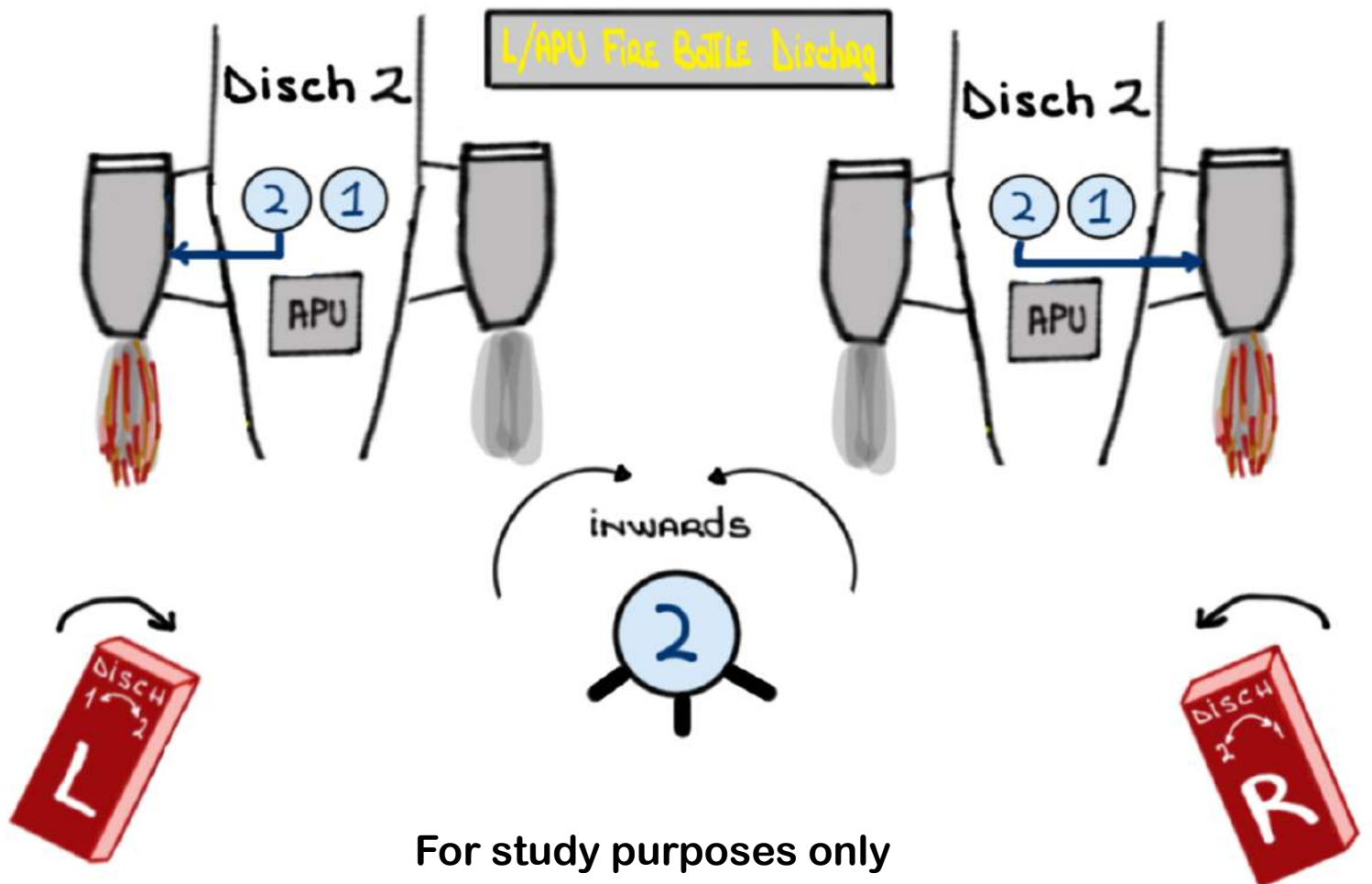


G500 FIRE PROTECTION SYSTEM



For study purposes only

THE FIRE PROTECTION SYSTEM IS ABOUT:

① DETECTION:

- **FIRE** DETECTION SYSTEM:

- ENGINE NACELLE - TEMPERATURE SENSITIVE WIRES
- APU COMPARTMENT - HELIUM-FILLED TUBES

- **SMOKE** DETECTION SYSTEM:

SMOKE DETECTORS (OPTICAL SENSORS)

- BAGGAGE COMPARTMENT
- FORWARD AND AFT LAVATORIES

- **OVERHEAT** DETECTION SYSTEM:

TEN (10) AREAS MONITORED BY THERMAL SWITCHES

AREAS MONITORED AND TRIP POINTS:

- BLEED AIR RELATED AREAS (5) (250°F)
- ELECTRONIC EQUIPMENT AREAS (5) (150°F)

② Notification:

CREW NOTIFICATION

- **FIRE:**

L ENGINE FIRE (U)

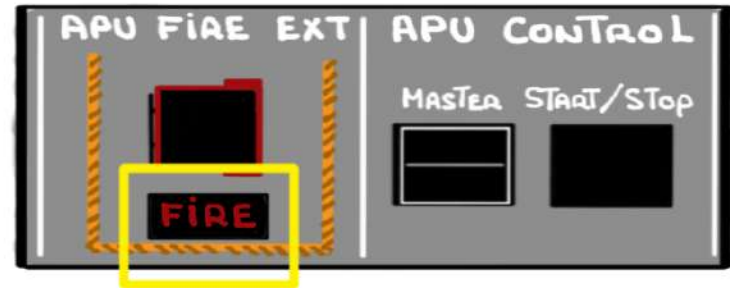
R ENGINE FIRE (U)

L ENGINE CORE FIRE

R ENGINE CORE FIRE

WARN WARN

APU FIRE (U)



- **SMOKE:**

WARN

GALLEY SMOKE

WARN

CABIN SMOKE

FWD - AFT LAV SMOKE

BAGGAGE SMOKE

- **OVERHEAT CONDITION:**

WARN

RED OVERHEAT CAS - 250°F
BLEED AIR RELATED

WARN

CAUT

AMBER OVERHEAT CAS - 150°F
ELECTRICAL RELATED

CAUT

③ FIRE fighting:

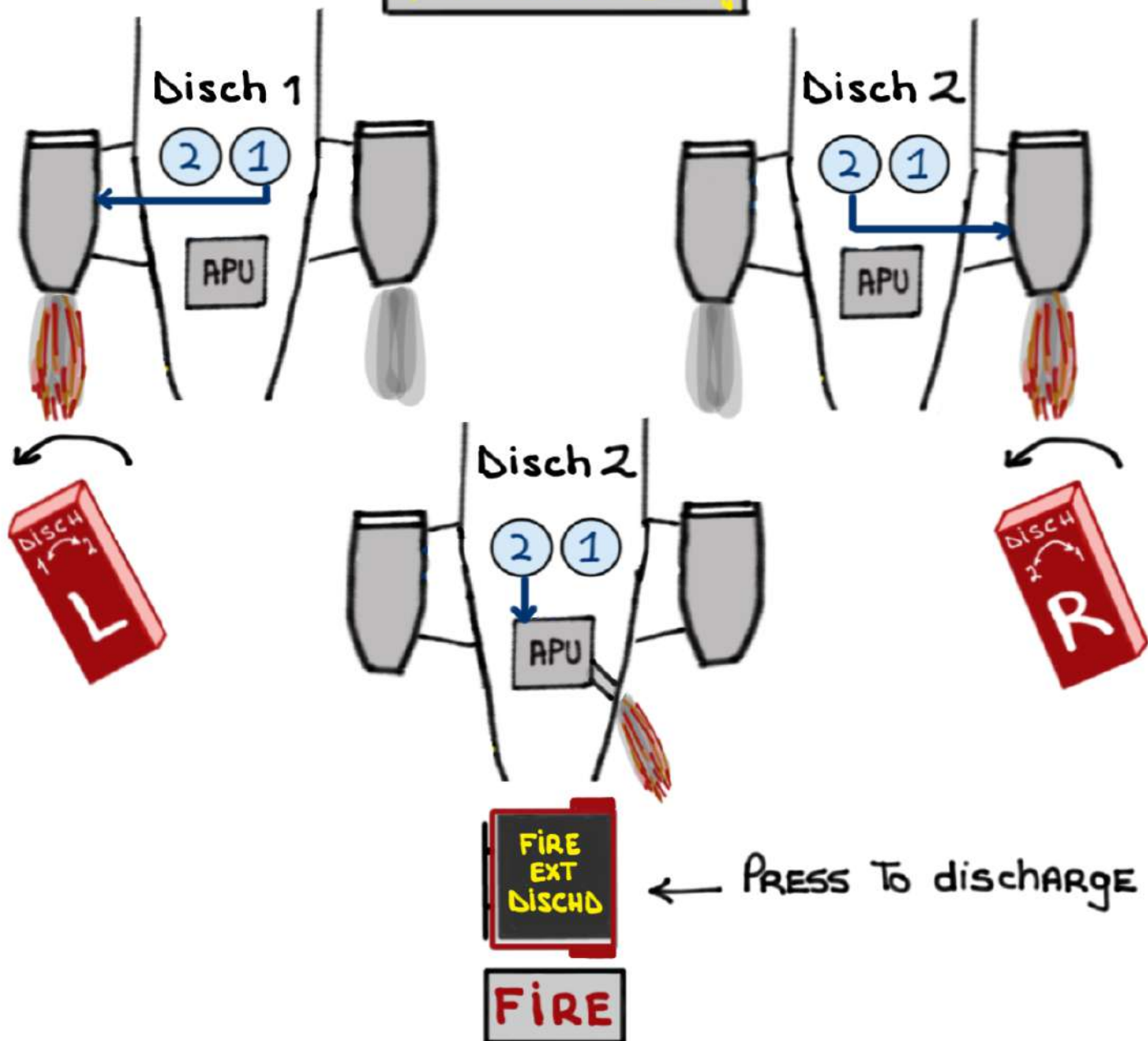
- ENGINE AND APU FIRE BOTTLES:

