CHAPTER

38

Water and Waste

CHAPTER 38
WATER AND WASTE

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A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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16	BLANK	

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WATER AND WASTE - INTRODUCTION

General

The water and waste systems provide water for, and disposes waste water from, the drinking fountain (as installed), galleys, and lavatory washbasins. The self-contained toilet system collects toilet waste which is drained by ground service.

The potable water system has these subsystems:

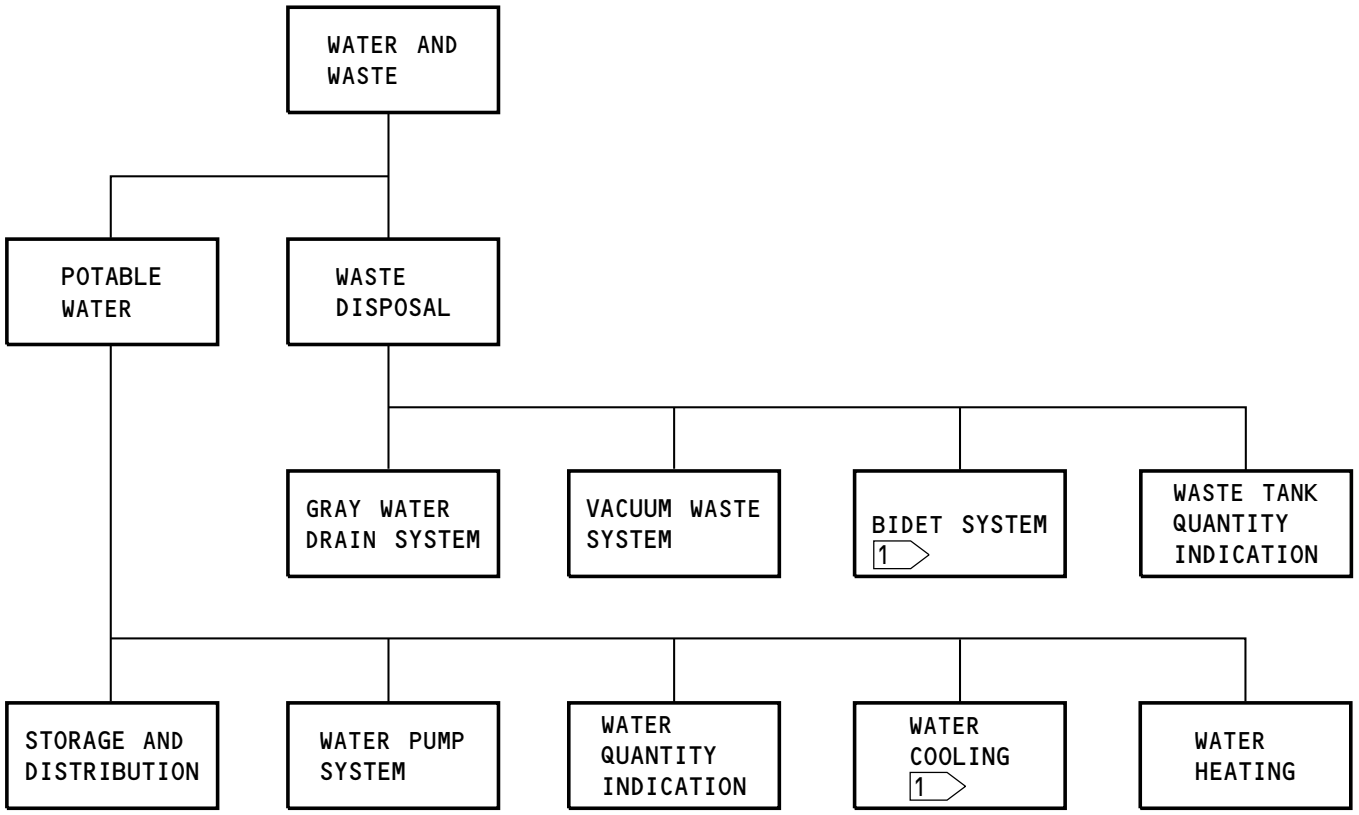
- Storage and distribution
- Water Pumps
- Water quantity indication
- Water heating.

These subsystems are in the waste disposal system:

- Grey water drain system. The grey water drain system collects waste water from the galleys, drinking fountains and lavatory compartment washbasins and dumps it overboard through drain masts.
- Toilet vacuum waste system. The independent toilet vacuum waste systems remove and store toilet waste in the waste tanks. The waste tanks are in the bulk cargo compartment on the left side of the airplane.
- Waste tank quantity indication.

Abbreviations and Acronyms

- CACP - cabin area control panel
- CSCP - cabin system control panel
- CSS - cabin services system
- FCU - flush control unit
- INTLK - interlock
- LCM - logic control module
- SW - switch



1 AS INSTALLED

U82253 S0000213030_V1

WATER AND WASTE - INTRODUCTION

Potable Water System

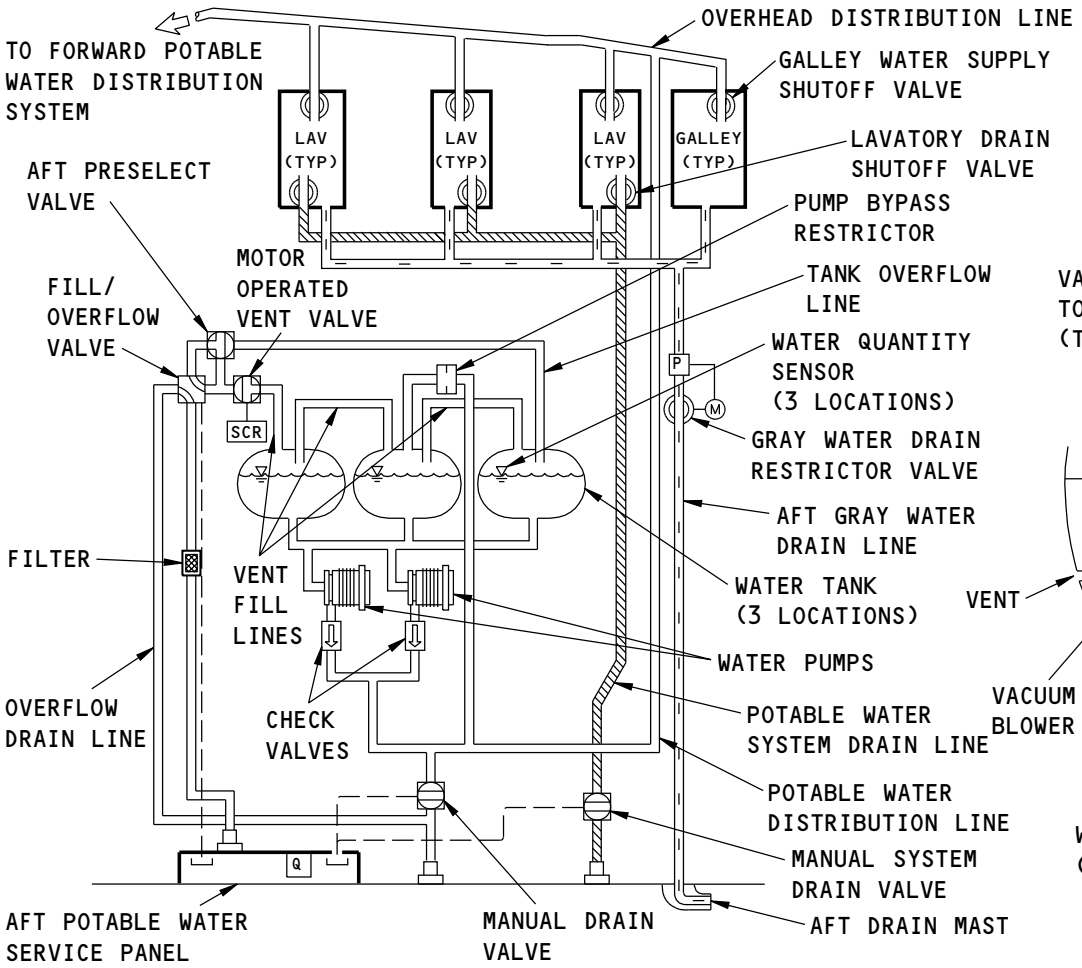
The potable water tanks store the water. The potable water pumps pressurize the potable water system distribution lines. The pump pressure pushes the water through the distribution lines to the lavatories and galleys. Potable water also goes to the toilets in the lavatories to flush the vacuum toilet bowls.

Waste Disposal System

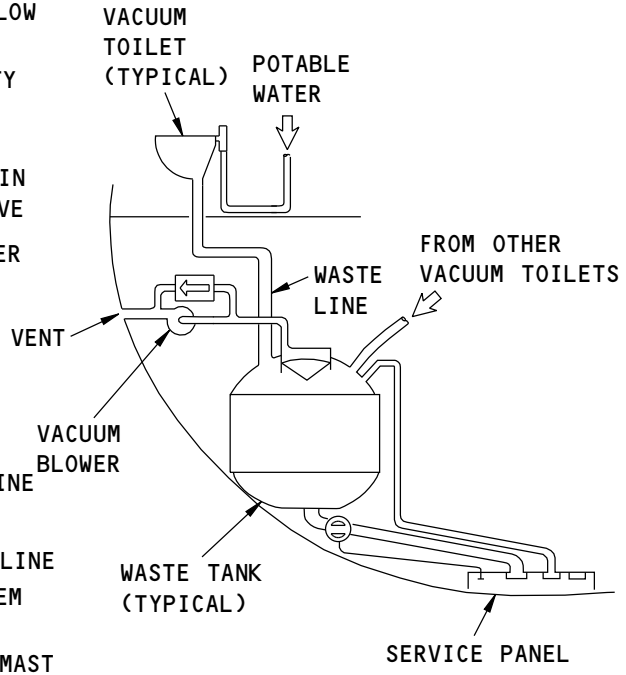
Gray water drains from the sinks in the lavatories and galleys. This gray water goes through drain lines to either of two drain masts on the bottom of the fuselage.

Each lavatory has a vacuum toilet. Waste lines connect the lavatories to one of the waste tanks. Each tank gets waste from a specified group of lavatories.

A vacuum in the tank pulls the waste from the toilet into the tank.



POTABLE WATER AND GRAY WATER SYSTEMS (EXAMPLE)



VACUUM WASTE SYSTEM (EXAMPLE)

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POTABLE WATER PRESSURIZATION - INTRODUCTION

Purpose

The potable water pressurization system pumps the potable water through the distribution lines to the using facilities.Two electric, centrifugal pumps, commanded by the water system controller unit, provide water pressure.

General Description

The potable water distribution lines are pressurized by one of the two water pumps. The other serves as a backup. A single pump provides the pressure and flow necessary to support the system. The two pumps alternate functions for each flight. The pump that served as backup on the previous flight provides system pressure on the current flight, and the other becomes the backup pump.

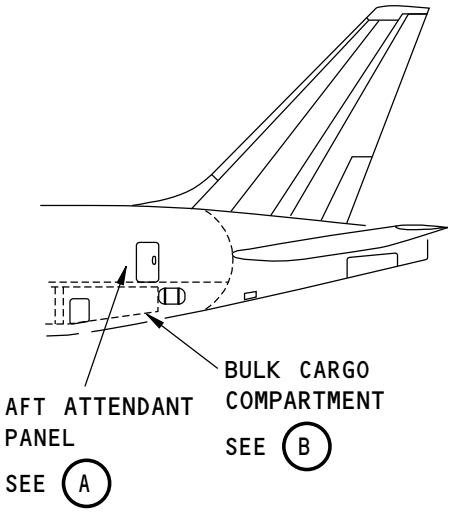
The system features fault detection and indication. There are controls in the passenger compartment, on the Attendant Switch Panel, that provide for system control and status monitoring.

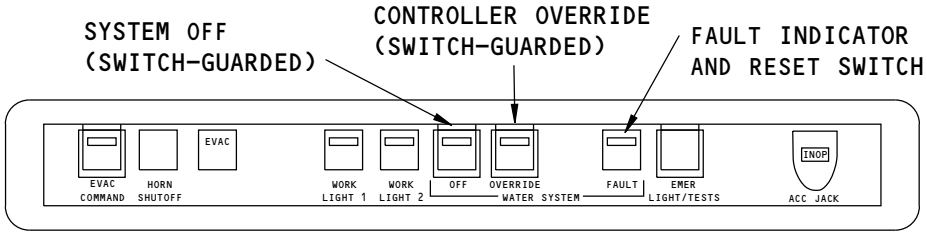
These components control the distribution system water pressure.

- Water Pumps (2)
- Pump check valves (2)
- Pump controller
- Water pressure switch (S38013)
- Fill/overflow valve interlock switch, S38012 (not shown)
- Drain interlock switch, S38011(not shown)
- Water pump control relays, K38016, K38017, K38018 (not shown)
- Aft Attendant Switch Panel, WATER SYSTEM controls (OFF, OVERRIDE, and RESET switches)

Training Note

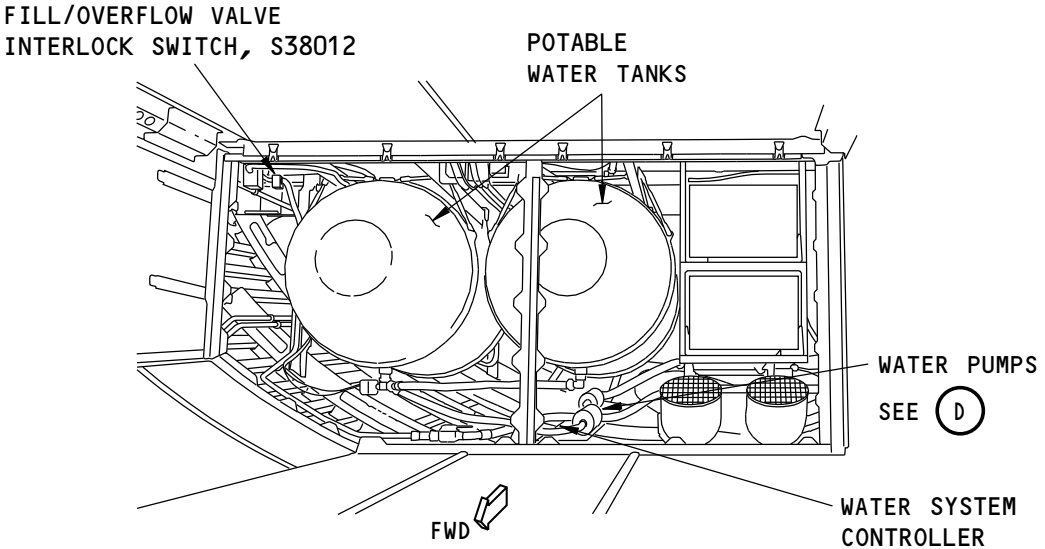
The Water Pumps are referred to as Pump A and Pump B on the system controller. They are also identified as pump 1 and pump 2 on the wiring diagrams and functional schematics. The aft most pump is pump A or pump 1.





AFT ATTENDANT PANEL

A 1



BULK CARGO COMPARTMENT
(END WALL PANELS NOT SHOWN)

B

1 EXACT LOCATION VARIES WITH CABIN INTERIOR OPTIONS. PANEL IS LOCATED NEAR THE AFT CABIN ENTRY DOOR.

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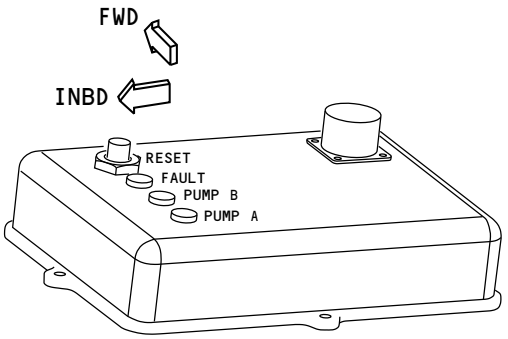
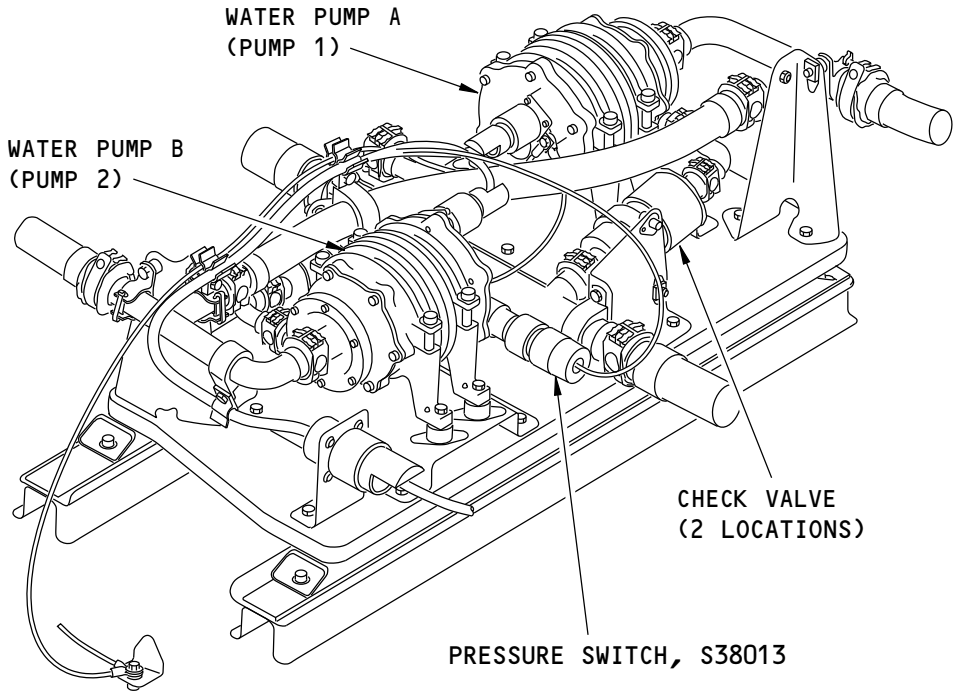
POTABLE WATER PRESSURIZATION - INTRODUCTION



WATER SYSTEM CONTROLLER

C



WATER PUMPS

D

U88864 S0000222144_V2

POTABLE WATER PRESSURIZATION - INTRODUCTION

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POTABLE WATER PRESSURIZATION - WATER PUMPS

Purpose

The potable water system pumps pump the water through the distribution lines to the using facilities. Two electric, centrifugal pumps, commanded by the water system controller unit, provide the water pressure.

Physical Description

The potable water pump installation provides distribution pressure and flow for potable water used in washing, drinking, toilet rinse, and galley purposes. A small portion of the water passing through the pumps is used for pump cooling. They are centrifugal water pumps driven by 3 phase, 115VAC, 400 Hz. induction motors. Each pump assembly weighs 6.57 lb (2.98 kg).

The water pump installation has these parts.

- Water pumps (2)
- Pump check valves (2)
- Pressure Switch

Location

The water pump installation is aft of the bulk cargo compartment endwall.

The water pumps and pump manifolds, are installed on a plate below the water tanks. The pump check valves (2), and the pump pressure switch (S38013) are installed in the pump output manifold.

Functional Description

The potable water distribution lines are pressurized by one of the two water pumps. The pumps are used alternately, switching when the aircraft lands.

One pump operates continuously when there is power to the system. The operating pump provides the pressure and flow necessary to support the system. Pump output pressure is regulated by a pressure switch. If the pressure switch detects that the system pressure has dropped below approximately 10 psig the controller will signal a fault and toggle the pump operation to the other pump. A small fraction of the pump output recirculates through a pump bypass restricter. This provides for pump cooling with no user demand, and for pressurized water, on demand, by the using facilities.

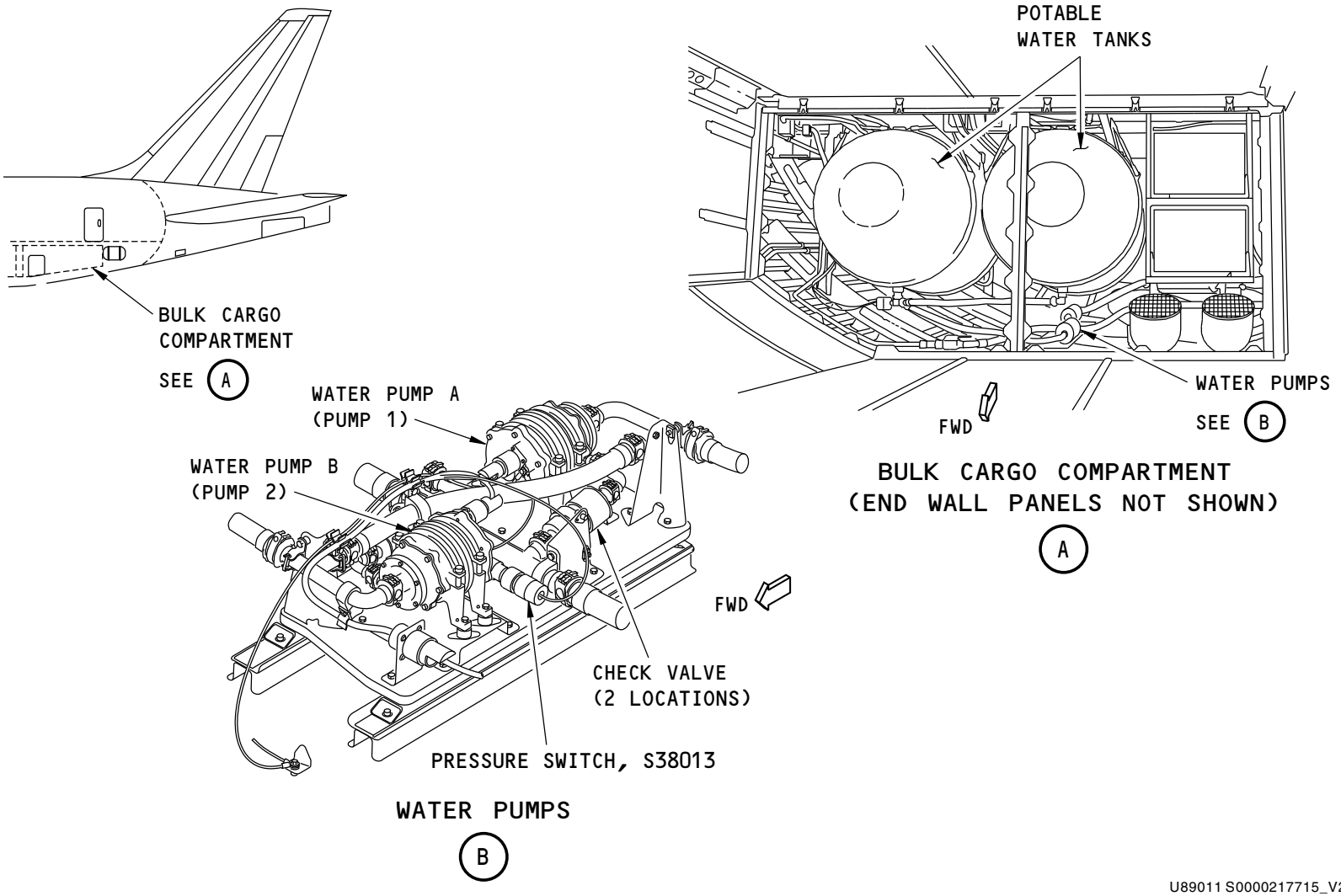
The dual pump installation provides backup operation in case of failure.

Thermal switches protect the pump motor when it becomes too hot or has too much current. There is a switch for each phase of the motor. These switches automatically go back to the normal position when they cool.

The pump check valves prevent water backflow through the pump that is not operating.

Training Note

The water pumps are referred to as Pump A and Pump B on the water system controller card. They are referred to as Pump 1 and Pump 2 on the wiring diagrams and functional schematics. The aft water pump is pump 1 or pump A, the forward most pump is pump 2 or pump B.



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POTABLE WATER PRESSURIZATION - WATER PUMPS

POTABLE WATER PRESSURIZATION - SYSTEM CONTROLLER

Purpose

The potable water system controller assembly monitors and provides electrical power to the potable water pumps. The controller also communicates with the water quantity control module and the preselect system for pump control during potable water servicing and drain operations.

Physical Description

The controller is an electronic circuit board housed within a cover and base assembly. The following components are on the pump controller cover.

- Fault Reset Switch
- Fault Indicator Light (Red)
- Pump B Indicator Light (Amber)
- Pump A Indicator Light (Amber)
- Electrical connector.

Location

The potable water system controller assembly is aft of the Bulk Cargo Compartment end wall. It is mounted on a plate below the water tanks and adjacent to the water pumps, at STA 2077 / RBL 40–47 (approx).

Functional Description

The system controller logic uses signal information from tank quantity, line pressure, air ground system, the manual drain valve interlock switch (S38011), and the fill/overflow valve interlock switch (S38012) to command pump operation.

The normal operation of the airplane potable water system consists of turning a single pump on to provide distribution pressure and flow. In the normal mode only one pump is turned on continuously. This pump is designated the “MASTER” pump.

The controller changes the “MASTER” pump designation each time the airplane changes from the “AIR” to the “GROUND” mode. The controller can recall which pump is the master when the airplane electrical power is interrupted, and does not change the pump designation after electrical power interruptions.

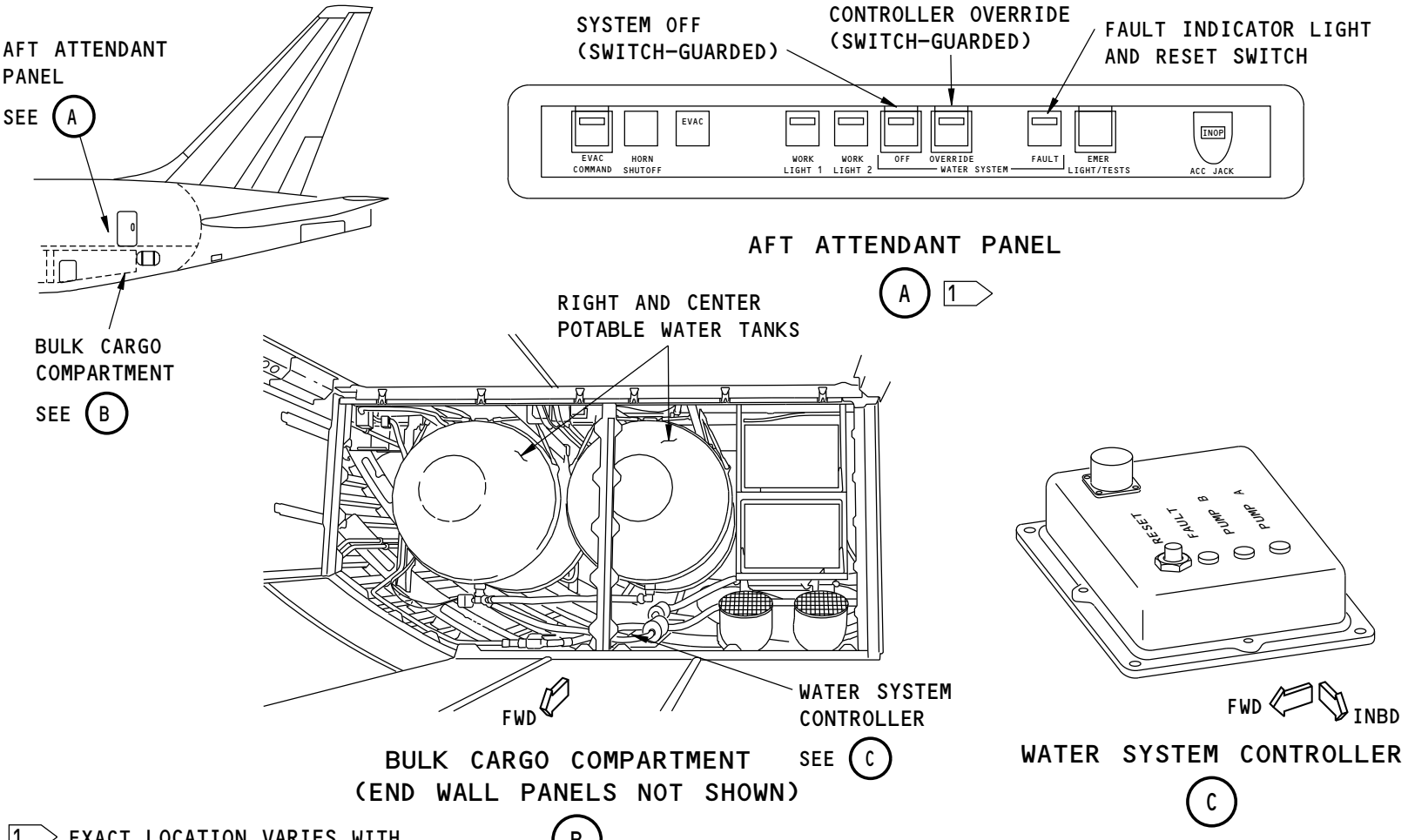
If an empty tank signal and a low line pressure signal are detected the pump is switched off and the controller waits for more water to be placed in the tanks. When the water level sensor detects that the tanks are not empty, the controller automatically turns on a pump.

The controller monitors supply system pressure and automatically toggles and latches the other pump on if low pressure is detected and a faulty pump or pressure switch is suspected. The fault will cause a light at the attendants panel to illuminate.

Depressing the fault light (RESET) switch will extinguish the light, reset the controller and initiate a fault detection test sequence. If the fault still exists after the fault test sequence has completed the light will re-illuminate.

If the controller fails, the controller can be bypassed with an override switch at the attendants panel. Pressing the override switch causes a separate power relay to be activated. Pump 1 is energized and the fault/reset light and the override switch are illuminated. Power to the pump controller is removed when the override switch is active

The controller goes to the POWER DRAIN mode when the DRAIN VALVE HANDLE at the aft water service panel is pulled out. The water pumps come on, and continue to operate, until the water tanks are empty. The controller monitors the tank quantity, and turns the pumps off when the quantity indication system senses that the tanks are empty.



1 EXACT LOCATION VARIES WITH CABIN INTERIOR OPTIONS. PANEL IS LOCATED NEAR THE AFT CABIN ENTRY DOOR.

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POTABLE WATER PRESSURIZATION - SYSTEM CONTROLLER

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WATER STORAGE AND DISTRIBUTION - INTRODUCTION

Purpose

The water storage and distribution system supplies potable water to the lavatories and galleys.

General Description

There are three water tanks that contain potable water.

You fill the tanks from aft potable water service panel. The overhead distribution line supplies water to the lavatories and galleys. There is a water supply shutoff valve in each lavatory and galley.

There is a water supply shutoff valve in each lavatory and galley. The supply shutoff valve is used to shutoff the water to the individual lavatory or galley if there is a leak.

There is a drain valve in each lavatory. It lets water drain from the lavatory water supply distribution lines. The galley faucets are used to drain the galley distribution lines.

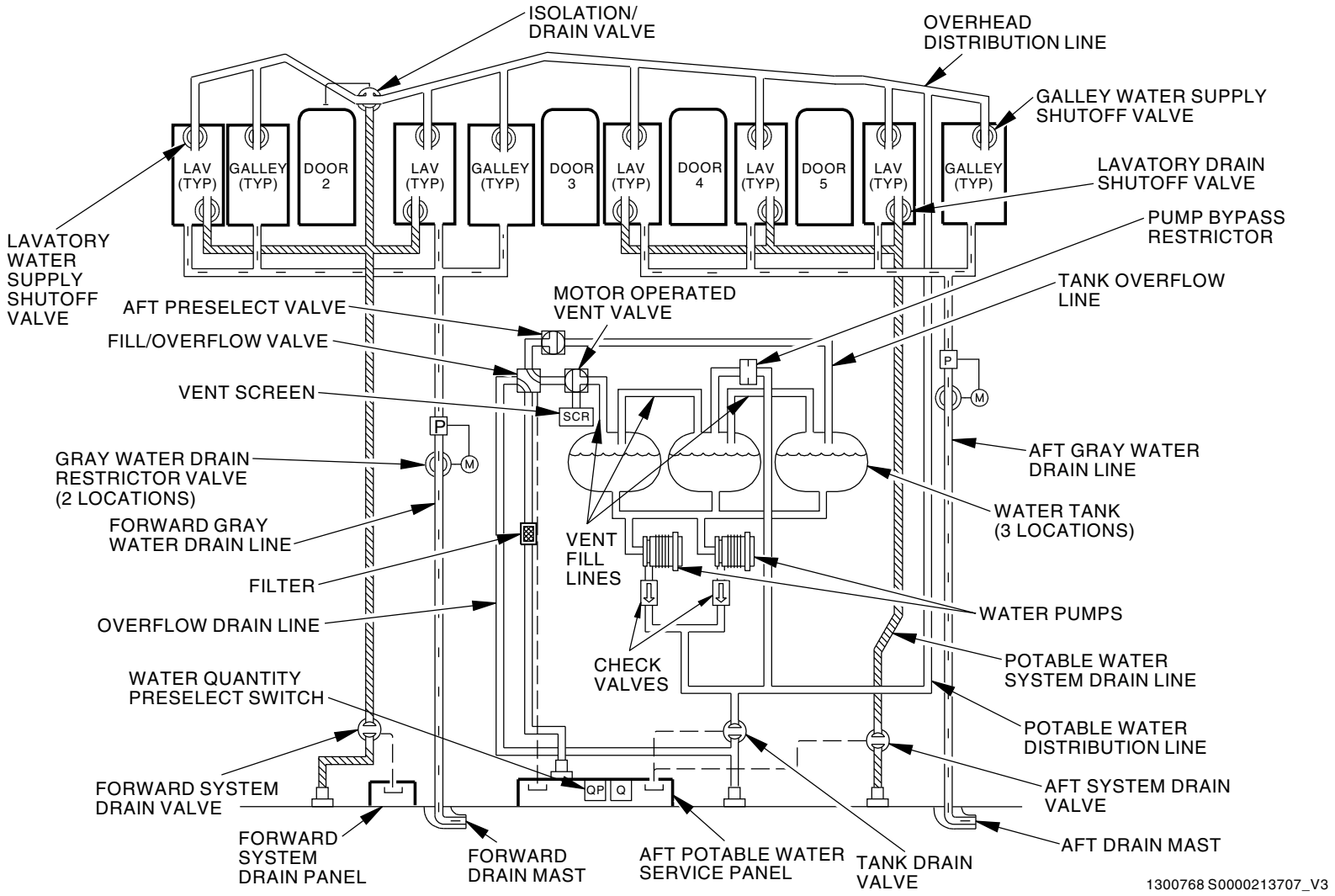
ARO 001-005

There is an isolation/drain valve in the forward part of the system. The isolation/drain valve lets you isolate the FWD part of the water supply distribution system and lets you drain the forward part of the system.

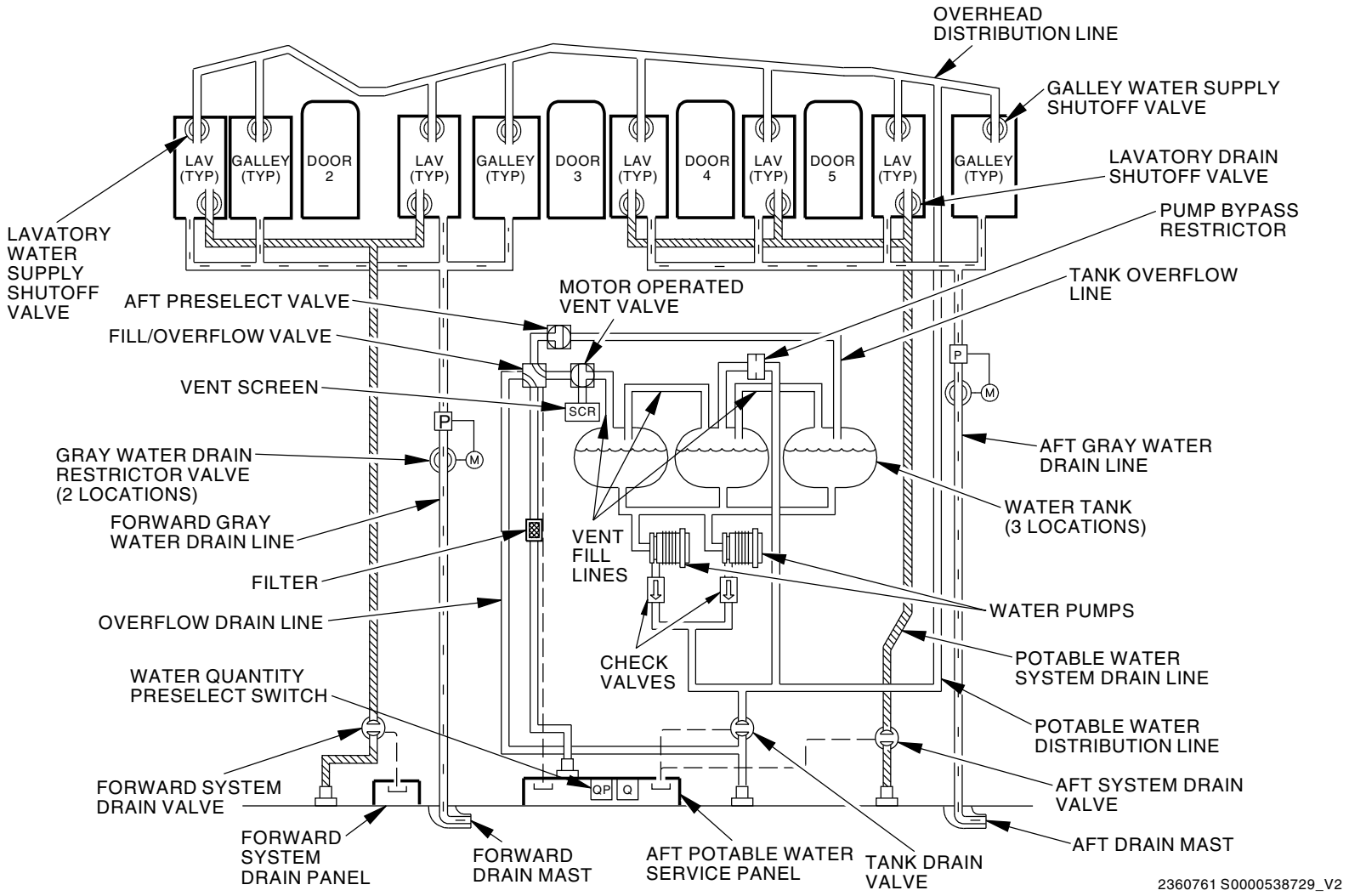
ARO ALL

These are the three drain valves that let you drain water from the distribution system and the water tanks:

- Forward system drain valve
- Aft system drain valve
- Tank drain valve.



WATER STORAGE AND DISTRIBUTION



WATER STORAGE AND DISTRIBUTION

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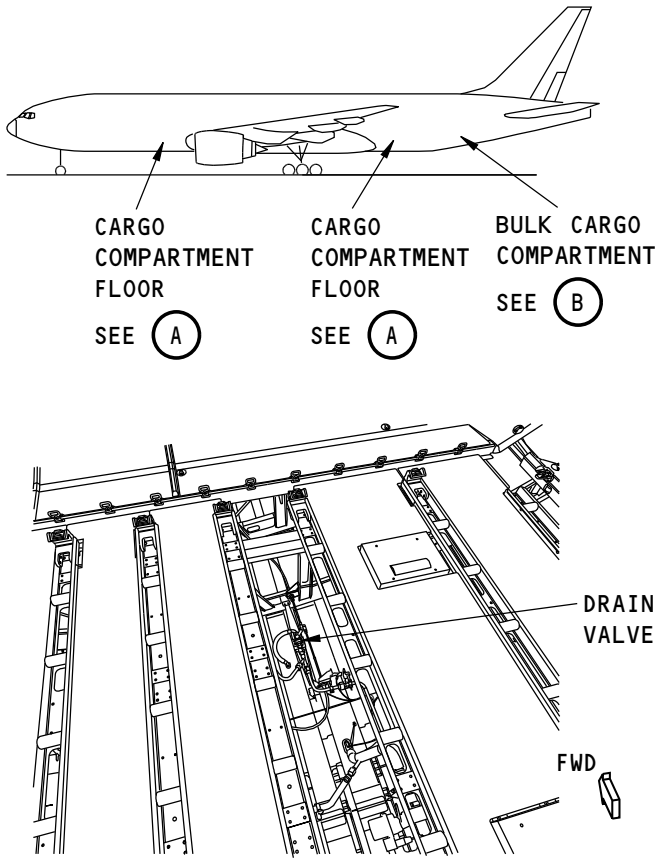
Component Locations

These components are behind the bulk cargo compartment end wall:

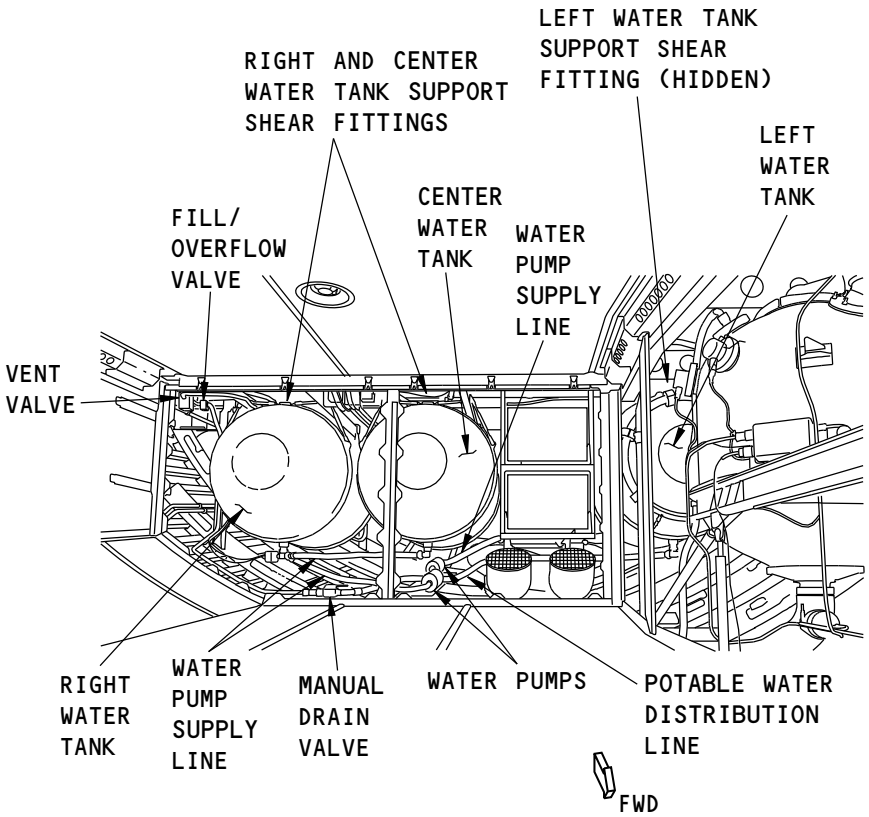
- Three water tanks (left, center, and right)
- Fill overflow valve and control cable (cable not shown)
- Water tank support shear fittings
- Potable water distribution line
- Manual drain valve and control cable (cable not shown)
- Aft system drain valve and control cable (cable not shown)
- Vent Valve (V38001)
- Aft Preselect Valve (V38002)
- Water Pumps
- Water Pump Supply Lines
- Pump Check Valves (not shown)
- Potable Water System Controller (not shown)
- Water Quantity Transmitters (one for each potable water tank) (not shown)
- Tank Quantity Sensors (one in each potable water tank)
- Water Quantity Control Module (not shown)
- Tank Fill and vent Lines (not shown)
- Potable water fill line filter (not shown)
- Water pump bypass line and restrictor (not shown).

