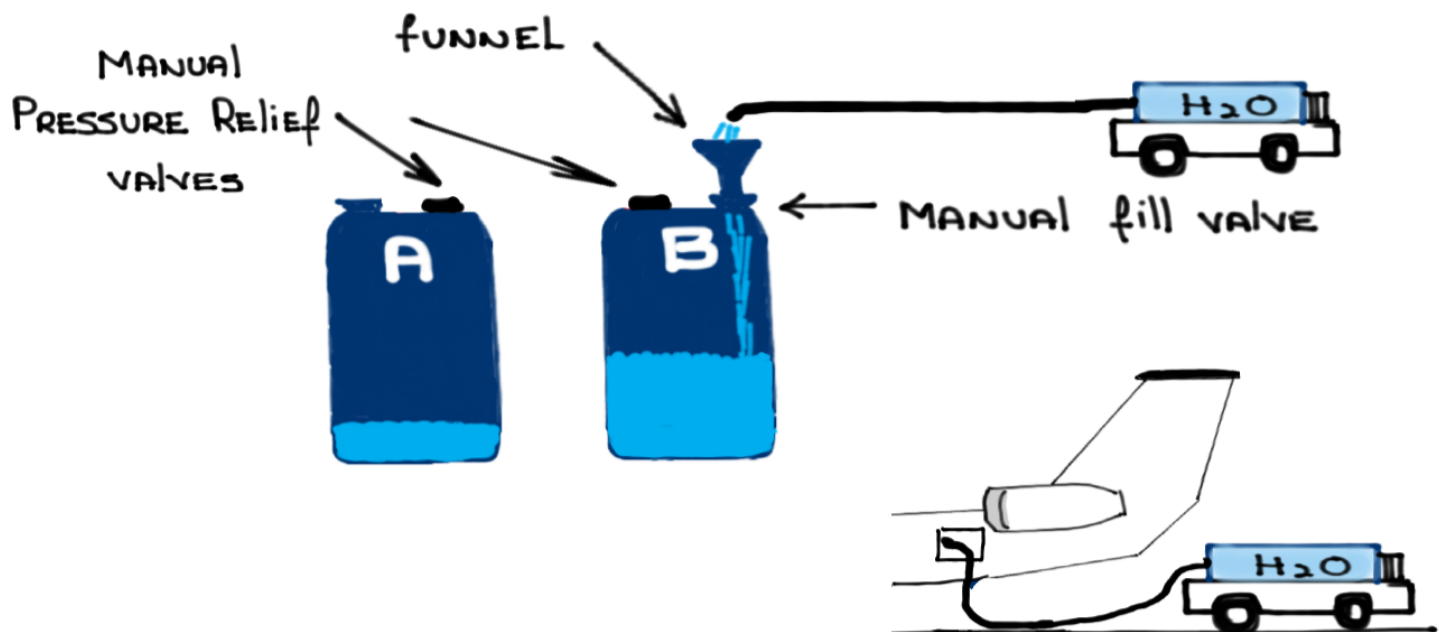


# G 650 WATER & WASTE SYSTEM



For study purposes only

# G650 WATER & WASTE SYSTEM

The POTABLE WATER SYSTEM (PWS) is about the STORAGE AND distribution of potable, filtered WATER AND ITS USE IN:

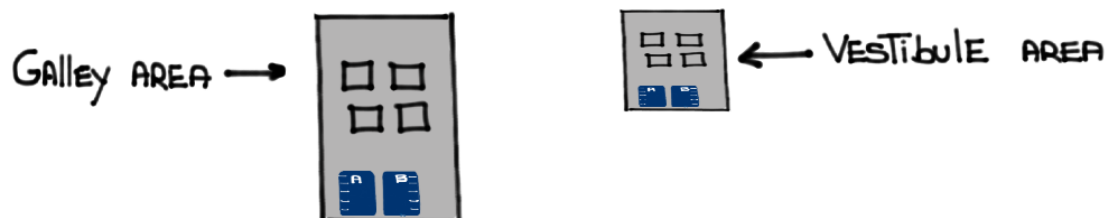
FWD LAV		Galley		AFT LAV	
FAUCET	TOILET	FAUCET	COFFEE BREWERS	FAUCET	TOILET

- THE PWS IS ACTIVATED VIA THE:

- ① MASTER Switch      ② MCDU/SSPC/GALLEY POWER ON



- THE PWS IS OPERATED, MONITORED AND PURGED VIA THE TOUCH SCREEN GULFSTREAM CABIN MANAGEMENT SYSTEM (GCMS) located in the galley. A SMALLER GCMS, located NEAR THE MAIN ENTRANCE DOOR, CAN PERFORM SOME PWS FUNCTIONS

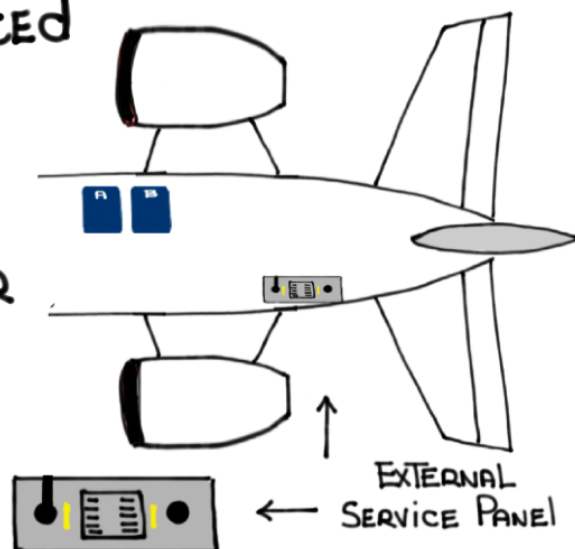


- The PWS has a capacity of forty (40) gallons and is comprised of two (2) independent tanks. This design enhances system redundancy

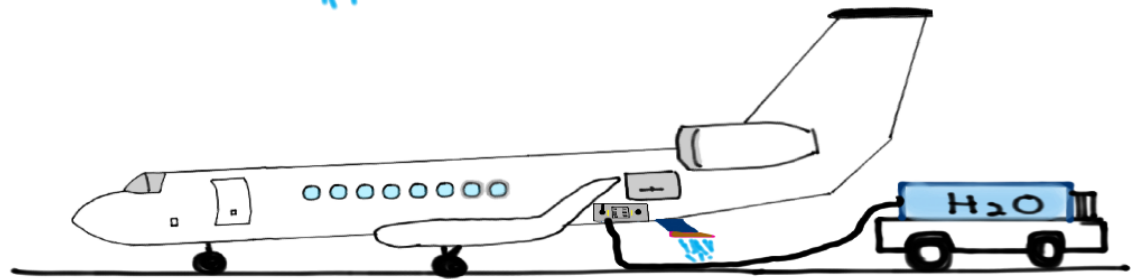
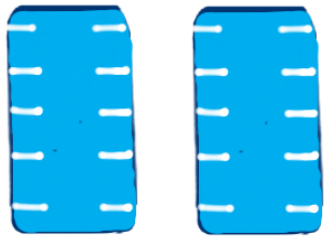
## Systems

$$\begin{array}{|c|} \hline \text{A} \\ \hline 20 \\ \hline \text{GAL} \\ \hline \end{array} \quad \begin{array}{|c|} \hline \text{B} \\ \hline 20 \\ \hline \text{GAL} \\ \hline \end{array} = 40 \text{ gallons}$$