L ENGINE FIRE (U)

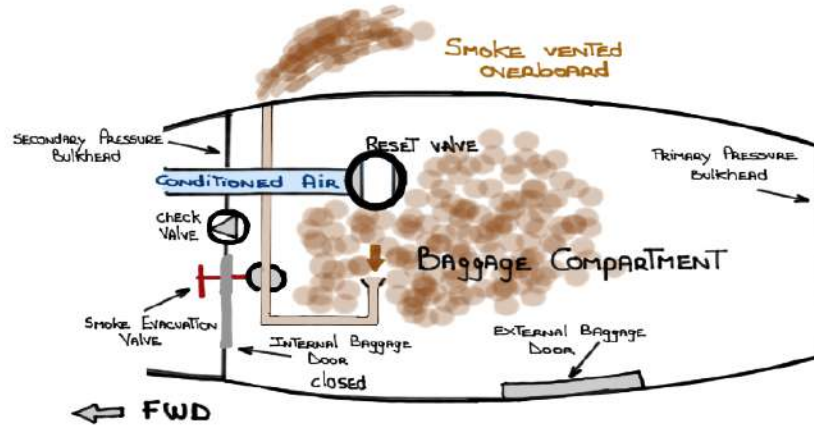
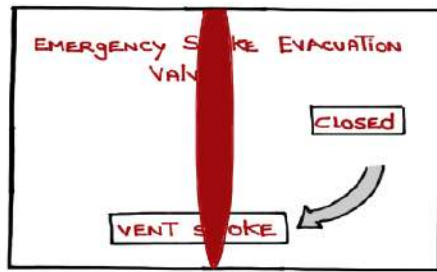
R ENGINE FIRE (U)

R FIRE BOTTLE Dischag

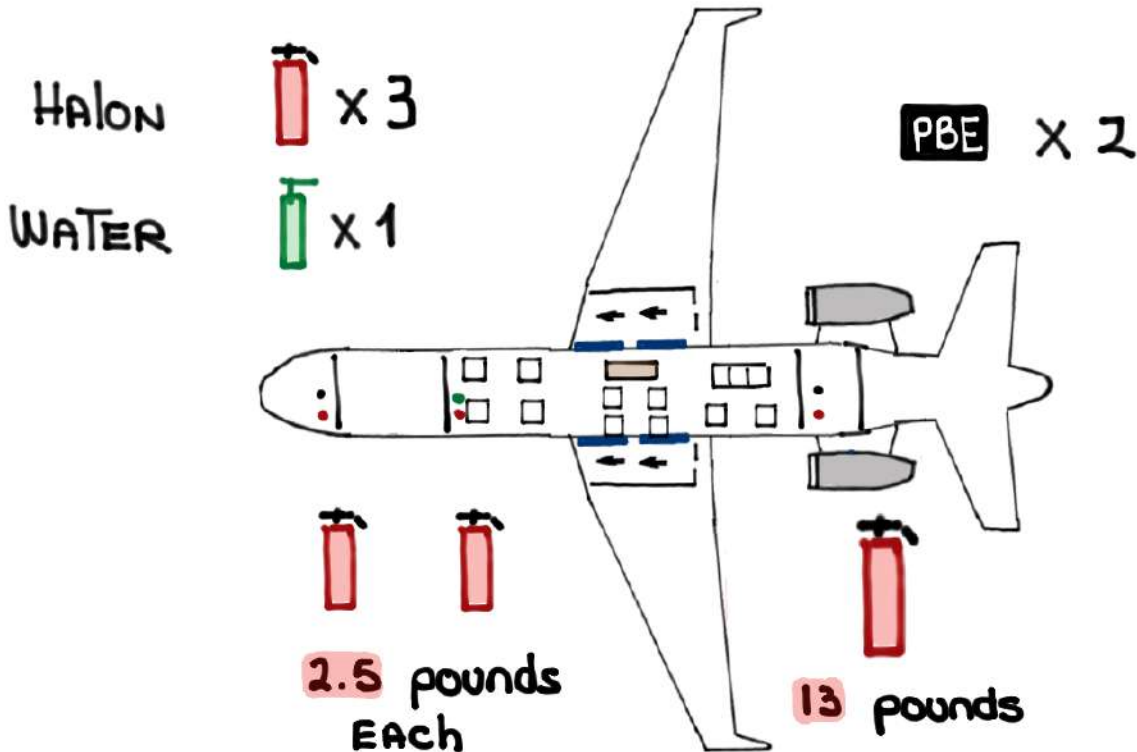
L/APU FIRE BOTTLE Dischag



- SMOKE EVACUATION:



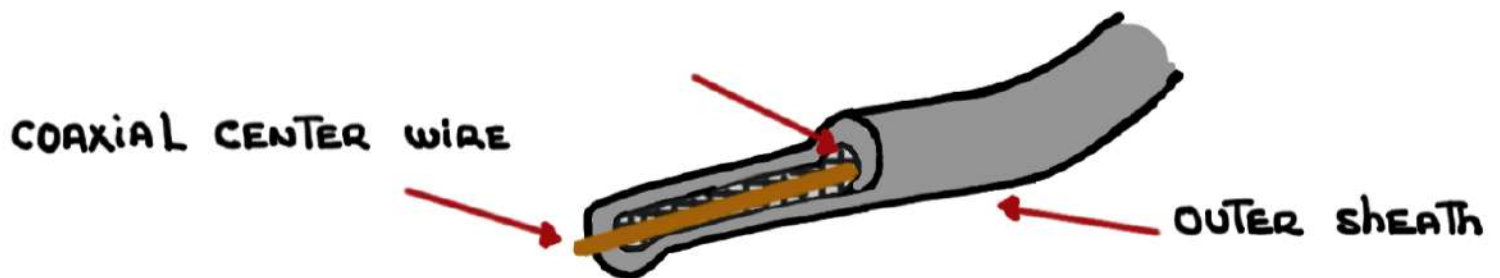
- PORTABLE FIRE BOTTLES:



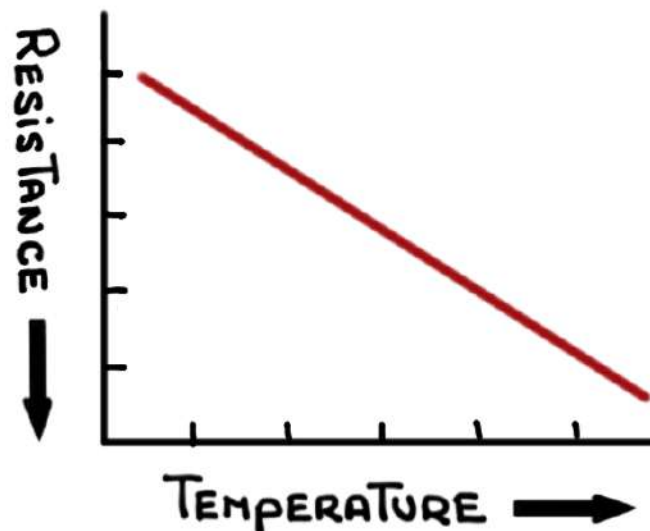
ENGINE FIRE DETECTION SYSTEM

- COMPRISED OF A SERIES OF DETECTOR SEGMENTS/ELEMENTS
- TEMPERATURE SENSITIVE WIRES ARE ROUTED THROUGHOUT THE ENGINE NACELLE