The system drain valve for the aft part of the overhead distribution system is in the aft cargo compartment, under the floor.



CARGO COMPARTMENT FLOOR AFT
(FLOOR PANEL NOT SHOWN)
(FORWARD INSTALLATION IS EQUIVALENT)

A



BULK CARGO COMPARTMENT
(END WALL NOT SHOWN)

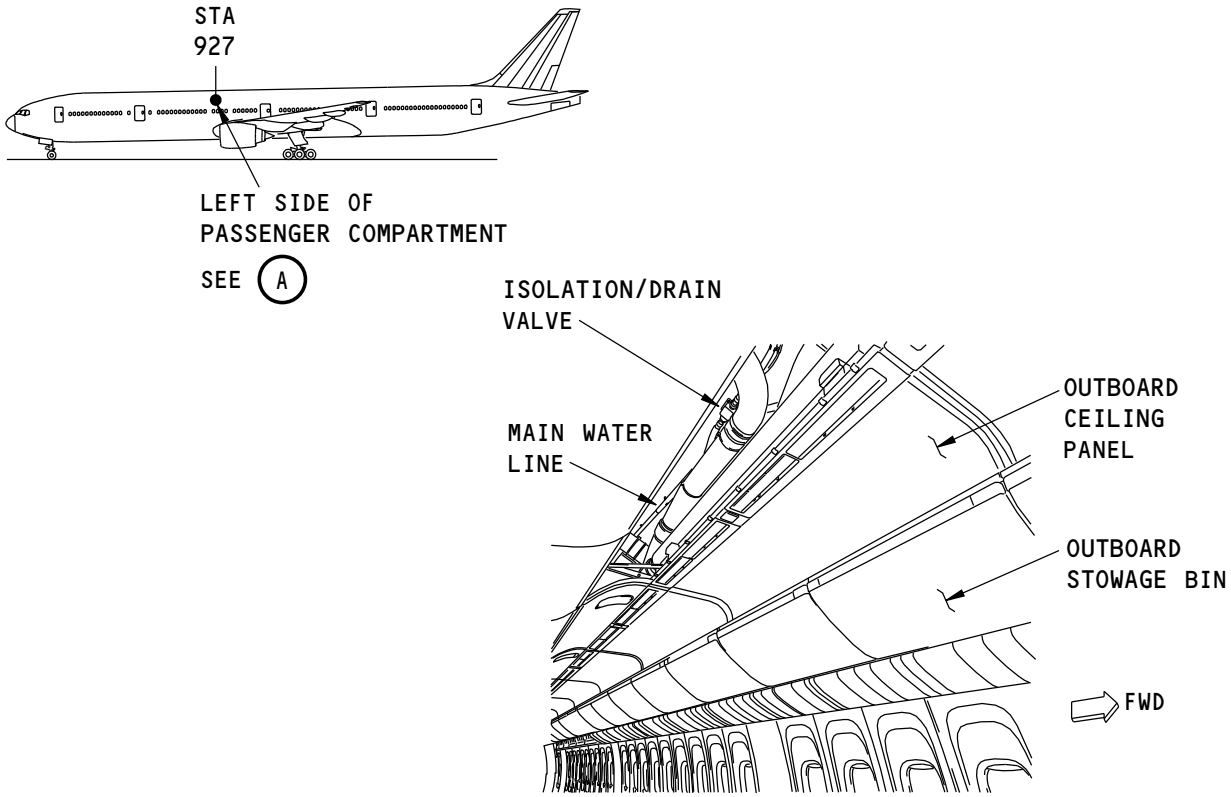
B

U71049 S0000213786_V1

WATER STORAGE AND DISTRIBUTION - BULK CARGO COMPARTMENT COMPONENT LOCATIONS

Component Locations

The isolation/drain valve is above the ceiling on the left. It is aft of door 2 left at station 927.



LEFT SIDE OF PASSENGER COMPARTMENT
BETWEEN DOOR 2 AND DOOR 3
(INBOARD CEILING PANEL REMOVED)

A

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WATER STORAGE AND DISTRIBUTION - PASSENGER COMPARTMENT COMPONENT LOCATION

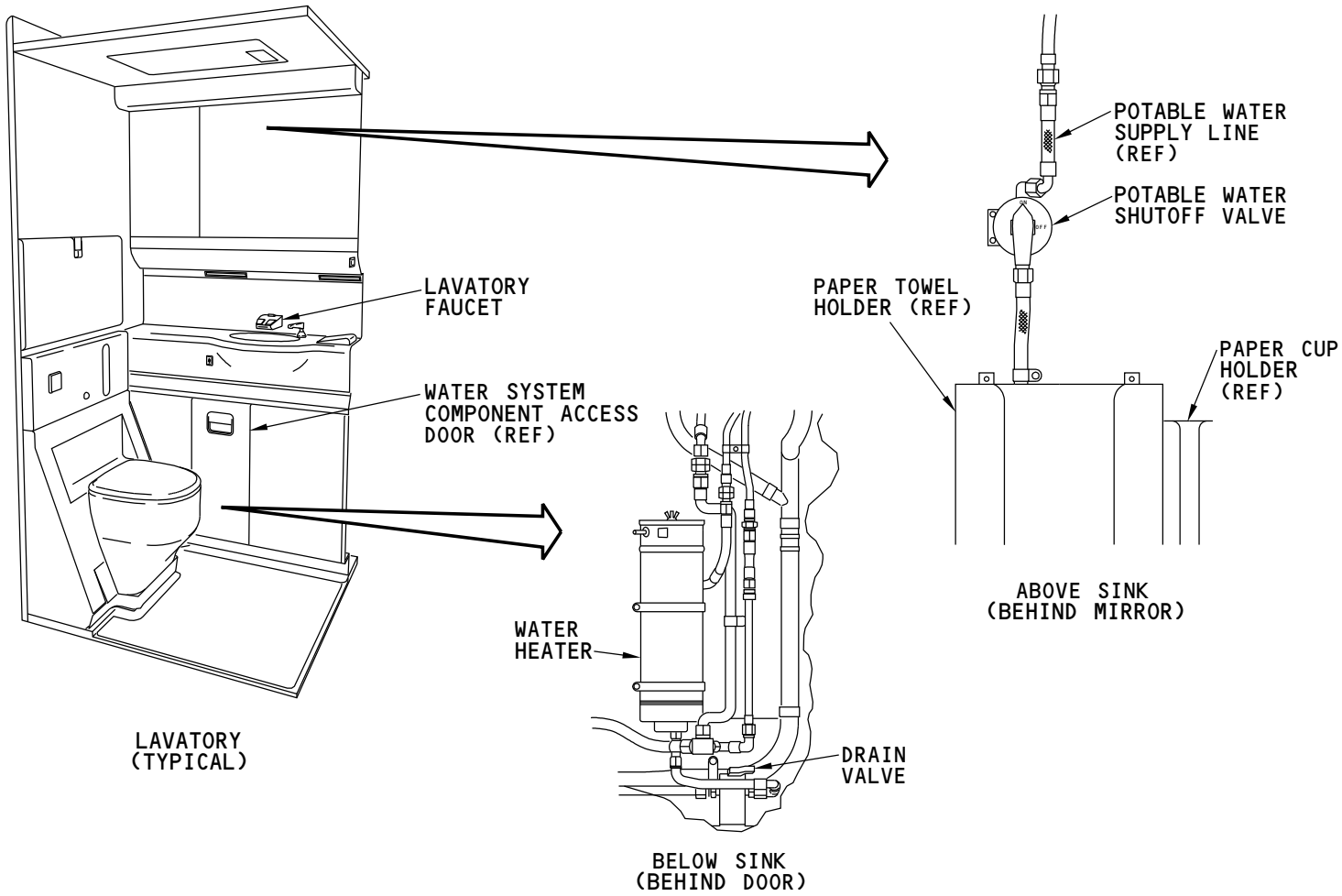
Component Locations

The potable water shutoff valve is behind the mirror.

The faucet is above the sink.

These components are behind the door below the sink:

- Water heater
- Drain valve.



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WATER STORAGE AND DISTRIBUTION - LAVATORY COMPONENT LOCATIONS

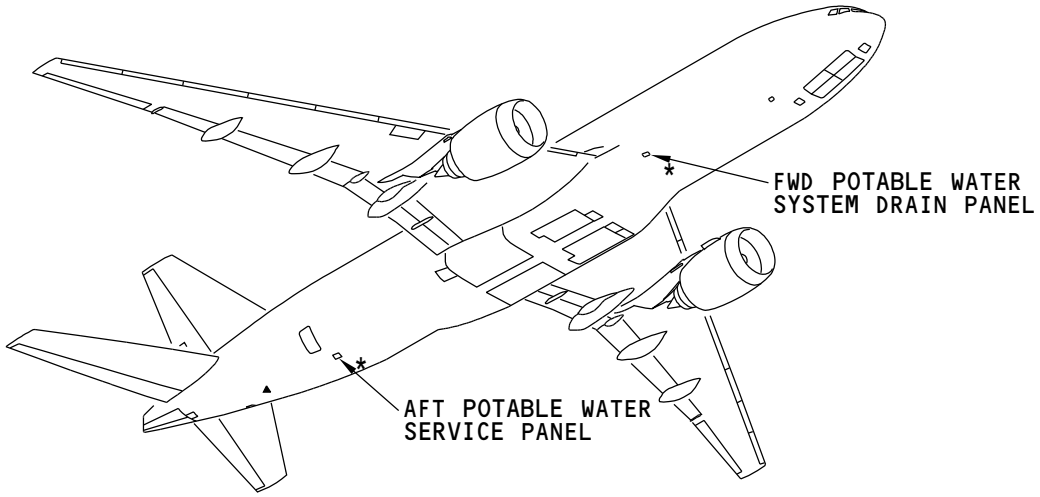
WATER STORAGE AND DISTRIBUTION - SERVICE PANEL COMPONENT LOCATIONS

Component Locations

The aft potable water service panel is on the right side of the airplane. It is between the aft cargo compartment door and the bulk cargo compartment door.

The forward potable water system drain panel is on the right side of the airplane. It is aft of the forward cargo compartment door.

There are three water drains. One is near the forward potable water system drain panel. The second one is near the aft potable water service panel. The third is aft of the aft passenger entry door, on the right lower side of the fuselage at station 2077 (approximate).



▲ = TANK DRAIN/OVERFLOW
* = DISTRIBUTION DRAIN

M42946 S000620205_V1

WATER STORAGE AND DISTRIBUTION - SERVICE PANEL COMPONENT LOCATIONS

WATER STORAGE AND DISTRIBUTION - FORWARD DRAIN AND AFT SERVICE PANELS

Purpose

The potable water service and drain panels let you fill and drain water from the potable water system.

Location

The forward potable water drain panel is on the right lower side of the airplane. It is between the forward cargo door and the wing-to-body fairing. The panel is 8.4 to 9.2 feet (2.6 to 2.8 meters) above the ground.

The aft potable water service panel is on the right lower side of the airplane. It is between the aft cargo door and the bulk cargo door. The panel is 9.5 to 10.3 feet (2.9 to 3.1 meters) above the ground.

Forward Drain Panel

The forward potable water drain panel has these parts:

- Placards
- Forward system drain valve handle
- Door with a bracket.

The bracket on the door makes sure the door can not close if the drain valve handle is not in the correct position for flight.

Aft Service Panel

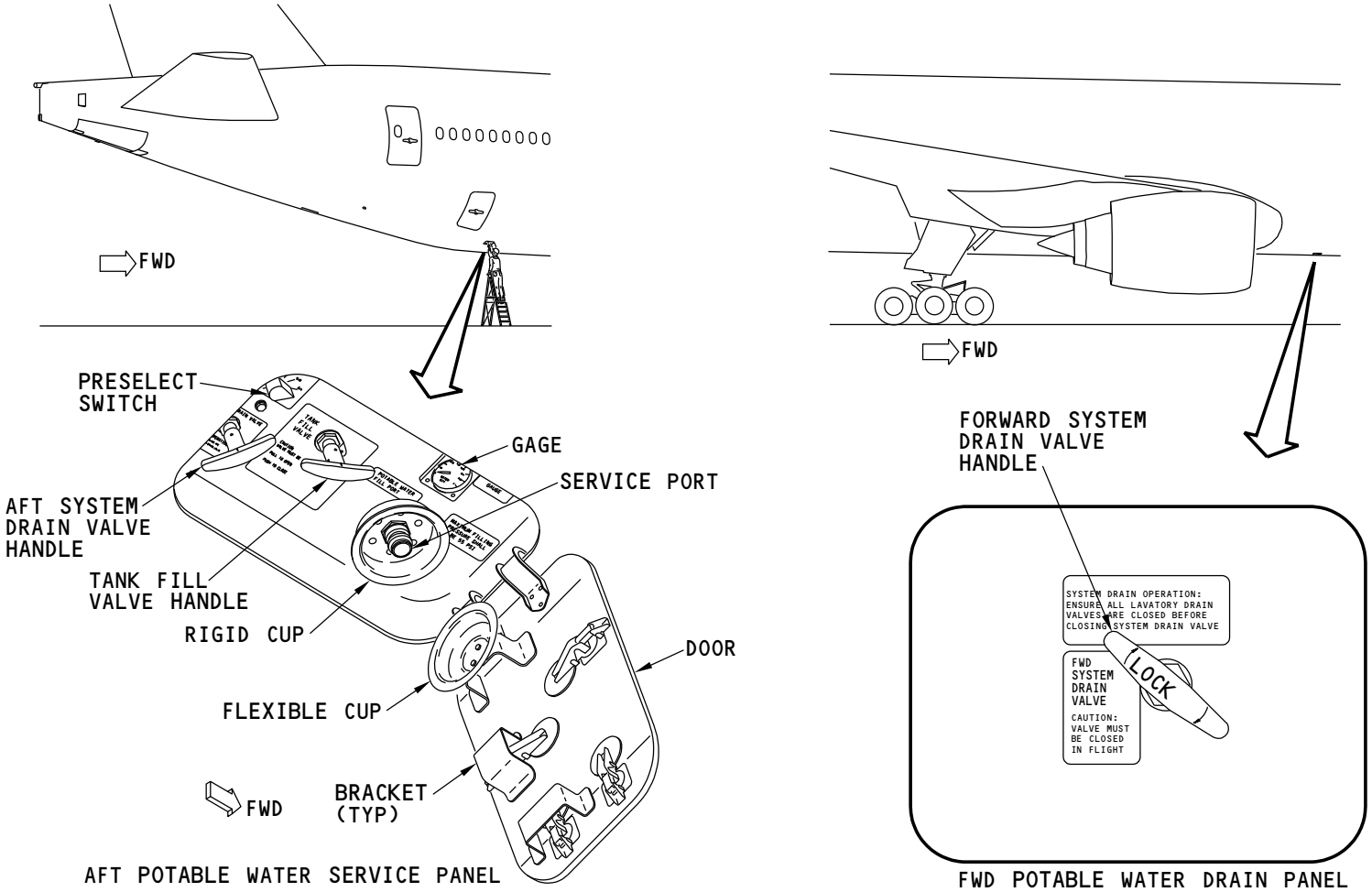
The aft potable water service panel has these parts:

- Placards
- Water preselect switch
- Aft system drain valve handle
- Tank fill valve handle
- Water quantity gage
- Tank fill port and rigid cup
- Door with brackets and flexible cup.

The rigid cup and the flexible cup fit together when the door is in the close position. The cups collect any water from the service line that does not drain after serving of the potable water system. If the collected water freezes, you can remove the ice by hand.

The brackets on the door make sure the door can not close if these components are not in the correct position for flight:

- Aft system drain valve handle
- Tank fill valve handle.



M43046 S000620309_V1

WATER STORAGE AND DISTRIBUTION - FORWARD DRAIN AND AFT SERVICE PANELS

WATER STORAGE AND DISTRIBUTION - WATER TANK

Purpose

There are three water tanks to hold potable water.

Physical Description

Each water tank has a capacity of 120 gallons (454 liters). There is a standpipe that limits the amount of water in each tank to 115 gallons (435 liters).

The water tanks have these components:

- Access panel (2)
- Water tank shear pin fitting
- Tie rod hole (4)
- Vent/Fill, Overflow, Pump Supply and Pump Bypass port connections.
- Water tank rotation support hole (2)
- Water level sensor (internal)

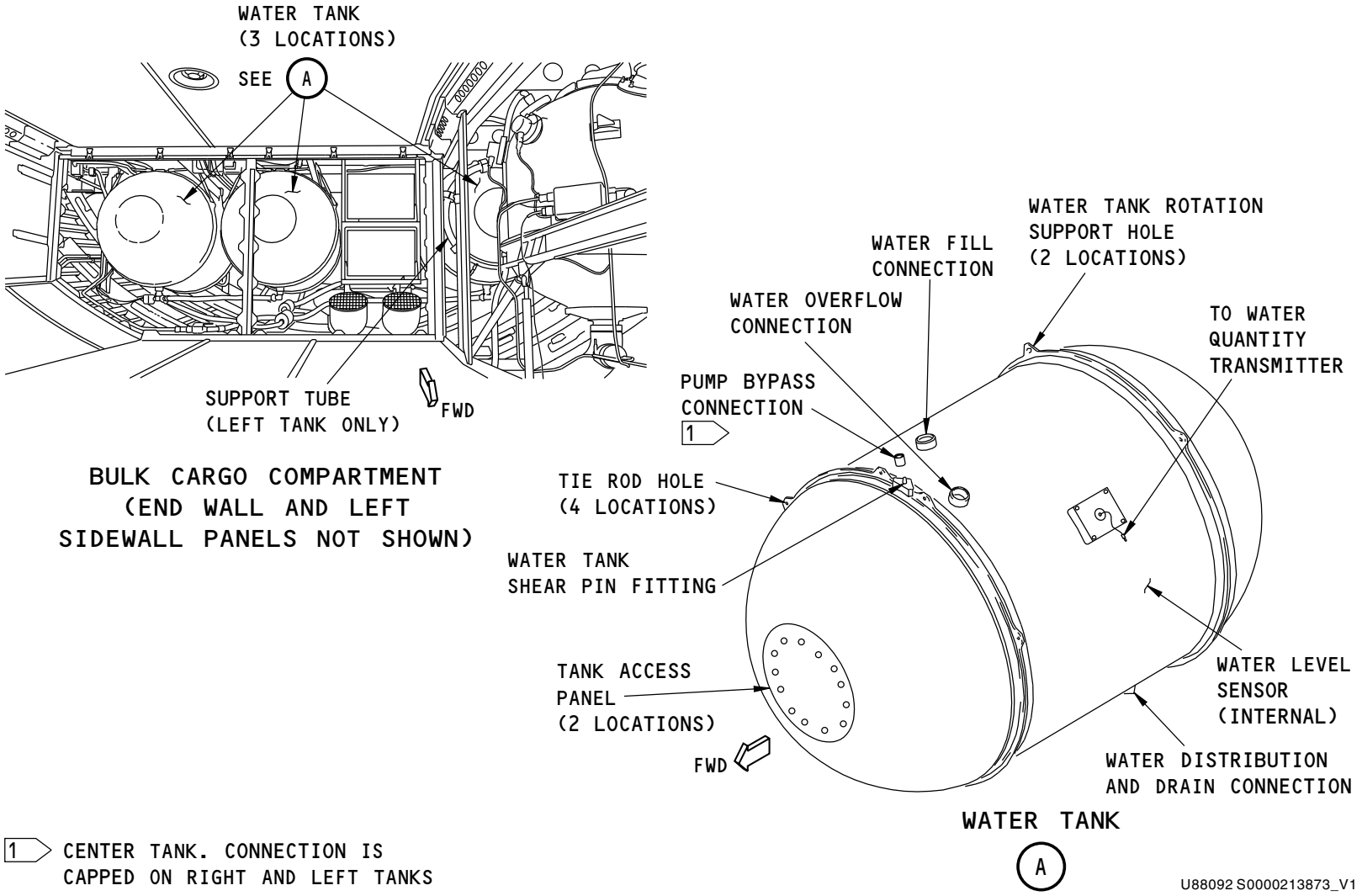
The tank vent valve line connects to the right side tank. The pump bypass line connects to the center tank.

The left water tank has a support tube around the forward end of the tank.

Location

The right side and center water tanks are aft of the bulk cargo compartment end wall.

The left side water tank is aft of the aft waste tank.



WATER STORAGE AND DISTRIBUTION - WATER TANK

WATER STORAGE AND DISTRIBUTION - WATER TANK SUPPORT SHEAR FITTING

Purpose

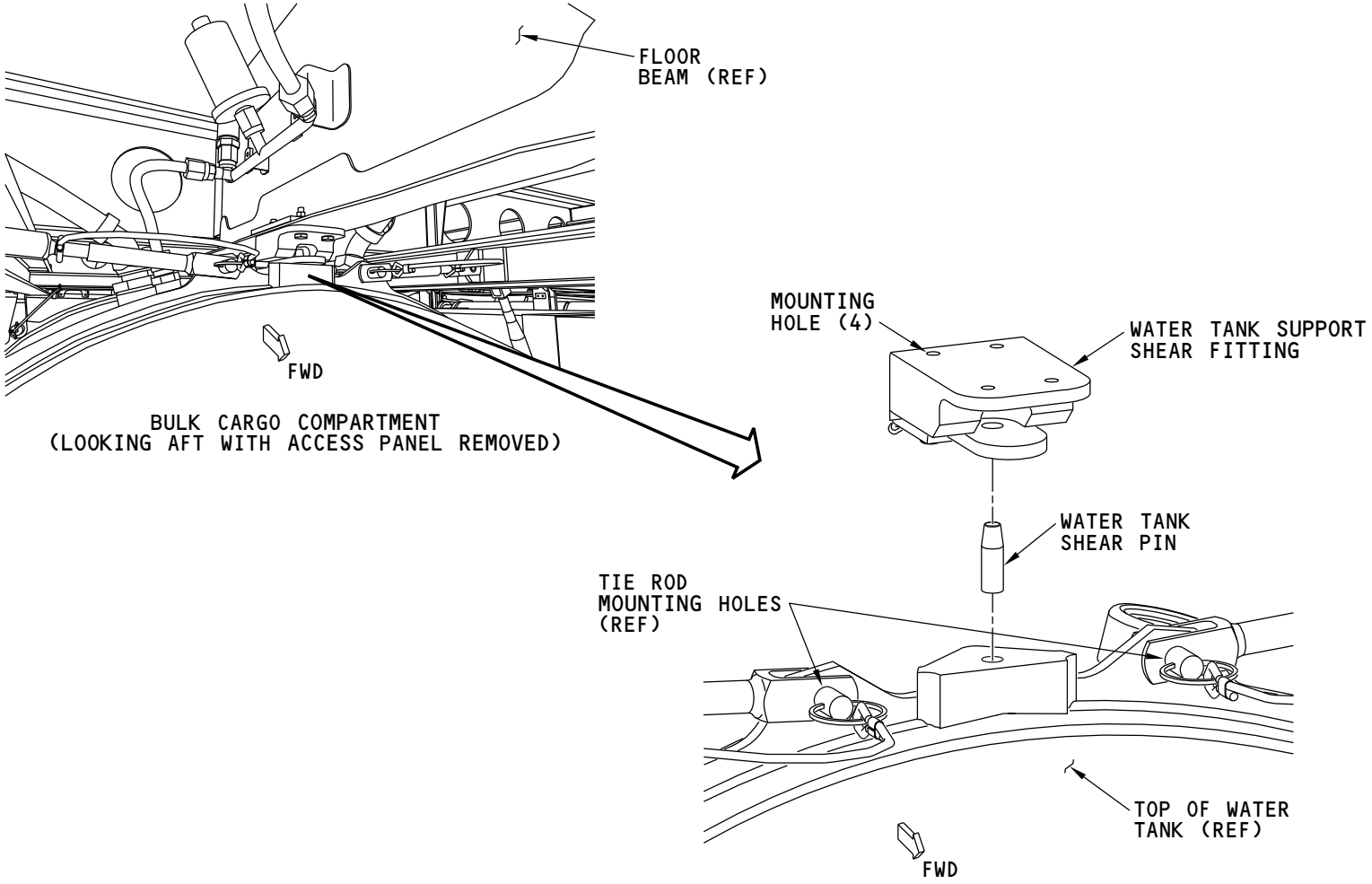
The water tank support shear fitting holds the water tank shear pin. The shear pin holds the water tank in place during forward loads.

Physical Description

The fitting has four mounting holes.

Location

The fitting is installed above the water tank. It attaches to the floor beams with four bolts.



M42952 S000620211_V1

WATER STORAGE AND DISTRIBUTION - WATER TANK SUPPORT SHEAR FITTING

WATER STORAGE AND DISTRIBUTION - FILL/OVERFLOW VALVE AND CONTROL CABLE

Purpose

The fill/overflow valve has these functions:

- Lets water flow into the potable water tanks from the Potable Water Service Panel
- Lets the air in the water tanks vent overboard as water flows into the tanks
- Lets water flow overboard when the tanks are full

Physical Description

The valve has:

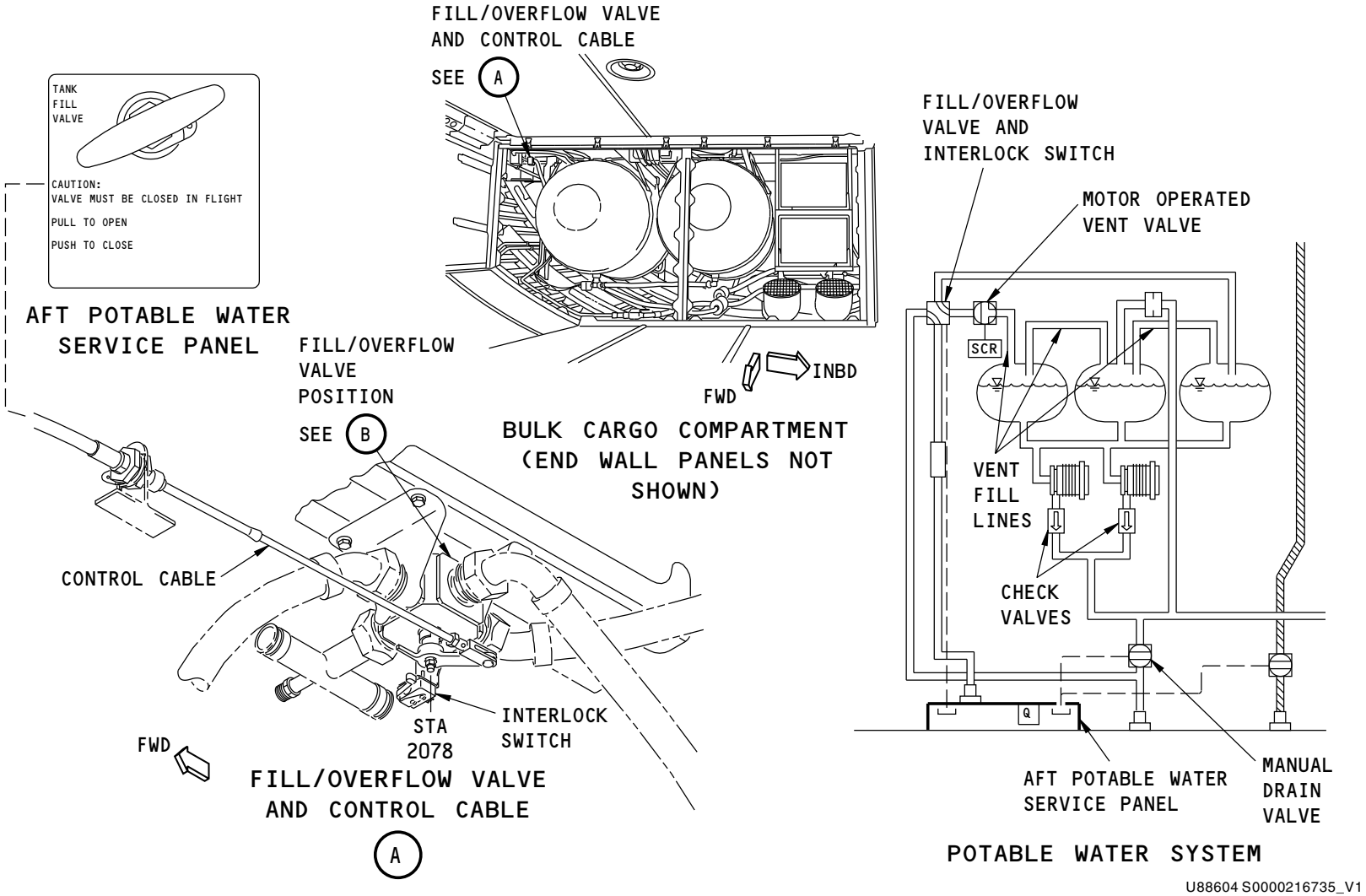
- A cable connection to the aft service panel
- Four ports. The ports are connected to the aft service panel fill line, the interconnect Tee fitting, the tank overflow line and the aft overflow/drain port line. The Tee fitting connects the fill/overflow valve to the tank vent valve, and to the preselect valve
- An interlock switch

Location

The fill/overflow valve is behind the bulk cargo compartment end wall. It is above and outboard of the right water tank. The valve attaches to the passenger compartment floor structure with four bolts.

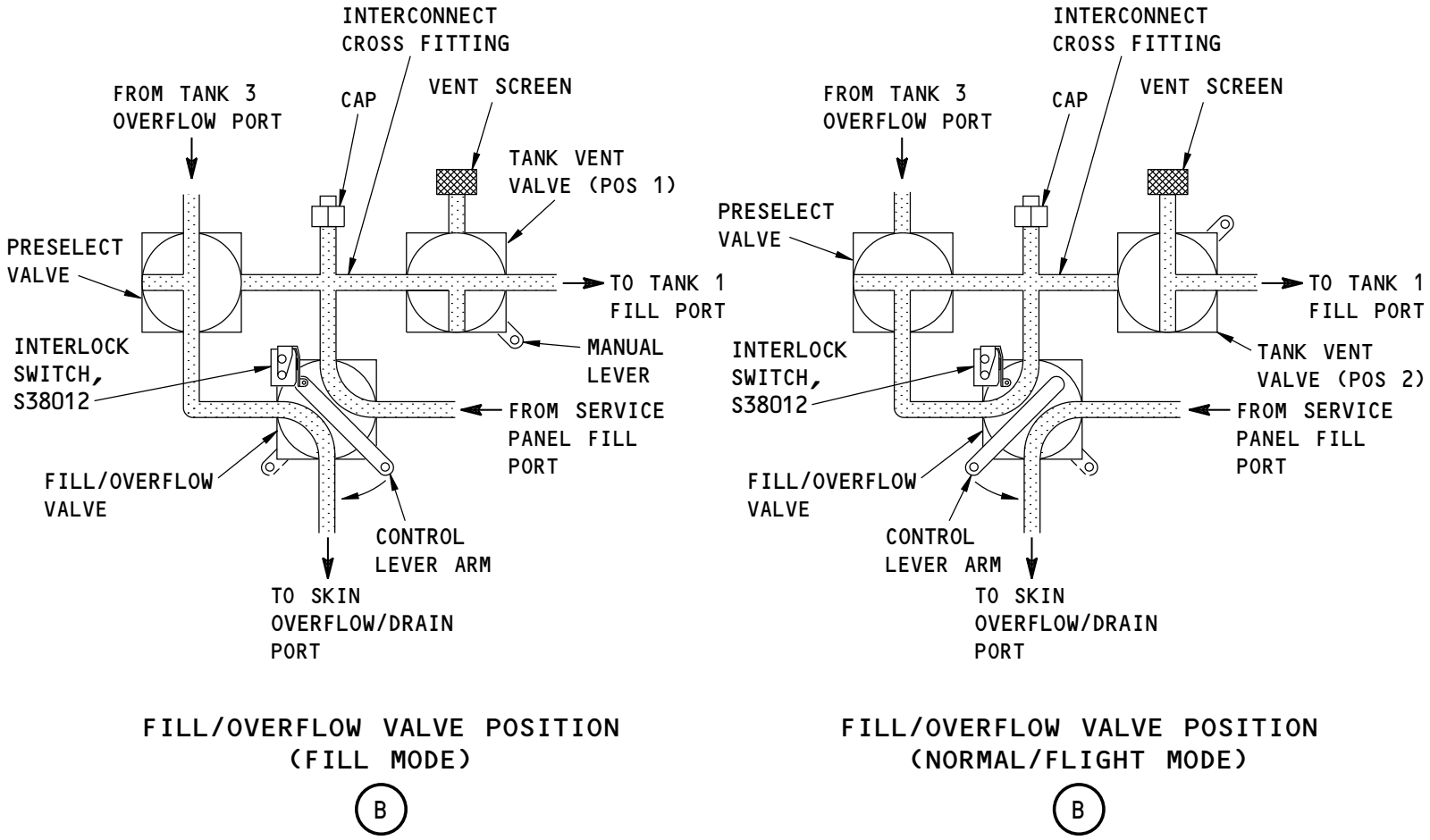
Functional Description

To open the valve you pull the TANK FILL VALVE control handle on the water service panel. Water flows from the service panel, through the fill/overflow valve, then through the Tank Vent Valve to the right tank. Some of the water flows from the right tank to the center and left tanks through the tank vent/fill lines and fills the center and left tanks. These connections lets all three tanks fill at the same time. An overflow line that connects to the left tank, the preselect valve, and the fill/overflow valve, lets the tanks vent when they are filling, and lets them overflow out the overflow/drain port when they are filled. If you are filling the tanks using the preselect fill method, the water will flow out the overflow/drain port when the tanks are filled to the selected quantity.



U88604 S0000216735_V1

FILL/ OVERFLOW VALVE AND CONTROL CABLE



U88653 S0000216821_V2

FILL/ OVERFLOW VALVE AND CONTROL CABLE

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WATER STORAGE AND DISTRIBUTION - TANK VENT VALVE

Purpose

The Tank Vent Valve has these functions:

- Lets the air into the water tanks (normal / flight mode).
- Lets the water into water tanks (fill mode).

Physical Description

The valve has these parts:

- Electric Motor and Actuator Assembly
- Ball Valve Assembly
- Three (3) ports.
- Vent Screen Assembly
- Manual Lever

Location

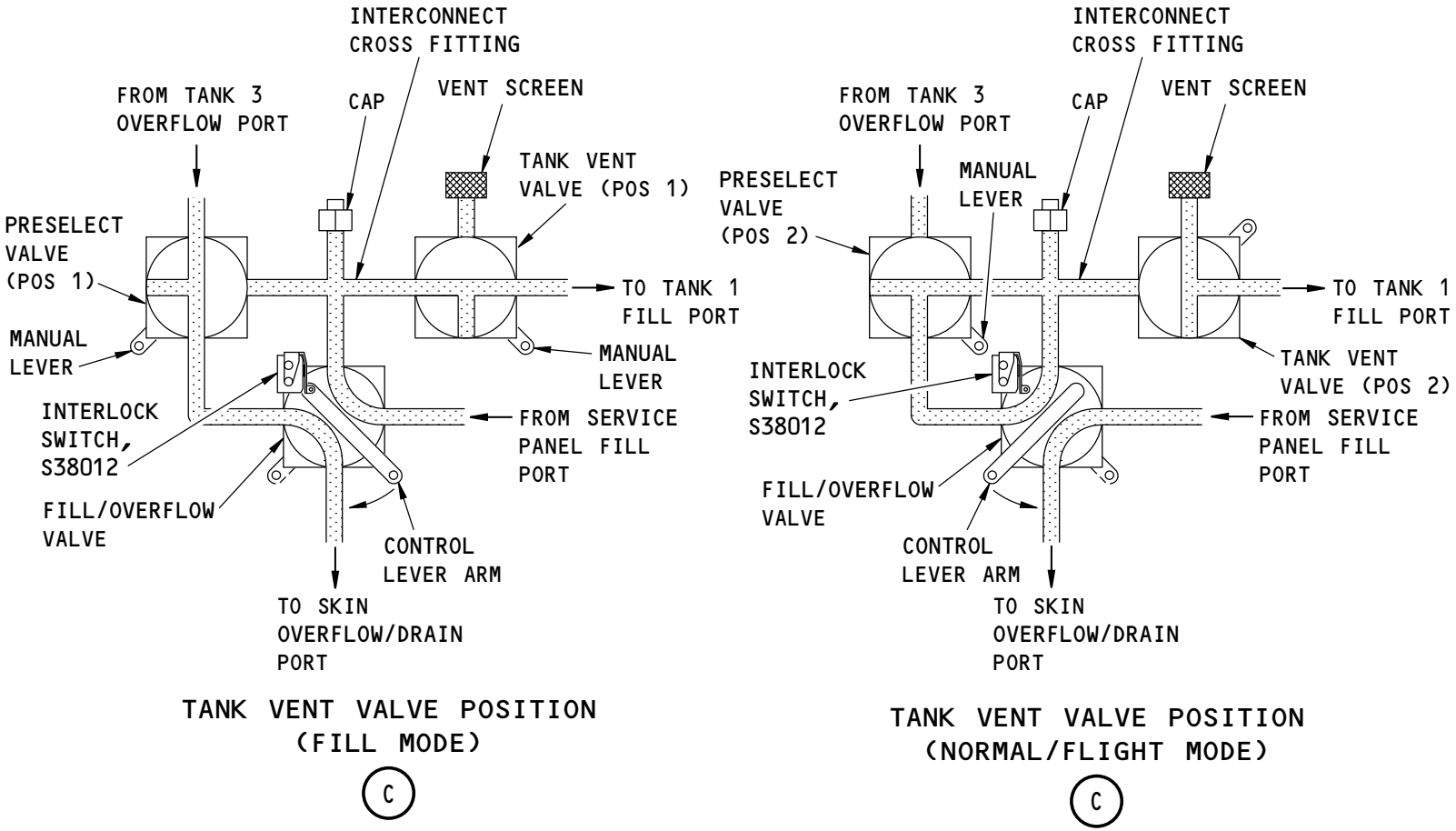
The Tank Vent Valve is aft of the bulk cargo compartment end wall. It is above and outboard of the right water tank. The valve attaches to the passenger compartment floor structure with four bolts.

Functional Description

The Tank Vent Valve is automatically positioned to the fill mode and the normal (flight) positions by these components:

- Fill/Overflow Valve Switch (S38012)
- Manual Drain Valve Switch (S38011)
- Water Quantity Preselect Switch (S38102)
- Water Quantity Control Module
- Water System Controller
- Relays.

The Tank Vent Valve lets air enter the water tanks as the potable water is used when the system in the normal (flight) mode. The valve lets the water enter the tanks when the system is in the preselect fill mode. The Tank Vent Valve assembly has a manual lever, so that the tanks can be serviced without electrical power, or if the motor actuator is inoperative. The vent screen assembly filters the air before it enters the vent valve.



1300523 S0000216878_V3

WATER STORAGE AND DISTRIBUTION - TANK VENT VALVE

WATER STORAGE AND DISTRIBUTION - PRESELECT VALVE

Purpose

The Preselect Valve has these functions:

- Lets the air go out of the tanks as the potable water tanks are filled.
- Lets water flow overboard during the fill procedure when the tanks are full.

Physical Description

The valve has these parts:

- Electric Motor and Actuator Assembly
- Ball Valve Assembly
- Three (3) ports. The ports connect to the tank 3 overflow line, the interconnect TEE fitting, and the fill/overflow valve line.
- Manual Lever. The manual lever is used to position the valve without electrical power, or if the motor actuator is inoperative.

Location

The Preselect Valve is aft of the bulk cargo compartment end wall. It is above and outboard of the right water tank. The valve attaches to the passenger compartment floor structure with four bolts.

Functional Description

The Preselect Valve is also referred to as the Preselect Vent Valve. The valve is automatically positioned by these components:

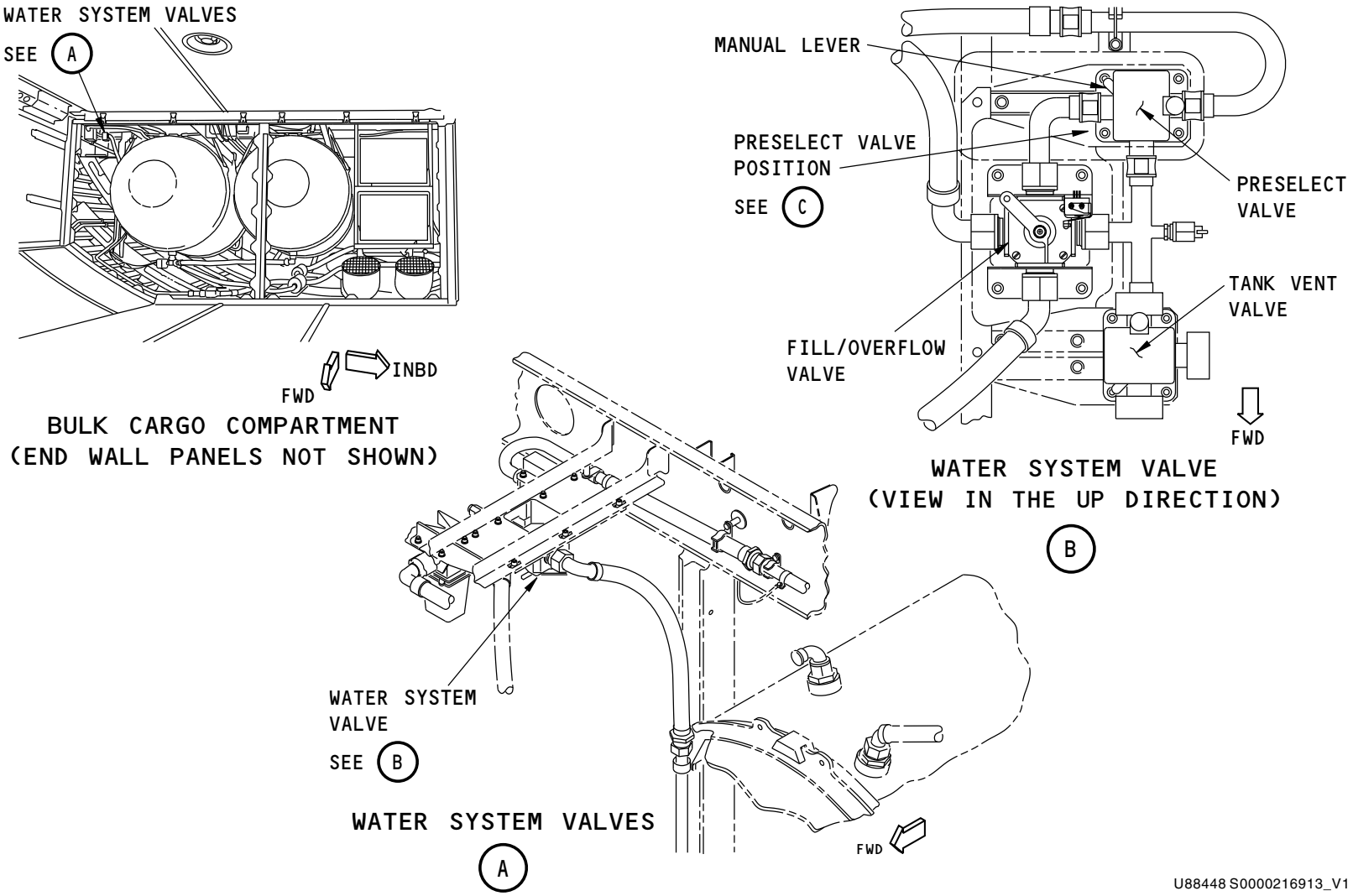
- Quantity Preselect Switch (S38102)
- Water Quantity Control Module
- Water System Relays
- Fill/Overflow Valve Switch (S38012)
- Manual Drain Valve Switch (S38011).

