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POWERING THE INTERNAL SYSTEMS

AIR CONDITIONING SYSTEM

Air conditioning is offered on the 500 COCKPIT as a factory installed option. The procedures outlined in this section pertain only to units installed at the Carver factory. Air conditioning systems installed as aftermarket accessories may not necessarily operate in the manner described within this section.

Factory installed systems depend upon a source of AC power (supplied by shore power or an onboard generator) and a supply of sea water (salt or fresh).

The air conditioning units used on the 500 COCKPIT also have the capability to produce heat in their reverse cycle mode. This reverse cycle operation however is affected by the temperature of the sea water. As sea water temperature decreases so does the units ability to produce warm air. Marine Air recommends that the air conditioning system installed on the 500 COCKPIT not be used in reverse heat mode when the sea water temperature is below 40 degrees F.

The internal air conditioning system incorporates three independent air conditioning units. A first is installed under the berth in the aft master stateroom and is used to cool or heat the master stateroom, head compartment and the galley. A second air conditioning unit is installed beneath the boat's port salon area. It is used to cool and heat the galley, dinette and salon. A third unit is installed in the forward berth and is used to cool or heat the forward stateroom and head compartment. Water is supplied to all three internal air units through a single sea water pump. Condensation from each unit drains into the nearest shower sump or, in the case of the salon unit, directly overboard.

If your boat is equipped with external air conditioning, two additional air units will be placed in the bridge and aft deck area when the optional bridge hard enclosures are selected. Water to these additional air units is supplied by a second sea water pump. Condensation from the bridge and aft deck air units drains directly overboard.

To Use The Air Conditioning Systems:

- 1) A single pump is used to supply the internal air conditioning units with sea water. Locate and open the thru-hull valve that supplies sea water to the pump. This valve is located in the center hatch toward the aft, port end of the aft cabin berth.

NOTE: Water is supplied to the external air conditioning units used to cool the bridge and aft deck using a second sea water pump. Power to this pump and external air units is supplied through the ship's SHORE1 service under the breakers labeled "A/C PUMP, A/C BRIDGE and A/C AFT DECK."

- 2) A strainer is installed between the supply valve and the pump. This strainer stops foreign matter from being ingested into the pump or air conditioning units. Inspect and clean this strainer prior to using the pump.

POWERING THE INTERNAL SYSTEMS

- 3) Turn the AC MAIN breakers to the off position.
- 4) Supply power to the AC breaker panels on your boat. Power can be supplied to the AC breaker panels by connecting to a dockside power source or by running the onboard generator. If you are using a dockside power source, slide the AC selector bars up to the dockside power positions. If you are using an onboard generator, slide the AC selector bar down to the generator power positions.
- 5) Turn the AC MAIN breakers to the "ON" position. Turn on the SHORE 2 breakers labeled A/C PUMP, A/C SALON, A/C UNIT FWD and A/C UNIT AFT.

If your yacht is equipped with the bridge and aft deck air conditioning system, supply power to the additional sea water pump and air units. Power is supplied to these units through the SHORE 1 service using the breakers labeled A/C PUMP, A/C BRIDGE AND A/C AFT DECK. Turn these breakers to the "ON" position.

NOTE: Running all five A/C units aboard your yacht simultaneously will exceed the power available from the Genset or SHORE 2 MAIN circuit. Turn off one or two other A/C units to manage the current demand below the available electrical supply. The aft Cabin, for example, may stay comfortable if the aft deck above is cooled.

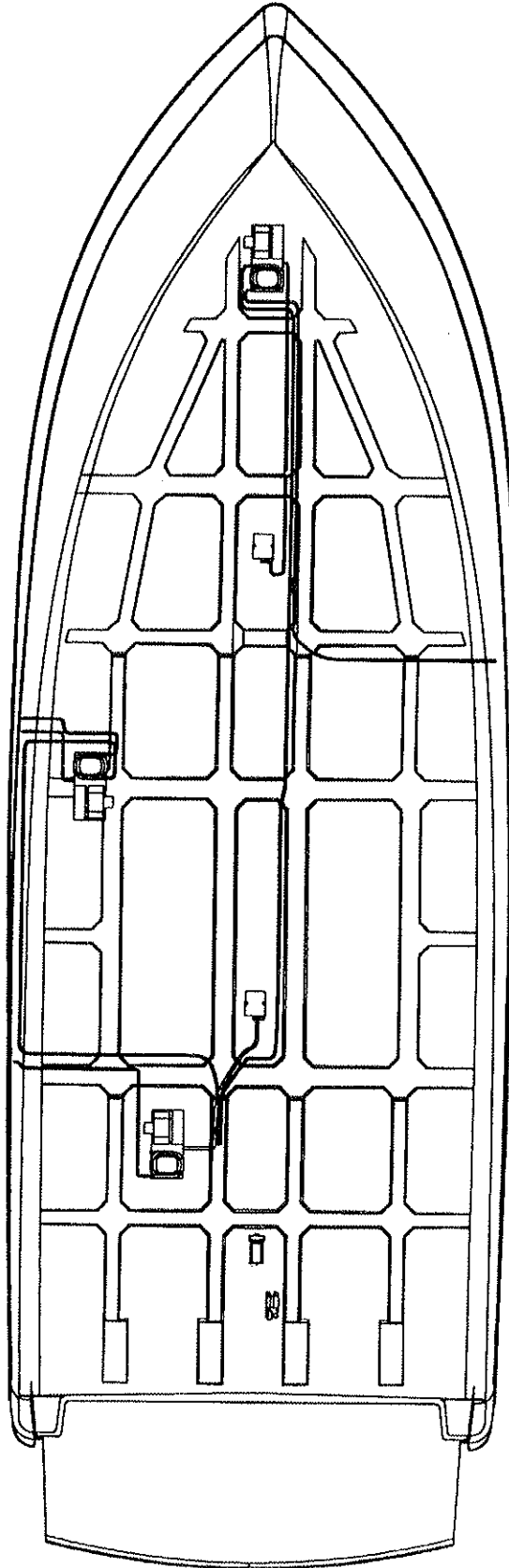
- 6) Check to make sure that water is being pumped to the air conditioning units. Sea water outlets are installed on the outside of the boat's hull. The outlet for the aft air conditioning unit is found on the starboard side of the hull, just forward of the transom. Water outlet for the salon and the forward air conditioning unit are installed on the port side of the hull, at the midpoint between the transom and the bow.

Each air conditioning unit is controlled by its own ECU (Environmental Control Unit). Refer to the instructions provided by the manufacturer for detailed information on operating the ECUs and maintaining the air conditioning system.

NOTE: The air conditioning condensation drains into the shower sump pan. Be sure the Shower Sump breaker in the safety main panel is in the "ON" position before running the air conditioning units.

