

CHAPTER 21 – WATER AND WASTE SYSTEMS

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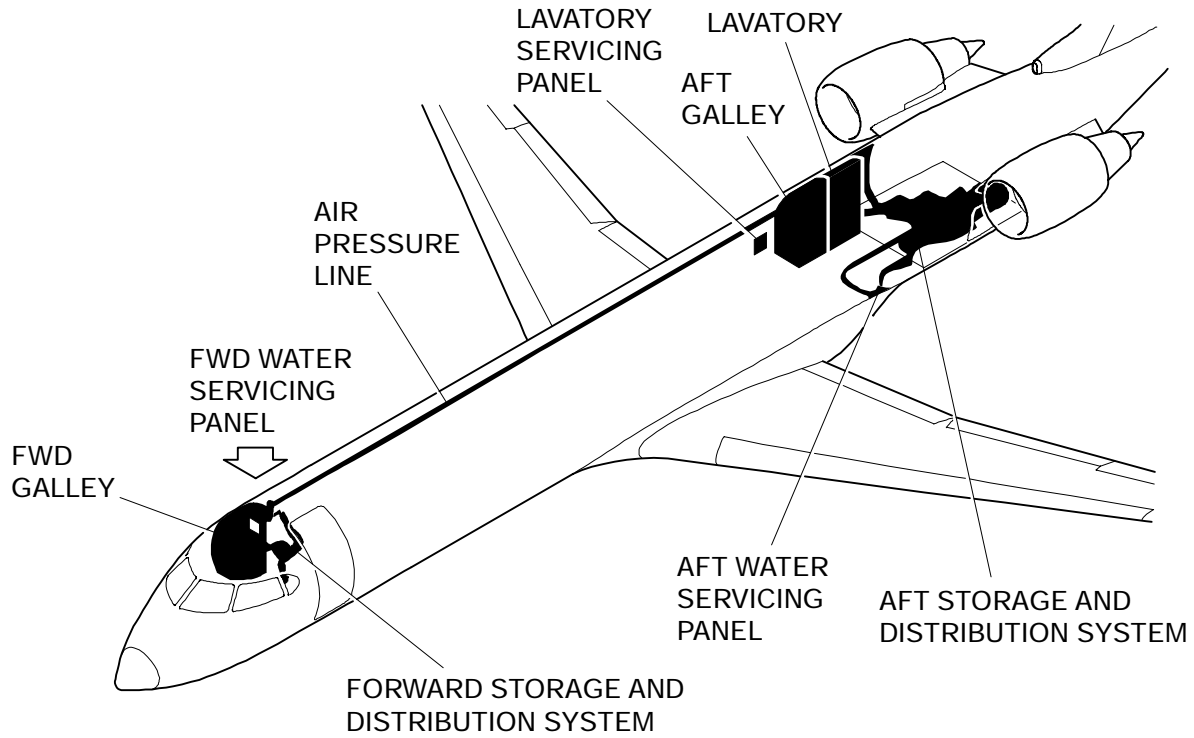
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1. INTRODUCTION

The water and waste systems include potable water, lavatory waste equipment and controls.

Two lavatory waste systems are provided to drain, rinse, prime and flush the toilets. Each toilet has a holding tank containing flushing fluid. Each system is serviced at external servicing panels located on the external fuselage.

Two potable water systems store and supply potable water to the galley and lavatories. The forward water system supplies potable water to the water dispenser and coffee maker in the galley and to the forward lavatory sink. The aft water system supplies wash water to the aft lavatory sink. Both water systems are controlled from a single control panel located in the galley. Each water system has a servicing panel provided on the external fuselage to permit filling and draining of the potable water systems.



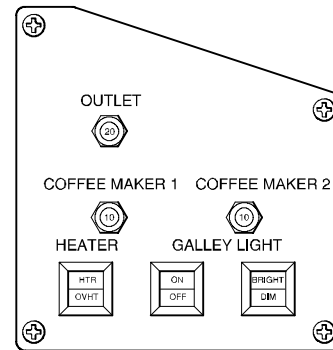
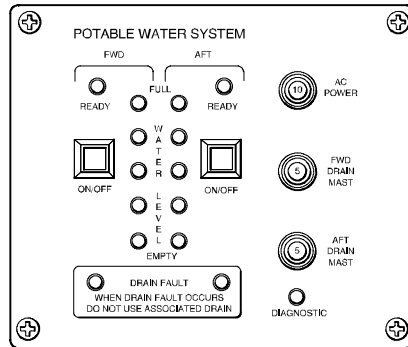
Water and Waste – General
Figure 21-10-1

1. POTABLE WATER SYSTEM

The potable water system stores, supplies, and controls the flow of water to the galley and lavatories. Potable water for the beverage maker, water dispenser and wash basin is stored in forward and aft pressurized water tanks. The systems are controlled from a single potable water system controller/panel in the forward galley. The forward and aft systems are independent, except for a common air supply for system pressurization.