The preselect vent valve is positioned to the fill mode when the tank fill valve control handle is pulled to the open position, and the quantity preselect switch is selected to a value above the quantity in the tanks. In this mode the valve lets the air go out of the tanks as they are filling, and lets the water go out of the tanks when the preselected quantity is reached, or when the tanks are filled.

The preselect vent valve is positioned to the normal (flight) mode when the quantity preselect switch is in the OFF/RESET position, or selected to a value equal to or less than the quantity in the tanks. The valve is also positioned to the normal (flight) mode when the TANK FILL VALVE control handle is in the closed position.

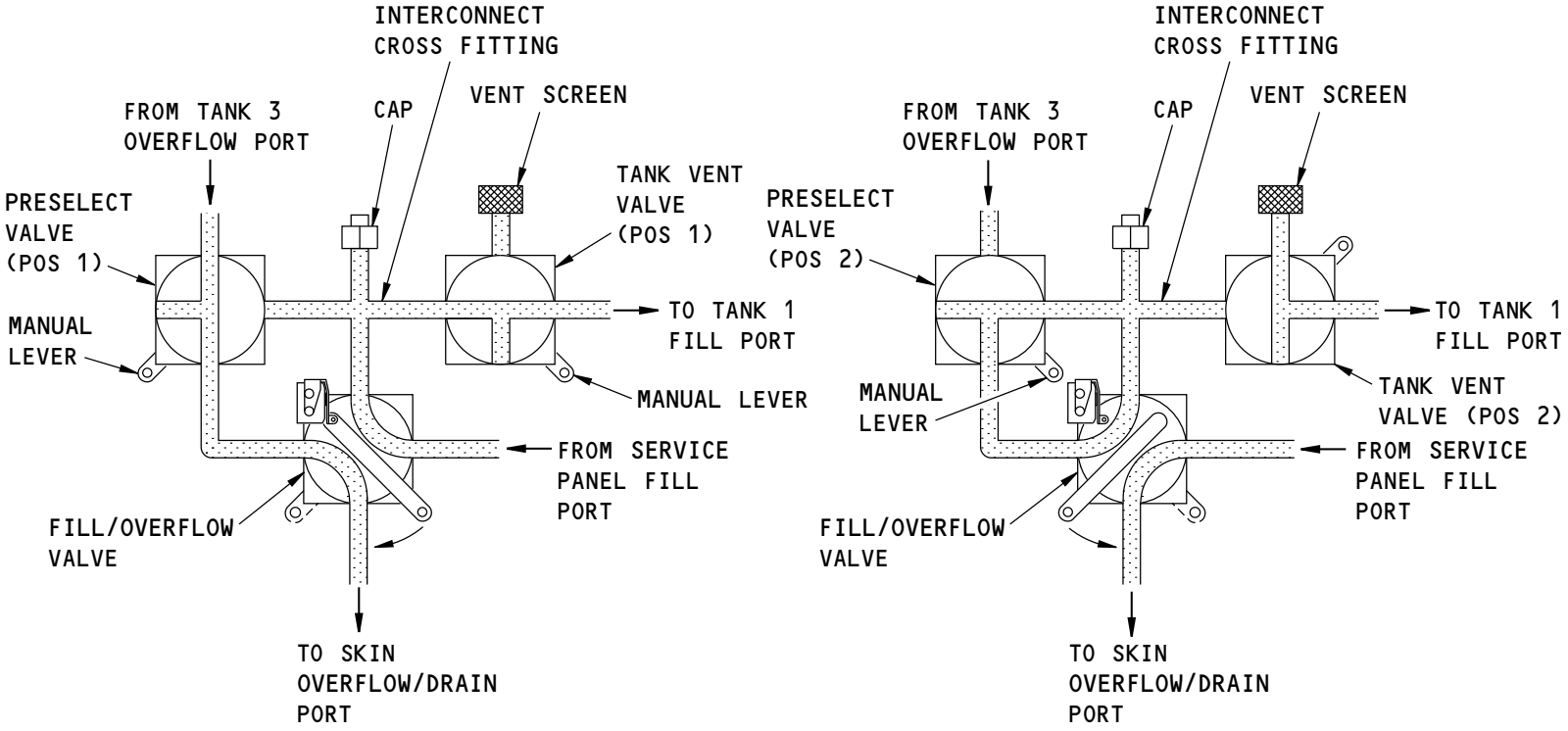
In this mode the preselect vent valve closes the overflow/vent drain line flow path.

NOTE: The potable water tanks are vented by the tank vent valve when the potable water system valves are in the normal (flight) mode.



U88448 S0000216913_V1

WATER STORAGE AND DISTRIBUTION - PRESELECT VALVE - AFT PRESELECT



U88520 S0000216914_V3

WATER STORAGE AND DISTRIBUTION - PRESELECT VALVE - AFT PRESELECT

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WATER STORAGE AND DISTRIBUTION - DRAIN VALVE AND CONTROL CABLE

Purpose

The two drain valves let water drain overboard from the overhead water distribution line, the galleys, and the lavatories.

Physical Description

The valve has two positions: open and closed.

The valves are a single-ball type of valve. The valves have these parts:

- Drain line connection (2)
- Actuator
- Ball (internal)
- Body.

The valve attaches with four bolts.

The aft system drain valve has two control cables. One attaches to the aft system drain valve control handle and to the valve actuator. The other attaches to the valve actuator and to the tank drain valve (not shown).

The forward system drain valve (not shown) has one cable that attaches to the valve actuator and to the forward system drain valve control handle (not shown).

The control cables are a push-pull type.

Location

The aft system drain valve is below the floor of the aft cargo compartment. It is near the bulk cargo compartment, inboard and aft of the last powered drive unit on the left side (PDU 11L).

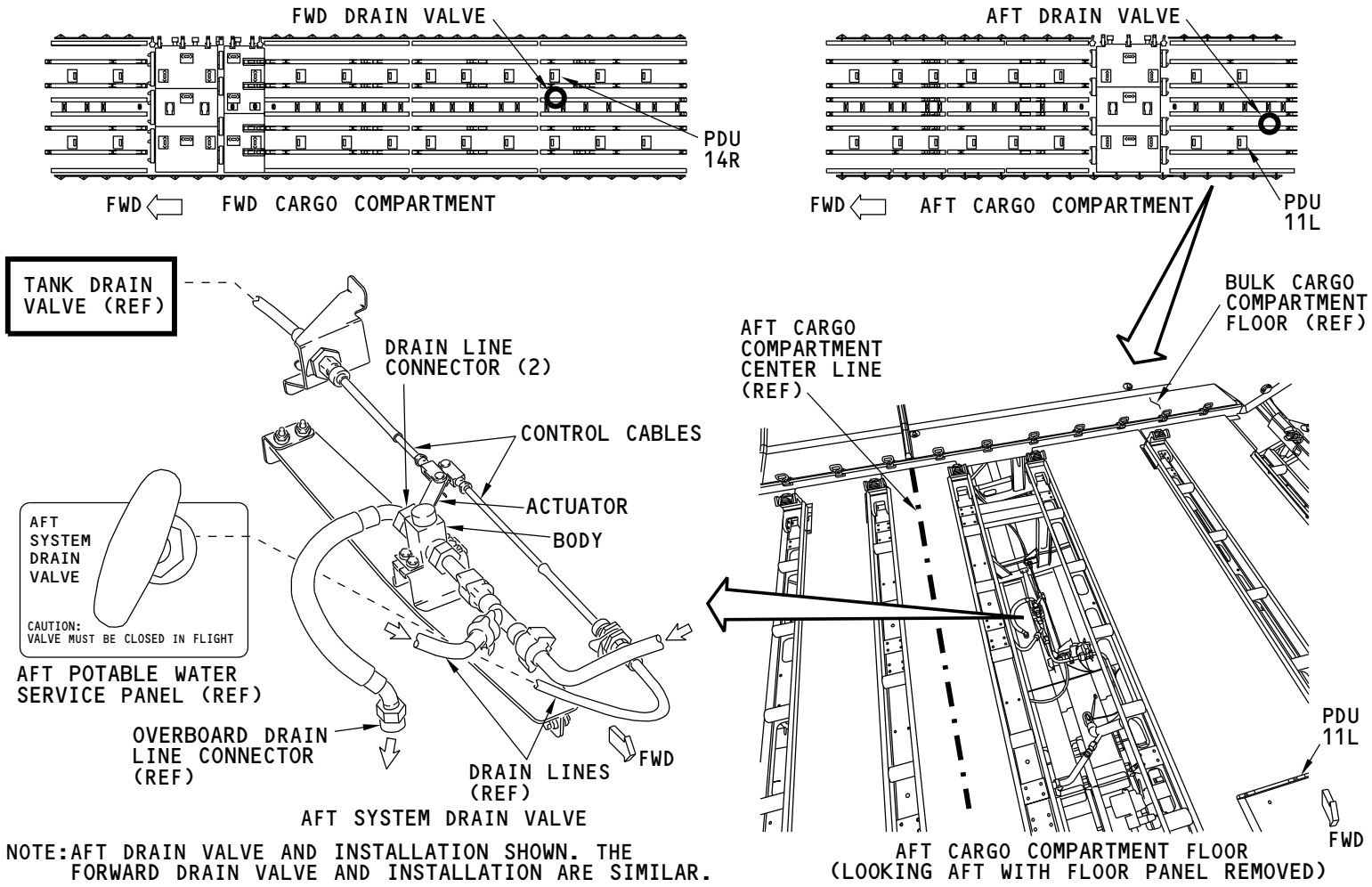
The forward system drain valve is below the floor of the forward cargo compartment. It is near the aft part of the compartment, inboard of powered drive unit number 14 right (PDU 14R).

The control handle for the forward potable water system drain valve is on the forward potable water system drain panel (not shown).

The control handle for the aft valve is on the aft potable water service panel (not shown).

Functional Description

The control cables open the related valve(s) when you pull on the system drain valve control handle. The valve(s) closes when you push the handle.



M42964 S000620231_V1

WATER STORAGE AND DISTRIBUTION - DRAIN VALVE AND CONTROL CABLE

WATER STORAGE AND DISTRIBUTION - TANK DRAIN VALVE AND CONTROL CABLE

Purpose

The tank drain valve lets water drain overboard from the water tanks and the aft section of the overhead water distribution lines. The control cable sets the position of the tank drain valve.

Physical Description

The tank drain valve is a cable operated ball valve assembly. The valve has these parts:

- Handle
- Shaft
- Cover assembly
- Ball (internal)
- Drain line connection (2)
- Body.
- Interlock Switch (S38011)

The tank drain valve has an open and a closed position.

The valve has a control cable that attaches to the valve handle to the aft system drain valve (not shown). The control cable is a push-pull type.

The S38011 interlock switch is mounted on the valve and actuated by the valve control lever arm.

Location

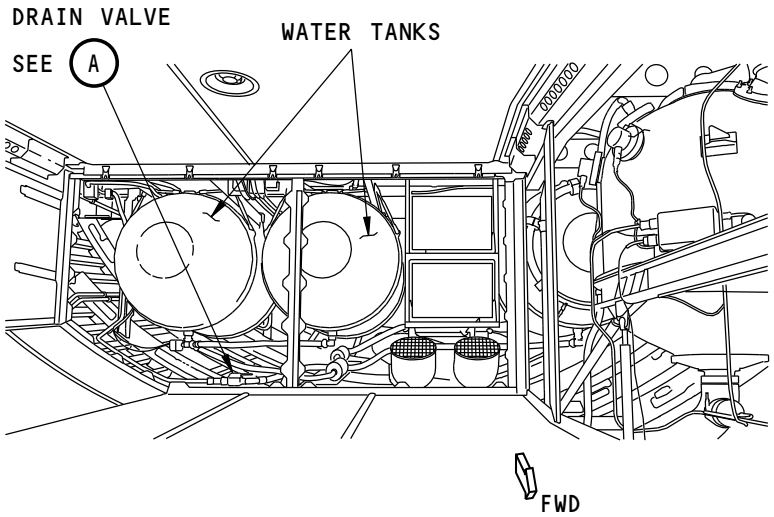
The drain valve is behind the right end wall of the bulk cargo compartment. It is below the space between the right and center water tanks.

Functional Description

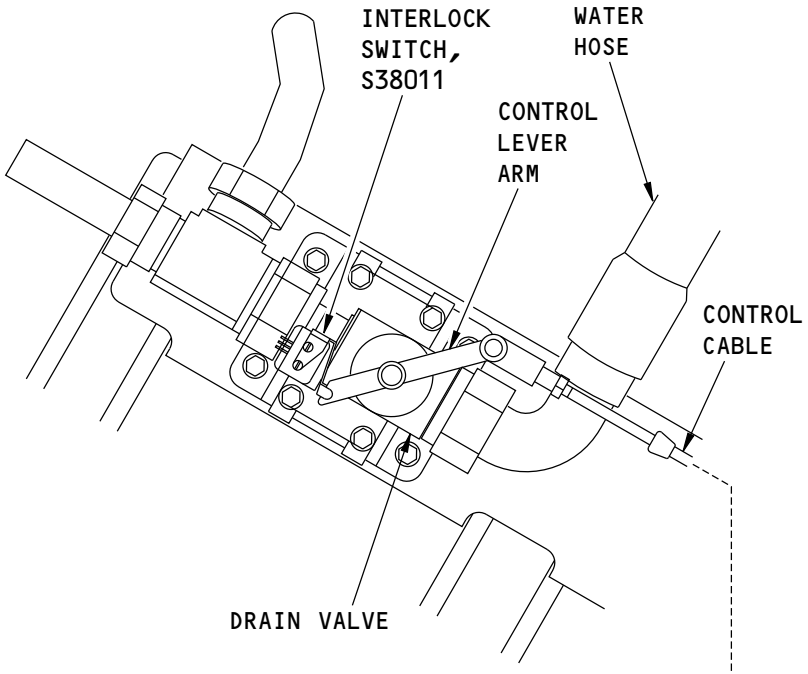
The control cable sets the position of the drain valve to the same position as the aft system drain valve.

Control cables open the aft system drain valve and the tank drain valve when you pull on the aft system drain valve control handle (not shown). The valves closes when you push the handle. The aft system drain valve control handle is on the aft potable water service panel (not shown).

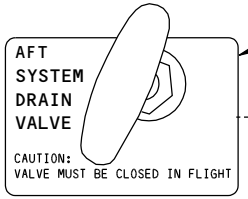
The S38011 interlock switch sends a signal to the system control circuit when the tank drain valve opens. The system control circuit starts the two water pumps and pumps the water from the tanks. The pumps stop when the quantity indication system senses that the tanks are empty.



BULK CARGO COMPARTMENT
(END WALL PANELS NOT SHOWN)



DRAIN VALVE
A



AFT POTABLE WATER SERVICE PANEL

AFT SYSTEM DRAIN VALVE (REF)

U90168 S0000216657_V1

WATER STORAGE AND DISTRIBUTION - TAB DRAIN VALVE AND CONTROL CABLE

WATER STORAGE AND DISTRIBUTION - ISOLATION/DRAIN VALVE AND CONTROL CABLE

Purpose

The isolation/drain valve lets you isolate the overhead distribution lines that supply water to the forward lavatories and galleys. It also permits you to drain the forward part of the overhead distribution line overboard.

Physical Description

The isolation/drain valve is a three-way, three-position valve. The positions are open, isolation, and drain.

The valve has a manual actuator. A control cable attaches to the actuator.

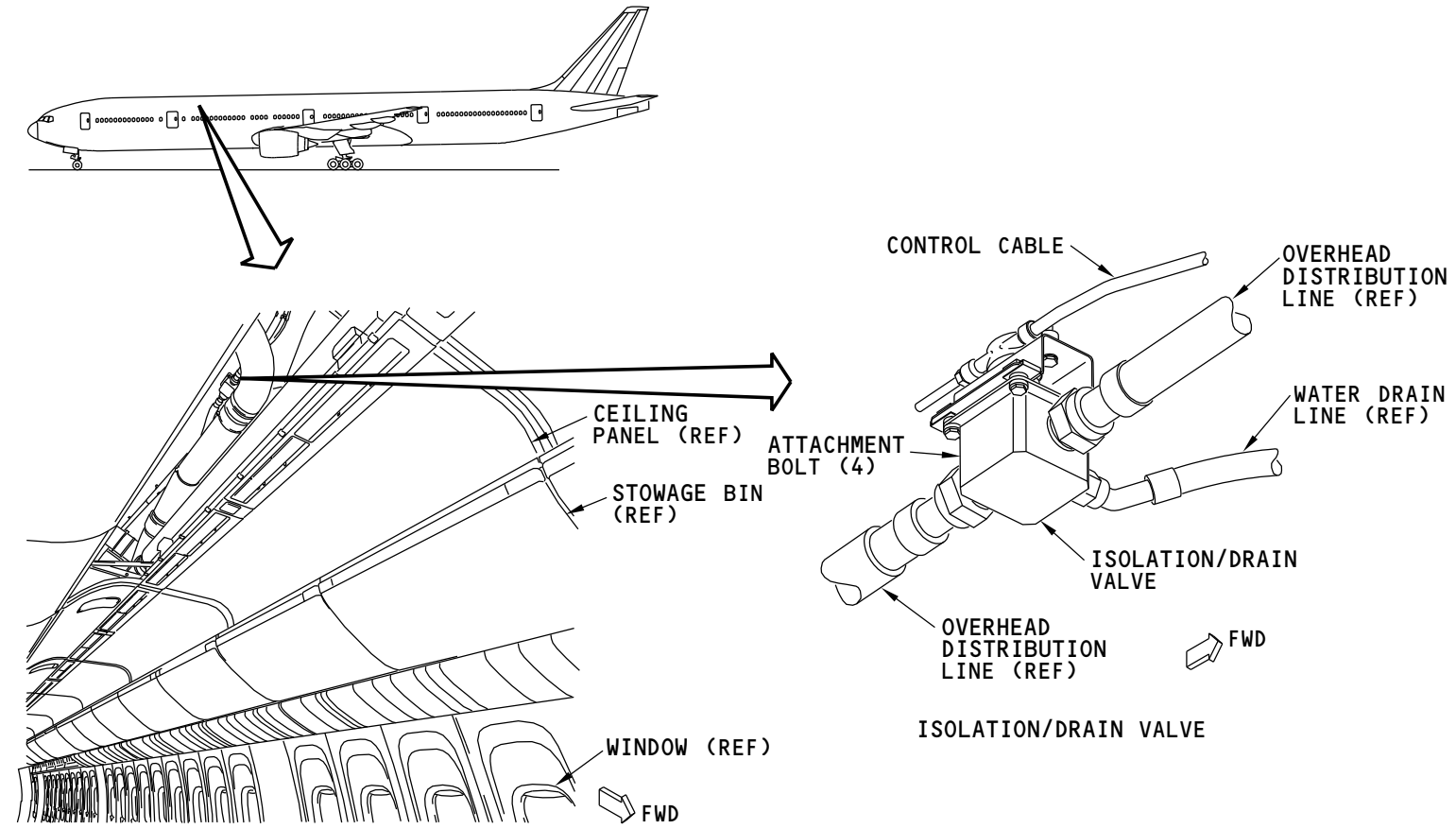
The valve attaches to the support with four bolts. It has three water line connectors, two for the overhead distribution lines, and one for the overboard drain line.

Location

The isolation/drain valve is above the ceiling in the forward part of the passenger compartment. The ceiling panel that gives access is above the left aisle next to an inboard overhead stowage bin. It is near door 2.

Functional Description

The control cable operates the valve to any of the three positions when you operate the isolation/drain valve handle.



LEFT SIDE OF PASSENGER COMPARTMENT NEAR DOOR 2
(LOOKING AFT WITH CEILING PANEL REMOVED)

M42970 S000620237_V1

WATER STORAGE AND DISTRIBUTION - ISOLATION/DRAIN VALVE AND CONTROL CABLE

WATER STORAGE AND DISTRIBUTION - ISOLATION/DRAIN VALVE HANDLE

Purpose

The isolation/drain valve handle lets you operate the isolation/drain valve.

Physical Description

The isolation/drain valve handle connects the valve with a control cable. The valve handle has three positions, open, closed, and drain.

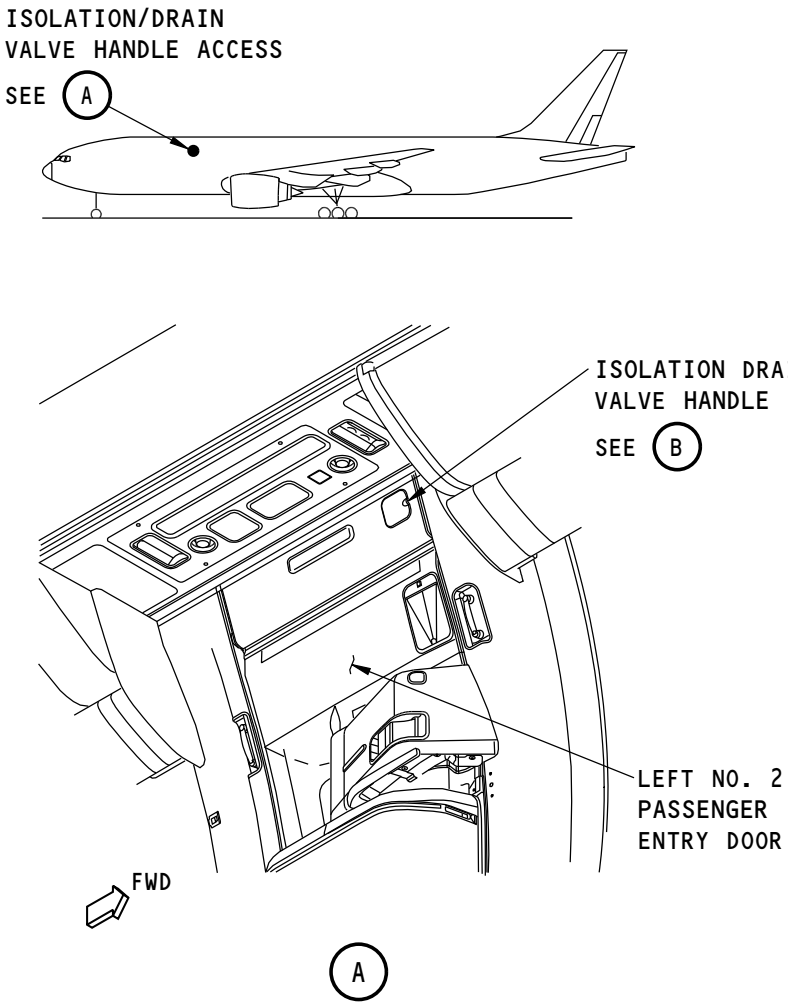
Location

The isolation/drain handle is behind a panel above the passenger/entry door 2 left.

Functional Description

When you turn the isolation/drain valve handle clockwise to the closed position, the isolation/drain valve closes. This isolates the FWD overhead distribution line. You must pull the isolation/drain valve and turn it to move it to the drain position.

NOTE: To drain the FWD distribution system you must open the FWD system drain valve, then pull and rotate the isolation drain valve handle to the DRAIN position.



U87335 S0000217093_V1

WATER STORAGE AND DISTRIBUTION - ISOLATION DRAIN VALVE HANDLE

WATER STORAGE AND DISTRIBUTION - INTRODUCTION - LAVATORY

Purpose

The part of the water storage and distribution system that is in the lavatory does these functions:

- Lets you control the flow of water into the lavatory
- Distributes water to components in the lavatory
- Lets you drain water from the lavatory.

Physical Description

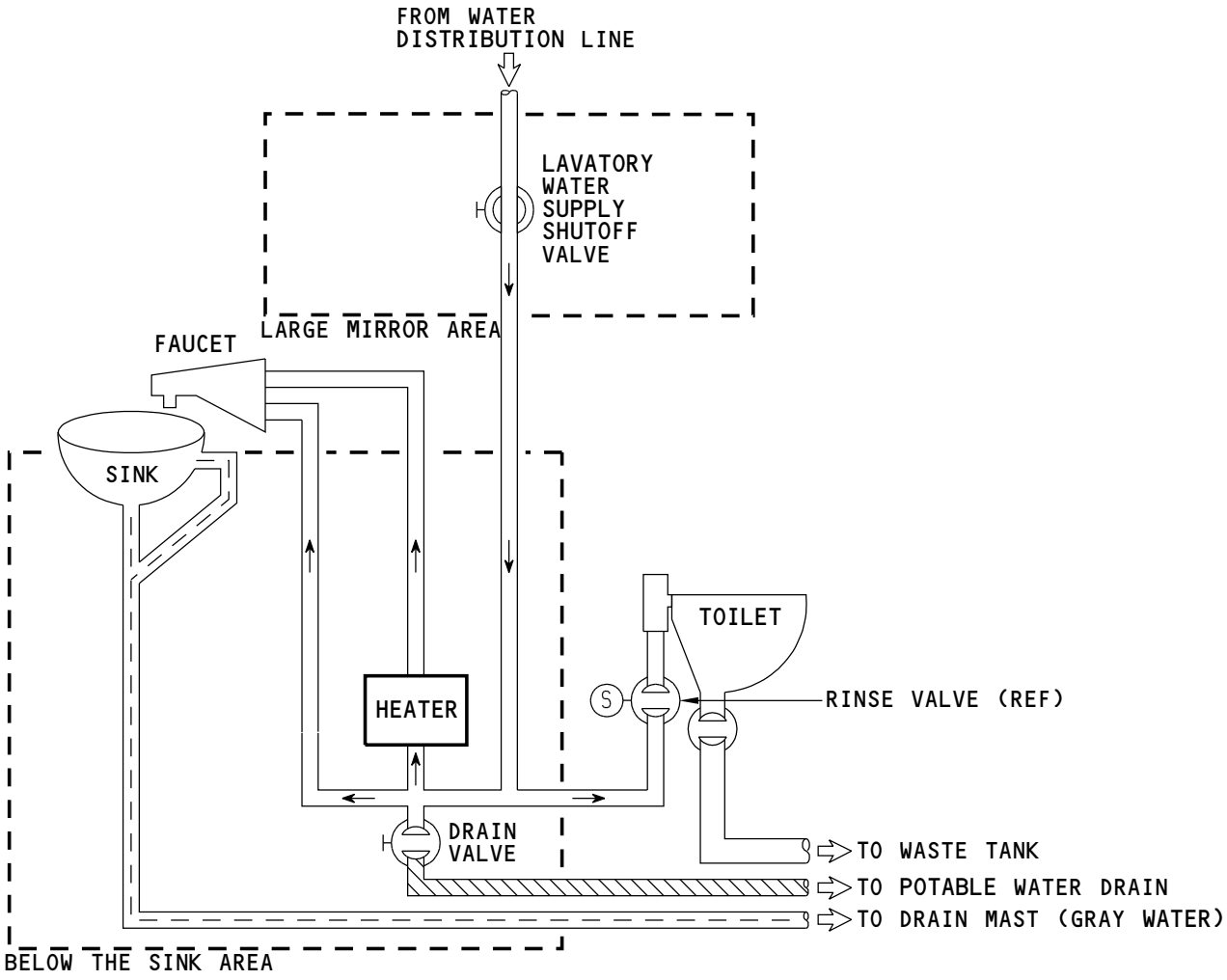
A typical lavatory has these water storage and distribution system components:

- Lavatory water supply shutoff valve
- Distribution lines and fittings (not shown)
- Drain valve
- Faucet.

The system has interfaces with the water heating system and the vacuum waste system.

See the water heating section or more information on water heating (SECTION 38-13).

See the vacuum waste system section for more information on the vacuum waste system (SECTION 38-32).



M43034 S000620297_V1

WATER STORAGE AND DISTRIBUTION - INTRODUCTION - LAVATORY

WATER STORAGE AND DISTRIBUTION - LAVATORY WATER SUPPLY SHUTOFF VALVE

Purpose

The lavatory water supply shutoff valve lets you control the flow of water into the lavatory.

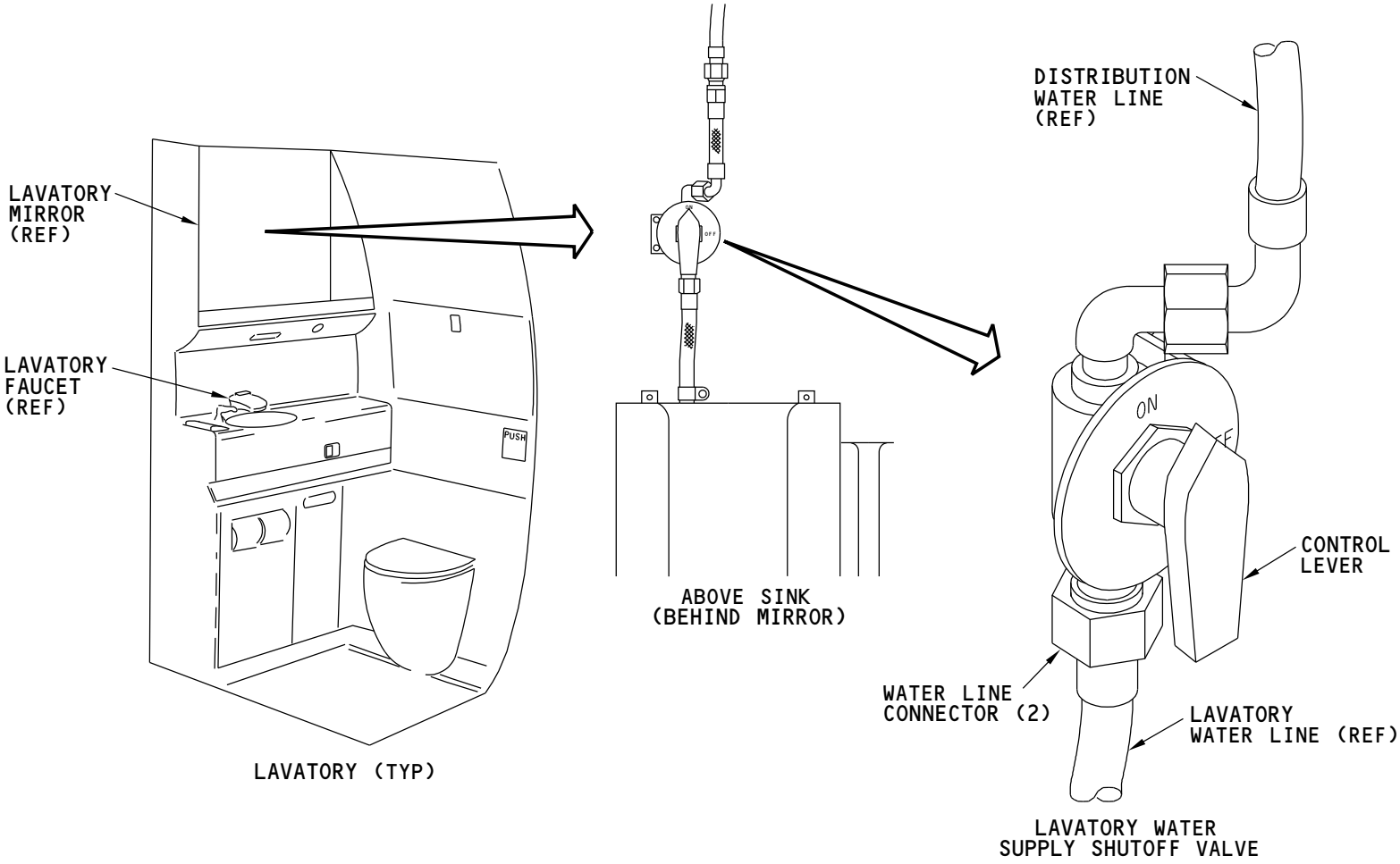
Physical Description

The valve has two positions, off and on.

It has two water connectors and a control lever.

Location

There is a valve in each lavatory. It is above the sink and behind the mirror.



M42973 S000620240_V1

WATER STORAGE AND DISTRIBUTION - LAVATORY WATER SUPPLY SHUTOFF VALVE

WATER STORAGE AND DISTRIBUTION - LAVATORY DRAIN VALVE

Purpose

The drain valve lets potable water in the lavatory drain overboard through the forward or aft drain valves.

Location

There is a valve in each lavatory. It is under the sink, behind the water system component access door.

Physical Description

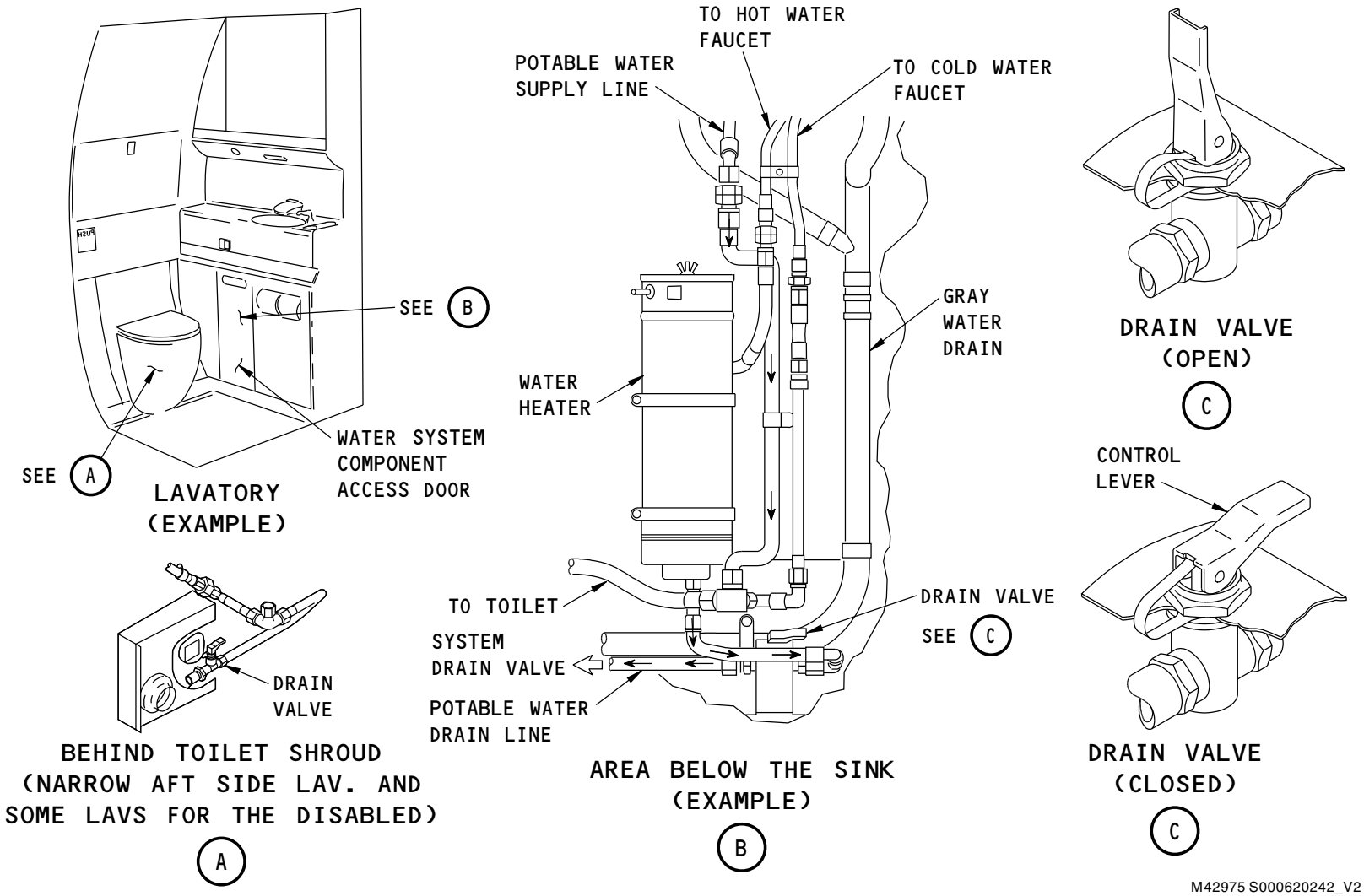
The valve has an open and a closed position.

The valve has a control lever.

Training Information Point

This valve is normally in the closed position. When the valve is in the open position, water drains from the water lines and the heater. Some water from the lines above the lavatory (not shown) will also drain.

NOTE: Make sure that all the drain valves are closed once maintenance practices are completed.



M42975 S000620242_V2

WATER STORAGE AND DISTRIBUTION - LAVATORY DRAIN VALVE

WATER STORAGE AND DISTRIBUTION - FUNCTIONAL DESCRIPTION

General

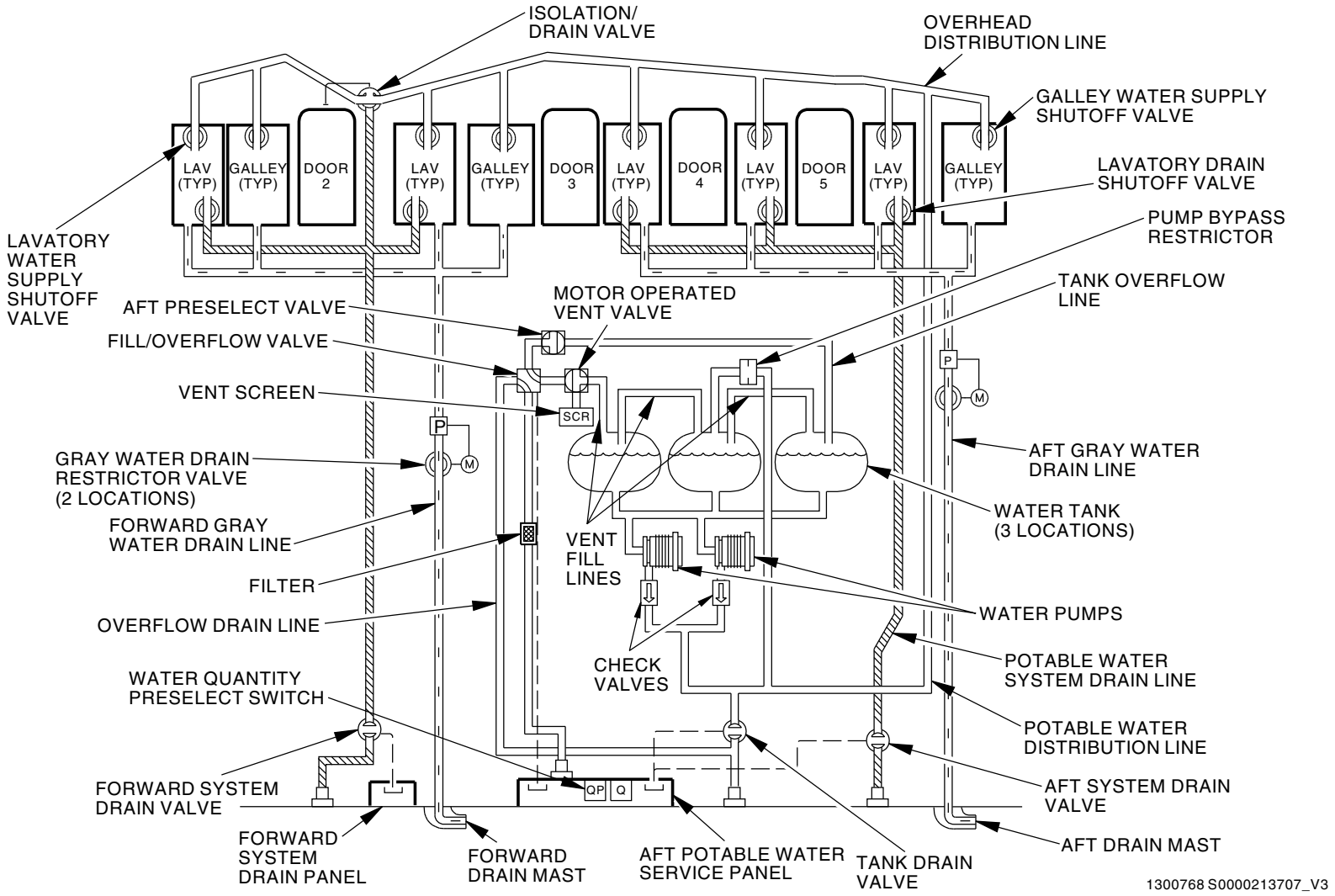
The water tanks hold potable water. Potable water goes to the galleys and lavatories through a distribution system.