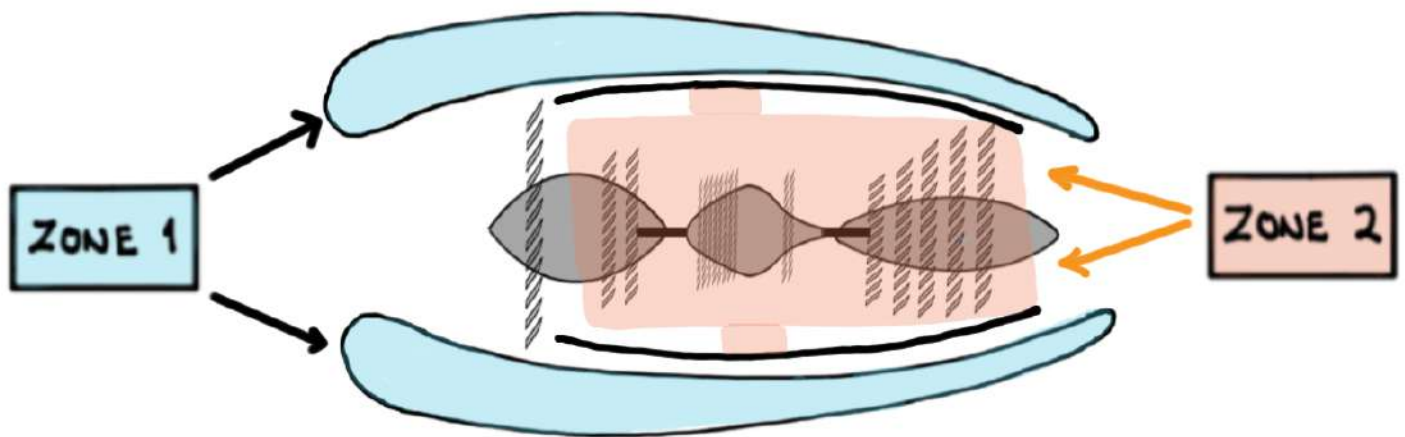
SEMI CONDUCTING GLASS/OXIDE MATERIAL



- THE STAINLESS STEEL SHEATH COVERS THE TEMPERATURE SENSITIVE SEMI CONDUCTING GLASS AND COAXIAL CENTER WIRE
- AS TEMPERATURE INCREASES THE RESISTANCE AROUND THE CENTER WIRE DECREASES



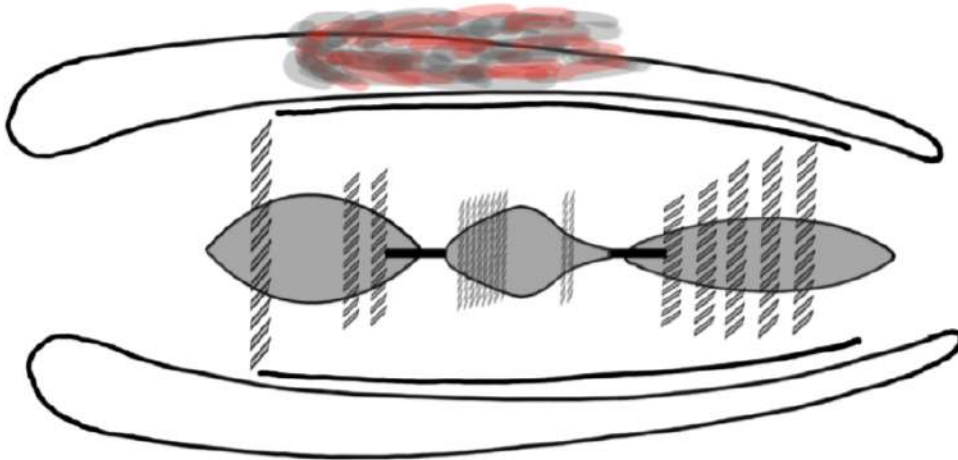
- ANY CHANGE IN RESISTANCE IS DETECTED BY THE REMOTE DATA CONCENTRATORS (RDC)
- THE RDCS ARE AN INTEGRAL PART OF THE DATA CONCENTRATION NETWORK (DCN) - THE AIRCRAFT'S NERVOUS SYSTEM
- THE FOLLOWING AREAS ARE MONITORED BY THE RDCS:
 - ENGINE ZONES



- ACCESSORY GEARBOX
 - BLEED PORTS FOR COWL ANTI-ICE AND ECS
 - FIXED COWL
- THE FIRE DETECTION SYSTEM IS CONTINUOUSLY MONITORED
 - IN THE EVENT OF A SYSTEM FAULT THE CREW IS NOTIFIED VIA CAS MESSAGE(S)

ZONE 1

OUTER PART of THE ENGINE

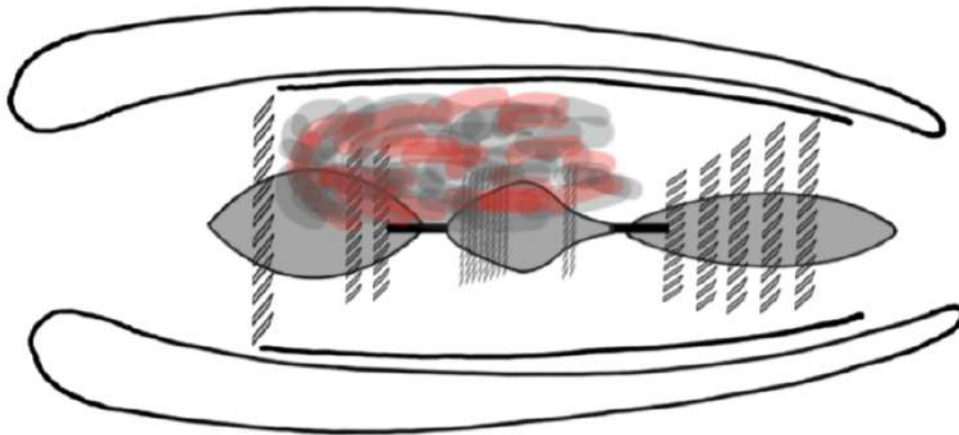


ENGINE FIRE (U)

REDUCE THROTTLE TO IDLE

ZONE 2

CORE PART of THE ENGINE



ENGINE CORE FIRE

PROCEDURE FOR THE HANDLING of a **ZONE 1** fire differs from a **ZONE 2** fire. FOLLOW THE RELEVANT checklist

ENGINE FIRE EXTINGUISHING SYSTEM

- Available any time the   BUSES ARE POWERED

- The system has two (2) identical single-shot fire extinguishing bottles

L bottle = Disch 

R bottle = Disch 

- The bottles are located in the tail compartment

- Each bottle contains  extinguishing agent under high pressure (non-toxic and non-corrosive)

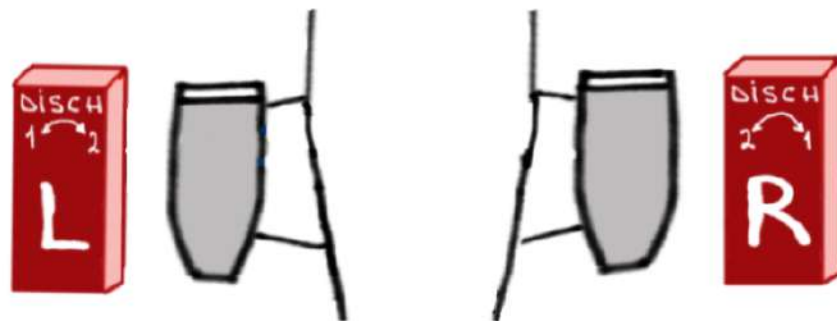
- In the event of overpressure the extinguishing agent is vented into the tail compartment

- The bottles can be discharged into the engine nacelle by the crew via the **FIRE HANDLES**