Normally, source air to pressurize the water systems is regulated bleed air from the environmental control system. In the event that supplied bleed air is not available, a back-up compressor is used to provide pressurized air to the system.

Water tank level indicators for both systems are located on the galley control panel. Water levels of empty, 1/4, 1/2, 3/4 and full are indicated. Level sensors are installed at each level in both tanks. When the water level falls below the empty sensor, the empty indicator changes from green to amber and all other level indicators are off.

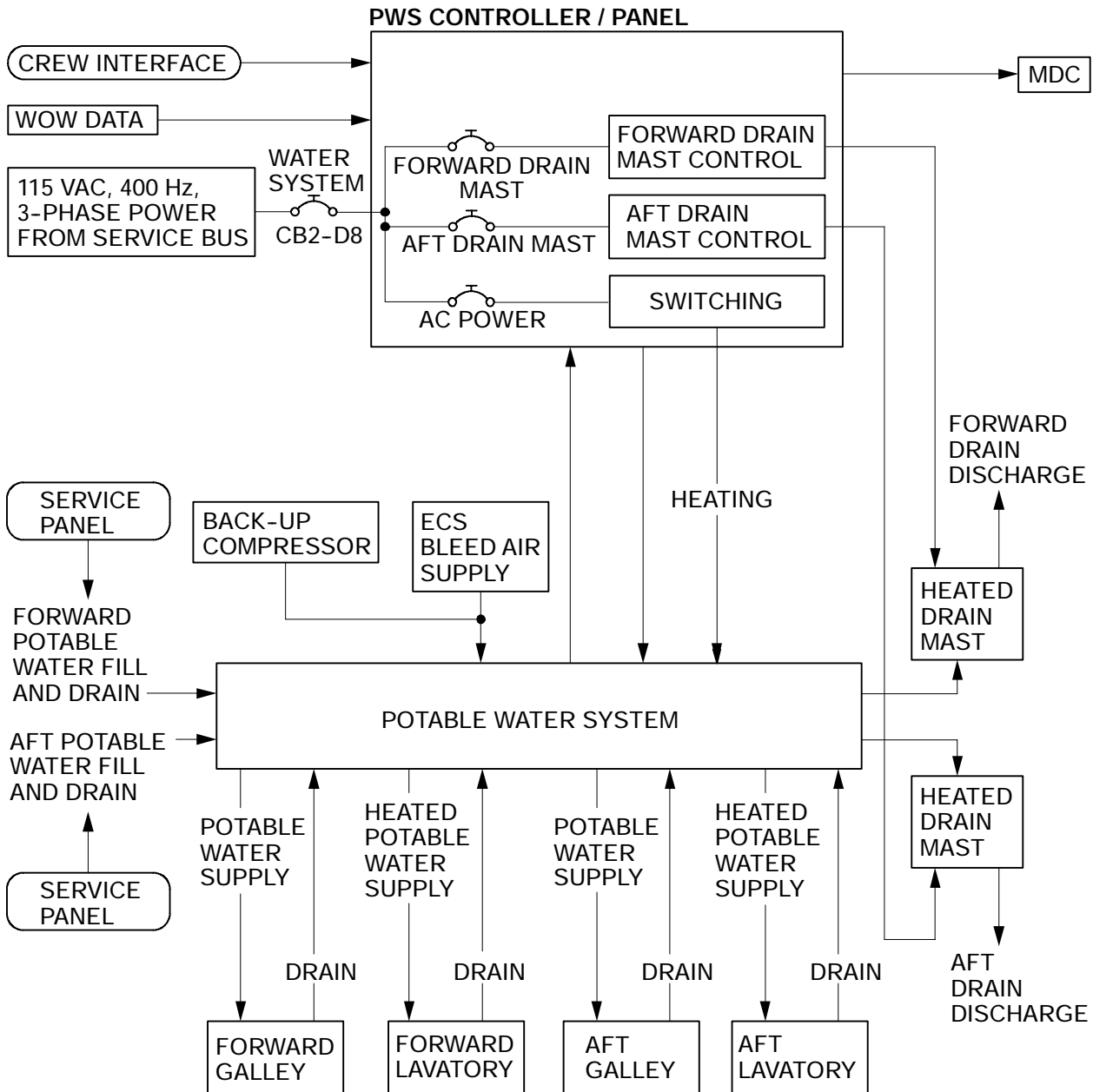


**Potable Wash/Water System
Controller Panel**

**Portable Wash/Water System – Controls
Figure 21–20–1**

Electrical power to the forward and aft systems is controlled by ON/OFF switchlights on the galley control panel. This provides power to operate the electrical heaters, compressor and level indication system. Wash basin water is heated to $25 \pm 5^{\circ}\text{C}$ (68 - 86°F) by a water heater in each lavatory cabinet.

