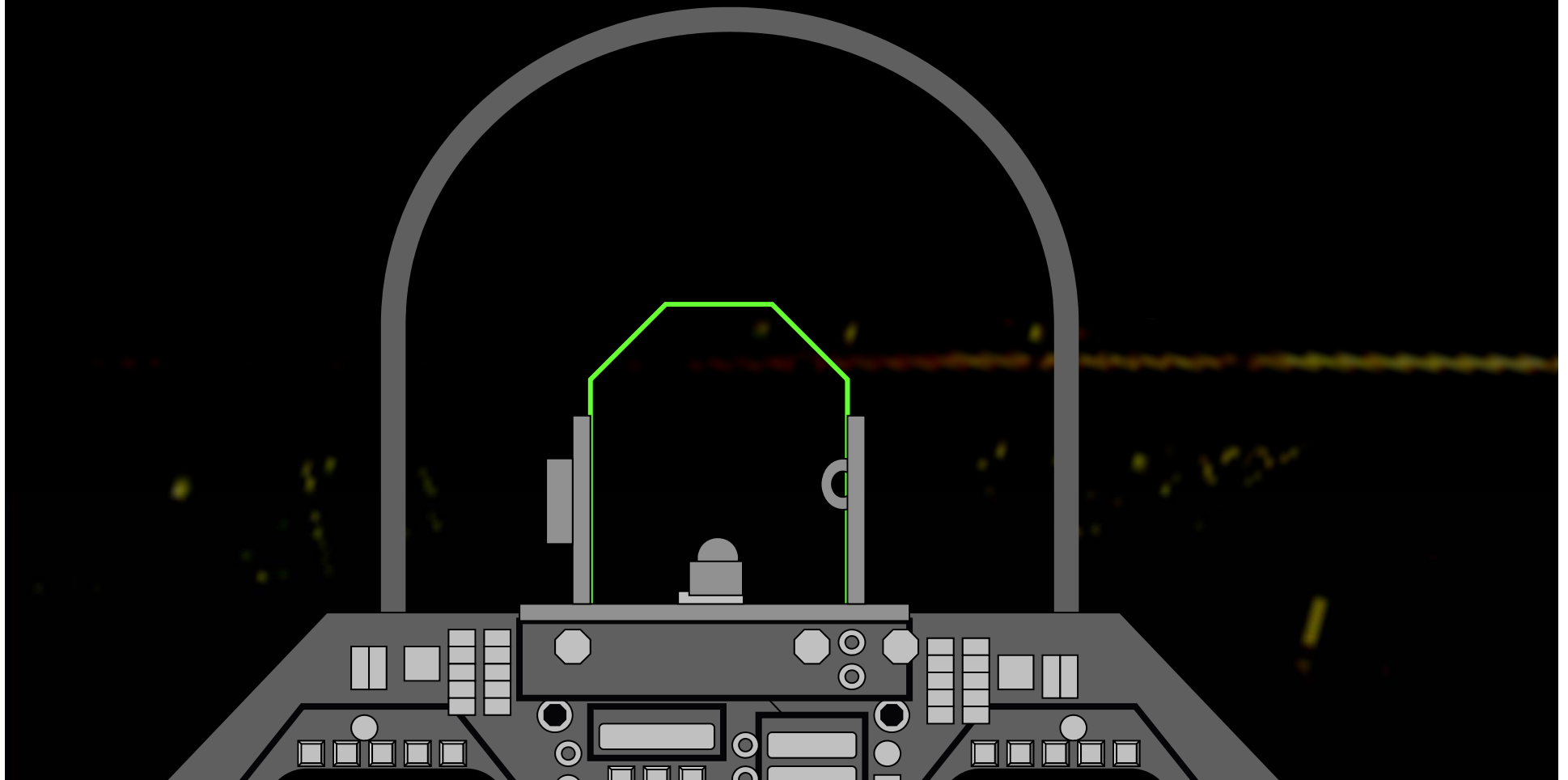


National Transportation Safety Board