Fill

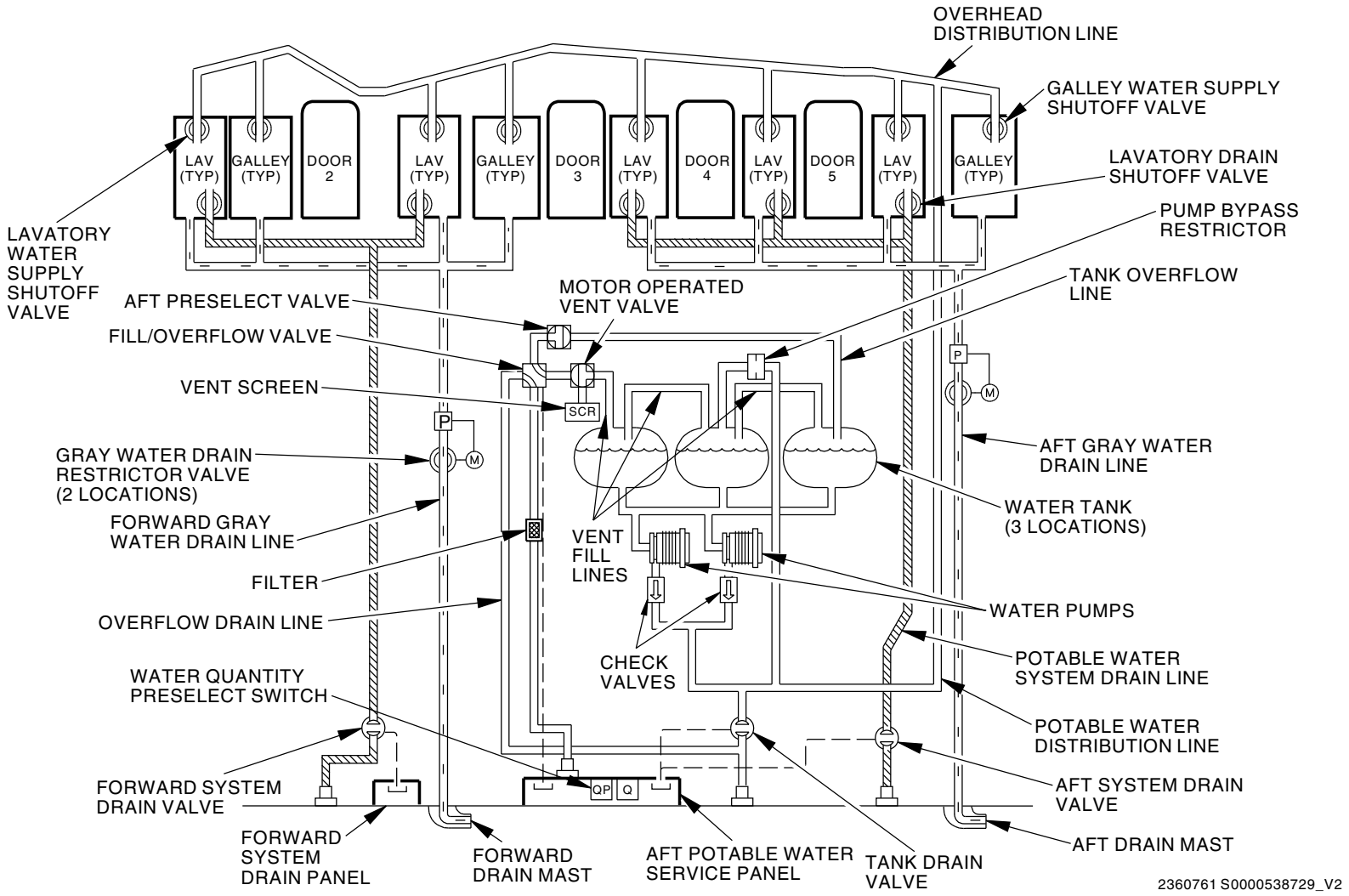
When you pull the TANK FILL VALVE control handle on the AFT water service panel to OPEN, the fill/overflow valve moves to the fill position. The fill/overflow valve interlock switch (S38012) then causes the water system control circuits to position the tank vent valve and the preselect valve to their fill positions. The water flows from the AFT service panel fill port and through the fill/overflow and tank vent valves to the right side water tank. The water then flows through the tank standpipes, and tank interconnect lines, to fill the other tank(s). The tanks are vented through the left tank overflow line, and the preselect and fill overflow valves, to the aft overflow/drain port. When the tanks are full, water flows overboard from the overflow/drain port.

NOTE: The AFT SYSTEM DRAIN VALVE control handle must be in the closed position when servicing the water tanks.

Pushing the TANK FILL VALVE control handle to CLOSED moves the fill/overflow valve to the normal/flight position. The fill/overflow valve interlock switch (S38012) then causes the automatic water system control circuits to position the tank vent valve and the preselect valve to their normal/flight positions.



WATER STORAGE AND DISTRIBUTION



WATER STORAGE AND DISTRIBUTION.

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Aft Potable Water Service Panel, Preselect Fill

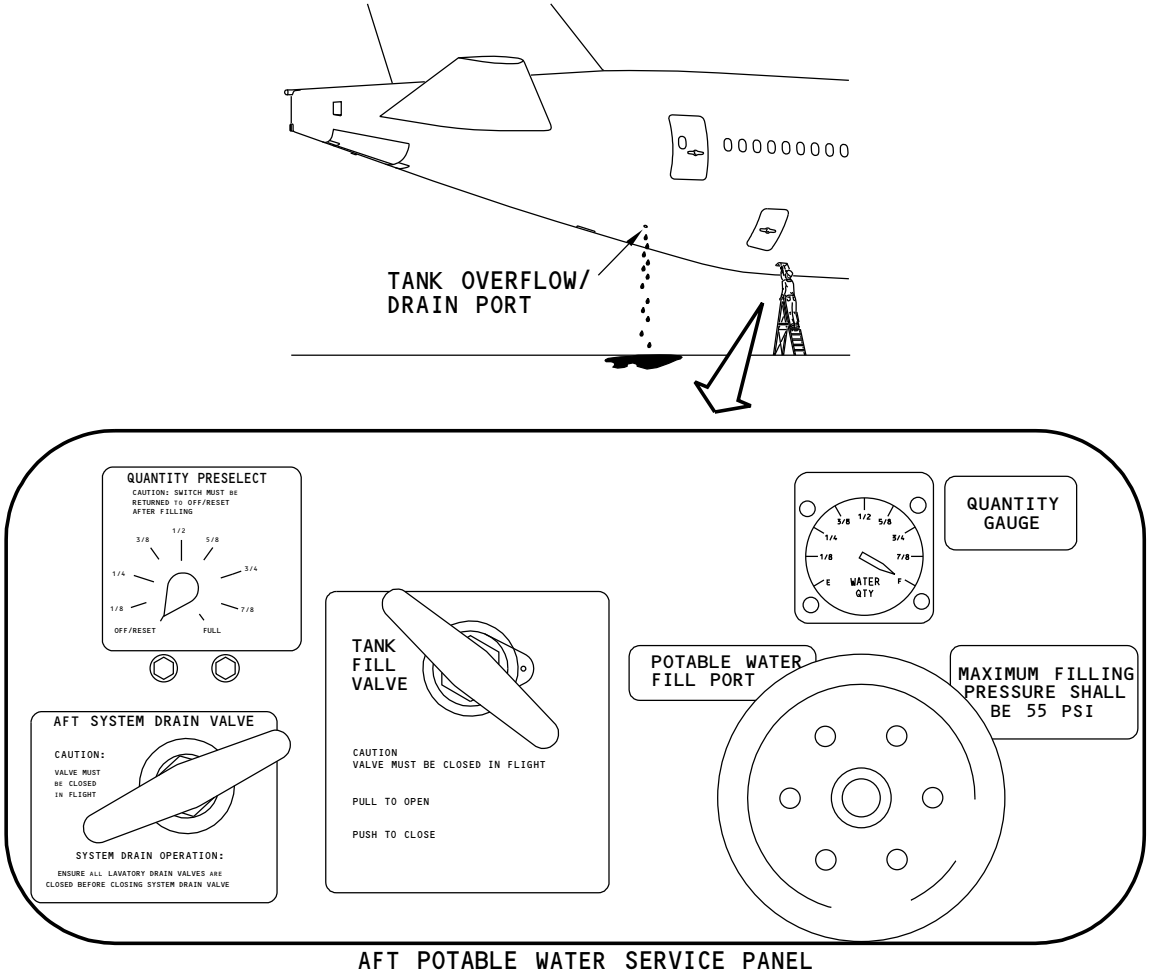
This is a summary of the procedure to fill the water tanks:

- Connect the water supply line to the tank fill port
- Set the quantity preselect switch to the OFF/RESET position, if it is not in that position
- Set the switch to a quantity greater than the current indicated quantity.
- Pull the TANK FILL VALVE control handle out to the tank fill position.

Set the QUANTITY PRESELECT switch to the OFF/RESET position, and push the TANK FILL VALVE control handle to the CLOSED position to complete the procedure.

Training Information Point

The Preselect Valve (V38002) and the Tank Vent Valve (V38001) are identical and interchangeable. They incorporate manual levers for positioning the valves when electrical power is not available, or if the valve's motor actuator is not operative.



AFT POTABLE WATER SERVICE PANEL

M43005 S000620268_V1

WATER STORAGE AND DISTRIBUTION - OPERATION - FILL

System Drainage

This is a summary of the procedure to drain the water storage and distribution system:

ARO 001-005

- Put the isolation/drain valve in the DRAIN position (entry door 2 left area, not shown)

ARO ALL

- Make sure the water supply shut off valve for each lavatory and each wet galley is in the OPEN position (not shown)
- Open the drain valve for each lavatory (not shown)
- Open the drain valve or faucet for each wet galley (not shown)
- Pull the forward system drain valve handle
- Pull the aft system drain handle.
- Supply electrical power to the airplane

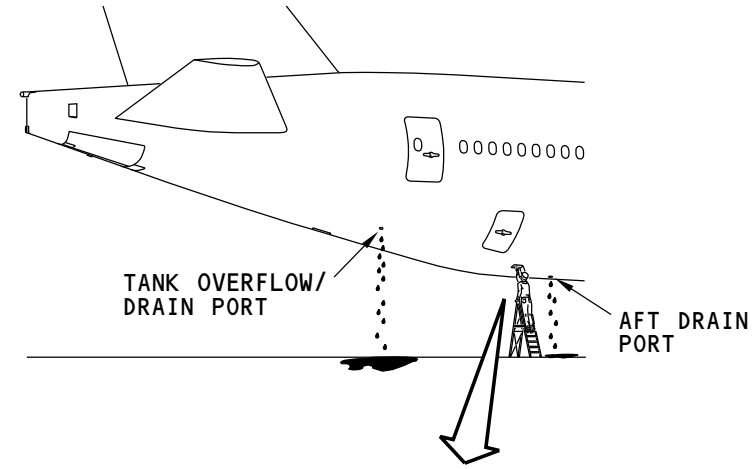
NOTE: The water will gravity drain from the airplane without electrical power. The water will drain much faster if electrical power is supplied to the airplane. The water pumps are turned on when you pull the AFT SYSTEM DRAIN VALVE CONTROL HANDLE on the AFT water service panel, if the airplane electrical power is on. The pumps will operate until the water quantity indication system senses the tanks are empty, and then stop operating.

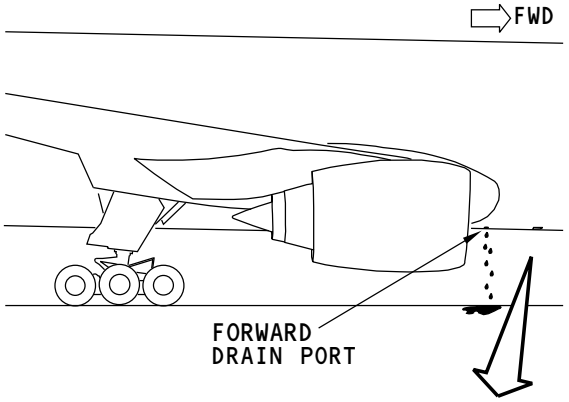
The water flows overboard through these three places:

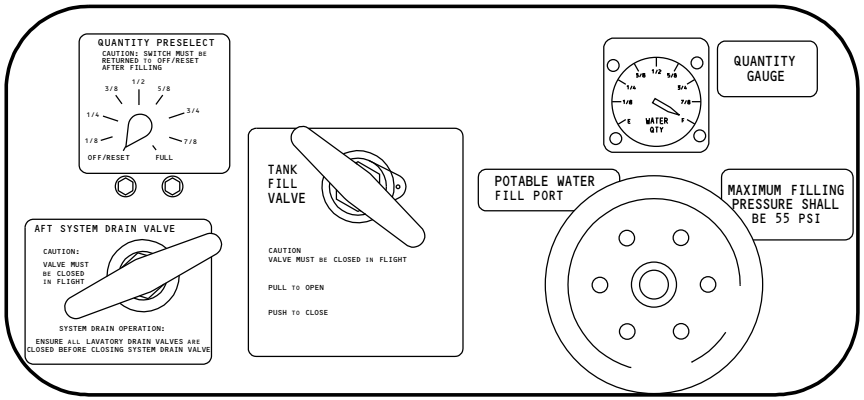
- Forward system drain
- Aft system drain
- Overflow/tank drain.

The forward system drain is on the right side of the airplane and below the leading edge of the wing. The aft system drain is on the left side of the airplane, forward and across from the aft service panel. The overflow/tank drain is aft of the aft service panel.

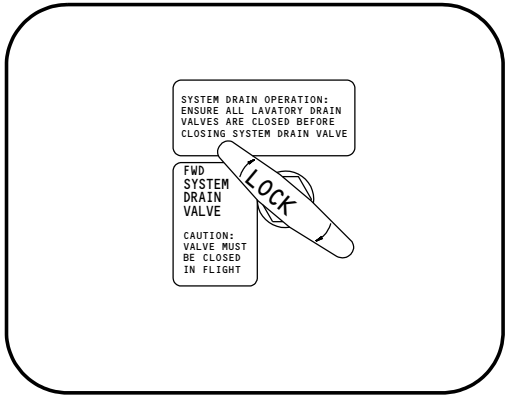
WARNING DRAIN THE POTABLE WATER SYSTEM AT A MINIMUM OF 1 TIME EACH 3 DAYS IN ORDER TO PREVENT THE GROWTH OF BACTERIA. CONTAMINATION CAN OCCUR IF YOU DO NOT DRAIN THE SYSTEM REGULARLY. CONTAMINATION IN THE WATER CAN CAUSE ILLNESS TO PERSONS THAT DRINK THE WATER.







AFT POTABLE WATER SERVICE PANEL



FWD POTABLE WATER DRAIN PANEL

M43020 S000620283_V1

WATER STORAGE AND DISTRIBUTION - OPERATION - DRAIN

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WATER HEATING - INTRODUCTION

Purpose

The lavatory water heaters heats water for use in the lavatory sink.

Physical Description

The water heater is a cylindrical tank assembly of 2.0 quarts (1.89 L) capacity. The water heater has these components:

- Lid
- Indicator light
- Power switch
- Pressure relief valve
- Water outlet
- Tank
- Heater element (3) (internal)
- Temperature sensor (internal)
- Printed Circuit (PC) card (internal)
- Cold/hot water mixing/bypass device (internal)
- Water inlet
- Temperature selection switch
- Overheat switch and reset button
- Electrical connector.

The power switch has two positions, ON and OFF. The temperature selector has these positions and approximate water temperature:

- Low (105F, 40.6C)
- Medium (115F, 46C)
- High (125F, 51.7C).

The overheat switch is normally closed. It latches open when the tank temperature is approximately 170F (76.7C). The overheat switch can be manually reset (closed) when the tank temperature is less than 120F (48.9C).

The pressure relief valve opens when tank pressure is approximately 140 psig. This valve resets automatically when tank pressure goes below the opening value.

Location

There is a water heater in each lavatory, under the sink.

The overheat switch is under the heater lid.

Indication

The indicator light comes on when both of these conditions occur:

- The power switch is ON
- The overheat switch is closed.

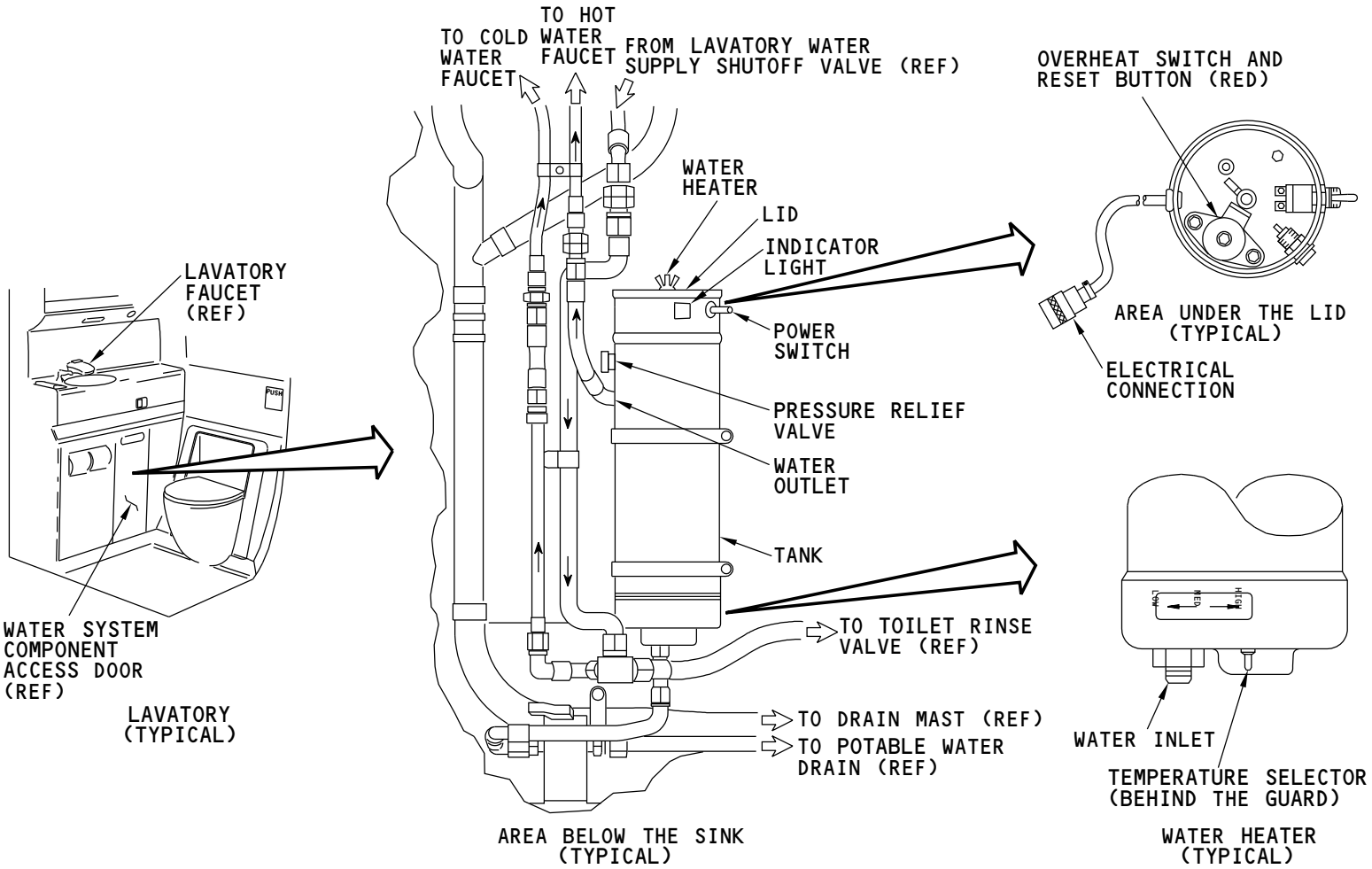
It goes out for any of these conditions:

- The power switch is OFF
- The overheat switch is open.

Training Information Point

If you use all of the hot water from the tank, the water heater takes approximately 15 minutes to heat the water to the set temperature.

When you drain the potable water system, remove power from the water heaters to prevent an overheat condition.



M43049 S000620312_V2

WATER HEATING - INTRODUCTION

WATER HEATING - FUNCTIONAL DESCRIPTION

Functional Description

The printed circuit (PC) card gets temperature selection information from the temperature selection switch. The card gets water temperature information from the temperature sensor. It operates the heater elements to maintain the selected temperature.

The cold water supply connection is on the bottom of the tank. Some of the cold water flows into the tank. It gets heated to the temperature set by the temperature selection switch. Some of the cold water flows through a tube in the tank to the mixing/bypass device where it mixes with hot water from the tank. The mix of cold and hot water gives a larger volume of warm water than the volume of the tank.

The overheat switch stops the operation of the elements if the water tank temperature is more than 170F (76.7C).

The tank operates with air at the top. The air helps to prevent damage to the tank if the water freezes.

The pressure relief valve opens when tank pressure is approximately 140 psig. This valve resets automatically when tank pressure goes below the opening pressure.

Indication

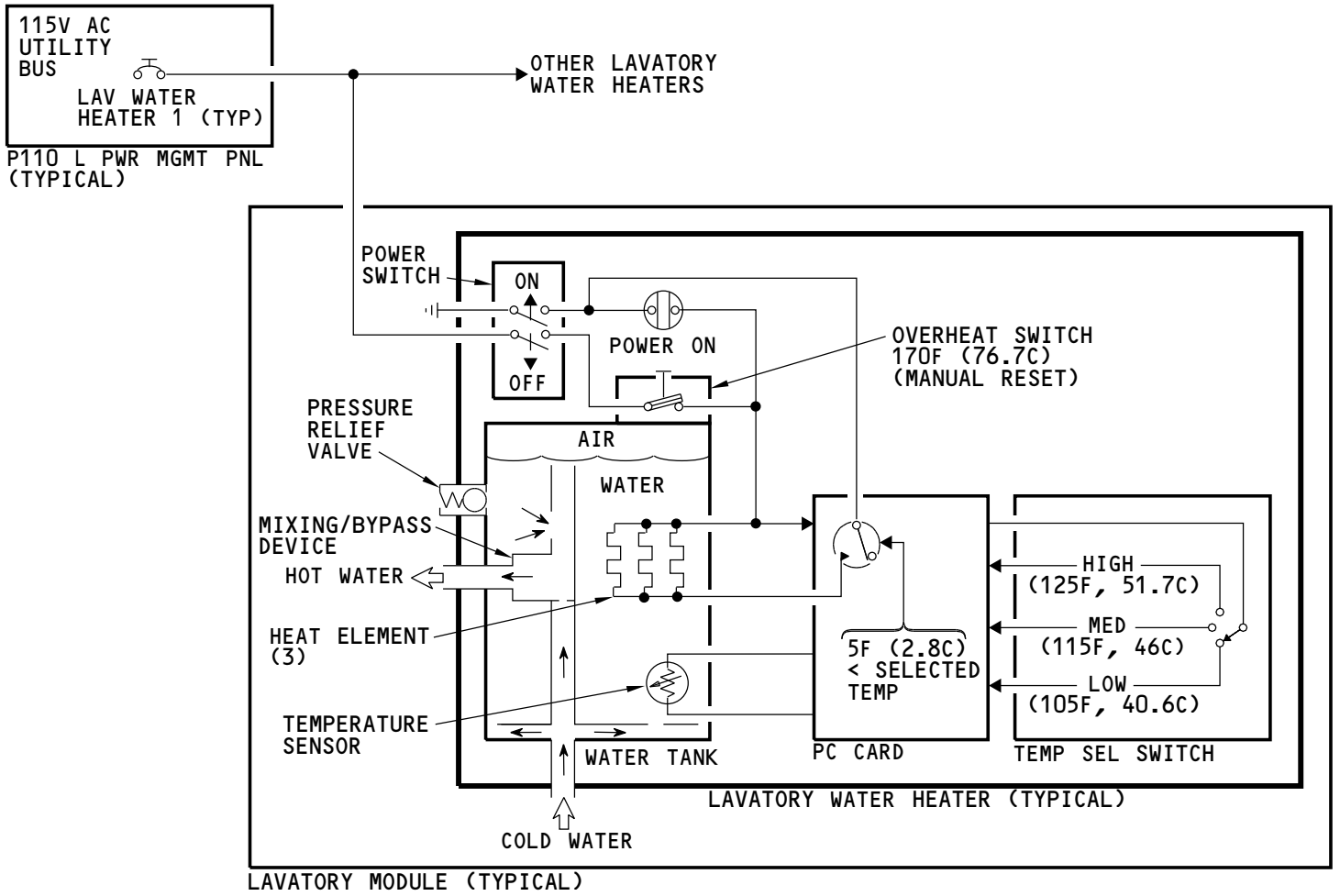
There is a light on the outside of the heater. It comes on when power is available to the heater. It goes off when any of these conditions occur:

- Power is not available on the utility bus
- The power switch is set to OFF
- The overheat switch is open.

Training Information Point

Remove power from the water heaters when you drain the water system.

Remove the lid to get access to the overheat switch. The water tank temperature must be less than 120F (48.9C) to reset the overheat switch.



M43051 S000620314_V1

WATER HEATING - FUNCTIONAL DESCRIPTION

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WATER QUANTITY INDICATION - INTRODUCTION

Purpose

The water quantity indication system has these functions:

- Shows the water quantity in the tanks
- Supplies control input for quantity preselect.

Physical Description

These are the water quantity indication components:

- Water level sensors (one in each potable water tank)
- Water quantity preselect switch
- Water quantity gauge
- Cabin Services System (CSS), Potable Water System Status Screen
- Water quantity control module.

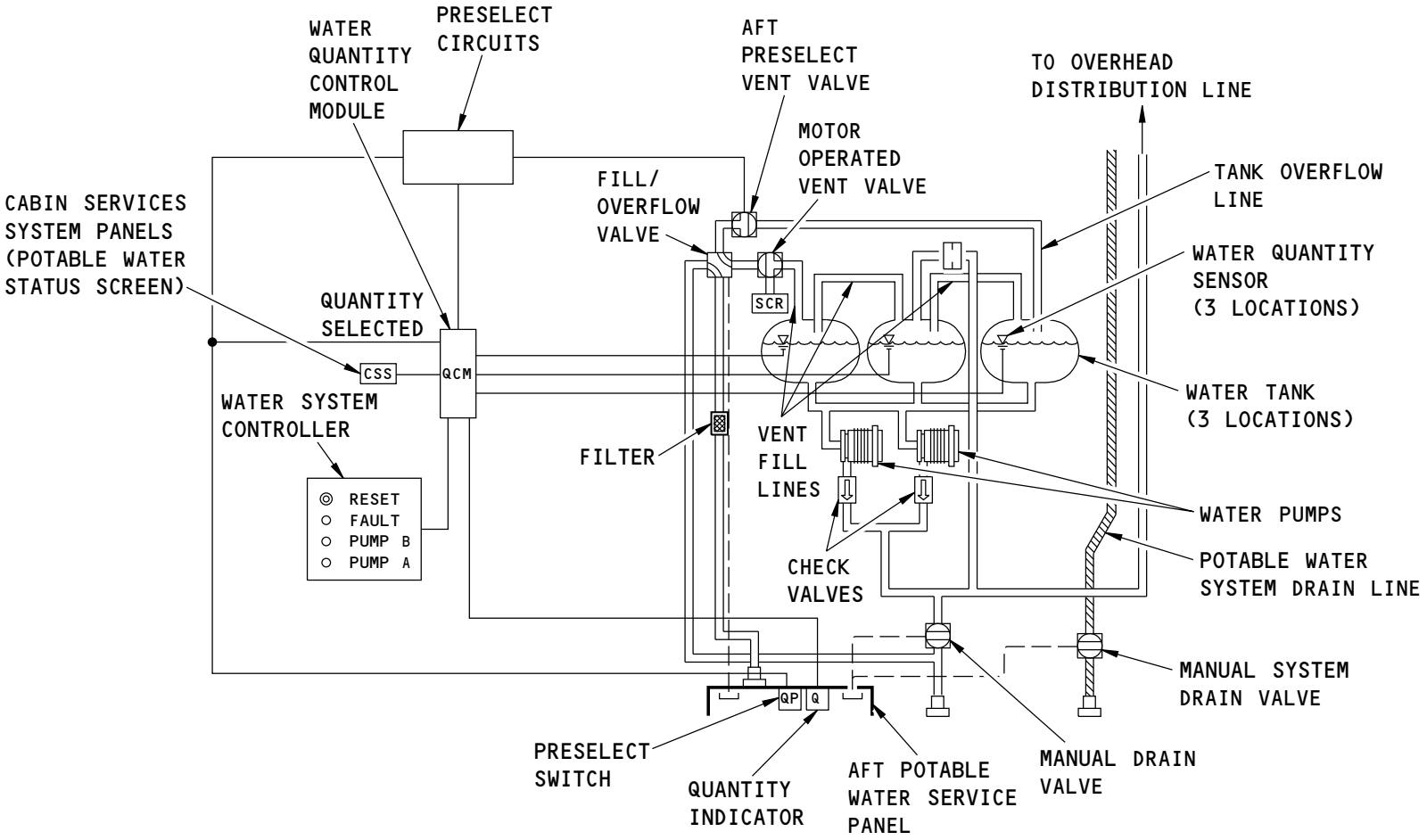
General Description

The quantity preselect switch sends quantity select information to the water quantity control module. The water quantity control module causes the preselect circuit to position the preselect valve and the tank vent valve to the fill or the normal/flight modes.

The tank water quantity sensors send information to the water quantity control module. The control module sends the quantity information to these components:

- Cabin services system (CSS) panels
- Aft potable water service panel gauge.
- Water System Controller

Refer to 23-39-01-616 for additional information about the CSS Potable Water System Status Screen.



2059543 S0000422972_V1

WATER QUANTITY INDICATION - INTRODUCTION

WATER QUANTITY INDICATION - COMPONENT LOCATIONS

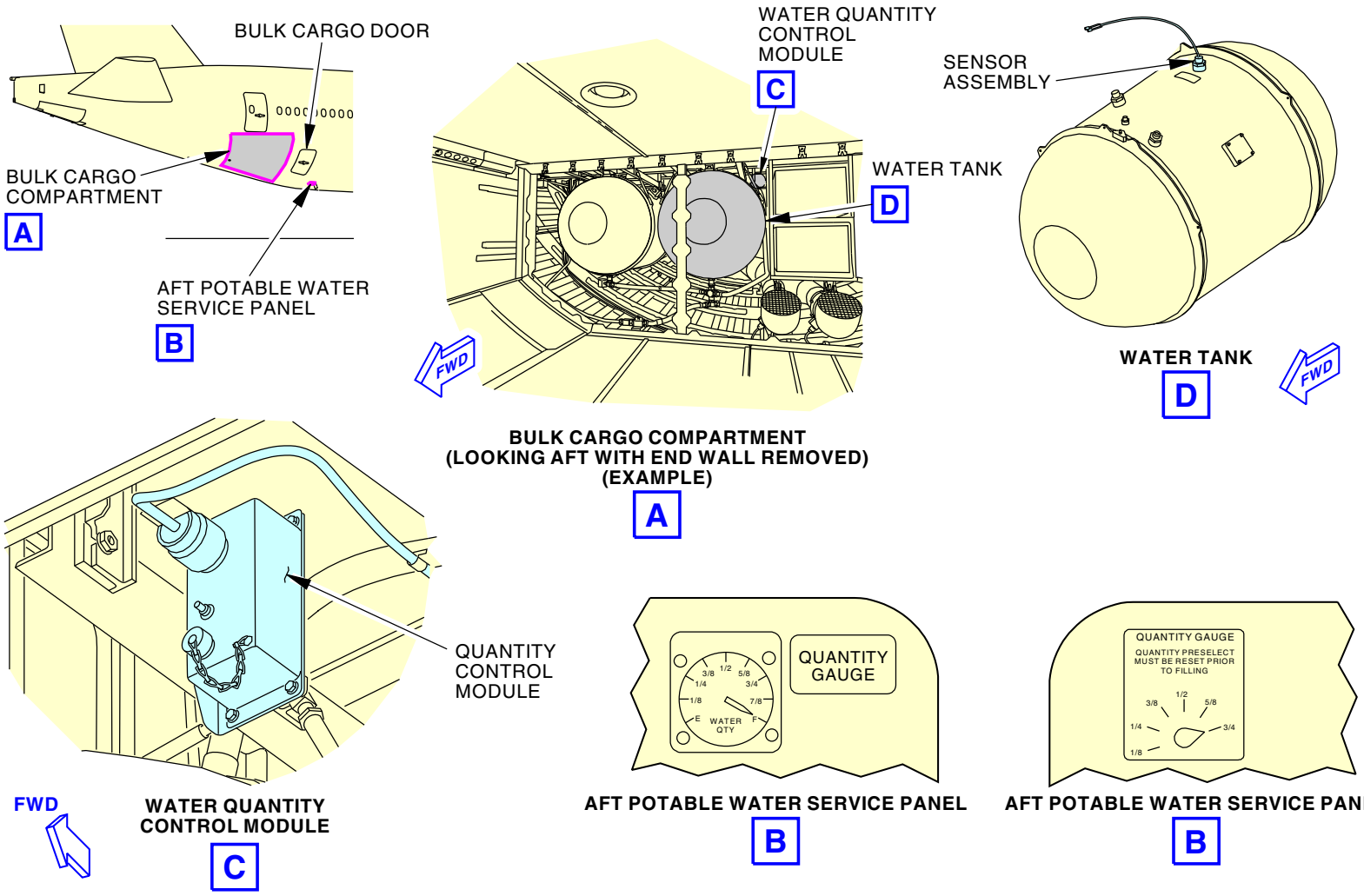
Component Locations

There is a water quantity gage on the aft potable water service panel.

There is a preselect switch on the aft potable water service panel.

The water quantity control module is aft of the bulk cargo compartment end wall. It is on a passenger compartment floor beam.

The water level sensor is installed in each water tank.



2025099 S0000402848_V3

WATER QUANTITY INDICATION - COMPONENT LOCATIONS

WATER QUANTITY INDICATION - WATER QUANTITY PRESELECT SWITCH

Purpose

The water quantity preselect switch permits selection of the water fill quantity.

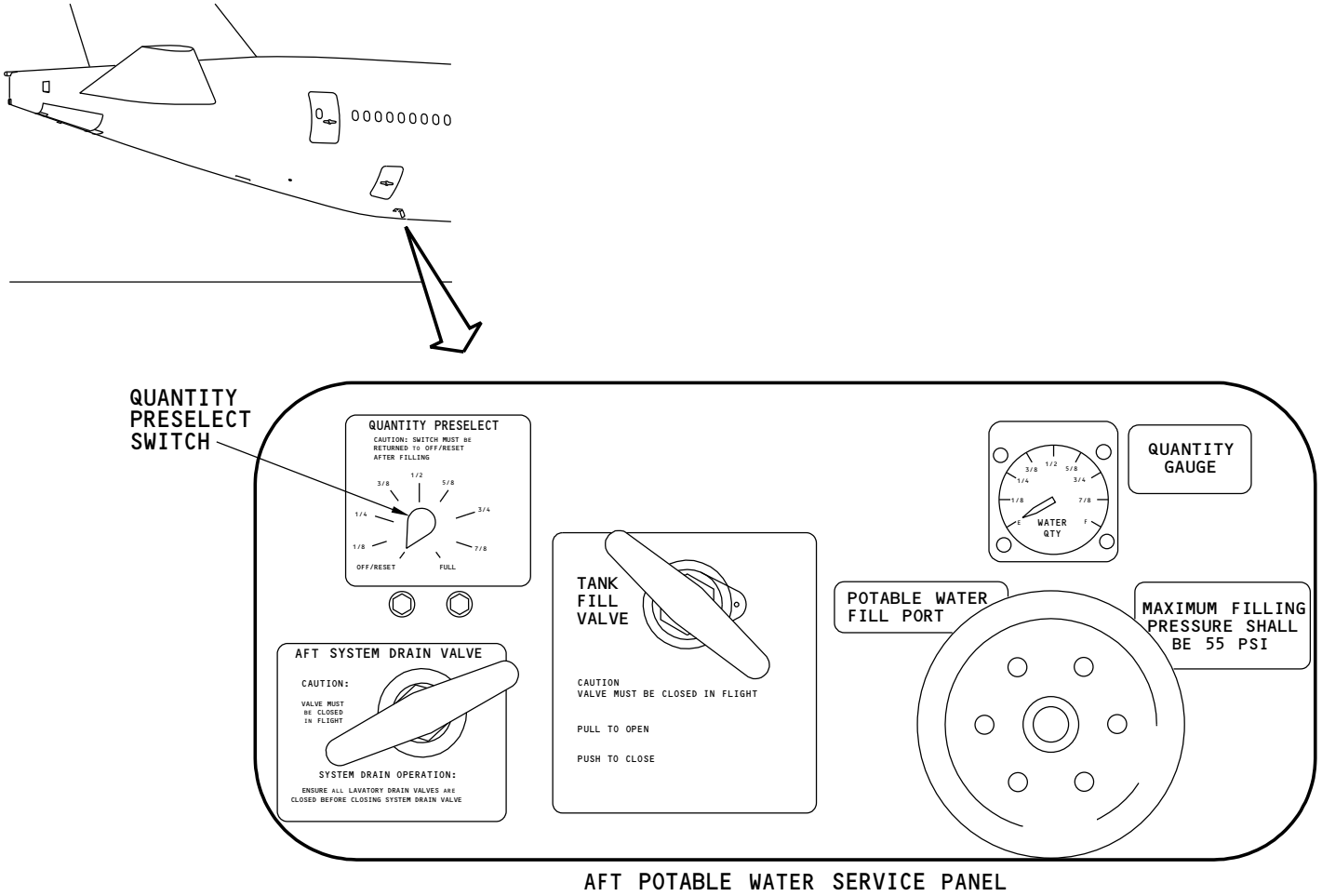
Physical Description

The switch has these nine positions:

- OFF/RESET
- 1/8
- 1/4
- 3/8
- 1/2
- 5/8
- 3/4
- 7/8
- FULL.

Location

The switch is on the aft potable water service panel.



M43079 S000620342_V1

WATER QUANTITY INDICATION - WATER QUANTITY PRESELECT SWITCH

WATER QUANTITY INDICATION - WATER QUANTITY GAGE

Purpose

The water quantity gage shows the quantity of water in the tanks.

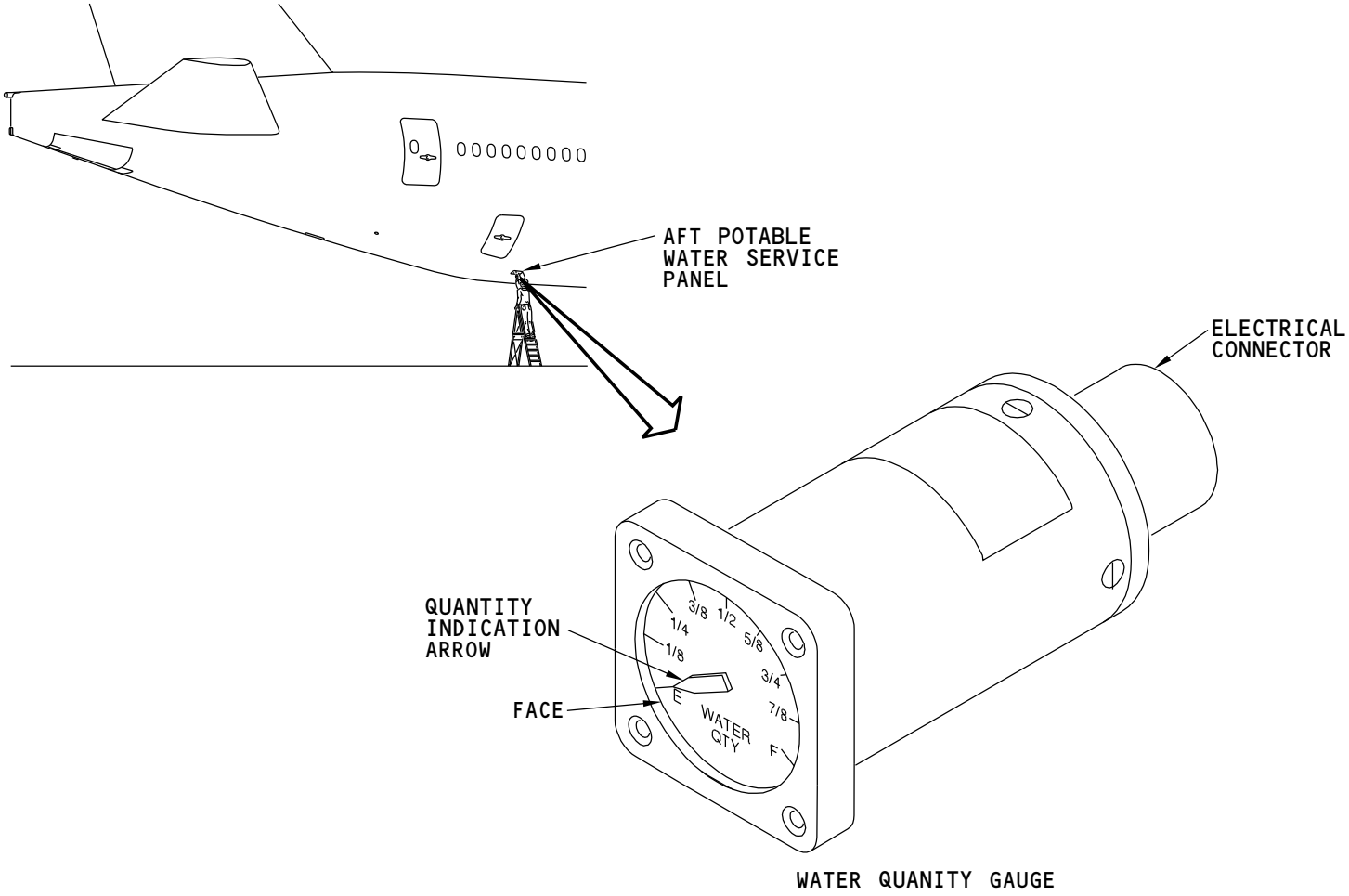
Physical Description

The gage has these features:

- Face with quantity amounts
- Quantity indication arrow
- Electrical connector.

Location

The gage is on the aft potable water service panel.



