PART 2

CHAPTER 19 — WATER/WASTE SYSTEMS AND DOMESTIC EQUIPMENT

List of Contents

Illustrations

PART 2

CHAPTER 19 — WATER/WASTE SYSTEMS AND DOMESTIC EQUIPMENT

WATER AND WASTE SYSTEMS

General

1. One single fresh water system supplies all domestic and toilet services and apart from supplying the galley, toilets and two drinking-water fountains, the system also supplies the air conditioning humidifiers.

2. Waste systems for the storage and subsequent disposal of toilet refuse are provided for each group of toilets, and water from the wash basins and sinks is discharged overboard through waste discharge horns on the underside of the fuselage.

3. *Controls and Indicators — Water and Waste Systems.* (See **Table 1.**)

Water System

4. The water supply is stored in two interconnected tanks, aft of the forward freight hold, each tank containing 71 gallons and fitted with an electrically-operated pump.

5. The combined contents of the two tanks is indicated on two gauges, one on the engineer's rear bulkhead panel and the other on the external servicing box. Each gauge is calibrated (in Imperial gallons) to indicate OFF/E/10/30/60/90/120/F and operates from a 30-volts AC supply from a single-phase transformer fed from No 4 domestic busbar on panel K. The transformer is identified as the water gauge control unit on the servicing box. The supply tanks are vented to cabin pressure and a filter is fitted in the vent line outlet.

6. Water from the tanks is fed through a main distribution pipe and branch pipes to the toilet wash basins and galley sink, and the hot water for these services is supplied by electric water heaters. Isolating valves in the main distribution pipe enables the supply to be cut off from either, or both, the forward and after toilets to retain a reserve of water for the galley. The water and waste outlets attached to the underside of the fuselage are protected against freezing by heaters. In flight, the heaters are supplied with 115-volts AC; on the ground the oleo relays switch the supply from 115-volts to 28-volts.

7. The water heaters for the aft toilets are fitted one inside each of the toilets, but the heater in No 1 toilet also serves No 2 toilet. Each heater contains an overheat protection switch set at 69°C, and a thermostat which cuts out at approximately 54·5°C. Switches on the engineer's panel C control each heater individually.

8. There are two water boilers, one in No 2 galley and one in No 3 galley. The electrical supply for each boiler is 200-volts, three-phase AC controlled by an operating relay. Each relay is controlled by a three-way switch and one of two thermostats; the switch may be set to OFF, BOIL or SIMMER. With the switch in the BOIL position a neon light comes on and the temperature of the water rises until it reaches 91°C when a BOIL thermostat opens the operating relay and removes the supply, although the lamp will remain lit. When the water temperature has decreased sufficiently, the thermostat closes and restores the supply. If the switch is set to SIMMER, the same conditions prevail except that the SIMMER thermostat replaces the BOIL thermostat and the supply is removed when the water temperature rises to 82°C. With the switch in the OFF position the operating relay is de-energised, the supply removed and neon light is out.

9. Two drinking-water fountains are installed, one in the main cabin up front and one at No 3 galley.

Waste Systems

10. Waste matter from the toilets is flushed into septic tanks and stored until disposed of by the ground servicing unit during turn-round. Each tank is connected to an external servicing box by a drain tube fitted with a remote-controlled gate valve. The valve control lever is on the servicing box, which incorporates a flushing connection that also serves to clean the tank and introduce a deodorant fluid.

11. Waste water from the galley, toilet wash basins and the rear drinking fountain drains to atmosphere through pipelines and the front and rear discharge horns.

Table 1 — Controls and Indicators — Water and Waste Systems

Item	*Location*	*Marking/Description*
Water contents gauge	Engineer's bulkhead panel	DOMESTIC WATER. IMP GALLS OFF/E/10/30/60/90/120/F
Water contents gauge	External servicing box	DOMESTIC WATER. IMP GALLS
Water pump switches (two)	Engineer's bulkhead panel	No 1 PUMP—ON. No 2 PUMP—ON
Toilet water heater switches (four)	Engineer's bulkhead panel	TOILET WATER HEATERS FWD — ON AFT LEFT — ON AFT CENTRE — ON AFT RIGHT — ON
Galley water heater switches (two)	Galley control unit	BOILER — BOIL/OFF/SIMMER
Waste discharge levers (four)	External servicing boxes	TOILET SERVICE VALVE RIGHT/LEFT/CENTRE. Up-closed, Down-open
Isolating valves (five)	Below worktop in each passenger toilet and in the roof of No 3 galley	—

12. Waste water from the forward drinking fountain and the vent valves for priming and draining the system drains into funnels at floor level and through pipelines into the bilges where it is discharged through bilge drain valves along the centre line of the lower fuselage skin. When the aircraft is on the ground, the bilge drain valves, which are of a hinged flap-type, are normally open but close under the influence of a nominal cabin differential of 1 PSI.

GALLEYS

General

13. There are two galleys, each consisting of two units. The forward galley units (No 1 and No 2) are at the forward service door and the aft galley units (No 3 and No 4) are at the aft service door. Each galley unit is fitted with a control panel for the operation of the appropriate equipment.

14. Air extractor fans are fitted at both of the units at the aft galley and exhaust air is ducted from the galleys into the aft fuselage area below the cabin floor.

15. The galleys are located in the fuselage structure by spigots and secured by bolts. Lighting is provided at both galleys.

16. *Controls and Indicators—Galleys* (See **Table 2**).

No 1 Galley Unit

17. No 1 galley unit comprises:
- Control panel
- Two ovens
- Four beverage containers
- One refrigerator
- One cutlery drawer
- One worktop
- An Airlarda
- Waste disposal bin

No 2 Galley Unit

18. No 2 galley unit comprises:
- Control panel
- One water boiler
- Two hot cups
- One utility socket
- Airlarda stowage
- Two hot cupboards
- Sink
- Waste disposal bin

No 3 Galley Unit

18A. No 3 galley unit comprises:
- Control panel
- One water boiler
- Four beverage containers
- Two hot cups
- One utility socket
- Worktop light switch
- Extractor fan
- Sink
- Waste disposal bin

No 4 Galley Unit

18B. No 4 galley unit comprises:
- Control panel
- Two ovens
- Extractor fan

Power Supplies

19. Each galley is supplied with 200/115-volts AC through a connector socket in the right-hand side wall of the passenger cabin. The supply lines to the connector sockets are controlled from galley load