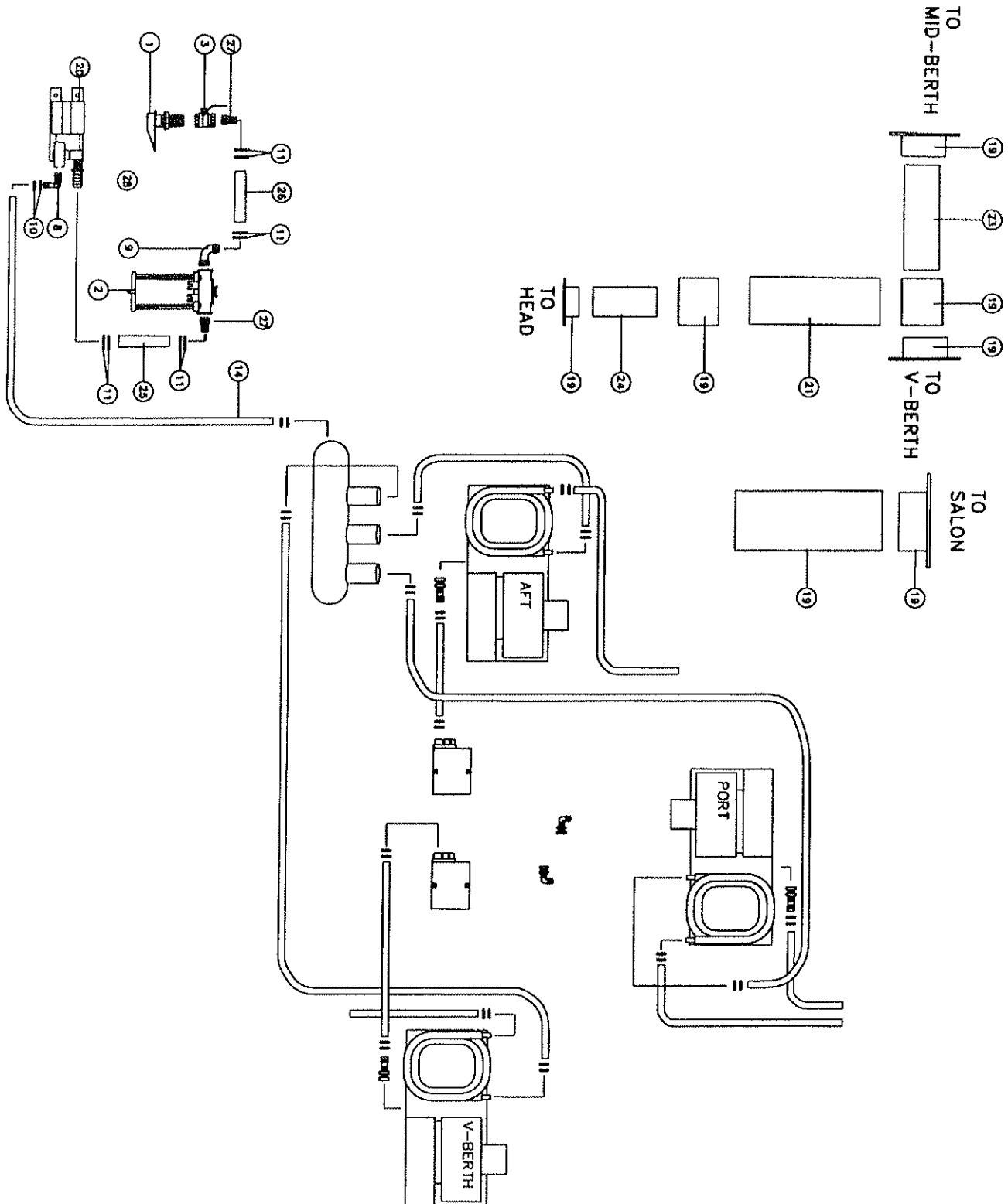
POWERING THE INTERNAL SYSTEMS

Air Conditioning Layout



POWERING THE INTERNAL SYSTEMS

Air Conditioning Layout



POWERING THE INTERNAL SYSTEMS

Air Conditioning Layout

ITEM	QTY	DESCRIPTION	PART NO	OPT
1	1	STRNR: SCOOP INTAKE 1" THRU	5104900	*/+
2	1	STRNR: #6 1" INTAKE WATER	5112200	*/+
3	1	VALVE: BALL 1" W/DRAIN	5131600	*/+
4	1	BOX: HANDY SINGLE 2 1/2" D	6904500	+
5	2	CVR: HANDI BOX	6908600	*/+
6	2	BOX: HANDY	6908700	*/+
7	4	THRU HULL: 5/8" WHITE	7408200	*/+
8	2	FIT: 90 1/2HB x 1/2MPT PW NYLON	7411000	*/+
9	4	FIT: 1PT x 1HS BRB 90DEG BRONZ	7419300	*/+
10	24	CLAMP: HOSE #8	7500200	*/+
11	8	CLAMP: HOSE #20	7500500	*/+
12	1	HOSE: BILGE EX HD 5/8" x 36"	A0004542	*/+
13	1	HOSE: BILGE EX HD 5/8" x 120"	A0004545	*/+
14	1	HOSE: BILGE EX HD 5/8" x 168"	A0004629	*/+
15	1	HOSE: BILGE EX HD 5/8" x 276"	A0004872	*/+
16	1	HOSE: BILGE EX HD 5/8" x 144"	A0004903	*/+
17	1	A/C: 12000 BTU ECU 110V	9010000	*
18	1	A/C: 16000 BTU ECU 110V	9010200	*
19	1	KIT: UTILITY 3790	9008800	*/+
20	1	PUMP: SEA WATER (P310)	9050100	*/+
21	1	HOSE: 5"x10' FLEX DUCTING	A0000212	*/+
22	1	BASE: STRAINER 3490	37597-00	*/+
23	1	HOSE: 4"x36" FLEX DUCTING	A0009384	*/+
24	1	HOSE: 4"x156" FLEX DUCTING	A0013104	*/+
25	1	HOSE: 1"x10" WATER/EXHAUST	A0016164	*/+
26	1	HOSE: 1"x20" WATER/EXHAUST	A0016165	*/+
27	2	FIT: 1PT x 1HS BARB BRONZE	7419200	*/+
28	1	FIT: 1HB x 3/4MPT PW NYLON	7409300	*/+
29	1	A/C: 12000 BTU ECU 220V	9010100	+
30	1	A/C: 16000 BTU ECU 220V	9010300	+

POWERING THE INTERNAL SYSTEMS

FRESH WATER SYSTEM

Your 500 COCKPIT is capable of carrying approximately 200 gallons of fresh water. Water is carried within the boat's two 100 gallon water tanks with an additional 20 gallons of hot water within the hot water tank.

Filling The Tank

The fresh water tanks are filled through a single water fill deck plate. The water fill deck plate is labeled WATER. The water fill deck plate is located on the portside wall of the boat's cockpit. Refer to the **Fill Plate Locations** portion of **Section 9** for the water fill location.

NOTE: Thoroughly flush and sanitize the water system before initial use and at least once each season.

Put only clean, fresh water into your water tank. Your tank is full when water is discharged from the stainless steel water tank vent fitting installed on the side of the boat's hull. Refer to the **Above the Waterline Thru-Hull Fittings** portion of **Section 9** for the exact location of the water tank vent fitting. DO NOT overfill your water tank OR leave a fill hose unattended while the tanks are being filled.

Priming The Fresh Water System

After filling the tanks:

- 1) Partially open all cold water faucets and the cold water side of the shower mixing valves.
- 2) Position the battery selector switch (refer to the Battery Selector Switch portion of Section 2) to either the #1 or #2 position.
- 3) Switch the 12 volt MAIN circuit breaker and the 12 volt circuit breaker labeled PRESSURE WATER PUMP to the "ON" position.

The system will be primed by purging all air from the system's pipes. Monitor each faucet and the shower mixing valves. When a steady stream of water is being discharged from the COLD side of a faucet or shower head you may turn the valve controls for that faucet or shower head to the HOT side. As a steady stream of water flows from the hot side of each faucet or shower head, they can be turned off. Pressure within the system will build and the pressure water pump will automatically shut off. Priming the system also fills and maintains the water level within the water heater.

POWERING THE INTERNAL SYSTEMS

System Operation

The fresh water system is designed to operate in the same manner as the water system within your home. After filling the tank and turning on the proper 12 volt circuit breakers, simply turn a faucet valve to receive fresh water.

Sometimes a recently filled system or one that has not been used for some time may need re-priming. This is normal and is caused by an accumulation of air bubbles at the pressure water pump.

A TIP FROM CARVER: *"If your boat will be left unattended for an extended period (three days or more) turn the 12 volt circuit breaker labeled PRESSURE WATER to the "OFF" position. Pressure within the system may fall and cause the water pressure pump to engage. If this happens frequently, it could needlessly discharge your batteries."*

Water Heating System

A 20 gallon water heater is part of your boat's onboard fresh water system. The water heater is automatically filled by the pressure water pump. Fresh water can be heated two different ways:

- 1) Water can be heated when AC power is applied to the heating unit. Switch the AC MAIN circuit breaker and the AC circuit breaker labeled WATER HEATER to the "ON" position AFTER the water system has been filled, pressurized, and primed.