WATER QUANITY GAUGE

M43081 S000620344_V1

WATER QUANTITY INDICATION - WATER QUANTITY GAGE

WATER QUANTITY INDICATION - WATER QUANTITY CONTROL MODULE

Purpose

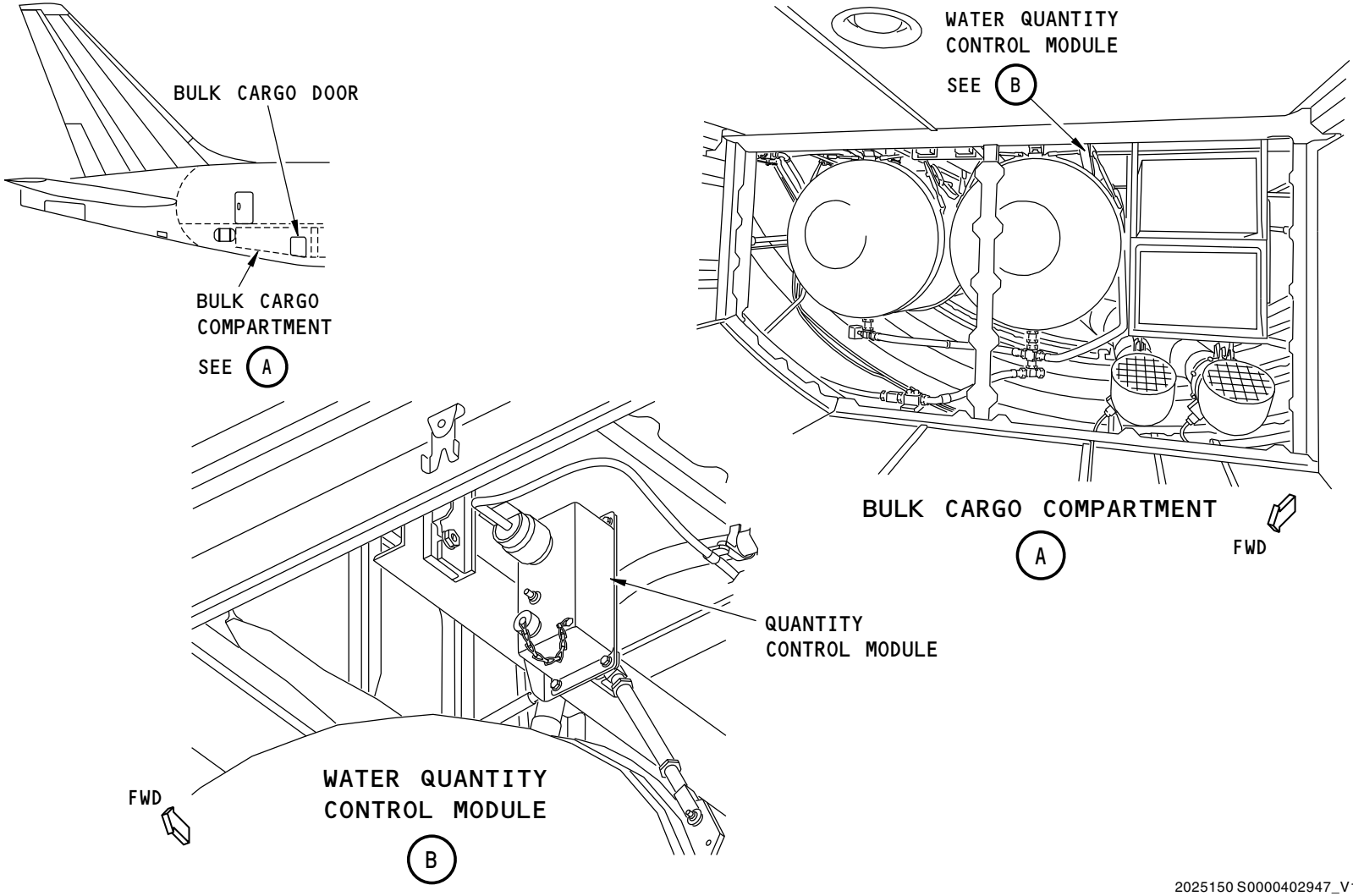
The water quantity control module gets signals from the water quantity sensors. It gives a water quantity signal to the water quantity gages and the CSS.

The water quantity control module gives a water quantity signal to the water system controller. The water system controller uses this signal to shut the water pumps off when the water tanks are empty.

The water quantity control module also provides signals to the potable water system relays to position the preselect valves and the tank vent valve, when the tanks are filled using the preselect fill method.

Location

The water quantity control module attaches to a beam above the water tanks.



2025150 S0000402947_V1

WATER QUANTITY INDICATION - WATER QUANTITY CONTROL MODULE

WATER QUANTITY INDICATION - WATER QUANTITY SENSOR

Purpose

The water quantity sensors send a signal to the water quantity control module.

Physical Description

There is one sensor for each water tank.

The sensor mounts to the top of the water tank with a tank fitting. The tank fitting has a rod and float internal to the tank and a wiring harness external to the tank.

The sensor wiring harness connects to the water quantity control module.

Location

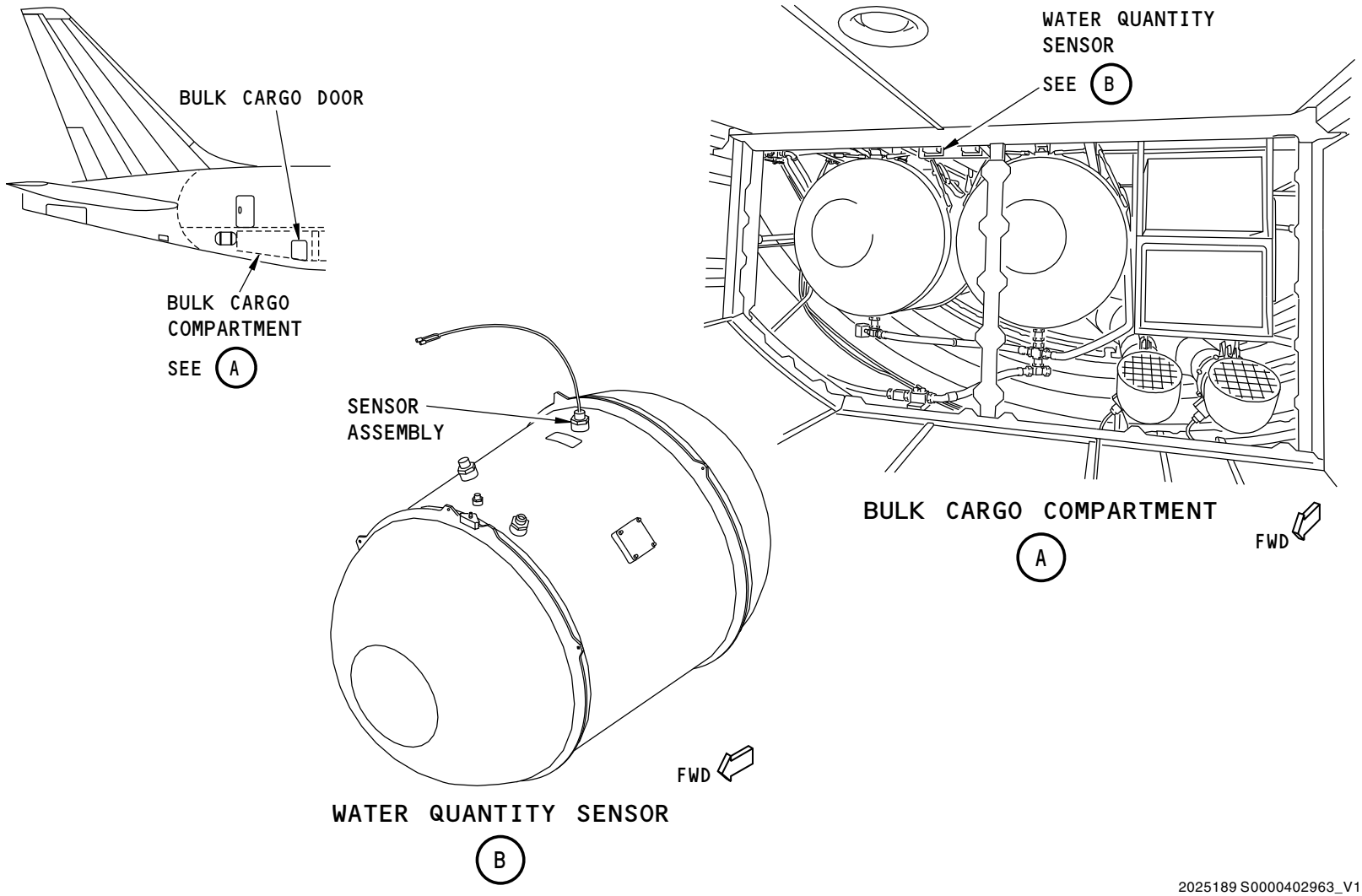
There is one sensor at the top of each water tank.

Functional Description

The sensor uses a float in the water tank and detection circuitry to measure the quantity of water in a tank. The output voltage of each sensor is proportional to the quantity of water in the related tank. The sensor sends the signal to the water quantity control module which sums the quantities of each sensor and provides a system quantity output to indicators in the aircraft.

Training Information Point

The sensors cannot be adjusted. Tests or adjustments to the output signals can be accomplished using the water quantity control module.



2025189 S0000402963_V1

WATER QUANTITY INDICATION - WATER QUANTITY SENSOR

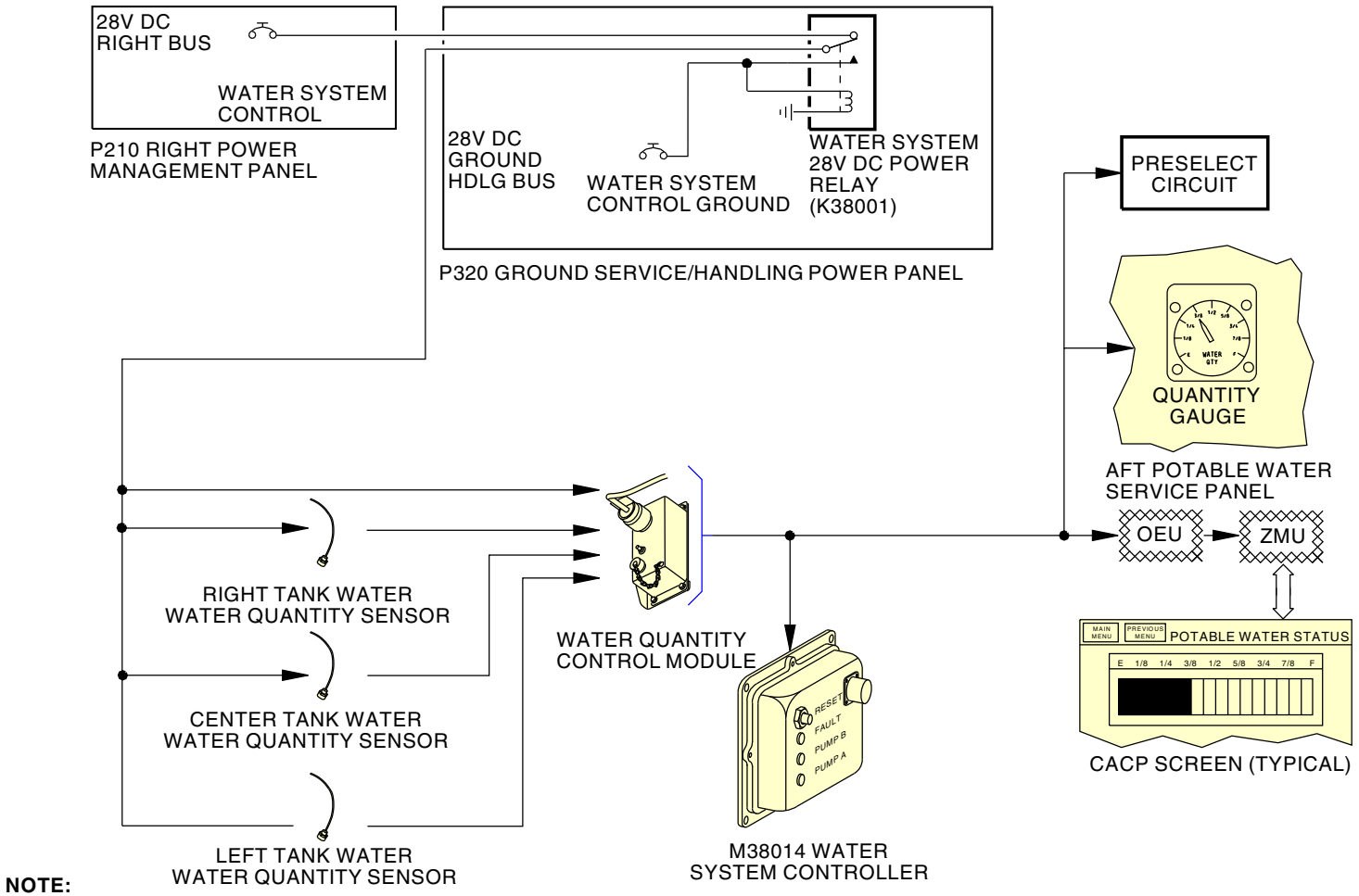
WATER QUANTITY INDICATION - FUNCTIONAL DESCRIPTION - INDICATION

Functional Description

The tank quantity sensors supply data for the liquid level in the tank to the water quantity control module. The control module then supplies water quantity data to the gauges at the water service panel and the cabin control panel.

The water quantity control module calculates the total amount of water in the water tanks. This data goes to these units/systems:

- Water quantity gauge on the aft potable water service panel
- Cabin services system
- Preselect circuit
- Water system controller.



NOTE:

CACP IS SHOWN, CSCP IS EQUIVALENT.

2527906 S0000596679_V1

WATER QUANTITY INDICATION - FUNCTIONAL DESCRIPTION - INDICATION

WATER QUANTITY INDICATION - FUNCTIONAL DESCRIPTION - PRESELECT

General

The preselect switch on the potable water service panel lets you select the quantity of water that goes into the water tanks.

Functional Description

When the preselect switch is in the OFF/RESET position, the preselect power-on relay (K38012) and the preselect valve relay (K38013) are energized. The tank vent valve and the preselect valve are in their normal/flight positions, if the TANK FILL VALVE control handle on the aft water service panel is closed.

When the preselect switch is set to a quantity more than the actual amount in the tanks, the K38013 preselect valve and K38014 preselect shutoff relays de-energize. The motor operated preselect and tank vent valves go to their fill positions when the TANK FILL VALVE control handle is pulled out to the open position. Now you can put water into the tanks.

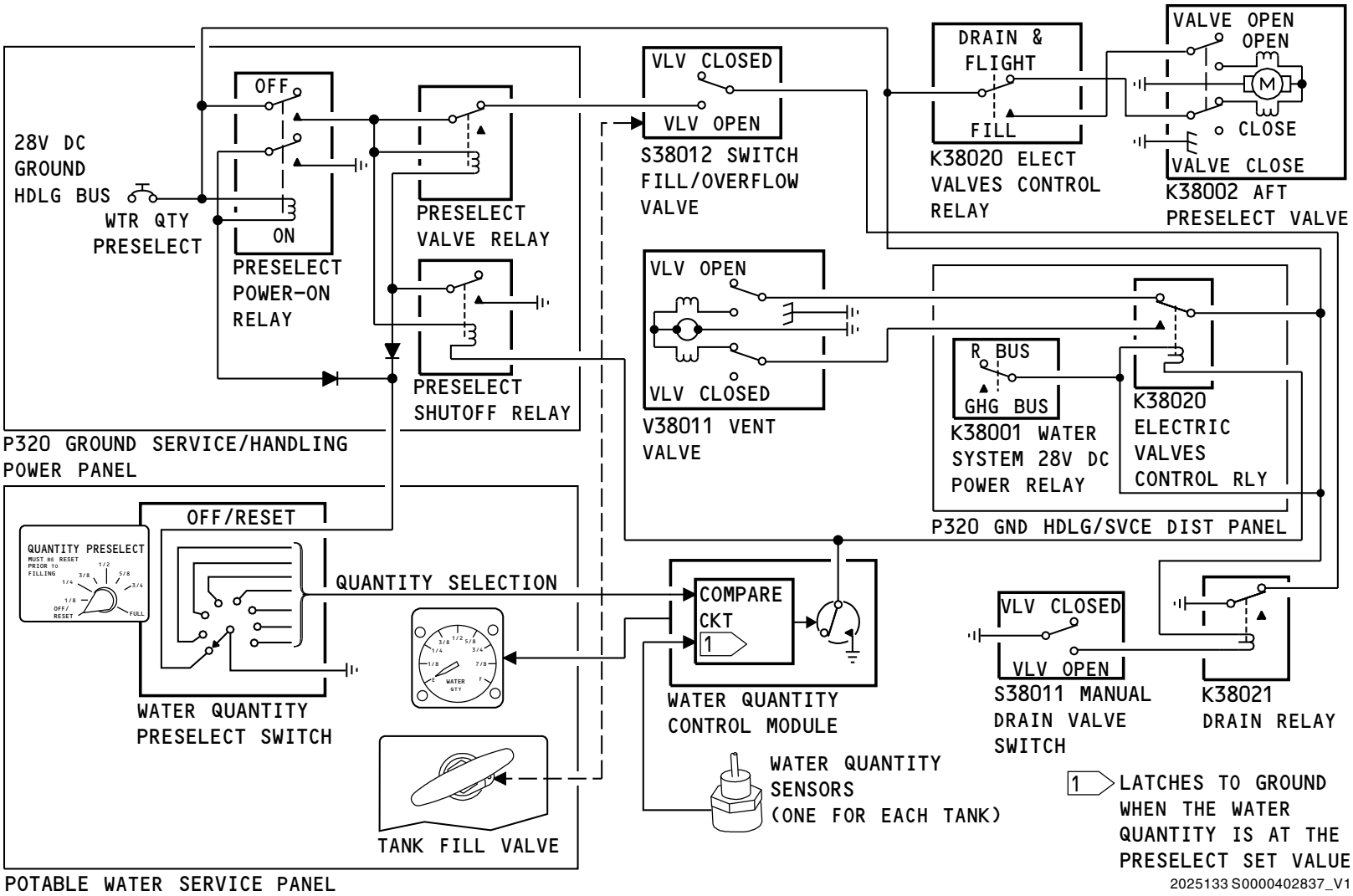
The QUANTITY PRESELECT switch sends a signal to the water quantity control module. The water quantity sensors also send a signal to the water quantity control module.

The compare circuit in the water quantity control module compares the amount of water in the tanks with the preselect quantity. When they are the same, the control module latches a switch closed. This switch energizes the preselect shutoff relay. The preselect valve relay energizes, and the preselect and tank vent valves go to their flight/normal positions. You rotate the QUANTITY PRESELECT switch to OFF/RESET, push the TANK FILL VALVE control handle in, disconnect the water supply, and close the aft service panel door to complete the procedure.

The water quantity control module switch unlatches when you select a quantity greater than the current tank(s) quantity, or OFF/RESET, with the QUANTITY PRESELECT switch.

Training Information Point

When servicing is complete, make sure you turn the preselect switch to the OFF/RESET position.



WATER QUANTITY INDICATION - FUNCTIONAL DESCRIPTION - PRESELECT

WATER QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS

Operation

The CMS gives data on the potable water.

This data is on the cabin system control panel (CSCP) and the cabin area control panels (CACPs).

On the cabin controls main menu, select the water/waste status area. This causes the water/waste tank status menu to show. Then select the potable water status area. This causes the potable water status screen to show.

The potable water status screen shows the total amount of water in the tanks.

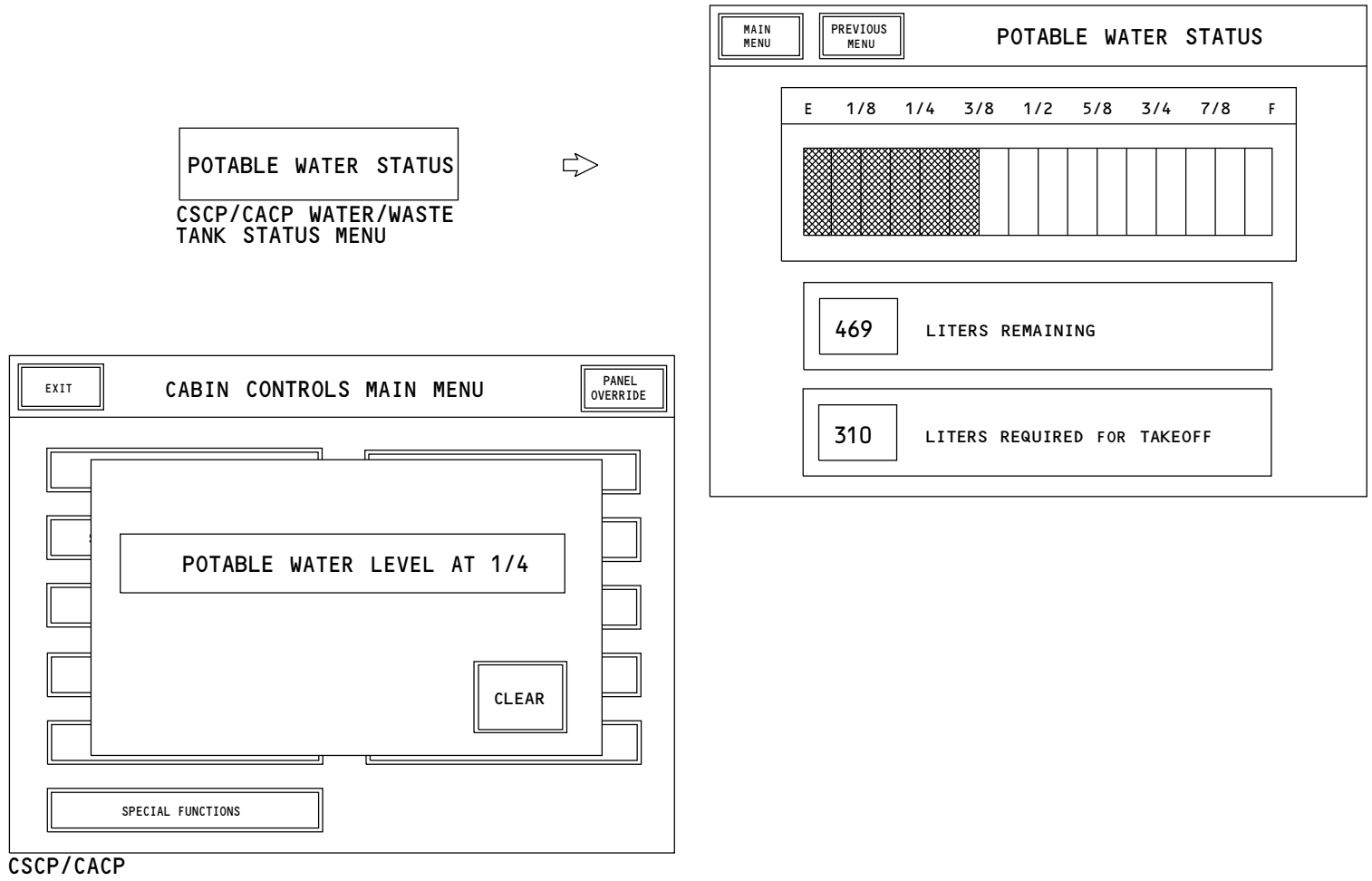
The quantity required for takeoff is a value set in the CSS configuration database. You can also use the CSS configuration database to make this area of the potable water status screen not show.

A screen automatically shows on the CSCP/CACP when the amount of water in the tanks is low. You touch the CLEAR button to remove the screen.

When the tank is less than 1/4 full, the bar graph shall display the segments between E and 1/4 full in red color.

When the tank is between 1/4 and 1/2 full, the bar graph shall display the segments between E and 1/2 full in amber color.

See the cabin services system section for more information (SECTION 23-39).



M43228 S000620364_V1

WATER QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS

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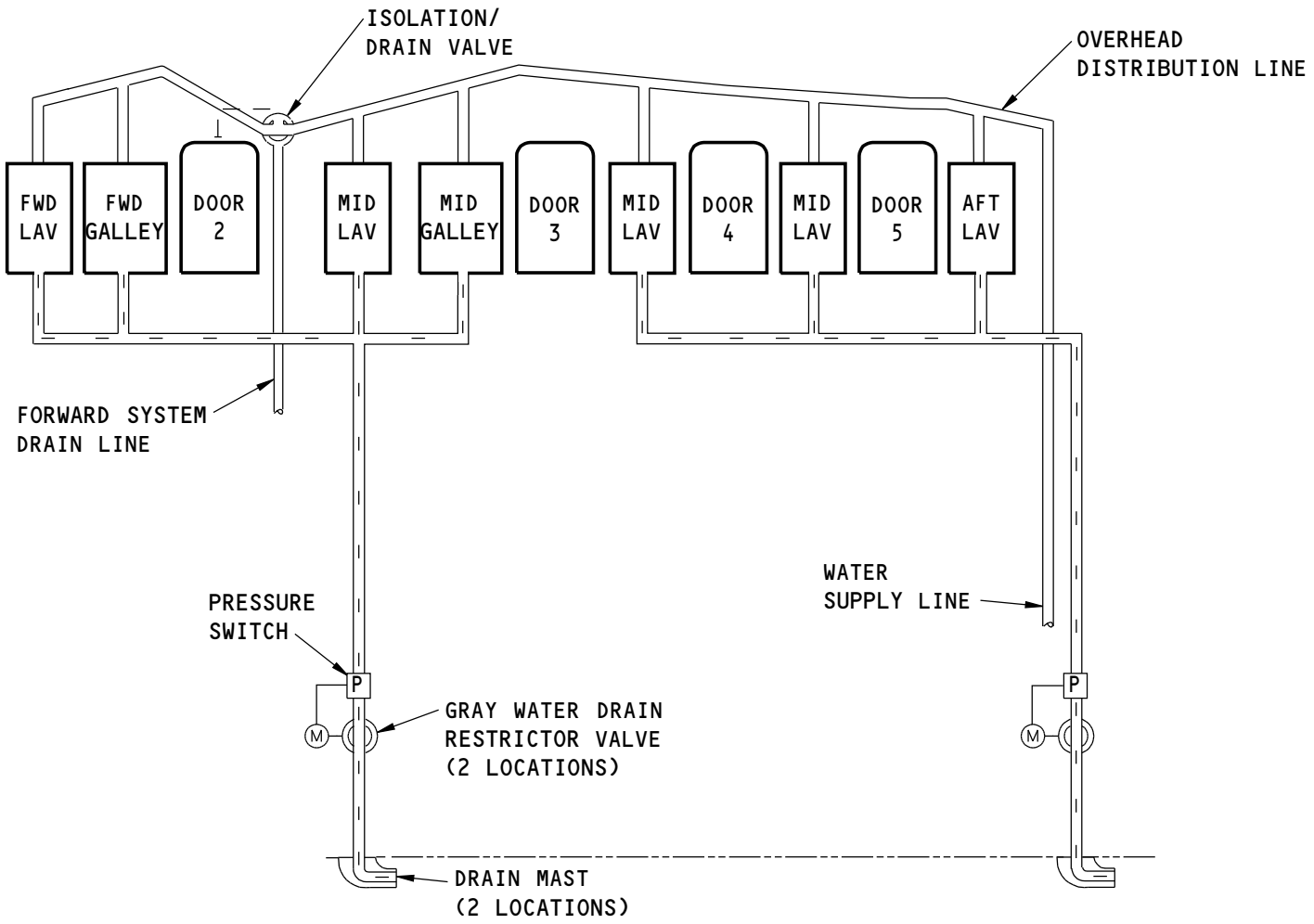
GRAY WATER DRAIN SYSTEM - INTRODUCTION

Purpose

The gray water drain system permits waste water from lavatory and galley sinks to drain overboard.

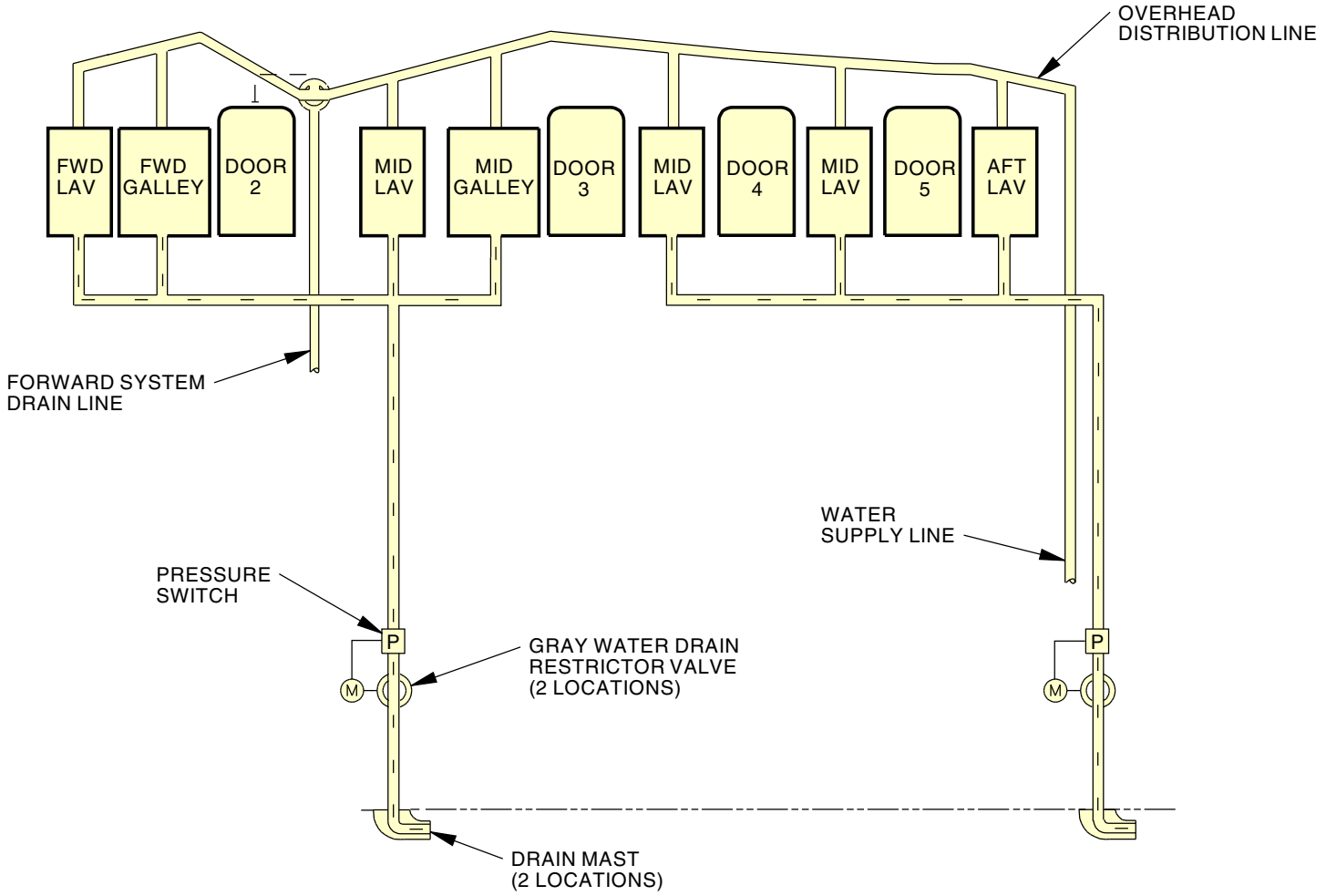
General Description

Waste water from the sinks goes through lines and flows overboard through the forward or aft drain mast. A gray water drain restrictor valve keeps the amount of air flow out of the plane to a limit when the airplane is in the air. This helps to decrease noise in the lavatories and galleys.



2091661 S0000441668_V1

GRAY WATER DRAIN SYSTEM INTRODUCTION



2585004 S0000624101_V1

GRAY WATER DRAIN SYSTEM - INTRODUCTION

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GRAY WATER DRAIN SYSTEM - COMPONENT LOCATIONS

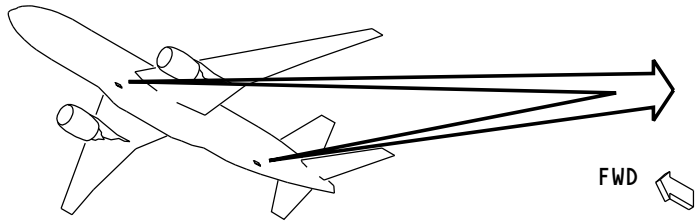
Component Locations

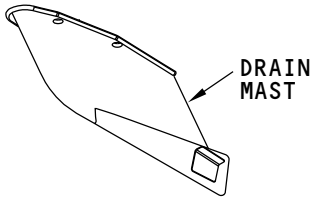
The forward and aft drain masts are on the bottom of the airplane.

The forward gray water drain restrictor valve is under the floor of the forward cargo compartment.

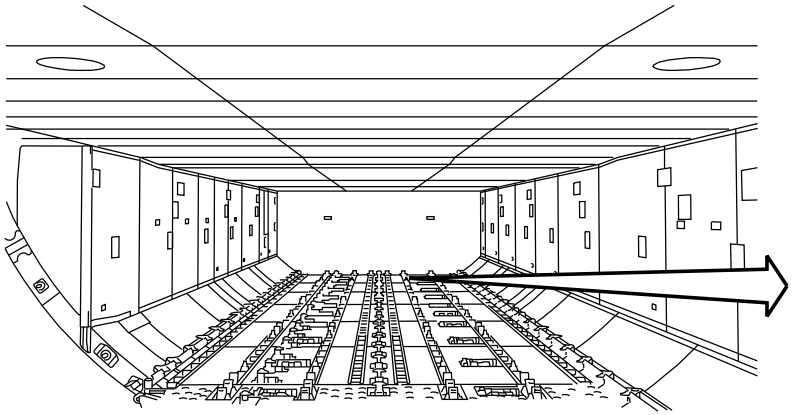
The aft gray water drain restrictor valve is under the floor of the aft cargo compartment.

There are two sill drains for the door 1 left, and one sill drain for the door 1 right. The door sill drain tubes are attached to the sill drain fittings, and to the fusleage stringers at STA 324.4 (Main Equipment Center)

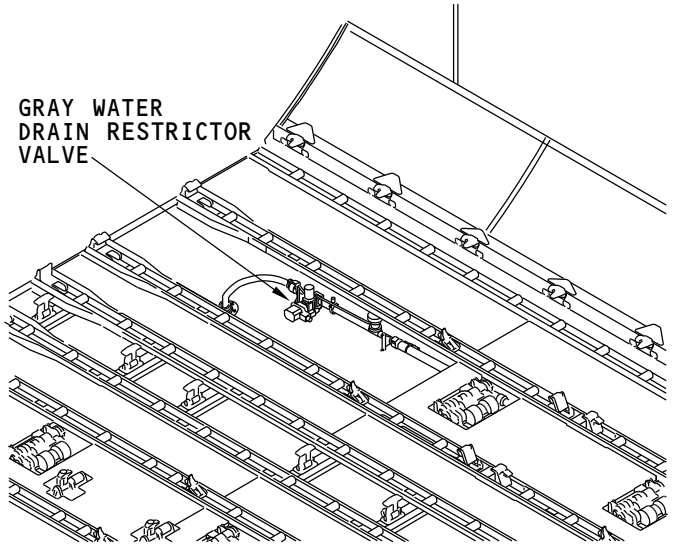




AFT DRAIN MAST
(FWD DRAIN MAST SIMILAR)



FORWARD CARGO COMPARTMENT (TYP)



M43096 S000620370_V1

GRAY WATER DRAIN SYSTEM - COMPONENT LOCATIONS

GRAY WATER DRAIN SYSTEM - DRAIN MAST

Purpose

The drain masts drain waste water from the lavatory and galley sinks overboard.

Heaters in the drain masts do not permit the gray water to freeze and cause a blockage of the line.

Physical Description

There are heaters that are a part of the forward and aft drain masts.

Each drain mast has these components:

- Power wire
- Ground wire
- Ground connector.

Location

The forward mast is on the left wing-to body fairing. It is forward and outboard of the left ECS bay.

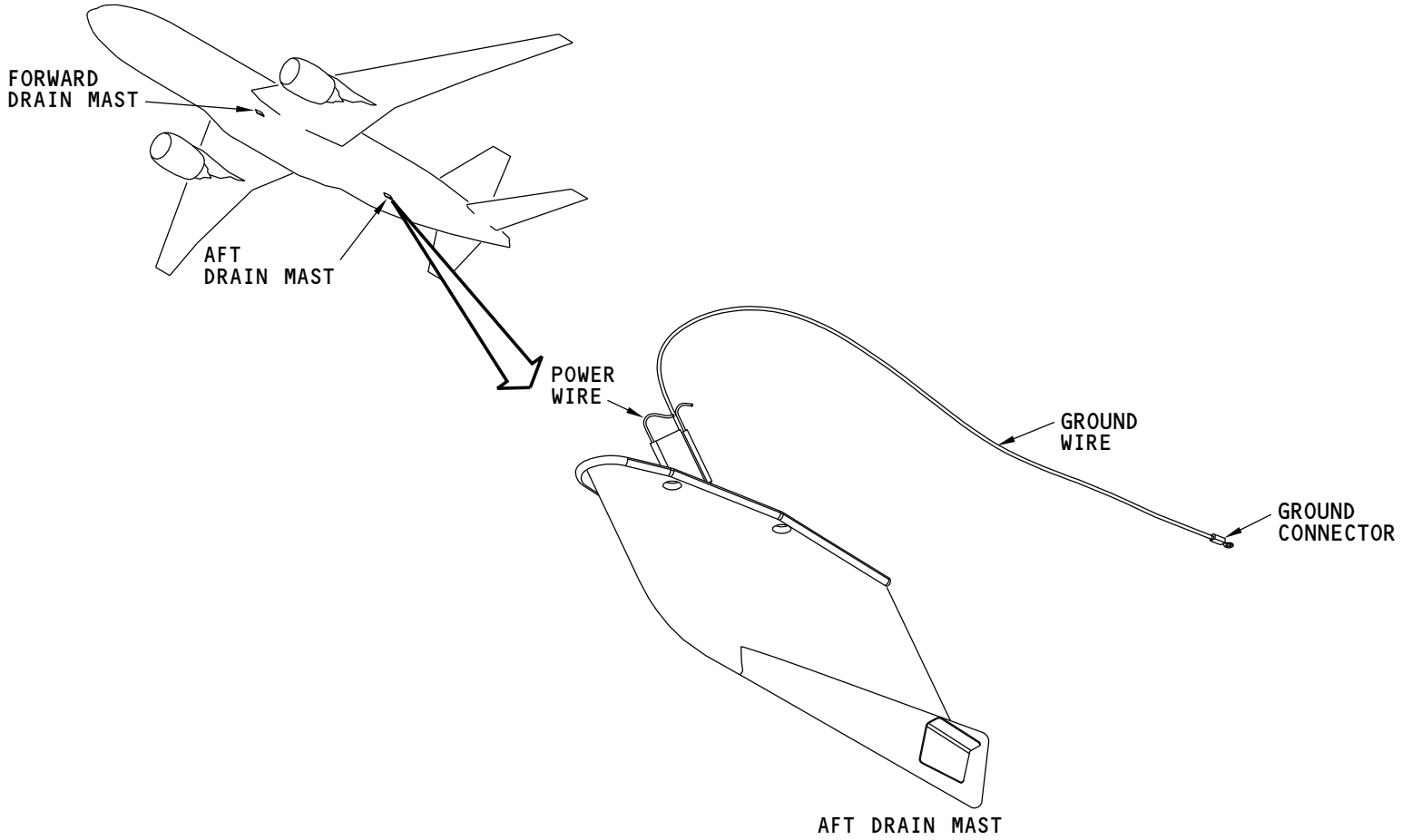
The aft mast is behind the aft cargo compartment door, on the bottom of the airplane.

Drain Mast Heater

See the drain and water supply line heating section for more information about the drain mast heaters (SECTION 30-71).

Training Information Point

You must make a splice in the wires when you replace a drain mast.



M43097 S000620371_V1

GRAY WATER DRAIN SYSTEM - DRAIN MAST

GRAY WATER DRAIN SYSTEM - GRAY WATER DRAIN RESTRICTOR VALVE

Purpose

The gray water drain restrictor valves keep the air flow out of the drain masts to a limit. They prevent noise in the drain lines.

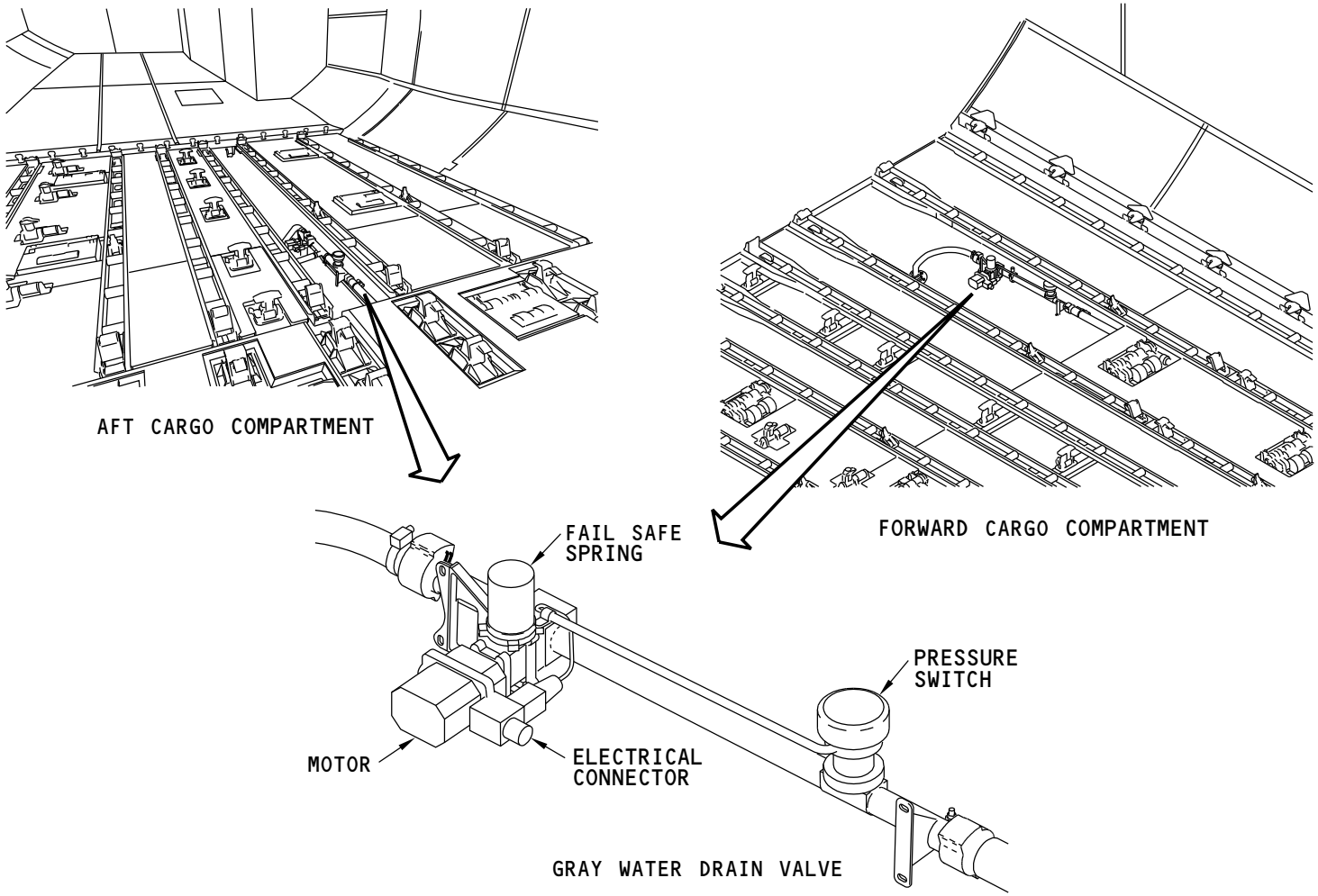
Physical Description

The valve has these components:

- Motor
- Fail safe spring
- Pressure switch
- Electrical connector.

Location

The forward valve is under the floor in the forward cargo compartment. The aft valve is under the floor of the aft cargo compartment.