Table 2. Controls and Indicators — Galleys

Item	*Location*	*Marking/Description*
Galley load switches (4)	Engineer's electrical control panel	GALLEY LOAD — ON/OFF GEN. 1/GLY 2 GEN. 2/GLY 3 GEN. 3/GLY 4 GEN. 4/GLY 1
No. 1 Galley Unit		
Refrigerator control switch	Control panel	ON/OFF
Indicator light	Control panel	Amber. On when refrigerator is switched on
Oven switches (2)	Control panel	OVENS — ON/OFF
Indicator lights (2)	Control panel	Amber. On when ovens are switched on
Beverage container switches (4)	Control panel	BEVERAGE CONTAINERS — NO. 1/NO. 2/NO. 3/NO. 4 ON/OFF ON/OFF
Indicator lights (4)	Control panel	Amber. On when each container is switched on
No. 2 Galley Unit		
Switch for water boiler	Control panel	SIMMER/OFF/BOIL
Indicator light	Control panel	Amber. On when boiler is switched on
Switches for hot cups (2)	Control panel	ON/OFF
Indicator lights (2)	Control panel	Amber. On when switches are set to ON
Utility socket switch	Control panel	UTILITY SOCKET — ON/OFF 1500 W. MAX. 115V
Indicator light	Control panel	Amber. On when switch is set to ON
Switches for hot cupboards (2)	Control panel	HOT CUPBOARDS — ON/OFF
Indicator lights (2)	Control panel	On when switches are set to ON
No. 3 Galley Unit		
Switches for beverage containers (4)	Control panel	BEVERAGE CONTAINERS — NO. 1 ON NO. 2 NO. 3 ON NO. 4 OFF OFF
Indicator lights (4)	Control panel	On when switches are set to ON
Switches for hot cups (2)	Control panel	HOT CUPS — NO. 1 ON NO. 2 OFF
Indicator lights (2)	Control panel	Amber. On when switches are set to ON
Switches for hot cupboards (2)	Control panel	HOT CUPBOARDS — NO. 1 ON NO. 2 OFF
Indicator lights	Control panel	Amber. On when switches are set to ON
Switch for water boiler	Control panel	WATER BOILER — BOIL/OFF/SIMMER
Switch for utility socket	Control panel	ON/OFF. 1500 W MAX. 115V
Indicator light	Control panel	ON when the switch is set to ON. Amber
Switch for extractor fan	Control panel	ON/OFF
Switch for worktop light	Control panel	DIM/OFF/BRIGHT
No. 4 Galley Unit		
Switch for extractor fan	Control panel	EXTRACTOR FAN — ON/OFF
Oven switches (2)	Control panel	NO. 1 ON/OFF NO. 2 ON/OFF OVENS
Oven indicator lights	Control panel	Amber. On when switches are set to ON

switches, on the engineer's DC power panel. These switches, when operated, enable the galley services to be isolated for load-shedding purposes.

Galley unit connector socket	*Location*	*Bus-bar supply*
1	Stn. 240. Zone F2	No. 4 generator AC
2	Stn. 330. Zone F2	No. 1 generator AC
3	Stn. 1127. Zone F3	No. 2 generator AC
4	Stn. 1208. Zone F3	No. 3 generator AC

TOILETS

General

20. Two groups of toilets are fitted, one at the forward end of the cabin, the other at the rear. The forward group comprises a passenger/crew toilet and a ladies only toilet, accessible with the flight deck door closed. Air from these two toilets is exhausted via ducting connected to the radio rack cooling system. In the rear group a centre urinal is flanked by two toilets. Air is exhausted into the rear fuselage from these toilets via an extractor fan in the centre toilet, controlled by a switch on the ALM's panel.

21. A hinged screen is fitted adjacent to the rear galley unit and arranged to pivot across the centre aisle to provide privacy in the area immediately outside the toilets.

22. A 110/230 volt electric shaver socket is provided in each toilet, the power supply being obtained from two static inverters in the left radio rack; No. 1 feeds sockets in forward ladies' toilet and vestibule, No. 2 feeds sockets in the crew toilet and left and right rear toilets.

23. The "ladies only" toilet incorporates in its inboard wall an inset drinking water fountain.

24. During service the toilets are continuously illuminated to medium intensity, the action of bolting a door brings on additional lighting.

ALM'S AFT STATION AND MISCELLANEOUS STOWAGES

ALM's Aft Station

25. The ALM's aft station is fitted in all roles at Stn. 1214 approximately, in the rear of the aircraft, left side. Stowage is also provided for some safety and emergency equipment at the station.

26. The forward face of the station accommodates from the top, an illuminated toilet sign and cabin services control panel for lighting switches, ALM's call light, intercomm. and PA handset; switches behind a spring-loaded cover control the ice inspection and tail lights and an extractor fan.

27. Below the control panel is a work top with document rack and oxygen bottle stowage behind.

28. Below the work top, behind a panel, are stowed, a periscope, two fire extinguishers and underfloor viewer.

29. At the side of the station, inboard, are a first-aid kit, fire extinguisher and an axe.

Equipment Stowage Unit — At Forward Entrance Door

30. A miscellaneous equipment stowage unit is located immediately forward of the forward entrance door.

31. Provision is made for stowage of:

a. Pressure head/static vent plugs and covers.

b. Liferaft survival packs (3).

c. Emergency oxygen bottles (3).

d. Axe.

e. Fire extinguishers (2).

32. The following other facilities are provided:

a. Illuminated toilet sign.

b. Swivel-mounted mirror and electric shaver socket.

c. Built-in step light.

d. Spring-return to the coiled position safety strap for use at the doorway.

e. Switch panel for step light and entrance lighting.

Equipment Stowage Unit — At Forward Service Door

33. A miscellaneous equipment stowage unit is located immediately forward of the forward service door. It is used for stowing various items of unspecified equipment, to accommodate supplementary

40. The seats are mounted on tracks fitted to the floor of the flight deck or seat turntable. The flight engineer's and navigator's seats have an additional control lever for releasing or locking the seat in the desired position on the turntables.

41. Arm-rests are provided and fold upwards for access to the seats. The seat and back cushions can be removed independently of each other.

Seat Harnesses

42. The 1st pilot's, navigator's and supernumerary crew member's seats are fitted with a Mk. 38 harness, on which the release buckle is on the left lap strap and the harness reel release (lean-forward) is on the left-hand side of the seat.

43. The co-pilot's and flight engineer's seats are fitted with a Mk. 39 harness, on which the release buckle is on the right-lap strap and the harness reel release (lean-forward) is on the right-hand side of the seat.