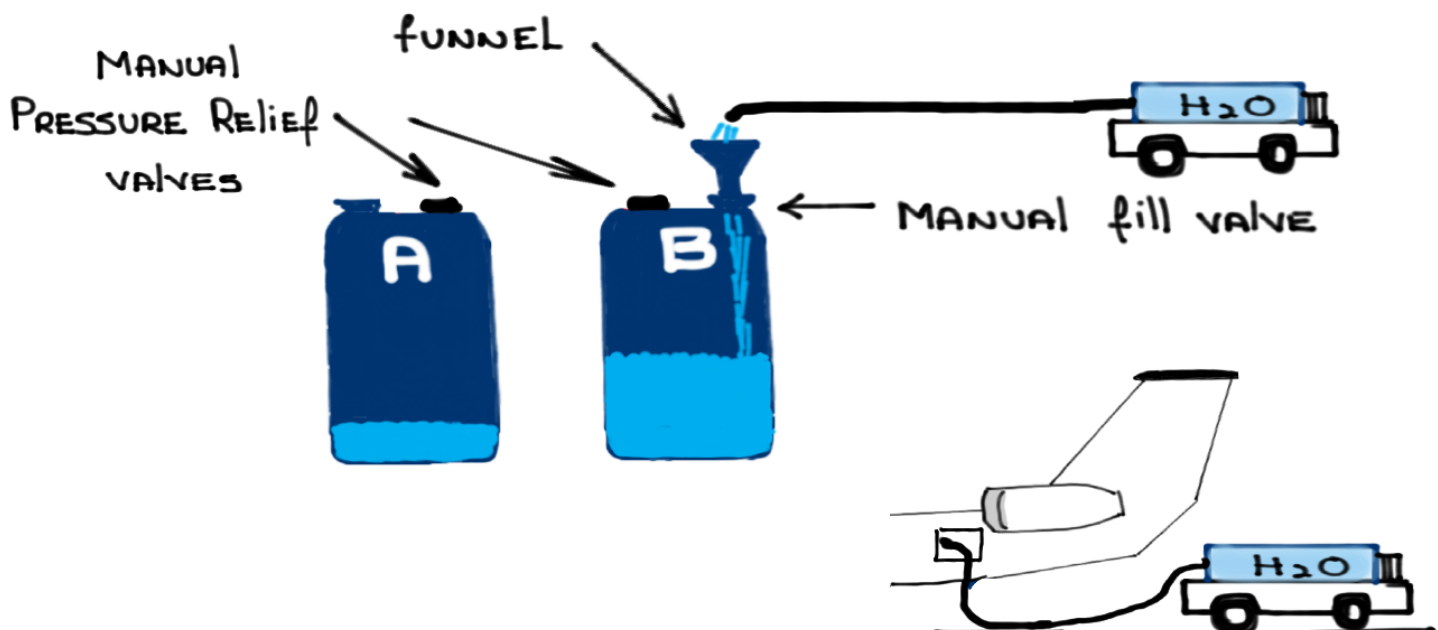
- The PWS tanks are located in the baggage compartment and are serviced through an access panel located on the left side of the aircraft
- AOM CHAPTER 09 - HANDLING & SERVICING PROCEDURES
- NO ELECTRICAL POWER REQUIRED
- GSB POWER NEEDED FOR WATER LEVEL INDICATION
- TANKS ARE SERVICED INDIVIDUALLY
- SEVEN (7) MINUTES PER TANK
- BOTH TANKS should BE SERVICED TO THE SAME LEVEL
- PWS is inhibited while the EXTERNAL SERVICE PANEL door is open



- TANKS ARE COMPLETELY full when WATER OVERFLOWS FROM AFT DRAIN MAST



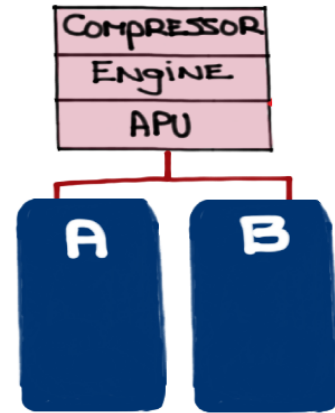
- A MANUAL fill valve is installed ON TOP of EACH Tank To Allow filling of THE TANKS with A funnel and A hose PASSED THROUGH THE open baggage door. PRESSURE WITHIN THE TANK MUST be bled off BEFORE opening THE fill valve





- THE PWS TANKS ARE PRESSURIZED BY:

- ① ELECTRICALLY-POWERED AIR COMPRESSOR, OR
- ② ENGINE BLEED AIR, OR
- ③ APU BLEED AIR

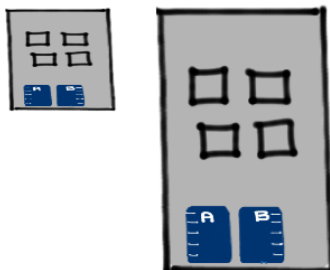


- UPON EXITING THE TANKS THE WATER PASSES THROUGH A FILTER AND ULTRAVIOLET LIGHT STERILIZATION UNIT FOR PURIFICATION PURPOSES



- THERE ARE FIVE (5) SENSOR PROBES MOUNTED ON THE SIDE OF EACH TANK. THESE PROBES SENSE THE WATER LEVEL IN EACH TANK AND DISPLAY IT IN FOUR (4) LOCATIONS:

GCMS TOUCHSCREENS



TANK ENCLOSURE



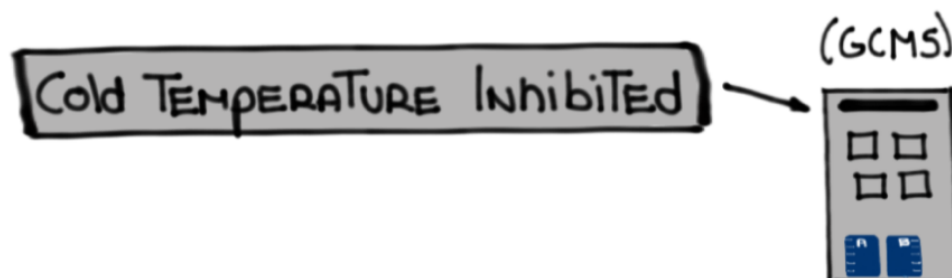
EXTERNAL SERVICE PANEL




- To PREVENT WATER FROM flowing FROM THE FAUCETS UNINTENTIONALLY THERE IS A PRESSURE PAD UNDERNEATH THE LAVATORY FLOORS. WEIGHT ON THE PAD, AS WHEN SOMEBODY IS STANDING IN FRONT OF THE SINK, ALLOWS WATER TO flow FROM AN OPEN FAUCET

If NO WATER IS AVAILABLE AN OVERRIDE LEVER UNDER THE SINK IN THE AFT LAVATORY BYPASSES THE ELECTRICAL INPUT FROM THE PRESSURE PAD. THIS OVERRIDE LEVER IS NOT AVAILABLE IN THE FORWARD LAVATORY

- ELECTRICAL HEATERS, POWERED BY 115  
VAC, AS WELL AS INSULATION, ARE USED TO PREVENT WATER FROM FREEZING
- FOLLOWING AN OVERNIGHT COLD SOAK THE PWS IS PREVENTED FROM ACTIVATING UNTIL THE CABIN TEMPERATURE REACHES 35°F OR A 20-MINUTE WARM-UP TIME HAS ELAPSED



- (GCMs)
- THE PWS CAN BE PURGED VIA THE  TO KEEP WATER FROM FREEZING IN THE LINES AND CAUSING EXTENSIVE DAMAGE (LINE RUPTURE AND SUBSEQUENT WATER LEAKS)

## AOM CHAPTER 09 - HANDLING & SERVICING PROCEDURES

THERE ARE TWO (2) PURGE MODES:

- LINE DRAIN COMMAND REMOVES ALL WATER FROM THE PWS LINES
- SYSTEM PURGE COMMAND FORCES AIR THROUGH THE WATER FILTER AND LINES, AS WELL AS THE TANKS UNTIL ALL WATER HAS BEEN PURGED

## GROUND

- HEATED PENETRATION PORT
- PURGE AIDED by:
  - NOSE DOWN ATTITUDE
- SEVEN (7) MINUTES PER TANK



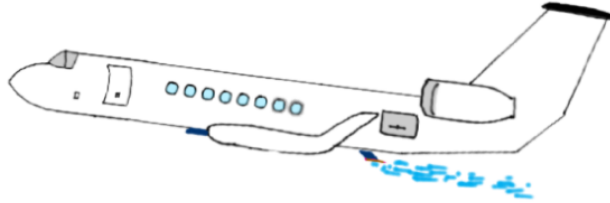
(GCMS)