DANGER

DO NOT supply electric power to an empty water heater. Supplying power to an empty heater will damage the element and may start a fire.

- 2) Your boat is also equipped with an ENGINE HEAT EXCHANGER. The heat exchanger utilizes the heat from the starboard engine's coolant to heat the water contained within the water heater.

A TIP FROM CARVER: *"If you are at anchor and have no access to dockside power you can still have hot water. Simply start the starboard propulsion engine. After letting the engine run for a short time you'll have water warm enough for a shower."*

For more information on your boat's water heater refer to the information supplied by the unit's manufacturer. This information is contained in the OEM supplied materials packet.

Shower

Your 500 COCKPIT is equipped a fiberglass stall shower/tub combination fwd and a stall shower aft. These showers require a minimum of preparation before use and cleanup after showering.

POWERING THE INTERNAL SYSTEMS

The drain basin of each shower is positioned lower than the boat's water line. Because of this, a shower sump pump is needed to drain the basin and to discharge the shower drain water overboard or into a grey water holding tank. The shower sump pump is triggered automatically when water within the shower's drain basin rises above a predetermined level.

NOTE: Although the shower sumps are designed to work automatically, the "shower sump" breaker located on the 12 volt safety breaker panel must be in the "ON" position for the shower sumps to be active. Push the knob in to turn this type of breaker on.

A TIP FROM CARVER: *"To obtain the most consistent shower temperature, turn the COLD water valve on full, then mix hot water until the desired temperature is achieved. This system will keep the pressure water pump running, eliminating widely fluctuating water temperature."*

Water System Maintenance

If the water flow from the shower appears to become restricted, it may be due to the accumulation of sediment at the shower head. If this happens, remove the head, rinse with clean water and clean the discharge holes with a fine wire.

Periodically remove and clean the filter screens from the faucet discharge spouts. Clean the screens with a fine wire if necessary. A buildup of debris in the faucet filter screens can create enough restriction to cause the pump to repeatedly cycle on and off.

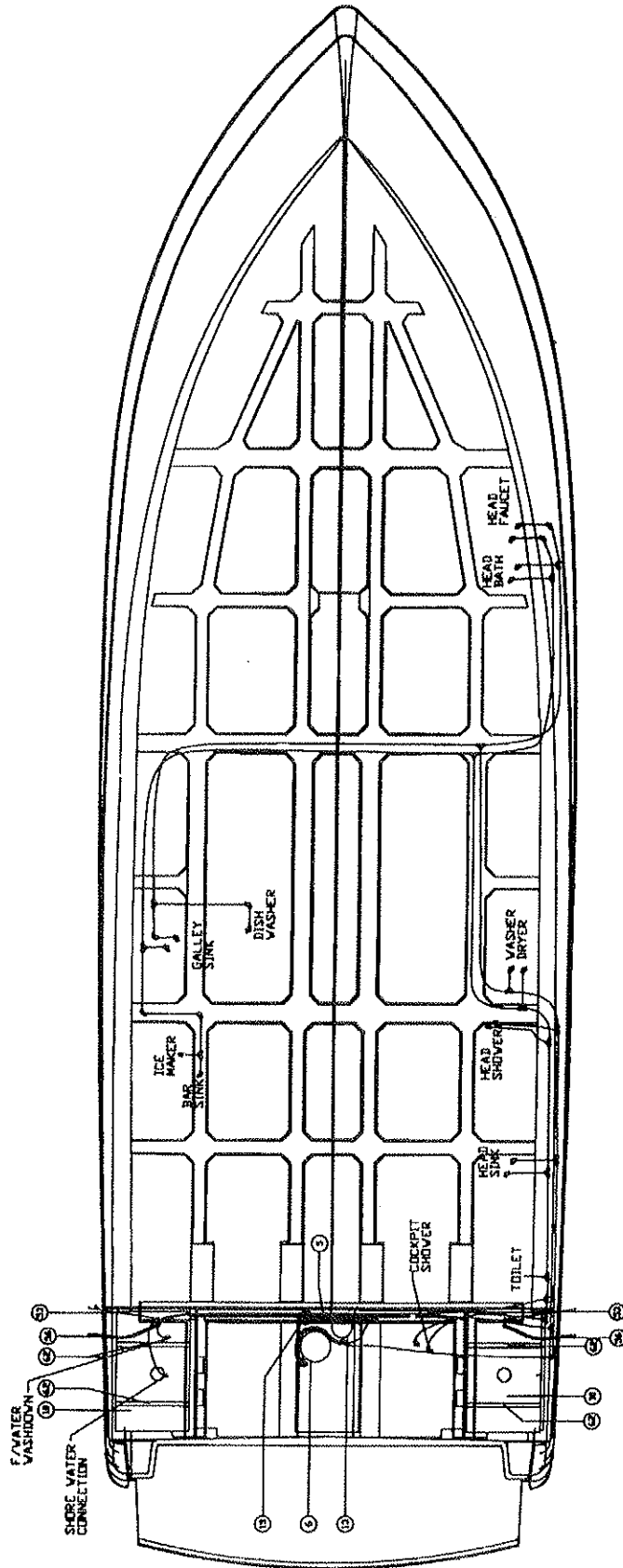
There is an in-line filter installed near the pressure water pump. Clean this filter on a monthly basis. Clean the screen in the water tank vent on an annual basis.

Flush and sanitize your water system at least once per season. Flushing involves draining all water from the system. Sanitizing involves using a commercially made tank sanitizing liquid that is available at any well stocked marine supply store.

NOTE: Your boat's fresh water system INCLUDING THE WATER HEATER AND HEAT EXCHANGER must be drained prior to winter lay-up. Failure to winterize the water system could lead to damaged pipes, valves, faucets, tanks, or a ruptured water heater. Refer to the Winterization section of this manual for more information.