- Upon a discharge a  CAS message is displayed

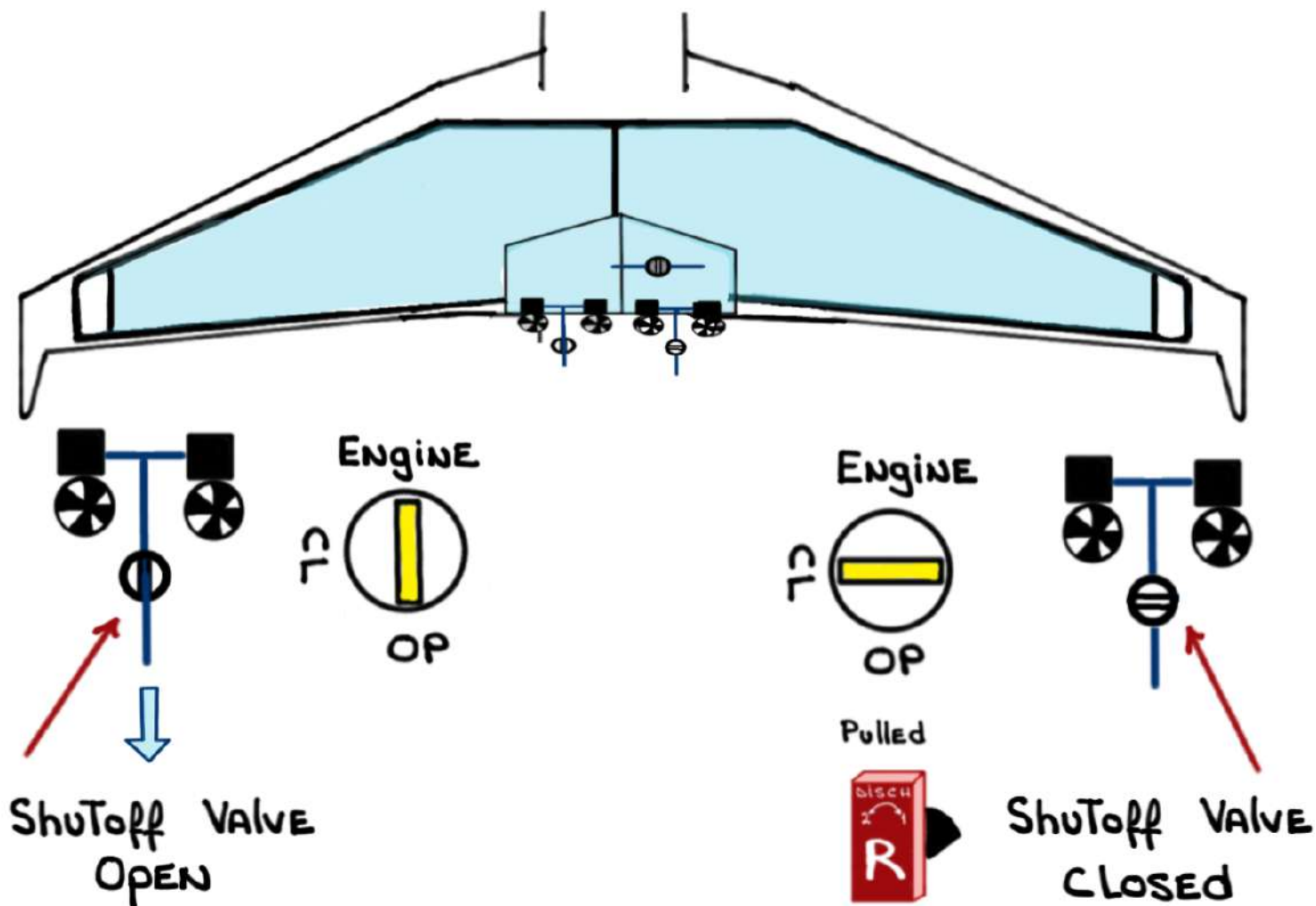


- Each ENGINE has its own **FIRE HANDLE**

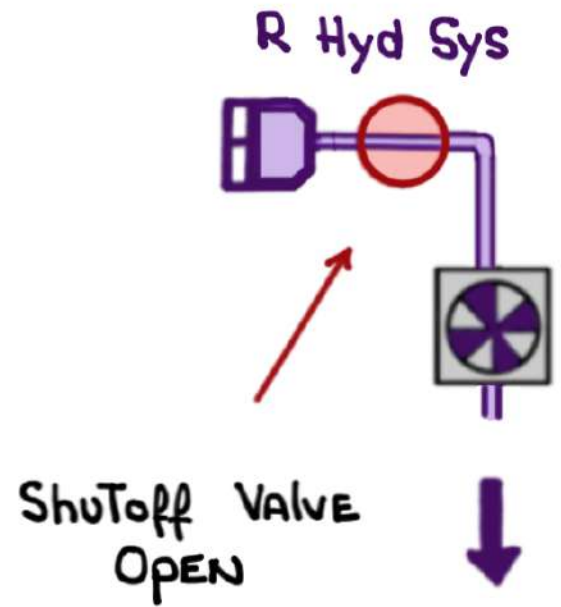
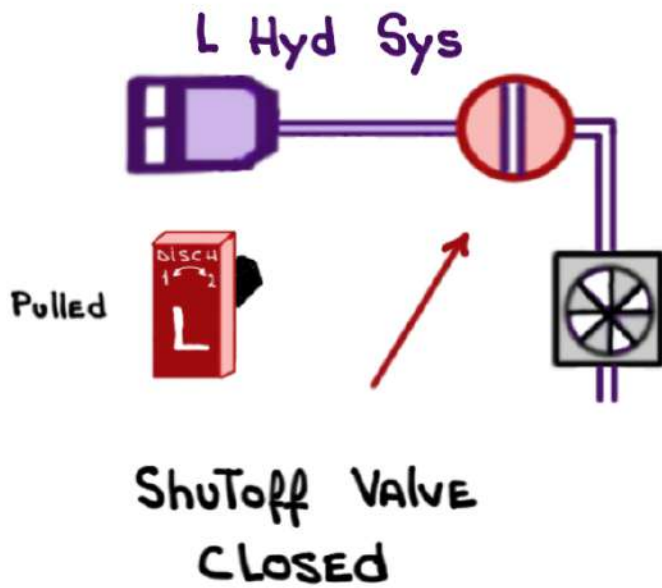


- Pulling a **FIRE HANDLE**

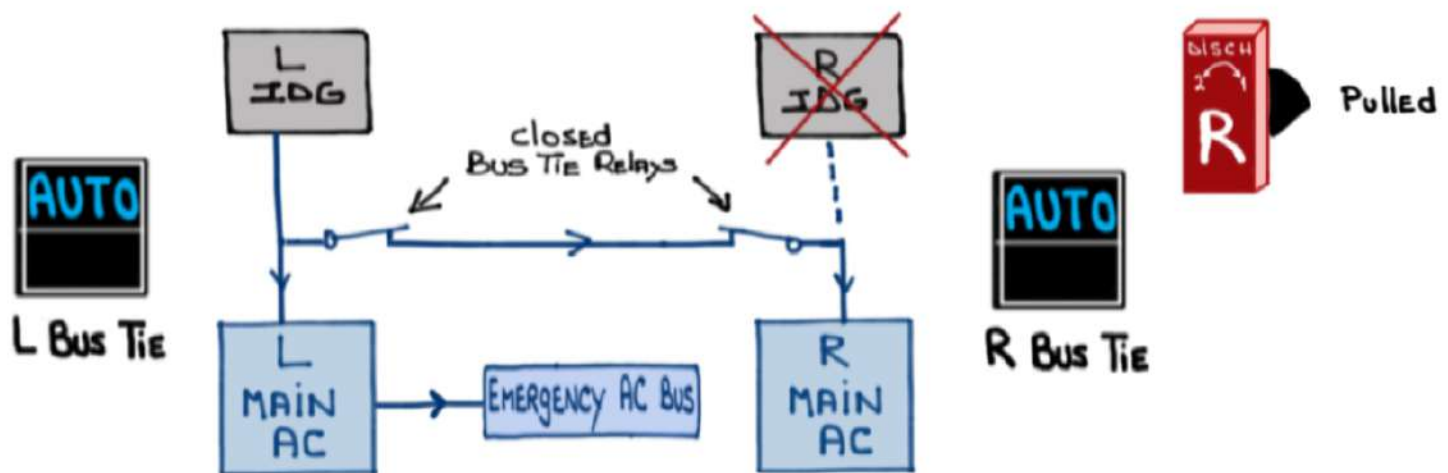
① Shuts off FUEL AT THE TANK



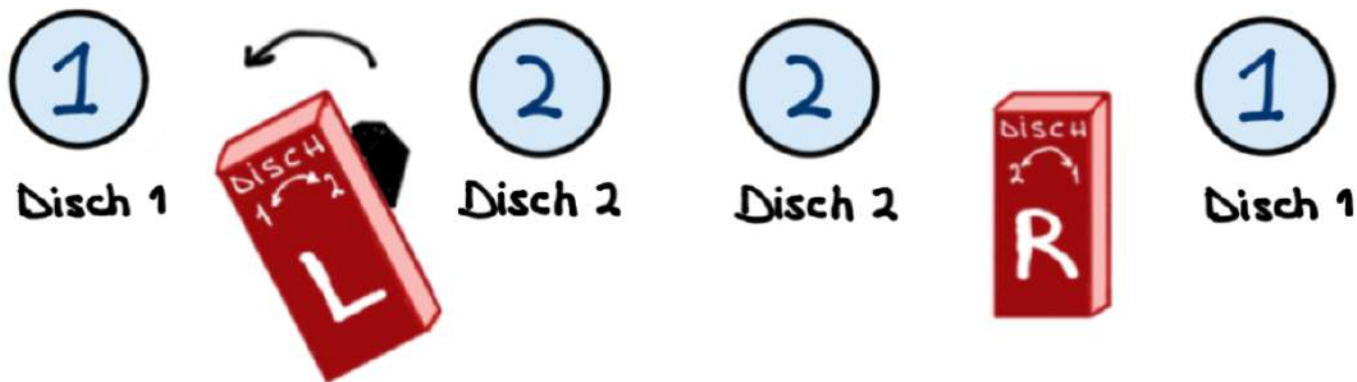
② Shuts off Hydraulic fluid DOWNSTREAM FROM RESERVOIR