44. In all other respects the crew seat harnesses are similar and comprise:

a. A shoulder strap assembly connected to —

b. A harness reel, which is controlled by a reel-release lever (spring-loaded over centre)

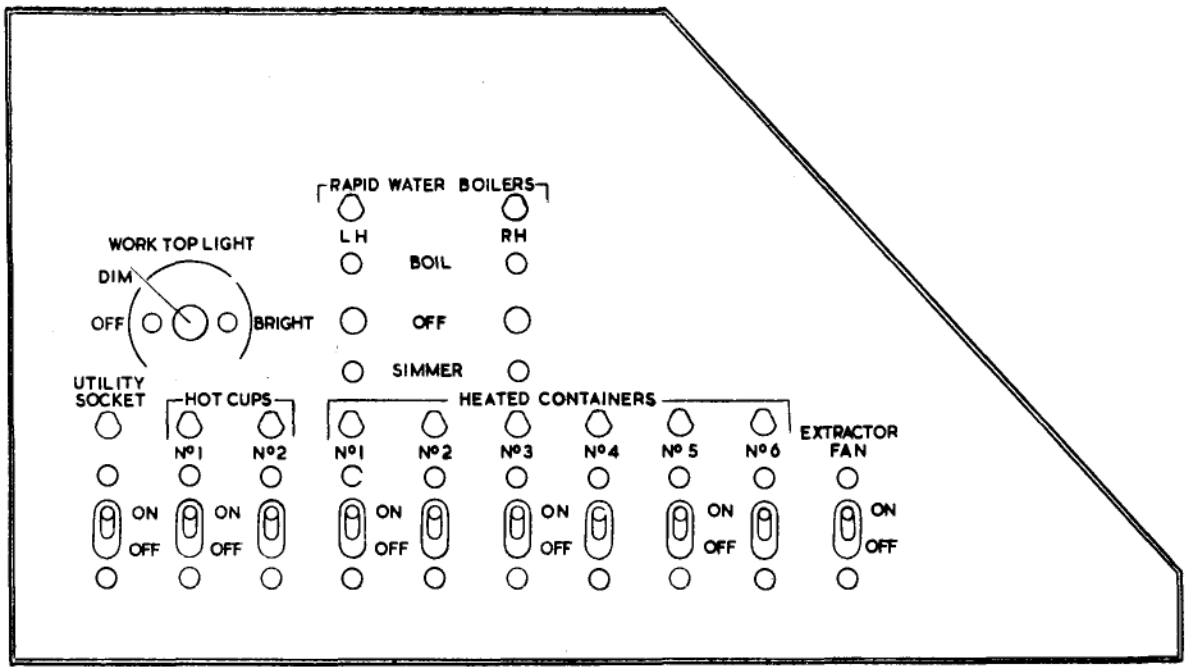
c. Adjustable left and right lap straps and a G-restraint strap.

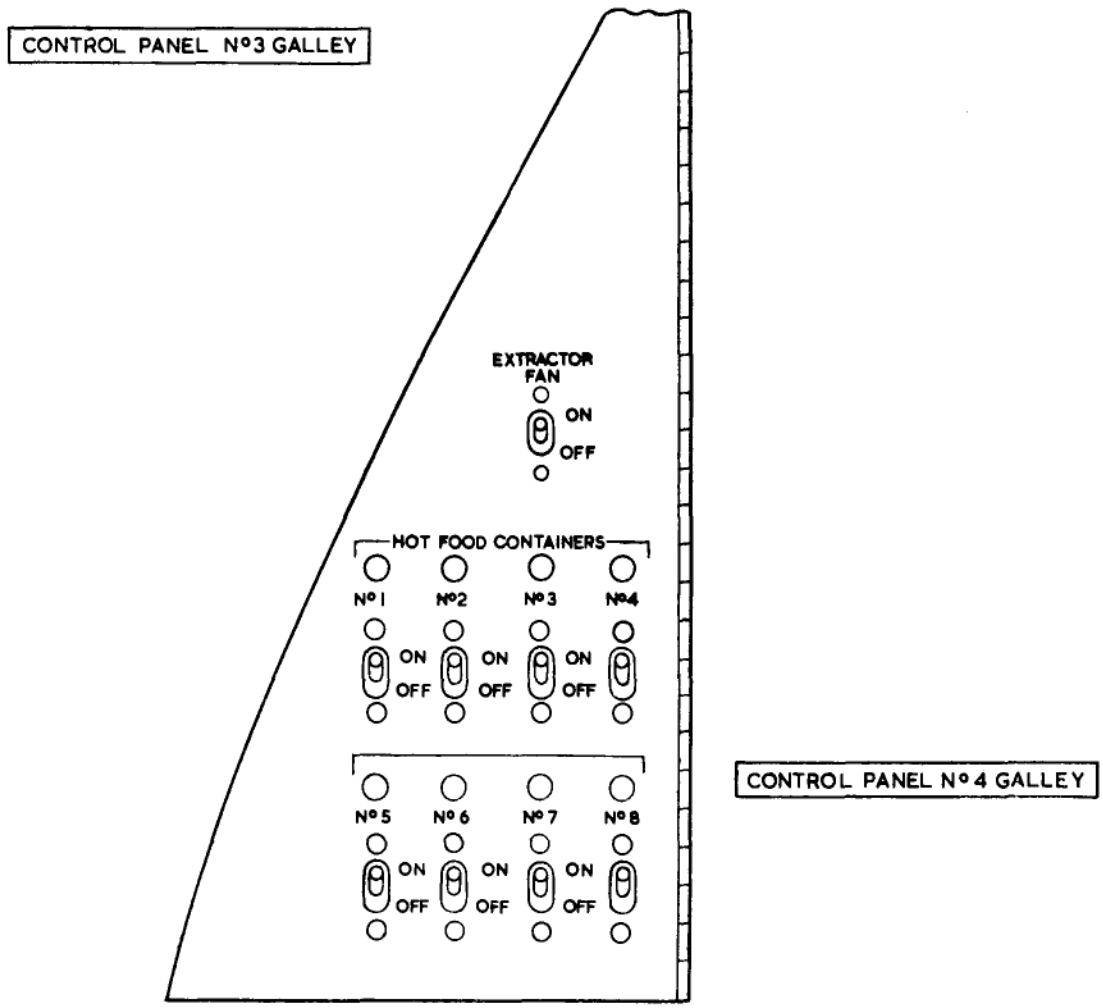
d. A harness release buckle to which items a. and c. are fastened and which, when all straps are connected, permits the shoulder straps to be released independently of the lap straps or the whole harness to be released in one operation.

45. With the shoulder straps, lap straps, and G-restraint straps connected to the buckle and the harness reel-release lever in the forward (automatic) setting, the occupant can lean forward and go back freely to the length of the shoulder straps, the reel taking in the slack on leaning back. A forward acceleration of the shoulder harness in excess of 1 to 1.5G, however, automatically locks the harness until the G-load is removed when freedom of movement is again restored.

46. Setting the harness reel-release to the rear (manual lock) setting, converts the harness into a fixed harness. The shoulder harness will, however, reel in at this setting but cannot reel out again until the lever is set to the forward (automatic) setting.

47. Depressing and releasing the pawl in the front cover of the harness release buckle releases the shoulder straps only. Turning the front cover of the harness release buckle, in either direction, releases the complete harness.





2.19 Fig. 1. Galley Units, No. 3 and 4 Control Panels

galley containers and to incorporate a crew wardrobe equipped with a coat hanger rail and ensign staff stowage.

34. At the inboard side is a stowage compartment for a first-aid kit, and on the rear face, adjacent to the service door, is a spring-return to the coiled position safety strap for use at the doorway.