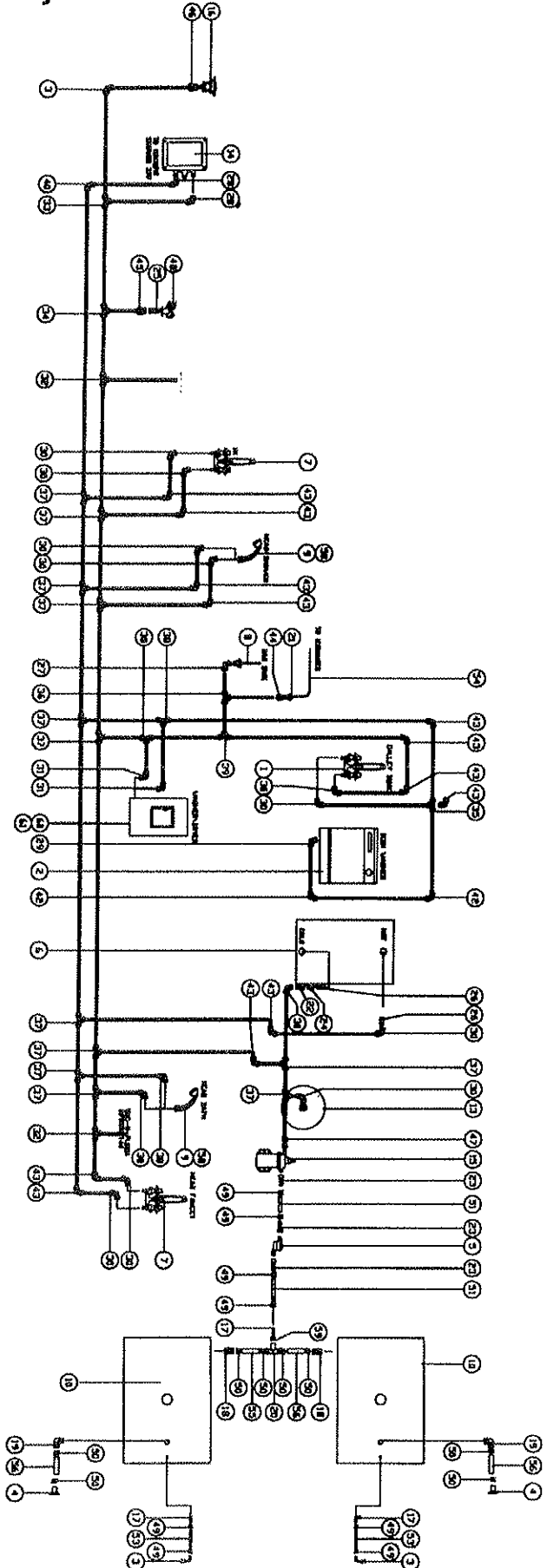
POWERING THE INTERNAL SYSTEMS

Water System Layout



POWERING THE INTERNAL SYSTEMS

Water System Layout



POWERING THE INTERNAL SYSTEMS

Water System Layout

ITEM	QTY	DESCRIPTION	PART NO	OPTION
1	1	FAUCET: GALLEY	6115301	STD
2	1	DISHWASHER	6118501	251=Y
3	2	VENT: 90DEG THRU HU	6002800	STD
4	1	PLT: DECK WATER FIT	6216900	STD
5	1	FLTR: WATER INLINE	6106700	STD
6	1	HEATER: 20 GALLON W	6111800	STD
7	2	HEAD: FAUCET	6115302	STD
8	1	FAUCET: CKPT (CHROM	6116700	WETBAR=Y
9	2	SHOWER: HEAD	6117000	STD
10	2	TANK: WATER 100 GAL	6118409	STD
11	1	SNDR: WATER LEVEL 12" TO 2"	6116500	STD
12	1	TANK: WATER 35 GAL	6118405	147=Y
13	1	TANK: JABSCO ACCUMU	6212500	147=Y
14	1	SHWR: TRANSON H & C	6216700	SHOWER=Y
15	1	PUMP: SUREFLO PRESS	6300900	STD
16	1	FIT: FRESH WATER IN	7308400	287=Y
17	3	FIT: 90DEG 1/2HB x 1/2MPT	7411000	STD
18	3	FIT: 1 1/2HB x 1 1/2	7404300	STD
19	2	FIT: 90DEG 1 1/2HB x 1 1/2MPT	7403900	STD
20	1	FIT: T 1-1/2HB x 1 1/2HB x 1/2FPT	7425600	STD
21	1	KIT: 1/4" OD COPP T	7411400	WICEMKR=Y
22	1	VALVE: 1/2x1/2 CHEC	7411900	STD
23	3	FIT: 1/2HB x 1/2FPT	7412300	STD
24	1	FIT: 1/2MPT ADAPTOR	7413200	STD
25	1	NIPPL: 1/2MPT x 2"	7414200	CKPTWSH=283
26	2	NIPPL: PIPE BRASS 1	7415800	STD
27	1	FIT: 90DEG 1/2"WB x	7427000	WETBAR=Y
28	2	FIT: 90DEG 1/2WL x	7427000	SHOWER=Y
29	1	FIT: 90DEG 1/2WL x	7427000	251=Y
30	13	FIT: 90DEG 1/2WL x	7427000	STD
31	2	FIT: 90DEG 1/2WL x	7427000	250=Y
32	2	FIT: T 1/2"WL	7427100	144=Y
33	1	FIT: T 1/2"WL	7427100	SHOWER=Y
34	1	FIT: T 1/2"WL	7427100	COCKPIT=283
35	1	FIT: T 1/2"WL	7427100	251=Y
36	1	FIT: T 1/2"WL	7427100	WICEMKR=Y
37	12	FIT: T 1/2"WL	7427100	STD
38	2	FIT: T 1/2"WL	7427100	250=Y
39	1	FIT: T 1/2"WL	7427100	WICEMKR
40	1	FIT: 90DEG 1/2"WL	7427300	SHOWER=Y
41	1	FIT: 90DEG 1/2"WL	7427300	287=Y
42	2	FIT: 90DEG 1/2"WL	7427300	251=Y
43	12	FIT: 90DEG 1/2"WL	7427300	STD
44	1	FIT: ADAPT 1/2"WL x	7427400	WICEMKR=Y
45	1	FIT: ADAPT 1/2WL x	7427400	CKPTWSH=283
46	1	FIT: ADAPT 1/2WL x	7427400	287=Y
47	1	FIT: 1/2WL x 1/2FP	7427700	STD
48	1	SILLCOCK: 1/2" CHR/	7435300	CKPTWSH=283
49	16	CLAMP: HOSE #8	7500200	STD
50	16	CLAMP: HOSE #28	7500600	STD
51	1	HOSE: HD WATER 5/8"	7502700	STD
52	2	TUBE: WATERLINE GRE	7505200	STD
53	2	HOSE: BILGE EX HD 5	7509700	STD
54	1	TUBE: 1/4" x 60" CO	7560000	WICEMKR=Y
55	1	HOSE: 1 1/2" x 1'	A0004204	STD
56	2	HOSE: 1 1/2" x 2' H	A0004904	147=Y
57	1	HOSE: 1 1/2" x 8' H	A0000087	STD
58	2	SHOWER: FAUCET	6129100	STD
59	1	FIT: 1 1/2MPT x 1/2FPT PW PV	7406800	STD
60	1	WASHER\DRYER: KARIBA COMBO 110V	6120701	250=Y
61	1	WASHER\DRYER: KARIBA COMBO 220V	6120702	220=Y
62	4	STRAP: PLASTIC BLACK x 100"	7102300	STD

POWERING THE INTERNAL SYSTEMS

Transom Shower (optional)

The transom shower option is a convenient item that allows you and your guests to rinse off with warm, fresh water after swimming. This option is especially handy on boats used in salt water.

Using the Transom Shower

The transom shower is an integral part of your boat's fresh water system. Use it just as you would use a shower located in the boat's head compartment.

Fresh Water Washdown

Fresh water washdown enables you to use fresh water from the boat's water storage tanks to washdown and clean your boat. Fresh water washdown is particularly useful in salt water areas.

Using Fresh Water Washdown

- 1) Locate the cockpit-mounted hose fitting and 12 volt switch labeled "WASHDOWN."
- 2) Attach a nylon water hose to the aft deck hose fitting. Screw a nozzle to the other end of the hose. The best type of nozzle to use is the "pistol grip" type that can be opened and closed by squeezing your hand.
- 3) The washdown system uses a 12 volt automatic pump to create water pressure. When the hand nozzle is in the closed position the pressure will build within the washdown system and the automatic pressure pump will shut off when a predetermined amount of pressure has been reached. Opening the hand nozzle will release pressure and will engage the pressure water pump.

A TIP FROM CARVER: *"Remember that the fresh water washdown system draws its water from the boat's fresh water storage tanks. Prolonged use will quickly reduce the amount of fresh water contained within the onboard storage tanks."*

Raw Water Washdown

Raw water washdown enables you to use sea water for washdown and cleaning.

Using Raw Water Washdown:

- 1) Locate the cockpit-mounted hose fitting.
- 2) Open the seacock that supplies sea water to the raw water washdown pump. The seacock is located within the hatch immediately below the stairway within the aft stateroom.

POWERING THE INTERNAL SYSTEMS

- 3) Attach a 3/4" nylon water hose to the aft deck hose fitting. Screw a nozzle to the other end of the hose. The best type of nozzle to use is the "pistol grip" type that can be opened and closed by squeezing your hand.
- 4) Turn the battery selector switch to position #1 or #2. Turn the 12 volt MAIN circuit breaker to the "ON" position. Turn "ON" the 12 volt breaker labeled WASHDOWN.
- 5) The washdown system uses an automatic 12 volt pump to create pressure. When the hand nozzle is in the closed position the pressure will build within the system. The automatic pressure pump will shut off when a predetermined amount of pressure has been reached. Opening the hand nozzle will release pressurized water and will engage the pressure water pump.