← PURGE

## AIR

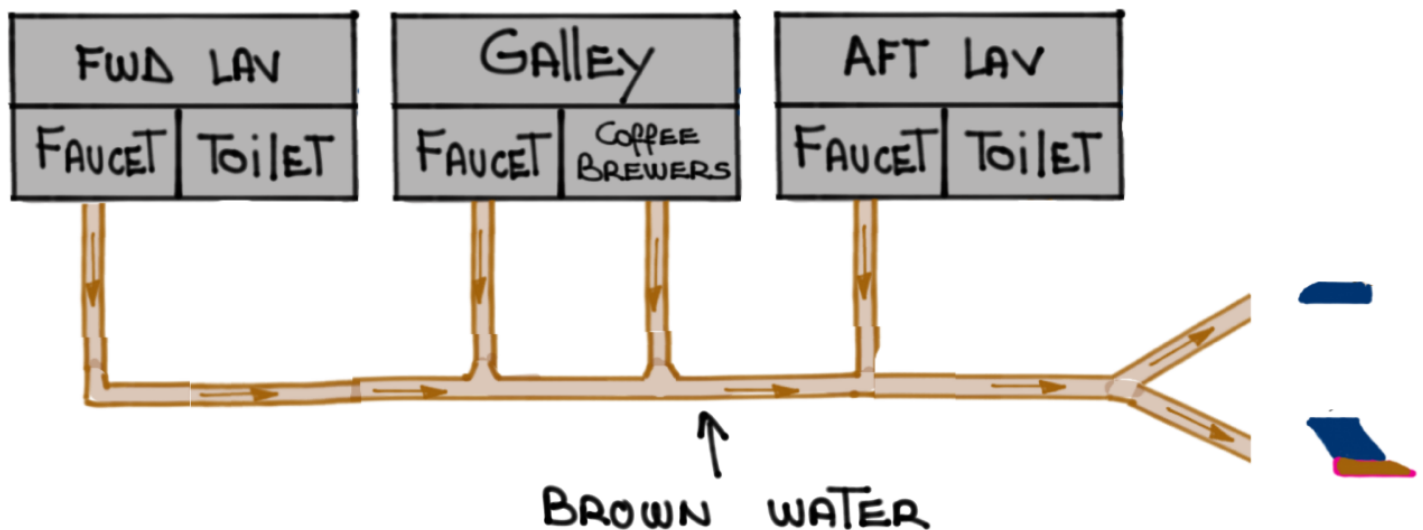
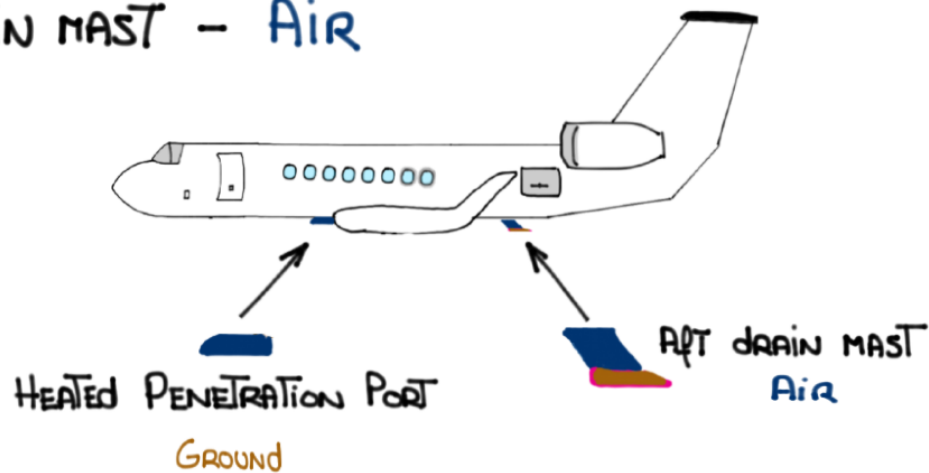
- A/T DRAIN MAST
- PURGE aided by:



- ① NOSE up ATTITUDE
  - ② DIFFERENTIAL PRESSURE (High To Low)
- SEVEN (7) MINUTES PER TANK
  - PURGE is COMPLETED ONLY AFTER LANDING  
SINCE THE FORWARD SUPPLY/DRAIN VALVES (V4A, V4B AND V5)  
DON'T OPEN UNTIL WOW - **GROUND**

- WATER FROM THE FORWARD AND AFT LAVATORIES' SINKS, AS WELL AS FROM THE GALLEY'S SINK AND ICE STORAGE DRAWERS, IS DRAINED OVERBOARD VIA THE:

- HEATED PENETRATION PORT - **GROUND**
- AFT DRAIN MAST - **AIR**



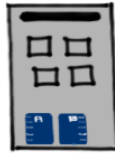


# POTABLE WATER SYSTEM

CABIN/  
GALLEY

MCDU/GALLEY POWER

(GCMS)



BLEED AIR  
SOURCE

COMPRESSOR  
ENGINE  
APU



POTABLE WATER CART



EXTERNAL  
SERVICE PANEL



MANUAL fill valve

WATER LEVEL  
SENSORS  
(5)