Passenger Facility Panels

35. Passenger facility panels are fitted on each side of the passenger compartment, on rails on the underside of the hat racks. Each panel serves three passengers. Quick-release connections for oxygen and electrical services are housed under the hat racks, and are covered with adjustable inter-panel blinds; the connections and blinds allow the facility panels to be spaced according to the seating arrangement.

36. Each panel incorporates:

a. "No Smoking" and "Fasten Seat Belts" sign.

b. Three adjustable reading lamps controlled by three push-on, push-off type switches.

c. "Steward" call switch-with integral light.

d. Therapeutic oxygen supply connection.

e. Three adjustable air louvres, which are connected to the air conditioning system.

f. Three oxygen masks.

CREW SEATING

Crew Seating

37. Five adjustable seats are provided on the flight deck for the crew, each fitted with a safety harness. The flight engineer's and navigator's seats are mounted on turntables providing a freedom of rotation of 90° and 180° respectively.

38. The supernumerary crew seat is fitted adjacent to the navigator's seat, facing forward. The attachments allow fore-and-aft adjustment and a folding seat-pan is incorporated. A cable-operated locking mechanism connected to spring-loaded shear pins is operated by a lever beneath the front of the seat pan.

39. Each crew seat is similar in construction, with three lever controls for adjusting the seat for height, to a vertical or reclining position, or in a fore-and-aft direction, and each is fitted with a life jacket stowage and safety-harness control.

40. The seats are mounted on tracks fitted to the floor of the flight deck or seat turntable. The flight engineer's and navigator's seats have an additional control lever for releasing or locking the seat in the desired position on the turntables.

41. Arm-rests are provided and fold upwards for access to the seats. The seat and back cushions can be removed independently of each other.

Seat Harnesses

42. The 1st pilot's, navigator's and supernumerary crew member's seats are fitted with a Mk. 38 harness, on which the release buckle is on the left lap strap and the harness reel release (lean-forward) is on the left-hand side of the seat.

43. The co-pilot's and flight engineer's seats are fitted with a Mk. 39 harness, on which the release buckle is on the right-lap strap and the harness reel release (lean-forward) is on the right-hand side of the seat.

44. In all other respects the crew seat harnesses are similar and comprise:

a. A shoulder strap assembly connected to —

b. A harness reel, which is controlled by a reel-release lever (spring-loaded over centre)

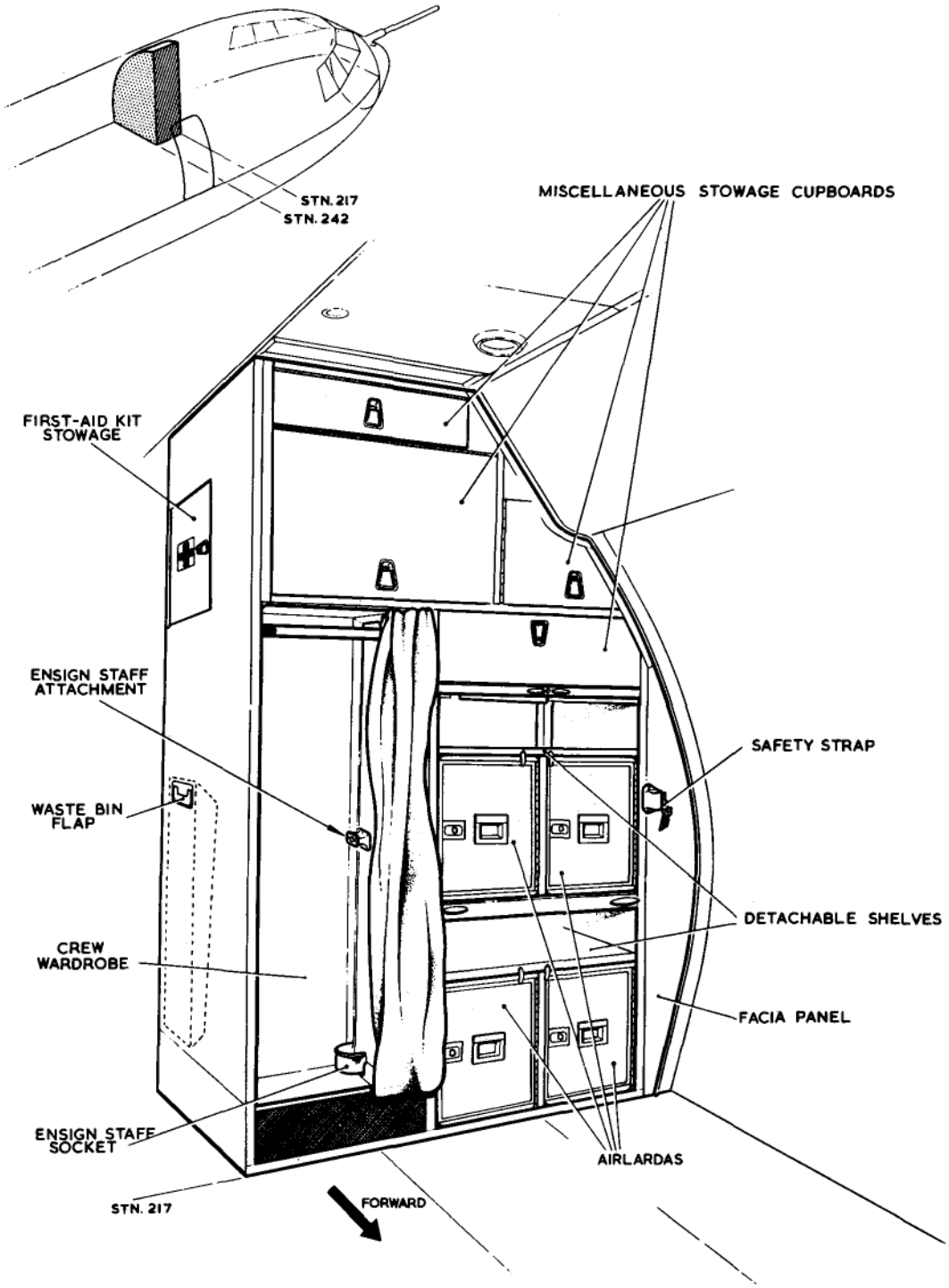
c. Adjustable left and right lap straps and a G-restraint strap.

d. A harness release buckle to which items a. and c. are fastened and which, when all straps are connected, permits the shoulder straps to be released independently of the lap straps or the whole harness to be released in one operation.