The systems provide drainage of used water overboard through drain masts on the bottom of the fuselage. All components likely to freeze are heated and/or insulated to maintain temperatures above freezing. An electronic controller monitors temperatures by zone and controls heater temperatures to prevent ice formation. The drain masts are connected directly to the AC service bus. Each drain mast contains a thermal fuse for overheat protection which removes power when the temperature exceeds a preset point. Power can be removed from the drain masts by opening the circuit breakers on the potable water system control panel or by removing power from the AC service bus. The controller uses weight-on-wheels information to determine the power application to the drain masts. When the airplane is on the ground, power to the drain masts is reduced.



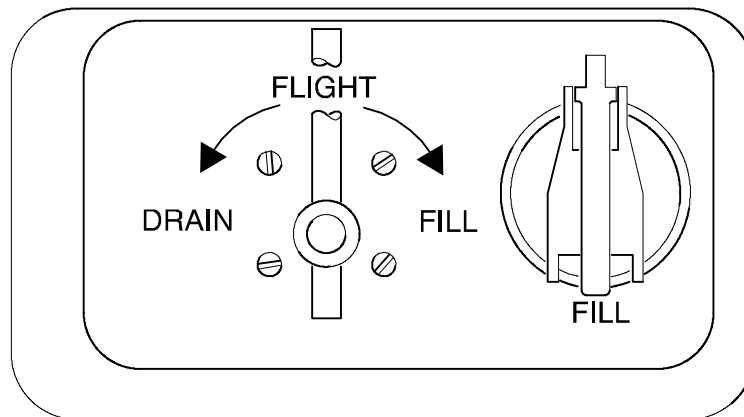
Potable Water System – Block Schematic
Figure 21-20-2

The diagnostic light, on the galley control panel, will come on when the potable wash/water system controller panel detects a fault in the system. It will remain on until the fault is corrected. Drain mast faults are indicated by separate lights to identify the failed mast.

Each potable water system has a service panel located on the exterior fuselage. The forward service panel is located on the right forward lower side of the fuselage. The aft service panel is located on the left side under a panel in the wing root fairing. Each service panel has a fill adaptor and a control handle.

When the control handle is placed in the FILL position, water can be pumped into the system using the fill adapter. When the tank is full, water flows out through the overboard drain mast. The control handle must be returned to the FLIGHT position after filling is complete or the service panel door will not close. System inlet fill pressure is limited to 50 psig.

When the control handle is placed in the DRAIN position, the potable water is drained from the tanks through the drain mast.



Potable Water Service Panel
Exterior Lower Fuselage

Portable Water System Service Panel
Figure 21-20-3



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Potable Water System

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A. System Circuit Breakers

SYSTEM	SUB-SYSTEM	CB NAME	BUS BAR	CB PANEL	CB LOCATION	NOTES
Potable Water System	Controller	WATER SYSTEM	AC SERVICE	2	D8	