WATER STERILIZER/FILTERS

IN LINE HEATERS

HEATED PENETRATION  
PORT

GALLEY

FWD LAV

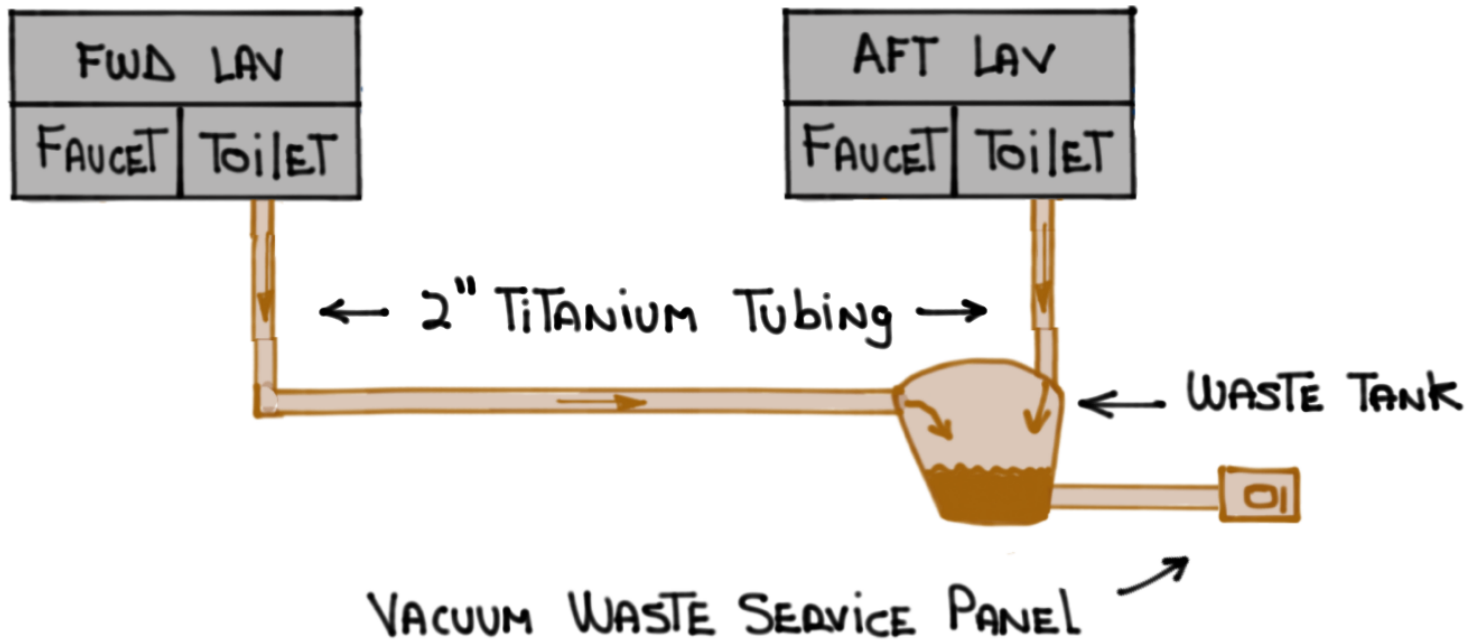
AFT LAV

AFT DRAIN MAST

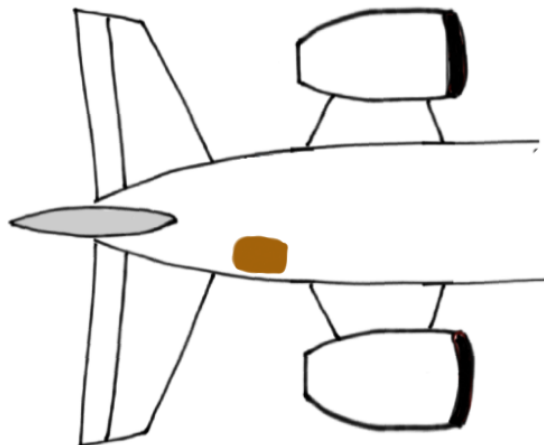
HEATER

# VACUUM WASTE SYSTEM

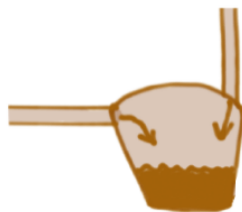
The VACUUM WASTE SYSTEM (VWS) CONSISTS OF AN EIGHTEEN (18) GALLON STORAGE TANK WITH A TWELVE (12) GALLON USEABLE CAPACITY