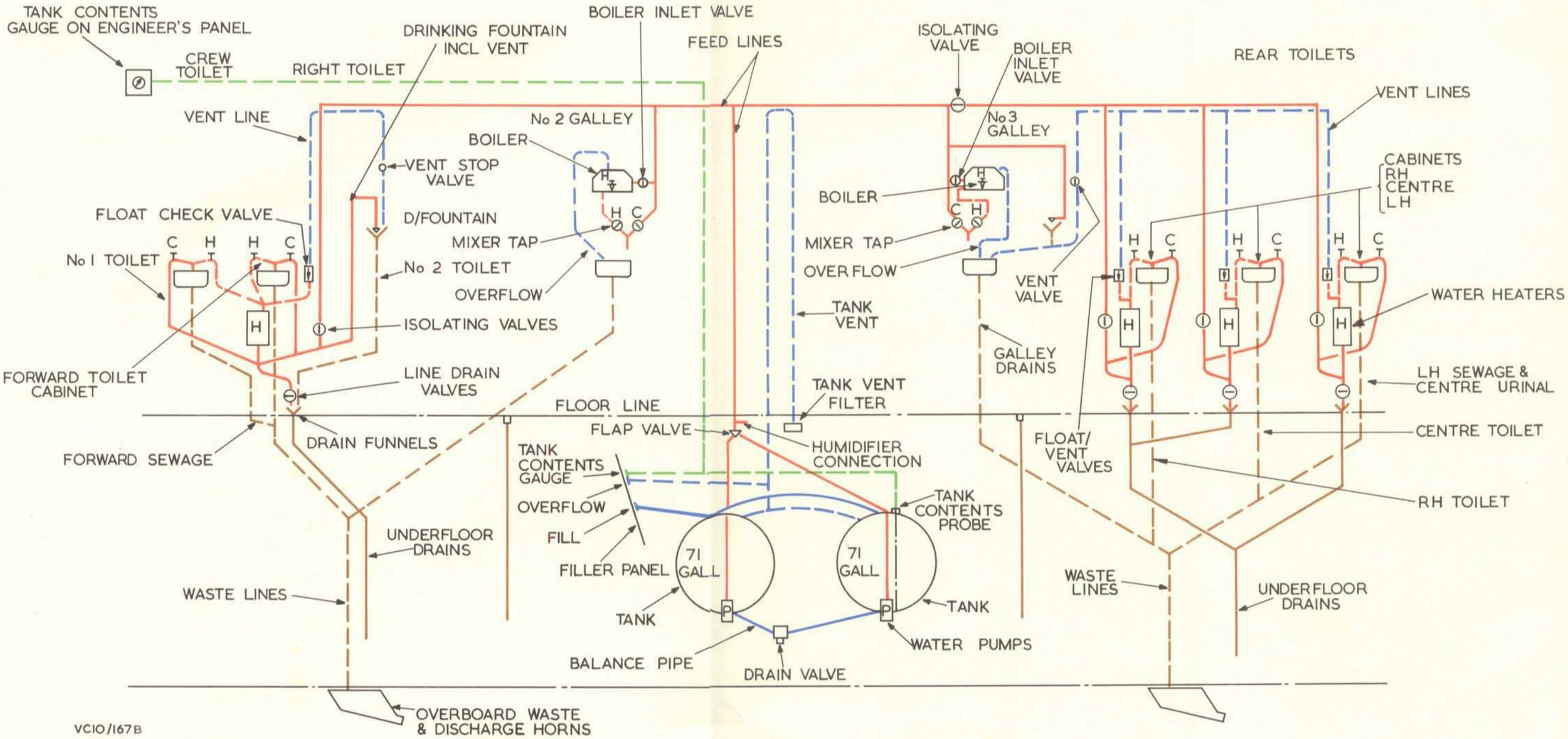
45. With the shoulder straps, lap straps, and G-restraint straps connected to the buckle and the harness reel-release lever in the forward (automatic) setting, the occupant can lean forward and go back freely to the length of the shoulder straps, the reel taking in the slack on leaning back. A forward acceleration of the shoulder harness in excess of 1 to 1·5G, however, automatically locks the harness until the G-load is removed when freedom of movement is again restored.

46. Setting the harness reel-release to the rear (manual lock) setting, converts the harness into a fixed harness. The shoulder harness will, however, reel in at this setting but cannot reel out again until the lever is set to the forward (automatic) setting.

47. Depressing and releasing the pawl in the front cover of the harness release buckle releases the shoulder straps only. Turning the front cover of the harness release buckle, in either direction, releases the complete harness.