CAUTION

DO NOT run the washdown pressure water pump when the seacock that supplies sea water to the system is closed. The pump may become damaged if it is allowed to operate with no water. Be sure to clean the raw water filter frequently.

Shore Water Hookup

Shore water hookup utilizes dockside city water as the fresh water source while your boat is docked. When your boat is connected to shore water you are not drawing from the fresh water supply stored within your onboard water tank.

To Connect to Shore Water Hookup

- 1) Locate the shore water hookup fitting labeled "SHORE WATER." This fitting is located outward of the bottom step of the cockpit's stairway.
- 2) Attach a water hose between the shore water fitting and the dockside water tap.
- 3) Turn the dockside water tap "ON."

Connecting your boat to shore water bypasses the boat's water tank and pressure water pump. Connecting the boat to shore water does not "automatically" fill the fresh water tank. The only way to fill the onboard tank is through the water fill deck plate.

POWERING THE INTERNAL SYSTEMS

BILGE SYSTEM

Design

Your boat's design incorporates a bilge that is located beneath the cabin floor. The bilge is the lowest point in the interior of the boat's hull where any liquid that finds its way into the hull will accumulate.

The 500 COCKPIT bilge is divided into three sections:

- 1) The forward bilge which starts near the boat's galley/dinette compartment and continues to the bow of the boat.
- 2) The amidship's bilge area which contains the engines, generator, pressure water pump, fuel tanks, and various other gear.
- 3) The aft bilge which is located under the master stateroom floor. The aft bilge contains the ship's steering linkage, rudder ports, aft waste tank, and trim tab pump.

An 1500 GPH (gallon per hour) automatic bilge pump has been installed in each one of the three bilge compartments.



If you keep your boat in a cold climate where temperatures can drop below freezing, make sure that all water within the bilge is drained prior to storing the boat for the winter. Water left to freeze in the bilge could lead to severe damage to your boat and its components.

Maintenance

The bilge area should be kept clean by removing any dirt or debris and by using any of the commercially available bilge cleaners that are available from your Carver Dealer. Keeping a dry, clean bilge will help reduce moisture and minimize odor within your boat.

The bilge area of your boat should not be used as a storage area. Storing loose items in the bilge could damage pumps, pipes or other components that are essential parts of your boat's operational system.

Garboard Drain

Your 500 COCKPIT is equipped with one garboard drain. This drain has been installed to allow water to drain from the bilge while the boat is in dry storage. The boat and cradle should be positioned in a manner that will allow water to flow towards the garboard drain. The garboard drain is located in the transom in the deepest portion of the hull's "V."

POWERING THE INTERNAL SYSTEMS



CAUTION

Be certain that the garboard drain plug is securely screwed into the garboard drain **BEFORE** launching the boat.

A TIP FROM CARVER: *“Coat the threads of the garboard drain plug with waterproof grease prior to installing the plug into the garboard drain fitting. This will make it easier to remove at a later date.”*

Bilge Pumps

NOTE: Before operating your boat's bilge pumps, wipe up any oil that may have accumulated in the bilge area. Pumping oil overboard contributes to water pollution and is in violation of the Federal Water Pollution Control Act. Violators are subject to a substantial penalty.

Your 500 COCKPIT has been equipped from the Carver factory with three automatic bilge pumps. Each pump has a rated ability to pump up to 1500 gallons of water per hour. These pumps have been strategically installed to remove water that accumulates in each bilge area.

NOTE: The bilge pumps that have been installed on your boat by Carver are designed to remove the quantity of bilge water that will typically be encountered during normal boating activities. They are not designed to keep your boat afloat in the event of an accident that results in damage to the boat's hull.

Your boat's bilge pumps can operate in two manners:

Automatic Operation

Each bilge pump is wired to a push/pull breaker located in the Safety Main panel and then routed to the batteries. The bilge pumps are also wired to an individual breaker in the boat's 12 Volt Distribution panel. Incorporated into each bilge pump is a float switch. The float switch "automatically" turns on the appropriate bilge pump when bilge water rises to a predetermined level. These float switches are wired to the push/pull breakers in the Safety Main panel. The bilge pumps will operate automatically via their float switches, regardless of the position of the breakers on the 12 volt circuit breaker panel or the position of the battery selector switch. Test each switch by lifting the float. Lifting the float should turn the bilge pump on.

NOTE: The push/pull breakers for the bilge pumps in the Safety Main panel should be in the "ON" position at all times so that the pumps will operate automatically via their float switch.

POWERING THE INTERNAL SYSTEMS

Manual Operation

The bilge pumps can also be operated manually. A set of bilge pump control switches have been installed at each helm station to manually control the pumps.

For manual operation, turn the 12 volt circuit breakers labeled FWD BILGE, MID BILGE and AFT BILGE to the "ON" position. At the helm station, turn the switches marked FWD, MID or AFT BILGE PUMP to the "ON" position.

A TIP FROM CARVER: *"A certain amount of water will always collect in your boat's bilge, especially in the bilge area where the shaft log is located. The small amount of water that normally accumulates is usually not enough to activate an automatic float switch.*

"While underway and on plane, use the helm station switches to turn your bilge pumps on manually and let them run for 30 seconds to a minute.

"The mid and aft bilge pumps on your boat are located in the aft most section of each bilge. When your boat is on plane bilge water will flow to the aft area of the bilge and be pumped overboard by your manually activated bilge pumps. The forward pump is near the lowest point in the hull at rest."

CAUTION

WHEN OPERATING THE BILGE PUMPS IN THE MANUAL MODE, DON'T FORGET TO TURN THEM "OFF" AFTER WATER HAS BEEN REMOVED FROM THE BILGE. Leaving a pump run dry could seriously damage the pump.

Your boat's bilge pumps will remove the water that may collect within the bilge, but don't expect them to pump the bilge absolutely dry. If you insist upon an absolutely dry bilge you will need to remove the last bit of water with a sponge and bucket.