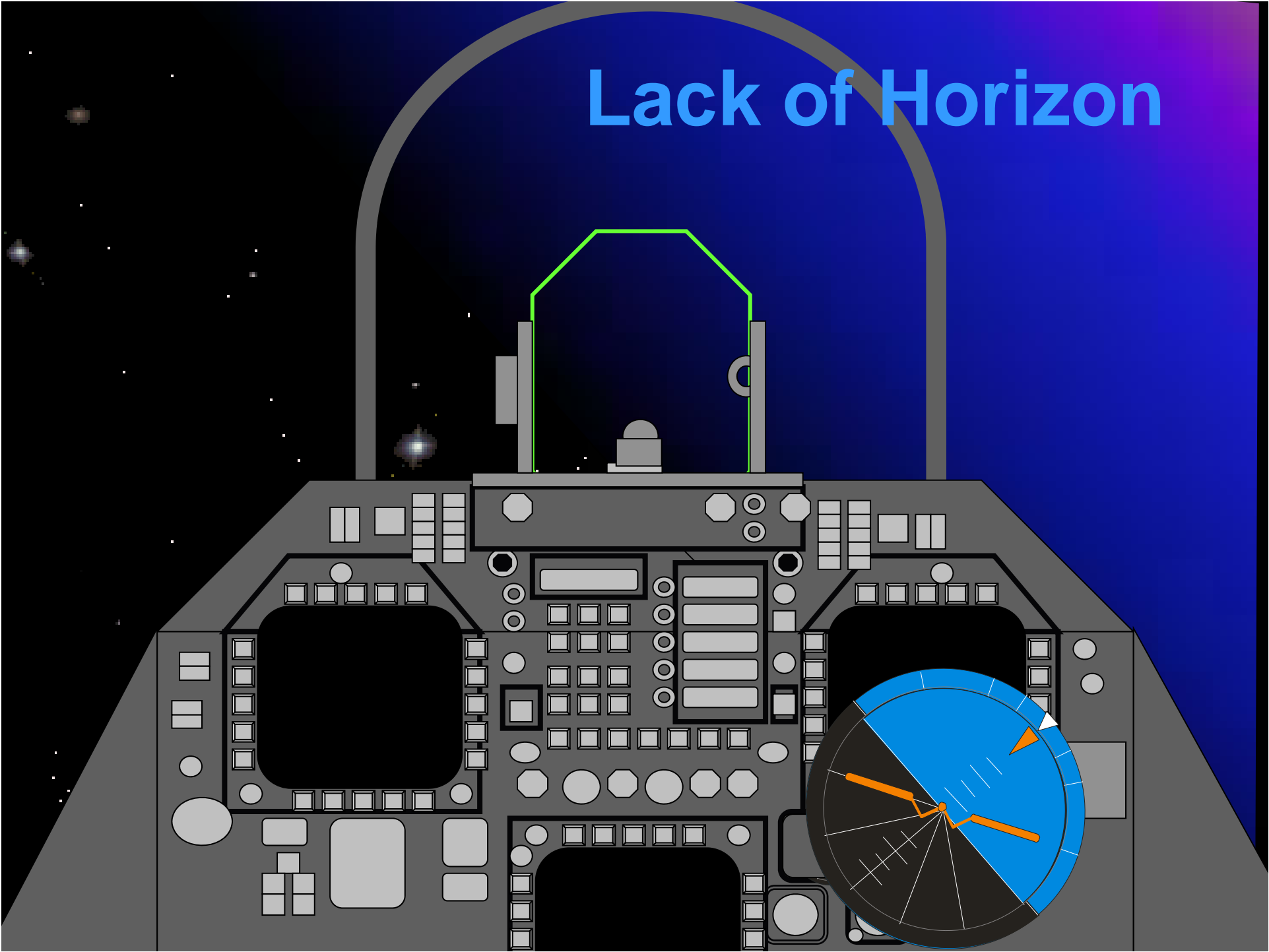
Loss of Control Symposium ICAO Regional Office Nairobi, Kenya