③ Trips The IDG



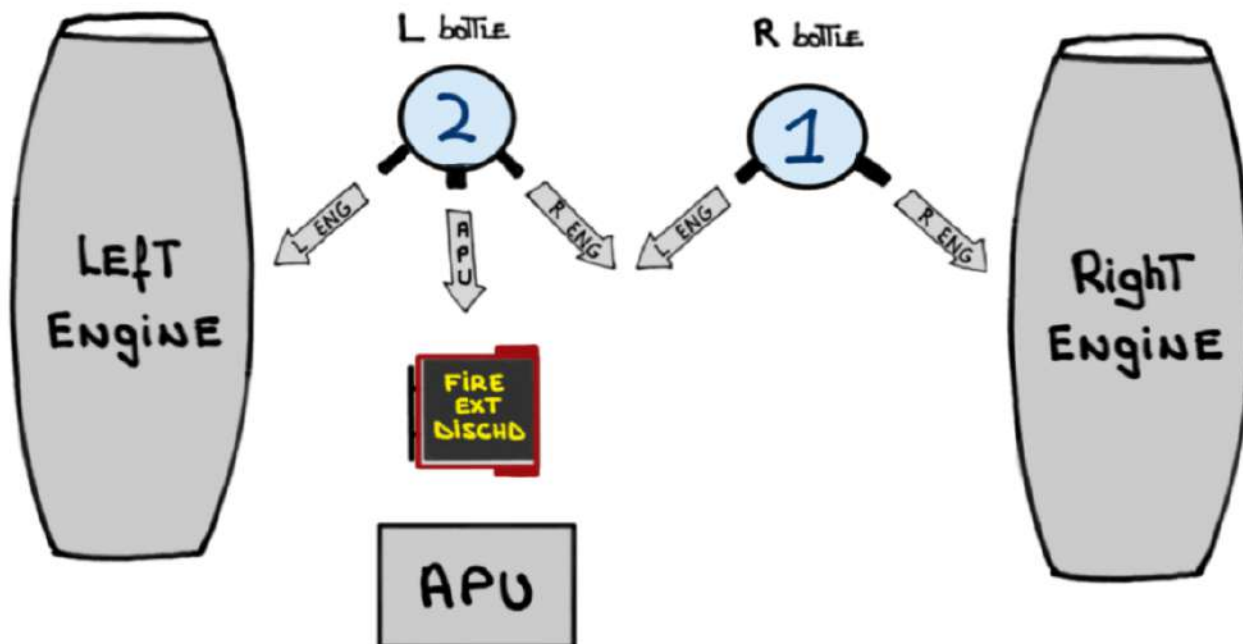
- **FIRE HANDLES**, when ROTATED, CAN DISCHARGE ONE OR BOTH BOTTLES/SHOTS



R FIRE BOTTLE DISCHRG

- L BOTTLE — EITHER ENGINE
 — APU

R BOTTLE — EITHER ENGINE

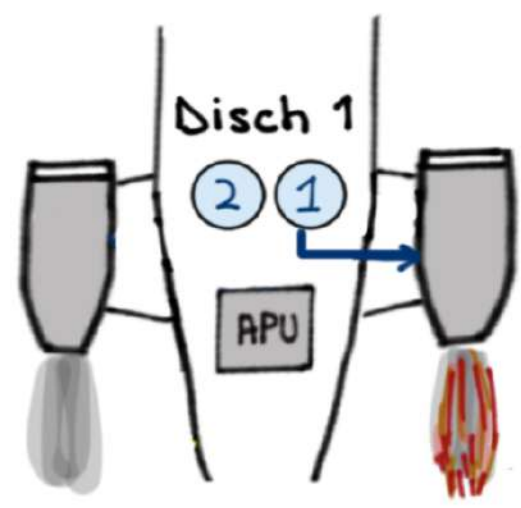
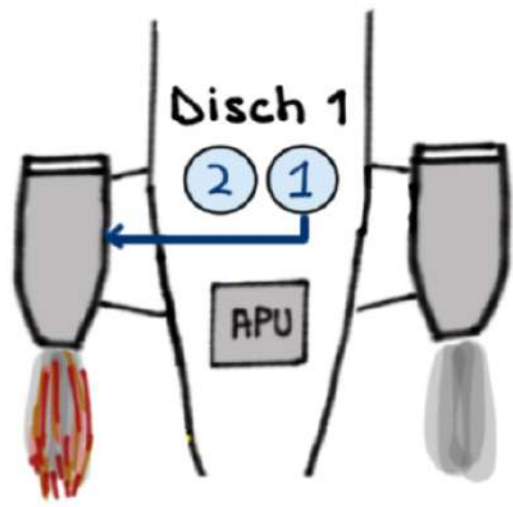


- ROTATING THE **FIRE HANDLE** OUTWARDS discharges
shot ①

L ENGINE FIRE (U)

R ENGINE FIRE (U)

R FIRE BOTTLE Dischag



OUTWARDS

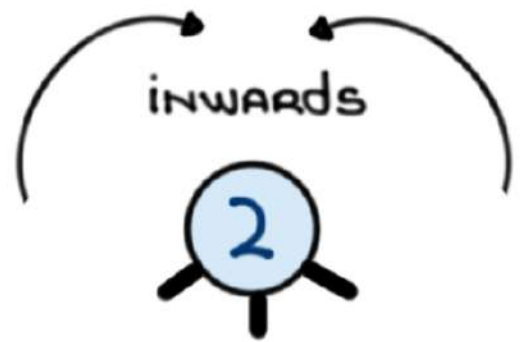
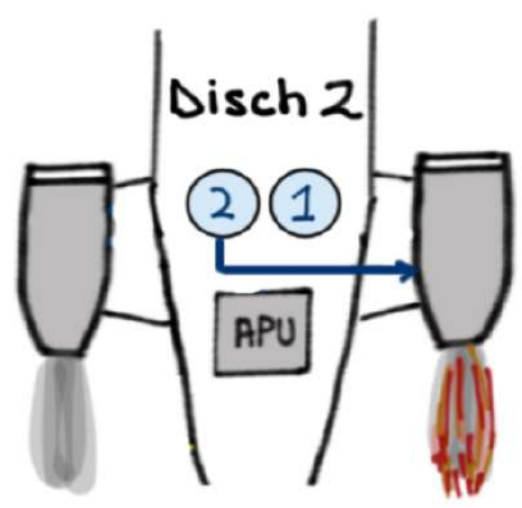
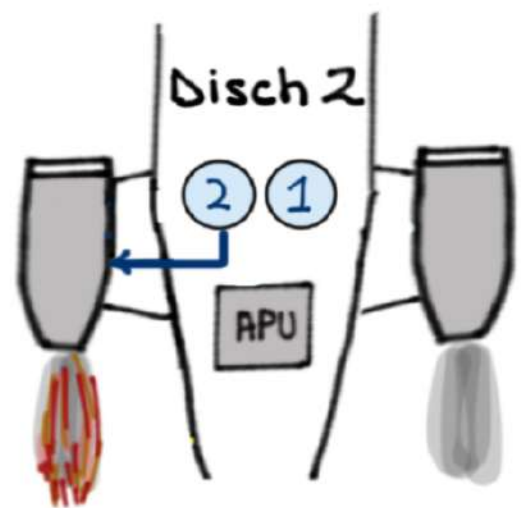


- ROTATING THE **FIRE HANDLE** INWARDS discharges
shot (2)

L ENGINE FIRE (U)

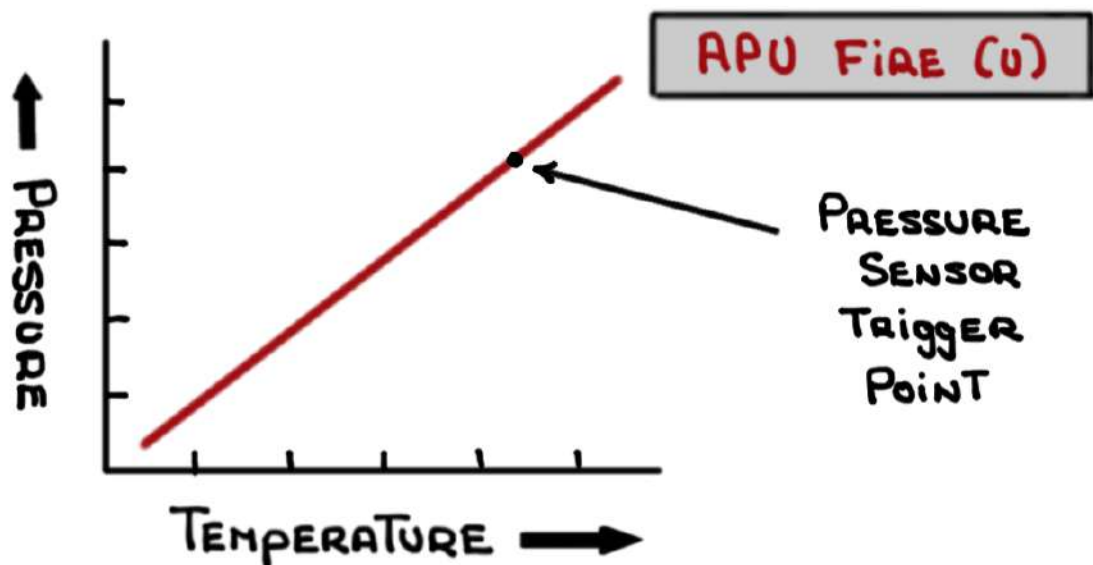
R ENGINE FIRE (U)