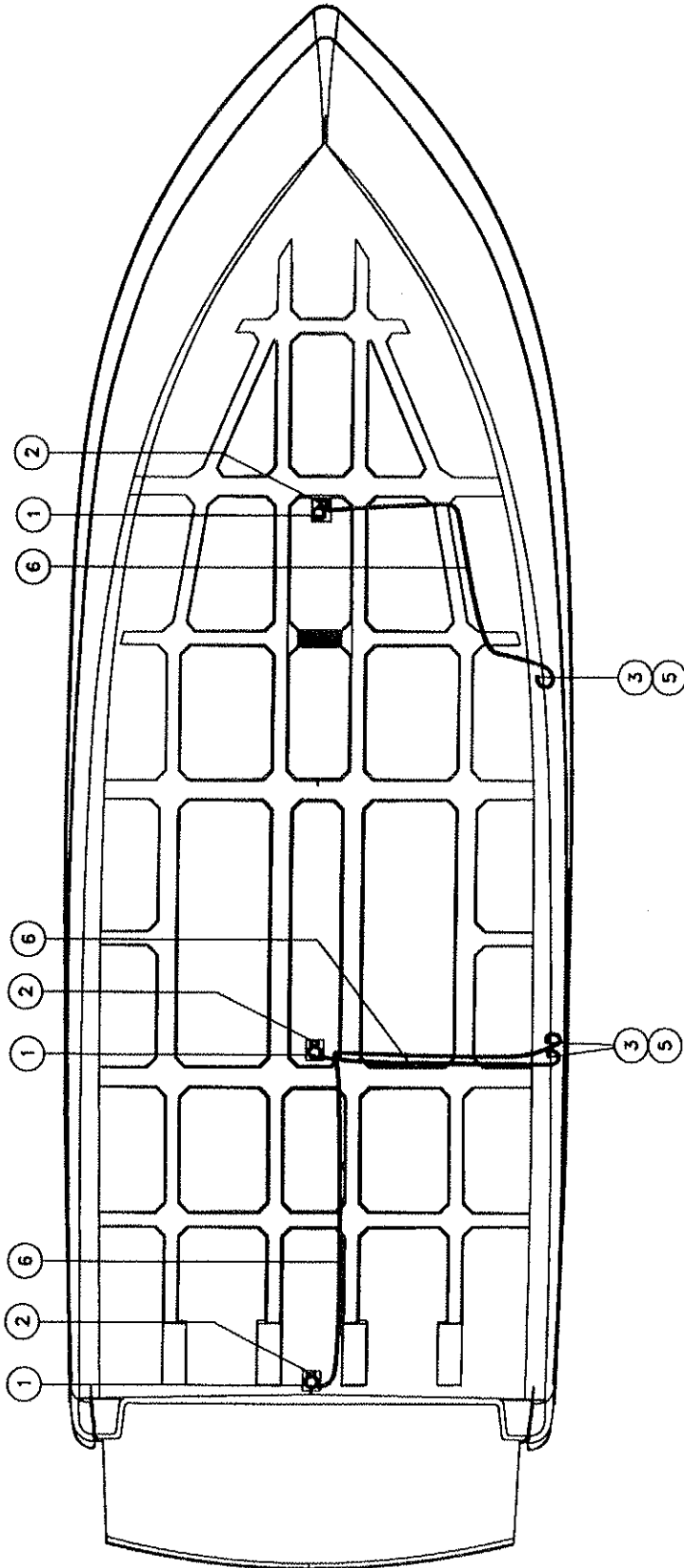
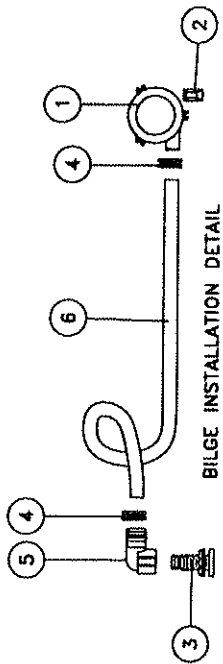
Bilge Pump Maintenance

Periodically inspect and clean the bilge pump strainers. DO NOT allow dirt and debris to clog the intakes of the bilge pumps. Frequently check the operation of each bilge pump switch to ensure that they are operating properly.

POWERING THE INTERNAL SYSTEMS

BILGE SYSTEM LAYOUT

ITEM	QTY	DESCRIPTION	PART NO	OPT
1	3	PUMP: BILGE	6500100	STD
2	3	SW: RULE-A-MATIC AUTOMATIC	6500400	STD
3	3	THRU HULL: 1 1/8 OR 1 1/4	7103800	STD
4	12	CLAMP: HOSE #20	7500500	STD
5	3	ELB: 1 1/4FPT x 1"HB	7427902	STD
6	1	HOSE: BILGE FLEX KING 1 1/8 BLK	7510000	STD



POWERING THE INTERNAL SYSTEMS

SANITATION SYSTEM

Your 500 COCKPIT is equipped with a self-contained sanitation holding system that, when properly used, conforms to all United States antipollution laws.

Waste Holding Tanks

The 500 COCKPIT utilizes two 40 gallon waste holding tanks. These tanks are made of molded polyethylene and are installed below the cabin floor. Refer to the **Vacu-Flush Head System** illustration found later in this section for the location of the waste holding tanks.

A deodorizing chemical must be added to your waste holding tanks before they are used. This chemical should also be used after every pump-out. Use the deodorizer recommended by your Carver Dealer and follow the directions supplied by the manufacturer of the product.

CAUTION

DO NOT overfill your boat's waste holding tanks. When a tank becomes full do not use the head until you have emptied the holding tank. Overfilling a waste tank could plug the vent or allow its contents to back up in the system.

Emptying The Waste Holding Tanks

- 1) Locate a dockside pump-out station.
- 2) Remove the deck fitting cap labeled "WASTE" using the cap removal tool supplied with your boat. The waste cap is located on the starboard beam of your boat near midship. Refer to the **Fill Plate/Pumpout Locations** portion of **Section 9** for the waste cap location.
- 3) Attach the pump-out vacuum hose to an open "WASTE" deck plate. The transfer process uses a vacuum action making a secure connection between the transfer hose and the deck fitting essential.
- 4) Locate 'Y' valves on the starboard stringer in the engine compartment entrance immediately under the stairs. The forward valve selects the forward or aft tank. The aft valve selects deck fittings or overboard discharge if the boat is so equipped.

NOTE: only one tank can be pumped at a time.

- 5) Activating the pump-out vacuum will transfer onboard waste to a dockside holding station.

POWERING THE INTERNAL SYSTEMS

- 6) After all waste is removed we suggest filling the waste tank through the deck plate with a few gallons of fresh water. Attach the activated vacuum hose to the deck fitting and remove the water used for flushing.
- 7) Select the remaining tank by repeating step #4 and choosing the other tank.

A TIP FROM CARVER: *"The cap for the WASTE deck plate IS NOT connected to the deck plate and it does not float. Be careful that you don't drop the cap in the water when you remove it. But, if you do lose one you can order a replacement cap (Carver part number 62006-01) from your Carver Dealer. Waste fitting caps are dropped overboard frequently enough that we suggest you carry an extra cap in your onboard spare parts kit."*

Each holding tank is vented to the outside of the boat's hull. As the tank is filled, air is displaced and vented outside the boat. Refer to the **Above the Waterline Thru-Hull Fittings** portion of **Section 9** for the exact location of the waste tank vent.

Heads

Crown Electric Head

The Crown electric head is flushed with the aid of a motor powered by 12 volt DC power.

Operate the Crown electric head by turning the battery selector switch to the #1 or #2 position. Switch the 12 volt MAIN circuit breaker located in the 12 volt circuit breaker panel to the "ON" position. Breakers labeled HEAD are mounted on the 12 volt electrical panel. These breakers must be in the "ON" position before using the Crown electric heads. Flush the Crown electric head by pressing the button mounted near the head. The head will continue to flush for as long as the switch is depressed. Your boat may have either fresh water or raw water flushing.

An attractive feature of the Crown head is that it is capable of dispersing deodorizing fluid every time the head is flushed. To do this you need to be sure that the deodorant reservoir is filled with an adequate supply of deodorizer.

Refer to the materials supplied by the manufacturer of the Crown electric head for more information on using and maintaining the head unit.

Vacu-Flush Head

The Vacu-Flush head uses a combination of vacuum suction and water flow to clear the head of waste. Vacu-Flush heads draw water from the boat's fresh water system.

Before using the Vacu-Flush head turn the 12 volt MAIN breaker and the 12 volt breakers labeled HEAD, ELECTRIC, FWD, AFT to the "ON" position. The head can be flushed by pushing down on the lever on the toilet. Refer to the materials supplied by the manufacturer of the Vacu-Flush head for more information on its use and operation.

POWERING THE INTERNAL SYSTEMS

A FEW TIPS FROM CARVER: *"Before leaving the boat for an extended period (more than 48 hours) flush the head for at least 10 seconds. This ensures that waste has cleared the sanitation transfer hose and has entered the holding tank. Waste left within the transfer hose tends to dry-out and harden. This could restrict the internal size of the hose and hamper future operation.*

"Make sure that there is always a small amount of water left in the bowl of the head. This acts as a trap and will reduce unwanted odors.

"Sea water is used to flush Crown electric heads. Material suspended in sea water (sea-weed, aquatic organisms, etc.) can become trapped within the passages of the system and lead to bowl staining and unwanted odors. In-line deodorant dispensers are available from your marine supply dealer that will minimize these types of problems."

POWERING THE INTERNAL SYSTEMS

OPTIONAL SANITATION SYSTEMS

Grey Water System

Design And Purpose

Certain areas of the United States and Europe have initiated antipollution regulations that require the installation of a grey water waste system. This system drains all sink and shower drain water into onboard holding tanks, rather than directly overboard.