- Dennis Jones
- Chief Technical Advisor
- Office of Aviation Safety

False Horizon

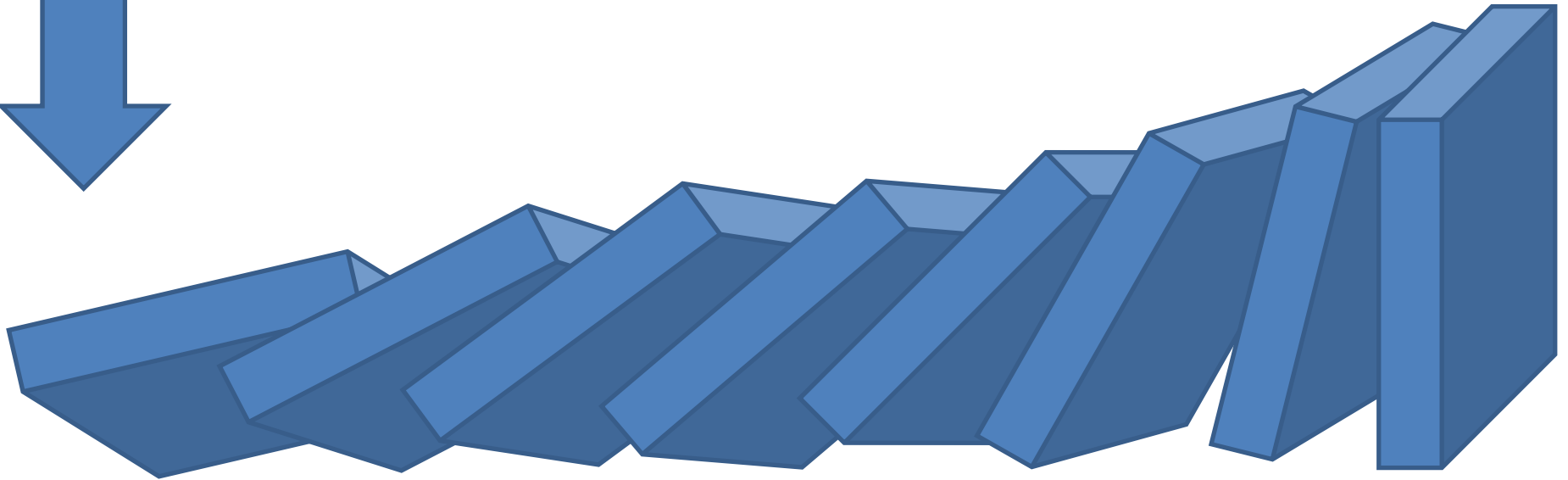
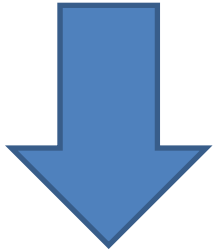