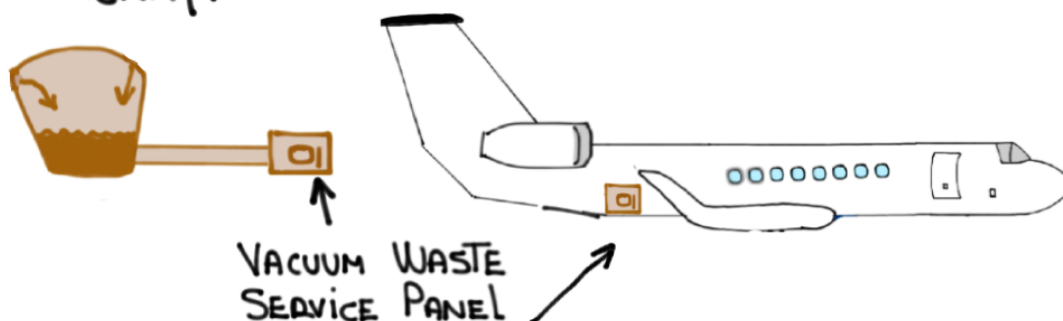
- THE WASTE TANK IS LOCATED IN THE AFT EQUIPMENT COMPARTMENT



- THE TANK HAS TWO (2) SEPARATE WASTE TUBE INLETS FROM THE TWO (2) TOILETS

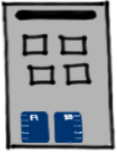


- THE VWS IS SERVICED ON THE GROUND VIA A VACUUM WASTE SERVICE PANEL LOCATED ON THE RIGHT AFT SIDE OF THE AIRCRAFT

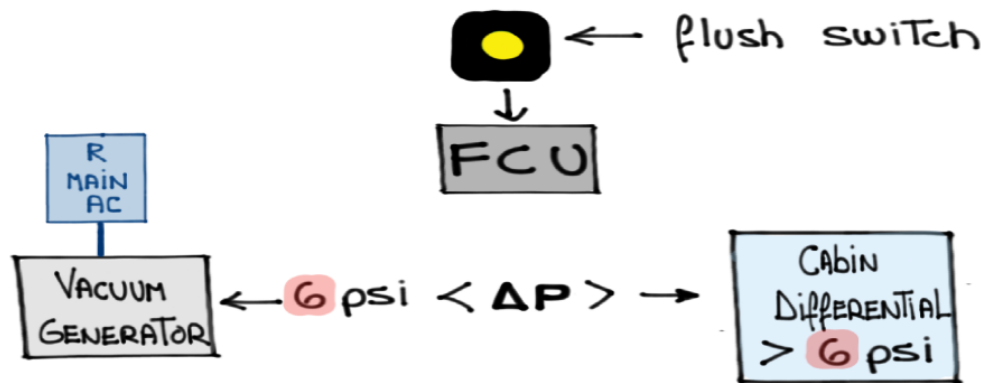



- AOM CHAPTER 09 - HANDLING & SERVICING PROCEDURES
  - NO ELECTRICAL POWER REQUIRED
  - THE VWS IS INHIBITED WHILE THE WASTE SERVICE PANEL DOOR IS OPEN
- 
- THE VACUUM NEEDED TO FLUSH THE TOILETS IS PROVIDED BY EITHER OF TWO (2) SOURCES DEPENDING ON CURRENT DIFFERENTIAL PRESSURE:
- A 115 VAC POWERED VACUUM GENERATOR WHEN THE CABIN DIFFERENTIAL ( $\Delta P$ ) IS  $< 6$  PSI (BELOW 16,000')
  - CABIN DIFFERENTIAL PRESSURE  $> 6$  PSI (ABOVE 16,000')

- If The VACUUM WASTE TANK level indicator on the (GCMs) indicates "FULL" THERE ARE STILL SIX (6) ELECTRIC flushes left



- When The VACUUM GENERATOR is operating ( $\Delta P < 6$  psi) ONLY ONE (1) TOILET CAN BE flushed AT A TIME
- Each TOILET HAS A Flush CONTROL UNIT (FCU) which performs all control logic