L/APU FIRE BOTTLE DISCHG



APU FIRE DETECTION SYSTEM

- The APU is ENCLOSED in a TITANIUM CASE CAPABLE of SUSTAINING A FIRE FOR FIFTEEN (15) MINUTES. BEYOND THIS PERIOD DAMAGE TO OTHER SYSTEMS WILL OCCUR
- The APU OVERHEAT/FIRE DETECTION SYSTEM CONSISTS OF A HERMETICALLY SEALED HELIUM-FILLED TUBE SECURED TO THE TOP OF THE APU ENCLOSURE
- AS THE TEMPERATURE INSIDE THE ENCLOSURE INCREASES THE GAS IN THE TUBE EXPANDS AND THE PRESSURE INCREASES



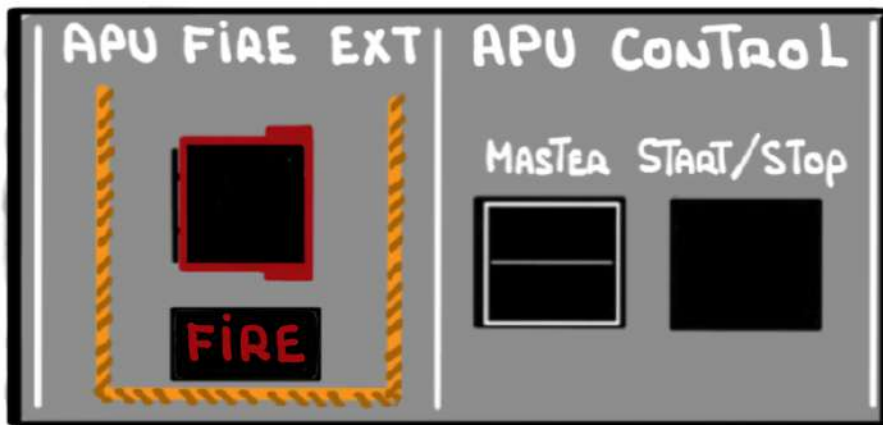
- The DCN DETERMINES WHEN AN APU OVERHEAT/FIRE CONDITION EXISTS BASED ON INPUT FROM PRESSURE SWITCHES

- AN AVERAGE INCREASE IN TEMPERATURE OVER ENTIRE TUBE INDICATES AN **OVERHEAT**

APU EXCEEDANCE (U)

- A LARGE TEMPERATURE INCREASE ON A SMALL LENGTH OF TUBE INDICATES A **FIRE**

APU FIRE (U)



▲ FIRE BELL (ground only)

- ▲ APU ECU
 - CLOSES APU FUEL SUPPLY VALVE
 - CLOSES LOAD CONTROL VALVE
 - SHUTS OFF APU GENERATOR
 - CLOSES APU INLET DOOR

APU FIRE EXTINGUISHING SYSTEM

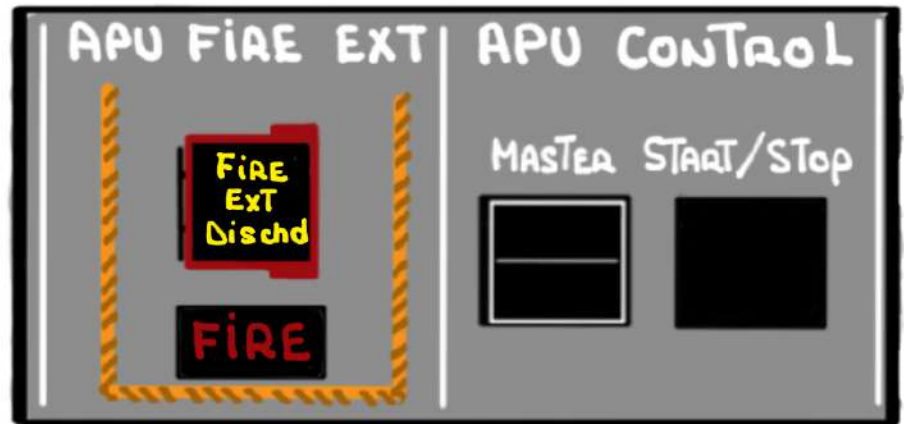
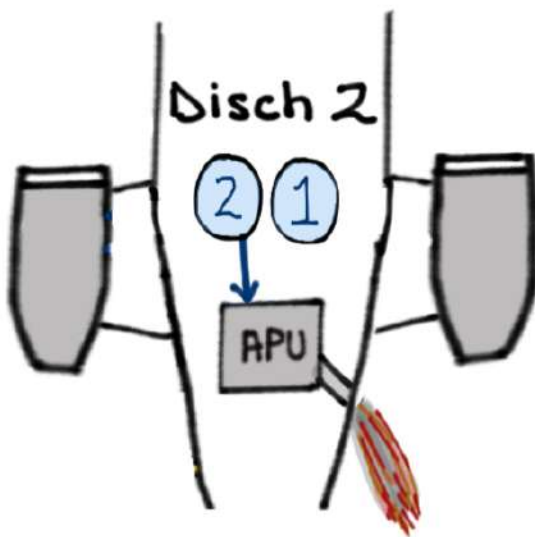
- The APU FIRE EXTINGUISHING SYSTEM is POWERED by THE

L
ESS
DC

bus (down To MAIN BATTERIES)

- FIRE EXTINGUISHING discharge switch (GUARDED) is located ON THE APU CONTROL PANEL

APU FIRE (U)



- Discharges LEFT fire BOTTLE HALON INTO APU COMPARTMENT. Only ONE SHOT is AVAILABLE
- Discharge GENERATES THE following CAS MESSAGE:

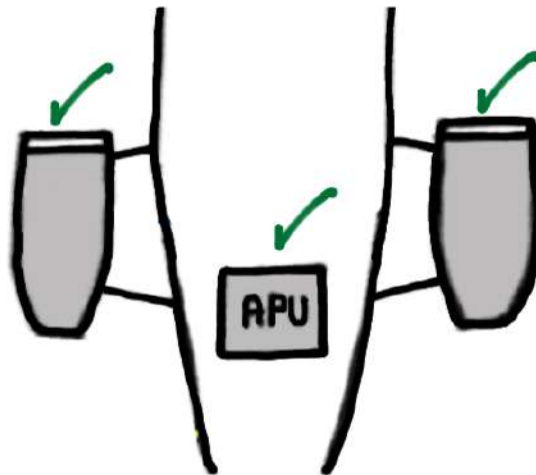
L/APU Fire Bottle Dischag

ENGINE AND APU FIRE TEST

- FIRE TEST switch is located in two (2) locations on ANY OVER HEAD PANEL TOUCH SCREEN (OHPTS)