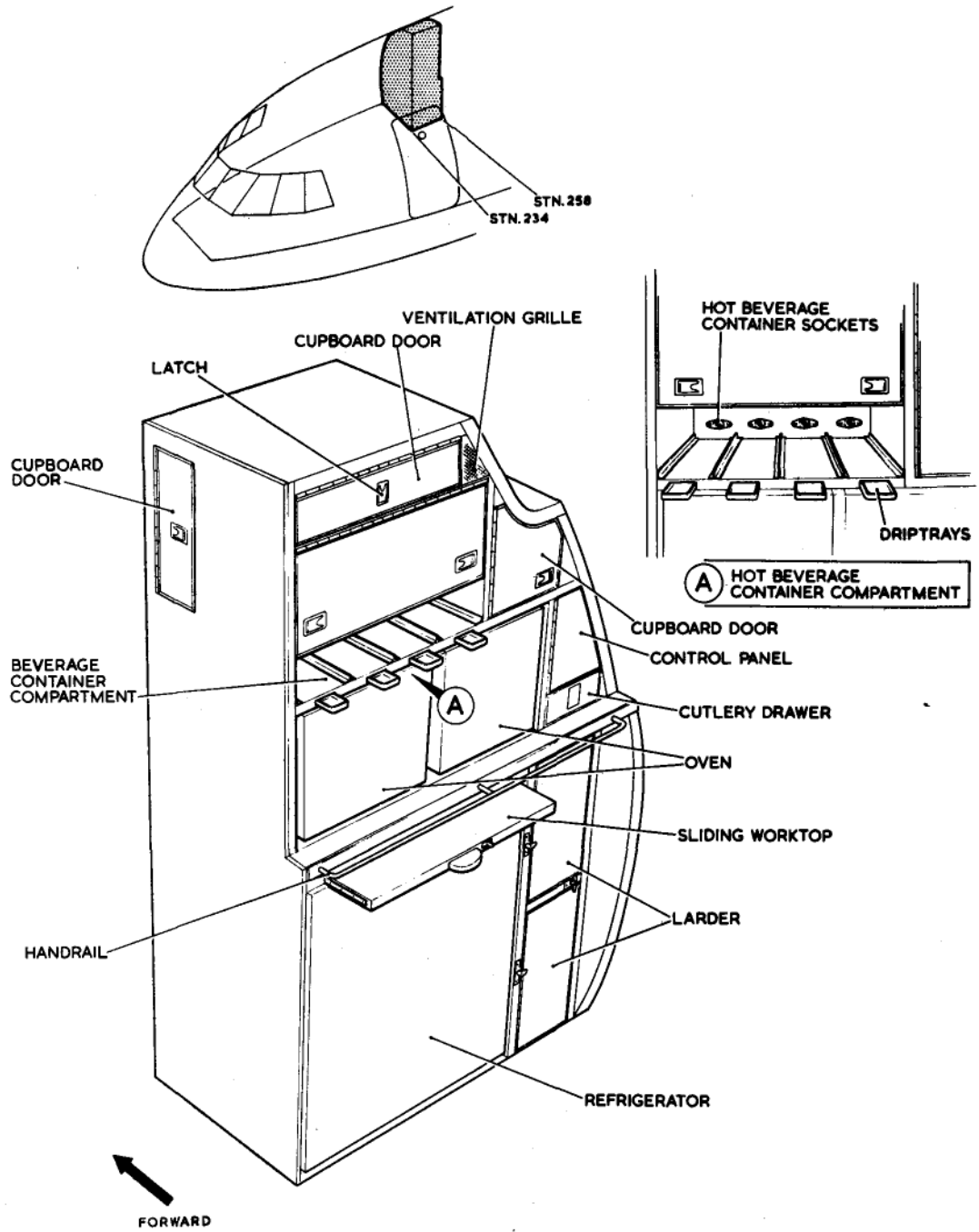


2.19 Fig. 1. Equipment Stowage Unit—At Forward Entrance Door

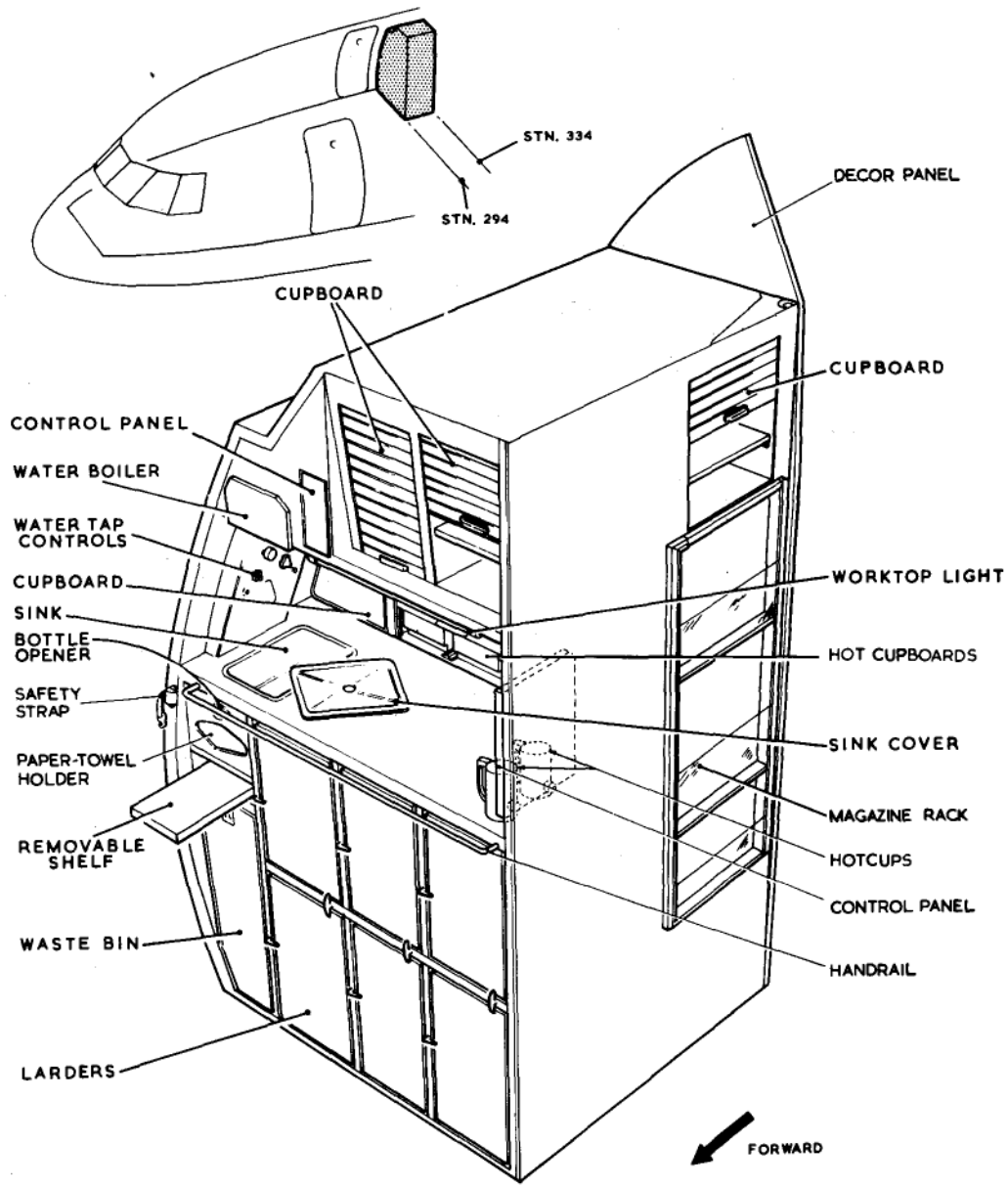


2—19 Fig 2 Water and Waste System

◀ *Drinking Fountains — Iced Water Containers Deleted* ▶