M43098 S000620372_V2

GRAY WATER DRAIN SYSTEM - GRAY WATER DRAIN RESTRICTOR VALVE

GRAY WATER DRAIN SYSTEM - FUNCTIONAL DECSRIPTION

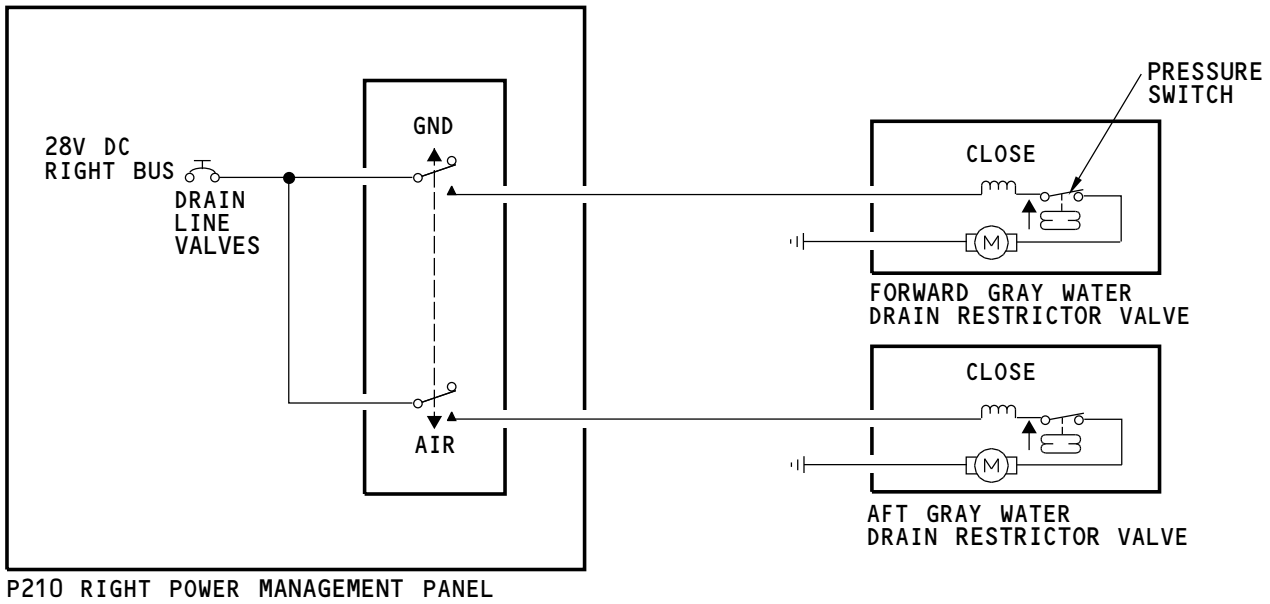
Gray Water Drain Restrictor Valve

The forward and aft gray water drain restrictor valves get power from the right main bus.

The motors move the valves so they are almost closed when the airplane is in the air.

Functional Description

When the pressure in the drain line increases beyond a limit, the pressure switch opens. This de-energizes the motor and the valve opens. This removes any blockage in the line. The pressure switch closes when the pressure decreases.



M43099 S000620373_V2

GRAY WATER DRAIN SYSTEM - FUNCTIONAL DECSRIPTION

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VACUUM WASTE SYSTEM - INTRODUCTION

Purpose

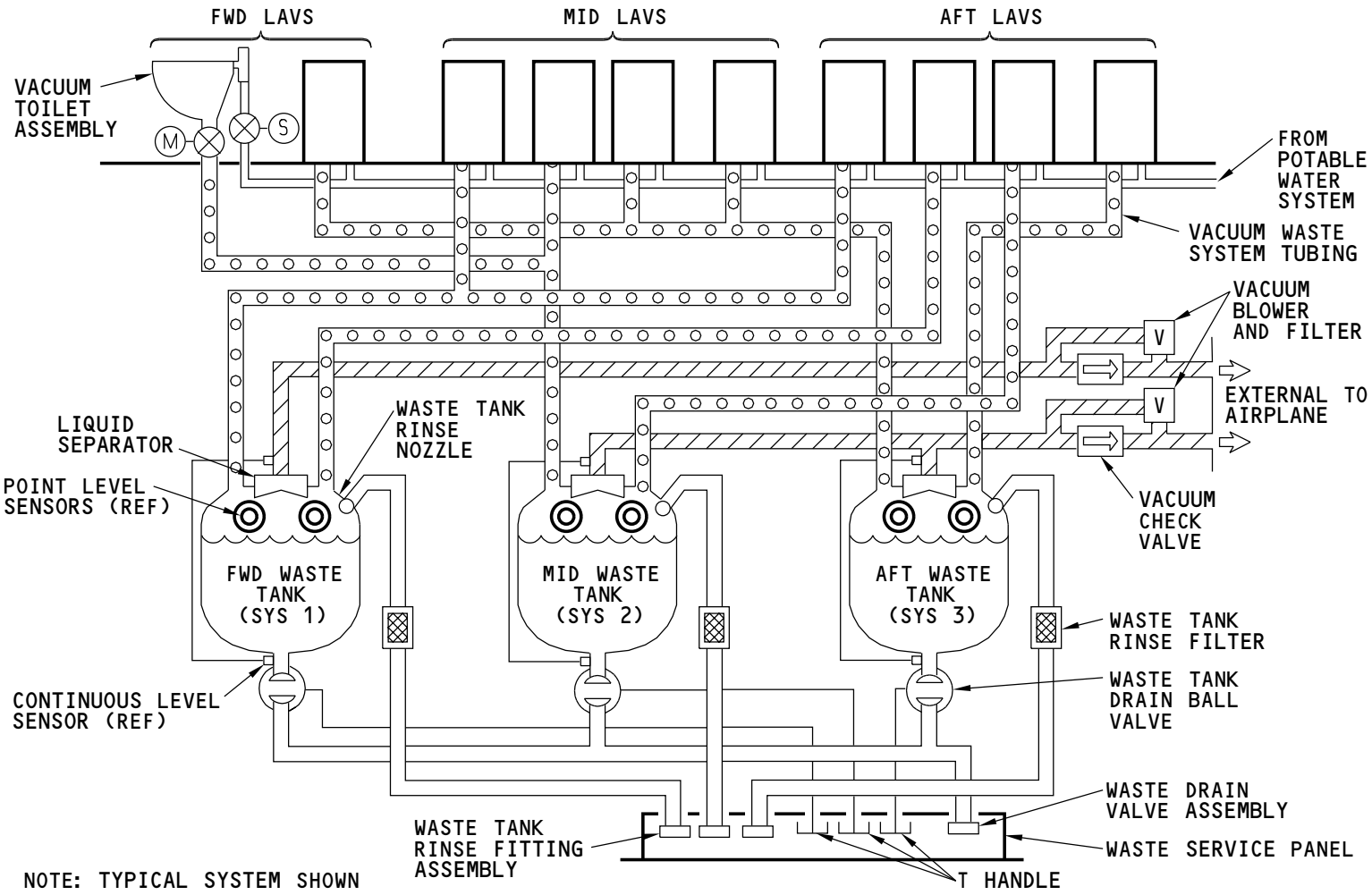
The vacuum waste system removes waste from the toilets and stores it in the waste tanks. The waste stays in the waste tanks until they are serviced.

General Description

Waste collects in the toilet. Suction then moves the waste to the waste tanks. The suction is made by the vacuum blower. The difference between the cabin pressure and the outside pressure also moves the waste to the waste tanks. You remove the waste in the waste tanks through the waste service panel. The T handle in the service panel opens the waste tank drain ball valve. When you open the waste drain valve assembly, you permit the waste tanks to drain.

These components make up the vacuum waste system:

- Vacuum toilet assembly
- Waste tank
- Vacuum blower and filter
- Vacuum blower barometric switch (not shown)
- Vacuum check valve
- Vacuum waste system tubing
- Liquid separator
- Waste tank drain ball-valve
- Waste drain valve assembly
- Waste tank rinse fitting assembly
- Waste tank rinse filter
- Waste tank rinse nozzle.



M43100 S000620374_V1

VACUUM WASTE SYSTEM - INTRODUCTION

VACUUM WASTE SYSTEM - BULK CARGO COMPARTMENT COMPONENT LOCATIONS - 1

Bulk Cargo Compartment Component Locations

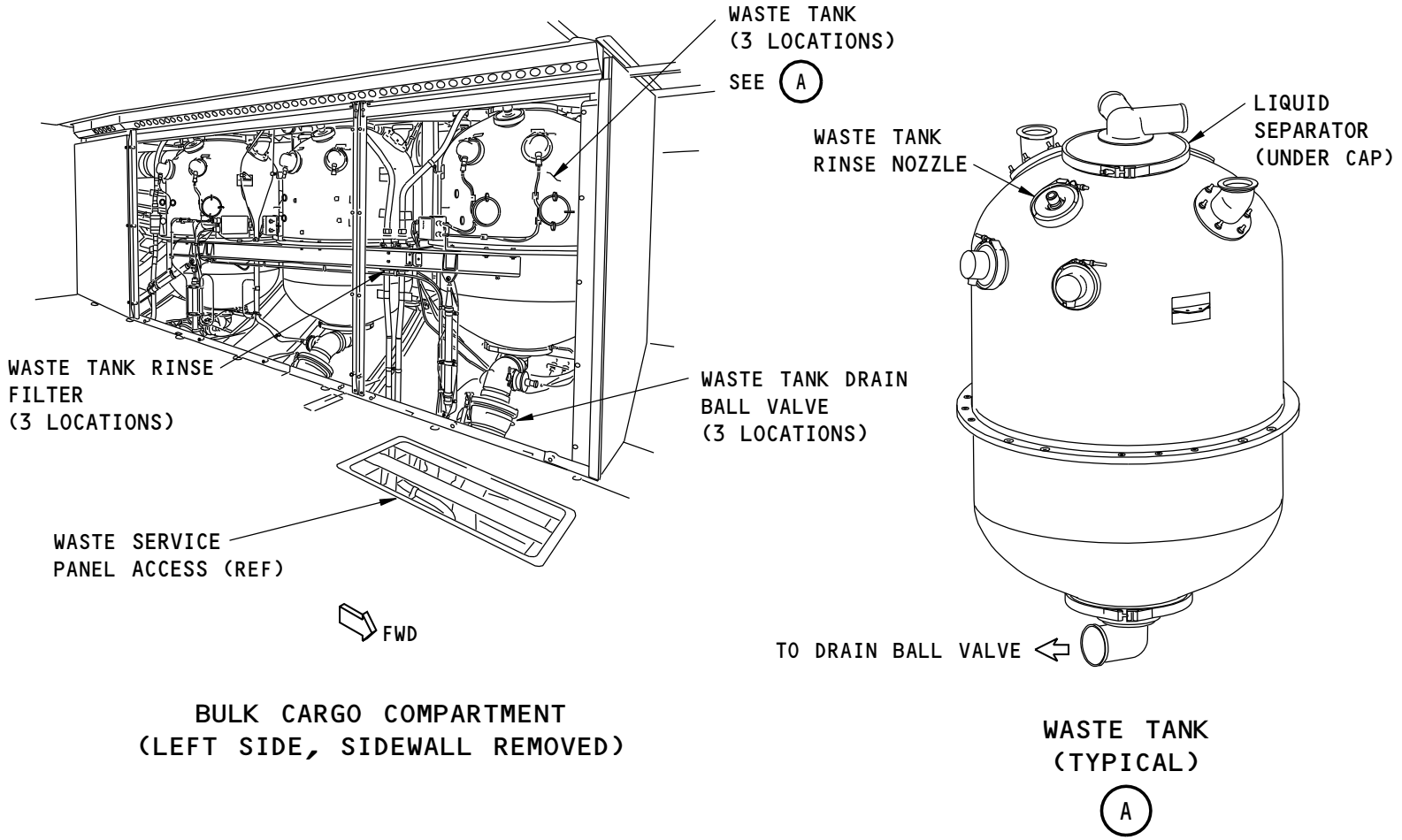
The waste tanks are in the left side of the bulk cargo compartment, behind the side wall.

The waste tank ball valves are below and inboard of each waste tank. They connect to the waste tank near the bulk cargo compartment floor.

There is a waste tank rinse nozzle on each waste tank near the top of the tank.

There is a liquid separator on top of each waste tank. It is inside of the lid of the waste tank.

The filters are in the bulk cargo compartment on the left side, behind the side wall. The filter is up-stream of the rinse nozzle inboard of the waste tank.



N79376 S0000111556_V1

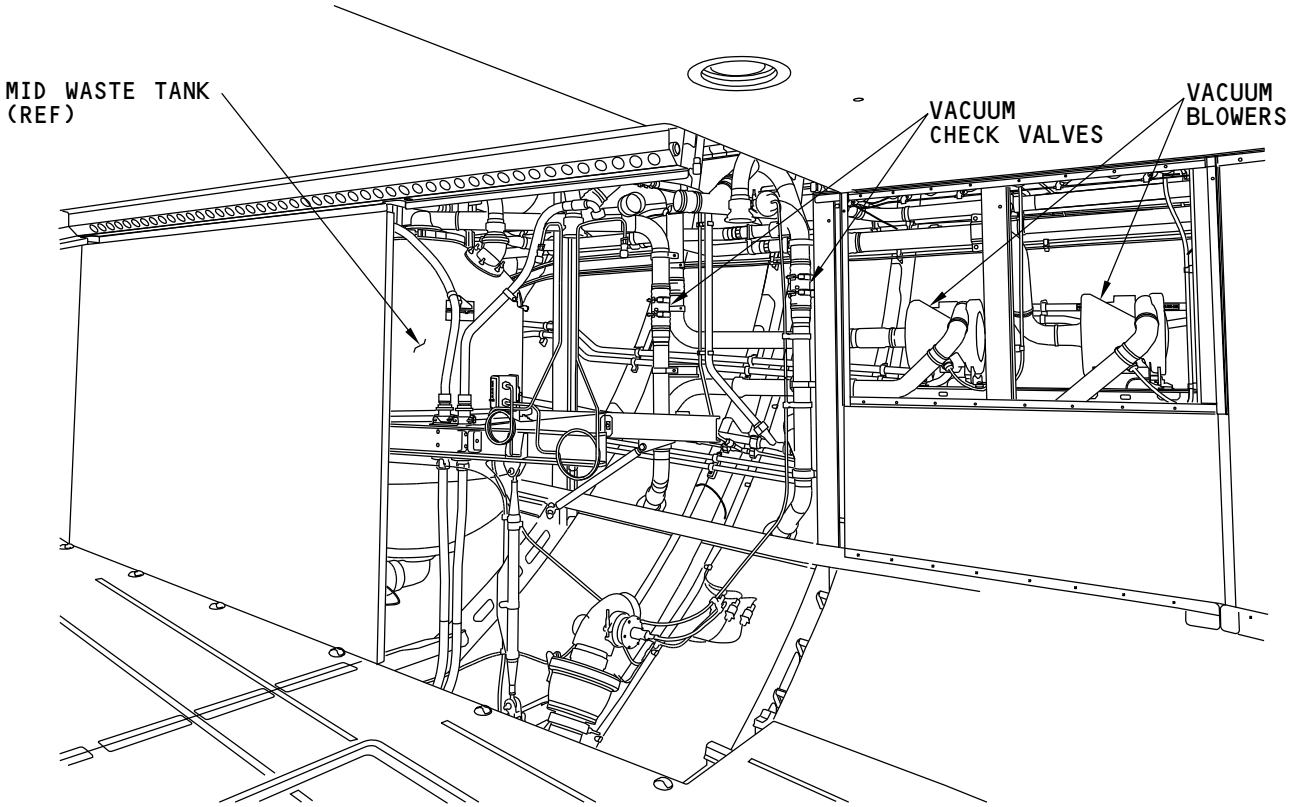
VACUUM WASTE SYSTEM - BULK CARGO COMPARTMENT COMPONENT LOCATIONS - 1

VACUUM WASTE SYSTEM - BULK CARGO COMPARTMENT COMPONENT LOCATIONS - 2

Bulk Cargo Compartment Component Locations

Two vacuum check valves are outboard of the forward and mid waste tanks.

Two vacuum blowers are forward of the forward waste tank.



LEFT SIDE OF BULK CARGO COMPARTMENT
(LOOKING OUTBOARD AND AFT WITH PANELS AND FORWARD TANK REMOVED)

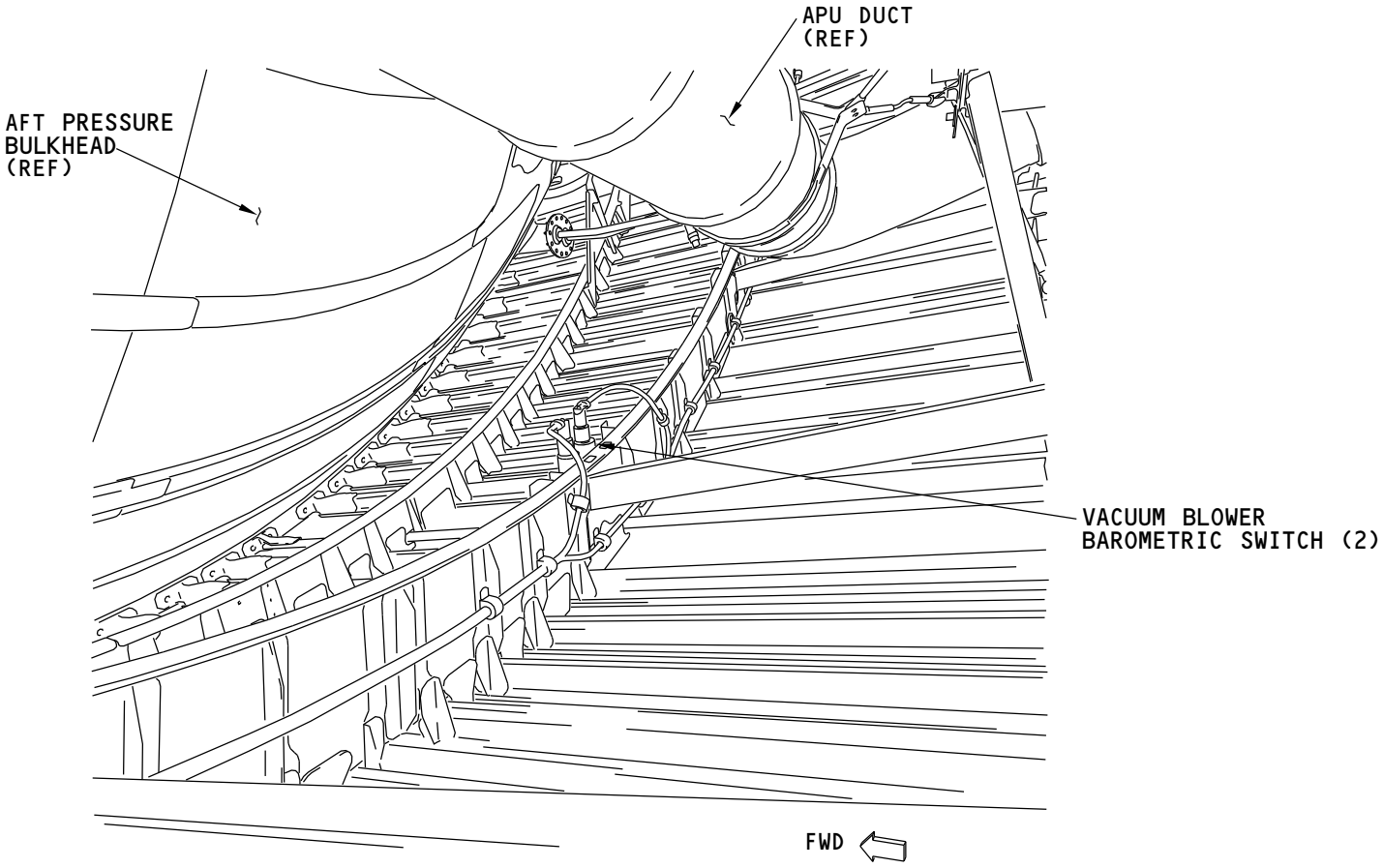
M43103 S000620377_V1

VACUUM WASTE SYSTEM - BULK CARGO COMPARTMENT COMPONENT LOCATIONS - 2

VACUUM WASTE SYSTEM - TAIL COMPONENT LOCATIONS

Component Location

Two vacuum blower barometric switches are immediately aft of the aft pressure bulkhead.



AREA AFT OF THE AFT PRESSURE BULKHEAD
(LOOKING FORWARD AND RIGHT)

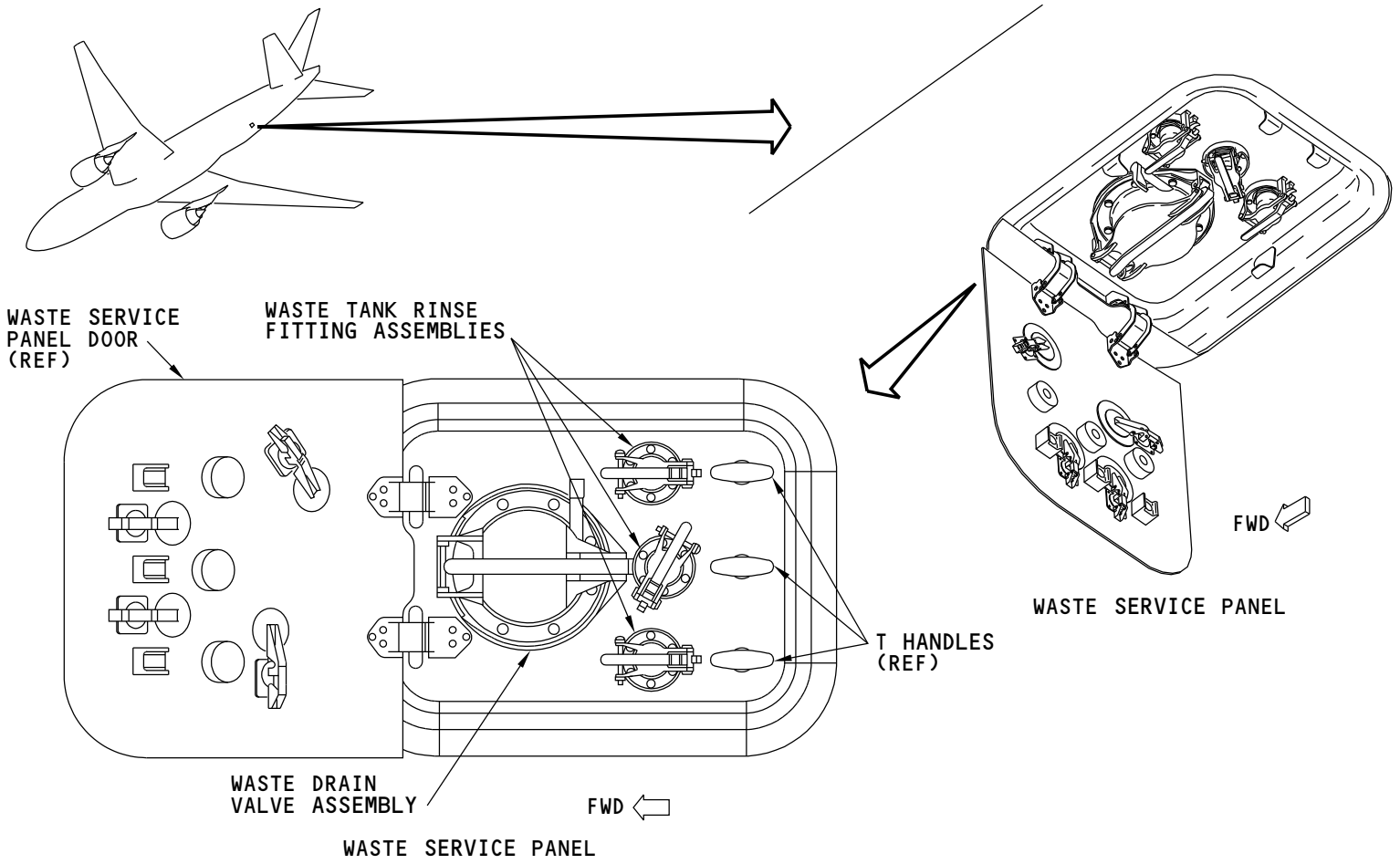
M43105 S000620379_V2

VACUUM WASTE SYSTEM - TAIL COMPONENT LOCATIONS

VACUUM WASTE SYSTEM - WASTE SERVICE PANEL COMPONENT LOCATIONS

Component Locations

Three waste tank rinse fitting assemblies and the waste drain valve assembly are in the waste service panel. You open the waste service panel door to get access to the fitting assemblies and the valve.



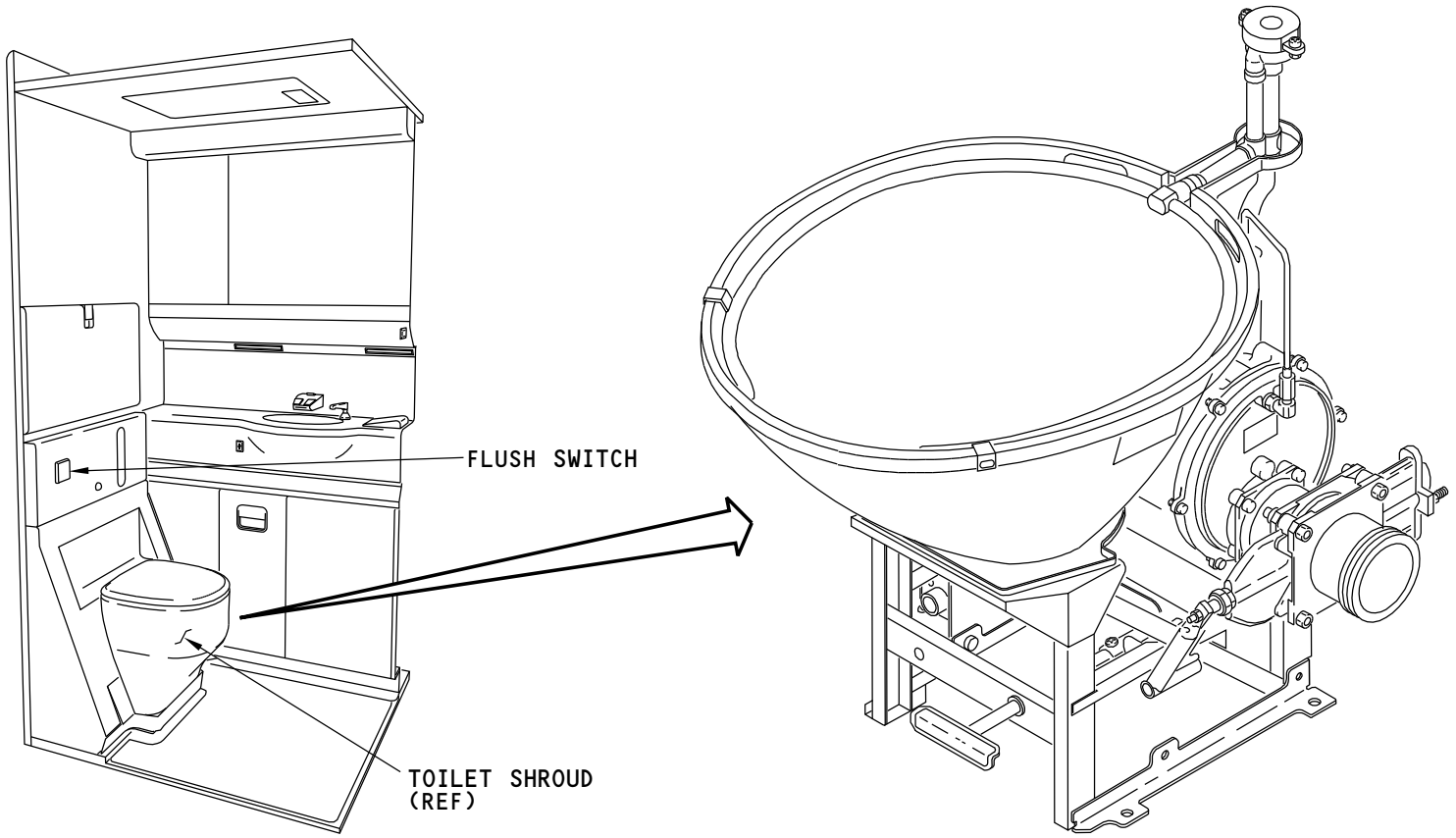
M43106 S000620380_V1

VACUUM WASTE SYSTEM - WASTE SERVICE PANEL COMPONENT LOCATIONS

VACUUM WASTE SYSTEM - LAVATORY COMPONENT LOCATIONS

Component location

A vacuum toilet assembly and a flush switch are in each lavatory. The toilet assembly is under the toilet shroud. For more information about the toilet shroud, see Lavatories - Lavatory Equipment in the Equipment Furnishings section (SECTION 25-40).



M43108 S000620382_V1

VACUUM WASTE SYSTEM - LAVATORY COMPONENT LOCATIONS

VACUUM WASTE SYSTEM - VACUUM TOILET ASSEMBLY

Purpose

The vacuum toilet assembly collects waste.

Physical Description

The vacuum toilet assembly has these parts:

- Rinse ring
- Toilet bowl
- Anti-siphon valve
- Rinse valve
- Flush valve
- Manual shutoff valve
- Manual shutoff handle
- Pedestal
- Manual shutoff valve handle
- Flush control module (FCM).

Location

A vacuum toilet assembly is in each lavatory. It is under the toilet shroud (not shown).

Functional Description

The rinse valve supplies potable water to the rinse ring. When the toilet flushes, the FCM opens the valve for 0.7 seconds and releases water. The rinse ring uses the water to rinse the toilet bowl.

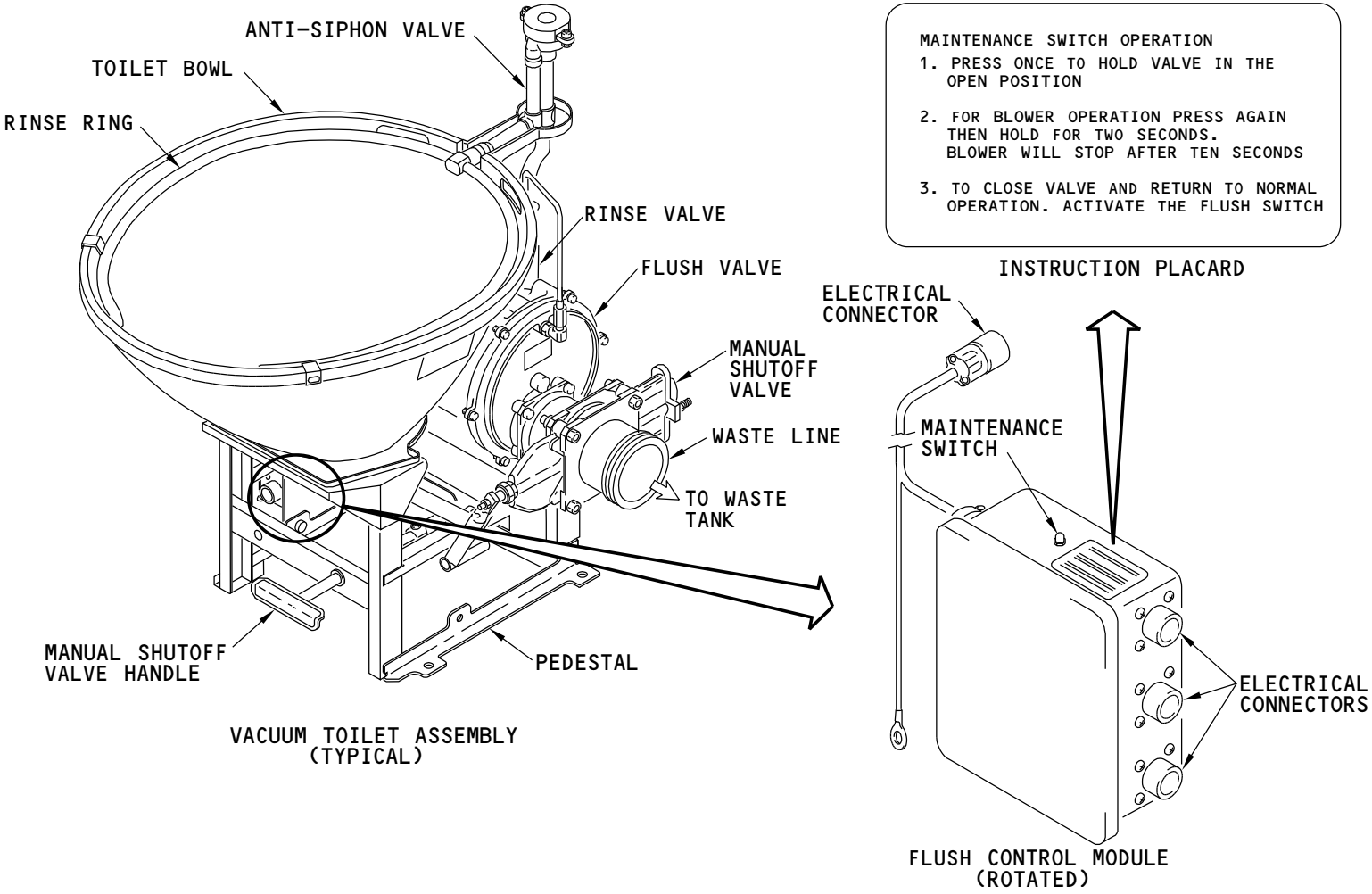
The anti-siphon valve keeps water that is in the rinse ring and the toilet bowl out of the potable water system. This valve makes an air gap between the bowl and the potable water supply.

The flush valve keeps the flow path between the toilet bowl and the waste line closed. The valve opens to let waste move from the toilet bowl to the waste tank. The FCM controls the flush valve.

Training Information Point

If the flush valve fails in the open position, cabin pressure goes out through the vacuum waste system. To prevent this until the toilet is repaired, close the manual shutoff valve. Pull the handle that is below the toilet shroud to close the valve. Push the handle to open the valve.

The flush control module has a maintenance switch. You use this switch if you must keep the flush valve open during maintenance. Push the switch one time to open the flush valve. Push the switch again and hold it in for two seconds to operate the blower. The blower operates for ten seconds and then stops. Operate the toilet flush switch (not shown) to close the flush valve and return the toilet to usual operation.



M43110 S000620384_V1

VACUUM WASTE SYSTEM - VACUUM TOILET ASSEMBLY

VACUUM WASTE SYSTEM - WASTE TANK

Purpose

Waste tanks collect waste from the toilets.

Physical Description

There are three waste tanks on the airplane. All three tanks are 100-gallon (379 liters) tanks and they hold 83 gallons each (314 liters) of waste.

The waste tank is made out of composite materials and has a stainless steel inner liner. The tank has an opening and a cover at each end. The upper cover connects to two vent lines. The lower cover connects to tank drain line.

Two waste inlet fittings attach to the upper part of the tank. Two point level sensors and one rinse nozzle are attached to the inboard side of the tank. The rinse nozzle is above the point level sensors.

See the waste tank quantity indication section for more information on the point level sensors (SECTION 38-33).

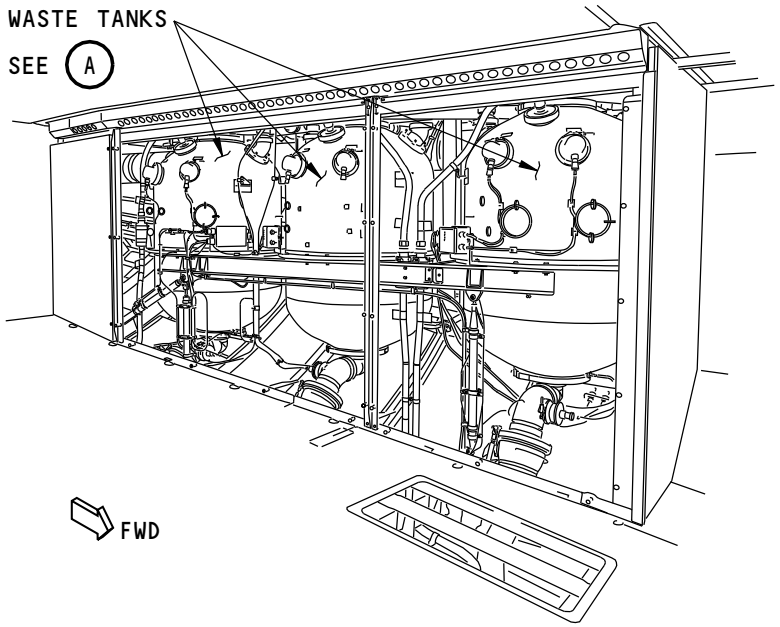
The waste tank has a lower mounting ring. Bolts attach the mounting ring to the tank cradle.

Location

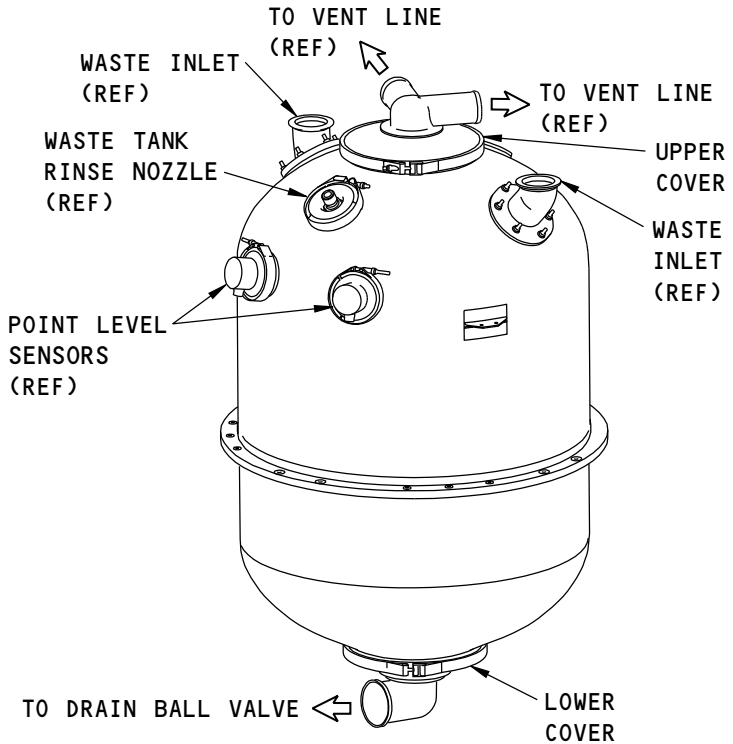
The waste tanks are in the bulk cargo compartment on the left side of the airplane.

Training Information Point

You use the service panel to drain and flush the waste tank before you remove it.



BULK CARGO COMPARTMENT
(LEFT SIDE, SIDEWALL REMOVED)



WASTE TANK
(TYPICAL)
A

N79249 S0000111555_V1

VACUUM WASTE SYSTEM - WASTE TANK

VACUUM WASTE SYSTEM - VACUUM BLOWER

Purpose

The vacuum blower supplies suction for the waste system. The suction moves the toilet rinse water and its contents to the waste tank.

Physical Description

Early vacuum blowers had an air filter. The filter removes particles from the air that cools the blower motor.

An new blower was introduced in November, 2003. These blowers have a sealed motor, are lighter in weight, and do not require a filter. They are interchangable with the previous model.

The vacuum blower has these parts:

- Intake port
- Exhaust port.

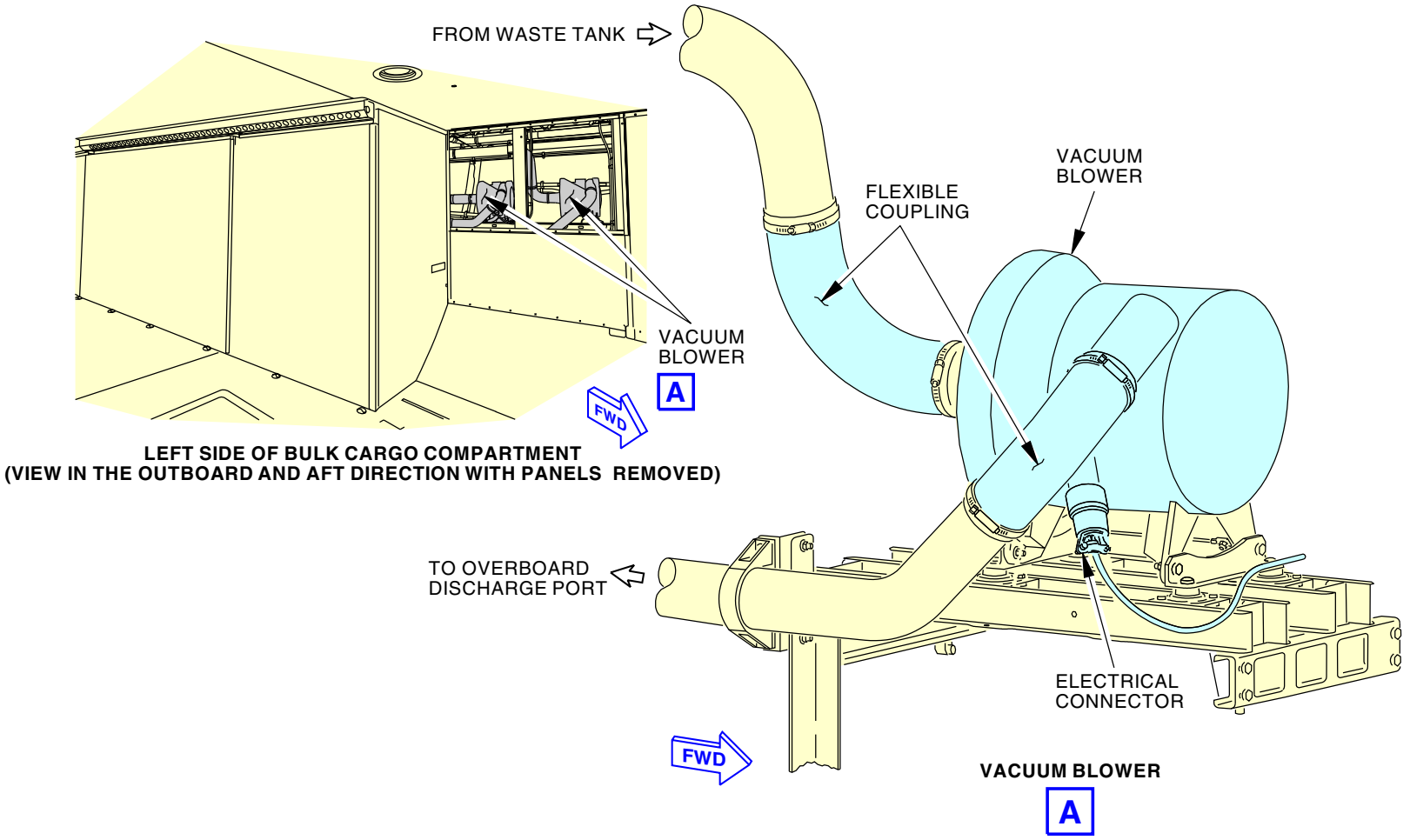
Location

Two vacuum blowers are in the aft cargo compartment on the left side. The vacuum blowers are forward of the waste tanks on a shelf.

Functional Description

The vacuum blowers cause a pressure difference large enough to move the waste from the lavatories to the waste tanks. The vacuum blowers operate if the airplane is below 16,000 feet. When the airplane is above 16,000 feet, the vacuum blowers do not operate. Lower pressure outside the airplane creates a vacuum.