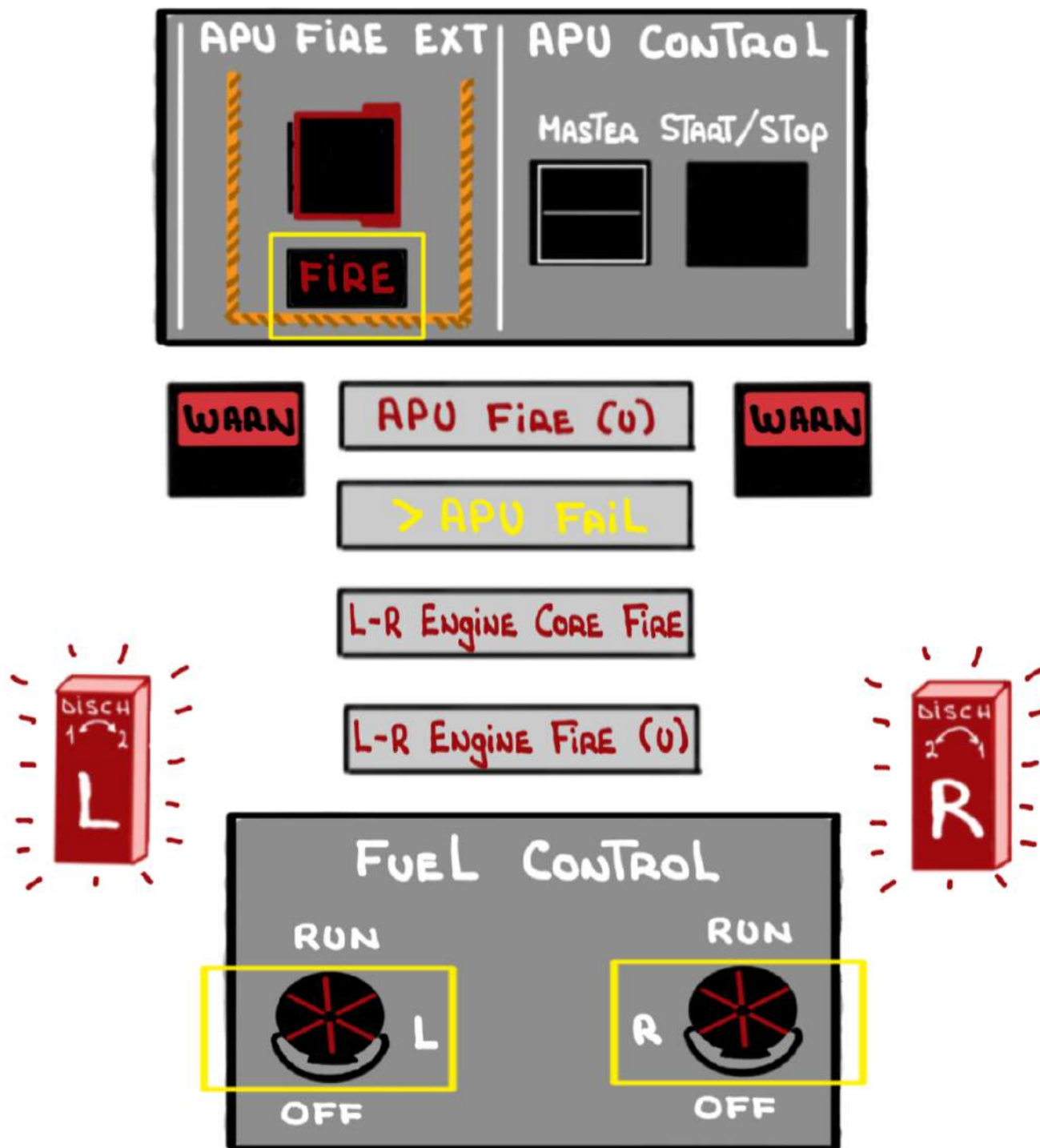


- A SINGLE switch ACCOMPLISHES TEST FOR APU AND ENGINES



- Checks FIRE DETECTION only

- PROPER TEST - THIRTEEN (13) INDICATIONS

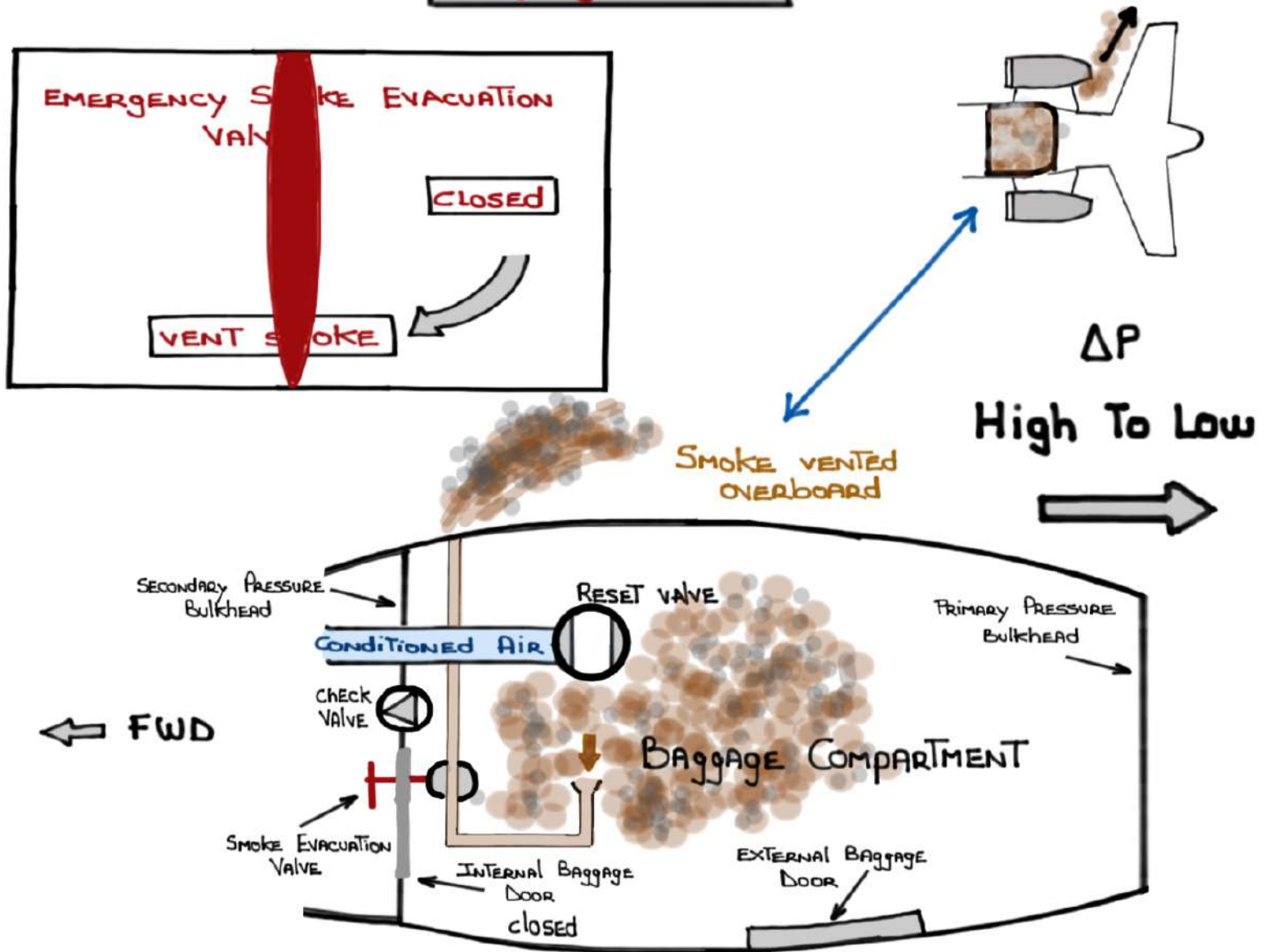


If on the ground a Fire Bell (located in the nose wheel well) will sound

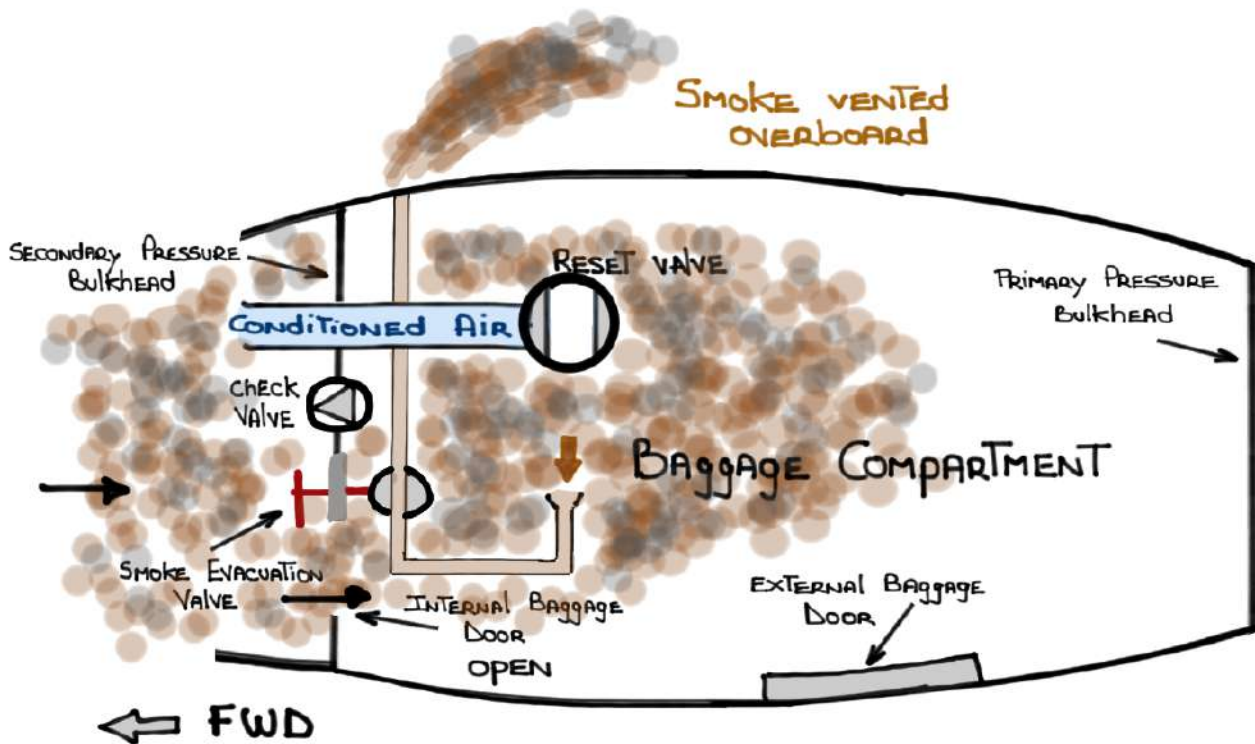
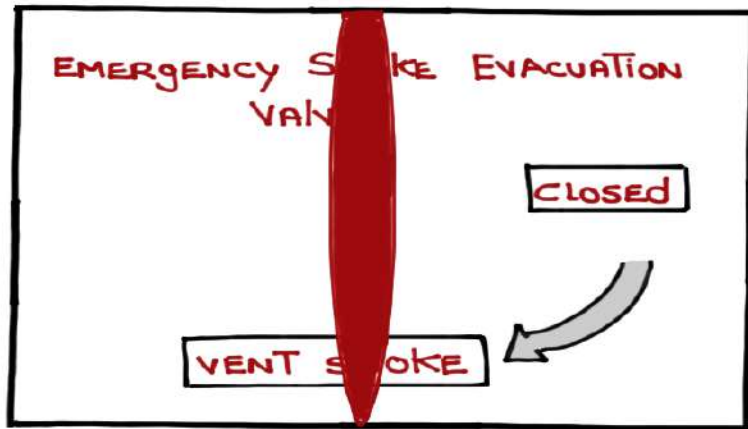
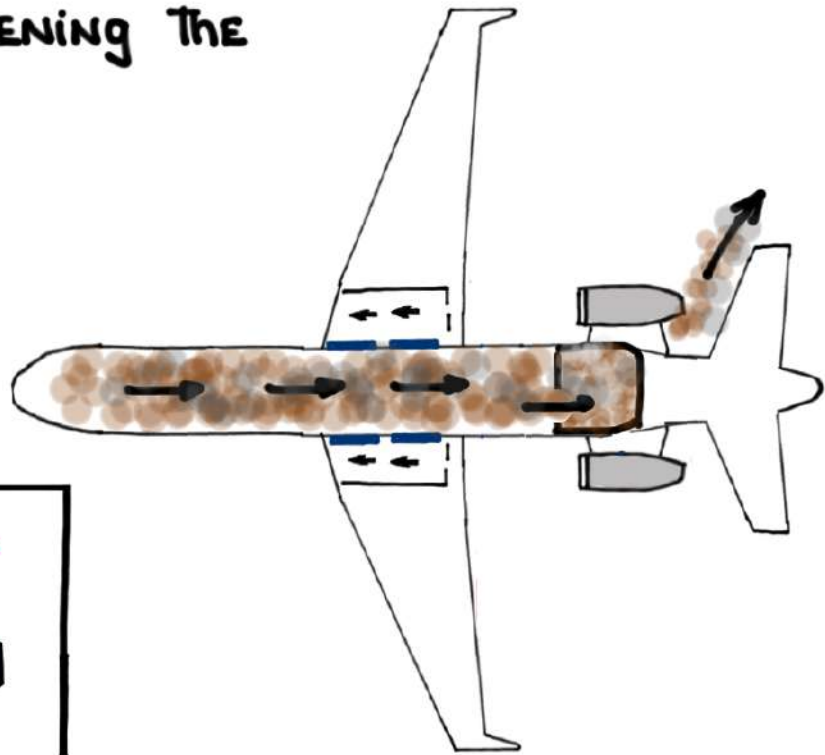
SMOKE EVACUATION