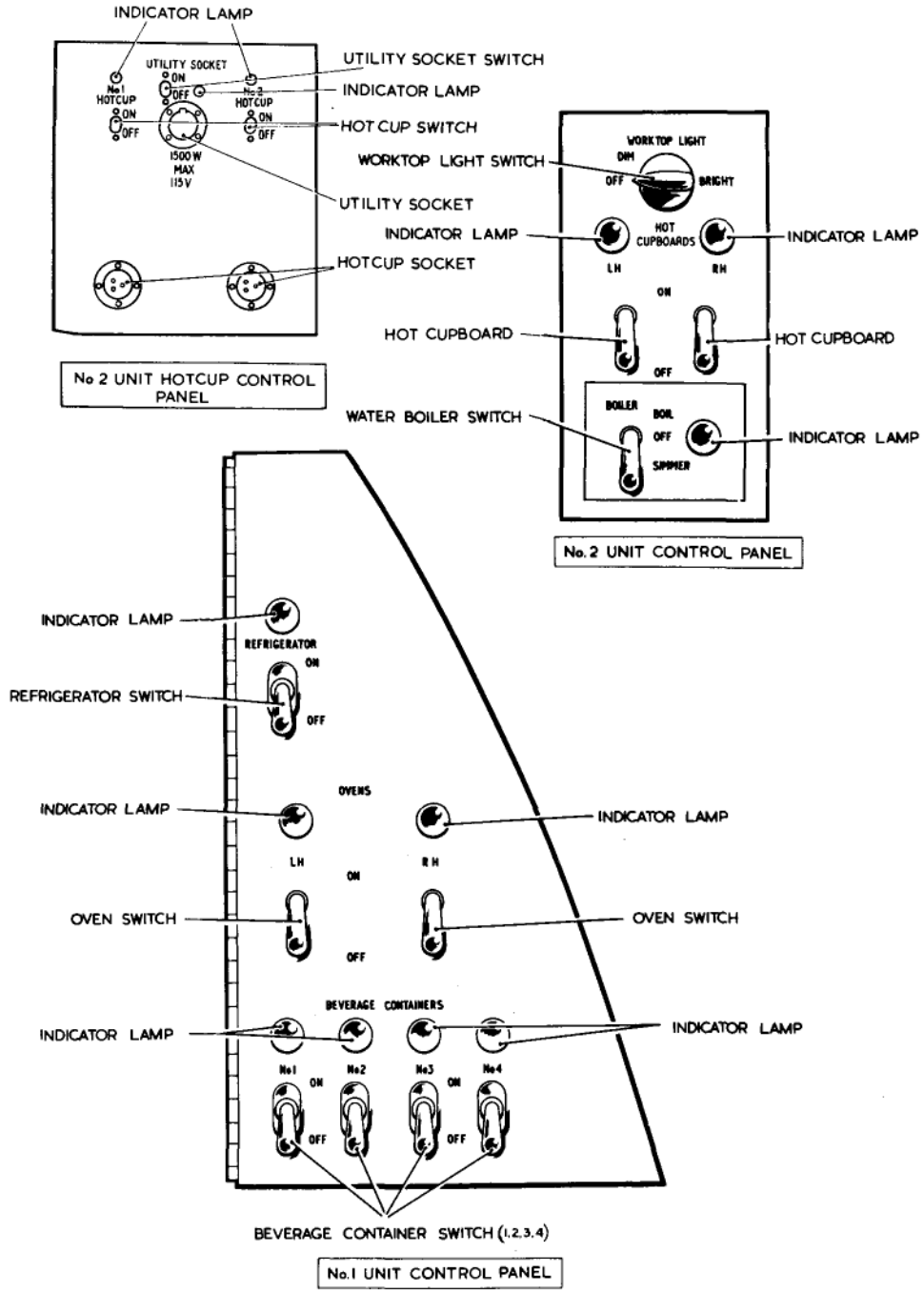


2.19 Fig. 3. No. 1 Galley Unit

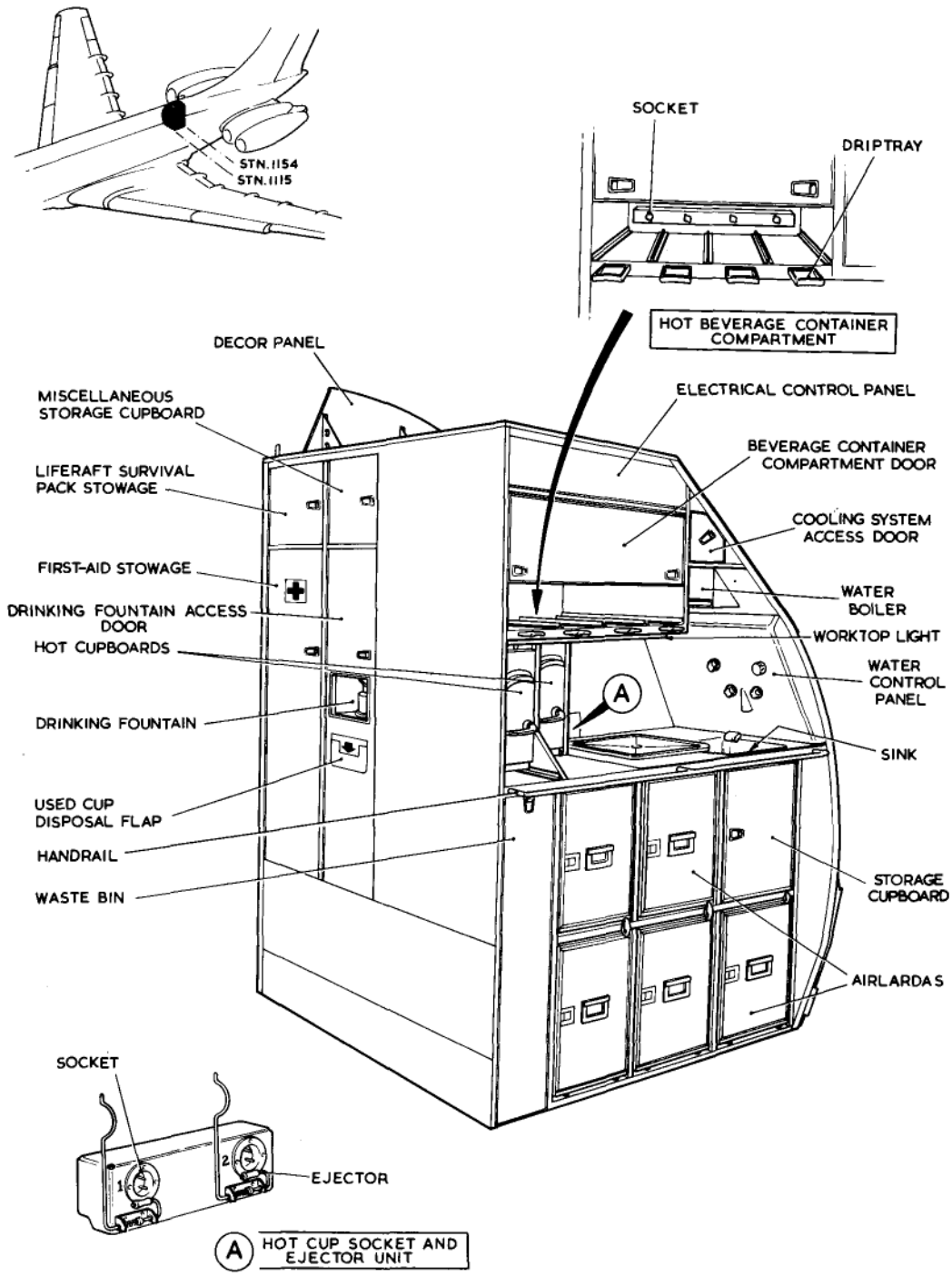


2.19 Fig. 4. No. 2 Galley Unit

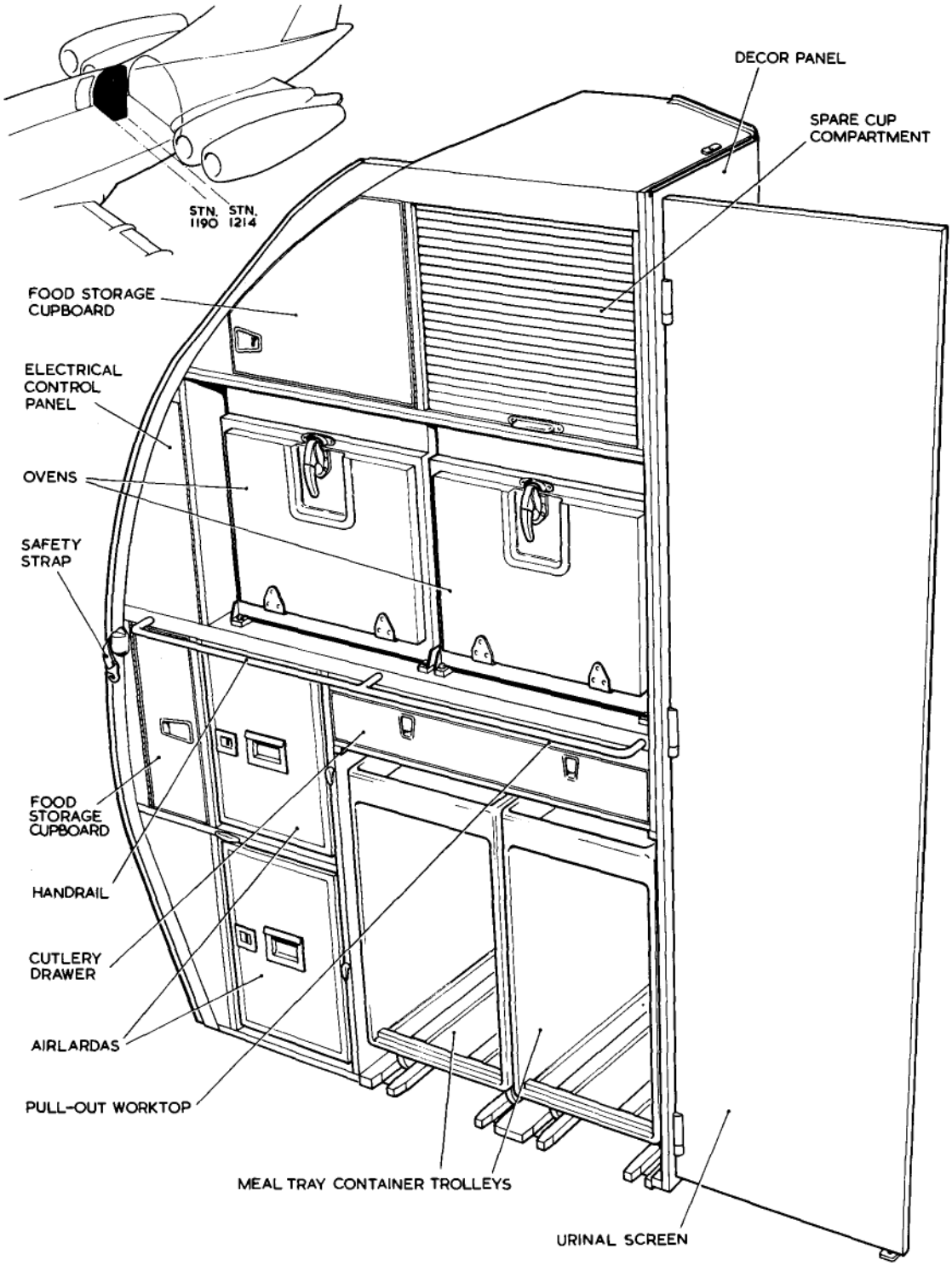
[redacted]