Lack of Horizon

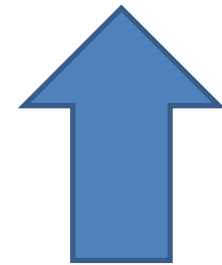


Accident Sequence of Events

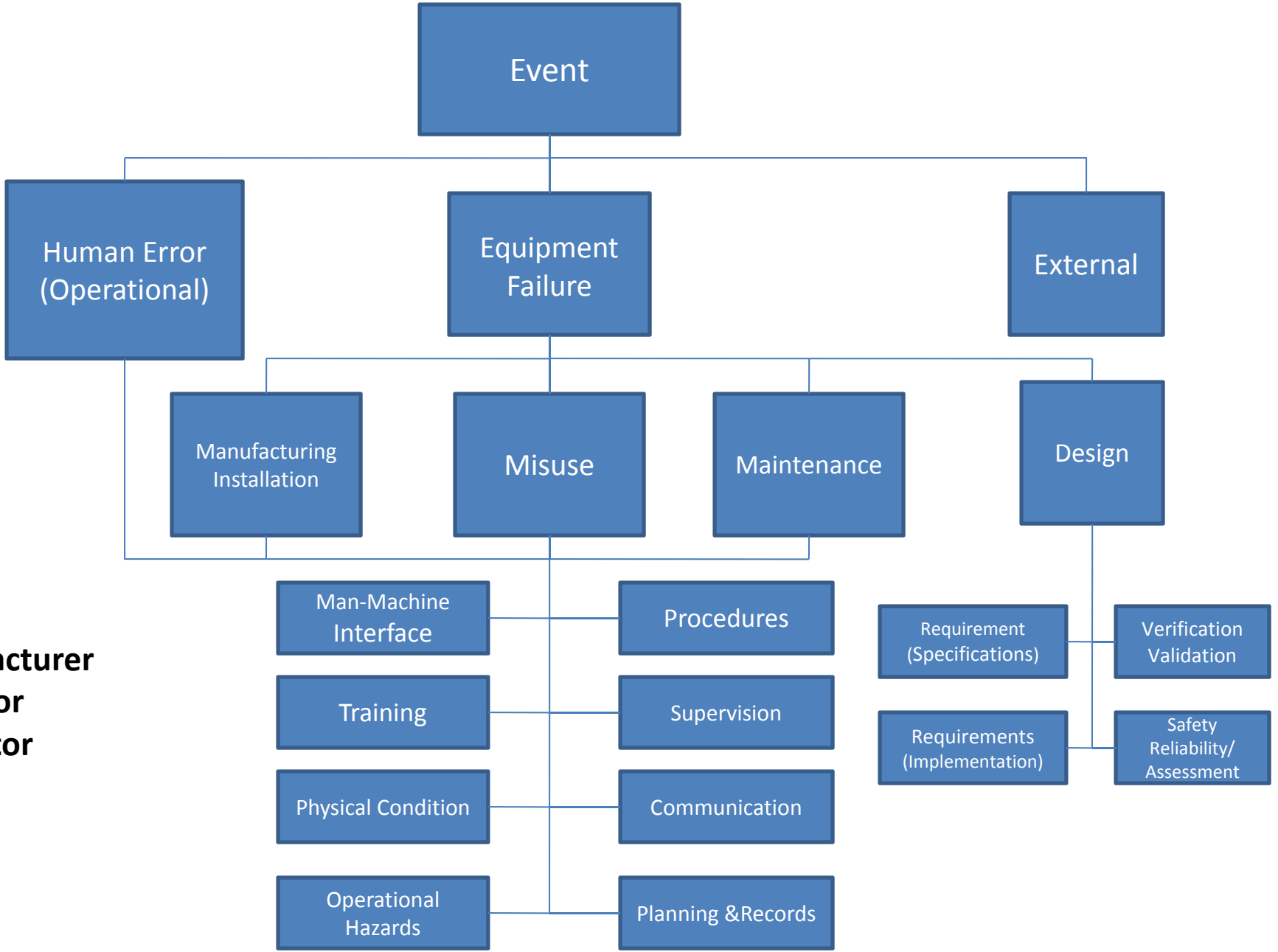
Root Causes



**Safety
Recommendations
&
Corrective Actions**



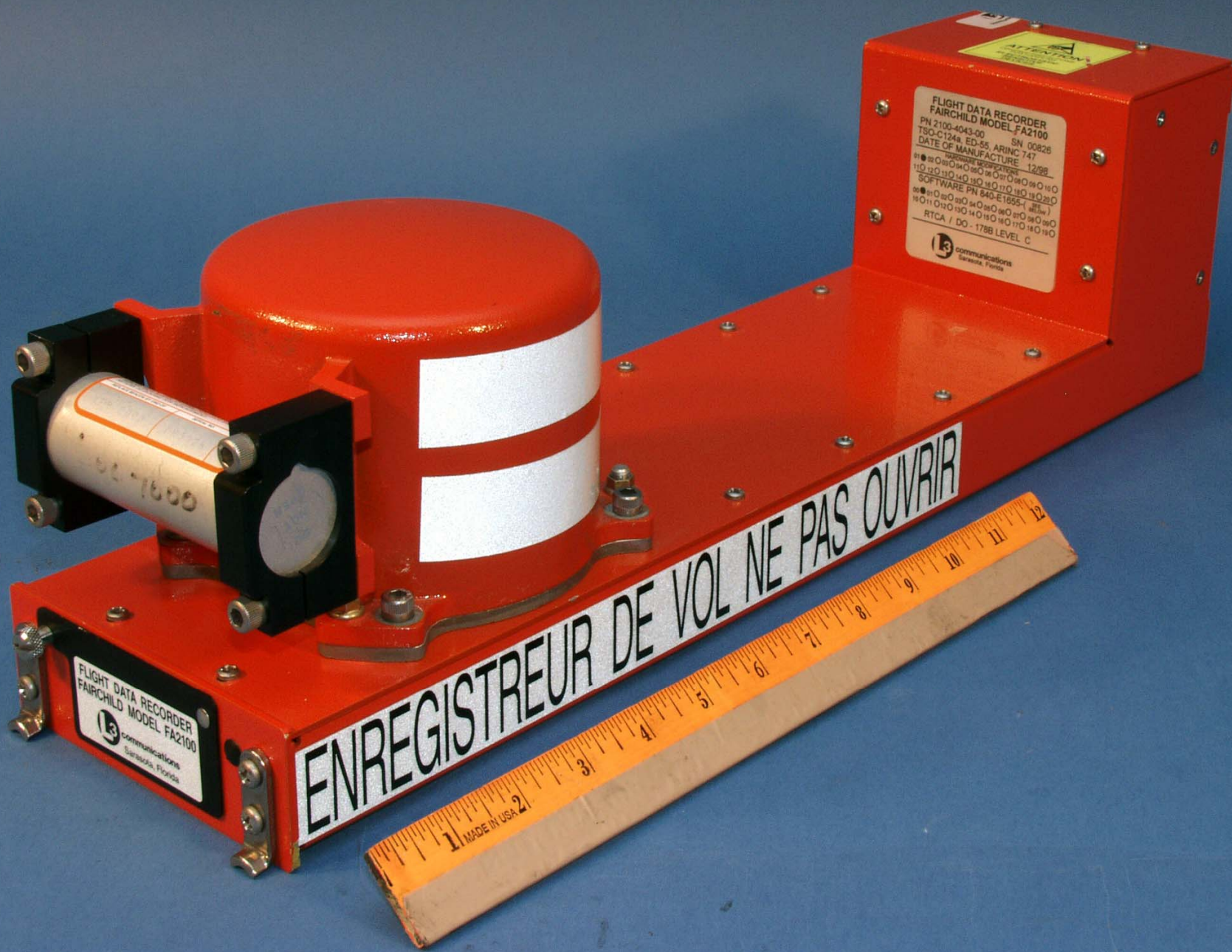
**Direct/Immediate
Causes**



**Manufacturer
Operator
Regulator**

Related Definition

- Key Event – An equipment failure, human error , or external even in the accident time * space contributing to the accident
- Human error – Actual performance deviates from desired performance
- Equipment failure – Actual equipment performance deviates from desired performance



FLIGHT DATA RECORDER
FAIRCHILD MODEL FA2100
communications
Sarasota, Florida

FLIGHT DATA RECORDER
FAIRCHILD MODEL FA2100
PN 2100-4043-00 SN 00826
TSO-C124a ED-55, ARINC 747
DATE OF MANUFACTURE 12/58
SOFTWARE PN 840-E1855-1 (REV. 1)
RTCA / DO-178B LEVEL C
communications
Sarasota, Florida