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Lavatory Waste System

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1. LAVATORY WASTE SYSTEM

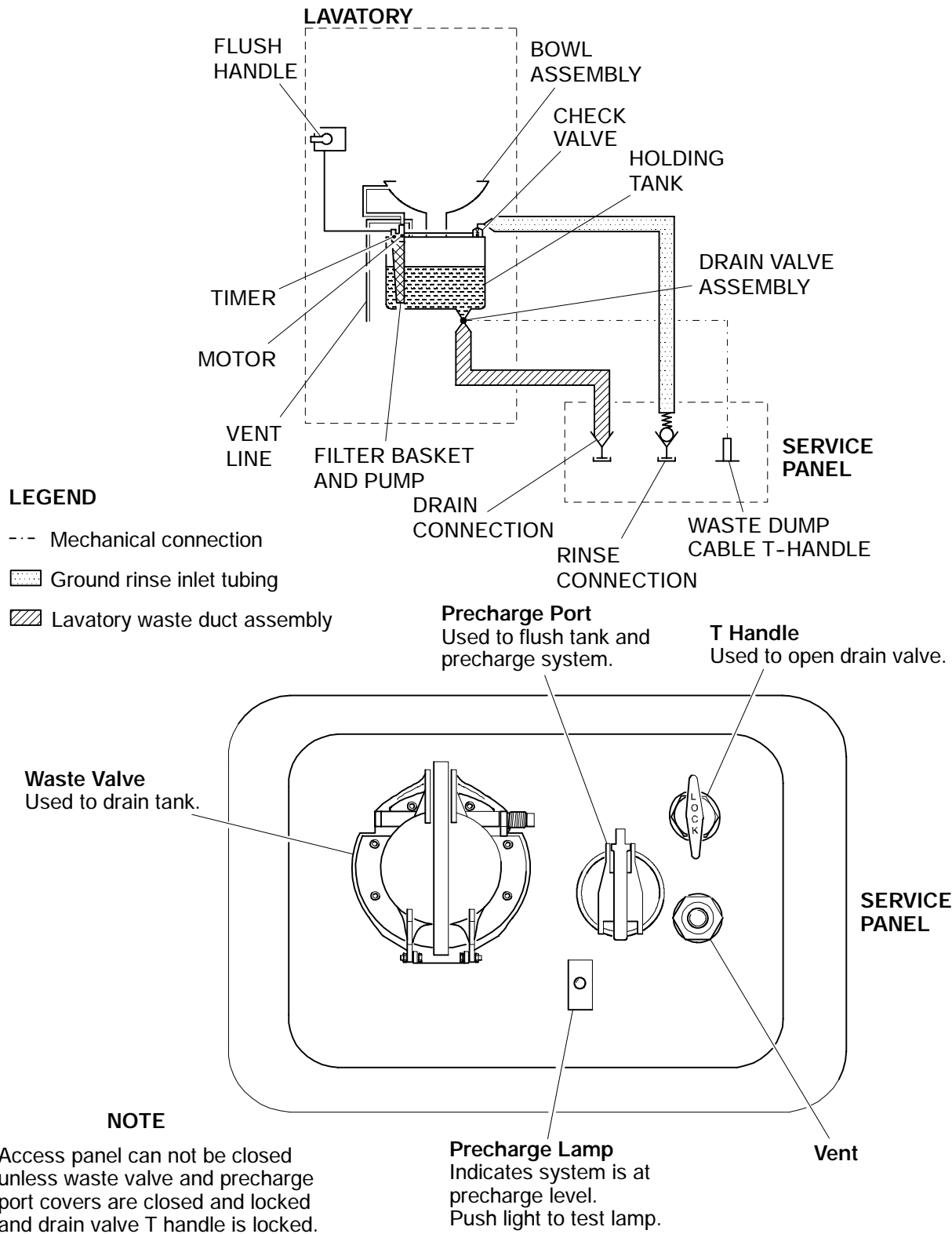
The lavatory waste system provides a means of flushing the toilet and holding waste material from the forward and aft lavatory toilets. Each system consists of a seat and bowl assembly, tank assembly, flush handle and service panel. The tank assembly is self-contained and consists of a electric pump, timer and filter. The tank holds the deodorant flushing solution and waste material until removed by ground servicing personnel.

When the toilet flush handle is pushed, a timer energizes the electric pump for 10 seconds. The pump draws the flushing fluid from the tank, through a filter basket, and sends it out through the bowl assembly flush ring.

The systems are serviced by means of lavatory service panels, located on the right side of the forward and aft fuselage. When the service vehicle drain line is connected to the drain port, the T-handle is rotated to the left and pulled. This opens the drain valve, located at the bottom of the holding tank, allowing the tank to empty through the drain line.

Once the holding tank is emptied, rinsing agent and flushing fluid are sent through the charging port, flushing and cleaning the tank and lines. The T-handle is then turned to the right and pushed in to close the drain valve. The tank is then filled with precharge flushing fluid until the fluid level light on the service panel illuminates.

The toilet requires a precharge of 2.3 US gallons (8.7 liters) of flushing fluid.



Lavatory Waste System – Lavatory Service Panel
Figure 21-30-1



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Lavatory Waste System

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A. System Circuit Breakers

SYSTEM	SUB-SYSTEM	CB NAME	BUS BAR	CB PANEL	CB LOCATION	NOTES
Lavatory Waste System	Toilet	TOILET	AC SERVICE	2	D5	
	Waste	WASTE SYST	DC SERVICE		M9	
		WATER CONT			M10	



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Lavatory Waste System

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