If your boat is equipped with grey water system, galley sinks and equipment to drain into the Fore and aft waste holding tanks that double as grey water tanks. The fore and aft heads drain into these tanks respectively. The forward head compartment sink, shower and galley sink drain into the forward waste tank. The aft shower and head compartment sink drain into the aft waste tank. Sink and shower water drains into a sump which then transfers the drain water into the waste tanks. Holding tank deodorizer should be used within each waste tank between pump-outs.



WARNING

DO NOT overfill the grey water or waste holding tanks. Monitor the level of fluid within the tanks and empty them when they become full. Overfilling could clog the vent or rupture the tank.

Overboard Discharge

In certain coastal areas of the world it is lawful to directly discharge waste into the sea. To accommodate this procedure Carver offers three overboard discharge options.

Overboard discharge is available on boats that will be exported or used in the coastal areas of the United States only. Overboard discharge allows the owner of a 500 COCKPIT to use the onboard holding tanks or discharge directly overboard and bypassing the holding tanks.



WARNING

It is against the law to discharge waste overboard in many areas of the United States. It is your responsibility to make sure that you are in compliance with Federal and local laws when using your boat's overboard discharge system. People who discharge waste overboard in restricted areas are subject to sizable penalties.

POWERING THE INTERNAL SYSTEMS

Sanitation systems equipped with overboard discharge can be used in any of the following ways:

Dock side Discharge

Waste is pumped into and stored within the two 40 gallon waste holding tanks. Tanks are then emptied using a dockside waste pump-out facility.

- 1) Locate the forward head's 3-way valve in the forward center area of the engine compartment. The discharge side of this valve is labeled "WASTE HOLDING" and "OVERBOARD DISCHARGE." Turn the valve handle to the "WASTE HOLDING" position.
- 2) Locate the aft head's 3-way valve under the aft floor hatch on the starboard side of the master stateroom berth. This valve is also labeled "WASTE HOLDING" and "OVERBOARD DISCHARGE." Turn the valve handle to the "WASTE HOLDING" position.
- 3) Positioning the 3-way valves in this manner diverts all waste to the waste holding tanks. Refer to the **Sanitation system** portion of **Section 4** for instructions on how to empty the holding tanks using a dockside pump-out station.

Direct Overboard Discharge

Waste is pumped directly overboard whenever the head is flushed, bypassing the waste holding tank.

- 1) Locate and open the overboard discharge thru-hull valves. The valve for the forward tank is located in the forward center area of the engine compartment, near the water heater. The valve for the aft tank is located under the aft cabin floor hatch on the starboard side of the master stateroom berth.
- 2) Position the handles of both 3-way valves so that they point toward the side labeled "OVERBOARD DISCHARGE."
- 3) Flushing the head bypasses the holding tank and immediately transfers waste directly overboard.

NOTE: There are certain restrictions governed by Federal laws regarding when your sanitation system can be used in the above described manner. Consult your local authorities concerning these restrictions.

POWERING THE INTERNAL SYSTEMS

Overboard Discharge

Waste is transferred to and stored in the 40 gallon waste holding tanks. These tanks are then emptied overboard through the use of an onboard 12 volt transfer pump.

- 1) Position the forward and aft 3-way valves so their handles are in the "WASTE HOLDING" position. This will divert all waste into the waste holding tanks.
- 2) To empty the holding tanks overboard, open the overboard discharge thru-hull valves.
- 3) To empty the forward waste tank, turn "ON" the 12 volt MAIN circuit breaker and the breaker labeled WASTE TREATMENT, FWD. Locate the overboard discharge switch which is mounted near the forward overboard discharge pump in the aft center of the forward bilge. This is a push/pull switch. Pull the switch knob to turn "ON" the overboard discharge pump.
- 4) To empty the aft waste tank, turn "ON" the breaker labeled WASTE TREATMENT, AFT. Locate the overboard discharge switch which is mounted near the aft overboard discharge pump in the starboard area of the engine compartment.

Using the sanitation system in this manner allows you to utilize the 40 gallon waste holding tanks when in restricted discharge areas. When the boat enters an unrestricted area, you can then empty the tanks using the onboard transfer pumps.

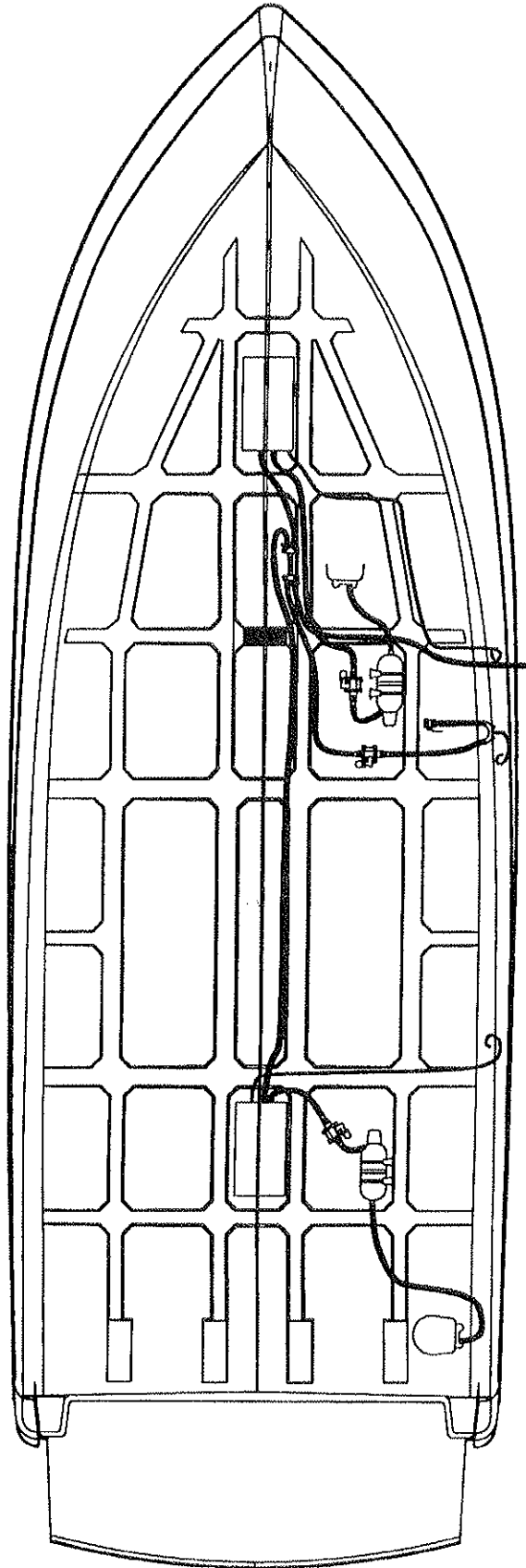
WARNING

DO NOT run an overboard discharge transfer pump for an extended period after waste has been transferred from the tank. Letting this pump run when dry will damage the pump.