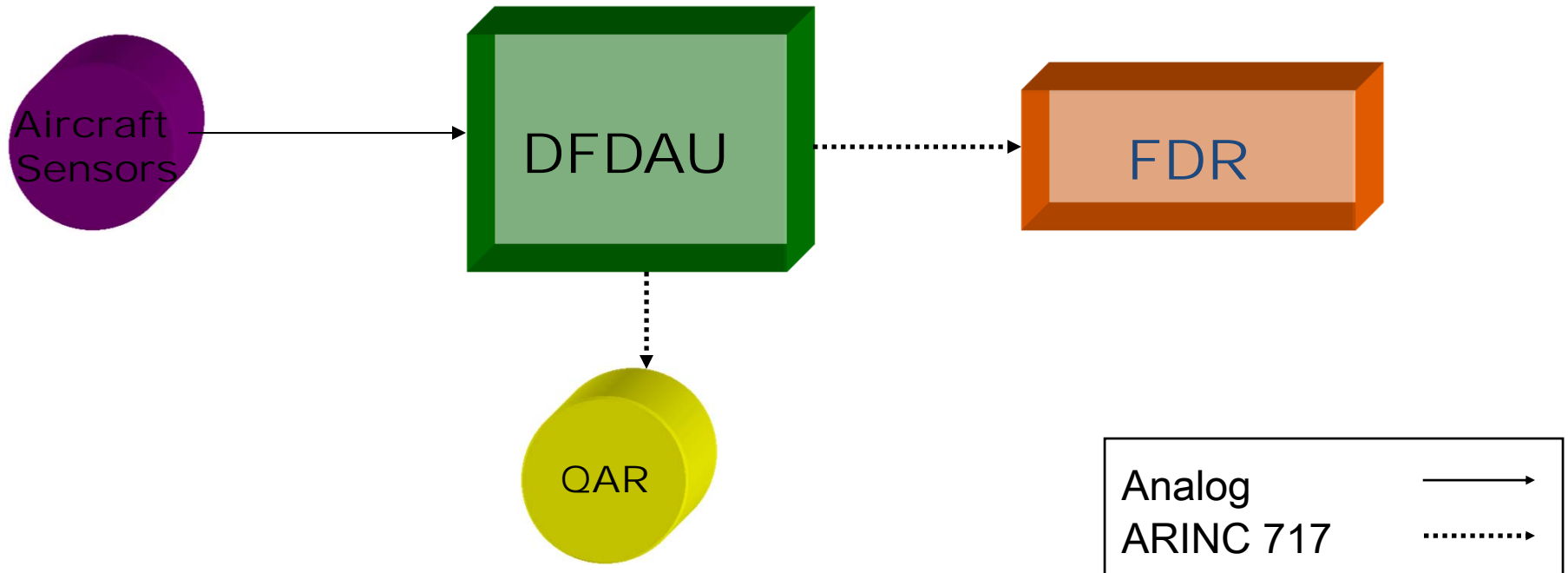
ENREGISTREUR DE VOL NE PAS OUVRIR



Crash Survivability Requirements

	<i>TSO C84 CVR</i>	<i>TSO C51 FDR</i>	<i>TSO C51a FDR</i>
FIRE	1100°C flame 50%, 30 min.	1100°C flame 50%, 30 min.	1100°C flame 50%, 30 min.
IMPACT	100 Gs	100 Gs	1000 Gs, 5ms
CRUSH	None	None	5000lbs., 5 min each axis
FLUID	None	None	Fuel, oil, etc. 24 hours
SEA WATER	48 hours	36 hours	30 days
PENETRATION	None	None	500lbs Dropped 10ft., ¼” Point

Traditional FDR System



EGPWS

- Honeywell units retain 20 seconds prior to and 10 seconds after alert mode is triggered
- Depending on installation you get pressure altitude, groundspeed, pitch, roll, etc.
- It's not just the blue box!



Typical Engine Monitor

- Parameters
 - Time (internal clock)
 - RPM
 - Manifold pressure
 - Fuel flow
 - Fuel totalizer
 - Cylinder head and EGT
 - Battery or bus voltage
 - OAT



Chelton PFD-MFD

- PFD screenshots
- Same parameters as typical engine monitor, plus:
 - Pitch
 - Roll
 - Heading
 - Pressure altitude
 - Indicated/true airspeed
 - GPS position and time
 - Vertical load factor
 - Some navigation info, e.g. course
- One Hz sample rate
- Order of 30k records