When the airplane is below 16,000 feet, the vacuum blower operates when you select the flush switch.



VACUUM WASTE SYSTEM - VACUUM BLOWER

VACUUM WASTE SYSTEM - VACUUM BLOWER BAROMETRIC SWITCH

Purpose

The vacuum blower barometric switch cuts power to the vacuum blower at about 16,000 ft (4877 m) and when descending, activates the vacuum blower at about 12,000 ft (3658 m).

Physical Description

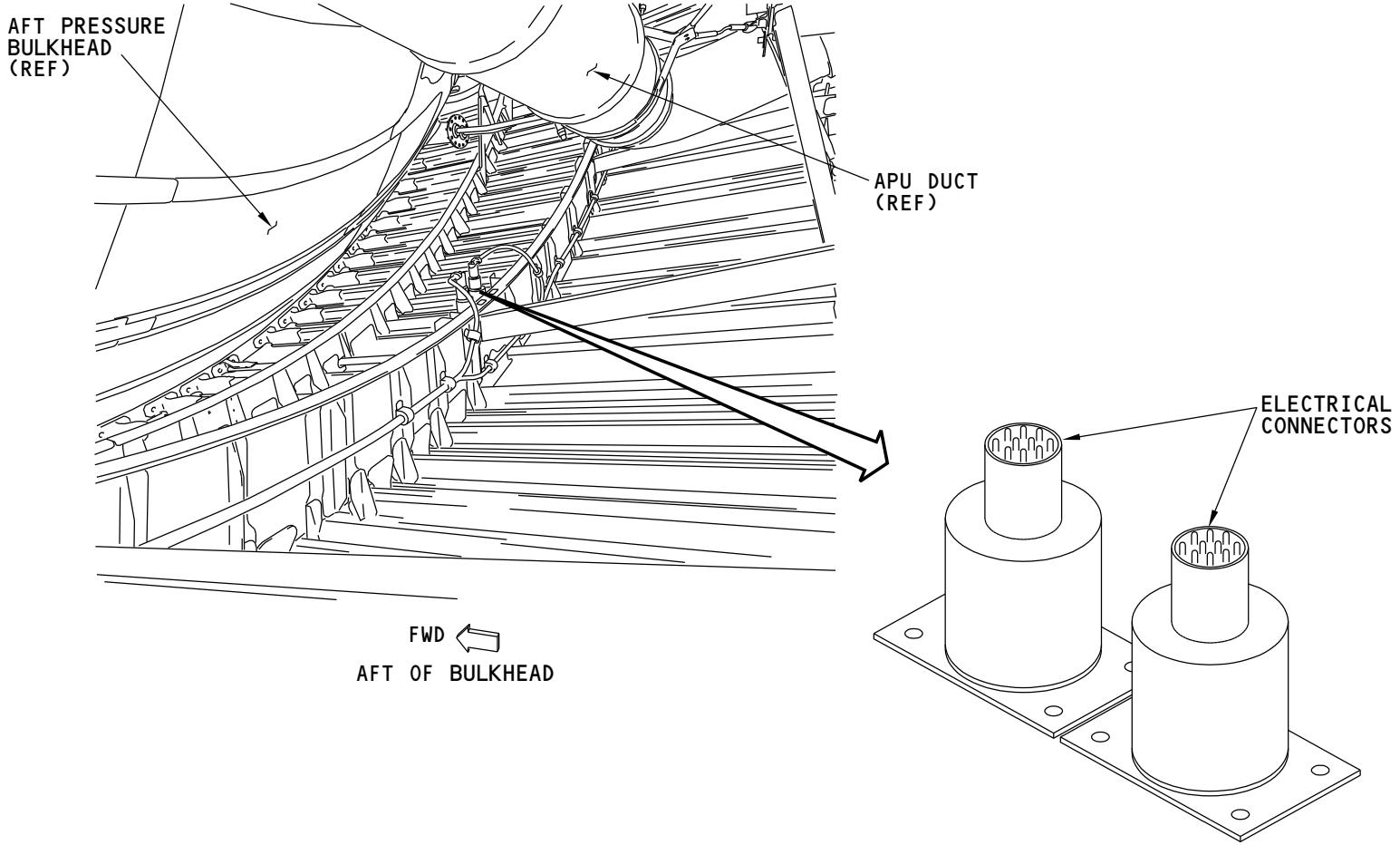
The switch is a microswitch. The microswitch has a capsule and an electrical connector.

Location

Two vacuum blower barometric switches are aft of the bulkhead near the floor on the right side.

Functional Description

The capsule monitors the air pressure outside of the airplane. As the pressure outside decreases the capsule expands. This opens the blower circuit.



M43117 S000620391_V1

VACUUM WASTE SYSTEM - VACUUM BLOWER BAROMETRIC SWITCH

VACUUM WASTE SYSTEM - VACUUM CHECK VALVE

Purpose

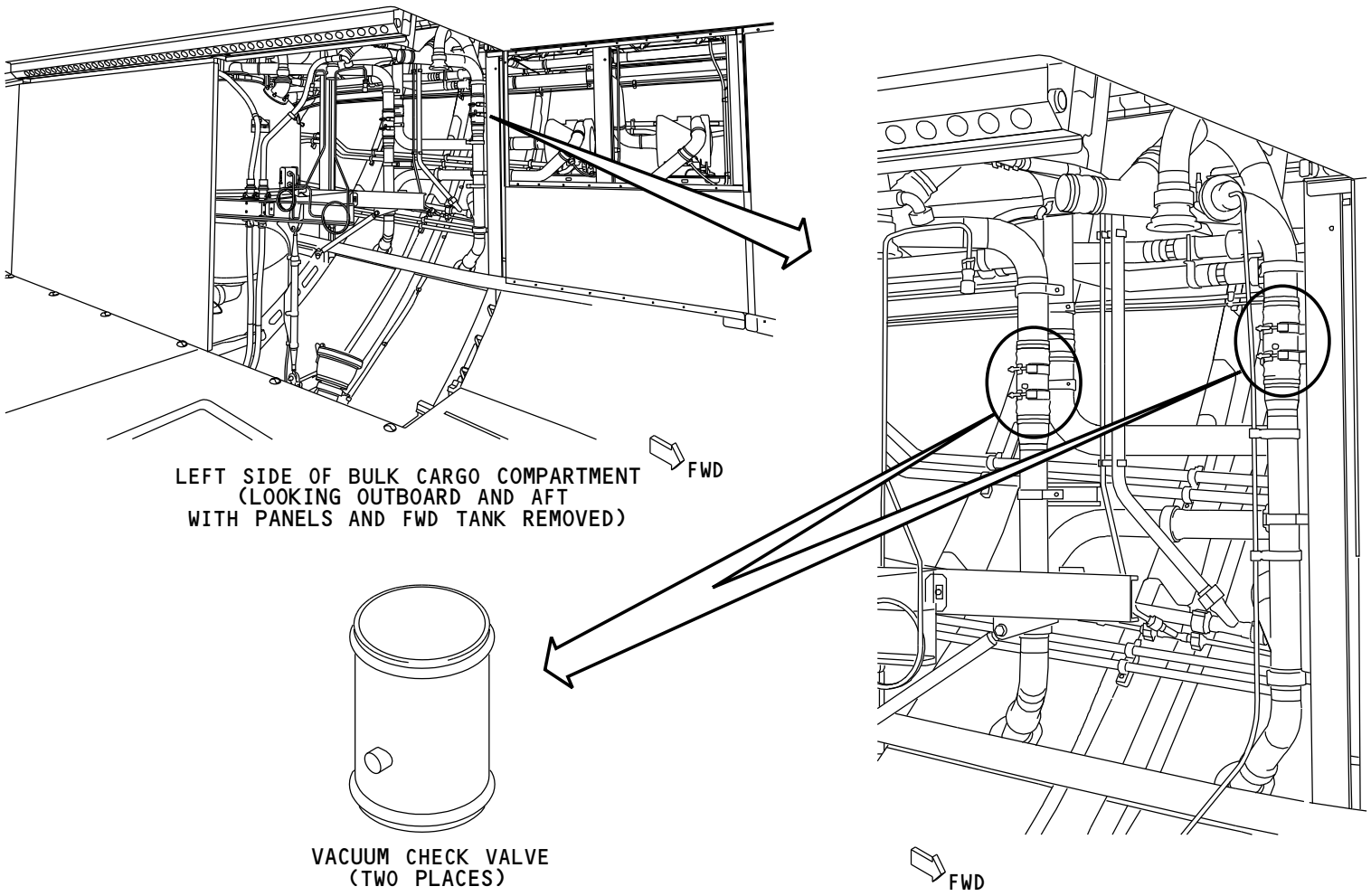
The vacuum check valve prevents reverse air flow through the bypass line when the blower is on.

Physical Description

The check valve is a flapper-type valve.

Location

The check valve is in the aft cargo compartment on the left side. The valve is in the blower bypass line that vents overboard. The valve is aft of the blowers and outboard of the forward waste tank.



M43118 S000620392_V2

VACUUM WASTE SYSTEM - VACUUM CHECK VALVE

VACUUM WASTE SYSTEM - LIQUID SEPARATOR

Purpose

The liquid separator removes moisture and waste particles from the waste tank air before venting the air overboard.

Physical Description

The liquid separator has these parts:

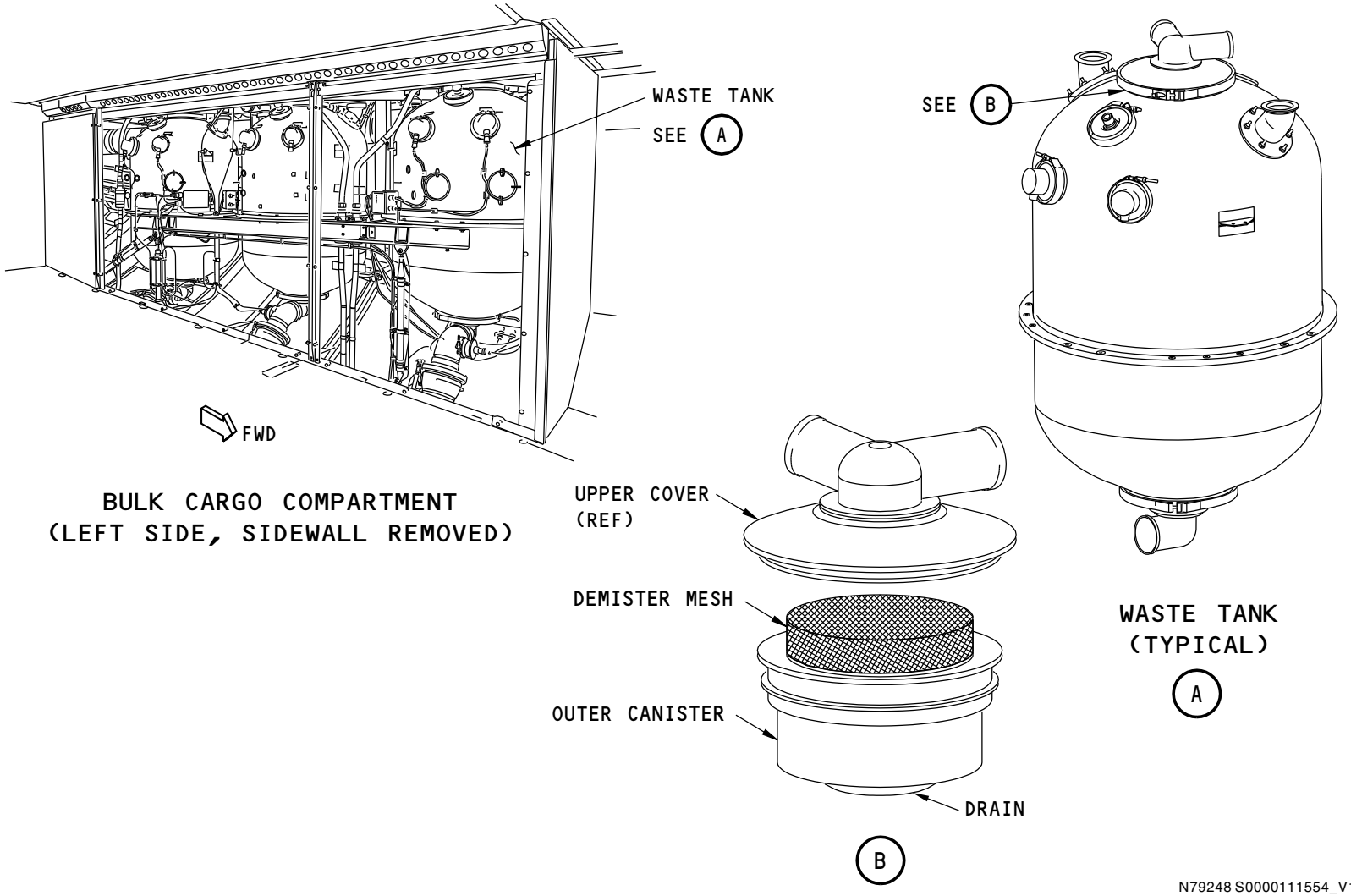
- Demister mesh
- Outer canister
- Inner bowl canister (not shown)

Location

The liquid separator is at the top of each waste tank.

Functional Description

Vents on the outer canister makes sure the air goes in a circular path when air goes into the canister. Centrifugal force removes moisture from the air. The moisture drains out the bottom of the liquid separator. The air then goes into the inner canister and through a demister mesh. The demister mesh removes any material still in the air. The air then goes to the overboard vent line.



VACUUM WASTE SYSTEM - LIQUID SEPARATOR

VACUUM WASTE SYSTEM - WASTE TANK DRAIN BALL-VALVE AND CONTROL CABLE

Purpose

The waste tank drain ball-valve and control cable permit the waste tank to drain.

Physical Description

The waste tank drain ball-valve has these parts:

- Housing
- Actuation lever
- Limit switch.

A T-handle attaches to one end of the control cable. The other end attaches to the actuation lever.

Location

The waste tank drain ball-valve and control cable are in the bulk cargo compartment on the left side. There is a valve and cable for each waste tank. The valve is under the waste tank and the cable goes between the valve and the waste service panel.

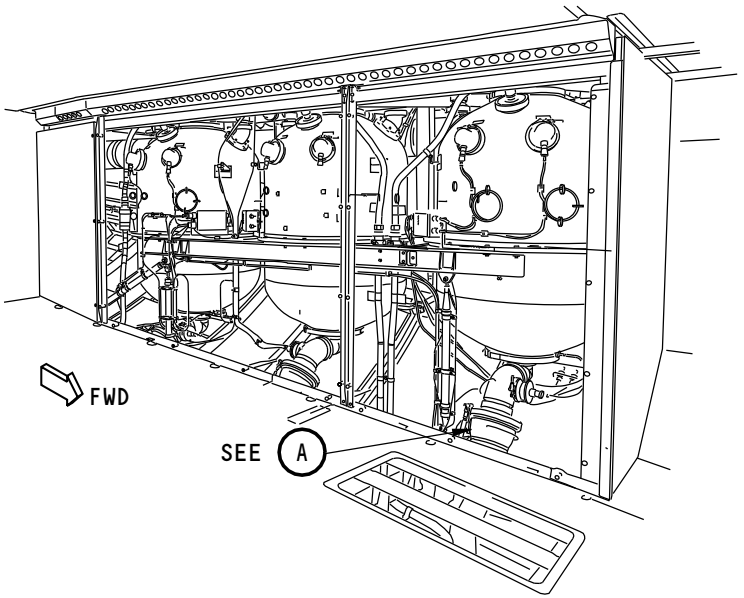
Functional Description

The actuation lever opens and closes the valve. The limit switch stops the operation of the vacuum blower when the valve is not closed. You operate the valve from the service panel. Pull the T handle to open the valve.

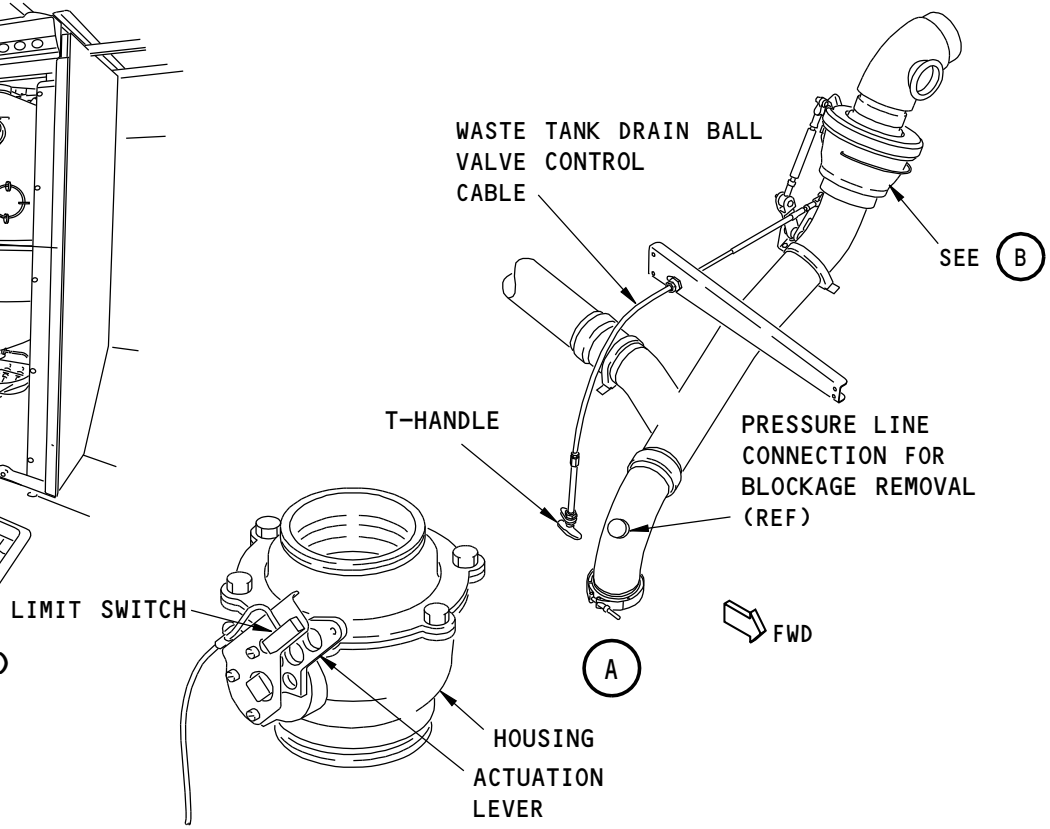
Training Information Point

There is a heater blanket around the ball-valve. This prevents any liquid in the valve from freezing.

See the drain and water supply system section for more information on the heater blanket (SECTION 30-71).



BULK CARGO COMPARTMENT
(LEFT SIDE, SIDEWALL REMOVED)



WASTE TANK DRAIN BALL VALVE
(HEATER BLANKET REMOVED)
(EXAMPLE, 3 LOCATIONS)

B

N79423 S0000111548_V1

VACUUM WASTE SYSTEM - WASTE TANK DRAIN BALL-VALVE AND CONTROL CABLE

VACUUM WASTE SYSTEM - WASTE DRAIN VALVE ASSEMBLY

Purpose

The waste drain valve assembly gives these features:

- Double backup seals to prevent leakage from the waste tanks
- Lets the hose from the service truck connect to the waste drain system.

Location

The valve assembly attaches to the waste service panel. The service panel is in the aft lower left part of the fuselage, aft of the bulk cargo door.

Physical Description

The valve assembly has these parts:

- Push-to-open lever
- Drain cap
- Lock handle
- Inner door
- Fitting.

The push-to-open lever is part of a latch mechanism (not shown) that holds the inner door in the closed position. The latch mechanism and the lever are spring loaded to the latch close position. You use the lever to release the latch.

The drain cap has one of the two backup seals that prevents leakage from the waste tanks. The cap has a hinge that attaches to the base of the valve assembly.

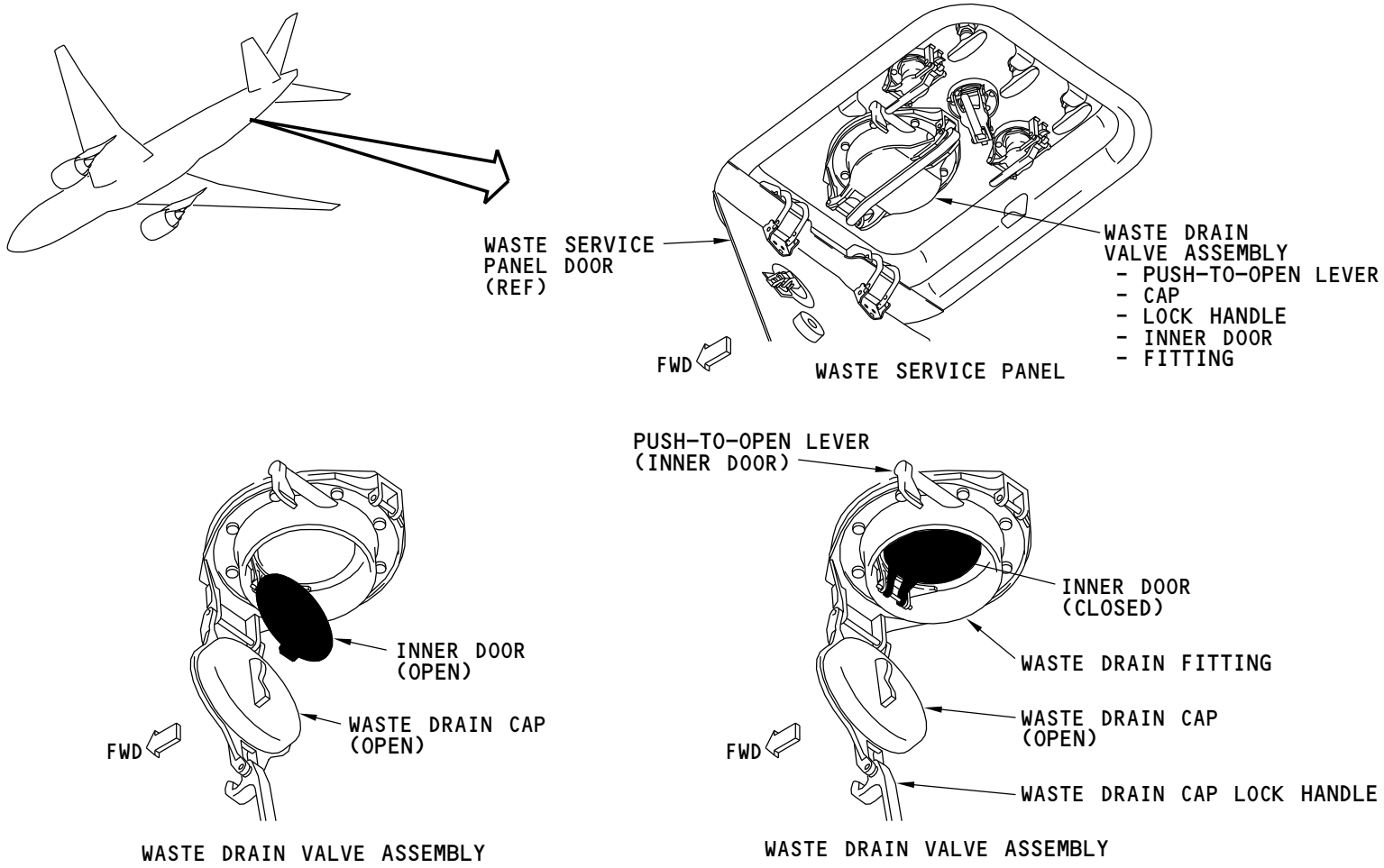
The lock handle is part of the drain cap. The handle holds the drain cap in the closed and sealed position.

The inner door (flapper valve) has the second backup seal that prevents leakage from the waste tanks. The door is spring loaded to the open position. A latch mechanism (not shown) holds the door in the closed and sealed position.

The fitting is a standard 4 inch (10.2 cm) nipple style. The fitting lets you connect a waste drain hose to the lavatory waste tank drain system.

Operation

You use the lock handle to unlock and open or to close and lock the drain cap. You push on the push-to-open lever to open the inner door. The inner door latches to the close position when you close the drain cap. The drain cap has a raised area on the inside that pushes the inner door closed.



M43229 S000620397_V1

VACUUM WASTE SYSTEM - WASTE DRAIN VALVE ASSEMBLY

VACUUM WASTE SYSTEM - WASTE TANK RINSE FITTING ASSEMBLY

Purpose

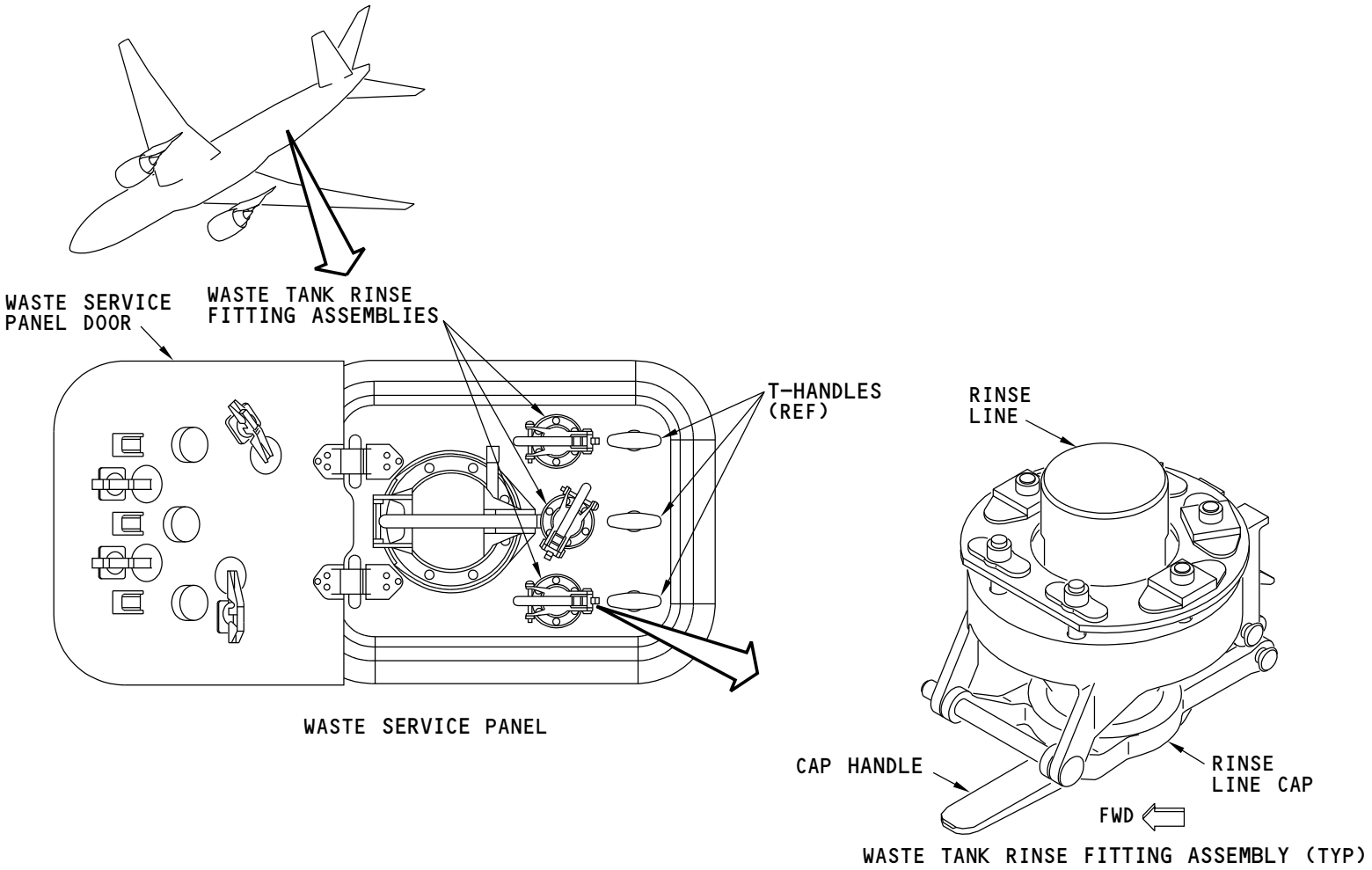
The waste tank rinse fitting assembly supplies routing for supply water to rinse the waste tanks.

Physical Description

The waste tank rinse fitting assembly is made of stainless steel. The rinse cap has a rubber seal. This seals the fitting when closed.

Location

Three waste tank rinse fitting assemblies are in the waste service panel.



M43123 S000620398_V1

VACUUM WASTE SYSTEM - WASTE TANK RINSE FITTING ASSEMBLY

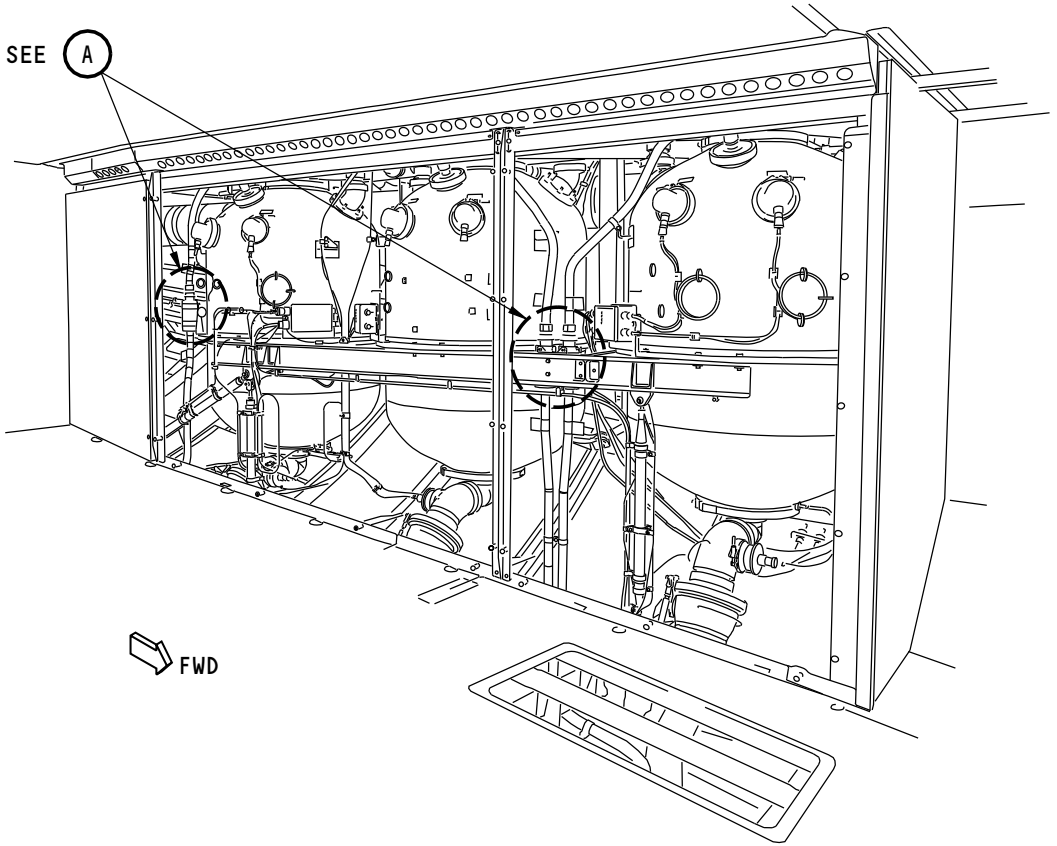
VACUUM WASTE SYSTEM - WASTE TANK RINSE FILTER

Purpose

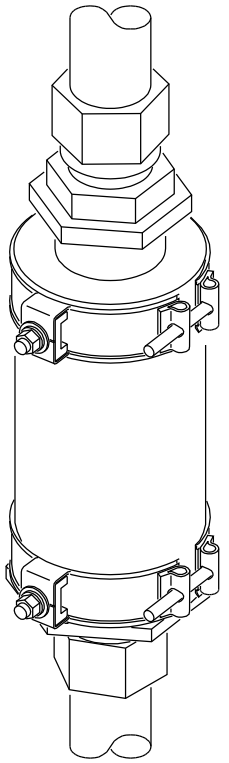
The waste tank rinse filter removes small particles as the rinse water goes through it.

Location

The filter is in the bulk cargo compartment on the left side. The filter is between the waste tank rinse fitting assembly and the rinse nozzle. There are three filters. One is inboard of each waste tank.



BULK CARGO COMPARTMENT
(LEFT SIDE, SIDEWALL REMOVED)



WASTE TANK
RINSE FILTER
(EXAMPLE)

A

N79232 S0000111545_V1

VACUUM WASTE SYSTEM - WASTE TANK RINSE FILTER

VACUUM WASTE SYSTEM - WASTE TANK RINSE NOZZLE

Purpose

The waste tank rinse nozzle points rinse water at the point level sensors and the waste tank interior surface. The rinse nozzle removes waste material from the point level sensors. The rinse nozzle also supplies precharge into the waste tanks.

Physical Description

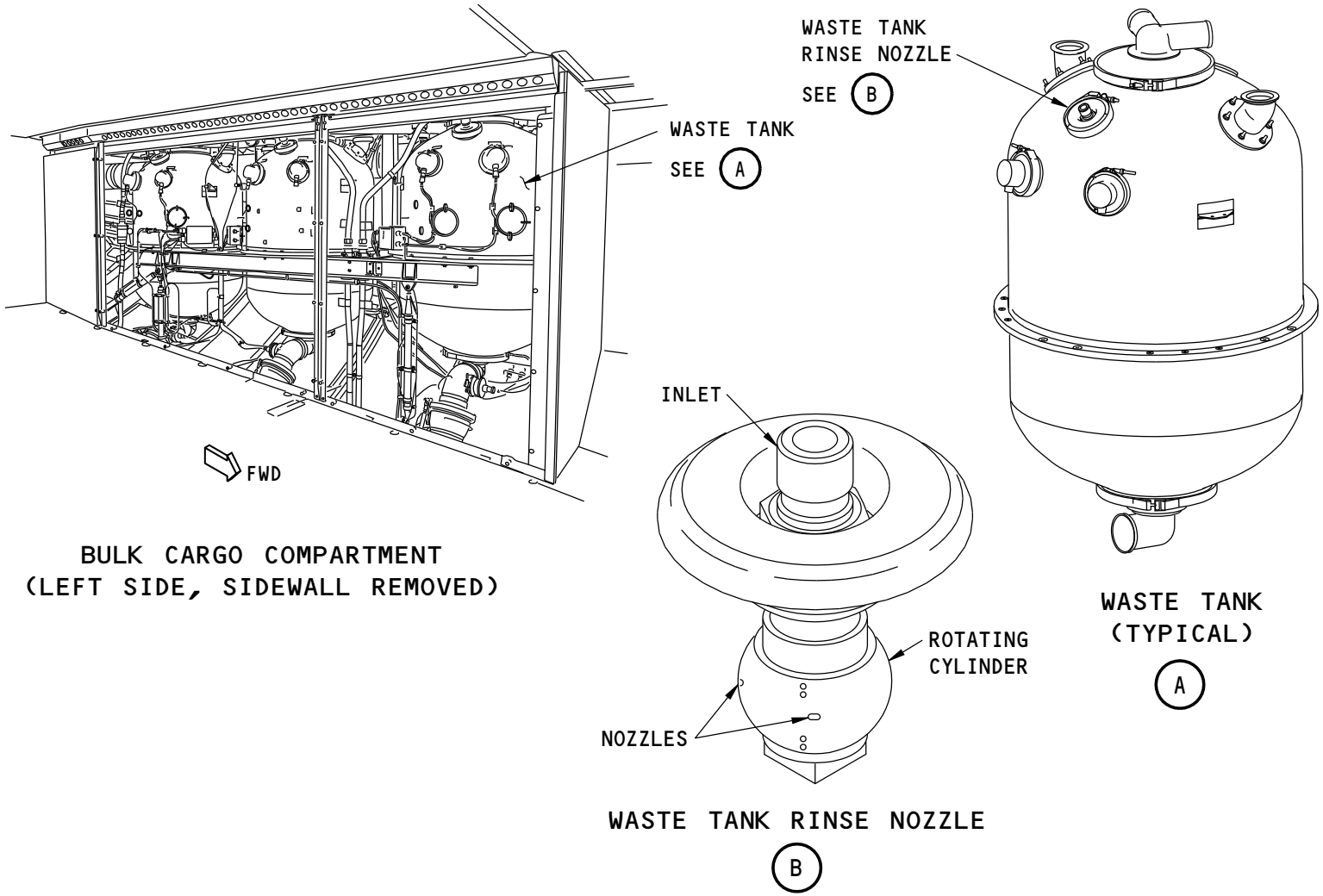
The nozzle has an inlet and rotating cylinder with a shaft. The nozzle inlet is stainless steel. The rotating cylinder and shaft are teflon-filled nylon.

Location

The rinse nozzle attaches to the waste tank. The rinse nozzle is near the top of the waste tank on the inboard side.

Functional Description

The rinse water goes in the inlet and out the rotating rinse nozzle. The nozzle has ports that point the rinse water at the point level sensors.



N79247 S0000111530_V1

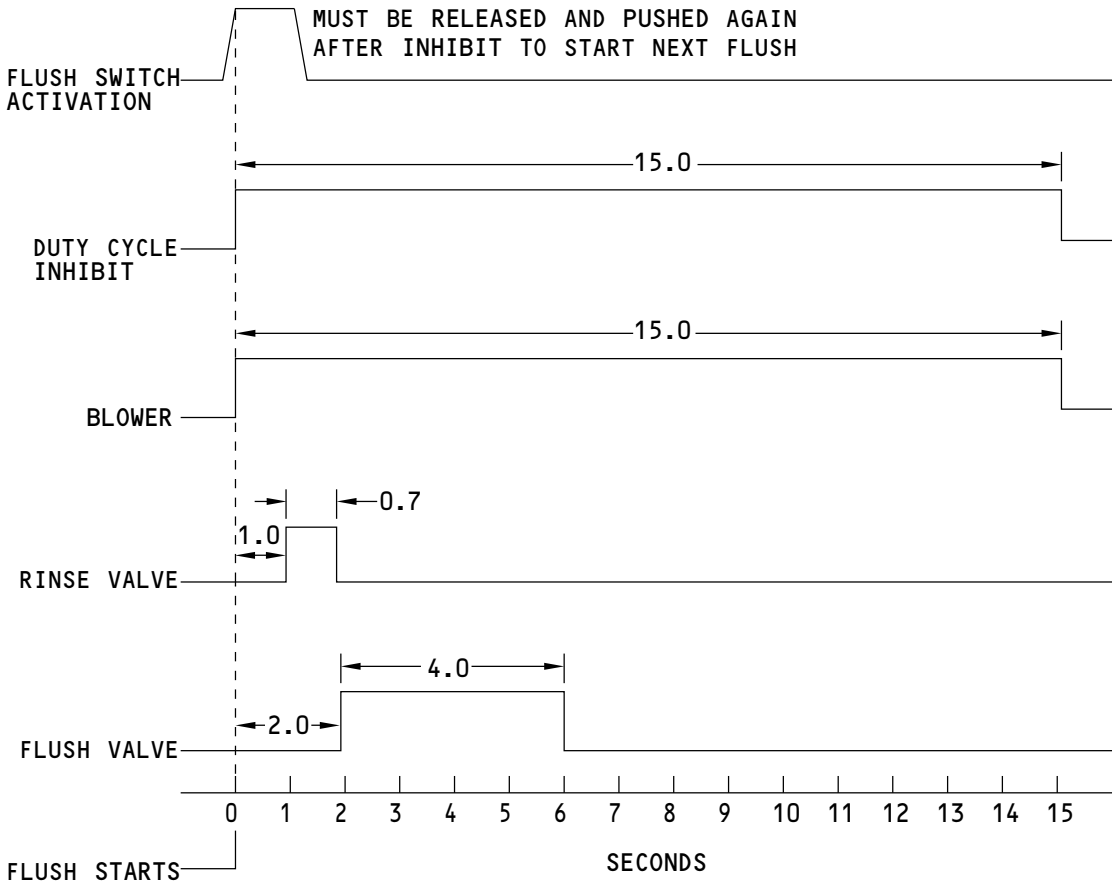
VACUUM WASTE SYSTEM - WASTE TANK RINSE NOZZLE

VACUUM WASTE SYSTEM - FLUSH CYCLE - FUNCTIONAL DESCRIPTION

Lavatory Flush Cycle Operation

One second after you push the flush switch, the rinse valve opens. The rinse valve stays open for 0.7 seconds. Eight ounces of potable water goes into the toilet bowl during this time. Two seconds after the flush cycle starts, the flush valve opens. The flush valve opens for four seconds then closes.

There is no flush cycle if the tank ball valve is open or if the related waste tank if full.



M43128 S000620403_V1

VACUUM WASTE SYSTEM - FLUSH CYCLE - FUNCTIONAL DESCRIPTION

VACUUM WASTE SYSTEM - FUNCTIONAL DESCRIPTION - LAVATORY FLUSH CONTROL

General

There are three lavatory waste systems:

- Waste system one (forward waste tank)
- Waste system two (middle waste tank)
- Waste system three (aft waste tank).

The waste systems have these control circuits:

- Toilet flush/maintenance control
- Vacuum blower control.

There is one toilet flush/maintenance control circuit for each lavatory. A typical circuit shows.

There are two vacuum blower control circuits. Waste system one uses one of the circuits (shown). Waste systems two and three use the other circuit (not shown). The two vacuum blower control circuits are independent.

For the control circuits, these are the most important components and their functions:

- Flush control module (FCM): supplies the control logic for blower and toilet operation
- Tank ball-valve limit switch: prevents blower operation when the valve is open
- Barometric switch: prevents blower operation when airplane altitude is above 16,000 feet (4877 meters)
- Vacuum blower overheat switches: stops the blower if it gets too hot
- The tank logic control module: controls when power goes to the flush control modules (enables/disables toilet flushing).

Toilet Flush/Vacuum Blower Control

When you push the flush switch, the flush control module starts a flush cycle that continues for 15 seconds. The flush control logic sets the sequence of operation for the blower, rinse valve, and the flush valve.

All of these conditions must occur before a flush cycle can start:

- Waste tank: not full
- Point level sensors: one or both serviceable
- Flush switch: push
- Operation power: available, left (right) bus
- Control power: available, left (right) bus or ground handling bus.