A TIP FROM CARVER: *"The overboard discharge system incorporates a good deal of sanitation hose and numerous sanitation components. If waste is permitted to remain within the sanitation hose for extended periods it may dry out and harden. This will reduce the interior size of the hose and reduce the efficiency of the system. We suggest you clear the lines by flushing each head for at least 10 seconds prior to leaving the boat for an extended period (48 hours or more). Also, when using the system in the direct overboard or overboard transfer mode, allow the head to flush or the transfer pump to run long enough to clear the sanitation hose of all waste."*

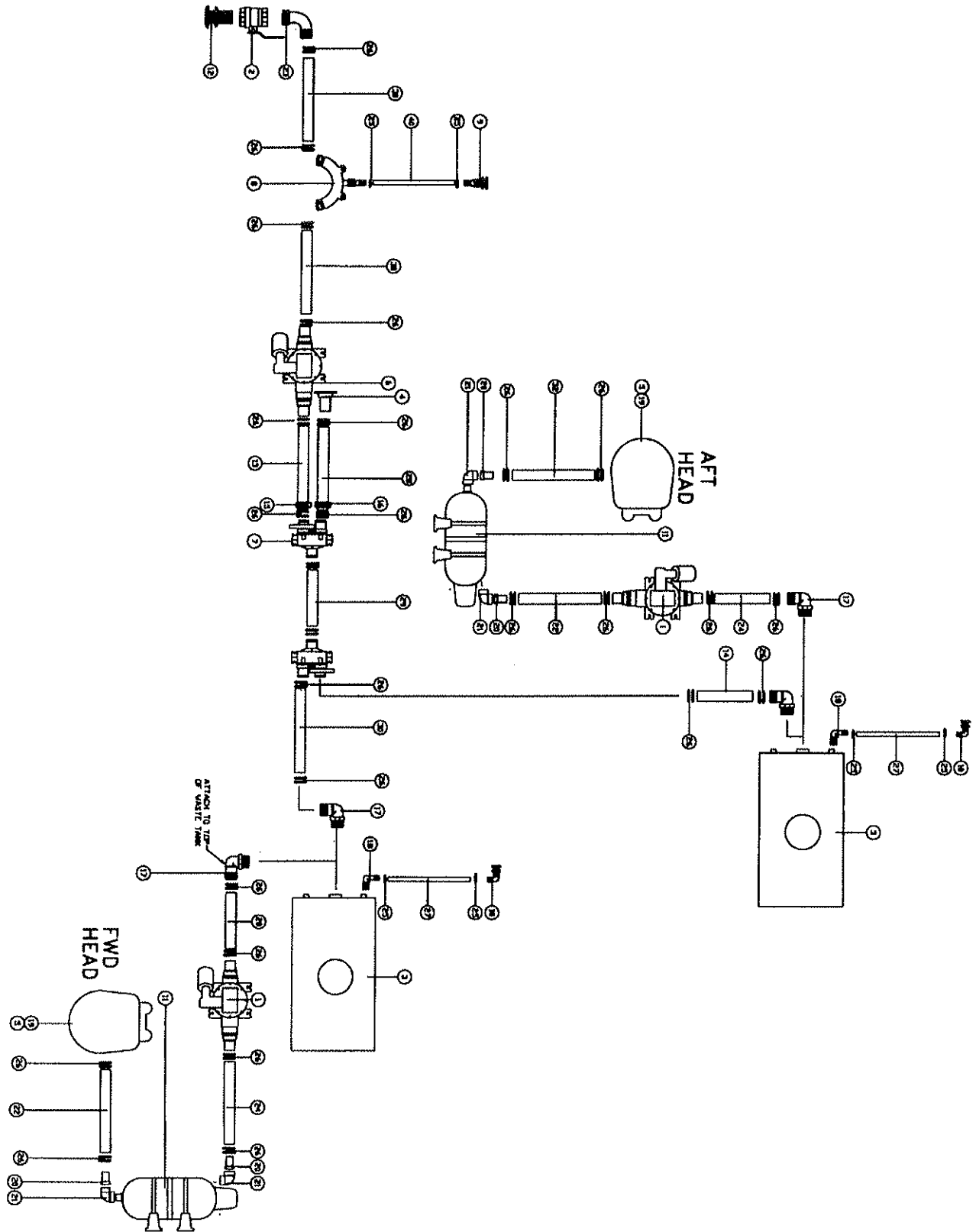
POWERING THE INTERNAL SYSTEMS

Vac-U-Flush Head System



POWERING THE INTERNAL SYSTEMS

Vac-U-Flush Head System



POWERING THE INTERNAL SYSTEMS

Vac-U-Flush Head System

ITEM	QTY	DESCRIPTION	PART NO	OPTION
1	2	PUMP: VACUUM 12V DC	6208800	142=Y
2	1	VALVE: BALL 1 1/2" W/O DRAIN	5131800	160,162,163=Y
3	2	TANK: WASTE 43 GAL	6109900	STD,162,163=Y
4	1	PLT: DECK WASTE FITTING	6217100	STD,162,163=Y
5	2	HEAD: CROWN	6207000	HEAD=143
6	1	PUMP: T-SERIES DISCHARGE	6206800	162,163=Y
7	2	VALVE: 3 WAY 1-1/2" UNIDIR	6211400	162,163=Y
8	1	LOOP: VENTED 1-1/2" W/5/8"	6211500	160,162,163=Y
9	1	THRU HULL: 5/8 WHITE	7408200	160,162,163=Y
10	2	THRU HULL: 5/8 WHITE	7408200	STD,162,163=Y
11	2	TANK: VACUUM SEALAND	6215800	142=Y
12	1	THRU HULL: 1-1/2" BRONZE	7109500	162,163=Y
13	1	HOSE: 1 1/2" x 8' HD VACUUM	A0000092	142=Y
14	1	HOSE: 1 1/2" x 21' HD VACUUM	B0003179	STD,162=Y
15	1	LABEL: DIRECT OB DSCHG	7143500	162,163=Y
16	1	LABEL: DECK DISCHARGE	7143600	162,163=Y
17	4	FIT: 90 1 1/2HB x 1 1/2MPT PW N	7403900	STD,162,163=Y
18	2	FIT: 90 1/2HB x 1/2MPT PW NYLON	7411000	STD,162,163=Y
19	2	HEAD: RARITAN P.H.	6201000	HEAD=STD
20	4	FIT: 1 1/2HB x 1 1/2MS PVC	7416300	142=Y
21	4	FIT: 90 1 1/2FS x 1 1/2MS, DM	7416500	142=Y
22	2	HOSE: 1 1/2" x 3' HD VACUUM	A0004242	142=Y
23	1	FIT: 1 1/2PT x 1 1/2HS BRB 90DE	7419700	160,162,163=Y
24	2	HOSE: 1 1/2" x 2' HD VACUUM	A0004904	142=Y
25	6	CLAMP: HOSE #8	7500200	STD
26	52	CLAMP: HOSE #28	7500600	STD
27	2	HOSE: BILGE EX HD 5/8" x 13'	7509700	STD,162,163=Y
28	2	HOSE: 1 1/2" x 10' HD VACUUM	A0000083	142=Y
29	1	HOSE: 1 1/2" x 6" HD VACUUM	A0001236	162,163=Y
30	3	HOSE: 1 1/2" x 6' HD VACUUM	A0000084	163=Y
31	8	ANGL: AL 1/8x1 1/2x1 1/2 60	8384907	STD

POWERING THE INTERNAL SYSTEMS

Vac-U-Flush Overboard Discharge

Vac-U-Flush overboard discharge is available on boats with Vac-U-Flush heads which will be exported or used in the coastal areas of the United States only. Vac-U-Flush overboard discharge permits the owner of a 500 COCKPIT to use the onboard holding tanks and then to empty the tanks using a dockside waste facility or by discharging waste overboard from the holding tanks.

Sanitation systems equipped with overboard discharge can be used in any of the following ways:

Overboard Discharge

Waste is transferred to and stored in the 40 gallon waste holding tanks. These tanks are then emptied overboard through the use of an onboard 12 volt transfer pump.

- 1) Locate and open the overboard discharge thru-hull valve. The valve is located forward of the starboard engine.
- 2) Locate the 3-way valve. To empty the forward waste tank, turn the valve handle forward.
- 3) Turn "ON" the 12 volt MAIN breaker and the breaker labeled WASTE TREATMENT, FWD. Locate the overboard discharge switch which is mounted near the overboard discharge pump. This is a push/pull switch. Pull the switch knob to turn on the overboard discharge pump.
- 4) To empty the aft waste tank, turn the 3-way valve handle aft and repeat the process.

Using the sanitation system in this manner allows you to utilize the 40 gallon waste holding tanks when in restricted discharge areas. You can then empty the tanks using the onboard transfer pump when the boat enters an unrestricted area.