AN EMERGENCY SMOKE EVACUATION VALVE ALLOWS FOR SMOKE IN THE BAGGAGE COMPARTMENT TO BE VENTED OVERBOARD. THE VALVE INLET IS LOCATED IN THE CEILING AND EXTRACTS SMOKE BY DEPRESSURIZING THE BAGGAGE COMPARTMENT.

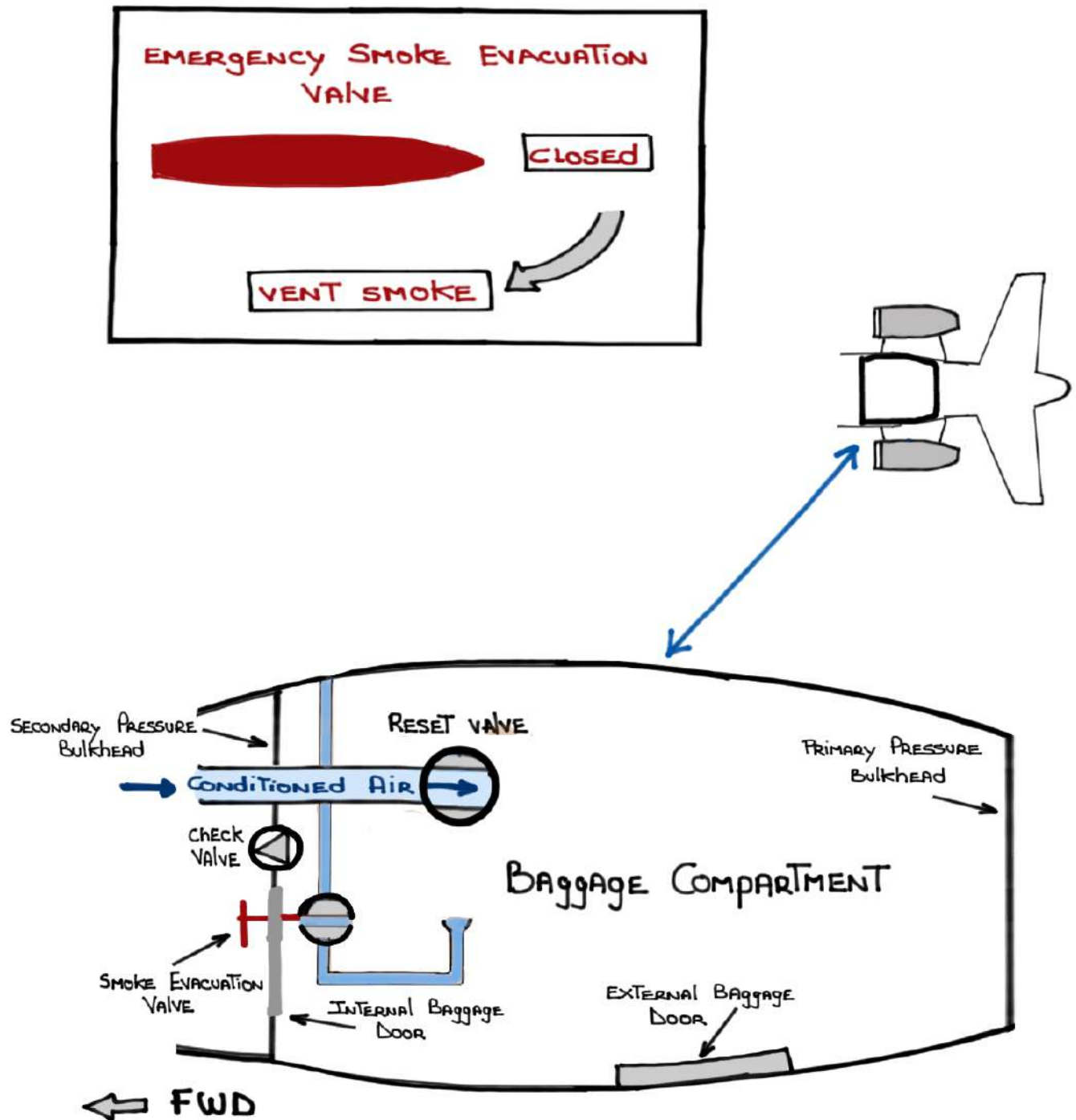
BAGGAGE SMOKE



SMOKE IN THE CABIN CAN ALSO BE VENTED OVERBOARD BY PARTIALLY OPENING THE INTERNAL BAGGAGE DOOR



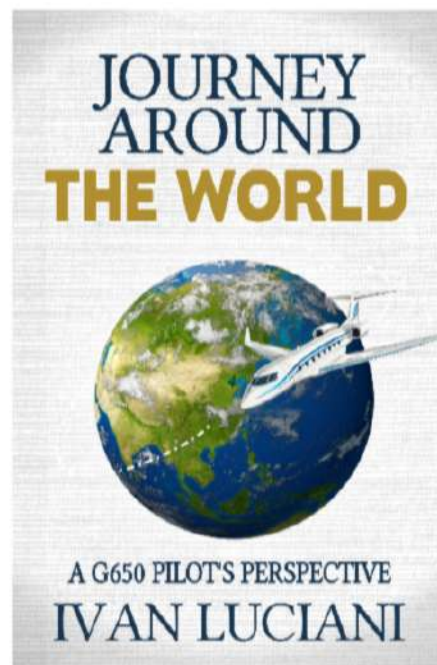
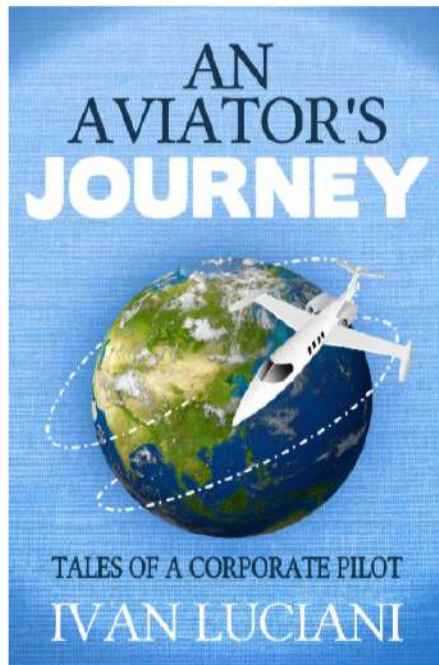
With The EMERGENCY SMOKE EVACUATION VALVE CLOSED
THE VENT VALVE CAN BE RESET AND THE BAGGAGE
COMPARTMENT REPRESSURIZED



REMINDER: these system notes are intended for study purposes only. Always refer to official Gulfstream manuals and other approved references when operating your aircraft.

NOTE: these system notes are updated from time to time and what is posted on Code450.com will always be the most recent version.

Questions, comments or errors...please do send me an email:
ivan.luciani@gmail.com



Thank you!