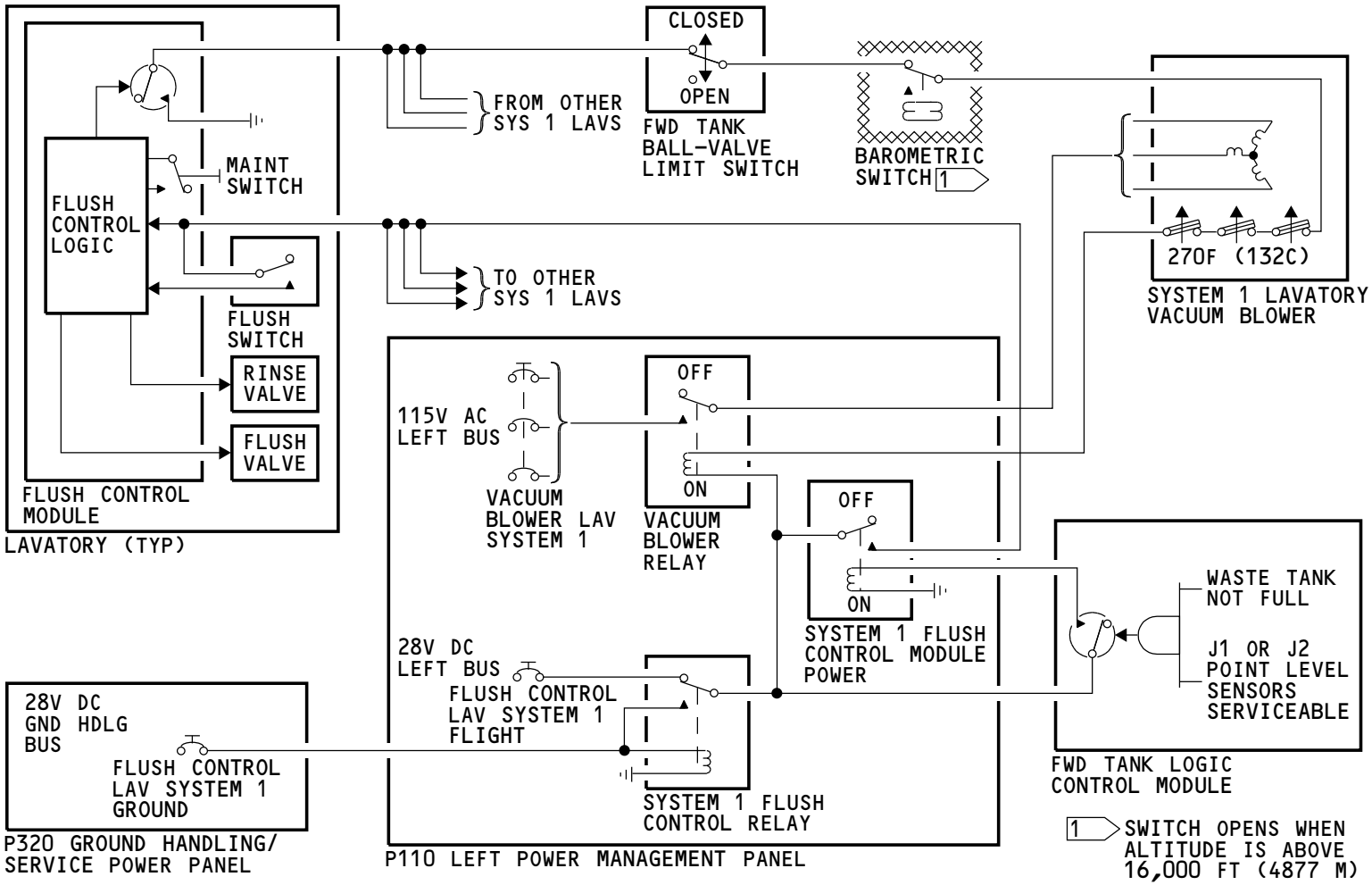
All of these conditions must occur before the vacuum blower operates as part of the flush cycle:

- Tank ball valve: closed
- Airplane altitude: below 16,000 feet (4877 meters)
- Vacuum blower motor: no overheat.

If you push the flush switch when a cycle is active, a new cycle will not start. You can only start a new cycle when a flush cycle is complete.

Toilet Maintenance/Vacuum Blower Control

You use the maintenance switch on the flush control module to cause the flush valve to open. You also use the maintenance switch to operate a vacuum blower for 10 seconds. The flush control module goes back to normal operation when you push the flush switch. The maintenance switch operates when power is available to the flush control module.



M43130 S000620405_V1

VACUUM WASTE SYSTEM - FUNCTIONAL DESCRIPTION - LAVATORY FLUSH CONTROL

VACUUM WASTE SYSTEM - TRAINING INFORMATION POINTS - SERVICING

General

Service the lavatory waste tanks through the waste service panel. The panel is located in the aft lower left part of the fuselage, aft of the bulk cargo door. You need a stand to access the panel. The height above the ground changes with airplane weight. Panel height has this range:

- 117.4 inches (298.2 cm) minimum
- 126.1 inches (320.3 cm) maximum.

The service panel has these components:

- Access door assembly
- Waste drain valve assembly
- Rinse fitting assembly (3)
- T handle (3).

The access door has bumpers that prevent you from closing the door if the service panel is not set for usual operation.

The waste drain valve assembly has these components:

- Push-to-Open lever, used to open the inner door
- Cap
- Lock handle
- Inner door
- Fitting, usual 4 inch (10.2 cm).

The rinse fitting assemblies have these components:

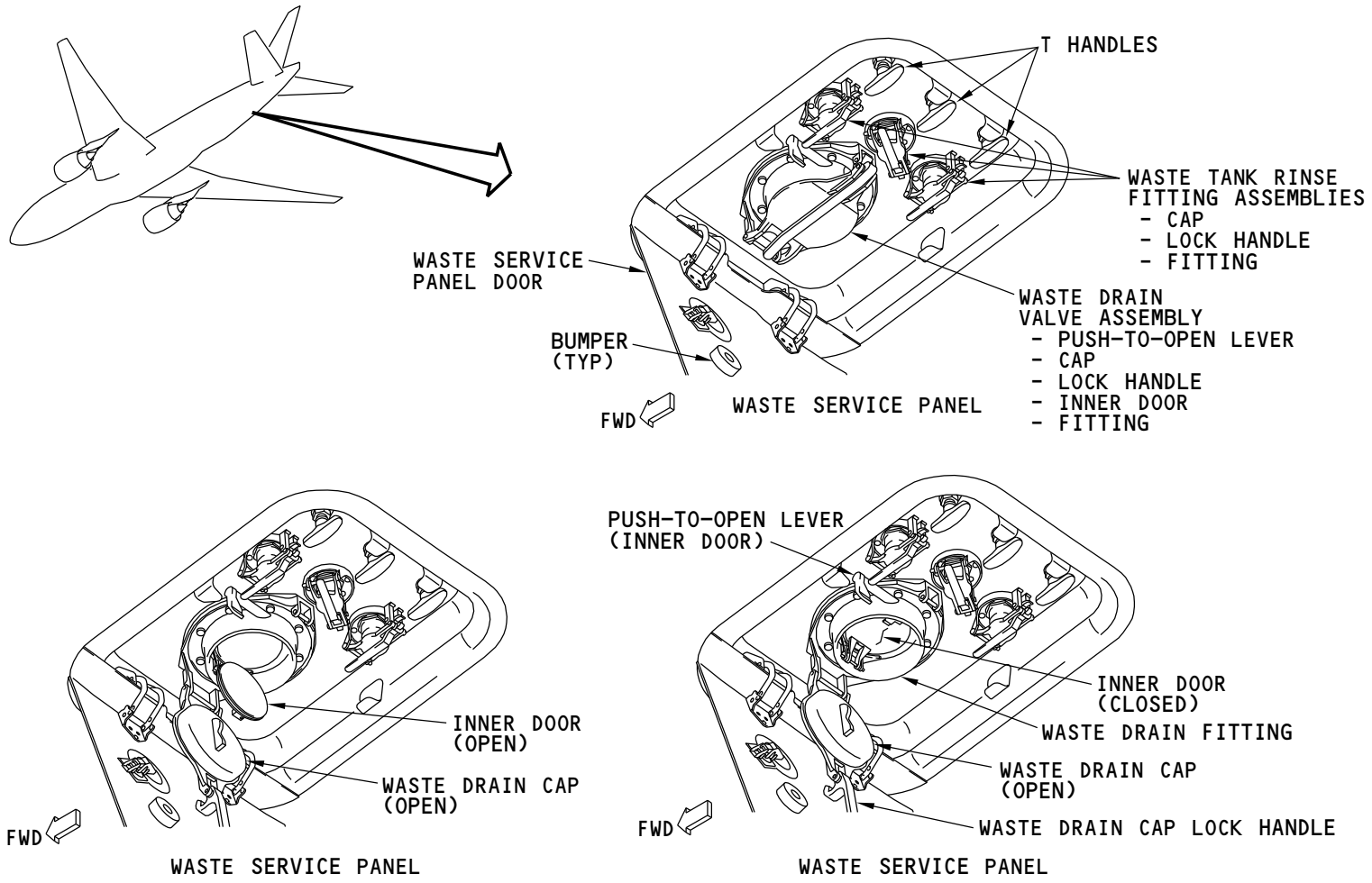
- Cap
- Lock handle
- Fitting, usual 1 inch (2.5 cm).

Toilet Waste System Servicing

To drain, flush (rinse) and precharge the waste system you must do these tasks:

- Open the waste drain cap
- Connect waste drain hose to the waste drain fitting
- Push the push-to-open lever on the waste drain valve assembly to open the inner door
- Pull one of the T handles to empty the waste tank. Repeat this step for the other tanks.
- Connect ground flush lines to the rinse fittings
- Flush (rinse) each waste tank.
- Drain each tank of the flushing liquid.
- Push up each T handle to close the waste tank drain ball-valve
- Wait one minute after pushing all T handles up then remove the waste drain hose from the waste drain fitting. This prevents liquid from freezing in the waste drain line.
- Close the waste drain cap, the inner door latches close when you close the cap
- Add a wet or dry precharge chemical to each waste tank.
- Disconnect the ground flush lines, let the rinse fitting drain for one minute. This prevents liquid from freezing in the rinse line
- Close the cap for the rinse fittings
- Close the service panel.

The rinse lines that connect the rinse fittings to the waste tanks and the waste tank drain lines that connect the waste drain valve to the waste tank ball valves are not heated. To prevent liquid from freezing in these lines, make sure you let the lines drain before you close the related caps.



M43134 S000620409_V1

VACUUM WASTE SYSTEM - TRAINING INFORMATION POINTS - SERVICING

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WASTE TANK QUANTITY INDICATION - INTRODUCTION

General

The waste tank quantity indication system gives data about the amount of waste in the tanks. It also stops power to the toilets if the waste tank is full.

These components are in the waste tank quantity indication system:

- Waste tank point level sensors (6)
- Waste tank continuous level sensors (3)
- Logic control modules (LCM) (3).

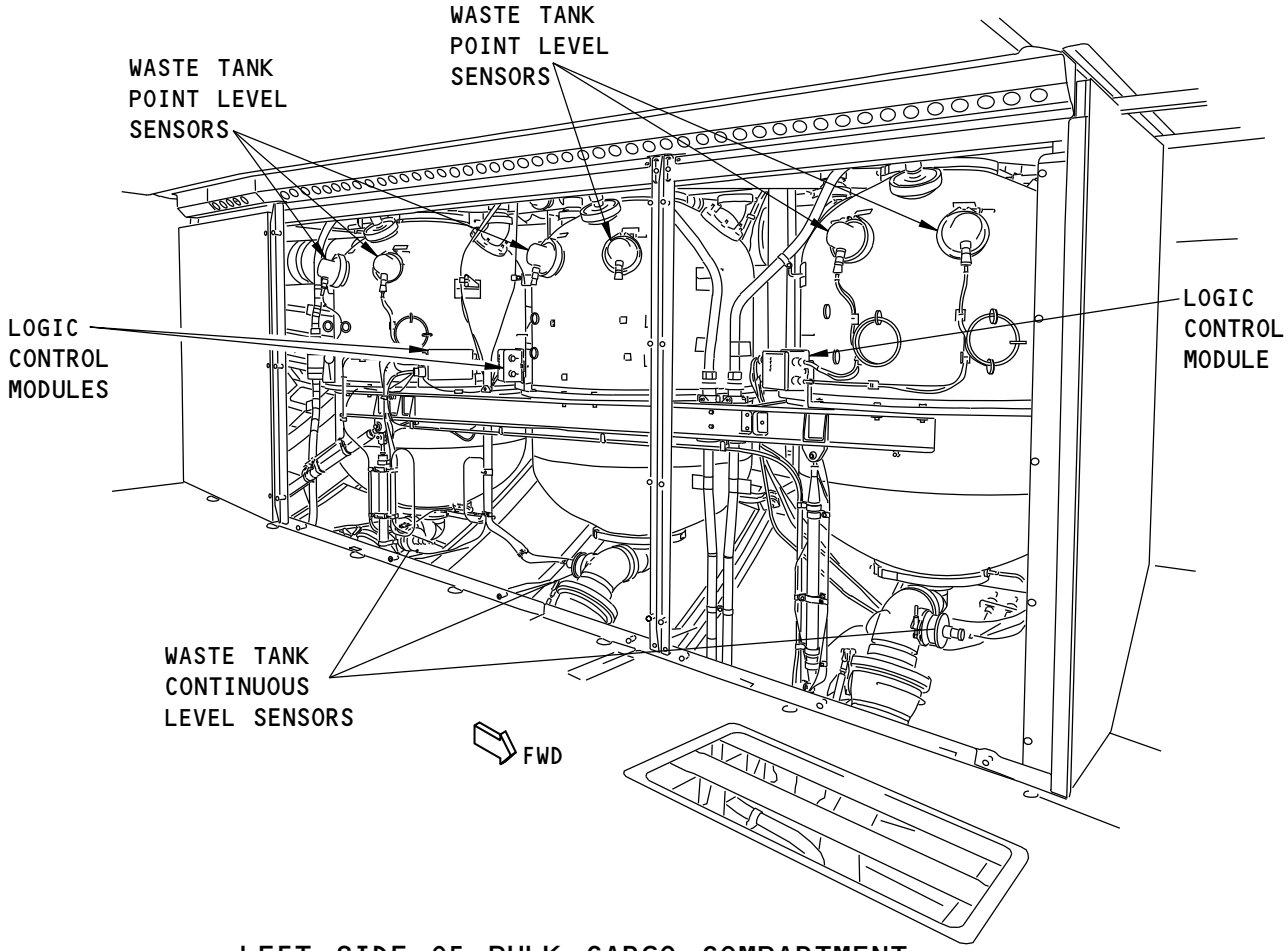
Location

The point level sensors, the continuous level sensors, and the LCMs are in the bulk cargo compartment, behind the panels on the left side. The LCMs attach to the support fitting inboard of each waste tank.

The point level sensors attach to the upper part of the tanks. The continuous level sensors are in the tank drain lines. Each continuous level sensor has a remote diaphragm (not shown) in the vent line above the tank.

Interface

The waste tank quantity indication system gives data about the amount of waste in the tanks to the cabin services system (CSS). The point level sensors also give tank full data to the lavatory flush circuit in the vacuum waste system.



LEFT SIDE OF BULK CARGO COMPARTMENT
(LOOKING OUTBOARD AND AFT
WITH SIDE WALL REMOVED)

433815 S0000141081_V1

WASTE TANK QUANTITY INDICATION - INTRODUCTION

WASTE TANK QUANTITY INDICATION - WASTE TANK POINT LEVEL SENSOR

Purpose

The waste tank point level sensor sends a signal to the LCM when the waste tank is full. There are six waste tank point level sensors, two on each waste tank.

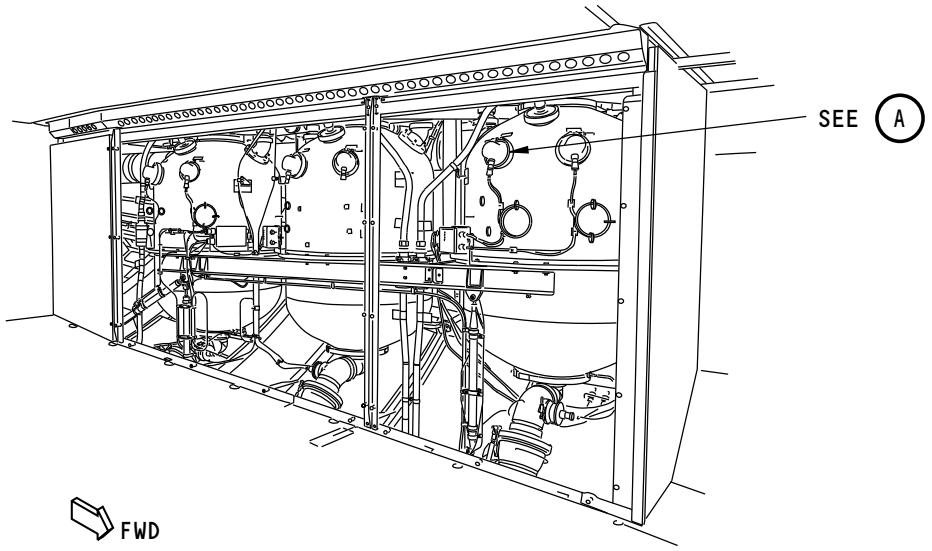
Physical Description

The sensor is a capacitance type sensor.

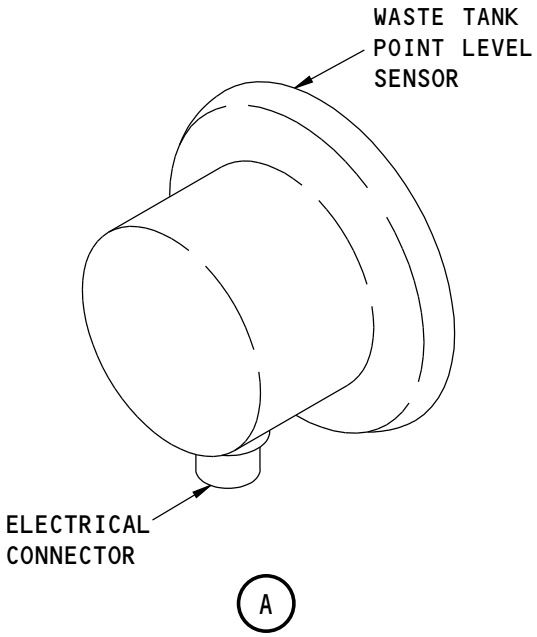
It has an electrical connector.

Location

The sensors are behind the left side panels of the bulk cargo compartment. They are on the upper part of the waste tanks.



LEFT SIDE OF BULK CARGO COMPARTMENT
(LOOKING OUTBOARD AND AFT
WITH SIDE WALL REMOVED)



433823 S0000141082_V1

WASTE TANK QUANTITY INDICATION - WASTE TANK POINT LEVEL SENSOR

WASTE TANK QUANTITY INDICATION - WASTE TANK CONTINUOUS LEVEL SENSOR

Purpose

The waste tank continuous level sensor calculates the amount of waste in the tanks. This data is only for indications that show on the cabin area control panels (CACP) and cabin system control panels (CSCP).

Physical Description

The waste tank continuous level sensor is a capacitance-type pressure sensor. The sensor has these components:

- Remote diaphragm
- Capillary tube
- Electrical connector J3
- Sensor module.

Wires connect the electrical connector to the logic control module (LCM).

Location

The continuous level sensors are in the bulk cargo compartment, behind the left side wall. There is a sensor for each waste tank. The sensor module is in the drain line below the tank. The remote diaphragm is in the vent line above the tank. The capillary tube goes from the remote diaphragm to the remote sensor.

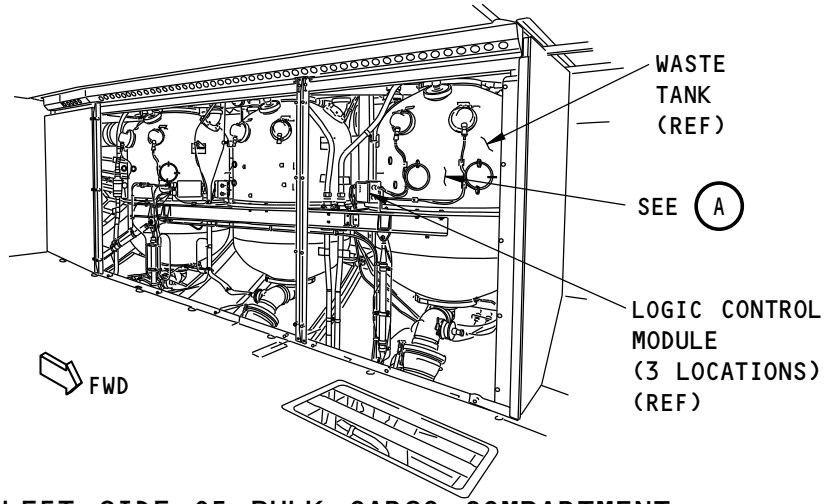
Functional Description

The remote diaphragm and the capillary tube find the pressure of the air in the tank. The sensor finds the difference between the air pressure in the tank and the liquid in the drain line. It uses the difference to calculate the amount of waste in the tanks.

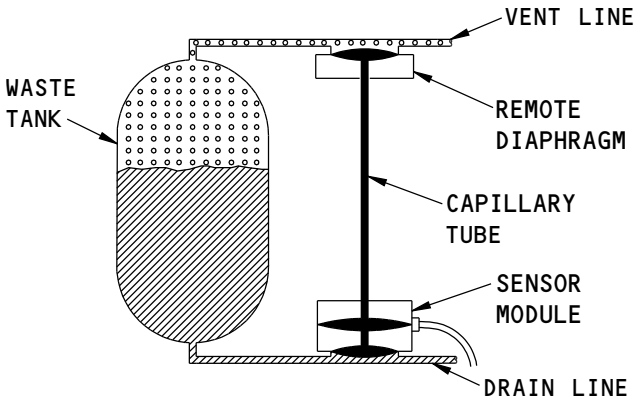
Training Information Point

You use the (LCM) to do a zero adjustment when you install a continuous level sensor.

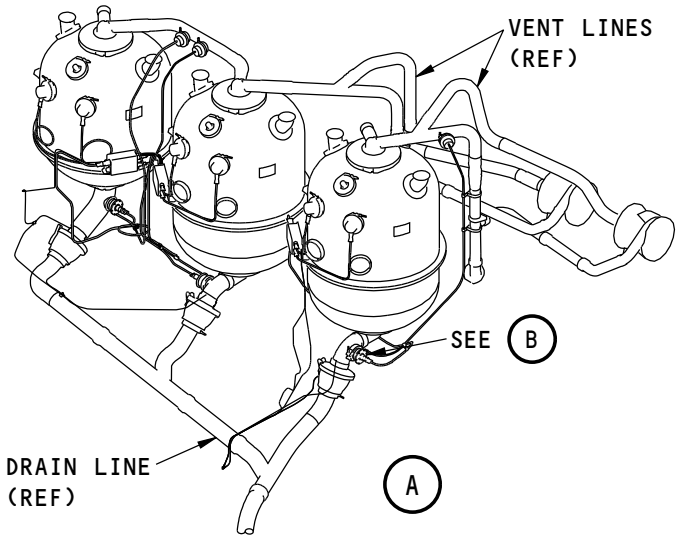
You can test the operation of the sensor with the LCM or with an all test through the cabin services system (CSS).

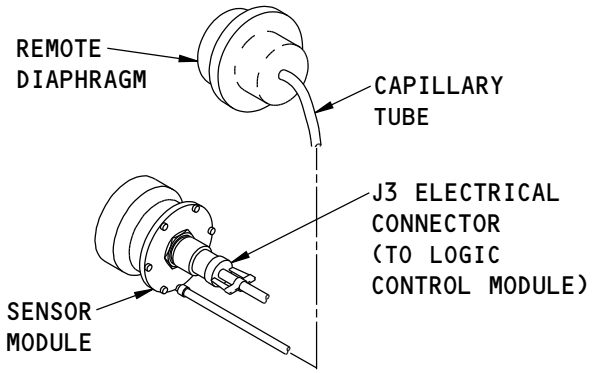


LEFT SIDE OF BULK CARGO COMPARTMENT
(LOOKING OUTBOARD AND AFT
WITH SIDE WALL REMOVED)



CONTINUOUS LEVEL SENSOR SCHEMATIC





CONTINUOUS LEVEL SENSOR
(EXAMPLE)

B

M43230 S0000141084_V1

WASTE TANK QUANTITY INDICATION - WASTE TANK CONTINUOUS LEVEL SENSOR

WASTE TANK QUANTITY INDICATION - LOGIC CONTROL MODULE

General

The logic control module (LCM) gives information about the amount of waste in the waste tanks to the cabin services system. The LCM does not let the vacuum waste system operate for the lavatories connected to a waste tank that is full.

There are three LCMs, one for each tank. It also has BITE for itself, the point level sensors, and the continuous level sensor.

Physical Description

The LCM has four electrical connections. Three are for the sensors and one connects the LCM to the airplane wiring. The LCM also has a three-position switch.

It has five lights:

- Sensor J1, red
- Sensor J2, red
- Sensor J3, red
- Tank full, red
- Power on, green.

The first two lights are for the point level sensors. The third is for the continuous level sensor.

Location

The LCMs attach to the support fitting inboard of each waste tank.

Operation

To do a test of the LCM, first push the switch down. All five lights come on. When you release the switch the lights go off.

Next, push up on the switch. All five lights come on. If any light stays on when you release the switch, that sensor fails the test.

When you do an ALL TEST from the CSCP, the LCM does a test of the sensors and the LCM circuit.

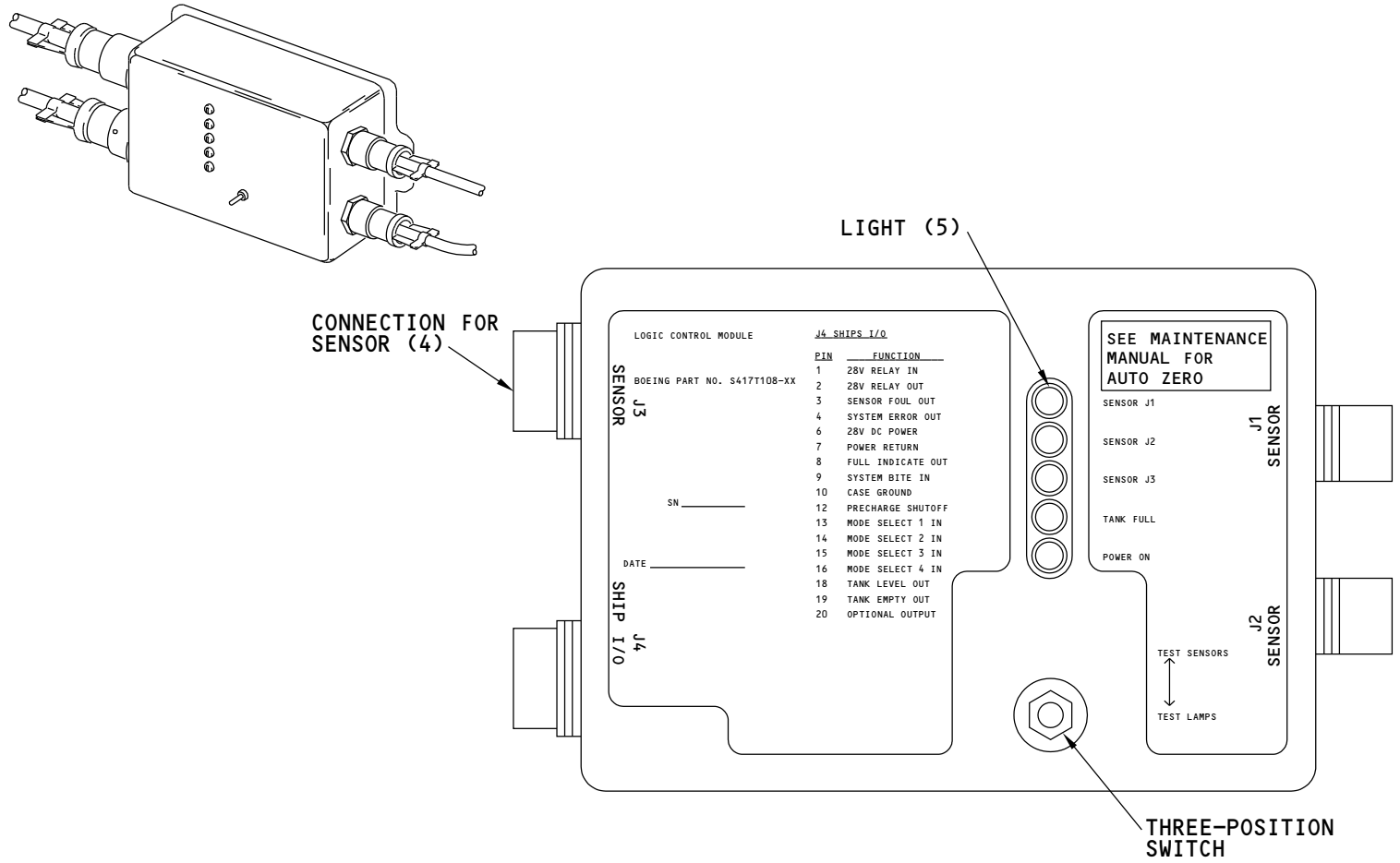
See the cabin services system section for more information about the ALL TEST (SECTION 23-39).

After you replace a continuous level sensor, you must do an auto zero adjustment of the LCM. You use the three-position switch to do an auto zero adjustment.

When a sensor detects that the tank is full, the associated sensor light on the LCM will come on. The tank full light turns on if any of these conditions occur:

- The two point level sensor detect the tank is full
- The two point level sensors fail
- One point level sensor fails or is fouled and the other point level sensor detects the tank is full

If any of the sensors are failed or the point level sensors are fouled, the light for that sensor will flash on the LCM. If the LCM fails, the tank full light flashes.



M43139 S000620416_V1

WASTE TANK QUANTITY INDICATION - LOGIC CONTROL MODULE

WASTE TANK QUANTITY INDICATION - FUNCTIONAL DESCRIPTION

General

The continuous level sensor sends data about the quantity of waste in the tanks to the LCM. The LCM sends the data to the cabin services system (CSS). The cabin area control panels (CACPs) (not shown) and the cabin system control panel (CSCP) (not shown) in the CSS show the waste tank level information.

When the tank is almost full, the CACPs and CSCP show a pop-up screen to tell the flight attendants. The waste tank status screen on the CACPs and CSCP show full. A chime sounds when a waste tank is full.

Control

The LCM gets data from the two point level sensors.

Normally, the flush module power relay is energized. It lets power to go to the lavatories.

When both point level sensors give a signal that the waste tank is full, the flush module power relay de-energizes. This removes power from all toilets that connect to the full tank. A pop-up screen shows on the CSCP/CACP.

If a sensor has an error, it gives the same signal that it does when the tank is full. When the other sensor finds that the tank is full the flush module power relay de-energizes.

If both sensors have errors, the LCM removes power to the related lavatories is removed.

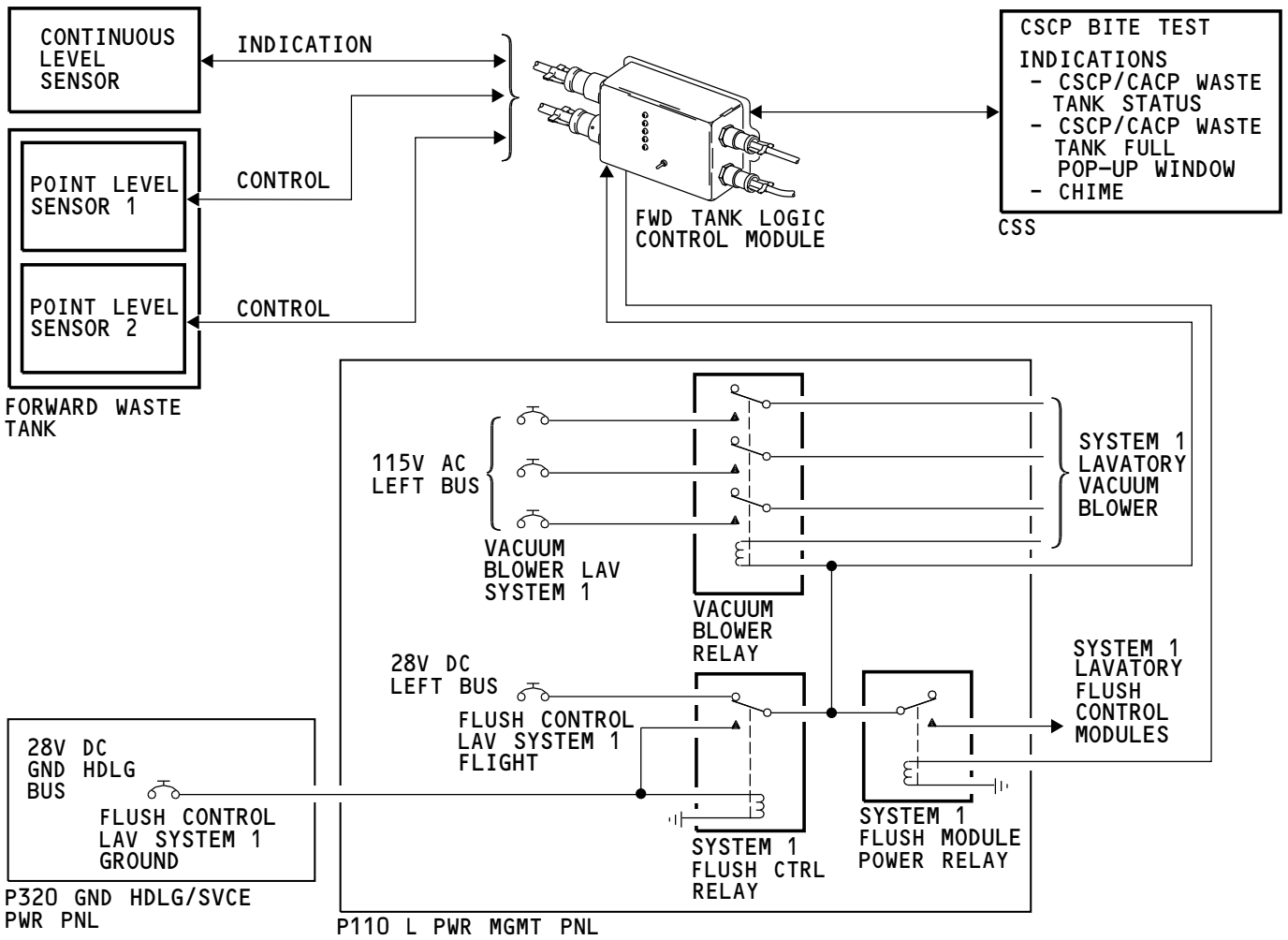
Interface

The LCM sends signals to an overhead electronics unit (OEU) (not shown). The OEU sends the signal to a zone management unit (ZMU) (not shown) on the OEU bus. The ZMU sends a signal to the CACPs on the CACP bus and to the CSCP on the intersystem (I/S) bus.

See the cabin services system section for more information on the OEU, CACP and the intersystem buses (SECTION 23-39).

Power

The ground handling bus or the left main bus must have power for the LCM to operate.



M43141 S000620418_V2

WASTE TANK QUANTITY INDICATION - FUNCTIONAL DESCRIPTION

WASTE TANK QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS - 1

General

You use the cabin system control panel (CSCP) or cabin area control panels (CACP) to control and monitor lavatory functions and waste tank levels.

Lavatory/Waste Tank Status Screen

You use the lavatory waste tank status screen to monitor the conditions of the lavatories and waste tanks.

The lavatories area of the screen shows lavatory locations and status. The area to the right of the lavatories shows the related waste tank and the amount of waste in it.

When the waste level is less than 1/4, the vertical bars are green. When the waste level is 1/4 to 3/4 full, the vertical bars are yellow. When the waste level is more than 3/4, the vertical bars are red.

When the waste tank level shows full (F), all related lavatories show INOP.

Lavatory Inoperable Control Screen

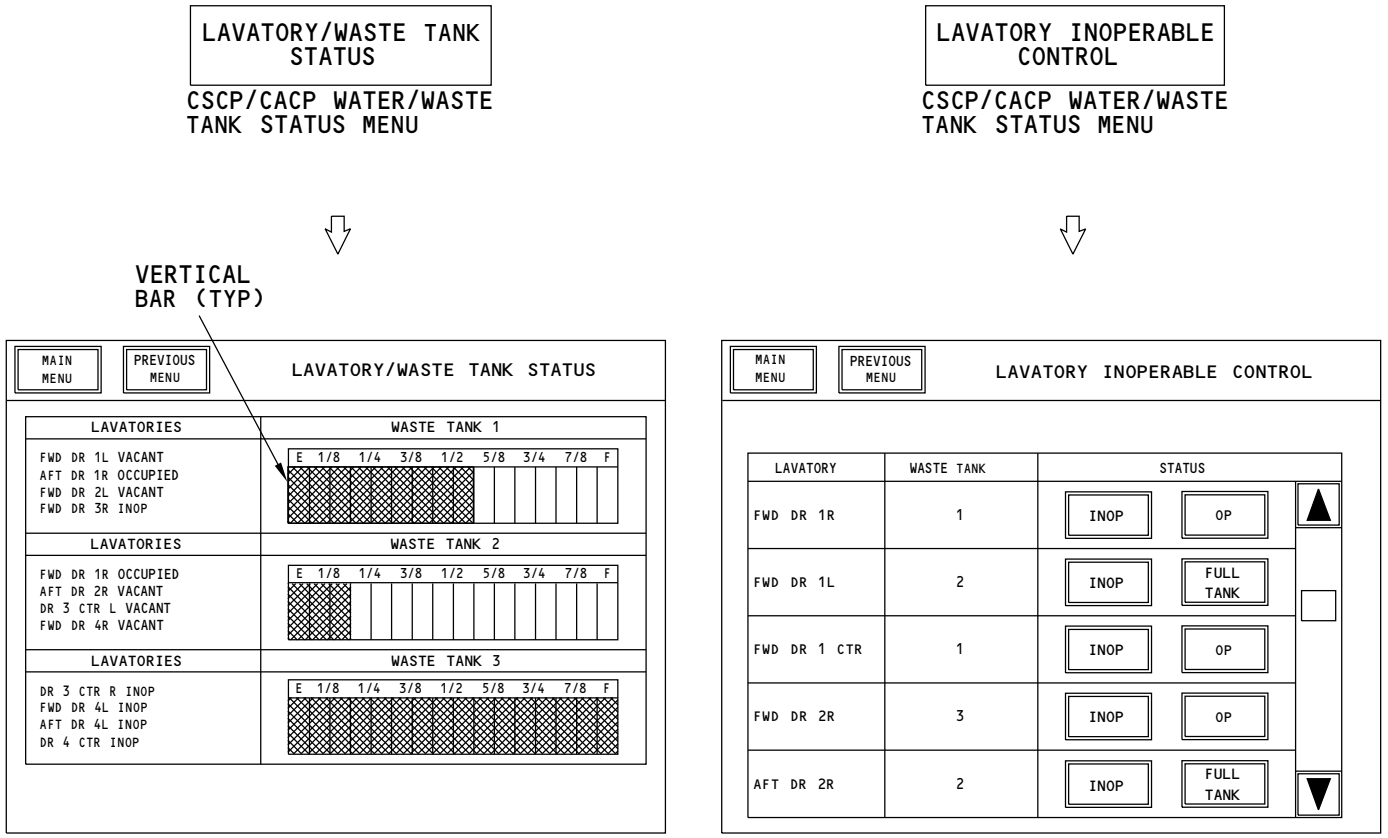
You use the lavatory inoperable control screen to show the conditions of the lavatories.

The screen shows the lavatories and assigned waste tanks. The status area of the screen shows the condition of each lavatory.

You touch OP or INOP to show that lavatory operational or inoperative. The OP and INOP selections show green.

INOP shows automatically for all lavatories with the same waste tank if the waste tank is full. FULL TANK shows in the area where OP would normally be. You cannot change this condition.

Use the up and down arrows at the right of the display to scroll the lavatory information up and down.



M43232 S000620419_V1

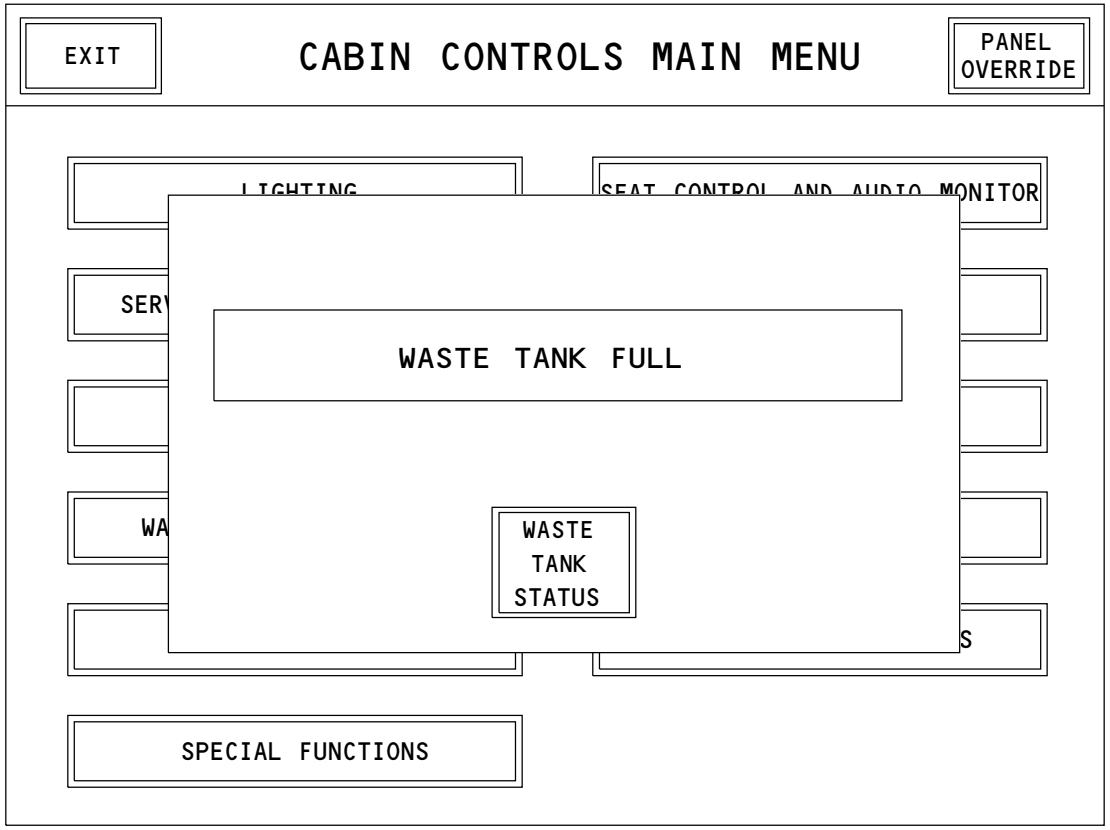
WASTE TANK QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS - 1

WASTE TANK QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS - 2

General

The waste tank full pop-up screen automatically comes on when a waste tank is full.

Touch the WASTE TANK STATUS to exit this screen and go to the waste tank status screen.



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WASTE TANK QUANTITY INDICATION - OPERATION - CSCP/CACP INDICATIONS - 2