 Switch PRESSED + Two (2) SECONDS

 > flush AND RINSE VALVES OPEN

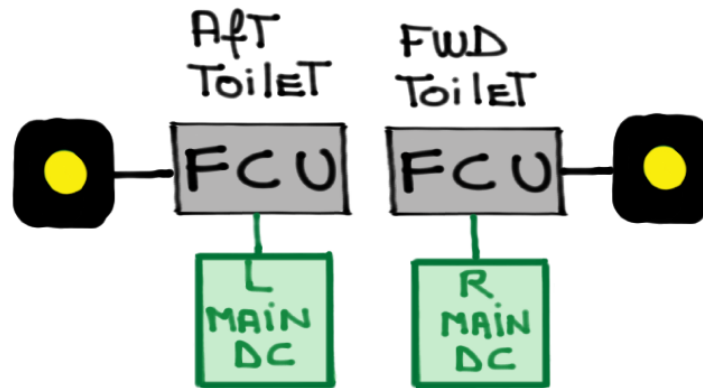


CONTENTS ARE SUCTIONED INTO WASTE CONTAINER

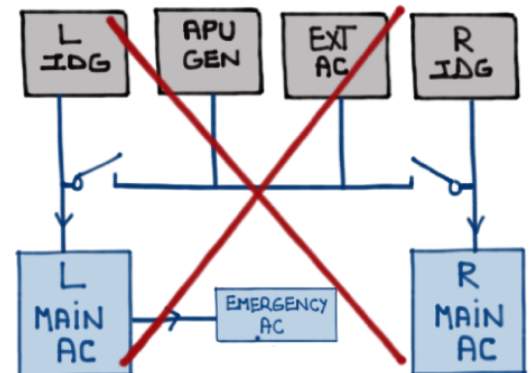
→ + four (4) SECONDS


 > flush AND RINSE VALVES CLOSE

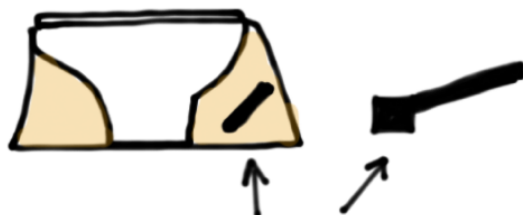
- FCUs ARE POWERED by different power SOURCES



- A MANUAL flush LEVER located UNDER THE TOILETS CAN BE USED TO OPEN AND CLOSE THE flush VALVE WHEN THE following fail:



- THE MANUAL flush LEVER CAN ALSO BE USED if THE ACTUAL VALVE GETS STUCK OPEN 



MANUAL flush LEVER

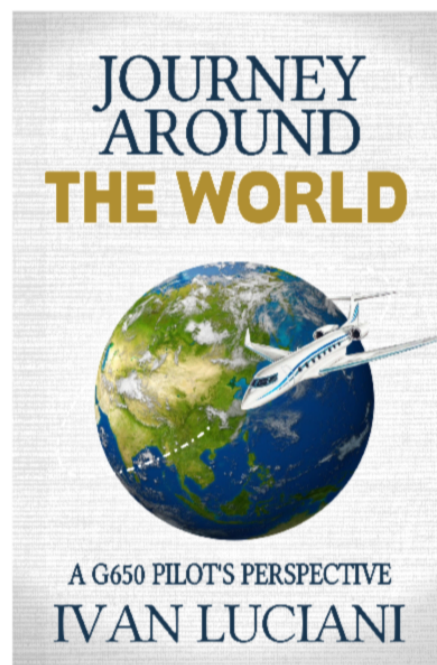
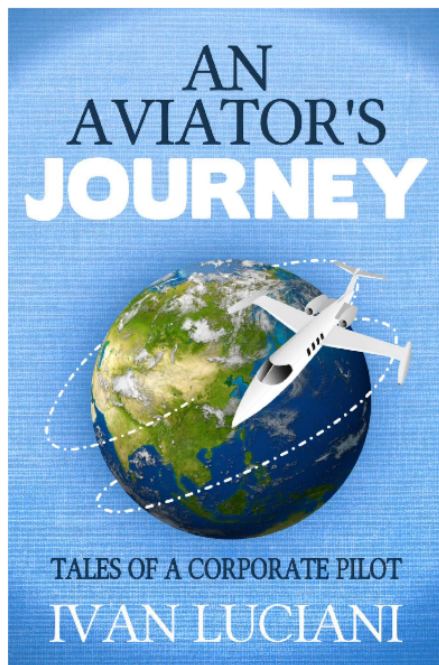




**REMINDER:** these system notes are intended for study purposes only. Always refer to official Gulfstream manuals and other approved references when operating your aircraft.

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@code7700.com](mailto:ivan@code7700.com)



Thank you!