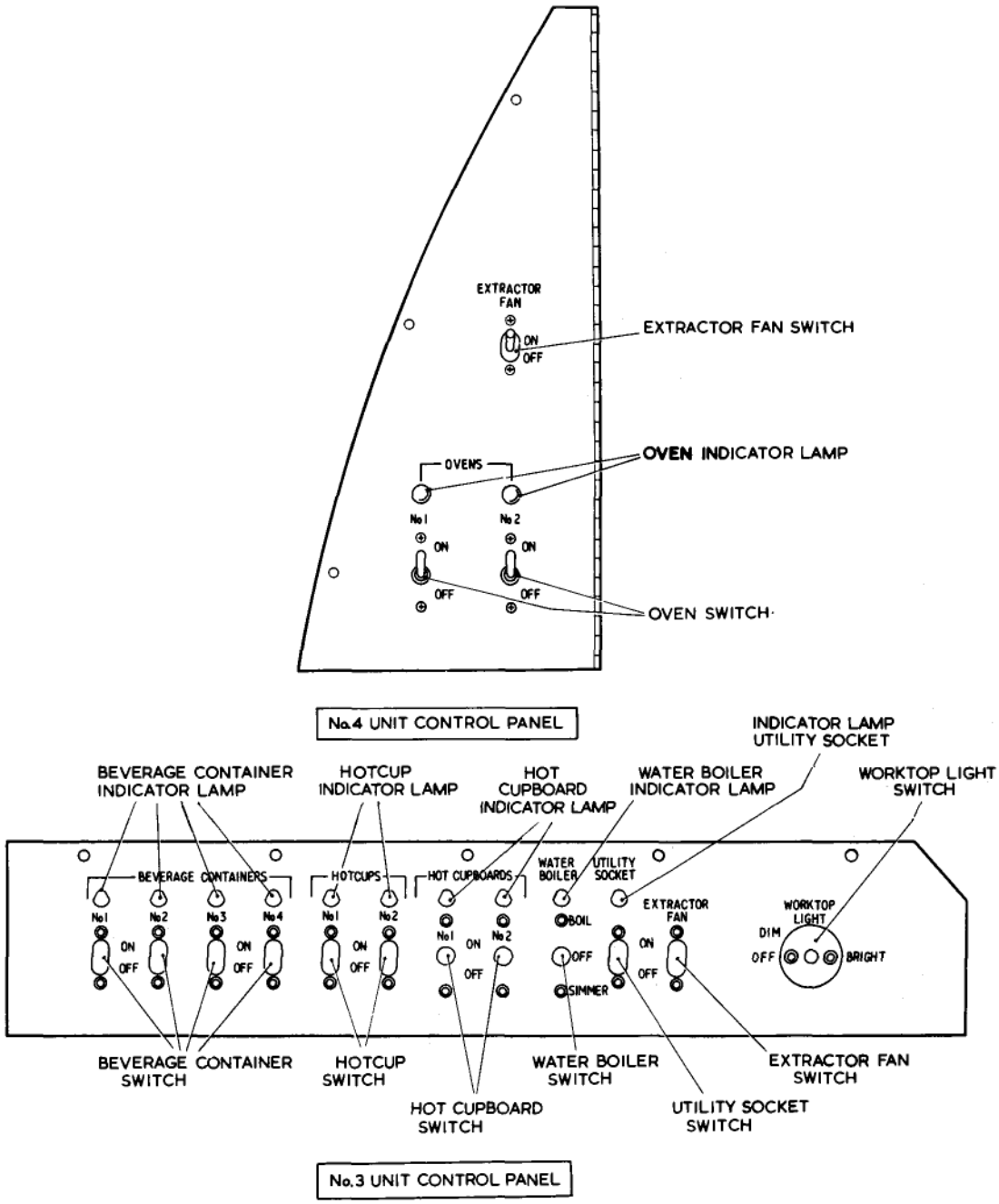
2.19 Fig. 5. Control Panels — No. 1 and No. 2 Galley Units



2.19 Fig. 6. No. 3 Galley Unit



2.19 Fig. 7. No. 4 Galley Unit



2.19 Fig. 8. Control Panels—No. 3 and No. 4 Galley Units